Appendix 19-2

Pre-construction Sound Level Measurement Program

TRELINA SOLAR ENERGY CENTER

PRE-CONSTRUCTION SOUND LEVEL MEASUREMENT PROGRAM

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1.0 BASELINE SOUND LEVEL MONITORING PROGRAM

To characterize the existing soundscape of the Project area, an ambient (baseline) monitoring program was conducted in accordance with the NYS Article 10 Exhibit 19 requirements and the Project's understanding of the required DPS scope of studies. This section outlines the structure of the ambient program.

1.1 Sensitive Receptors

All residences [including participating, non-participating, full-time and seasonal], outdoor public facilities and areas, State Forest Lands, places of worship, hospitals, schools, cemeteries, campsites, summer camps, Public Parks, Federal and NY State Lands, any of these within one mile of the solar project were included as sensitive receptors. Seasonal receptors included cabins and hunting camps identified by property tax codes and any other seasonal residence known to have septic systems or running water. All sensitive receptors are shown in Figure 19-1 of the Exhibit 19 Noise and Vibration document in accordance with the Project's understanding of the required DPS scope of studies.

1.2 Sound Level Measurement Locations

In accordance with ANSI S12.9-1992/Part 2 (R2013), the deterministic spatial sampling technique was used to select measurement locations. In other words, sound monitoring locations were selected to be representative of nearby residences in various directions from the solar project. Thus, the selected locations are representative of potentially impacted receptors. The program was intended to measure total ambient sound in the area which includes all noise sources.

Two sound level measurement programs were conducted; one during the winter season ("leaf-off"), and one in summer ("leaf-on"). Figure 1-1 shows the measurement locations for the measurement program. The ambient measurement locations are representative of the general vicinity of the Project. Each sound level monitoring location is described in the following subsections.

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LEGEND

- Baseline Sound Monitoring Location
- Inverter Pads
- Year-Round Residence
- Seasonal Residence
- Unknown
- Substation
- Switchyard
- Laydown Areas
- Solar Arrays
- Project Boundary
- Town Boundary
- County Boundary
- State Route
- County Road

Scale 1:28,800
1 inch = 2,400 feet

0 1,200 2,400 Feet

Basemap: Bing Aerial Imagery

Trelina Solar Seneca County, New York

Epsilon Associates Inc.

Figure 1-1
Baseline Sound Monitoring Locations

The coordinates for the sound level measurement locations are listed in Table 1-1, which were slightly adjusted as needed from the field-measured Global Positioning System (GPS) points for refined accuracy.

Table 1-1 GPS Coordinates – Sound Level Measurement Locations

Location	Latitude	Longitude
Location 1	42.9045°	-76.9564°
Location 2	42.9004°	-76.9482°
Location 3	42.8959°	-76.9283°
Location 4	42.8946°	-76.9631°
Location 5	42.8875°	-76.9510°

1.2.1 Location 1—County Road 112

One continuous programmable, unattended sound level meter was placed near County Road 112 in the Town of Waterloo. The meter was placed approximately 75 feet south of the road near a crop field and a lightly brushed area. This location is representative of existing sound levels in the northern area of the project site and along County Road 112. Refer to Figures 1-2 and 1-3 for a photo of the monitoring setup during the summer and winter seasons, respectively.

The meter continuously measured and stored broadband (A-weighted) and one-third octave band sound level statistics during the summer season from 10:20 a.m. Wednesday, September 11, 2019 until 9:20 a.m. on Wednesday, September 18, 2019. In total, 1003 10-minute measurement periods were recorded during the summer measurement program.

The meter continuously measured and stored broadband (A-weighted) and one-third octave band sound level statistics during the winter season from 12:20 p.m. on Tuesday, January 21, 2020 until 10:20 a.m. on Wednesday, January 29, 2020. In total, 1141 10-minute measurement periods were recorded during the winter measurement program.

Figure 1-2 Location 1, Sound Level Meter, Summer

Figure 1-3 Location 1, Sound Level Meter, Winter

1.2.2 Location 2—Serven Road

One continuous programmable, unattended sound level meter was placed near Serven Road in the Town of Waterloo. The meter was placed approximately 50 feet east of the road and is representative of existing sound levels in the central area of the Project Site and along Serven Road. Refer to Figures 1-4 and 1-5 for a photo of the monitoring setup during the summer and winter seasons, respectively.

The meter continuously measured and stored broadband (A-weighted) and one-third octave band sound level statistics during the summer season from 2:10 p.m. Tuesday, September 10, 2019 until 10:10 a.m. on Wednesday, September 18, 2019. In total, 1129 10-minute measurement periods were recorded during the summer measurement program.

The meter continuously measured and stored broadband (A-weighted) and one-third octave band sound level statistics during the winter season from 12:20 p.m. on Tuesday, January 21, 2020 until 10:40 a.m. on Wednesday, January 29, 2020. In total, 1143 10-minute measurement periods were recorded during the winter measurement program.

Figure 1-4 Location 2 - Summer, Sound Level Meter

Figure 1-5 Location 2 - Winter, Sound Level Meter

1.2.3 Location 3 – County Road 112

One continuous programmable, unattended sound level meter was placed near County Road 112 (Packwood Road) in the Town of Waterloo. The meter was placed approximately 75 feet south of the road and is representative of existing sound levels in the eastern area of the Project Site and along County Road 112. Refer to Figures 1-6 and 1-7 for a photo of the monitoring setup during the summer and winter seasons, respectively.

The meter continuously measured and stored broadband (A-weighted) and one-third octave band sound level statistics during the summer season from 2:40 p.m. Tuesday, September 10, 2019 until 10:10 a.m. on Wednesday, September 18, 2019. In total, 1126 10-minute measurement periods were recorded during the summer measurement program.

The meter continuously measured and stored broadband (A-weighted) and one-third octave band sound level statistics during the winter season from 12:20 p.m. on Tuesday, January 21, 2020 until 11:10 a.m. on Wednesday, January 29, 2020. In total, 1146 10-minute measurement periods were recorded during the winter measurement program.

Figure 1-6 Location 3, Sound Level Meter, Summer

Figure 1-7 Location 3, Sound Level Meter, Winter

1.2.4 Location 4 – Pre Emption Street

One continuous programmable, unattended sound level meter was placed near Pre Emption Street in the Town of Waterloo. The meter was placed approximately 70 feet east of the road and is representative of existing sound levels in the western area of the Project Site and along Pre Emption Street. Refer to Figures 1-8 and 1-9 for a photo of the monitoring setup during the summer and winter seasons, respectively.

The meter continuously measured and stored broadband (A-weighted) and one-third octave band sound level statistics during the summer season from 11:40 a.m. Tuesday, September 10, 2019 until 9:40 a.m. on Wednesday, September 18, 2019. In total, 1141 10-minute measurement periods were recorded during the summer measurement program.

The meter continuously measured and stored broadband (A-weighted) and one-third octave band sound level statistics during the winter season from 12:20 p.m. on Tuesday, January 21, 2020 until 10:40 a.m. on Wednesday, January 29, 2020. In total, 1149 10-minute measurement periods were recorded during the winter measurement program.

Figure 1-8 Location 4, Sound Level Meter, Summer

Figure 1-9 Location 4, Sound Level Meter, Winter

1.2.5 Location 5 – Welch Road

One continuous programmable, unattended sound level meter was placed along Welch Road in the Town of Waterloo. The meter was placed approximately 50 feet east of the road and is representative of existing sound levels in the southern area of the Project Site and along Welch Road. Refer to Figures 1-10 and 1-11 for a photo of the monitoring setup during the summer season and winter season respectively.

The meter continuously measured and stored broadband (A-weighted) and one-third octave band sound level statistics during the summer season from 11:40 a.m. Tuesday, September 10, 2019 until 10:00 a.m. on Wednesday, September 18, 2019. In total, 1143 10-minute measurement periods were recorded during the summer measurement program.

The meter continuously measured and stored broadband (A-weighted) and one-third octave band sound level statistics during the winter season from 12:20 p.m. on Tuesday, January 21, 2020 until 12:00 p.m. on Wednesday, January 29, 2020. In total, 1151 10-minute measurement periods were recorded during the winter measurement program.

In addition to sound data collection, continuous ground-level wind speed data was collected at this location during both monitoring programs. The meteorological equipment setup during the summer season is shown in Figure 1-12.

Figure 1-10 Location 5, Sound Level Meter, Summer

Figure 1-11 Location 5, Sound Level Meter, Winter

Figure 1-12 Location 5- Summer, Meteorological Tower

1.3 Sound Level Measurement Instrumentation

Each of the monitoring locations used either a Larson Davis (LD) model 831[1] sound level meter (SLM), a Norsonic model Nor140[2] SLM, or a Brüel & Kjær (B&K) model Type 2250[3] to measure both A-weighted (dBA) and one third octave bands from 6.3Hz to 20,000Hz. Each instrument was equipped with a LD PRM 831 preamplifier and a PCB 377B20 or a PCB 377C20 half-inch microphone, a Norsonic Nor1290 preamplifier and a G.R.A.S 40AN half-inch microphone, or a B&K Type 4952 preamplifier and microphone along with an environmental protection kit. The kit included a manufacturer open cell wind screen to reduce wind-induced noise over the microphone. A peer-reviewed study presenting the windscreen insertion loss data by one-third octave band for each wind screen used in the background monitoring is provided in Appendix A. Since all measured sound level results are presented in terms of ANS weighting (see discussion in section 2.1), frequencies above 1250Hz are not included, and thus the minor microphone insertion losses at higher frequencies are not relevant.

Microphones were tripod-mounted at a height of approximately five feet (1.5 meters) above ground level in accordance with ANSI S12.9-1992/Part 2 (R2013). Horizontal microphone placements near roadways were in accordance with ANSI S12.9-1992/Part 2 (R2013) for open land.

The LD831, Nor140, and B&K 2250 meters meet Type 1 ANSI/ASA S1.4, ANSI S1.43-1997 (R2007), and IEC 61672 Class 1 standards for sound level meters and were calibrated and certified as accurate to standards set by the National Institute of Standards and Technology. The octave band filters for all instrumentation meet ANSI S1.11-2004 (R2009). These calibrations were conducted by an independent laboratory within 12 months of field placement and certificates of calibration are provided in Appendix B. All measurement equipment was calibrated in the field before and after the surveys with the manufacturer's acoustical calibrator which meets the standards of IEC 60942-2003 Class 1L and ANSI/ASA S1.40-2006 (R2016).

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[1] Noise floor specified in manufacturer's manual with use of PRM831 preamplifier and 377B02 microphone for A-weighted sound pressure levels is 18dBA at a 0dB gain and 17dBA at a 20dB gain. Noise floor specified for Z-weighted sound pressure levels is 23dBA at a 0dB gain and 21dBA at a 20dB gain.

[2] Noise floor specified in manufacturer's manual A-weighted sound pressure levels is 25dBA with self-noise of the SLM at 15dBA.

[3] Noise floor specified in manufacturer's manual A-weighted sound pressure levels is 17 dBA

1.4 Meteorological Instrumentation

1.4.1 Ground Level Winds

Wind speed can have a strong influence on ambient sound levels. In order to understand how the existing sound levels are influenced by wind speed, a HOBO H21-002 micro-weather station (manufactured by Onset Computer Corporation) with tripod and data logger was used to record continuous wind speed data at Location 5 during both seasons.

The HOBO wind instruments have a measurement range of 0 to 44 m/s (99 mph) or 0 to 45 m/s (100 mph) and an accuracy of +/- 0.5 m/s (1.1 mph) or +/- 1.1 m/s (2.4 mph). The starting threshold is 0.5 m/s (1.1 mph) or ≤1.0 m/s (2.2 mph).

1.4.2 Precipitation, Temperature, and Relative Humidity

Meteorological data from the New York State Mesonet system were used for both the winter and summer measurements. The New York State Mesonet consists of 125 state-of-the-art environmental monitoring stations and serves as the foundation of an Early Warning Severe Weather Detection network for the entire State of New York. The New York State Mesonet was developed by research scientists at the State University of New York (SUNY) at Albany's Atmospheric Sciences Research Center, and Department of Atmospheric and Environmental Sciences. Mesonet sites are distributed statewide with every county across New York having at least one or more sites. The Mesonet collects measurements of several surface and atmospheric variables, such as temperature, relative humidity, wind speed and direction, surface pressure, soil moisture, soil temperature, solar radiation, and precipitation amounts for rainfall and snow accumulation. These data are archived and available to the public.

The Waterloo Mesonet station is located approximately 5.9 miles East Southeast from the closest Trelina measurement location. This station is the closest to the Project site and was used for both the summer and winter measurement programs.

The SUNY Mesonet data from the Waterloo station is provided in Appendix C of this report.

1.5 Infrasound Monitoring

All monitoring locations were equipped to monitor infrasound as low as 6.3 Hz. Each meter collected continuous broadband and one-third octave-band ambient sound pressure level data. The meter logged data every 10-minutes with statistical data for the following parameters: $L_{eq,}$ L_{10}, L_{50}, L_{90}, L_{max}, and L_{min}. A one-second time history data collection using the "fast" response setting was also implemented.

2.0 BASELINE SOUND LEVEL MONITORING RESULTS

This chapter discusses the results from the detailed ambient (baseline) monitoring program outlined in the previous chapter. Specifically, the logic for data validity, and sound level result descriptions for the monitoring locations are explained.

2.1 Data Formatting Overview

Sound level data was collected at 10-minute intervals[4] at five strategically selected locations around the proposed solar energy project during both the summer and winter seasons. Monitoring periods that experienced elevated ground-level wind speeds or precipitation were excluded from the data analysis per Method #1 in ANSI S12.18-1994. According to this standard, "No sound level measurement shall be made when the average wind velocity exceeds 5 m/s when measured at a height of 2±0.2 m above the ground". In addition, "Measurement during precipitation […] is highly discouraged". Precipitation events identified at the SUNY MesoNet station in Waterloo, NY defined periods for which sound level data were excluded from the analysis for the summer and winter measurement programs.

The sound level equipment used in ambient monitoring have specifications regarding operative ranges under certain air conditions, e.g., temperature and relative humidity.[5,6] Data from the Waterloo MesoNet station was additionally referenced for the range exceedances during all measurement timeframes. Sound levels during these exceedances were excluded from further processing.

As per the Project's understanding of the required DPS scope of studies, intermittent noise was filtered by using the L_{90}. Seasonal noise was removed from the ambient sound level measurements regardless of season. A high-frequency natural sound (HFNS) filter was therefore applied to the measured one-third octave-band data from which a broadband sound level was calculated for both the summer and winter monitoring seasons. This technique removes all sound energy above the 1,250 Hertz frequency band. The methodology for the filtration process is as

[4] It should be noted that all sound level instrumentation data, ground level meteorological instrumentation data and on-site meteorological tower data records were time-correlated for appropriate alignment of monitoring periods.

[5] Periods measured outside the temperature range of 14°F to 122°F were considered invalid due to the Larson Davis Model 831 SLM and specifications.

[6] Periods measured outside the relative humidity range of 1 to 99% were considered invalid based on microphone specifications. The accuracy of sound levels measured with a Larson Davis Model 831 SLM outside the relative humidity range of 25% to 90% is unknown; however, the data are not considered invalid and are included in the data summaries. The same is relevant for sound levels measured with a Norsonic Nor140 SLM outside the range of 5% to 90% relative humidity and for the sound levels measured with a B&K 2250 outside the range of 0% to 90% relative humidity.

specified in ANSI/ASA S12.100-2014 and the sound pressure levels presented in this report using this methodology are indicated as ANS-weighted levels (presented in dBA). The calculated broadband ANS-weighted (dBA) average L_{eq} and L_{90} ambient sound levels are presented for the winter and summer seasons for each location in the following subsections.

As per the Exhibit 19 regulations 1001.19(f)(1) daytime is defined as the period from 7 a.m. to 10 p.m. Respectively, nighttime is defined as the period from 10 p.m. to 7 a.m. (1001.19(f)(2)).

2.2 Location 1 -- County Road 112

Sound levels at Location 1 were influenced by vehicular traffic, birds, insects, house pets, wind, wind turbines, vegetation rustle, occasional aircraft, and occasional train horns. Sound level-versus-time graphs are provided in this section. This includes L_{eq} and L_{90} sound pressure levels and ground-level wind speeds measured at Location 5. Data that were excluded from further analysis and calculations due to ground-level winds exceeding 5 m/s as recorded by the HOBO wind instrumentation at Location 5 for both seasons; or due to precipitation or instrumentation operative exceedances as recorded at the Waterloo MesoNet station is identified in the figures.

2.2.1 Summer Monitoring

The ranges of measured A-weighted sound levels during the summer season are summarized below and presented graphically in Figure 2-1. A total of 105 10-minute periods were excluded from the summer season. The resulting dataset includes a total of 898 10-minute periods of valid data.

- The valid steady-state level (L_{90}) measurements ranged from 28 to 54 dBA;
- The valid equivalent level (L_{eq}) measurements ranged from 32 to 63 dBA.

The ranges of calculated ANS-weighted sound levels during the summer season are summarized below.

- The valid, calculated steady-state (L_{90}) ANS-weighted broadband sound levels ranged from 16 to 50 dBA;
- The valid, calculated equivalent (L_{eq}) ANS-weighed broadband sound levels ranged from 19 to 61 dBA.

2.2.2 Winter Monitoring

The ranges of measured A-weighted sound levels during the winter season are summarized below and presented graphically in Figure 2-2. A total of 200 10-minute periods were excluded from the winter season. The resulting dataset includes a total of 941 10-minute periods of valid data.

- The valid steady-state level (L_{90}) measurements ranged from 22 to 48 dBA;

- The valid equivalent level (L_{eq}) measurements ranged from 24 to 59 dBA.

The ranges of calculated ANS-weighted sound levels during the winter season are summarized below.

- The valid, calculated steady-state (L_{90}) ANS-weighted broadband sound levels ranged from 21 to 47 dBA;
- The valid, calculated equivalent (L_{eq}) ANS-weighed broadband sound levels ranged from 24 to 58 dBA.

2.2.3 Spectral Sound Level Data

In addition to broadband sound levels, spectral sound level data were measured during each 10-minute period at Location 1 for both the winter and summer measurement periods. Using only valid measurement periods, octave-band and one-third octave-band data are summarized in Figures 2-3 and 2-4, respectively, as logarithmic averages of the equivalent (L_{eq}) sound levels; separated by daytime and nighttime. Octave-band levels are displayed from 16 Hz to 16,000 Hz in Figure 2-3 for both L_{eq} and L_{90}. The one-third octave-band data in Figure 2-4 span the frequencies from 16 Hz to 16,000 Hz and were analyzed for prominent discrete tones[7]. Prominent discrete tones were present at the 2000 Hz and 4000 Hz bands for the summer nighttime measurement period. This is likely due to insect activity.

2.3 Location 2 – Serven Road

Sound levels at Location 2 were influenced by vehicular traffic, birds, insects, wind, distant wind turbines, vegetation rustle and occasional trains. Sound level-versus-time graphs are provided in this section. This includes L_{eq} and L_{90} sound pressure levels and ground-level wind speeds measured at Location 5. Data that were excluded from further analysis and calculations due to ground-level winds exceeding 5 m/s as recorded by the HOBO wind instrumentation at Location 5 for both seasons; or due to precipitation or instrumentation operative exceedances as recorded at the Waterloo MesoNet station is identified in the figures.

2.3.1 Summer Monitoring

The ranges of measured A-weighted sound levels during the summer season are summarized below and presented graphically in Figure 2-5. A total of 116 10-minute periods were excluded from the summer season. The resulting dataset includes a total of 1013 10-minute periods of valid data.

- The valid steady-state level (L_{90}) measurements ranged from 27 to 51 dBA;

[7] Prominent discrete tones as defined by the ANSI S12.9 Part 3 standard. The lowest frequency in the Annex B.1 tone test is 25 Hz. 20 Hz data are presented for informational purposes.

- The valid equivalent level (L_{eq}) measurements ranged from 30 to 63 dBA.

The ranges of calculated ANS-weighted sound levels during the summer season are summarized below.

- The valid, calculated steady-state (L_{90}) ANS-weighted broadband sound levels ranged from 15 to 49 dBA;

- The valid, calculated equivalent (L_{eq}) ANS-weighed broadband sound levels ranged from 21 to 62 dBA.

2.3.2 Winter Monitoring

The ranges of measured A-weighted sound levels during the winter season are summarized below and presented graphically in Figure 2-6. A total of 200 10-minute periods were excluded from the winter season. The resulting dataset includes a total of 943 10-minute periods of valid data.

- The valid steady-state level (L_{90}) measurements ranged from 23 to 55 dBA;

- The valid equivalent level (L_{eq}) measurements ranged from 25 to 64 dBA.

The ranges of calculated ANS-weighted sound levels during the winter season are summarized below.

- The valid, calculated steady-state (L_{90}) ANS-weighted broadband sound levels ranged from 22 to 53 dBA;

- The valid, calculated equivalent (L_{eq}) ANS-weighed broadband sound levels ranged from 25 to 63 dBA.

2.3.3 Spectral Sound Level Data

In addition to broadband sound levels, spectral sound level data were measured during each 10-minute period at Location 2. Using only valid measurement periods, octave-band and one-third octave-band data are summarized in Figures 2-7 and 2-8, respectively, as logarithmic averages of the equivalent (L_{eq}) sound levels; separated by daytime and nighttime. Octave-band levels are displayed from 16 Hz to 16,000 Hz in Figure 2-7 for both L_{eq} and L_{90}. The one-third octave-band data in Figure 2-8 span the frequencies from 16 Hz to 16,000 Hz and were analyzed for prominent discrete tones[8]. Prominent discrete tones were present at the 2000 Hz and 4000 Hz bands for the summer nighttime measurement period. This is likely due to insect activity.

[8] Prominent discrete tones as defined by the ANSI S12.9 Part 3 standard. The lowest frequency in the Annex B.1 tone test is 25 Hz. 20 Hz data are presented for informational purposes.

2.4 Location 3 – County Road 112

Sound levels at Location 3 were influenced by vehicular traffic, birds, insects, wind, distant wind turbines, vegetation rustle, and occasional trains. Sound level-versus-time graphs are provided in this section. This includes L_{eq} and L_{90} sound pressure levels and ground-level wind speeds measured at Location 5. Data that were excluded from further analysis and calculations due to ground-level winds exceeding 5 m/s as recorded by the HOBO instrumentation at Location 5 for both seasons; or due to precipitation or instrumentation operative exceedances as recorded at the Waterloo MesoNet station is identified in the figures.

2.4.1 Summer Monitoring

The ranges of measured A-weighted sound levels during the summer season are summarized below and presented graphically in Figure 2-9. A total of 116 10-minute periods were excluded from the summer season. The resulting dataset includes a total of 1010 10-minute periods of valid data.

- The valid steady-state level (L_{90}) measurements ranged from 30 to 52 dBA;
- The valid equivalent level (L_{eq}) measurements ranged from 34 to 64 dBA.

The ranges of calculated ANS-weighted sound levels during the summer season are summarized below.

- The valid, calculated steady-state (L_{90}) ANS-weighted broadband sound levels ranged from 15 to 49 dBA;
- The valid, calculated equivalent (L_{eq}) ANS-weighed broadband sound levels ranged from 20 to 62 dBA.

2.4.2 Winter Monitoring

The ranges of measured A-weighted sound levels during the winter season are summarized below and presented graphically in Figure 2-10. A total of 200 10-minute periods were excluded from the winter season. The resulting dataset includes a total of 946 10-minute periods of valid data.

- The valid steady-state level (L_{90}) measurements ranged from 19 to 44 dBA;
- The valid equivalent level (L_{eq}) measurements ranged from 21 to 62 dBA.

The ranges of calculated ANS-weighted sound levels during the winter season are summarized below.

- The valid, calculated steady-state (L_{90}) ANS-weighted broadband sound levels ranged from 15 to 43 dBA;

- The valid, calculated equivalent (L_{eq}) ANS-weighed broadband sound levels ranged from 20 to 60 dBA.

2.4.3 Spectral Sound Level Data

In addition to broadband sound levels, spectral sound level data were measured during each 10-minute period at Location 3. Using only valid measurement periods, octave-band and one-third octave-band data are summarized in Figures 2-11 and 2-12, respectively, as logarithmic averages of the equivalent (L_{eq}) sound levels; separated by daytime and nighttime. Octave-band levels are displayed from 16 Hz to 16,000 Hz in Figure 2-11 for both L_{eq} and $L_{90.}$ The one-third octave-band data in Figure 2-12 span the frequencies from 16 Hz to 16,000 Hz and were analyzed for prominent discrete tones[9]. Prominent discrete tones were present at the 4000 Hz band for the summer nighttime measurement period. Prominent discrete tones were also detected at 8,000 Hz for the summer daytime measurement period. These are likely due to bird and insect activity.

2.5 Location 4 – Pre Emption Street

Sound levels at the Location 4 monitor were influenced by vehicular traffic, music, birds, insects, wind, wind turbines, vegetation/tree rustling, occasional aircraft, and occasional trains. Sound level-versus-time graphs are provided in this section. This includes L_{eq} and L_{90} sound pressure levels and ground-level wind speeds measured at Location 5. Data that were excluded from further analysis and calculations due to ground-level winds exceeding 5 m/s as recorded by the HOBO wind instrumentation at Location 5 for both seasons; or due to precipitation or instrumentation operative exceedances as recorded at the Waterloo MesoNet station is identified in the figures.

2.5.1 Summer Monitoring

The ranges of measured A-weighted sound levels during the summer season are summarized below and presented graphically in Figure 2-13. A total of 116 10-minute periods were excluded from the summer season. The resulting dataset includes a total of 1025 10-minute periods of valid data.

- The valid steady-state level (L_{90}) measurements ranged from 35 to 56 dBA;
- The valid equivalent level (L_{eq}) measurements ranged from 39 to 64 dBA.

[9] Prominent discrete tones as defined by the ANSI S12.9 Part 3 standard. The lowest frequency in the Annex B.1 tone test is 25 Hz. 20 Hz data are presented for informational purposes.

The ranges of calculated ANS-weighted sound levels during the summer season are summarized below.

- The valid, calculated steady-state (L_{90}) ANS-weighted broadband sound levels ranged from 18 to 53 dBA;
- The valid, calculated equivalent (L_{eq}) ANS-weighed broadband sound levels ranged from 22 to 63 dBA.

2.5.2 Winter Monitoring

The ranges of measured A-weighted sound levels during the winter season are summarized below and presented graphically in Figure 2-14. A total of 200 10-minute periods were excluded from the winter season. The resulting dataset includes a total of 949 10-minute periods of valid data.

- The valid steady-state level (L_{90}) measurements ranged from 25 to 44 dBA;
- The valid equivalent level (L_{eq}) measurements ranged from 27 to 67 dBA.

The ranges of calculated ANS-weighted sound levels during the winter season are summarized below.

- The valid, calculated steady-state (L_{90}) ANS-weighted broadband sound levels ranged from 24 to 44 dBA;
- The valid, calculated equivalent (L_{eq}) ANS-weighed broadband sound levels ranged from 26 to 66 dBA.

2.5.3 Spectral Sound Level Data

In addition to broadband sound levels, spectral sound level data were measured during each 10-minute period at Location 4. Using only valid measurement periods, octave-band and one-third octave-band data are summarized in Figures 2-15 and 2-16, respectively, as logarithmic averages of the equivalent (L_{eq}) sound levels; separated by daytime and nighttime. Octave-band levels are displayed from 16 Hz to 16,000 Hz in Figure 2-15 for both L_{eq} and L_{90}. The one-third octave-band data in Figure 2-16 span the frequencies from 16 Hz to 16,000 Hz and were analyzed for prominent discrete tones[10]. Prominent discrete tones were present at the 2000 Hz and 4000 Hz bands for the summer nighttime measurement period. Prominent discrete tones were also detected at 8,000 Hz for the summer daytime measurement period. These are likely due to bird and insect activity.

[10] Prominent discrete tones as defined by the ANSI S12.9 Part 3 standard. The lowest frequency in the Annex B.1 tone test is 25 Hz. 20 Hz data are presented for informational purposes.

2.6 Location 5 – Welch Road

Sound levels at the Location 5 monitor were influenced by vehicular traffic, birds, insects, wind, wind turbines, vegetation rustle, occasional aircraft, and occasional train horns. Sound level-versus-time graphs are provided in this section. This includes L_{eq} and L_{90} sound pressure levels and ground-level wind speeds measured at Location 5. Data that were excluded from further analysis and calculations due to ground-level winds exceeding 5 m/s as recorded by the HOBO wind instrumentation at Location 5 for both seasons; or due to precipitation and instrumentation operative exceedances as recorded at the Waterloo MesoNet station is identified in the figures.

2.6.1 Summer Monitoring

The ranges of measured A-weighted sound levels during the summer season are summarized below and presented graphically in Figure 2-17. A total of 116 10-minute periods were excluded from the summer season. The resulting dataset includes a total of 1027 10-minute periods of valid data.

- The valid steady-state level (L_{90}) measurements ranged from 37 to 54 dBA;
- The valid equivalent level (L_{eq}) measurements ranged from 38 to 65 dBA.

The ranges of calculated ANS-weighted sound levels during the summer season are summarized below.

- The valid, calculated steady-state (L_{90}) ANS-weighted broadband sound levels ranged from 17 to 50 dBA;
- The valid, calculated equivalent (L_{eq}) ANS-weighed broadband sound levels ranged from 20 to 63 dBA.

2.6.2 Winter Monitoring

The ranges of measured A-weighted sound levels during the winter season are summarized below and presented graphically in Figure 2-18. A total of 200 10-minute periods were excluded from the winter season. The resulting dataset includes a total of 951 10-minute periods of valid data.

- The valid steady-state level (L_{90}) measurements ranged from 25 to 60 dBA;
- The valid equivalent level (L_{eq}) measurements ranged from 26 to 76 dBA.

The ranges of calculated ANS-weighted sound levels during the winter season are summarized below.

- The valid, calculated steady-state (L_{90}) ANS-weighted broadband sound levels ranged from 22 to 60 dBA;

- The valid, calculated equivalent (L_{eq}) ANS-weighed broadband sound levels ranged from 25 to 64 dBA.

2.6.3 Spectral Sound Level Data

In addition to broadband sound levels, spectral sound level data were measured during each 10-minute period at Location 5. Using only valid measurement periods, octave-band and one-third octave-band data are summarized in Figures 2-19 and 2-20, respectively, as logarithmic averages of the equivalent (L_{eq}) summer sound levels; separated by daytime and nighttime. Octave-band levels are displayed from 16 Hz to 16,000 Hz in Figure 2-19 for both L_{eq} and L_{90}. The one-third octave-band data in Figure 2-20 span the frequencies from 16 Hz to 16,000 Hz and were analyzed for prominent discrete tones[11]. Prominent discrete tones were detected at the 5,000 Hz and 8,000 Hz bands for summer daytime measurements as well as the 2,000 Hz, 4,000 Hz, 8,000 Hz, and 12,500 Hz bands for summer nighttime measurements. These are likely caused by bird and insect activity.

[11] Prominent discrete tones as defined by the ANSI S12.9 Part 3 standard. The lowest frequency in the Annex B.1 tone test is 25 Hz. 20 Hz data are presented for informational purposes.

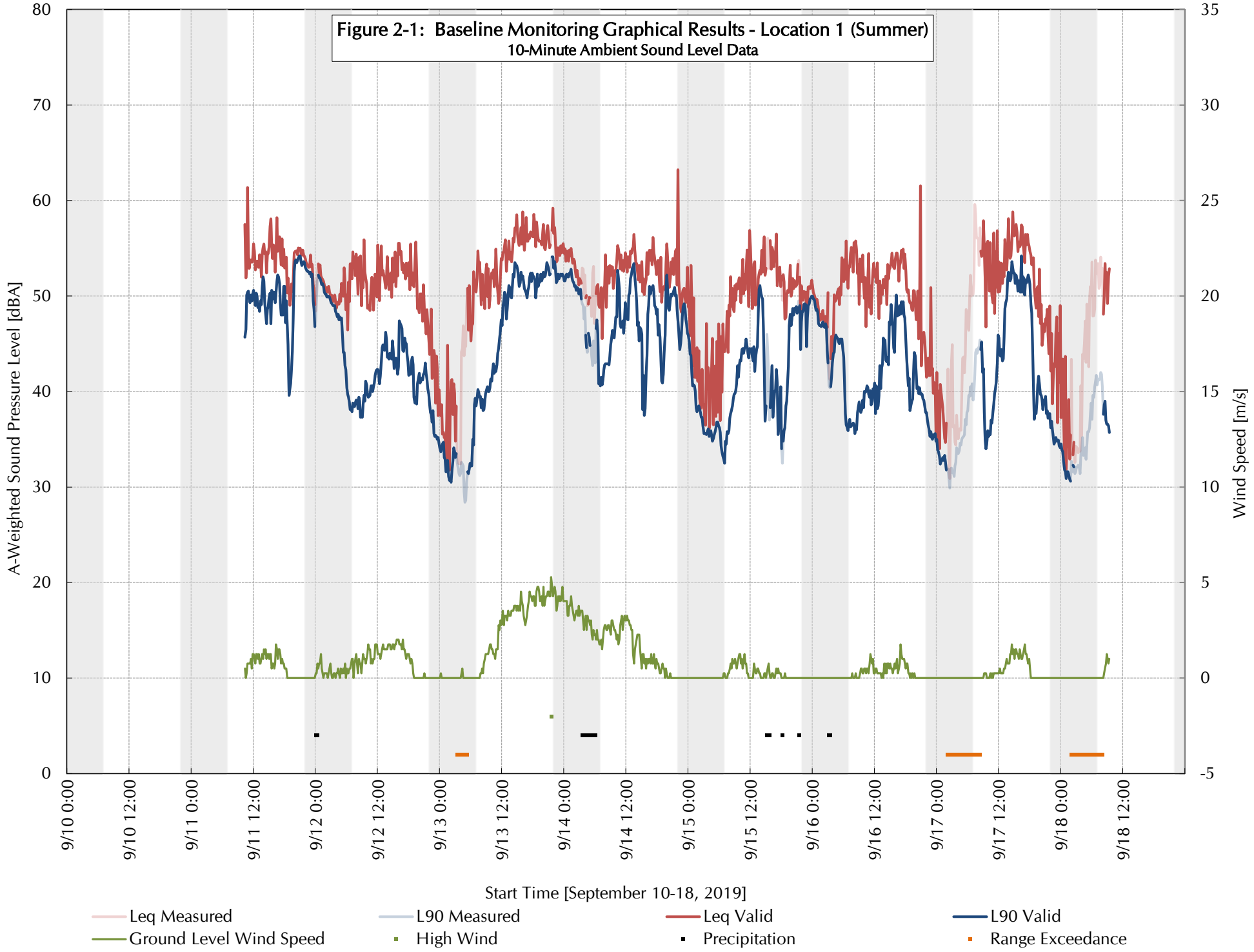
Figure 2-1: Baseline Monitoring Graphical Results - Location 1 (Summer)
10-Minute Ambient Sound Level Data
A-Weighted Sound Pressure Level [dBA]
Wind Speed [m/s]
80
70
60
50
40
30
20
10
0
35
30
25
20
15
10
5
0
-5
9/10 0:00
9/10 12:00
9/11 0:00
9/11 12:00
9/12 0:00
9/12 12:00
9/13 0:00
9/13 12:00
9/14 0:00
9/14 12:00
9/15 0:00
9/15 12:00
9/16 0:00
9/16 12:00
9/17 0:00
9/17 12:00
9/18 0:00
9/18 12:00
Start Time [September 10-18, 2019]
Leq Measured
L90 Measured
Leq Valid
L90 Valid
Ground Level Wind Speed
High Wind
Precipitation
Range Exceedance

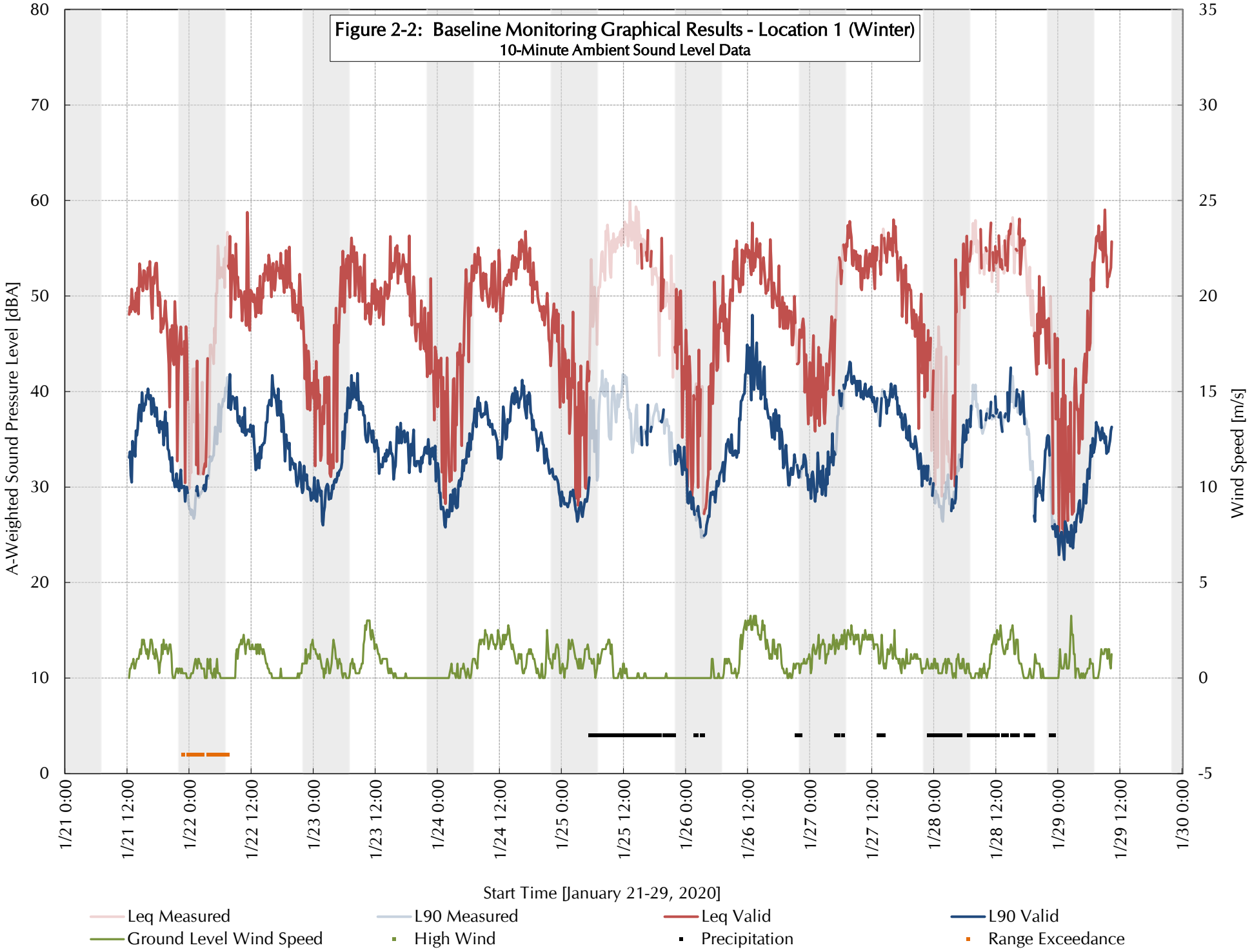
Figure 2-2: Baseline Monitoring Graphical Results - Location 1 (Winter)
10-Minute Ambient Sound Level Data
A-Weighted Sound Pressure Level [dBA]
Wind Speed [m/s]
80
70
60
50
40
30
20
10
0
35
30
25
20
15
10
5
0
-5
1/21 0:00
1/21 12:00
1/22 0:00
1/22 12:00
1/23 0:00
1/23 12:00
1/24 0:00
1/24 12:00
1/25 0:00
1/25 12:00
1/26 0:00
1/26 12:00
1/27 0:00
1/27 12:00
1/28 0:00
1/28 12:00
1/29 0:00
1/29 12:00
1/30 0:00
Start Time [January 21-29, 2020]
Leq Measured
L90 Measured
Leq Valid
L90 Valid
Ground Level Wind Speed
High Wind
Precipitation
Range Exceedance

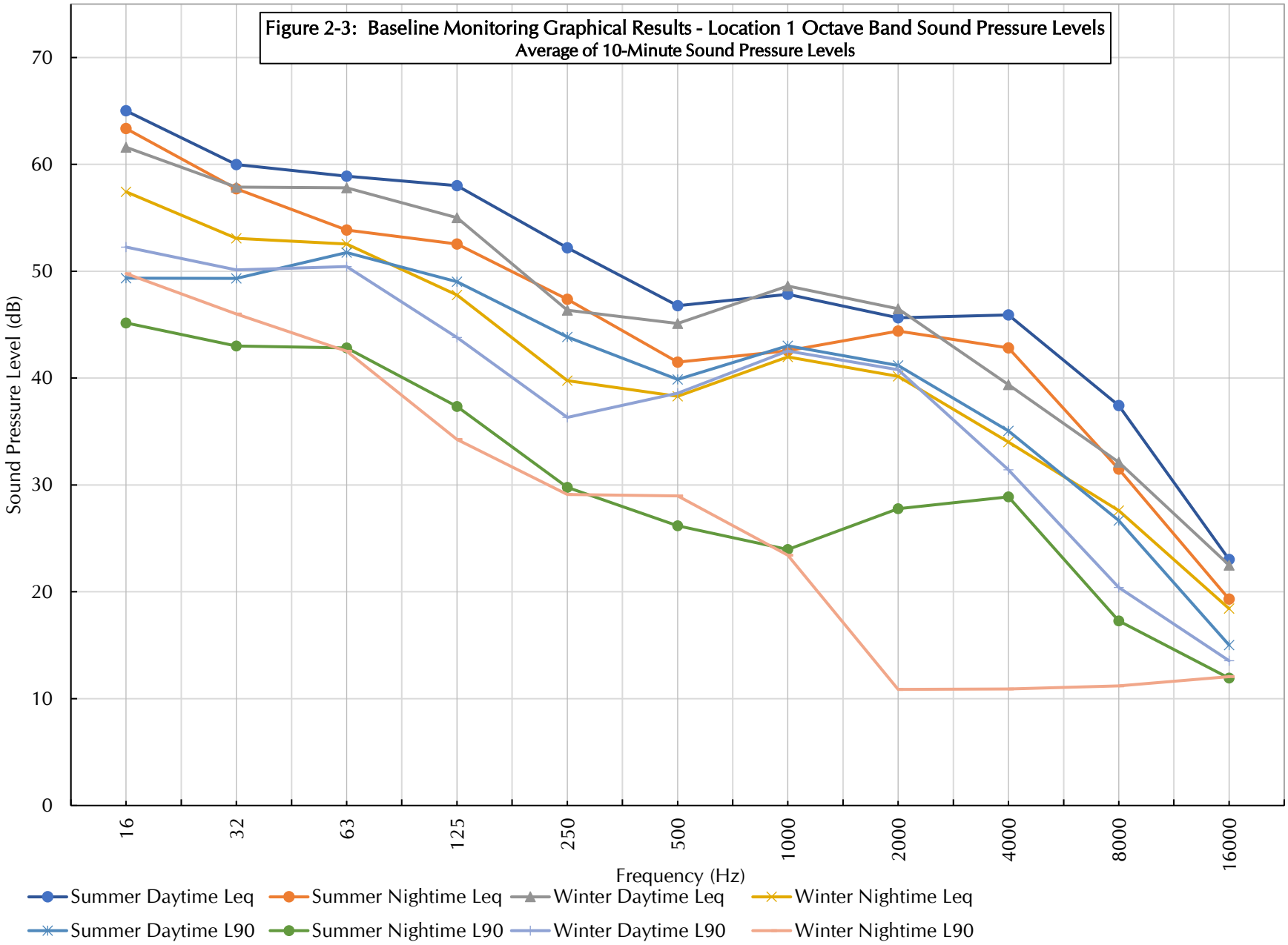
Figure 2-3: Baseline Monitoring Graphical Results - Location 1 Octave Band Sound Pressure Levels
Average of 10-Minute Sound Pressure Levels
Sound Pressure Level (dB)
70
60
50
40
30
20
10
0
16
32
63
125
250
500
1000
2000
4000
8000
16000
Frequency (Hz)
Summer Daytime Leq
Summer Nightime Leq
Winter Daytime Leq
Winter Nightime Leq
Summer Daytime L90
Summer Nightime L90
Winter Daytime L90
Winter Nightime L90

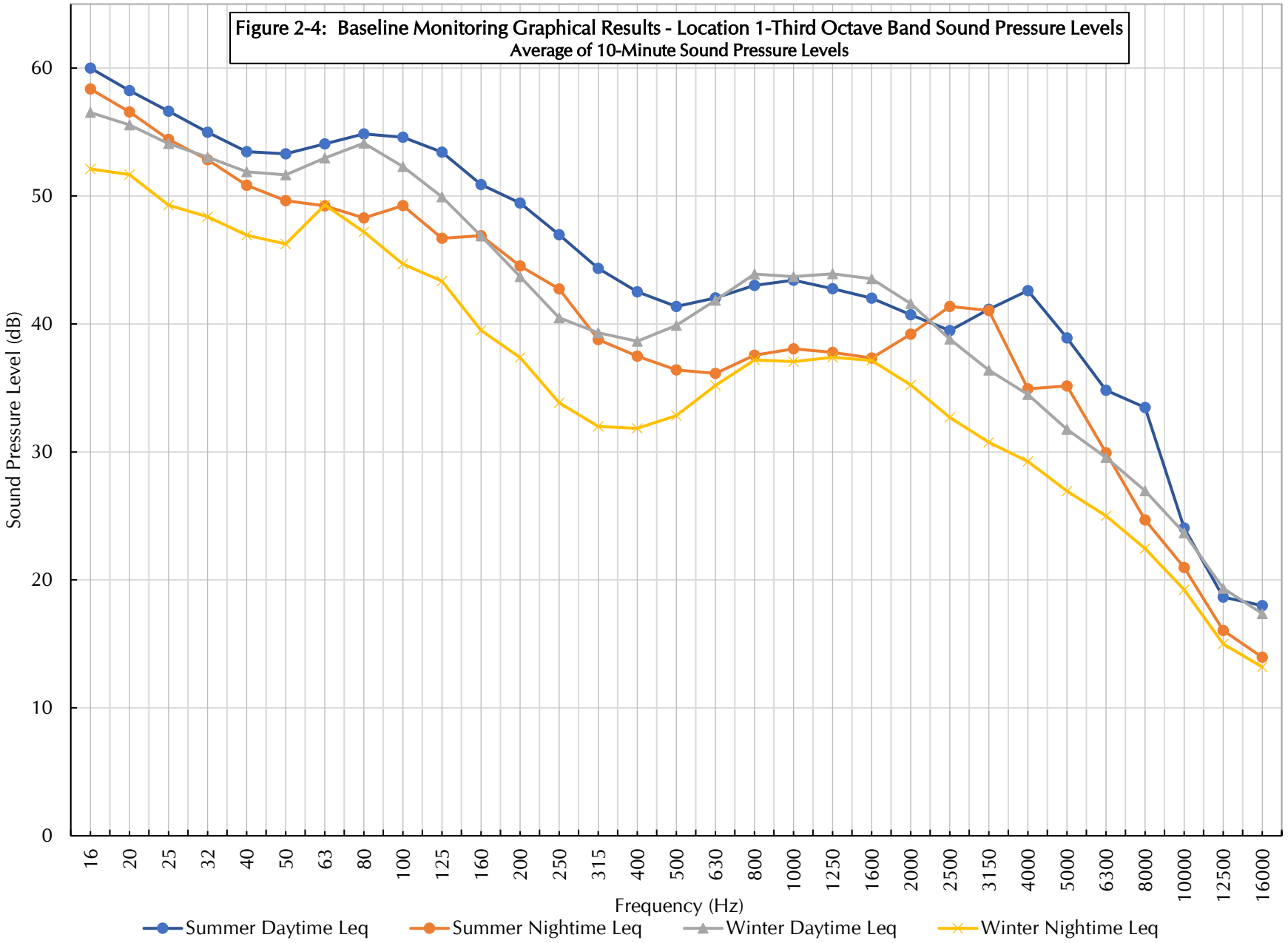
Figure 2-4: Baseline Monitoring Graphical Results - Location 1-Third Octave Band Sound Pressure Levels
Average of 10-Minute Sound Pressure Levels
Sound Pressure Level (dB)
0
10
20
30
40
50
60
16
20
25
32
40
50
63
80
100
125
160
200
250
315
400
500
630
800
1000
1250
1600
2000
2500
3150
4000
5000
6300
8000
10000
12500
16000
Frequency (Hz)
Summer Daytime Leq
Summer Nightime Leq
Winter Daytime Leq
Winter Nightime Leq

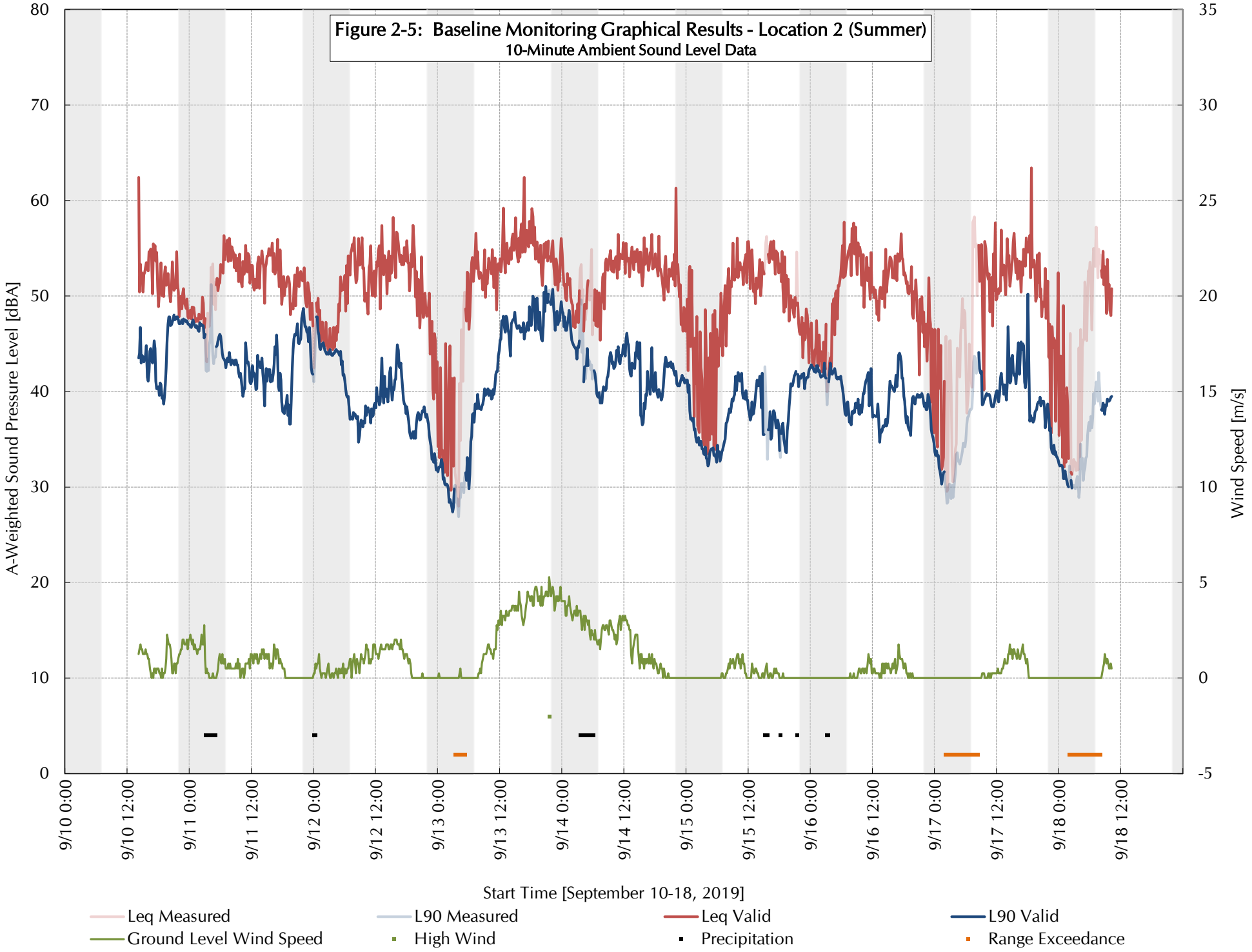
Figure 2-5: Baseline Monitoring Graphical Results - Location 2 (Summer)
10-Minute Ambient Sound Level Data
A-Weighted Sound Pressure Level [dBA]
Wind Speed [m/s]
80
70
60
50
40
30
20
10
0
35
30
25
20
15
10
5
0
-5
9/10 0:00
9/10 12:00
9/11 0:00
9/11 12:00
9/12 0:00
9/12 12:00
9/13 0:00
9/13 12:00
9/14 0:00
9/14 12:00
9/15 0:00
9/15 12:00
9/16 0:00
9/16 12:00
9/17 0:00
9/17 12:00
9/18 0:00
9/18 12:00
Start Time [September 10-18, 2019]
Leq Measured
L90 Measured
Leq Valid
L90 Valid
Ground Level Wind Speed
High Wind
Precipitation
Range Exceedance

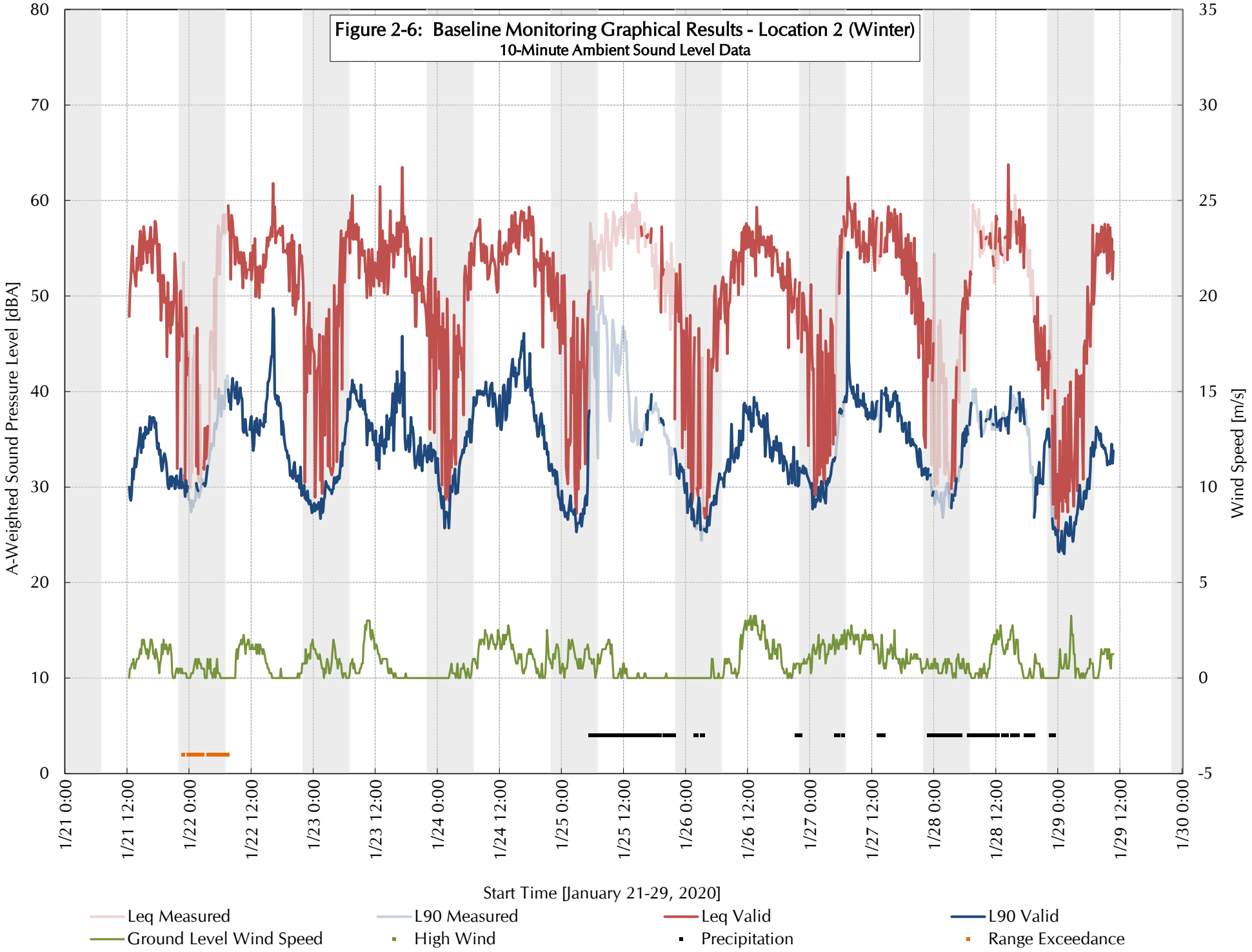
Figure 2-6: Baseline Monitoring Graphical Results - Location 2 (Winter)
10-Minute Ambient Sound Level Data
A-Weighted Sound Pressure Level [dBA]
Wind Speed [m/s]
80
70
60
50
40
30
20
10
0
35
30
25
20
15
10
5
0
-5
1/21 0:00
1/21 12:00
1/22 0:00
1/22 12:00
1/23 0:00
1/23 12:00
1/24 0:00
1/24 12:00
1/25 0:00
1/25 12:00
1/26 0:00
1/26 12:00
1/27 0:00
1/27 12:00
1/28 0:00
1/28 12:00
1/29 0:00
1/29 12:00
1/30 0:00
Start Time [January 21-29, 2020]
Leq Measured
L90 Measured
Leq Valid
L90 Valid
Ground Level Wind Speed
High Wind
Precipitation
Range Exceedance

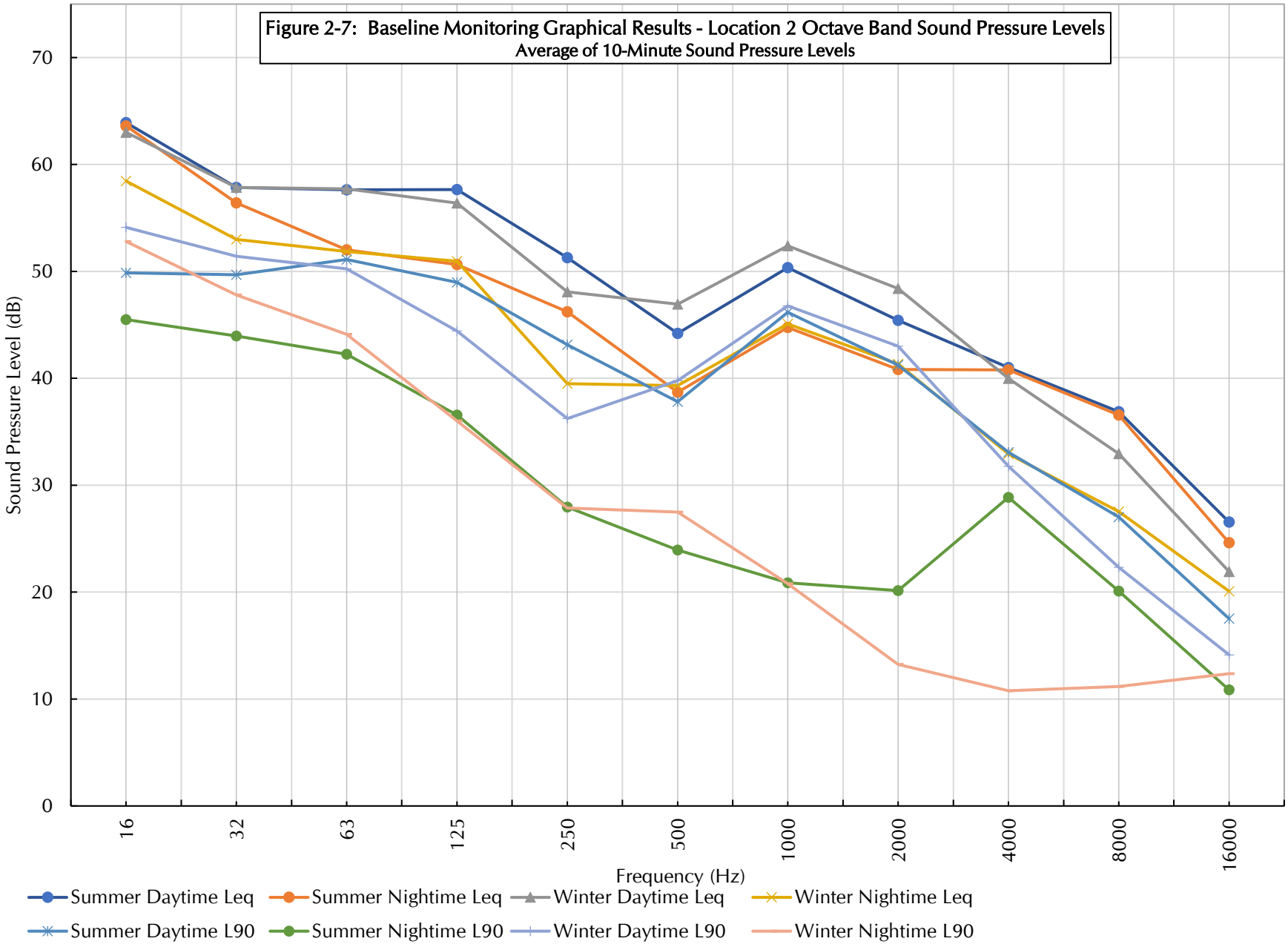
Figure 2-7: Baseline Monitoring Graphical Results - Location 2 Octave Band Sound Pressure Levels
Average of 10-Minute Sound Pressure Levels
Sound Pressure Level (dB)
70
60
50
40
30
20
10
0
16
32
63
125
250
500
1000
2000
4000
8000
16000
Frequency (Hz)
Summer Daytime Leq
Summer Nightime Leq
Winter Daytime Leq
Winter Nightime Leq
Summer Daytime L90
Summer Nightime L90
Winter Daytime L90
Winter Nightime L90

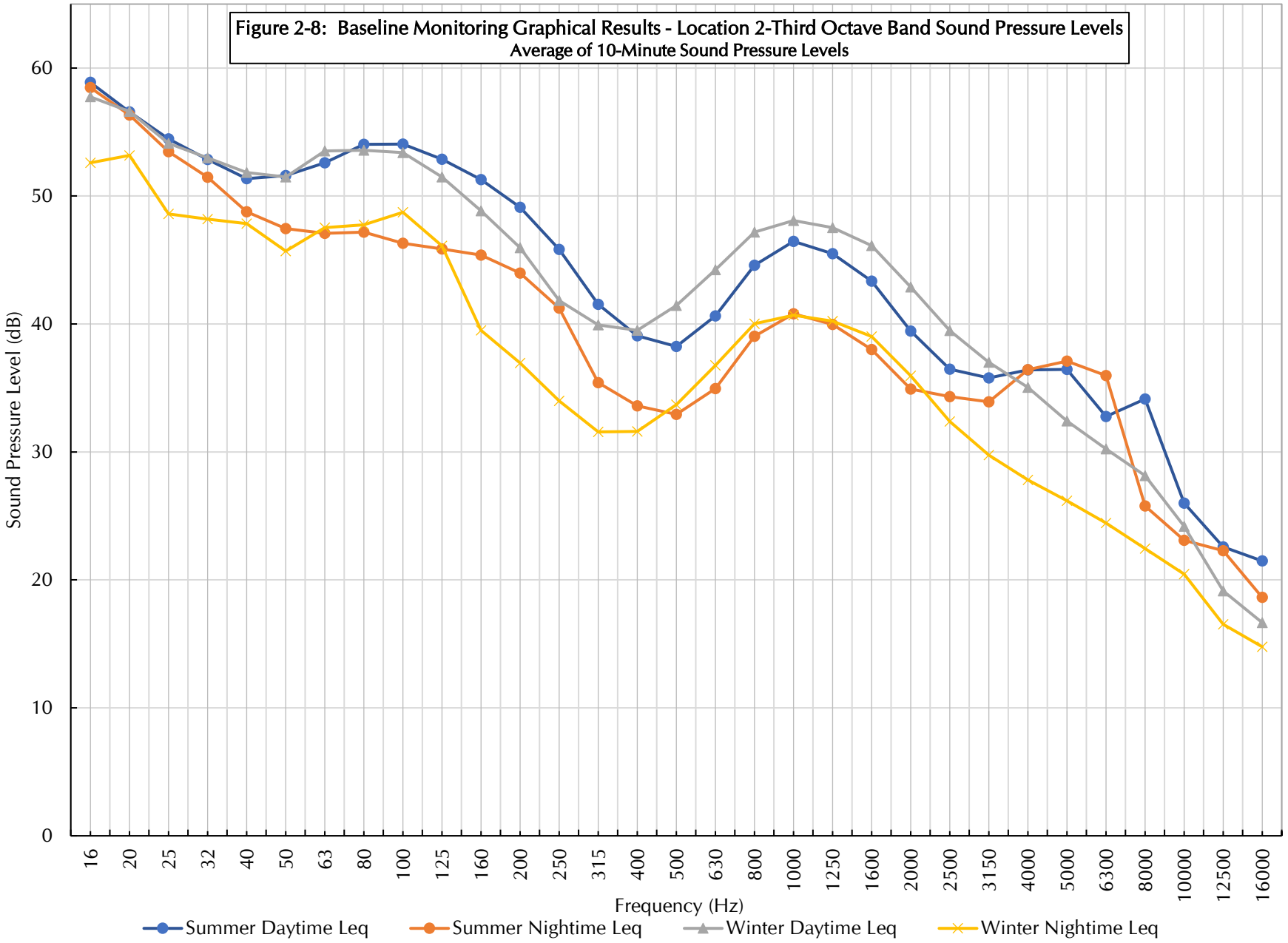
Figure 2-8: Baseline Monitoring Graphical Results - Location 2-Third Octave Band Sound Pressure Levels
Average of 10-Minute Sound Pressure Levels
Sound Pressure Level (dB)
0
10
20
30
40
50
60
16
20
25
32
40
50
63
80
100
125
160
200
250
315
400
500
630
800
1000
1250
1600
2000
2500
3150
4000
5000
6300
8000
10000
12500
16000
Frequency (Hz)
Summer Daytime Leq
Summer Nightime Leq
Winter Daytime Leq
Winter Nightime Leq

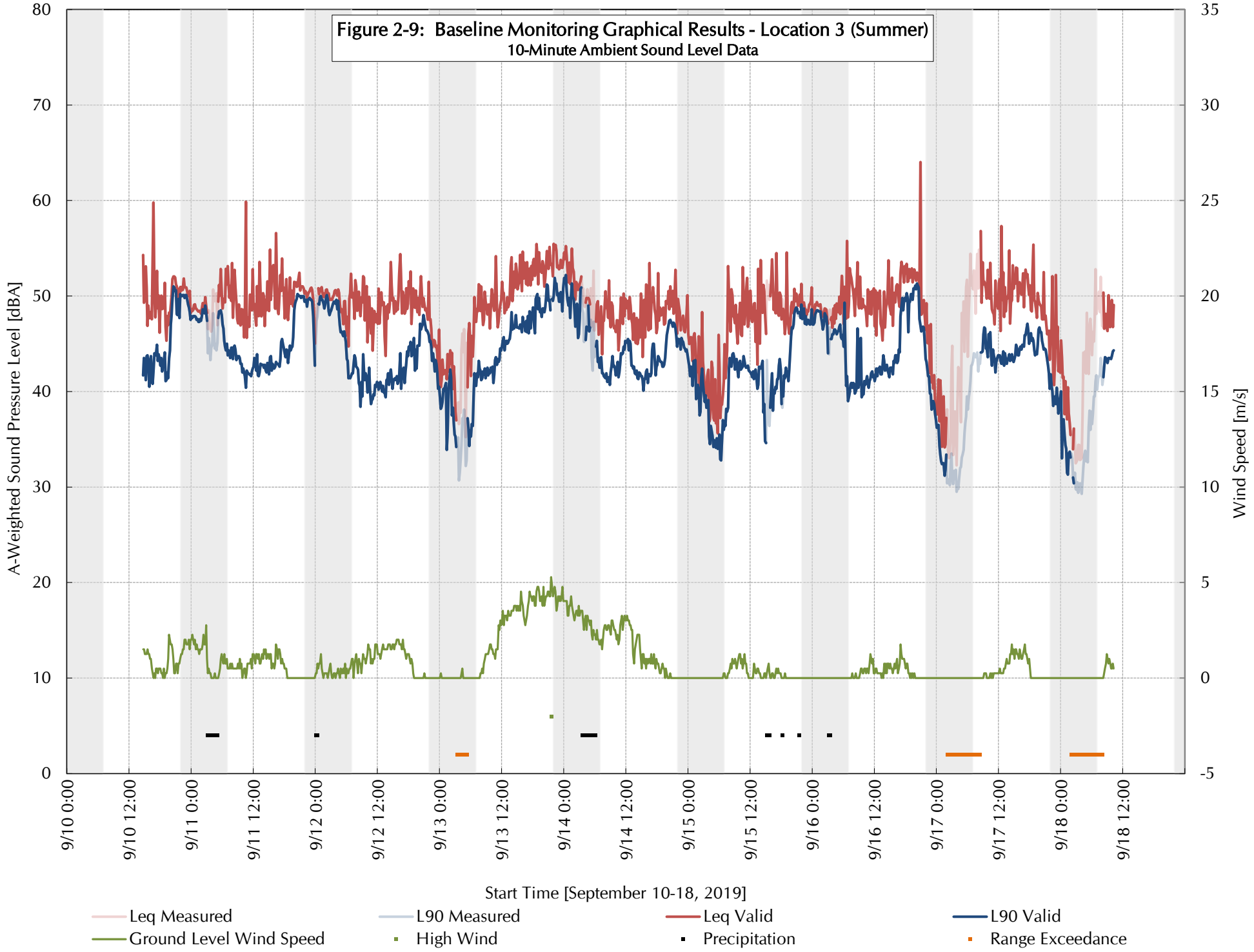
Figure 2-9: Baseline Monitoring Graphical Results - Location 3 (Summer)
10-Minute Ambient Sound Level Data
A-Weighted Sound Pressure Level [dBA]
Wind Speed [m/s]
80
70
60
50
40
30
20
10
0
35
30
25
20
15
10
5
0
-5
9/10 0:00
9/10 12:00
9/11 0:00
9/11 12:00
9/12 0:00
9/12 12:00
9/13 0:00
9/13 12:00
9/14 0:00
9/14 12:00
9/15 0:00
9/15 12:00
9/16 0:00
9/16 12:00
9/17 0:00
9/17 12:00
9/18 0:00
9/18 12:00
Start Time [September 10-18, 2019]
Leq Measured
L90 Measured
Leq Valid
L90 Valid
Ground Level Wind Speed
High Wind
Precipitation
Range Exceedance

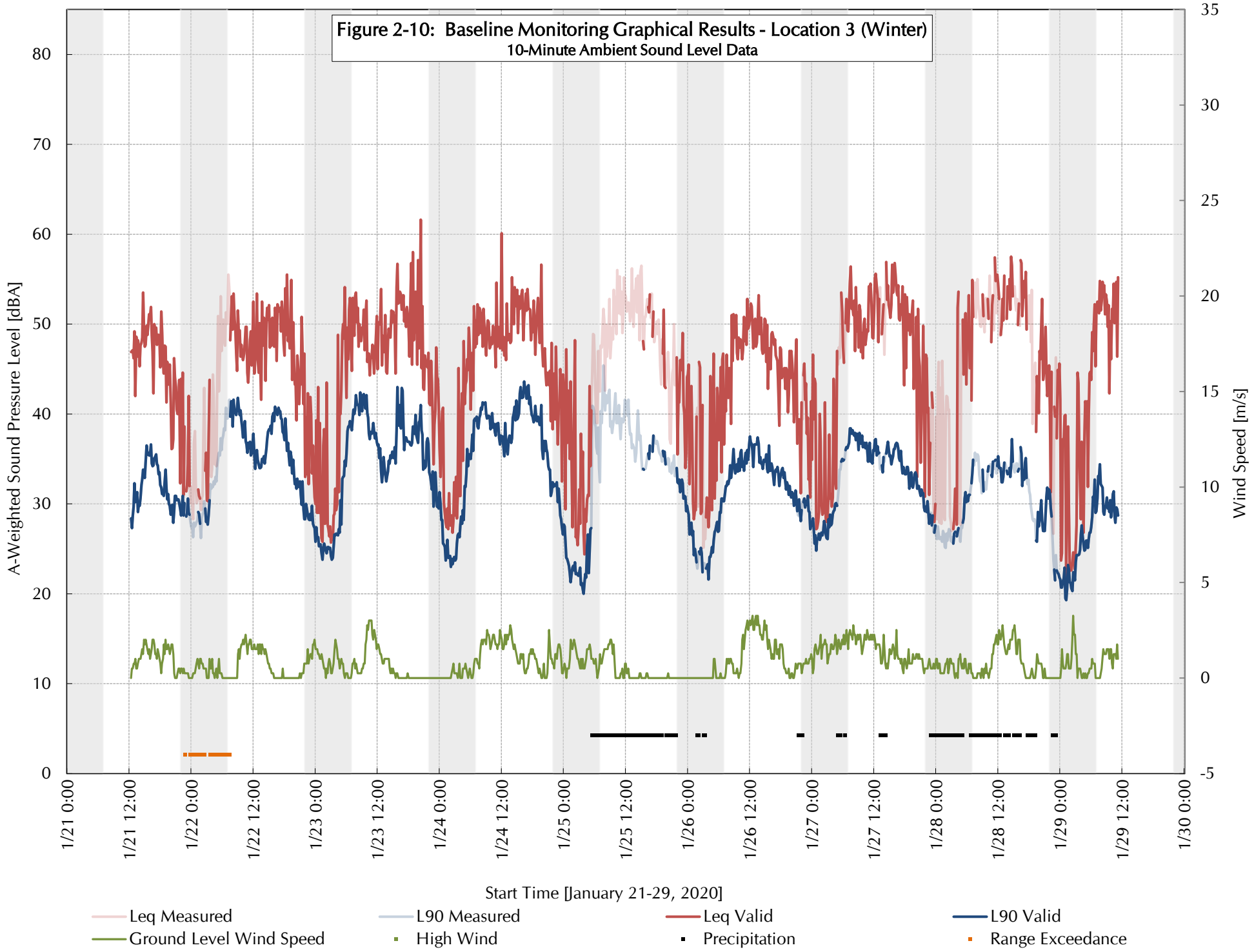
Figure 2-10: Baseline Monitoring Graphical Results - Location 3 (Winter)
10-Minute Ambient Sound Level Data
A-Weighted Sound Pressure Level [dBA]
Wind Speed [m/s]
0
10
20
30
40
50
60
70
80
-5
0
5
10
15
20
25
30
35
1/21 0:00
1/21 12:00
1/22 0:00
1/22 12:00
1/23 0:00
1/23 12:00
1/24 0:00
1/24 12:00
1/25 0:00
1/25 12:00
1/26 0:00
1/26 12:00
1/27 0:00
1/27 12:00
1/28 0:00
1/28 12:00
1/29 0:00
1/29 12:00
1/30 0:00
Start Time [January 21-29, 2020]
Leq Measured
L90 Measured
Leq Valid
L90 Valid
Ground Level Wind Speed
High Wind
Precipitation
Range Exceedance

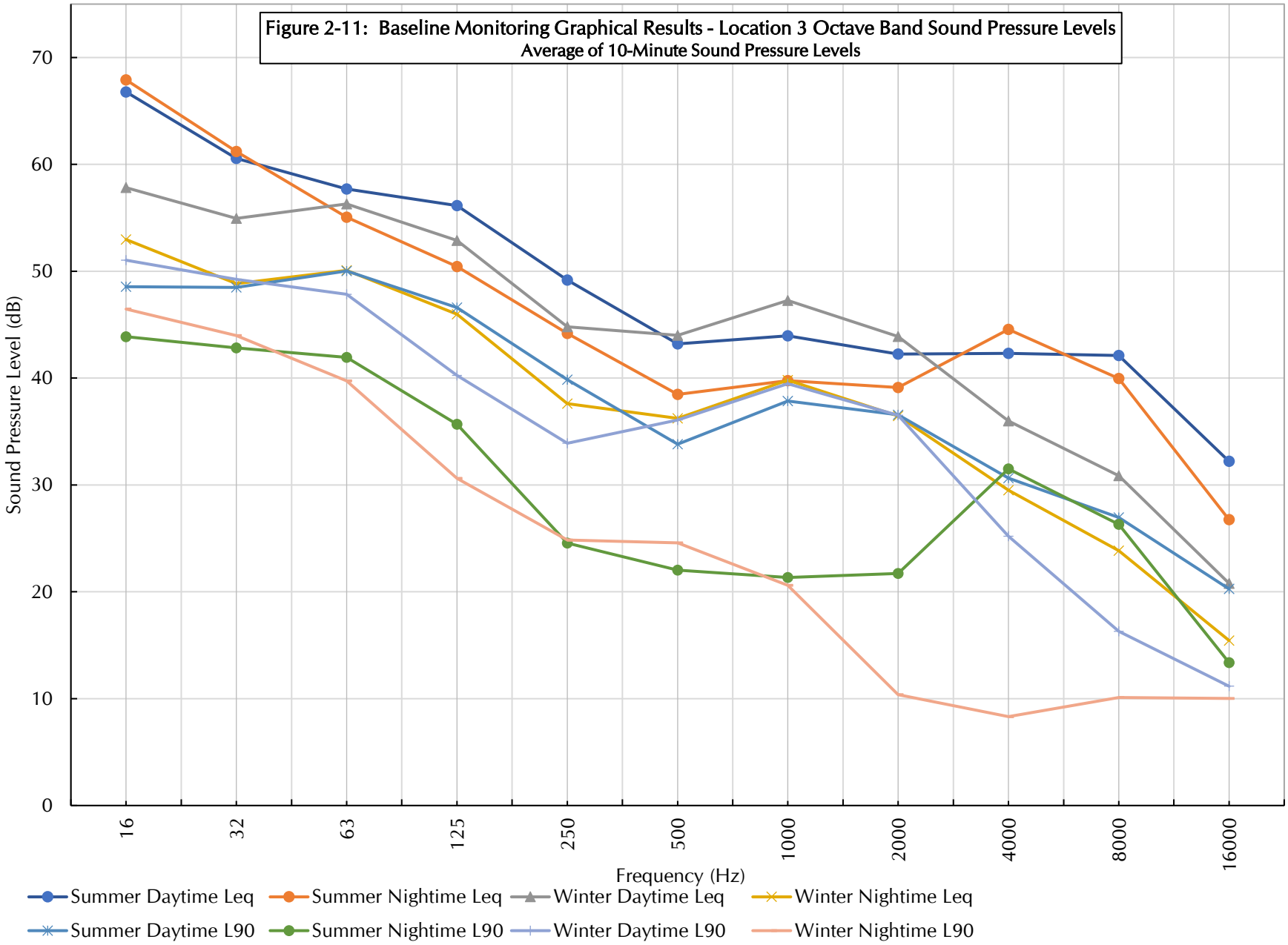
Figure 2-11: Baseline Monitoring Graphical Results - Location 3 Octave Band Sound Pressure Levels
Average of 10-Minute Sound Pressure Levels
Sound Pressure Level (dB)
70
60
50
40
30
20
10
0
16
32
63
125
250
500
1000
2000
4000
8000
16000
Frequency (Hz)
Summer Daytime Leq
Summer Nightime Leq
Winter Daytime Leq
Winter Nightime Leq
Summer Daytime L90
Summer Nightime L90
Winter Daytime L90
Winter Nightime L90

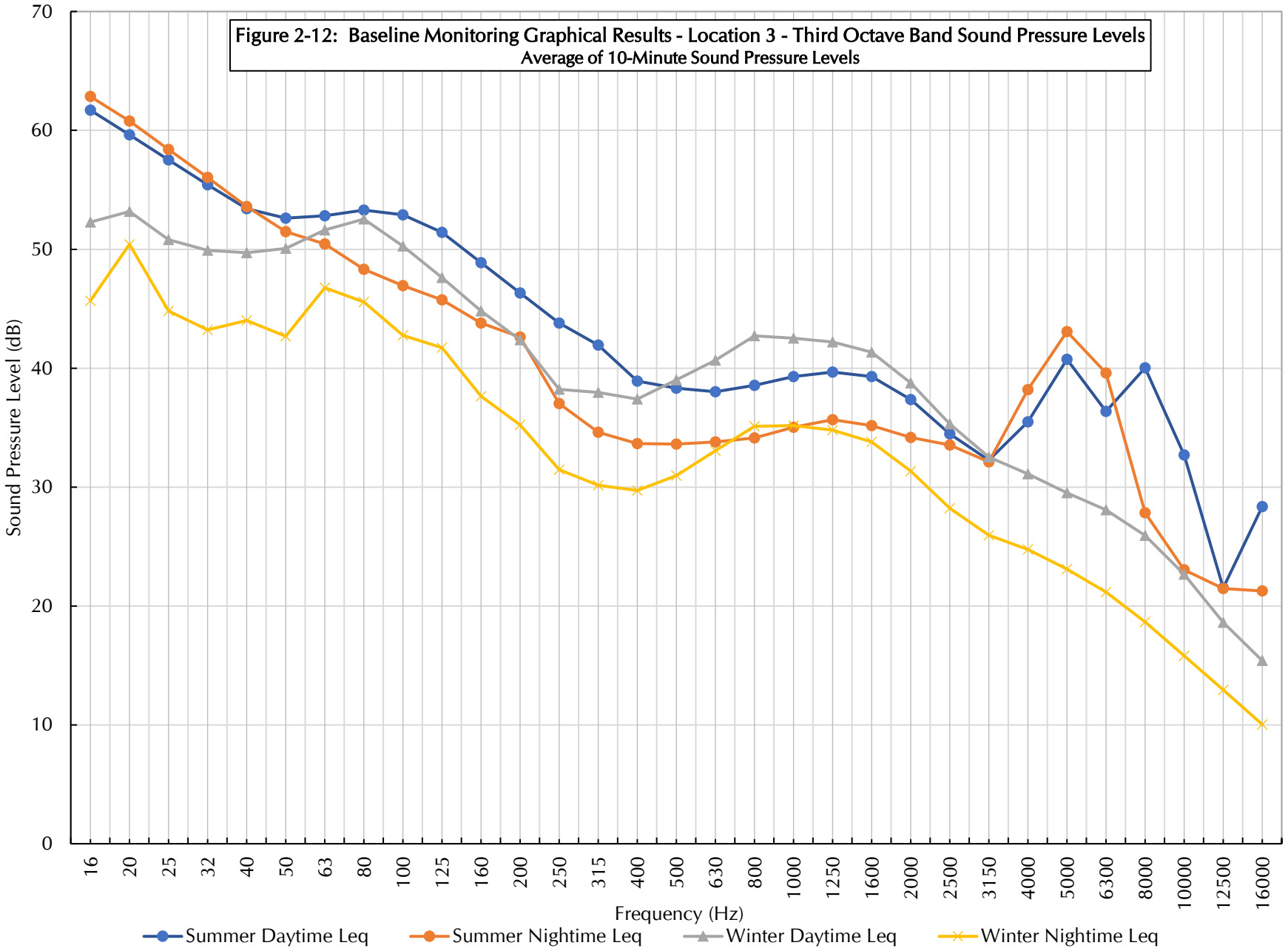
Figure 2-12: Baseline Monitoring Graphical Results - Location 3 - Third Octave Band Sound Pressure Levels
Average of 10-Minute Sound Pressure Levels
Sound Pressure Level (dB)
70
60
50
40
30
20
10
0
16
20
25
32
40
50
63
80
100
125
160
200
250
315
400
500
630
800
1000
1250
1600
2000
2500
3150
4000
5000
6300
8000
10000
12500
16000
Frequency (Hz)
Summer Daytime Leq
Summer Nightime Leq
Winter Daytime Leq
Winter Nightime Leq

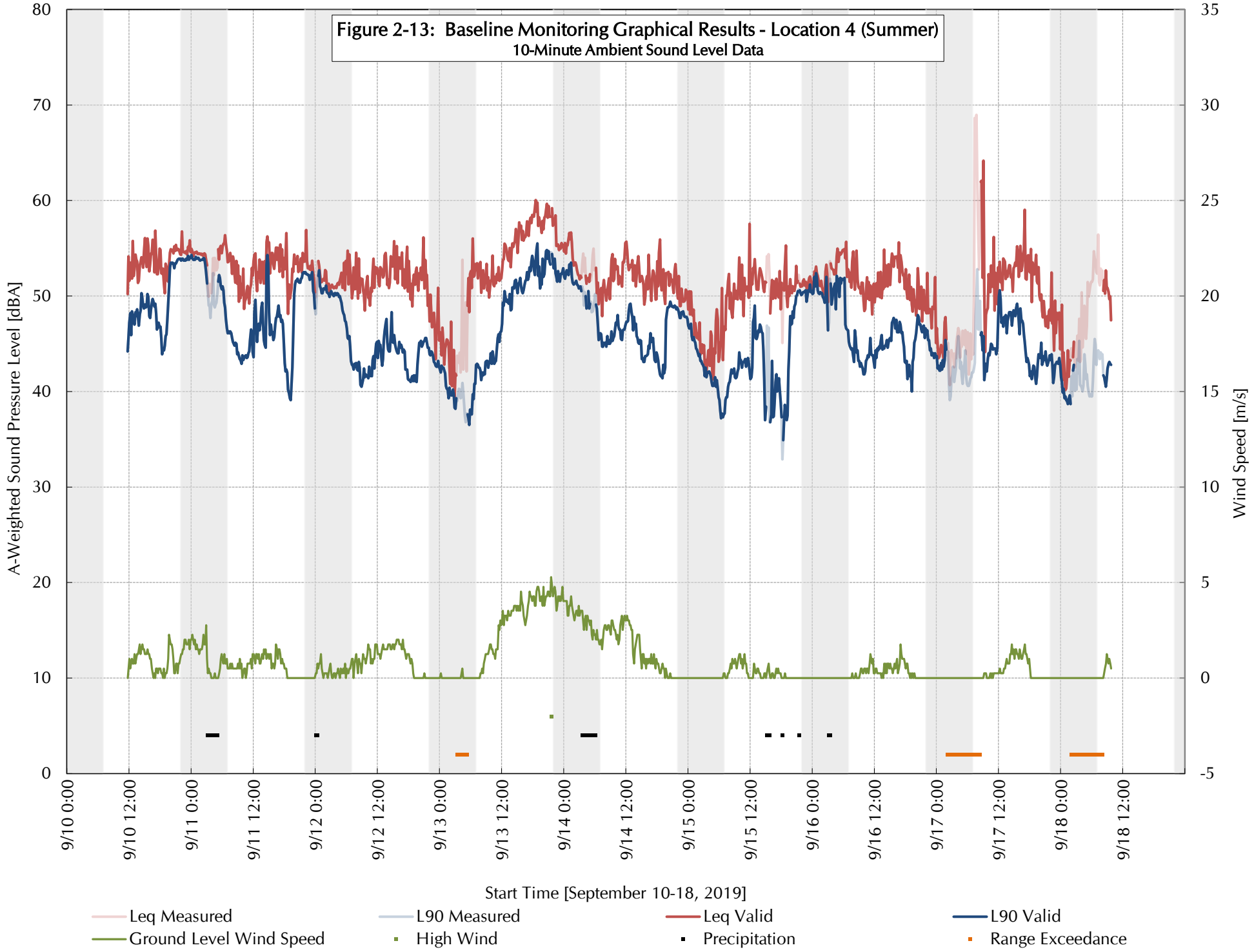
Figure 2-13: Baseline Monitoring Graphical Results - Location 4 (Summer)
10-Minute Ambient Sound Level Data
A-Weighted Sound Pressure Level [dBA]
Wind Speed [m/s]
80
70
60
50
40
30
20
10
0
35
30
25
20
15
10
5
0
-5
9/10 0:00
9/10 12:00
9/11 0:00
9/11 12:00
9/12 0:00
9/12 12:00
9/13 0:00
9/13 12:00
9/14 0:00
9/14 12:00
9/15 0:00
9/15 12:00
9/16 0:00
9/16 12:00
9/17 0:00
9/17 12:00
9/18 0:00
9/18 12:00
Start Time [September 10-18, 2019]
Leq Measured
L90 Measured
Leq Valid
L90 Valid
Ground Level Wind Speed
High Wind
Precipitation
Range Exceedance

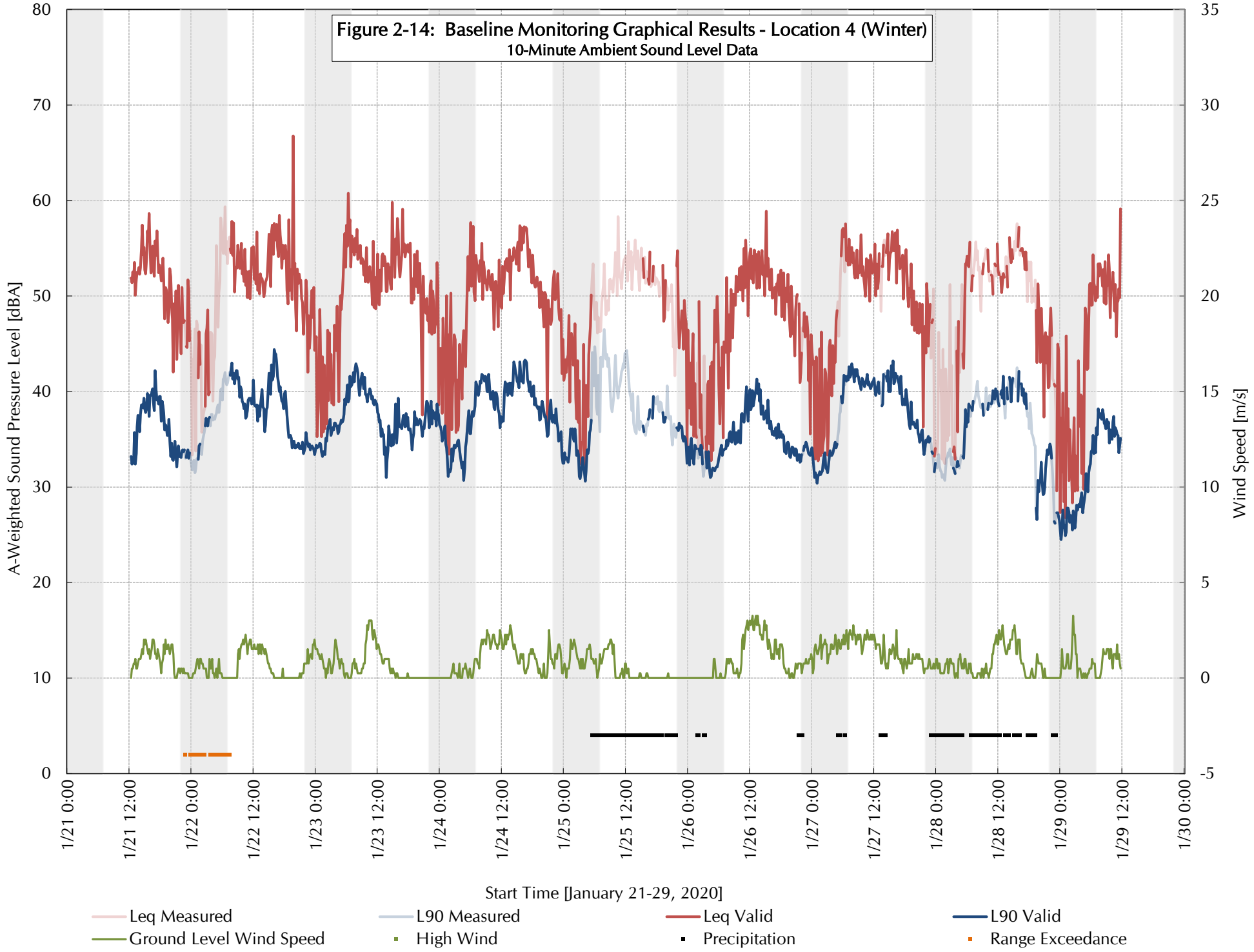
Figure 2-14: Baseline Monitoring Graphical Results - Location 4 (Winter)
10-Minute Ambient Sound Level Data
A-Weighted Sound Pressure Level [dBA]
Wind Speed [m/s]
80
70
60
50
40
30
20
10
0
35
30
25
20
15
10
5
0
-5
1/21 0:00
1/21 12:00
1/22 0:00
1/22 12:00
1/23 0:00
1/23 12:00
1/24 0:00
1/24 12:00
1/25 0:00
1/25 12:00
1/26 0:00
1/26 12:00
1/27 0:00
1/27 12:00
1/28 0:00
1/28 12:00
1/29 0:00
1/29 12:00
1/30 0:00
Start Time [January 21-29, 2020]
Leq Measured
L90 Measured
Leq Valid
L90 Valid
Ground Level Wind Speed
High Wind
Precipitation
Range Exceedance

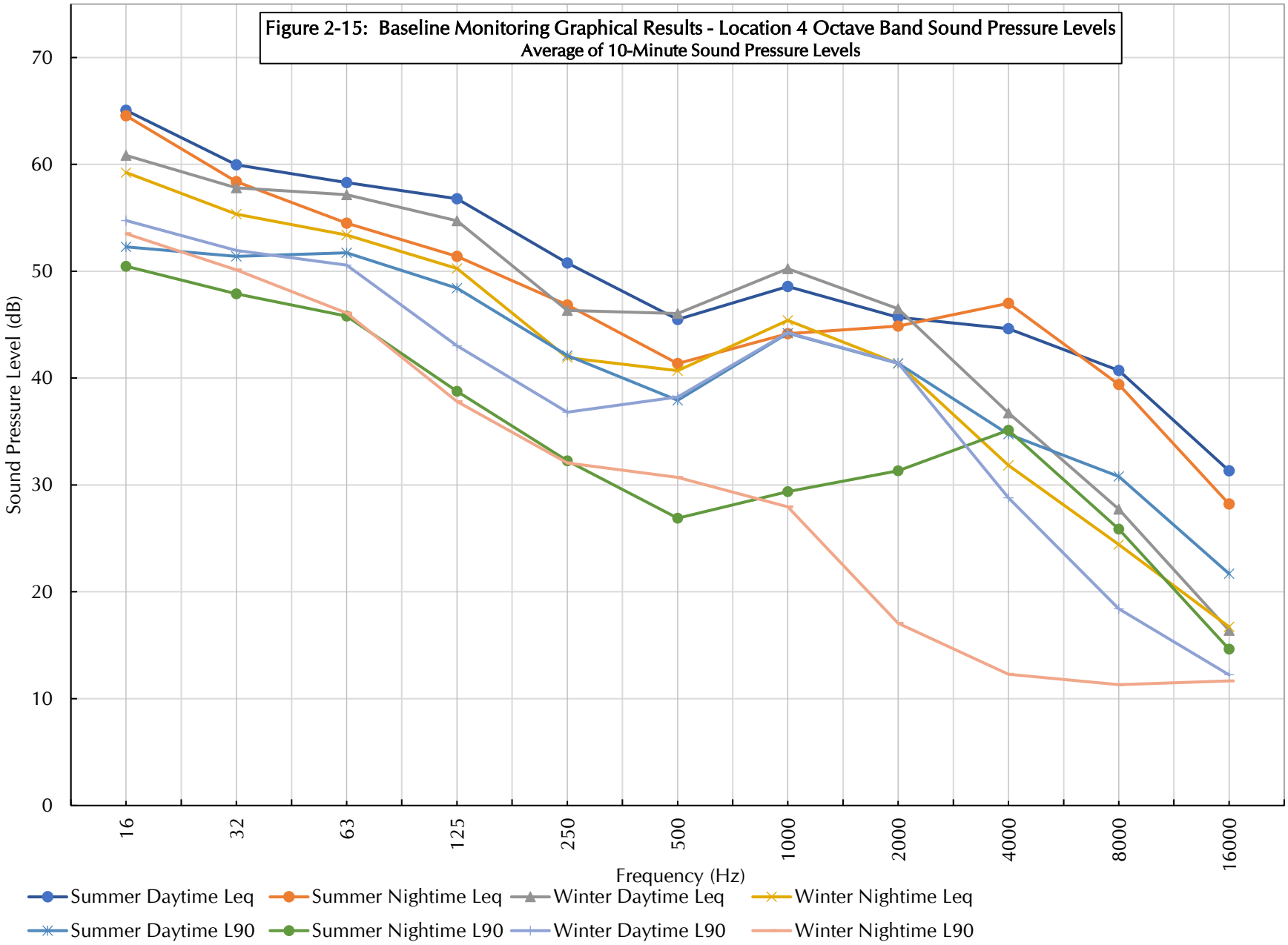
Figure 2-15: Baseline Monitoring Graphical Results - Location 4 Octave Band Sound Pressure Levels
Average of 10-Minute Sound Pressure Levels
Sound Pressure Level (dB)
70
60
50
40
30
20
10
0
16
32
63
125
250
500
1000
2000
4000
8000
16000
Frequency (Hz)
Summer Daytime Leq
Summer Nightime Leq
Winter Daytime Leq
Winter Nightime Leq
Summer Daytime L90
Summer Nightime L90
Winter Daytime L90
Winter Nightime L90

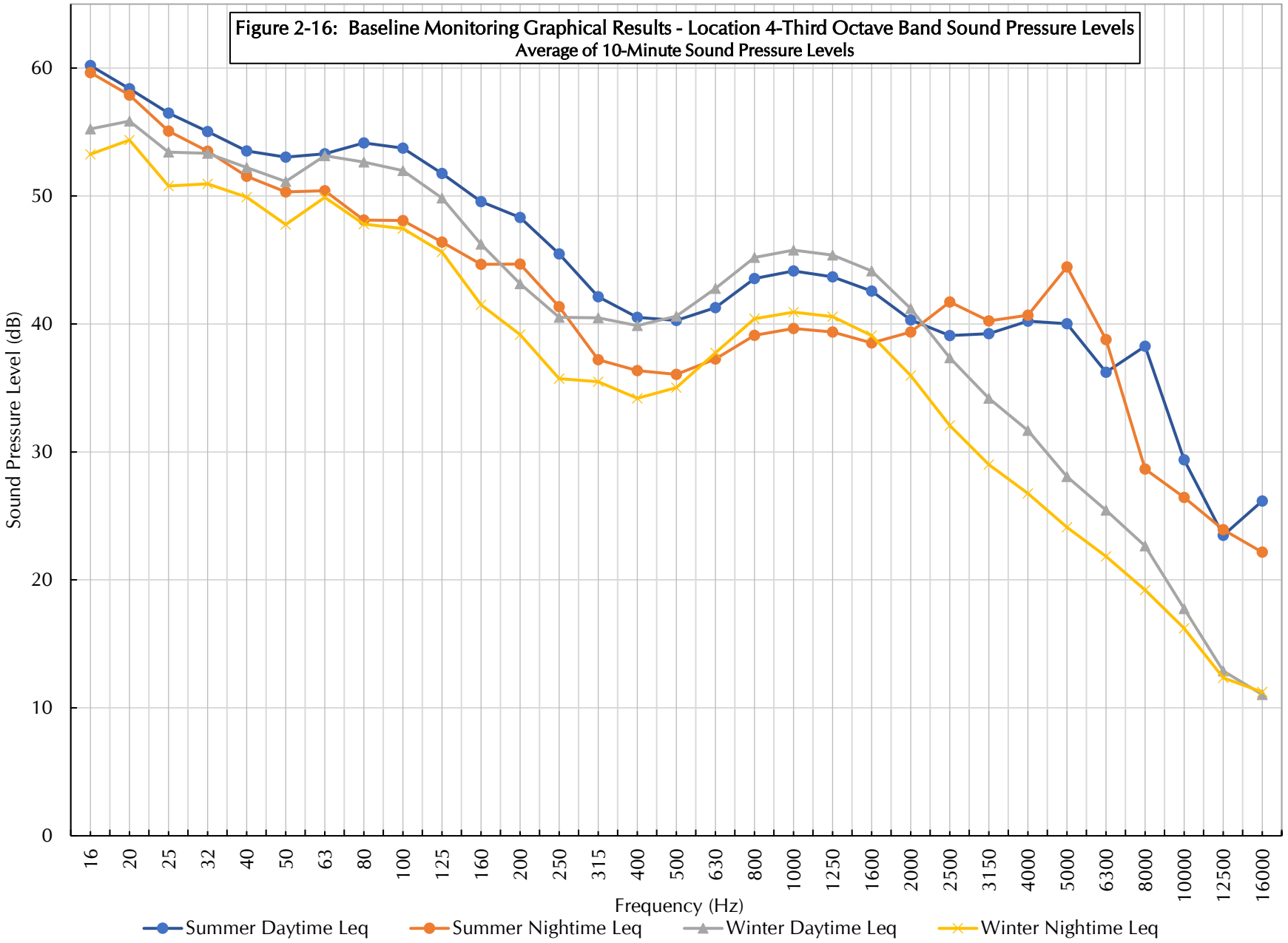
Figure 2-16: Baseline Monitoring Graphical Results - Location 4-Third Octave Band Sound Pressure Levels
Average of 10-Minute Sound Pressure Levels
Sound Pressure Level (dB)
0
10
20
30
40
50
60
16
20
25
32
40
50
63
80
100
125
160
200
250
315
400
500
630
800
1000
1250
1600
2000
2500
3150
4000
5000
6300
8000
10000
12500
16000
Frequency (Hz)
Summer Daytime Leq
Summer Nightime Leq
Winter Daytime Leq
Winter Nightime Leq

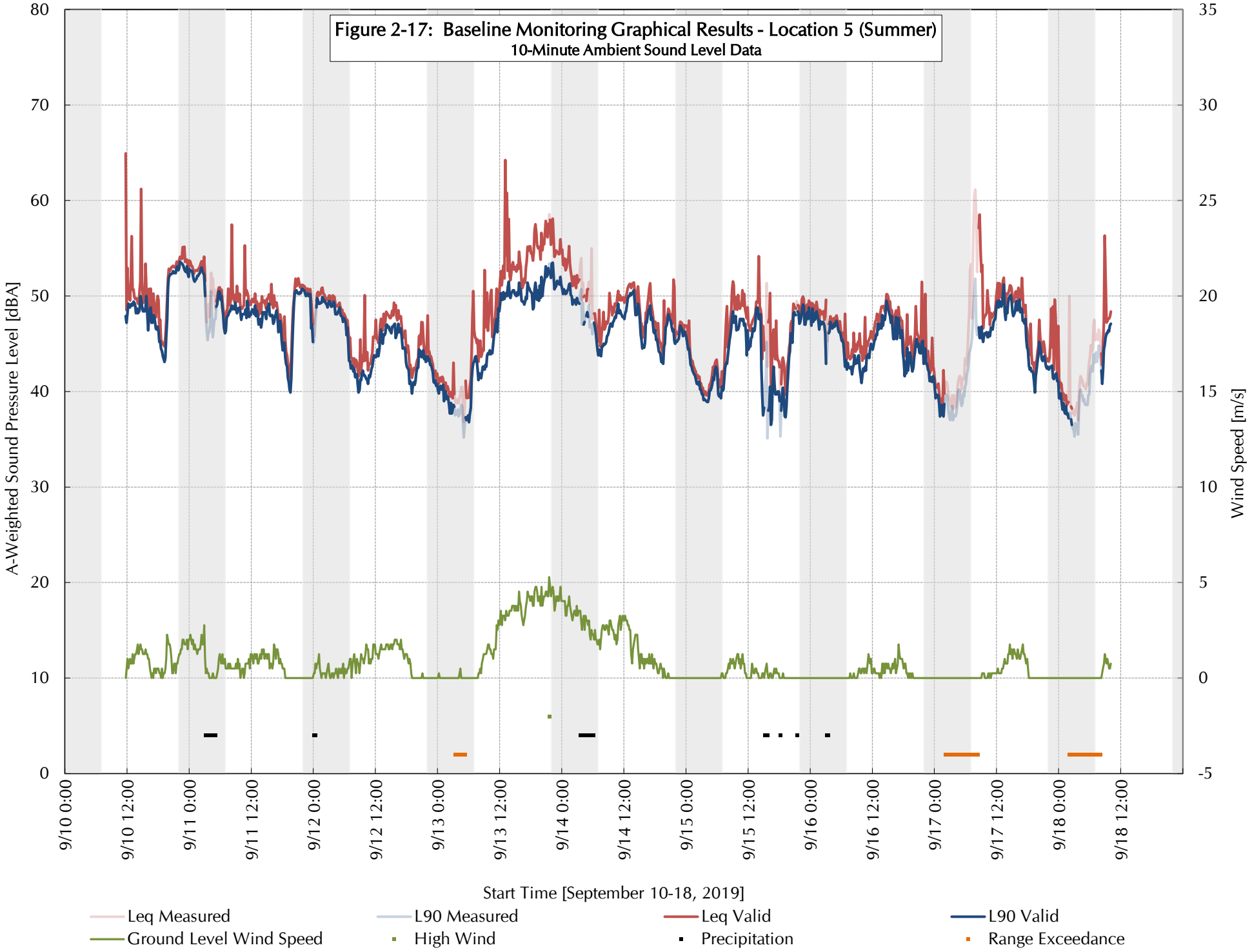
Figure 2-17: Baseline Monitoring Graphical Results - Location 5 (Summer)
10-Minute Ambient Sound Level Data
A-Weighted Sound Pressure Level [dBA]
Wind Speed [m/s]
80
70
60
50
40
30
20
10
0
35
30
25
20
15
10
5
0
-5
9/10 0:00
9/10 12:00
9/11 0:00
9/11 12:00
9/12 0:00
9/12 12:00
9/13 0:00
9/13 12:00
9/14 0:00
9/14 12:00
9/15 0:00
9/15 12:00
9/16 0:00
9/16 12:00
9/17 0:00
9/17 12:00
9/18 0:00
9/18 12:00
Start Time [September 10-18, 2019]
Leq Measured
L90 Measured
Leq Valid
L90 Valid
Ground Level Wind Speed
High Wind
Precipitation
Range Exceedance

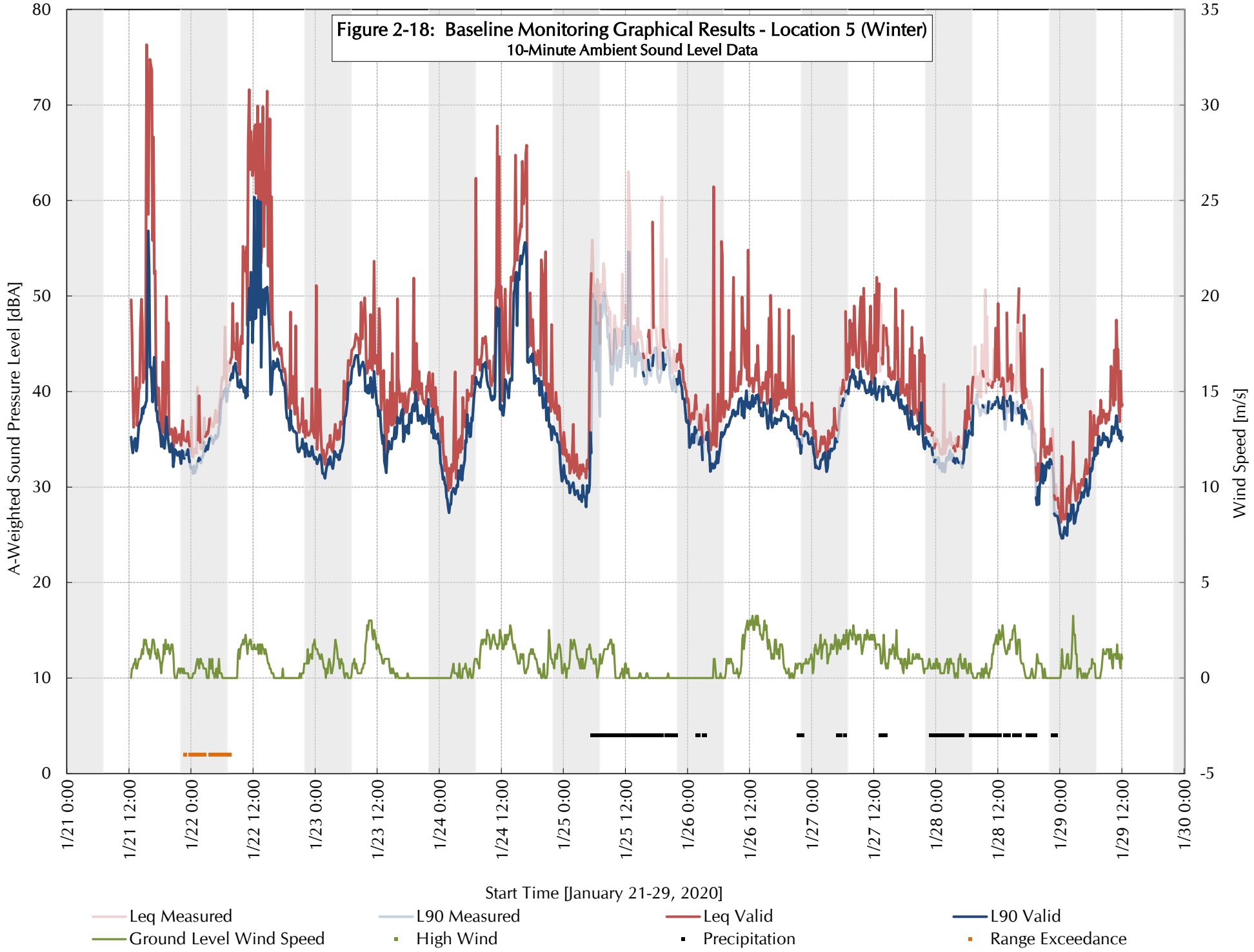
Figure 2-18: Baseline Monitoring Graphical Results - Location 5 (Winter)
10-Minute Ambient Sound Level Data
A-Weighted Sound Pressure Level [dBA]
Wind Speed [m/s]
80
70
60
50
40
30
20
10
0
35
30
25
20
15
10
5
0
-5
1/21 0:00
1/21 12:00
1/22 0:00
1/22 12:00
1/23 0:00
1/23 12:00
1/24 0:00
1/24 12:00
1/25 0:00
1/25 12:00
1/26 0:00
1/26 12:00
1/27 0:00
1/27 12:00
1/28 0:00
1/28 12:00
1/29 0:00
1/29 12:00
1/30 0:00
Start Time [January 21-29, 2020]
Leq Measured
L90 Measured
Leq Valid
L90 Valid
Ground Level Wind Speed
High Wind
Precipitation
Range Exceedance

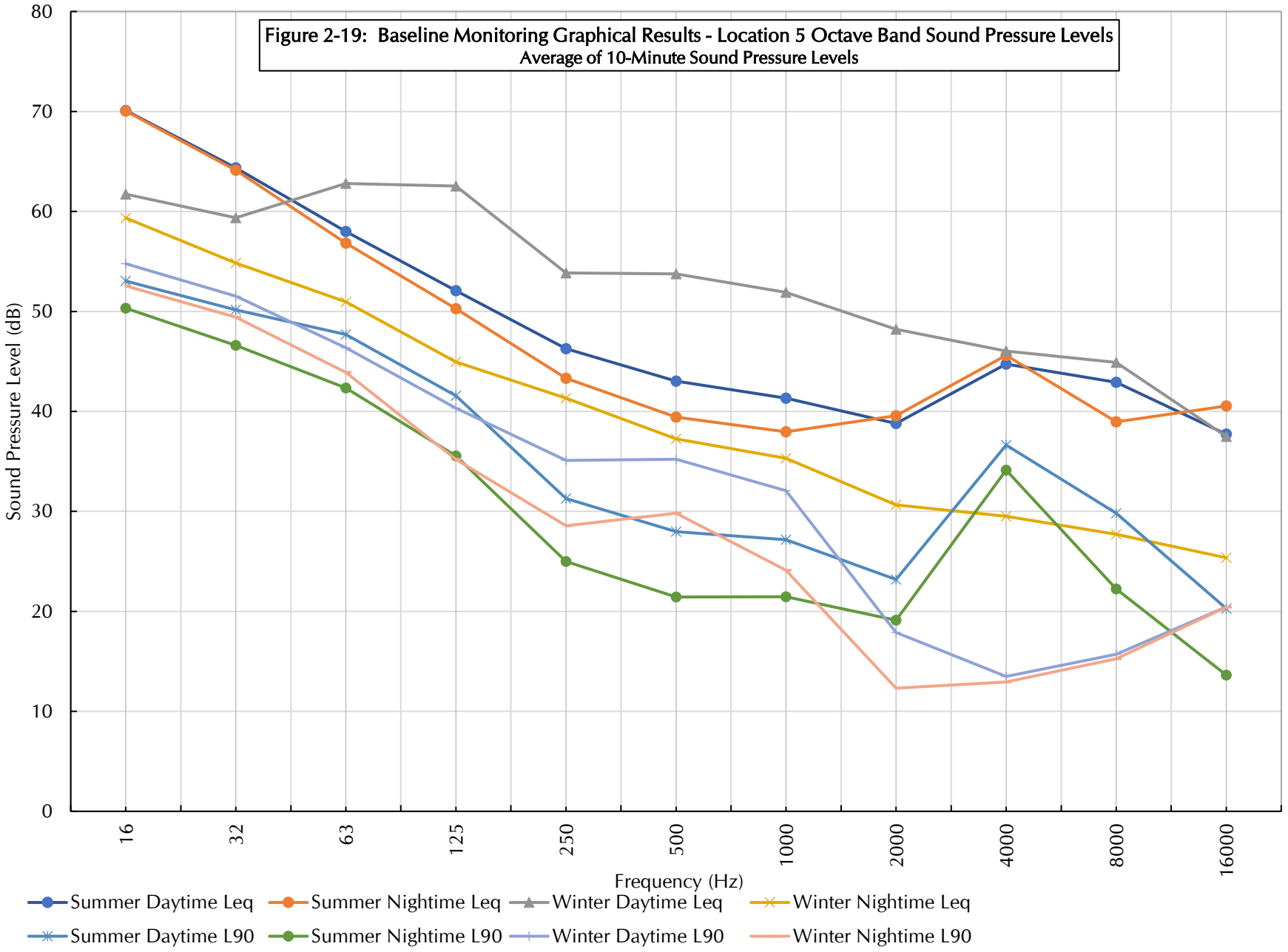
Figure 2-19: Baseline Monitoring Graphical Results - Location 5 Octave Band Sound Pressure Levels
Average of 10-Minute Sound Pressure Levels
Sound Pressure Level (dB)
80
70
60
50
40
30
20
10
0
16
32
63
125
250
500
1000
2000
4000
8000
16000
Frequency (Hz)
Summer Daytime Leq
Summer Nightime Leq
Winter Daytime Leq
Winter Nightime Leq
Summer Daytime L90
Summer Nightime L90
Winter Daytime L90
Winter Nightime L90

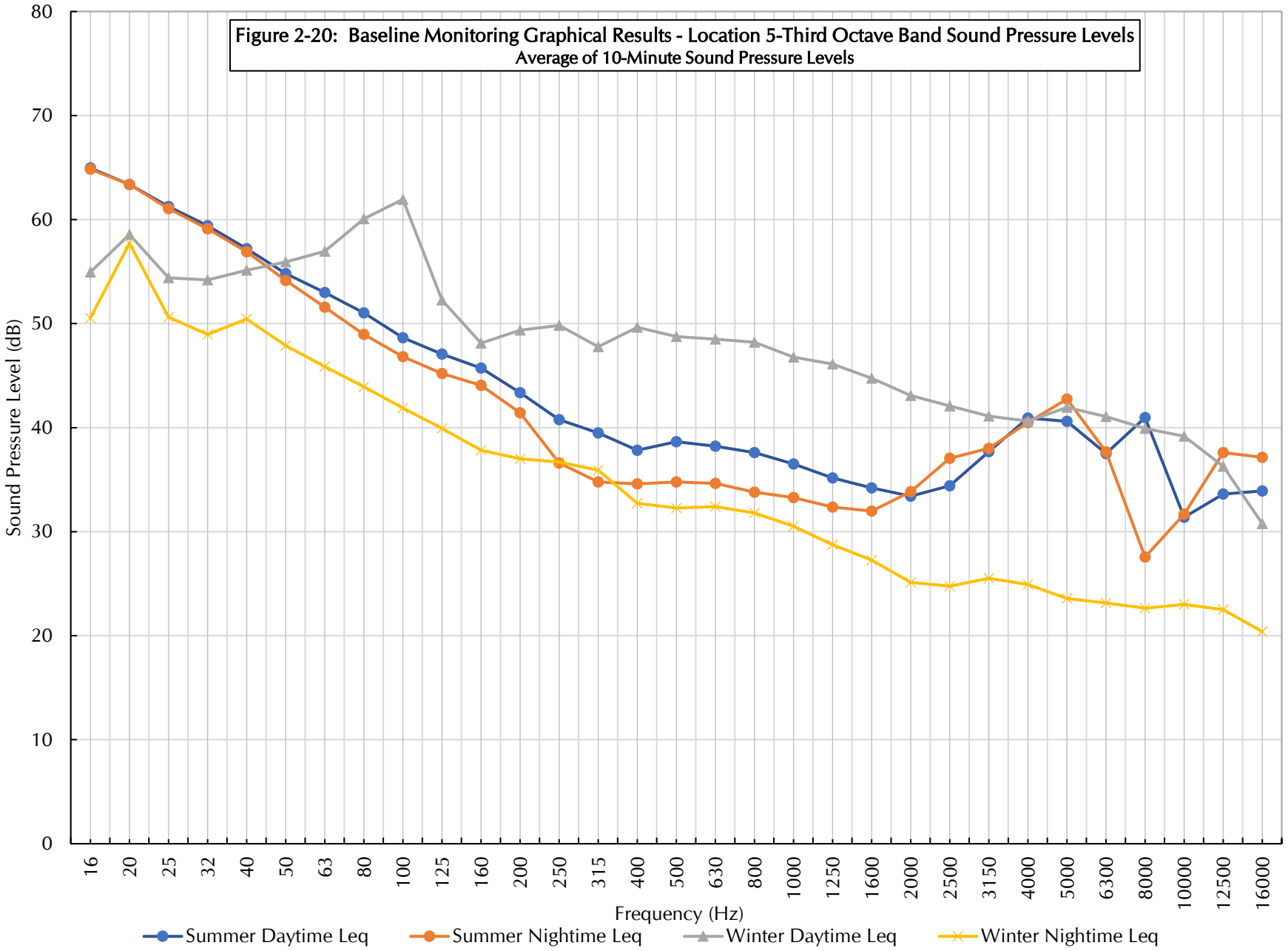
Figure 2-20: Baseline Monitoring Graphical Results - Location 5-Third Octave Band Sound Pressure Levels
Average of 10-Minute Sound Pressure Levels
Sound Pressure Level (dB)
80
70
60
50
40
30
20
10
0
16
20
25
32
40
50
63
80
100
125
160
200
250
315
400
500
630
800
1000
1250
1600
2000
2500
3150
4000
5000
6300
8000
10000
12500
16000
Frequency (Hz)
Summer Daytime Leq
Summer Nightime Leq
Winter Daytime Leq
Winter Nightime Leq

3.0 SEASONAL SOUND LEVEL MONITORING SUMMARY

A two-season baseline monitoring program was performed for the proposed Trelina Energy Center in 2019-2020 to characterize the existing sound level environment around the Project area. The sound levels measured during the winter and summer monitoring periods are summarized in the following subsections as tabular data by location. Respective ANS-weighted broadband sound levels calculated for the desired summary of interest are tandemly provided with the measured broadband levels within each table. Only valid[12] 10-minute measurement periods are included in the summary tables. Daytime is defined as the period from 7 AM to 10 PM. Nighttime is defined as the period from 10 PM to 7 AM.

3.1 Daytime Ambient – Lower Tenth Percentile

Measured daytime ambient L_{90} sound levels are shown below in Table 3-1, as per 1001.19(f)(1). Values are separated by monitoring season as well as for both seasons combined. These values represent the L_{90} of the measured L_{90} values.

Table 3-1 Daytime Ambient L_{90} (dBA) Sound Pressure Level Summary

Location	Overall (dBA)		Winter (dBA)		Summer (dBA)	
	Measured	ANS	Measured	ANS	Measured	ANS
Location 1	32	27	32	32	38	30
Location 2	31	26	33	32	37	28
Location 3	31	27	32	32	41	30
Location 4	34	29	34	34	42	32
Location 5	35	28	35	35	42	31

3.2 Nighttime Ambient – Lower Tenth Percentile

Measured nighttime ambient L_{90} sound levels are presented below in Table 3-2, as per 1001.19(f)(2) (summer) and (f)(3) (winter). Values are separated by monitoring season as well as for both seasons combined. These values represent the L_{90} of the measured L_{90} values.

[12] Refer to Chapter 2 for details concerning valid periods.

Table 3-2 Nighttime Ambient L_{90} (dBA) Sound Pressure Level Summary

Location	Overall (dBA)		Winter (dBA)		Summer (dBA)	
	Measured	ANS	Measured	ANS	Measured	ANS
Location 1	27	20	27	27	39	25
Location 2	26	19	27	26	38	25
Location 3	22	18	24	22	41	26
Location 4	31	24	31	31	45	30
Location 5	29	22	30	30	44	28

3.3 Daytime Ambient - Average

Measured daytime average ambient levels are presented in Table 3-3, as per 1001.19(f)(7). The daytime ambient average noise level was calculated by logarithmically averaging sound pressure levels (Leq) (after exclusions) from the background sound level measurements over the daytime period at each monitoring location. These calculations include both summer and winter data combined.

Table 3-3 Daytime Ambient L_{eq} (dBA) Sound Pressure Level Summary

Location	Overall (dBA)		Winter (dBA)		Summer (dBA)	
	Measured	ANS	Measured	ANS	Measured	ANS
Location 1	53	51	52	50	53	51
Location 2	54	53	55	54	53	52
Location 3	50	48	51	49	50	47
Location 4	53	51	53	51	53	50
Location 5	54	52	48	47	49	43

3.4 Nighttime Ambient - Average

Measured nighttime average ambient levels are presented in Table 3-4. The nighttime ambient average noise level was calculated by logarithmically averaging sound pressure levels (Leq) (after exclusions) from the background sound level measurements over the nighttime period at each monitoring location. These calculations include both summer and winter data combined.

Table 3-4 Nighttime Ambient L_{eq} (dBA) Sound Pressure Level Summary

Location	Overall (dBA)		Winter (dBA)		Summer (dBA)	
	Measured	ANS	Measured	ANS	Measured	ANS
Location 1	49	46	46	43	50	46
Location 2	49	47	48	46	49	46
Location 3	48	43	43	41	48	42
Location 4	51	47	48	46	52	46
Location 5	48	42	38	37	48	39

3.5 Temporal Accuracy

The temporal accuracy section of the ANSI S12.9-1992/Part 2 document requires that the data collection must be long enough to achieve the desired confidence interval. The goal of the sound measurement program is to achieve a 95% confidence interval which would allow for a statement of 95% confidence that the true long-term average sound level falls within the given interval. The size of this confidence interval places the data set into one of three categories referred to as Class A, Class B, and Class C, listed here from most precise to least precise.

To determine the temporal accuracy, the mean square average sound level must be obtained using equation 2 of section 9.5 of the ANSI S12.9-1992/Part 2 document. In this equation, the sample standard deviation and average are used to determine the mean square average. These pieces of information are then combined with the information presented in Table 1 of section 9.5 of the standard to determine the upper and lower bounds of the 95% confidence interval. The equations for the upper and lower bound of the confidence interval are equations 3 and 4 of section 9.5 of the standard respectively. If there are data sets where the number of samples was outside the range covered by the information in Table 1, the source data presented in the Crow et al. document cited in the standard is used to calculate the necessary 'k1' and 'k2' values. A two-tailed 't' interval function is used to generate the necessary 't' value.

To use the equations in the Temporal Accuracy section, the raw data set must be shown to be approximately normal. This can be obtained by following the directions laid out in Appendix D of the standard. The method used in the standard is the Kolmogorov-Smirnov test for normality of data. In general, the Kolmogorov-Smirnov test takes the actual repetition of a measurement and compares it to the expected repetition based on the average and standard deviation of the sample. The difference between the actual and expected recurrence is then compared to a critical value that is based on the number of samples and desired confidence level. If any measured value has a difference between expected and actual recurrence that exceeds the critical value, the data shall not be approximated as normal.

Tables 3-5 through 3-10 present the 95% CI of the valid measured L_{90} sound level data at each site for Summer Daytime, Summer Nighttime, Winter Daytime, Winter Nighttime, Yearly Daytime, and Yearly Nighttime periods, respectively. The "Yearly Daytime" and "Yearly Nighttime" are composed of the summer and winter data combined for each time period (day or night). Each

sample represents one full daytime (7 a.m. – 10 p.m.) or nighttime (10 p.m. – 7 a.m.) period in which more than 50% of the 10-minute records were valid. The same information is presented in Tables 3-11 to 3-16 for the measured L_{eq} sound levels at each site. All sound levels in Tables 3-5 to 3-16 are ANS-filtered.

Table 3-5 Temporal Accuracy Summary – Summer Daytime L90

Location	# of Samples	95% CI Mean (dBA)	Lower CI (dBA)	Upper CI (dBA)	Measurement Class	Normality
Location 1	6	33.59	6.09	10.98	Worse than Class C	Normal
Location 2	7	31.03	4.79	7.69	Worse than Class C	Normal
Location 3	7	32.67	5.25	8.78	Worse than Class C	Normal
Location 4	7	34.81	5.05	8.29	Worse than Class C	Normal
Location 5	7	33.96	5.42	9.20	Worse than Class C	Normal

Table 3-6 Temporal Accuracy Summary – Summer Nighttime L90

Location	# of Samples	95% CI Mean (dBA)	Lower CI (dBA)	Upper CI (dBA)	Measurement Class	Normality
Location 1	5	33.72	12.45	32.67	Worse than Class C	Normal
Location 2	6	31.75	9.44	20.98	Worse than Class C	Normal
Location 3	6	32.36	9.08	19.82	Worse than Class C	Normal
Location 4	6	37.72	10.45	24.26	Worse than Class C	Normal
Location 5	6	35.70	10.16	23.33	Worse than Class C	Normal

Table 3-7 Temporal Accuracy Summary – Winter Daytime L90

Location	# of Samples	95% CI Mean (dBA)	Lower CI (dBA)	Upper CI (dBA)	Measurement Class	Normality
Location 1	6	32.22	1.74	1.94	Class A	Normal
Location 2	6	32.86	2.05	2.38	Class B	Normal
Location 3	6	32.64	3.17	4.22	Class C	Normal
Location 4	6	34.79	2.58	3.20	Class C	Normal
Location 5	6	35.67	2.87	3.68	Class C	Normal

Table 3-8 Temporal Accuracy Summary – Winter Nighttime L90

Location	# of Samples	95% CI Mean (dBA)	Lower CI (dBA)	Upper CI (dBA)	Measurement Class	Normality
Location 1	7	27.23	1.95	2.25	Class B	Normal
Location 2	7	26.65	1.85	2.12	Class B	Normal
Location 3	7	22.59	2.89	3.76	Class C	Normal
Location 4	7	31.64	2.65	3.35	Class C	Normal
Location 5	7	30.76	3.05	4.04	Class C	Normal

Table 3-9 Temporal Accuracy Summary – Yearly Daytime L90

Location	# of Samples	95% CI Mean (dBA)	Lower CI (dBA)	Upper CI (dBA)	Measurement Class	Normality
Location 1	12	32.82	2.63	3.40	Class C	Normal
Location 2	13	32.26	2.75	3.61	Class C	Normal
Location 3	13	32.62	2.82	3.72	Class C	Normal
Location 4	13	34.81	2.65	3.43	Class C	Normal
Location 5	13	35.11	3.14	4.29	Class C	Normal

Table 3-10 Temporal Accuracy Summary – Yearly Nighttime L90

Location	# of Samples	95% CI Mean (dBA)	Lower CI (dBA)	Upper CI (dBA)	Measurement Class	Normality
Location 1	12	29.53	3.93	5.77	Worse than Class C	Normal
Location 2	13	28.73	3.55	5.04	Worse than Class C	Normal
Location 3	13	27.34	4.05	5.98	Worse than Class C	Normal
Location 4	13	34.08	4.03	5.94	Worse than Class C	Normal
Location 5	13	32.72	4.05	5.98	Worse than Class C	Normal

Table 3-11 Temporal Accuracy Summary - Summer Daytime Leq

Location	# of Samples	95% CI Mean (dBA)	Lower CI (dBA)	Upper CI (dBA)	Measurement Class	Normality
Location 1	6	50.90	1.47	1.59	Class A	Normal
Location 2	7	51.93	0.75	0.77	Class A	Normal
Location 3	7	47.62	1.30	1.39	Class A	Normal
Location 4	7	50.72	1.63	1.82	Class A	Normal
Location 5	7	45.17	4.74	7.57	Worse than Class C	Normal

Table 3-12 Temporal Accuracy Summary - Summer Nighttime Leq

Location	# of Samples	95% CI Mean (dBA)	Lower CI (dBA)	Upper CI (dBA)	Measurement Class	Normality
Location 1	5	46.43	3.54	4.84	Class C	Normal
Location 2	6	46.66	1.36	1.47	Class A	Normal
Location 3	6	43.21	3.93	5.72	Worse than Class C	Normal
Location 4	6	46.84	2.89	3.72	Class C	Normal
Location 5	6	43.22	7.31	14.42	Worse than Class C	Normal

Table 3-13 Temporal Accuracy Summary - Winter Daytime Leq

Location	# of Samples	95% CI Mean (dBA)	Lower CI (dBA)	Upper CI (dBA)	Measurement Class	Normality
Location 1	6	50.27	0.50	0.51	Class A	Normal
Location 2	6	53.59	0.81	0.83	Class A	Normal
Location 3	6	49.08	1.64	1.82	Class A	Normal
Location 4	6	51.53	1.53	1.67	Class A	Normal
Location 5	6	53.64	9.03	19.67	Worse than Class C	Normal

Table 3-14 Temporal Accuracy Summary - Winter Nighttime Leq

Location	# of Samples	95% CI Mean (dBA)	Lower CI (dBA)	Upper CI (dBA)	Measurement Class	Normality
Location 1	7	43.80	1.69	1.89	Class A	Normal
Location 2	7	46.16	1.79	2.04	Class B	Normal
Location 3	7	41.70	1.76	1.99	Class A	Normal
Location 4	7	46.64	2.13	2.52	Class B	Normal
Location 5	7	39.43	4.26	6.49	Worse than Class C	Normal

Table 3-15 Temporal Accuracy Summary - Yearly Daytime Leq

Location	# of Samples	95% CI Mean (dBA)	Lower CI (dBA)	Upper CI (dBA)	Measurement Class	Normality
Location 1	12	50.58	0.65	0.67	Class A	Normal
Location 2	13	52.78	0.70	0.72	Class A	Normal
Location 3	13	48.34	0.97	1.03	Class A	Normal
Location 4	13	51.10	0.99	1.05	Class A	Normal
Location 5	13	49.42	4.62	7.10	Worse than Class C	Normal

Table 3-16 Temporal Accuracy Summary - Yearly Nighttime Leq

Location	# of Samples	95% CI Mean (dBA)	Lower CI (dBA)	Upper CI (dBA)	Measurement Class	Normality
Location 1	12	44.97	1.58	1.79	Class A	Normal
Location 2	13	46.38	1.00	1.07	Class A	Normal
Location 3	13	42.32	1.68	1.94	Class A	Normal
Location 4	13	46.67	1.47	1.65	Class A	Normal
Location 5	13	40.97	3.51	4.95	Class C	Normal

3.6 Infrasound and Low Frequency

Infrasound and low frequency sound pressure levels were measured at all locations in both the summer and winter seasons. The frequency range of these data is from 6.3 Hz to 200 Hz. The sound levels were summarized by averaging[13] sound level data from all valid[14] winter daytime 10-minute periods, winter nighttime 10-minute periods, summer daytime 10-minute periods, and summer nighttime 10-minute periods within each one-third octave band. Winter and summer infrasound data collected at Location 2 are presented in Figure 3-1. This location was chosen for its centralized location within the project area.

[13] Logarithmic (energy) average of equivalent (Leq) sound pressure levels.

[14] Refer to Chapter 2 for details concerning valid periods.

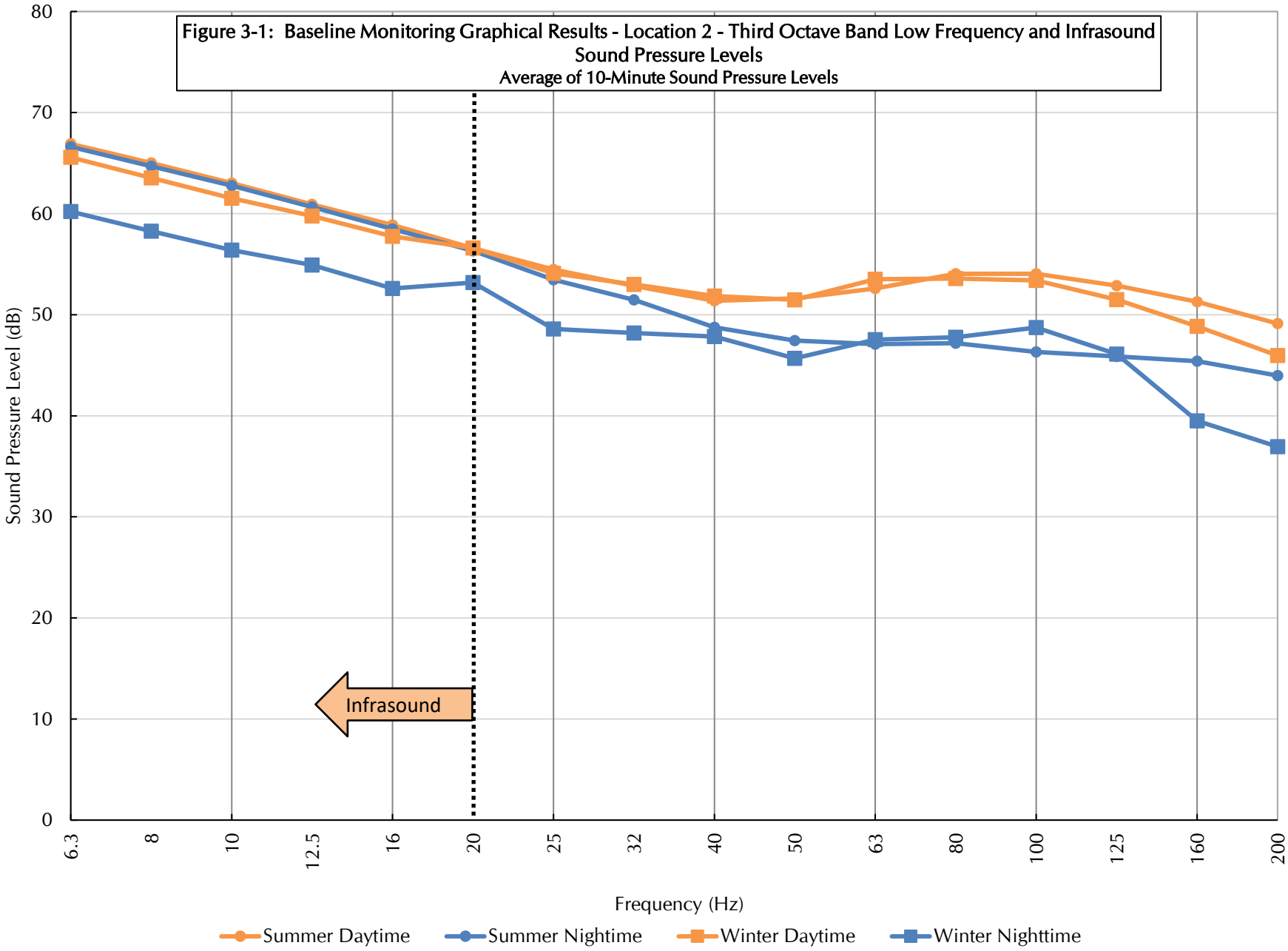
Figure 3-1: Baseline Monitoring Graphical Results - Location 2 - Third Octave Band Low Frequency and Infrasound Sound Pressure Levels
Average of 10-Minute Sound Pressure Levels
Sound Pressure Level (dB)
80
70
60
50
40
30
20
10
0
Infrasound
6.3
8
10
12.5
16
20
25
32
40
50
63
80
100
125
160
200
Frequency (Hz)
Summer Daytime
Summer Nightime
Winter Daytime
Winter Nighttime

Appendix A
Windscreen Insertion Loss

Experimental study to determine wind-induced noise and windscreen attenuation effects on microphone response for environmental wind turbine and other applications

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(Received: 23 February 2008; Revised: 30 May 2008; Accepted: 31 May 2008)

Despite the use of windscreens, the measurement of ambient sound levels or noise emissions in quiet environments can be adversely affected by wind blowing over the microphone. This is especially true when environmental impact assessments are being carried out for proposed wind turbine power projects - where the objective is to determine the level of background masking noise available as a function of wind speed, since any potential noise impact from the project will only occur under moderately windy conditions. Under calm conditions the project will produce no noise at all. A number of windscreen products are commercially available for short and long-term sound level monitoring in adverse weather conditions. Generally, these windscreens vary by physical size and the method of preventing water from reaching the microphone. High frequency attenuation effects are usually available from the product suppliers but, in general, low frequency turbulence effects are not available. Consequently, a controlled laboratory test program was carried out in a state-of-the-art wind tunnel at the Fraunhofer Institut für Bauphysik in Stuttgart, Germany to quantify the level of low frequency interference (down to 6.3 Hz) associated with a number of different foam windscreens and an aerodynamic microphone nose cone. A total of nine configurations were tested with "quiet" airflow only, artificial noise only and noise plus airflow to evaluate both low frequency wind induced noise and high frequency attenuation effects. The test program demonstrated that the largest size foam-based windscreens provided the most protection from flow induced noise due to wind. Flow induced noise by air flow alone was estimated from the study results and compared to community noise measurements at a typical wind turbine site. It was determined that flow induced wind noise does not have a significant or detrimental effect on the measurement of A-weighted sound levels under wind conditions of concern as long as the suggested measurement techniques described herein are followed.

Primary subject classification: 71.1.1; Secondary subject classification: 21.6

1 INTRODUCTION

It is a challenge to measure ambient or background levels in quiet, rural environments. Such areas are usually devoid of any major noise sources, such as highways, industrial facilities or airports. Except for occasional, usually man-made, noise events the sound level in rural environments is normally dominated by the rustling of tree leaves or branches in the wind or by the high frequency sounds of insects during the warmer months of the year. For wind turbine power project assessments, ambient sound levels when the wind is blowing in the 3 to 10 m/s range (measured at 10 m above the surface) is very relevant because that is when typical wind turbines first begin to generate significant noise. At higher wind speeds turbine sound levels remain largely constant while the background sound continues to increase. Consequently, background sound

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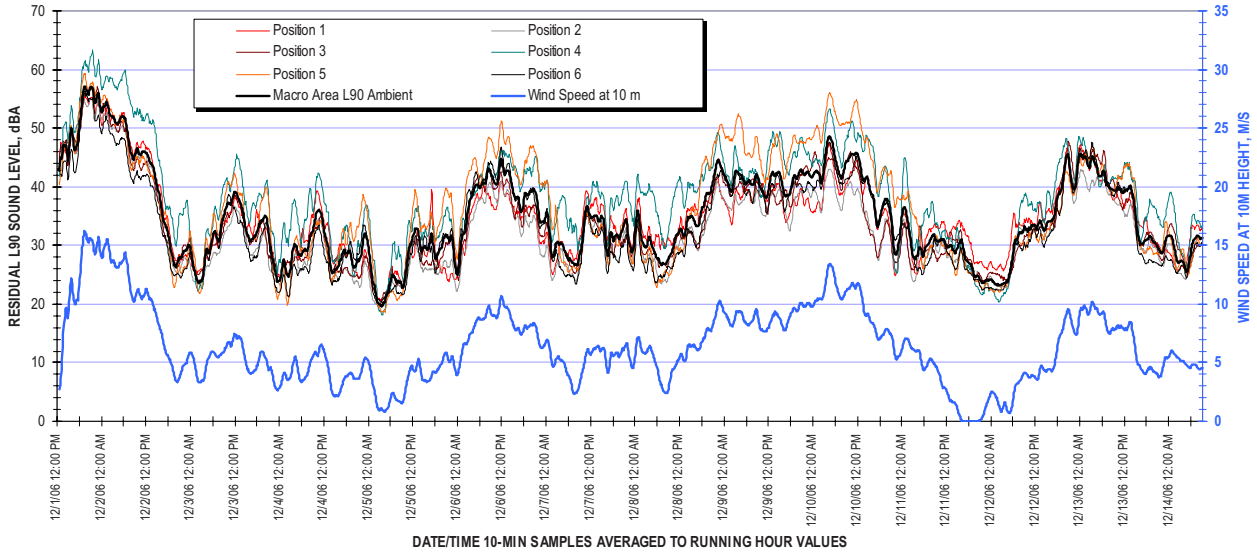

Fig. 1—Measured residual LA90 ambient sound levels at six widely spaced locations in a quiet rural area compared to wind speed over a 13 day period.

levels that occur during moderate winds are of the most interest. Reference 1 offers techniques for measuring wind turbine sources using a ground plane microphone setup to eliminate wind induced noise, but background baseline measurements are made above grade with wind.

In general, experience with (insect-free) wintertime surveys at rural sites indicates that there is normally an

Fig. 2—Photographs of nine microphone test configurations.

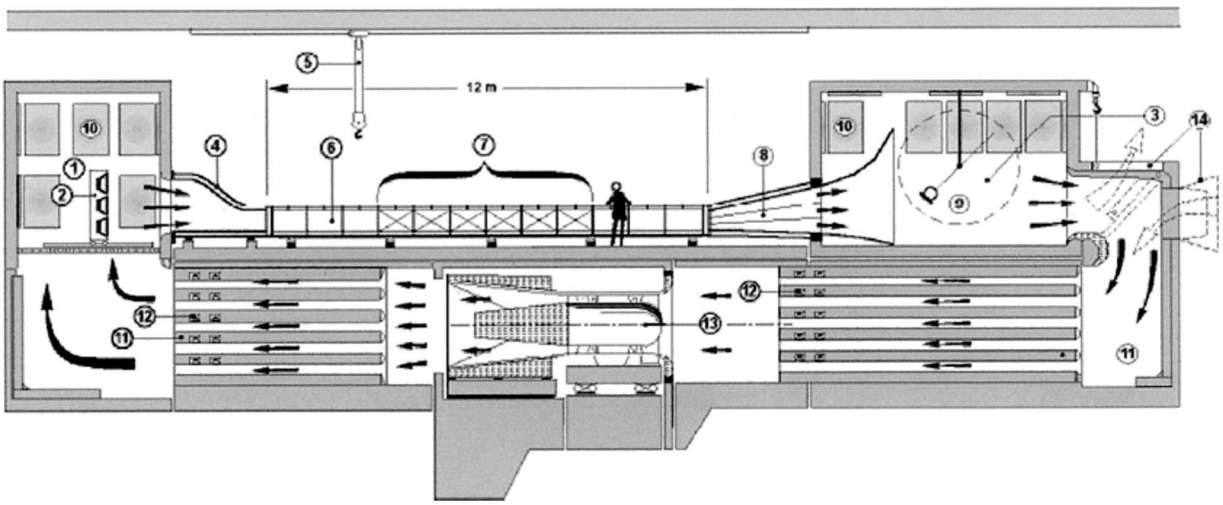

Fig. 3—Cross sectional elevation view of silencer test facility.

excellent correlation between wind speeds and the ambient residual (L90) sound levels as shown on Fig. 1. Of course, such a high degree of correlation could result if the microphone response was dominated by wind-induced turbulence effects around the microphone as opposed to the true ambient sound level signal. Hence, the purpose of this study is to quantitatively address this uncertainty and determine, for a number of common windscreens types, if/when any substantial contamination occurs over a range of wind speeds.

Nine microphone configurations, as illustrated in Fig. 2, were tested under controlled conditions in a wind tunnel duct using quiet airflow only, artificial noise only (at three volumes) and airflow plus artificial noise. Ninety degree incidence is used to duplicate ambient sound measurement survey techniques, but the nose cone (B&K model UA 0386) was aimed into the flow stream. Windscreens for tests 3, 4, 8 and 9 are products available for long-term outdoor monitoring. The foam ball ACO Pacific models (tests 8 and 9) are specifically treated to shed rain water while the other foam balls are not intended for outdoor rain exposure. Measurements were carried out at duct velocities of 2.5, 5, 10, 20 and 30 m/s (8, 16, 33, 66 and 98 ft/s, or 6, 11, 22, 45 and 67 mph). The test results are also useful for determining flow turbulence effects when measuring industrial noise sources in the presence of airflow, as well as for outdoor environmental measurements.

The test program was carried out at the Fraunhofer Institute of Building Physics located in Stuttgart, Germany at their aero-acoustic wind tunnel illustrated on Fig. 3. Note the large silencers on the inlet and exhaust path of the airflow fan and the structural isolation of the test duct. The airflow delivered to the duct test section is essentially free of fan noise or is "quiet" air. The airflow in the duct cross section has an even distribution without swirl or turbulences as it is supplied through a stilling chamber and an air inlet profile. The duct cross section of 1 m by 0.5 m was held constant over the complete length for all measurements. In this way re-generated noise was kept at a minimum. Measurements were made with a Norsonic 840 Analyzer, Norsonic Model 1201 preamp and 1/2 inch (13 mm) diameter Model 1225 microphone.

2 LOW FREQUENCY TURBULENCE EFFECTS - FLOW MEASUREMENTS

The raw measured data for all configurations at the five airflow speeds are plotted on Fig. 4. It is certainly not news, but the data clearly demonstrate that even the most modest foam windscreen should always be used when outdoors, since it dramatically improves the low and mid frequency microphone response. Because the extreme low frequencies are significantly affected by flow induced noise even at fairly low wind speeds, these plots also show that whenever low level very low frequency or C-weighted sound levels must be measured outdoors such measurements should only be carried out under completely calm conditions.

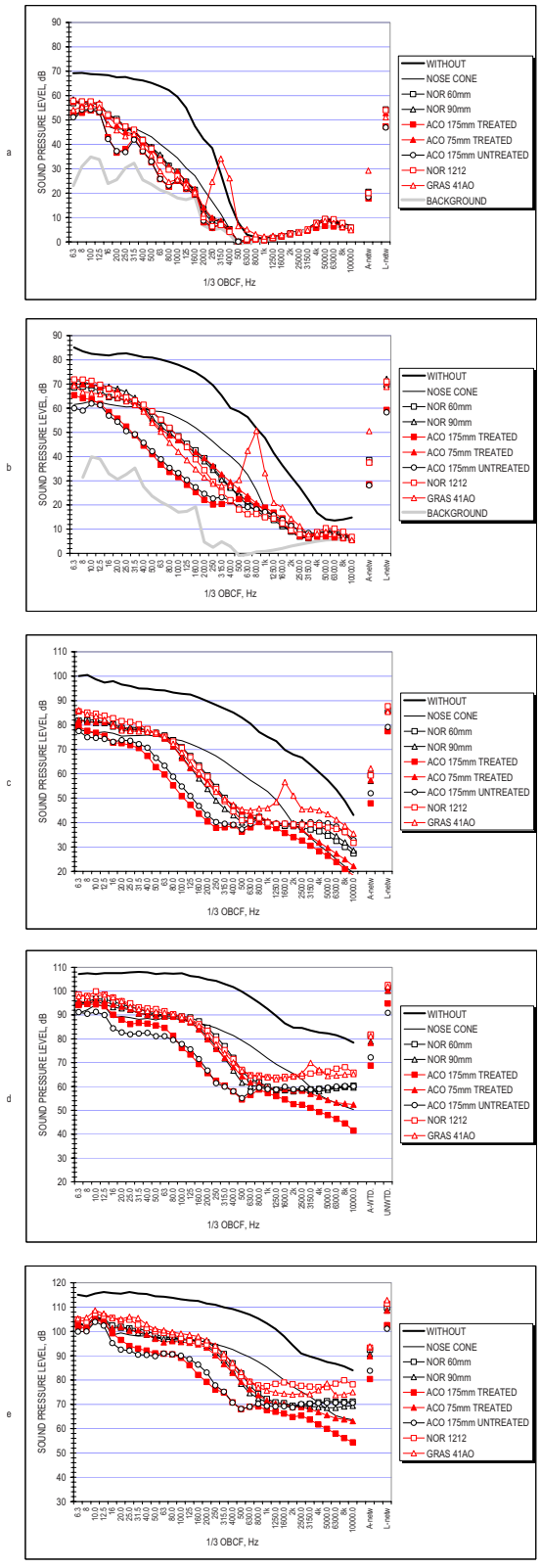

Fig. 4—Measured microphone response at five velocities (2.5, 5. 10, 20 and 30 m/s*, graph a through e).*

The second trend immediately noticeable is that the two larger (175 mm diameter) windscreens are significantly better at reducing flow induced noise at low and

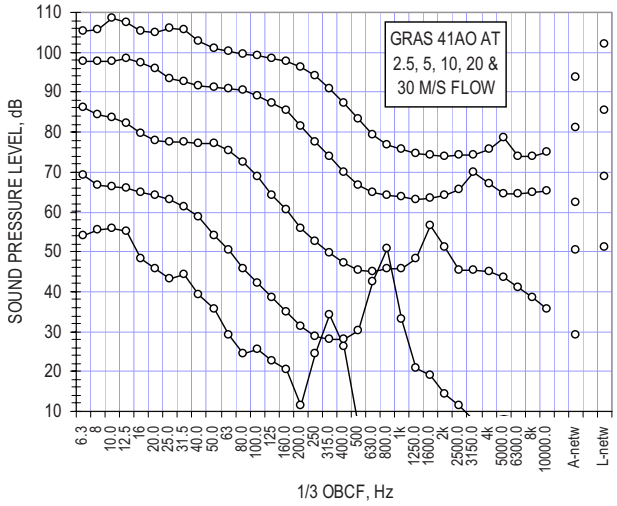

Fig. 5—Graph showing flow generated tonal noise associated with the gap between foam and wire.

mid frequencies. Flow-induced noise levels are on the order of 10 dB lower for this type of windscreen than they are for all others. Prior studies have shown this relationship and an excellent analytical study and summary of microphone response to turbulence is presented by van den Berg in Ref. 2. This testing quantifies the improvement and low frequency performance for readily available current wind protection products.

All of the plots, but particularly the lower wind speed cases, show a tonal aberration for the GRAS model 41AO windscreen. A frequency shift with wind velocity can clearly be seen in Fig. 5, which shows only the results for this model windscreen at all five wind speeds. This behavior was initially attributed to vortex shedding from the bird spike wires (each 1.5 mm in diameter) where the frequency may be calculated by the well known equation:

$$f = Sv/d \qquad (1)$$

where,
S=the Strouhal number of 0.2
v=velocity, m/s
d=diameter, m

This calculation indicated that the 315, 630, 1250, 2500 and 5000 Hz 1/3 octave bands would be excited by vortex shedding, but the actual measurements showed that the affected bands were 315, 800, 1600, 3150 and 5000 Hz. Further diagnostic testing demonstrated that the peaks are caused by the gap between the

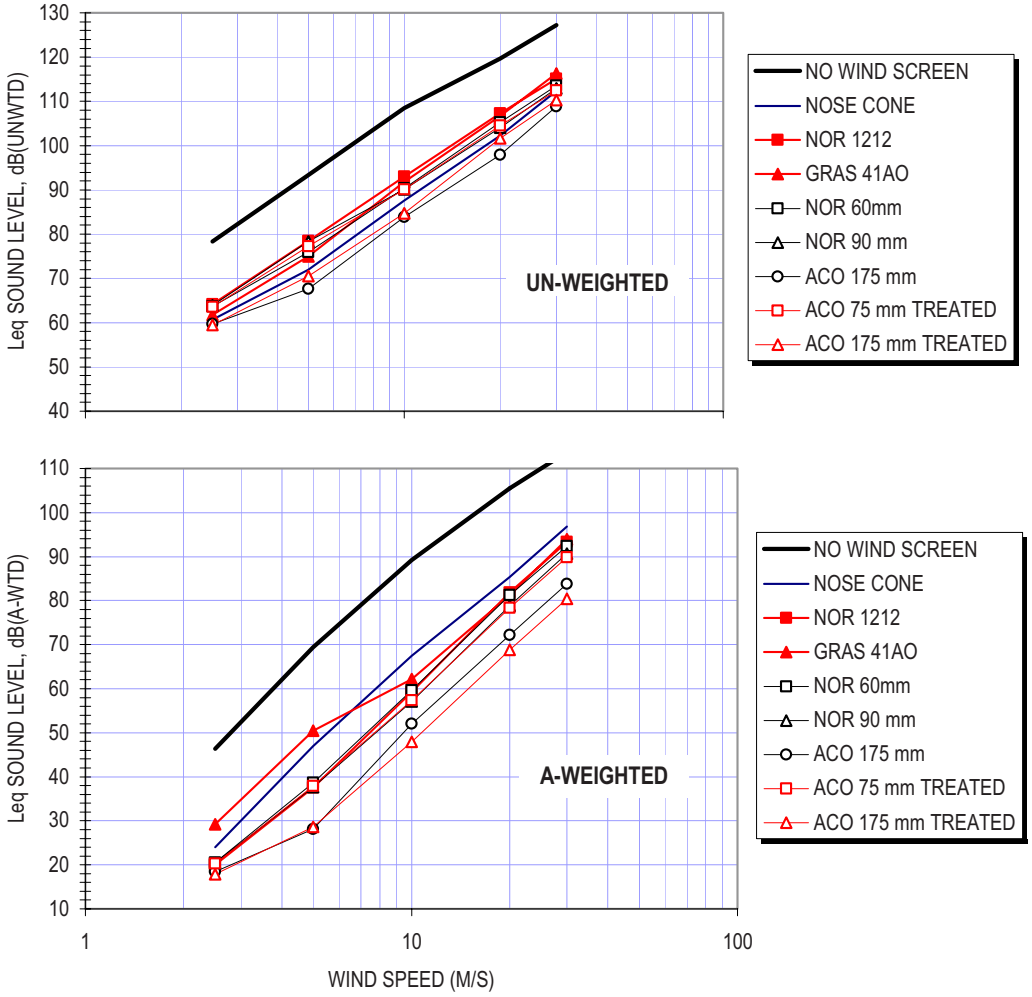

Fig. 6—Plot of overall flow noise response for windscreen models. Upper: Un-weighted level, Lower: A-weighted level.

wire bird spike base and the top of the windscreen. Apparently small mini-jets are created by this gap and it was found that this noise could be reduced by a closer fit between the foam screen and the wire. The gap should be eliminated when employing this model for monitoring.

Figure 6 plots the overall measured values of flow-generated noise as a function of air flow velocity. When plotted on a logarithmic scale, the data show a linear increase with velocity for all models. The overall, un-weighted sound level slope is a v^5 relationship, or approximately a 15 dB increase for each doubling of velocity, whereas the A-weighted results are a v^6 relationship, or approximately 18 dBA increase per doubling. Table 1 tabulates the overall measured values at each velocity for each model windscreen. These data can be used to derive a logarithmic expression for the self-generated noise level as a function of wind speed for any of the tested windscreens. For example, data for the treated ACO 175 mm windscreen leads to the following approximate equation for estimating the A-weighted flow induced noise level for the wind speed at the microphone location. Wind speed at 10 m elevation is the standardized elevation for rating wind turbines as given in Ref. 1 but this equation applies at the microphone location.

$$L_{fin} = 27.4 \ln(v) - 10.7, \text{ dBA} \qquad (2)$$

where,

L_{fin}=the A-weighted flow-induced-noise level due only to wind

v=the wind speed at the microphone, m/s

Table 1—Measured overall levels for microphone response with and without windscreens at five velocity settings. Lowest response results are for the 175 mm *size windscreens.*

		FLOW SPEED M/S (MPH)				
A-WTD		2.5	5	10	20	30
T1	NO WIND SCREEN	46	69	89	106	114
T2	NOSE CONE	24	47	68	85	97
T3	NOR 1212	20	38	59	82	93
T4	GRAS 41AO	29	51	62	81	94
T5	NOR 60 mm	21	39	60	81	92
T6	NOR 90 mm	20	38	57	79	91
T7	ACO 175 mm	18	28	52	72	84
T8	ACO 75 mm TREATED	20	38	57	78	90
T9	ACO 175 mm TREATED	18	29	48	69	80
UNWTD		FLOW SPEED M/S (MPH)				
		2.5	5	10	20	30
T1	NO WIND SCREEN	78	93	109	120	127
T2	NOSE CONE	61	72	88	102	112
T3	NOR 1212	64	79	93	107	115
T4	GRAS 41AO	62	75	92	107	116
T5	NOR 60 mm	64	76	90	105	114
T6	NOR 90 mm	64	78	90	104	113
T7	ACO 175 mm	60	68	84	98	109
T8	ACO 75 mm TREATED	64	77	90	105	113
T9	ACO 175 mm TREATED	60	71	85	102	110

3 ATTENUATION EFFECTS – ARTIFICIAL NOISE MEASUREMENTS

The measured sound levels in the duct at three volumes of artificial loud speaker noise (without any airflow) are plotted in Fig. 7. The fairly significant response variances at frequencies below 50 Hz are attributable to longitudinal in-duct resonances. Variable levels of external low frequency background noise outside the test duct at the facility may have also contributed to the scatter and loudspeaker output is poor at frequencies below 20 Hz. An improved signal to background noise ratio is suspected as the reason for better data grouping at the highest volume. There is no reason to believe that windscreens have any attenuation or amplification effects at these low frequencies. To verify this, testing was repeated in the facilities anechoic free-field environment. Figure 8 plots the raw data for this test and it is readily apparent that the low frequency variations are absent for a free progressive wave in an anechoic room as opposed to the wave front in a duct containing lateral reflections.

At the high end of the frequency spectrum the plots consistently show the same, model-dependent trends such as the significant attenuation of the ACO 175 mm treated windscreen at all frequencies above about 1250 Hz. Figure 9 shows the averaged attenuation for the three volumes in 1/3 octave bands for all windscreen models tested. Negative attenuation, or amplification of the signal, is significant for the nose cone and Nor 1212 outdoor windscreen. Table 2 tabulates the measured attenuations.

In general, the relatively large high frequency attenuation associated with the ACO 175 mm treated windscreen means that any un-corrected measurements made with it would be somewhat lower on an overall A-weighted basis than the actual value and therefore conservative in background survey applications. The overall noise reduction of this windscreen would depend on the frequency spectrum shape of the sound being measured but appears to be in 2 to 5 dBA range (neglecting any possible counteracting increases due to wind-induced effects). This low-pass filter quality could actually be beneficial in cases where unwanted summertime insect noise (generally above 2 kHz) is present. This contamination would be automatically

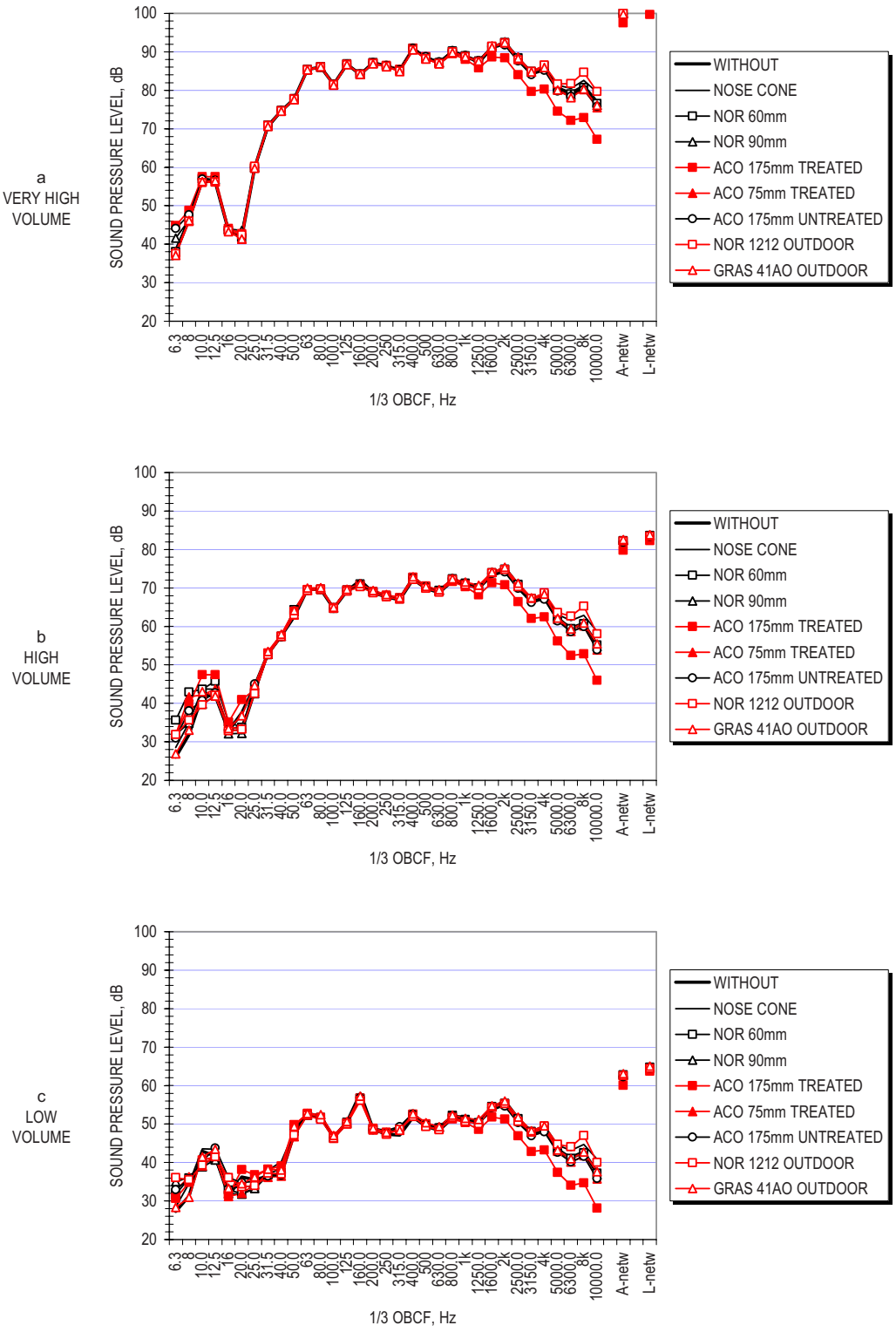

Fig. 7—Measured response with three volumes of artificial noise in the duct.

minimized, though not necessarily eliminated, through the use of this windscreen

4 FLOW AND NOISE MEASUREMENTS

The combined flow and noise measurements serve to illustrate the accuracy of the measurements and the benefits of using windscreens. Figure 10 plots the flow only, noise only and the combined flow and noise measurements for three cases: no windscreen, minimum diameter and maximum diameter foam windscreens. The point where the flow only and noise only traces cross essentially defines the minimum

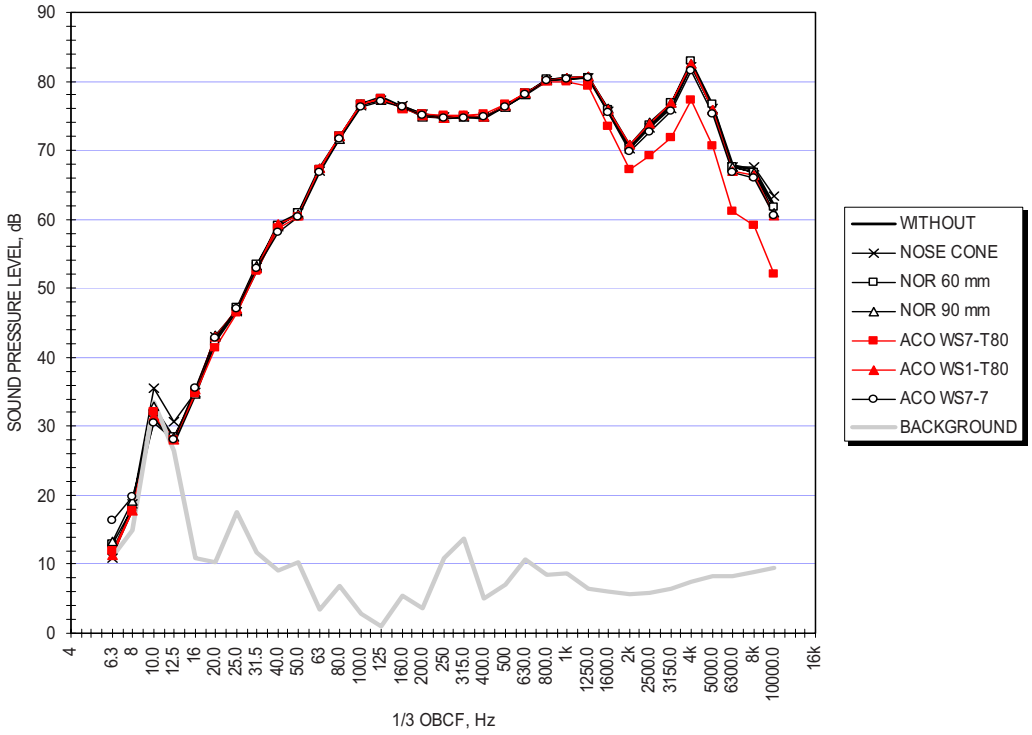

Fig. 8—Measured sound pressure spectra for five windscreen models in an anechoic chamber.

frequency at which valid data can be measured during, in this case, a 10 m/s wind. Without a windscreen, almost the entire spectrum (0 to 6300 Hz) is dominated by the 10 m/s flow noise. At the same 10 m/s flow speed; however, accurate measurements can be made in all bands above 125 Hz using only a 60 mm windscreen. The frequency response is improved to above 50 Hz using the largest (175 mm) windscreen.

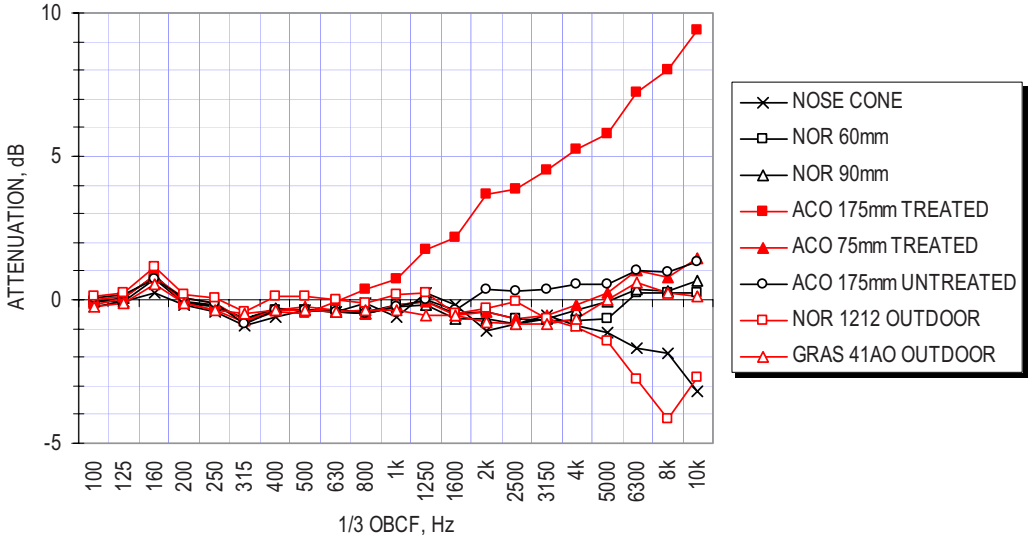

Fig. 9—Measured microphone response attenuation for windscreen models for 90 degree sound incidence.

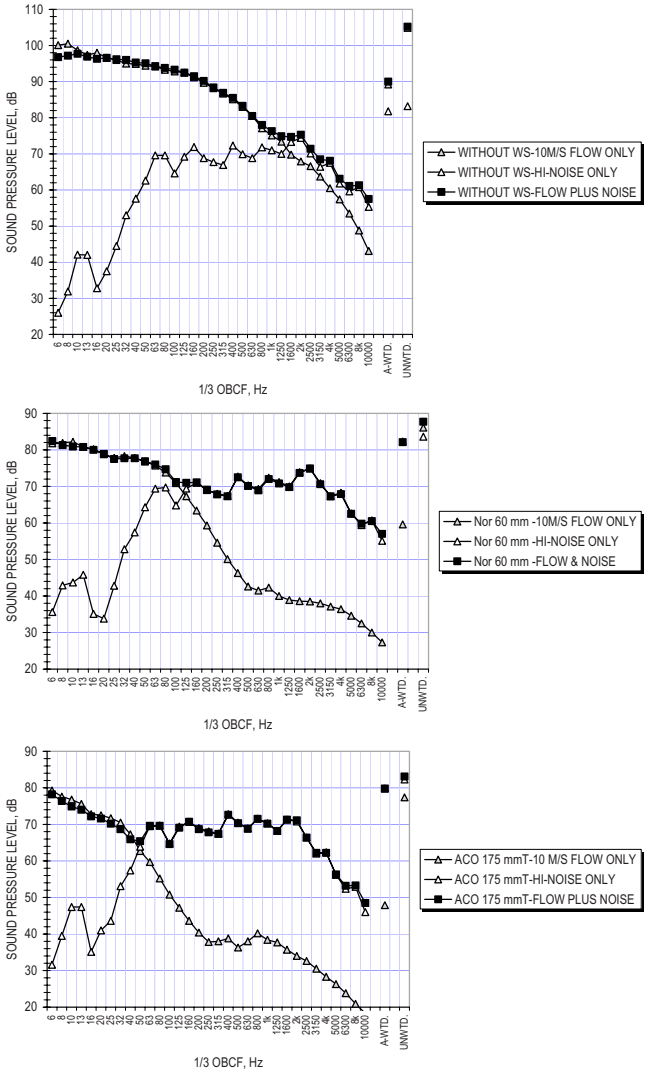

Fig. 10—Flow only, noise only and flow and noise measurements.

5 CONCLUSIONS AND RECOMMENDATIONS

The data show that reasonably good results when measuring in low to moderate wind conditions are possible even with conventional 60 mm windscreens, but that a larger (175 mm) diameter windscreen offers significantly better performance in the lower frequencies.

In the special case of background sound level surveys for wind turbine projects, where the objective is to determine the environmental sound level/masking level as a function of wind speed, the suggested practice based on this lab study is to use a large 175 mm windscreen and mount the microphone at a maximum elevation of about 1 m above grade. This latter step helps ensure that the microphone is exposed to relatively low wind speeds, since the nominal wind velocity profile, Eqn. (7) in Ref. 1 has a parabolic shape where the velocity decreases rapidly near the ground – theoretically going to zero at the surface. For example, a wind speed of 10 m/s (22.4 mph) measured at a standardized elevation of 10 m would translate to a nominal speed of 5.6 m/s (12.5 mph) at only 1 m above the surface. The wind speed range of most relevance to wind turbine analyses is usually in the 5 to 8 m/s range as measured at 10 m; consequently, a microphone at 1 m would be exposed to nominal flow velocities of 2.8 m/s (6.3 mph) to 4.5 m/s (10.1 mph) where the A-weighted flow induced noise levels would

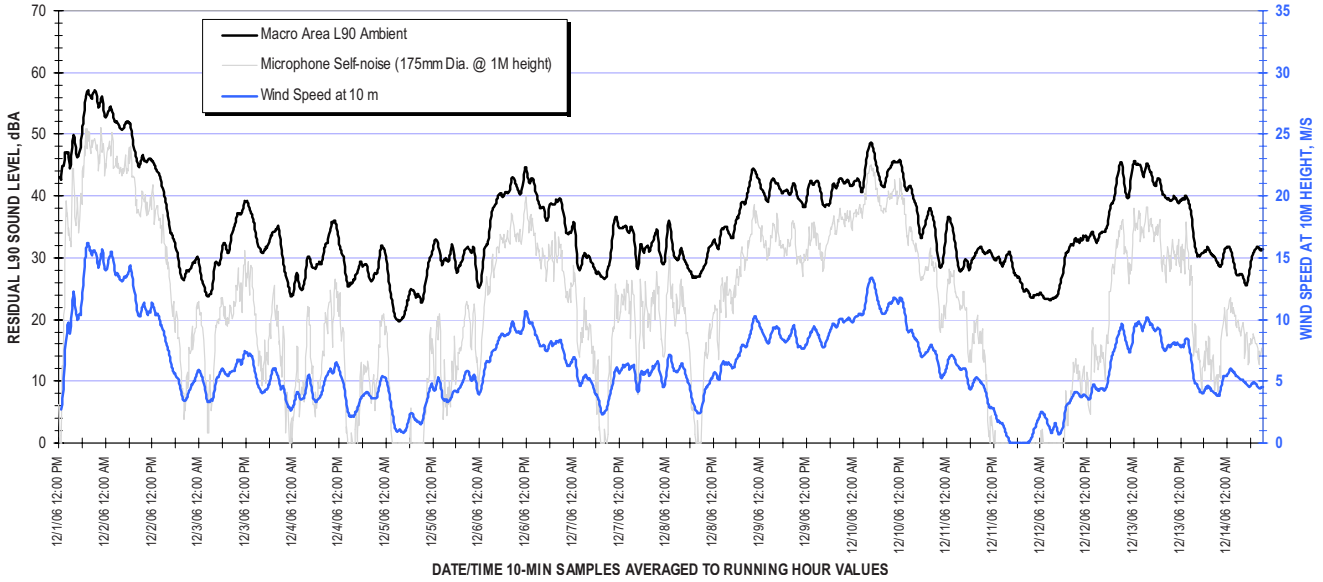

Fig. 11—Measured community ambient level compared to estimated microphone response to wind.

Table 2—Measured attenuation for windscreen models, 90 degree sound incidence.

1/3 OBCF, Hz	NOR 60 mm	NOR 90 mm	ACO 175 mm TREATED	ACO 75 mm TREATED	ACO 175 mm UNTREATED	NOR1212 OUTDOOR	GRAS41AO OUTDOOR	NOSE CONE
100	0.0	−0.1	−0.2	0.0	0.1	0.1	−0.2	−0.2
125	−0.1	0.1	0.1	0.1	0.2	0.3	−0.1	−0.1
160	0.7	0.9	0.8	0.8	0.7	1.2	0.5	0.2
200	−0.1	0.0	−0.1	0.0	0.1	0.2	−0.1	−0.2
250	−0.2	−0.2	−0.4	−0.1	−0.1	0.0	−0.3	−0.4
315	−0.7	−0.6	−0.8	−0.7	−0.8	−0.4	−0.5	−0.9
400	−0.4	−0.3	−0.4	−0.3	−0.4	0.1	−0.4	−0.6
500	−0.3	−0.3	−0.5	−0.2	−0.3	0.1	−0.3	−0.3
630	−0.4	−0.4	0.0	−0.4	−0.4	0.0	−0.4	−0.4
800	−0.4	−0.5	0.4	−0.5	−0.5	−0.1	−0.3	−0.1
1K	−0.2	−0.2	0.7	−0.2	−0.2	0.2	−0.3	−0.6
1250	0.0	−0.2	1.8	−0.1	0.0	0.3	−0.5	0.3
1600	−0.5	−0.6	2.2	−0.6	−0.3	−0.5	−0.6	−0.2
2K	−0.4	−0.7	3.7	−0.4	0.3	−0.3	−0.8	−1.1
2500	−0.6	−0.8	3.8	−0.7	0.3	0.0	−0.8	−0.8
3150	−0.7	−0.6	4.5	−0.5	0.3	−0.7	−0.8	−0.6
4K	−0.7	−0.3	5.3	−0.2	0.5	−1.0	−0.7	−0.9
5K	−0.6	−0.1	5.8	0.2	0.6	−1.5	0.0	−1.1
6300	0.2	0.3	7.2	1.0	1.0	−2.8	0.6	−1.7
8K	0.2	0.3	8.0	0.8	1.0	−4.1	0.2	−1.9
10K	0.3	0.7	9.4	1.5	1.3	−2.7	0.1	−3.2

range from 18 to 31 dBA. Such levels are low to insignificant even compared to the quiet environmental sound levels that commonly exist in rural areas.

As an example, the self-noise sound levels associated with the field data illustrated in Figure 1 have been calculated from Eqn. (2) above (based on the 10 m wind data converted to 1 m) and used to correct the sound levels actually measured. The measured and corrected sound levels are plotted in Fig. 11. Since the microphone flow induced noise response alone is frequently 8 to 10 dBA below the measured levels, the adjustment is minimal in most instances (=< 0.5 dBA) and therefore considered insignificant.

6 ACKNOWLEDGEMENTS

The author wishes to acknowledge both the technical and financial assistance provided by the Norsonic in Germany, Scantek, Inc., GRAS and ACO Pacific in the U.S.

7 REFERENCES

1. International Standard IEC 61400-11, *Wind turbine generator systems – Part 11: "Acoustic noise measurement techniques"*, 2nd edition 2002–12, (2002).
2. G. P. van den Berg, "The sound of high winds: the effect of atmospheric stability on wind turbine sound and microphone noise." Ph.D. Thesis, National University of Groningen, The Netherlands, (2006).

Appendix B

Certificates of Sound Level Instrument Calibration

Scantek, Inc.
CALIBRATION LABORATORY

ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.43062

Instrument: **Sound Level Meter**
Model: **831**
Manufacturer: **Larson Davis**
Serial number: **0001992**
Tested with: **Microphone 377B20 s/n 112340**
Preamplifier PRM831 s/n 015258
Type (class): **1**
Customer: **Epsilon Associates, Inc.**
Tel/Fax: **978-461-6235 / choyt@epsilonassociates.com**

Date Calibrated: **6/20/2019** *Cal Due:* **6/20/2020**

Status:	**Received**	**Sent**
In tolerance:	**X**	**X**
Out of tolerance:		
See comments:		

Contains non-accredited tests: __Yes **X** No
Calibration service: __ **Basic** **X** **Standard**
Address: **3 Mill & Main Place, Suite 250, Maynard, MA 01754**

Tested in accordance with the following procedures and standards:
Calibration of Sound Level Meters, Scantek Inc., Rev. 6/26/2015
SLM & Dosimeters – Acoustical Tests, Scantek Inc., Rev. 7/6/2011

Instrumentation used for calibration: Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31052	Oct 31, 2018	Scantek, Inc./ NVLAP	Oct 31, 2019
DS-360-SRS	Function Generator	33584	Oct 24, 2017	ACR Env./ A2LA	Oct 24, 2019
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Oct 1, 2018	ACR Env. / A2LA	Oct 1, 2019
HM30-Thommen	Meteo Station	1040170/39633	Nov 13, 2018	ACR Env./ A2LA	Nov 13, 2019
PC Program 1019 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1251-Norsonic	Calibrator	30878	Nov 11, 2018	Scantek, Inc./ NVLAP	Nov 11, 2019

Instrumentation and test results are traceable to SI (International System of Units) through standards maintained by NIST (USA) and NPL (UK).

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
22.4	98.57	49.3

Calibrated by:	Lydon Dawkins	**Authorized signatory:**	William D. Gallagher
Signature	Lydon Dawkins	Signature	William D. Gallagher
Date	6/20/2019	Date	6/20/2019

Results summary: Device complies with following clauses of mentioned specifications:

CLAUSES [1] FROM IEC/ANSI STANDARDS REFERENCED IN PROCEDURES:	RESULT[2,3]	EXPANDED UNCERTAINTY (coverage factor 2) [dB]
INDICATION AT THE CALIBRATION CHECK FREQUENCY - IEC61672-3 ED.2 CLAUSE 10	Passed	0.15
SELF-GENERATED NOISE - IEC 61672-3 ED.2 CLAUSE 11	Passed	0.30
FREQUENCY WEIGHTINGS: A NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	0.20
FREQUENCY WEIGHTINGS: C NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	0.20
FREQUENCY WEIGHTINGS: Z NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	0.20
FREQUENCY AND TIME WEIGHTINGS AT 1 KHZ IEC 61672-3 ED.2.0 CLAUSE 14	Passed	0.20
LEVEL LINEARITY ON THE REFERENCE LEVEL RANGE - IEC 61672-3 ED.2 CLAUSE 16	Passed	0.25
LEVEL LINEARITY INCLUDING THE LEVEL RANGE CONTROL - IEC 61672-3 ED.2.0 CLAUSE 17	Passed	0.25
TONEBURST RESPONSE - IEC 61672-3 ED.2.0 CLAUSE 18	Passed	0.30
PEAK C SOUND LEVEL - IEC 61672-3 ED.2.0 CLAUSE 19	Passed	0.35
OVERLOAD INDICATION - IEC 61672-3 ED.2.0 CLAUSE 20	Passed	0.25
HIGH LEVEL STABILITY TEST - IEC 61672-3 ED.2.0 CLAUSE 21	Passed	0.10
LONG TERM STABILITY TEST - IEC 61672-3 ED.2.0 CLAUSE 15	Passed	0.10
FILTER TEST 1/1OCTAVE: RELATIVE ATTENUATION - IEC 61260, CLAUSE 4.4 & #5.3	Passed	0.25
FILTER TEST 1/3OCTAVE: RELATIVE ATTENUATION - IEC 61260, CLAUSE 4.4 & #5.3	Passed	0.25
COMBINED ELECTRICAL AND ACOUSTICAL TEST - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	See test report

1 The results of this calibration apply only to the instrument type with serial number identified in this report.

2 Parameters are certified at actual environmental conditions.

3 The tests marked with (*) are not covered by the current NVLAP accreditation.

Comments: The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organization responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2, to demonstrate that the model of sound level meter fully conforms to the requirements in the IEC 61672-2, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1.

Note: The instrument was tested for the parameters listed in the table above, using the test methods described in the listed standards. All tests were performed around the reference conditions. The test results were compared with the manufacturer's or with the standard's specifications, whichever are larger.
Compliance with any standard cannot be claimed based solely on the periodic tests.

Tests made with the following attachments to the instrument:

Microphone: PCB Piezotronics 377B20 s/n 112340 for acoustical test
Preamplifier: Larson Davis PRM831 s/n 015258 for all tests
Other: line adaptor ADP005 (18pF) for electrical tests
Accompanying acoustical calibrator: none
Windscreen: none

Measured Data: in Test Report # 43062 of 9 + 1 pages.

Place of Calibration: Scantek, Inc.
6430 Dobbin Road, Suite C
Columbia, MD 21045 USA
Ph/Fax: 410-290-7726/ -9167
callab@scantekinc.com

Scantek, Inc.
CALIBRATION LABORATORY

ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.43063

Instrument:	**Microphone**	*Date Calibrated:* **6/18/2019**	*Cal Due:* **6/18/2020**
Model:	**377B20**	*Status:*	**Received** / **Sent**
Manufacturer:	**PCB Piezotronics**	*In tolerance:*	X / X
Serial number:	**112340**	*Out of tolerance:*	
Composed of:		*See comments:*	

Contains non-accredited tests: __Yes _X_ No

Customer:	**Epsilon Associates, Inc.**	*Address:*	
	978-461-		**3 Mill & Main Place, Suite 250,**
Tel/Fax:	**6235/choyt@epsilonassociates.com**		**Maynard, MA 01754**

Tested in accordance with the following procedures and standards:
Calibration of Measurement Microphones, Scantek, Inc., Rev. 2/25/2015

Instrumentation used for calibration: N-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31052	Oct 31, 2018	Scantek, Inc./ NVLAP	Oct 31, 2019
DS-360-SRS	Function Generator	33584	Oct 24, 2017	ACR Env./ A2LA	Oct 24, 2019
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Oct 1, 2018	ACR Env. / A2LA	Oct 1, 2019
HM30-Thommen	Meteo Station	1040170/39633	Nov 13, 2018	ACR Env./ A2LA	Nov 13, 2019
PC Program 1017 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1253-Norsonic	Calibrator	28326	Nov 11, 2018	Scantek, Inc./ NVLAP	Nov 11, 2019
1203-Norsonic	Preamplifier	14059	Feb 28, 2019	Scantek, Inc./ NVLAP	Feb 28, 2020
4180-Brüel&Kjær	Microphone	2246115	Oct 24, 2017	DANAK / DPLA	Oct 24, 2019

Instrumentation and test results are traceable to SI - BIPM through standards maintained by NPL (UK) and NIST (USA)

Calibrated by:	Lydon Dawkins	**Authorized signatory:**	William D. Gallagher
Signature	Lydon Dawkins	Signature	William D Gallagher
Date	6/18/2019	Date	6/20/2019

Results summary: Device was tested and complies with following clauses of mentioned specifications:

CLAUSES / METHODS[1] FROM PROCEDURES		MET[2,3]	NOT MET	NOT TESTED	MEASUREMENT EXPANDED UNCERTAINTY (coverage factor 2)
Open circuit sensitivity (insert voltage method, 250 Hz)		X			See below
Frequency response	Actuator response	X			63 – 200Hz: 0.3 dB 200 – 8000 Hz: 0.2 dB 8 – 10 kHz: 0.5 dB 10 – 20 kHz: 0.7 dB 20 – 50 kHz: 0.9 dB 50 – 100 kHz: 1.2 dB
	FF/Diffuse field responses	X			63 – 200Hz: 0.3 dB 200 – 4000 Hz: 0.2 dB 4 – 10 kHz: 0.6 dB 10 – 20 kHz: 0.9 dB 20 – 50 kHz: 2.2 dB 50 – 100 kHz: 4.4 dB
	Scantek, Inc. acoustical method			X	31.5 – 125 Hz: 0.16 dB 250, 1000 Hz: 0.12 dB 2 – 8 kHz: 0.8 dB 12.5 – 16 kHz: 2.4 dB

[1] The results of this calibration apply only to the instrument type with serial number identified in this report.

[2] Results are normalized to the reference conditions.

[3] The tests marked with (*) are not covered by the current NVLAP accreditation.

Note: The free field/diffuse field characteristics were calculated based on the measured actuator response and adjustment coefficients as provided by the manufacturer. The uncertainties reported for these characteristics may include assumed uncertainty components for the adjustment coefficients.

Comments: The instrument was tested and met all specifications found in the referenced procedures.

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
22.5 ± 1.0	99.75 ± 0.025	53.9 ± 2.1

Main measured parameters:

Tone frequency (Hz)	Measured[4]/Acceptable Open circuit sensitivity (dB re 1V/Pa)	Sensitivity (mV/Pa)
250	-26.08 ± 0.13/ -26.0 ±1.5	49.68

[4] The reported expanded uncertainty is calculated with a coverage factor k=2.00

Tests made with following attachments to instrument and auxiliary devices:

Protection grid mounted for sensitivity measurements
Actuator type: G.R.A.S. RA0014

Measured Data: Found on Microphone Test Report # 43063 of one page.

Place of Calibration: Scantek, Inc.
6430 Dobbin Road, Suite C
Columbia, MD 21045 USA
Ph/Fax: 410-290-7726/ -9167
callab@scantekinc.com

Scantek, Inc.
CALIBRATION LABORATORY

ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.43486

Instrument: **Sound Level Meter**
Model: **831**
Manufacturer: **Larson Davis**
Serial number: **0001993**
Tested with: **Microphone 377B20 s/n 110889**
Preamplifier PRM831 s/n 015260
Type (class): **1**
Customer: **Epsilon Associates, Inc.**
Tel/Fax: **978-461-6235 / 978-897-0099**

Date Calibrated: **8/23/2019** *Cal Due:*

Status:	Received	Sent
In tolerance:	X	X
Out of tolerance:		
See comments:		

Contains non-accredited tests: __Yes X No
Calibration service: __ Basic X Standard
Address: **3 Mill & Main Place, Suite 250**
Maynard, MA 01754

Tested in accordance with the following procedures and standards:
Calibration of Sound Level Meters, Scantek Inc., Rev. 6/26/2015
SLM & Dosimeters – Acoustical Tests, Scantek Inc., Rev. 7/6/2011

Instrumentation used for calibration: Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31061	Jul 31, 2020	Scantek, Inc./ NVLAP	Jul 31, 2020
DS-360-SRS	Function Generator	61646	Sep 7, 2018	ACR Env./ A2LA	Sep 7, 2020
34401A-Agilent Technologies	Digital Voltmeter	MY47022043	Sep 17, 2018	ACR Env./ A2LA	Sep 17, 2019
HM30-Thommen	Meteo Station	1040170/39633	Nov 13, 2018	ACR Env./ A2LA	Nov 13, 2019
PC Program 1019 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1251-Norsonic	Calibrator	30878	Nov 11, 2018	Scantek, Inc./ NVLAP	Nov 11, 2019

Instrumentation and test results are traceable to SI (International System of Units) through standards maintained by NIST (USA) and NPL (UK).

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
21.8	100.07	53.8

Calibrated by:	Jeremy Gotwalt	**Authorized signatory:**	Steven E. Marshall
Signature		Signature	
Date	8/23/19	Date	8/30/2019

Results summary: Device complies with following clauses of mentioned specifications:

CLAUSES[1] FROM IEC/ANSI STANDARDS REFERENCED IN PROCEDURES:	RESULT[2,3]	EXPANDED UNCERTAINTY (coverage factor 2) [dB]
INDICATION AT THE CALIBRATION CHECK FREQUENCY - IEC61672-3 ED.2 CLAUSE 10	Passed	0.15
SELF-GENERATED NOISE - IEC 61672-3 ED.2 CLAUSE 11	Passed	0.3
FREQUENCY WEIGHTINGS: A NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	0.2
FREQUENCY WEIGHTINGS: C NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	0.2
FREQUENCY WEIGHTINGS: Z NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	0.2
FREQUENCY AND TIME WEIGHTINGS AT 1 KHZ IEC 61672-3 ED.2.0 CLAUSE 14	Passed	0.2
LEVEL LINEARITY ON THE REFERENCE LEVEL RANGE - IEC 61672-3 ED.2 CLAUSE 16	Passed	0.25
LEVEL LINEARITY INCLUDING THE LEVEL RANGE CONTROL - IEC 61672-3 ED.2.0 CLAUSE 17	Passed	0.25
TONEBURST RESPONSE - IEC 61672-3 ED.2.0 CLAUSE 18	Passed	0.3
PEAK C SOUND LEVEL - IEC 61672-3 ED.2.0 CLAUSE 19	Passed	0.35
OVERLOAD INDICATION - IEC 61672-3 ED.2.0 CLAUSE 20	Passed	0.25
HIGH LEVEL STABILITY TEST - IEC 61672-3 ED.2.0 CLAUSE 21	Passed	0.1
LONG TERM STABILITY TEST - IEC 61672-3 ED.2.0 CLAUSE 15	Passed	0.1
FILTER TEST 1/1OCTAVE: RELATIVE ATTENUATION - IEC 61260, CLAUSE 4.4 & #5.3	Passed	0.25
FILTER TEST 1/3OCTAVE: RELATIVE ATTENUATION - IEC 61260, CLAUSE 4.4 & #5.3	Passed	0.25
COMBINED ELECTRICAL AND ACOUSTICAL TEST - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	See test report

1 The results of this calibration apply only to the instrument type with serial number identified in this report.

2 Parameters are certified at actual environmental conditions.

3 The tests marked with (*) are not covered by the current NVLAP accreditation.

Comments: The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organization responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2, to demonstrate that the model of sound level meter fully conforms to the requirements in the IEC 61672-2, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1.

Note: The instrument was tested for the parameters listed in the table above, using the test methods described in the listed standards. All tests were performed around the reference conditions. The test results were compared with the manufacturer's or with the standard's specifications, whichever are larger.
Compliance with any standard cannot be claimed based solely on the periodic tests.

Tests made with the following attachments to the instrument:

Microphone: PCB Piezotronics 377B20 s/n 110889 for acoustical test
Preamplifier: Larson Davis PRM831 s/n 015260 for all tests
Other: line adaptor ADP005 (18pF) for electrical tests
Accompanying acoustical calibrator: none
Windscreen: none

Measured Data: in Test Report # 43486 of 9+1 pages.

Place of Calibration: Scantek, Inc.
6430 Dobbin Road, Suite C
Columbia, MD 21045 USA

Ph/Fax: 410-290-7726/ -9167
callab@scantekinc.com

Scantek, Inc.
CALIBRATION LABORATORY
ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.43487

Instrument: **Microphone**
Model: **377B20**
Manufacturer: **PCB Piezotronics**
Serial number: **110889**
Composed of:

Date Calibrated: **8/22/2019** *Cal Due:*

Status:	**Received**	**Sent**
In tolerance:	**X**	**X**
Out of tolerance:		
See comments:		

Contains non-accredited tests: **__Yes _X_ No**

Customer: **Epsilon Associates, Inc.**
Tel/Fax: **978-461-6235/978-897-0099**
Address: **3 Mill & Main Place, Suite 250**
Maynard, MA 01754

Tested in accordance with the following procedures and standards:
Calibration of Measurement Microphones, Scantek, Inc., Rev. 2/25/2015

Instrumentation used for calibration: N-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31061	Jul 31, 2020	Scantek, Inc./ NVLAP	Jul 31, 2020
DS-360-SRS	Function Generator	61646	Sep 7, 2018	ACR Env./ A2LA	Sep 7, 2020
34401A-Agilent Technologies	Digital Voltmeter	MY47022043	Sep 17, 2018	ACR Env./ A2LA	Sep 17, 2019
HM30-Thommen	Meteo Station	1040170/39633	Nov 13, 2018	ACR Env./ A2LA	Nov 13, 2019
PC Program 1017 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1253-Norsonic	Calibrator	28326	Nov 11, 2018	Scantek, Inc./ NVLAP	Nov 11, 2019
1203-Norsonic	Preamplifier	21270	Aug 5, 2019	Scantek, Inc./ NVLAP	Aug 5, 2020
4180-Brüel&Kjær	Microphone	2246115	Oct 24, 2017	DANAK / DPLA	Oct 24, 2019

Instrumentation and test results are traceable to SI - BIPM through standards maintained by NPL (UK) and NIST (USA)

Calibrated by:	Jeremy Gotwalt	**Authorized signatory:**	Steven E. Marshall
Signature	Jeremy Gotwalt	Signature	Steven E. Marshall
Date	8/22/19	Date	8/30/2019

Document stored as: Z:\Calibration Lab\Mic 2019\PCB377B20_110889_M1.doc

Results summary: Device was tested and complies with following clauses of mentioned specifications:

CLAUSES / METHODS[1] FROM PROCEDURES		MET[2,3]	NOT MET	NOT TESTED	MEASUREMENT EXPANDED UNCERTAINTY (coverage factor 2)
Open circuit sensitivity (insert voltage method, 250 Hz)		X			See below
Frequency response	Actuator response	X			63 – 200Hz: 0.3 dB 200 – 8000 Hz: 0.2 dB 8 – 10 kHz: 0.5 dB 10 – 20 kHz: 0.7 dB 20 – 50 kHz: 0.9 dB 50 – 100 kHz: 1.2 dB
	FF/Diffuse field responses	X			63 – 200Hz: 0.3 dB 200 – 4000 Hz: 0.2 dB 4 – 10 kHz: 0.6 dB 10 – 20 kHz: 0.9 dB 20 – 50 kHz: 2.2 dB 50 – 100 kHz: 4.4 dB
	Scantek, Inc. acoustical method			X	31.5 – 125 Hz: 0.16 dB 250, 1000 Hz: 0.12 dB 2 – 8 kHz: 0.8 dB 12.5 – 16 kHz: 2.4 dB

[1] The results of this calibration apply only to the instrument type with serial number identified in this report.

[2] Results are normalized to the reference conditions.

[3] The tests marked with (*) are not covered by the current NVLAP accreditation.

Note: The free field/diffuse field characteristics were calculated based on the measured actuator response and adjustment coefficients as provided by the manufacturer. The uncertainties reported for these characteristics may include assumed uncertainty components for the adjustment coefficients.

Comments: The instrument was tested and met all specifications found in the referenced procedures.

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
23.1 ± 1.0	99.90 ± 0.020	51.3 ± 2.0

Main measured parameters:

Tone frequency (Hz)	Measured[4]/Acceptable Open circuit sensitivity (dB re 1V/Pa)	Sensitivity (mV/Pa)
250	-27.22 ± 0.12/ -26.0 ±1.5	43.56

[4] The reported expanded uncertainty is calculated with a coverage factor k=2.00

Tests made with following attachments to instrument and auxiliary devices:

Protection grid mounted for sensitivity measurements
Actuator type: G.R.A.S. RA0014

Measured Data: Found on Microphone Test Report # 43487 of one page.

Place of Calibration: Scantek, Inc.
6430 Dobbin Road, Suite C
Columbia, MD 21045 USA
Ph/Fax: 410-290-7726/ -9167
callab@scantekinc.com

Scantek, Inc.
CALIBRATION LABORATORY

ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.41750

Instrument: **Sound Level Meter**
Model: **831**
Manufacturer: **Larson Davis**
Serial number: **0003753**
Tested with: **Microphone 377B20 s/n 142956**
Preamplifier PRM831 s/n 029564
Type (class): **1**
Customer: **Epsilon Associates, Inc.**
Tel/Fax: **978-461-6235 / 978-897-0099**

Date Calibrated: **11/8/2018** *Cal Due:* **11/8/2019**

Status:	Received	Sent
In tolerance:	X	X
Out of tolerance:		
See comments:		

Contains non-accredited tests: __Yes X No
Calibration service: __ Basic X Standard
Address: **3 Mill & Main Place, Suite 250, Maynard, MA 01754**

Tested in accordance with the following procedures and standards:
Calibration of Sound Level Meters, Scantek Inc., Rev. 6/26/2015
SLM & Dosimeters – Acoustical Tests, Scantek Inc., Rev. 7/6/2011

Instrumentation used for calibration: Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31061	Jul 30, 2018	Scantek, Inc./ NVLAP	Jul 30, 2019
DS-360-SRS	Function Generator	61646	Sep 7, 2018	ACR Env./ A2LA	Sep 7, 2020
34401A-Agilent Technologies	Digital Voltmeter	MY47022043	Sep 17, 2018	ACR Env./ A2LA	Sep 17, 2019
DPI 141 - Druck	Pressure Indicator	790/00-04	Dec 22, 2016	ACR Env. / A2LA	Dec 22, 2018
HMP233 - Vaisala Oyj	Humidity & Temp. Transmitter	V3820001	Apr 19, 2017	ACR Env. / A2LA	Apr 19, 2019
PC Program 1019 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1251-Norsonic	Calibrator	30878	Nov 10, 2017	Scantek, Inc./ NVLAP	Nov 10, 2018

Instrumentation and test results are traceable to SI (International System of Units) through standards maintained by NIST (USA) and NPL (UK).

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
22.3	101.09	41.0

Calibrated by:	Jeremy Gotwalt	**Authorized signatory:**	Lydon Dawkins
Signature		Signature	
Date	11/8/18	Date	11/09/2018

Results summary: Device complies with following clauses of mentioned specifications:

CLAUSES [1] FROM IEC/ANSI STANDARDS REFERENCED IN PROCEDURES:	RESULT[2,3]	EXPANDED UNCERTAINTY (coverage factor 2) [dB]
INDICATION AT THE CALIBRATION CHECK FREQUENCY - IEC61672-3 ED.2 CLAUSE 10	Passed	0.15
SELF-GENERATED NOISE - IEC 61672-3 ED.2 CLAUSE 11	Passed	0.3
FREQUENCY WEIGHTINGS: A NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	0.2
FREQUENCY WEIGHTINGS: C NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	0.2
FREQUENCY WEIGHTINGS: Z NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	0.2
FREQUENCY AND TIME WEIGHTINGS AT 1 KHZ IEC 61672-3 ED.2.0 CLAUSE 14	Passed	0.2
LEVEL LINEARITY ON THE REFERENCE LEVEL RANGE - IEC 61672-3 ED.2 CLAUSE 16	Passed	0.25
LEVEL LINEARITY INCLUDING THE LEVEL RANGE CONTROL - IEC 61672-3 ED.2.0 CLAUSE 17	Passed	0.25
TONEBURST RESPONSE - IEC 61672-3 ED.2.0 CLAUSE 18	Passed	0.3
PEAK C SOUND LEVEL - IEC 61672-3 ED.2.0 CLAUSE 19	Passed	0.35
OVERLOAD INDICATION - IEC 61672-3 ED.2.0 CLAUSE 20	Passed	0.25
HIGH LEVEL STABILITY TEST - IEC 61672-3 ED.2.0 CLAUSE 21	Passed	0.1
LONG TERM STABILITY TEST - IEC 61672-3 ED.2.0 CLAUSE 15	Passed	0.1
FILTER TEST 1/1OCTAVE: RELATIVE ATTENUATION - IEC 61260, CLAUSE 4.4 & #5.3	Passed	0.25
FILTER TEST 1/3OCTAVE: RELATIVE ATTENUATION - IEC 61260, CLAUSE 4.4 & #5.3	Passed	0.25
COMBINED ELECTRICAL AND ACOUSTICAL TEST - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	See test report

1 The results of this calibration apply only to the instrument type with serial number identified in this report.

2 Parameters are certified at actual environmental conditions.

3 The tests marked with (*) are not covered by the current NVLAP accreditation.

Comments: The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organization responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2, to demonstrate that the model of sound level meter fully conforms to the requirements in the IEC 61672-2, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1.

Note: The instrument was tested for the parameters listed in the table above, using the test methods described in the listed standards. All tests were performed around the reference conditions. The test results were compared with the manufacturer's or with the standard's specifications, whichever are larger.
Compliance with any standard cannot be claimed based solely on the periodic tests.

Tests made with the following attachments to the instrument:

Microphone: PCB Piezotronics 377B20 s/n 142956 for acoustical test
Preamplifier: Larson Davis PRM831 s/n 029564 for all tests
Other: line adaptor ADP005 (18pF) for electrical tests
Accompanying acoustical calibrator: Larson Davis CAL200 s/n 7147
Windscreen: none

Measured Data: in Test Report # 41780 of 9+1 pages.

Place of Calibration: Scantek, Inc.
6430 Dobbin Road, Suite C
Columbia, MD 21045 USA
Ph/Fax: 410-290-7726/ -9167
callab@scantekinc.com

Scantek, Inc.
CALIBRATION LABORATORY

ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.41751

Instrument: **Microphone**
Model: **377B20**
Manufacturer: **PCB Piezotronics**
Serial number: **142956**
Composed of:

Date Calibrated: **11/8/2018** *Cal Due:* **11/8/2019**

Status:	**Received**	**Sent**
In tolerance:	**X**	**X**
Out of tolerance:		
See comments:		

Contains non-accredited tests: __**Yes** _**X**_ **No**

Customer: **Epsilon Associates, Inc.**
Tel/Fax: **978-461-6235/978-897-0099**

Address: **3 Mill & Main Place, Suite 250**
Maynard, MA 01754

Tested in accordance with the following procedures and standards:
Calibration of Measurement Microphones, Scantek, Inc., Rev. 2/25/2015

Instrumentation used for calibration: N-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31061	Jul 30, 2018	Scantek, Inc./ NVLAP	Jul 30, 2019
DS-360-SRS	Function Generator	61646	Sep 7, 2018	ACR Env./ A2LA	Sep 7, 2020
34401A-Agilent Technologies	Digital Voltmeter	MY47022043	Sep 17, 2018	ACR Env./ A2LA	Sep 17, 2019
DPI 141 - Druck	Pressure Indicator	790/00-04	Dec 22, 2016	ACR Env. / A2LA	Dec 22, 2018
HMP233 - Vaisala Oyj	Humidity & Temp. Transmitter	V3820001	Apr 19, 2017	ACR Env. / A2LA	Apr 19, 2019
PC Program 1017 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1253-Norsonic	Calibrator	28326	Nov 10, 2017	Scantek, Inc./ NVLAP	Nov 10, 2018
1203-Norsonic	Preamplifier	21270	Aug 3, 2018	Scantek, Inc./ NVLAP	Aug 3, 2019
4180-Brüel&Kjær	Microphone	2246115	Oct 24, 2017	DANAK / DPLA	Oct 24, 2019

Instrumentation and test results are traceable to SI - BIPM through standards maintained by NPL (UK) and NIST (USA)

Calibrated by:	Jeremy Gotwalt	**Authorized signatory:**	Lydon Dawkins
Signature		Signature	
Date	11/8/18	Date	11/09/2018

Results summary: Device was tested and complies with following clauses of mentioned specifications:

CLAUSES / METHODS[1] FROM PROCEDURES		MET[2,3]	NOT MET	NOT TESTED	MEASUREMENT EXPANDED UNCERTAINTY (coverage factor 2)
Open circuit sensitivity (insert voltage method, 250 Hz)		X			See below
Frequency response	Actuator response	X			63 – 200Hz: 0.3 dB 200 – 8000 Hz: 0.2 dB 8 – 10 kHz: 0.5 dB 10 – 20 kHz: 0.7 dB 20 – 50 kHz: 0.9 dB 50 – 100 kHz: 1.2 dB
	FF/Diffuse field responses	X			63 – 200Hz: 0.3 dB 200 – 4000 Hz: 0.2 dB 4 – 10 kHz: 0.6 dB 10 – 20 kHz: 0.9 dB 20 – 50 kHz: 2.2 dB 50 – 100 kHz: 4.4 dB
	Scantek, Inc. acoustical method			X	31.5 – 125 Hz: 0.16 dB 250, 1000 Hz: 0.12 dB 2 – 8 kHz: 0.8 dB 12.5 – 16 kHz: 2.4 dB

[1] The results of this calibration apply only to the instrument type with serial number identified in this report.

[2] Results are normalized to the reference conditions.

[3] The tests marked with (*) are not covered by the current NVLAP accreditation.

Note: The free field/diffuse field characteristics were calculated based on the measured actuator response and adjustment coefficients as provided by the manufacturer. The uncertainties reported for these characteristics may include assumed uncertainty components for the adjustment coefficients.

Comments:	The instrument was tested and met all specifications found in the referenced procedures.

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
21.7 ± 1.0	101.15 ± 0.020	41.4 ± 2.0

Main measured parameters:

Tone frequency (Hz)	Measured[4] /Acceptable Open circuit sensitivity (dB re 1V/Pa)	Sensitivity (mV/Pa)
250	-26.97 ± 0.12/ -26.0 ±1.5	44.82

[4] The reported expanded uncertainty is calculated with a coverage factor k=2.00

Tests made with following attachments to instrument and auxiliary devices:

Protection grid mounted for sensitivity measurements
Actuator type: G.R.A.S. RA0014

Measured Data: Found on Microphone Test Report # 41781 of one page.

Place of Calibration: Scantek, Inc.
6430 Dobbin Road, Suite C
Columbia, MD 21045 USA
Ph/Fax: 410-290-7726/ -9167
callab@scantekinc.com

Scantek, Inc.
CALIBRATION LABORATORY

ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.42092

Instrument: **Sound Level Meter**
Model: **831**
Manufacturer: **Larson Davis**
Serial number: **0004373**
Tested with: **Microphone 377C20 s/n 165061**
Preamplifier PRM831 s/n 046514
Type (class): **1**
Customer: **Epsilon Associates, Inc.**
Tel/Fax: **978-461-6235 / choyt@epsilonassociates.com**

Date Calibrated: **1/9/2019** *Cal Due:* **1/9/2020**

Status:	Received	Sent
In tolerance:	X	X
Out of tolerance:		
See comments:		

Contains non-accredited tests: __Yes X No
Calibration service: __ Basic X Standard
Address: **3 Mill & Main Place, Suite 250, Maynard, MA 01754**

Tested in accordance with the following procedures and standards:
Calibration of Sound Level Meters, Scantek Inc., Rev. 6/26/2015
SLM & Dosimeters – Acoustical Tests, Scantek Inc., Rev. 7/6/2011

Instrumentation used for calibration: Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31052	Oct 31, 2018	Scantek, Inc./ NVLAP	Oct 31, 2019
DS-360-SRS	Function Generator	33584	Oct 24, 2017	ACR Env./ A2LA	Oct 24, 2019
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Oct 1, 2018	ACR Env. / A2LA	Oct 1, 2019
HM30-Thommen	Meteo Station	1040170/39633	Nov 13, 2018	ACR Env./ A2LA	Nov 13, 2019
PC Program 1019 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1251-Norsonic	Calibrator	30878	Nov 11, 2018	Scantek, Inc./ NVLAP	Nov 11, 2019

Instrumentation and test results are traceable to SI (International System of Units) through standards maintained by NIST (USA) and NPL (UK).

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
23.7	99.21	39.3

Calibrated by:	Lydon Dawkins	**Authorized signatory:**	William D. Gallagher
Signature	Lydon Dawkins	Signature	William D Gallagher
Date	1/9/2019	Date	1/10/2019

Results summary: Device complies with following clauses of mentioned specifications:

CLAUSES [1] FROM IEC/ANSI STANDARDS REFERENCED IN PROCEDURES:	RESULT[2,3]	EXPANDED UNCERTAINTY (coverage factor 2) [dB]
INDICATION AT THE CALIBRATION CHECK FREQUENCY - IEC61672-3 ED.2 CLAUSE 10	Passed	0.15
SELF-GENERATED NOISE - IEC 61672-3 ED.2 CLAUSE 11	Passed	0.30
FREQUENCY WEIGHTINGS: A NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	0.20
FREQUENCY WEIGHTINGS: C NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	0.20
FREQUENCY WEIGHTINGS: Z NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	0.20
FREQUENCY AND TIME WEIGHTINGS AT 1 KHZ IEC 61672-3 ED.2.0 CLAUSE 14	Passed	0.20
LEVEL LINEARITY ON THE REFERENCE LEVEL RANGE - IEC 61672-3 ED.2 CLAUSE 16	Passed	0.25
LEVEL LINEARITY INCLUDING THE LEVEL RANGE CONTROL - IEC 61672-3 ED.2.0 CLAUSE 17	Passed	0.25
TONEBURST RESPONSE - IEC 61672-3 ED.2.0 CLAUSE 18	Passed	0.30
PEAK C SOUND LEVEL - IEC 61672-3 ED.2.0 CLAUSE 19	Passed	0.35
OVERLOAD INDICATION - IEC 61672-3 ED.2.0 CLAUSE 20	Passed	0.25
HIGH LEVEL STABILITY TEST - IEC 61672-3 ED.2.0 CLAUSE 21	Passed	0.10
LONG TERM STABILITY TEST - IEC 61672-3 ED.2.0 CLAUSE 15	Passed	0.10
FILTER TEST 1/1OCTAVE: RELATIVE ATTENUATION - IEC 61260, CLAUSE 4.4 & #5.3	Passed	0.25
FILTER TEST 1/3OCTAVE: RELATIVE ATTENUATION - IEC 61260, CLAUSE 4.4 & #5.3	Passed	0.25
COMBINED ELECTRICAL AND ACOUSTICAL TEST - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	See test report

1 The results of this calibration apply only to the instrument type with serial number identified in this report.

2 Parameters are certified at actual environmental conditions.

3 The tests marked with (*) are not covered by the current NVLAP accreditation.

Comments: The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organization responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2, to demonstrate that the model of sound level meter fully conforms to the requirements in the IEC 61672-2, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1.

Note: The instrument was tested for the parameters listed in the table above, using the test methods described in the listed standards. All tests were performed around the reference conditions. The test results were compared with the manufacturer's or with the standard's specifications, whichever are larger.
Compliance with any standard cannot be claimed based solely on the periodic tests.

Tests made with the following attachments to the instrument:

Microphone: PCB Piezotronics 377C20 s/n 165061 for acoustical test
Preamplifier: Larson Davis PRM831 s/n 046514 for all tests
Other: line adaptor ADP005 (18pF) for electrical tests
Accompanying acoustical calibrator: Larson Davis CAL200 s/n 13676
Windscreen: none

Measured Data: in Test Report # 42092 of 9 + 1 pages.

Place of Calibration: Scantek, Inc.
6430 Dobbin Road, Suite C
Columbia, MD 21045 USA

Ph/Fax: 410-290-7726/ -9167
callab@scantekinc.com

Scantek, Inc.
CALIBRATION LABORATORY

ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.42093

Instrument: **Microphone**
Model: **377C20**
Manufacturer: **PCB Piezotronics**
Serial number: **165061**

Composed of:

Date Calibrated: **1/8/2019** *Cal Due:* **1/8/2020**

Status:	**Received**	**Sent**
In tolerance:	**X**	**X**
Out of tolerance:		
See comments:		

Contains non-accredited tests: ___Yes _X_ No

Customer: **Epsilon Associates, Inc.**
Tel/Fax: **978-461-6235/choyt@epsilonassociates.com**

Address: **3 Mill & Main Place, Suite 250, Maynard, MA 01754**

Tested in accordance with the following procedures and standards:
Calibration of Measurement Microphones, Scantek, Inc., Rev. 2/25/2015

Instrumentation used for calibration: N-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31052	Oct 31, 2018	Scantek, Inc./ NVLAP	Oct 31, 2019
DS-360-SRS	Function Generator	33584	Oct 24, 2017	ACR Env./ A2LA	Oct 24, 2019
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Oct 1, 2018	ACR Env. / A2LA	Oct 1, 2019
HM30-Thommen	Meteo Station	1040170/39633	Nov 13, 2018	ACR Env./ A2LA	Nov 13, 2019
PC Program 1017 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1253-Norsonic	Calibrator	28326	Nov 11, 2018	Scantek, Inc./ NVLAP	Nov 11, 2019
1203-Norsonic	Preamplifier	14059	Feb 12, 2018	Scantek, Inc./ NVLAP	Feb 12, 2019
4180-Brüel&Kjær	Microphone	2246115	Oct 24, 2017	DANAK / DPLA	Oct 24, 2019

Instrumentation and test results are traceable to SI - BIPM through standards maintained by NPL (UK) and NIST (USA)

Calibrated by:	Lydon Dawkins	**Authorized signatory:**	William D. Gallagher
Signature	Lydon Dawkins	Signature	William D Gallagher
Date	1/08/2019	Date	1/10/2019

Results summary: Device was tested and complies with following clauses of mentioned specifications:

CLAUSES / METHODS[1] FROM PROCEDURES		MET[2,3]	NOT MET	NOT TESTED	MEASUREMENT EXPANDED UNCERTAINTY (coverage factor 2)
Open circuit sensitivity (insert voltage method, 250 Hz)		X			See below
Frequency response	Actuator response	X			63 – 200Hz: 0.3 dB 200 – 8000 Hz: 0.2 dB 8 – 10 kHz: 0.5 dB 10 – 20 kHz: 0.7 dB 20 – 50 kHz: 0.9 dB 50 – 100 kHz: 1.2 dB
	FF/Diffuse field responses	X			63 – 200Hz: 0.3 dB 200 – 4000 Hz: 0.2 dB 4 – 10 kHz: 0.6 dB 10 – 20 kHz: 0.9 dB 20 – 50 kHz: 2.2 dB 50 – 100 kHz: 4.4 dB
	Scantek, Inc. acoustical method			X	31.5 – 125 Hz: 0.16 dB 250, 1000 Hz: 0.12 dB 2 – 8 kHz: 0.8 dB 12.5 – 16 kHz: 2.4 dB

[1] The results of this calibration apply only to the instrument type with serial number identified in this report.

[2] Results are normalized to the reference conditions.

[3] The tests marked with (*) are not covered by the current NVLAP accreditation.

Note: The free field/diffuse field characteristics were calculated based on the measured actuator response and adjustment coefficients as provided by the manufacturer. The uncertainties reported for these characteristics may include assumed uncertainty components for the adjustment coefficients.

Comments: The instrument was tested and met all specifications found in the referenced procedures.

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
23.8 ± 1.1	99.47 ± 0.025	45.3 ± 2.4

Main measured parameters:

Tone frequency (Hz)	Measured[4]/Acceptable Open circuit sensitivity (dB re 1V/Pa)	Sensitivity (mV/Pa)
250	-27.21 ± 0.12/ -26.0 ±1.5	43.61

[4] The reported expanded uncertainty is calculated with a coverage factor k=2.00

Tests made with following attachments to instrument and auxiliary devices:

Protection grid mounted for sensitivity measurements
Actuator type: G.R.A.S. RA0014

Measured Data: Found on Microphone Test Report # 42093 of one page.

Place of Calibration: Scantek, Inc.
6430 Dobbin Road, Suite C
Columbia, MD 21045 USA

Ph/Fax: 410-290-7726/ -9167
callab@scantekinc.com

Scantek, Inc.
CALIBRATION LABORATORY

ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.42096

Instrument: **Sound Level Meter**
Model: **831**
Manufacturer: **Larson Davis**
Serial number: **0004374**
Tested with: **Microphone 377C20 s/n 165110**
Preamplifier PRM831 s/n 046515
Type (class): **1**
Customer: **Epsilon Associates, Inc.**
Tel/Fax: **978-461-6235 / choyt@epsilonassociates.com**

Date Calibrated: **1/10/2019** *Cal Due:* **1/10/2020**

Status:	Received	Sent
In tolerance:	X	X
Out of tolerance:		
See comments:		

Contains non-accredited tests: __Yes X No
Calibration service: __ Basic X Standard
Address: **3 Mill & Main Place, Suite 250, Maynard, MA 01754**

Tested in accordance with the following procedures and standards:
Calibration of Sound Level Meters, Scantek Inc., Rev. 6/26/2015
SLM & Dosimeters – Acoustical Tests, Scantek Inc., Rev. 7/6/2011

Instrumentation used for calibration: Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31052	Oct 31, 2018	Scantek, Inc./ NVLAP	Oct 31, 2019
DS-360-SRS	Function Generator	33584	Oct 24, 2017	ACR Env./ A2LA	Oct 24, 2019
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Oct 1, 2018	ACR Env. / A2LA	Oct 1, 2019
HM30-Thommen	Meteo Station	1040170/39633	Nov 13, 2018	ACR Env./ A2LA	Nov 13, 2019
PC Program 1019 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1251-Norsonic	Calibrator	30878	Nov 11, 2018	Scantek, Inc./ NVLAP	Nov 11, 2019

Instrumentation and test results are traceable to SI (International System of Units) through standards maintained by NIST (USA) and NPL (UK).

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
23.1	99.76	38.7

Calibrated by:	Lydon Dawkins	**Authorized signatory:**	William D. Gallagher
Signature	Lydon Dawkins	Signature	William D Gallagher
Date	1/10/2019	Date	1/10/2019

Results summary: Device complies with following clauses of mentioned specifications:

CLAUSES [1] FROM IEC/ANSI STANDARDS REFERENCED IN PROCEDURES:	RESULT[2,3]	EXPANDED UNCERTAINTY (coverage factor 2) [dB]
INDICATION AT THE CALIBRATION CHECK FREQUENCY - IEC61672-3 ED.2 CLAUSE 10	Passed	0.15
SELF-GENERATED NOISE - IEC 61672-3 ED.2 CLAUSE 11	Passed	0.30
FREQUENCY WEIGHTINGS: A NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	0.20
FREQUENCY WEIGHTINGS: C NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	0.20
FREQUENCY WEIGHTINGS: Z NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	0.20
FREQUENCY AND TIME WEIGHTINGS AT 1 KHZ IEC 61672-3 ED.2.0 CLAUSE 14	Passed	0.20
LEVEL LINEARITY ON THE REFERENCE LEVEL RANGE - IEC 61672-3 ED.2 CLAUSE 16	Passed	0.25
LEVEL LINEARITY INCLUDING THE LEVEL RANGE CONTROL - IEC 61672-3 ED.2.0 CLAUSE 17	Passed	0.25
TONEBURST RESPONSE - IEC 61672-3 ED.2.0 CLAUSE 18	Passed	0.30
PEAK C SOUND LEVEL - IEC 61672-3 ED.2.0 CLAUSE 19	Passed	0.35
OVERLOAD INDICATION - IEC 61672-3 ED.2.0 CLAUSE 20	Passed	0.25
HIGH LEVEL STABILITY TEST - IEC 61672-3 ED.2.0 CLAUSE 21	Passed	0.10
LONG TERM STABILITY TEST - IEC 61672-3 ED.2.0 CLAUSE 15	Passed	0.10
FILTER TEST 1/1OCTAVE: RELATIVE ATTENUATION - IEC 61260, CLAUSE 4.4 & #5.3	Passed	0.25
FILTER TEST 1/3OCTAVE: RELATIVE ATTENUATION - IEC 61260, CLAUSE 4.4 & #5.3	Passed	0.25
COMBINED ELECTRICAL AND ACOUSTICAL TEST - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	See test report

1 The results of this calibration apply only to the instrument type with serial number identified in this report.

2 Parameters are certified at actual environmental conditions.

3 The tests marked with (*) are not covered by the current NVLAP accreditation.

Comments: The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organization responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2, to demonstrate that the model of sound level meter fully conforms to the requirements in the IEC 61672-2, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1.

Note: The instrument was tested for the parameters listed in the table above, using the test methods described in the listed standards. All tests were performed around the reference conditions. The test results were compared with the manufacturer's or with the standard's specifications, whichever are larger.
Compliance with any standard cannot be claimed based solely on the periodic tests.

Tests made with the following attachments to the instrument:

Microphone: PCB Piezotronics 377C20 s/n 165110 for acoustical test
Preamplifier: Larson Davis PRM831 s/n 046515 for all tests
Other: line adaptor ADP005 (18pF) for electrical tests
Accompanying acoustical calibrator: Larson Davis CAL200 s/n 13676
Windscreen: none

Measured Data: in Test Report # 42096 of 9 + 1 pages.

Place of Calibration: Scantek, Inc.
6430 Dobbin Road, Suite C
Columbia, MD 21045 USA

Ph/Fax: 410-290-7726/ -9167
callab@scantekinc.com

Scantek, Inc.
CALIBRATION LABORATORY

ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.42097

Instrument:	**Microphone**
Model:	**377C20**
Manufacturer:	**PCB Piezotronics**
Serial number:	**165110**
Composed of:	

Date Calibrated: **1/8/2019** *Cal Due:* **1/8/2020**

Status:	**Received**	**Sent**
In tolerance:	**X**	**X**
Out of tolerance:		
See comments:		

Contains non-accredited tests: **__Yes _X_ No**

Customer:	**Epsilon Associates, Inc.**
	978-461-
Tel/Fax:	**6235/choyt@epsilonassociates.com**
Address:	**3 Mill & Main Place, Suite 250, Maynard, MA 01754**

Tested in accordance with the following procedures and standards:
Calibration of Measurement Microphones, Scantek, Inc., Rev. 2/25/2015

Instrumentation used for calibration: N-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31052	Oct 31, 2018	Scantek, Inc./ NVLAP	Oct 31, 2019
DS-360-SRS	Function Generator	33584	Oct 24, 2017	ACR Env./ A2LA	Oct 24, 2019
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Oct 1, 2018	ACR Env. / A2LA	Oct 1, 2019
HM30-Thommen	Meteo Station	1040170/39633	Nov 13, 2018	ACR Env./ A2LA	Nov 13, 2019
PC Program 1017 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1253-Norsonic	Calibrator	28326	Nov 11, 2018	Scantek, Inc./ NVLAP	Nov 11, 2019
1203-Norsonic	Preamplifier	14059	Feb 12, 2018	Scantek, Inc./ NVLAP	Feb 12, 2019
4180-Brüel&Kjær	Microphone	2246115	Oct 24, 2017	DANAK / DPLA	Oct 24, 2019

Instrumentation and test results are traceable to SI - BIPM through standards maintained by NPL (UK) and NIST (USA)

Calibrated by:	Lydon Dawkins	**Authorized signatory:**	William D. Gallagher
Signature	Lydon Dawkins	Signature	William D Gallagher
Date	1/08/2019	Date	1/10/2019

Document stored as: Z:\Calibration Lab\Mic 2019\PCB377C20_165110_M1.doc

Results summary: Device was tested and complies with following clauses of mentioned specifications:

CLAUSES / METHODS[1] FROM PROCEDURES		MET[2,3]	NOT MET	NOT TESTED	MEASUREMENT EXPANDED UNCERTAINTY (coverage factor 2)
Open circuit sensitivity (insert voltage method, 250 Hz)		X			See below
Frequency response	Actuator response	X			63 – 200Hz: 0.3 dB 200 – 8000 Hz: 0.2 dB 8 – 10 kHz: 0.5 dB 10 – 20 kHz: 0.7 dB 20 – 50 kHz: 0.9 dB 50 – 100 kHz: 1.2 dB
	FF/Diffuse field responses	X			63 – 200Hz: 0.3 dB 200 – 4000 Hz: 0.2 dB 4 – 10 kHz: 0.6 dB 10 – 20 kHz: 0.9 dB 20 – 50 kHz: 2.2 dB 50 – 100 kHz: 4.4 dB
	Scantek, Inc. acoustical method			X	31.5 – 125 Hz: 0.16 dB 250, 1000 Hz: 0.12 dB 2 – 8 kHz: 0.8 dB 12.5 – 16 kHz: 2.4 dB

[1] The results of this calibration apply only to the instrument type with serial number identified in this report.

[2] Results are normalized to the reference conditions.

[3] The tests marked with (*) are not covered by the current NVLAP accreditation.

Note: The free field/diffuse field characteristics were calculated based on the measured actuator response and adjustment coefficients as provided by the manufacturer. The uncertainties reported for these characteristics may include assumed uncertainty components for the adjustment coefficients.

Comments:	The instrument was tested and met all specifications found in the referenced procedures.

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
23.0 ± 1.1	99.40 ± 0.035	48.2 ± 2.3

Main measured parameters:

Tone frequency (Hz)	Measured[4] /Acceptable Open circuit sensitivity (dB re 1V/Pa)	Sensitivity (mV/Pa)
250	-27.45 ± 0.12/ -26.0 ±1.5	42.40

[4] The reported expanded uncertainty is calculated with a coverage factor k=2.00

Tests made with following attachments to instrument and auxiliary devices:

Protection grid mounted for sensitivity measurements
Actuator type: G.R.A.S. RA0014

Measured Data: Found on Microphone Test Report # 42097 of one page.

Place of Calibration: Scantek, Inc.
6430 Dobbin Road, Suite C
Columbia, MD 21045 USA
Ph/Fax: 410-290-7726/ -9167
callab@scantekinc.com

Scantek, Inc.
CALIBRATION LABORATORY

ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.42087

Instrument:	**Acoustical Calibrator**
Model:	**CAL200**
Manufacturer:	**Larson Davis**
Serial number:	**13675**
Class (IEC 60942):	**1**
Barometer type:	
Barometer s/n:	
Customer:	**Epsilon Associates, Inc.**
Tel/Fax:	**978-461-6235 / choyt@epsilonassociates.com**

Date Calibrated: **1/8/2019** *Cal Due:* **1/8/2020**

Status:	**Received**	**Sent**
In tolerance:	X	X
Out of tolerance:		
See comments:		

Contains non-accredited tests: ___Yes _X_ No

Address: **3 Mill & Main Place, Suite 250, Maynard, MA 01754**

Tested in accordance with the following procedures and standards:
Calibration of Acoustical Calibrators, Scantek Inc., Rev. 10/1/2010

Instrumentation used for calibration: Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31052	Oct 31, 2018	Scantek, Inc./ NVLAP	Oct 31, 2019
DS-360-SRS	Function Generator	33584	Oct 24, 2017	ACR Env./ A2LA	Oct 24, 2019
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Oct 1, 2018	ACR Env. / A2LA	Oct 1, 2019
HM30-Thommen	Meteo Station	1040170/39633	Nov 13, 2018	ACR Env./ A2LA	Nov 13, 2019
140-Norsonic	Real Time Analyzer	1406423	Nov 3, 2018	Scantek / NVLAP	Nov 3, 2019
PC Program 1018 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
4134-Brüel&Kjær	Microphone	173368	Nov 11, 2018	Scantek, Inc. / NVLAP	Nov 11, 2019
1203-Norsonic	Preamplifier	14059	Feb 12, 2018	Scantek, Inc./ NVLAP	Feb 12, 2019

Instrumentation and test results are traceable to SI (International System of Units) through standards maintained by NIST (USA) and NPL (UK)

Calibrated by:	Lydon Dawkins	**Authorized signatory:**	William D. Gallagher
Signature	Lydon Dawkins	Signature	William D Gallagher
Date	1/08/2019	Date	1/10/2019

Results summary: Device was tested and complies with following clauses of mentioned specifications:

CLAUSES[1] FROM STANDARDS REFERENCED IN PROCEDURES:	MET[2]	NOT MET	COMMENTS
Manufacturer specifications			
Manufacturer specifications: Sound pressure level	X		
Manufacturer specifications: Frequency	X		
Manufacturer specifications: Total harmonic distortion	X		
Current standards			
ANSI S1.40:2006 B.3 / IEC 60942: 2003 B.2 - Preliminary inspection	X		
ANSI S1.40:2006 B.4.4 / IEC 60942: 2003 B.3.4 - Sound pressure level	X		
ANSI S1.40:2006 A.5.4 / IEC 60942: 2003 A.4.4 - Sound pressure level stability	-	-	
ANSI S1.40:2006 B.4.5 / IEC 60942: 2003 B.3.5 - Frequency	X		
ANSI S1.40:2006 B.4.6 / IEC 60942: 2003 B.3.6 - Total harmonic distortion	X		

1 The results of this calibration apply only to the instrument type with serial number identified in this report.

2 The tests marked with (*) are not covered by the current NVLAP accreditation.

Main measured parameters [3]:

Measured[4]/Acceptable[5] Tone frequency (Hz):	Measured[4]/Acceptable[5] Total Harmonic Distortion (%):	Measured [4]/Acceptable Level[5] (dB):
1000.08 ± 1.0/1000.0 ± 10.0	0.34 ± 0.10/ < 3	93.84 ± 0.12/94.0 ± 0.4
1000.10 ± 1.0/1000.0 ± 10.0	0.37 ± 0.10/ < 3	113.82 ± 0.12/114.0 ± 0.4

3 The stated level is valid at measurement conditions.

4 The above expanded uncertainties for frequency and distortion are calculated with a coverage factor k=2; for level k=2.00

5 Acceptable parameters values are from the current standards

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
23.9 ± 1.1	99.83 ± 0.000	42.0 ± 2.1

Tests made with following attachments to instrument:

Calibrator ½" Adaptor Type:
Other:

Adjustments: Unit was not adjusted.
Comments: The instrument was tested and met all specifications found in the referenced procedures.

Note: The instrument was tested for the parameters listed in the table above, using the test methods described in the listed standards. All tests were performed around the reference conditions. The test results were compared with the manufacturer's or with the standard's specifications, whichever are larger.
Compliance with any standard cannot be claimed based solely on the periodic tests.

Measured Data: in Acoustical Calibrator Test Report # 42087 of two pages.

Place of Calibration: Scantek, Inc.
6430 Dobbin Road, Suite C
Columbia, MD 21045 USA
Ph/Fax: 410-290-7726/ -9167
callab@scantekinc.com

Scantek, Inc.
CALIBRATION LABORATORY

ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.43792

Instrument: **Sound Level Meter**
Model: **2250**
Manufacturer: **Brüel and Kjær**
Serial number: **3025395**
Tested with: **Microphone 4952 s/n 3179684**
Preamplifier 4952
Type (class): **1**
Customer: **Epsilon Associates, Inc.**
Tel/Fax: **978-461-6235 / 978-897-0099**

Date Calibrated: **10/15/2019** *Cal Due:*

Status:	**Received**	**Sent**
In tolerance:	X	X
Out of tolerance:		
See comments:		

Contains non-accredited tests: __Yes X No
Calibration service: __ Basic X Standard
Address: **3 Mill & Main Place, Suite 250, Maynard, MA 01754**

Tested in accordance with the following procedures and standards:
Calibration of Sound Level Meters, Scantek Inc., Rev. 6/26/2015
SLM & Dosimeters – Acoustical Tests, Scantek Inc., Rev. 7/6/2011

Instrumentation used for calibration: Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31061	Jul 31, 2020	Scantek, Inc./ NVLAP	Jul 31, 2020
DS-360-SRS	Function Generator	61646	Sep 7, 2018	ACR Env./ A2LA	Sep 7, 2020
34401A-Agilent Technologies	Digital Voltmeter	MY47022043	Sep 16, 2019	ACR Env./ A2LA	Sep 16, 2020
HM30-Thommen	Meteo Station	1040170/39633	Nov 13, 2018	ACR Env./ A2LA	Nov 13, 2019
PC Program 1019 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1251-Norsonic	Calibrator	30878	Nov 11, 2018	Scantek, Inc./ NVLAP	Nov 11, 2019
4226-Brüel&Kjær	Multifunction calibrator	2305103	Sep 25, 2019	Brüel&Kjær/ DANAK	Sep 25, 2020

Instrumentation and test results are traceable to SI (International System of Units) through standards maintained by NIST (USA) and NPL (UK).

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
23.4	100.84	39.7

Calibrated by:	Jeremy Gotwalt	**Authorized signatory:**	Steven E. Marshall
Signature		Signature	
Date	10/15/19	Date	10/16/2019

Results summary: Device complies with following clauses of mentioned specifications:

CLAUSES [1] FROM IEC/ANSI STANDARDS REFERENCED IN PROCEDURES:	RESULT [2,3]	EXPANDED UNCERTAINTY (coverage factor 2) [dB]
INDICATION AT THE CALIBRATION CHECK FREQUENCY - IEC61672-3 ED.2 CLAUSE 10	Passed	0.15
SELF-GENERATED NOISE - IEC 61672-3 ED.2 CLAUSE 11	Passed	0.3
ACOUSTICAL TEST OF A FREQUENCY WEIGHTING - IEC 61672-3 ED.2.0 CLAUSE 12	Passed	0.3
FREQUENCY WEIGHTINGS: A NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	0.2
FREQUENCY WEIGHTINGS: C NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	0.2
FREQUENCY WEIGHTINGS: Z NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	0.2
FREQUENCY AND TIME WEIGHTINGS AT 1 KHZ IEC 61672-3 ED.2.0 CLAUSE 14	Passed	0.2
LEVEL LINEARITY ON THE REFERENCE LEVEL RANGE - IEC 61672-3 ED.2 CLAUSE 16	Passed	0.25
TONEBURST RESPONSE - IEC 61672-3 ED.2.0 CLAUSE 18	Passed	0.3
PEAK C SOUND LEVEL - IEC 61672-3 ED.2.0 CLAUSE 19	Passed	0.35
OVERLOAD INDICATION - IEC 61672-3 ED.2.0 CLAUSE 20	Passed	0.25
HIGH LEVEL STABILITY TEST - IEC 61672-3 ED.2.0 CLAUSE 21	Passed	0.1
LONG TERM STABILITY TEST - IEC 61672-3 ED.2.0 CLAUSE 15	Passed	0.1
FILTER TEST 1/1OCTAVE: RELATIVE ATTENUATION - IEC 61260, CLAUSE 4.4 & #5.3	Passed	0.25
FILTER TEST 1/3OCTAVE: RELATIVE ATTENUATION - IEC 61260, CLAUSE 4.4 & #5.3	Passed	0.25

1 The results of this calibration apply only to the instrument type with serial number identified in this report.

2 Parameters are certified at actual environmental conditions.

3 The tests marked with (*) are not covered by the current NVLAP accreditation.

Comments: The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organization responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2, to demonstrate that the model of sound level meter fully conforms to the requirements in the IEC 61672-2, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1.

Note: The instrument was tested for the parameters listed in the table above, using the test methods described in the listed standards. All tests were performed around the reference conditions. The test results were compared with the manufacturer's or with the standard's specifications, whichever are larger.
Compliance with any standard cannot be claimed based solely on the periodic tests.

Tests made with the following attachments to the instrument:

Microphone: Brüel & Kjær 4952 s/n 3179684 for acoustical test
Preamplifier: Brüel & Kjær 4952 for all tests
Other: line adaptor ADP005 (18pF) for electrical tests
Accompanying acoustical calibrator: none
Windscreen: none

Measured Data: in Test Report # 43792 of 9+1 pages.

Place of Calibration: Scantek, Inc.
6430 Dobbin Road, Suite C
Columbia, MD 21045 USA
Ph/Fax: 410-290-7726/ -9167
callab@scantekinc.com

Scantek, Inc.
CALIBRATION LABORATORY
ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.43793

Instrument: **Microphone Unit**
Model: **4952**
Manufacturer: **Brüel & Kjær**
Serial number: **3179684**
Composed of:

Date Calibrated: **10/15/2019** *Cal Due:*

Status:	**Received**	**Sent**
In tolerance:	**X**	**X**
Out of tolerance:		
See comments:		

Contains non-accredited tests: __**Yes** _**X**_ **No**

Customer: **Epsilon Associates, Inc.**
Tel/Fax: **978-461-6235/978-897-0099**
Address: **3 Mill & Main Place, Suite 250**
Maynard, MA 01754

Tested in accordance with the following procedures and standards:
Calibration of Measurement Microphones, Scantek, Inc., Rev. 2/25/2015

Instrumentation used for calibration: N-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31061	Jul 31, 2020	Scantek, Inc./ NVLAP	Jul 31, 2020
DS-360-SRS	Function Generator	61646	Sep 7, 2018	ACR Env./ A2LA	Sep 7, 2020
34401A-Agilent Technologies	Digital Voltmeter	MY47022043	Sep 16, 2019	ACR Env./ A2LA	Sep 16, 2020
HM30-Thommen	Meteo Station	1040170/39633	Nov 13, 2018	ACR Env./ A2LA	Nov 13, 2019
PC Program 1017 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1253-Norsonic	Calibrator	28326	Nov 11, 2018	Scantek, Inc./ NVLAP	Nov 11, 2019
1203-Norsonic	Preamplifier	21270	Aug 5, 2019	Scantek, Inc./ NVLAP	Aug 5, 2020
4180-Brüel&Kjær	Microphone	2246115	Oct 1, 2019	DPLA / DANAK	Oct 24, 2021

Instrumentation and test results are traceable to SI - BIPM through standards maintained by NPL (UK) and NIST (USA)

Calibrated by:	Jeremy Gotwalt	**Authorized signatory:**	Steven E. Marshall
Signature		Signature	
Date	10/15/19	Date	10/16/2019

Document stored as: Z:\Calibration Lab\Mic 2019\B&K4952_3179684_M1.doc

Results summary: Device was tested and complies with following clauses of mentioned specifications:

CLAUSES / METHODS[1] FROM PROCEDURES		MET[2,3]	NOT MET	NOT TESTED	MEASUREMENT EXPANDED UNCERTAINTY (coverage factor 2)
Sensitivity (250 Hz)		X			See below
Frequency response	Actuator response			X	63 – 200Hz: 0.3 dB 200 – 8000 Hz: 0.2 dB 8 – 10 kHz: 0.5 dB 10 – 20 kHz: 0.7 dB 20 – 50 kHz: 0.9 dB 50 – 100 kHz: 1.2 dB
	FF/Diffuse field responses			X	63 – 200Hz: 0.3 dB 200 – 4000 Hz: 0.2 dB 4 – 10 kHz: 0.6 dB 10 – 20 kHz: 0.9 dB 20 – 50 kHz: 2.2 dB 50 – 100 kHz: 4.4 dB
	Scantek, Inc. acoustical method			X	31.5 – 125 Hz: 0.16 dB 250, 1000 Hz: 0.12 dB 2 – 8 kHz: 0.8 dB 12.5 – 16 kHz: 2.4 dB

[1] The results of this calibration apply only to the instrument type with serial number identified in this report.

[2] Results are normalized to the reference conditions.

[3] The tests marked with (*) are not covered by the current NVLAP accreditation.

Note: The free field/diffuse field characteristics were calculated based on the measured actuator response and adjustment coefficients as provided by the manufacturer. The uncertainties reported for these characteristics may include assumed uncertainty components for the adjustment coefficients.

Comments: The instrument was tested and met all specifications found in the referenced procedures.

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
22.7 ± 1.0	100.86 ± 0.020	39.3 ± 2.0

Main measured parameters:

Tone frequency (Hz)	Measured[4] /Acceptable Sensitivity (dB re 1 V/Pa)	Sensitivity (mV/Pa)
250	-30.28 ± 0.12/ -30.0 ±3.0	30.61

[4] The reported expanded uncertainty is calculated with a coverage factor k=2.00

Tests made with following attachments to instrument and auxiliary devices:

Protection grid mounted for sensitivity measurements
Actuator type: G.R.A.S. RA0014

Measured Data: Found on Microphone Test Report # 43793 of one page.

Place of Calibration: Scantek, Inc.
6430 Dobbin Road, Suite C
Columbia, MD 21045 USA
Ph/Fax: 410-290-7726/ -9167
callab@scantekinc.com

Scantek, Inc.
CALIBRATION LABORATORY

ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.43716

Instrument: **Sound Level Meter**
Model: **831**
Manufacturer: **Larson Davis**
Serial number: **0003752**
Tested with: **Microphone 377C20 s/n 165015**
Preamplifier PRM831 s/n 029563
Type (class): **1**
Customer: **Epsilon Associates, Inc.**
Tel/Fax: **978-461-6235 / 978-897-0099**

Date Calibrated: **10/1/2019** *Cal Due:*

Status:	**Received**	**Sent**
In tolerance:	X	X
Out of tolerance:		
See comments:		

Contains non-accredited tests: ___**Yes** **X** **No**
Calibration service: ___ **Basic** **X** **Standard**
Address: **3 Mill & Main Place, Suite 250, Maynard, MA 01754**

Tested in accordance with the following procedures and standards:
Calibration of Sound Level Meters, Scantek Inc., Rev. 6/26/2015
SLM & Dosimeters – Acoustical Tests, Scantek Inc., Rev. 7/6/2011

Instrumentation used for calibration: Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31061	Jul 31, 2020	Scantek, Inc./ NVLAP	Jul 31, 2020
DS-360-SRS	Function Generator	61646	Sep 7, 2018	ACR Env./ A2LA	Sep 7, 2020
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Oct 1, 2018	ACR Env. / A2LA	Oct 1, 2019
HM30-Thommen	Meteo Station	1040170/39633	Nov 13, 2018	ACR Env./ A2LA	Nov 13, 2019
PC Program 1019 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1251-Norsonic	Calibrator	30878	Nov 11, 2018	Scantek, Inc./ NVLAP	Nov 11, 2019

Instrumentation and test results are traceable to SI (International System of Units) through standards maintained by NIST (USA) and NPL (UK).

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
23.6	100.51	54.0

Calibrated by:	Jeremy Gotwalt	**Authorized signatory:**	Steven E. Marshall
Signature		Signature	
Date	10/1/19	Date	10/1/2019

Results summary: Device complies with following clauses of mentioned specifications:

CLAUSES[1] FROM IEC/ANSI STANDARDS REFERENCED IN PROCEDURES:	RESULT[2,3]	EXPANDED UNCERTAINTY (coverage factor 2) [dB]
INDICATION AT THE CALIBRATION CHECK FREQUENCY - IEC61672-3 ED.2 CLAUSE 10	Passed	0.15
SELF-GENERATED NOISE - IEC 61672-3 ED.2 CLAUSE 11	Passed	0.3
FREQUENCY WEIGHTINGS: A NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	0.2
FREQUENCY WEIGHTINGS: C NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	0.2
FREQUENCY WEIGHTINGS: Z NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	0.2
FREQUENCY AND TIME WEIGHTINGS AT 1 KHZ IEC 61672-3 ED.2.0 CLAUSE 14	Passed	0.2
LEVEL LINEARITY ON THE REFERENCE LEVEL RANGE - IEC 61672-3 ED.2 CLAUSE 16	Passed	0.25
LEVEL LINEARITY INCLUDING THE LEVEL RANGE CONTROL - IEC 61672-3 ED.2.0 CLAUSE 17	Passed	0.25
TONEBURST RESPONSE - IEC 61672-3 ED.2.0 CLAUSE 18	Passed	0.3
PEAK C SOUND LEVEL - IEC 61672-3 ED.2.0 CLAUSE 19	Passed	0.35
OVERLOAD INDICATION - IEC 61672-3 ED.2.0 CLAUSE 20	Passed	0.25
HIGH LEVEL STABILITY TEST - IEC 61672-3 ED.2.0 CLAUSE 21	Passed	0.1
LONG TERM STABILITY TEST - IEC 61672-3 ED.2.0 CLAUSE 15	Passed	0.1
FILTER TEST 1/1OCTAVE: RELATIVE ATTENUATION - IEC 61260, CLAUSE 4.4 & #5.3	Passed	0.25
FILTER TEST 1/3OCTAVE: RELATIVE ATTENUATION - IEC 61260, CLAUSE 4.4 & #5.3	Passed	0.25
COMBINED ELECTRICAL AND ACOUSTICAL TEST - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	See test report

1 The results of this calibration apply only to the instrument type with serial number identified in this report.

2 Parameters are certified at actual environmental conditions.

3 The tests marked with (*) are not covered by the current NVLAP accreditation.

Comments: The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organization responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2, to demonstrate that the model of sound level meter fully conforms to the requirements in the IEC 61672-2, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1.

Note: The instrument was tested for the parameters listed in the table above, using the test methods described in the listed standards. All tests were performed around the reference conditions. The test results were compared with the manufacturer's or with the standard's specifications, whichever are larger.
Compliance with any standard cannot be claimed based solely on the periodic tests.

Tests made with the following attachments to the instrument:

Microphone: PCB Piezotronics 377C20 s/n 165015 for acoustical test
Preamplifier: Larson Davis PRM831 s/n 029563 for all tests
Other: line adaptor ADP005 (18pF) for electrical tests
Accompanying acoustical calibrator: Larson Davis CAL200 s/n 7147
Windscreen: none

Measured Data: in Test Report # 43716 of 9+1 pages.

Place of Calibration: Scantek, Inc.
6430 Dobbin Road, Suite C
Columbia, MD 21045 USA

Ph/Fax: 410-290-7726/ -9167
callab@scantekinc.com

Scantek, Inc.
CALIBRATION LABORATORY
ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.43717

Instrument: **Microphone**
Model: **377C20**
Manufacturer: **PCB Piezotronics**
Serial number: **165015**
Composed of:

Date Calibrated: **9/30/2019** *Cal Due:*

Status:	**Received**	**Sent**
In tolerance:	**X**	**X**
Out of tolerance:		
See comments:		

Contains non-accredited tests: **__Yes _X_ No**

Customer: **Epsilon Associates, Inc.**
Tel/Fax: **978-461-6235/978-897-0099**
Address: **3 Mill & Main Place, Suite 250**
Maynard, MA 01754

Tested in accordance with the following procedures and standards:
Calibration of Measurement Microphones, Scantek, Inc., Rev. 2/25/2015

Instrumentation used for calibration: N-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31061	Jul 31, 2020	Scantek, Inc./ NVLAP	Jul 31, 2020
DS-360-SRS	Function Generator	61646	Sep 7, 2018	ACR Env./ A2LA	Sep 7, 2020
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Oct 1, 2018	ACR Env. / A2LA	Oct 1, 2019
HM30-Thommen	Meteo Station	1040170/39633	Nov 13, 2018	ACR Env./ A2LA	Nov 13, 2019
PC Program 1017 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1253-Norsonic	Calibrator	28326	Nov 11, 2018	Scantek, Inc./ NVLAP	Nov 11, 2019
1203-Norsonic	Preamplifier	21270	Aug 5, 2019	Scantek, Inc./ NVLAP	Aug 5, 2020
4180-Brüel&Kjær	Microphone	2246115	Oct 24, 2017	DANAK / DPLA	Oct 24, 2019

Instrumentation and test results are traceable to SI - BIPM through standards maintained by NPL (UK) and NIST (USA)

Calibrated by:	Jeremy Gotwalt	**Authorized signatory:**	Steven E. Marshall
Signature		Signature	
Date	9/30/19	Date	10/1/2019

Results summary: Device was tested and complies with following clauses of mentioned specifications:

CLAUSES / METHODS[1] FROM PROCEDURES		MET[2,3]	NOT MET	NOT TESTED	MEASUREMENT EXPANDED UNCERTAINTY (coverage factor 2)
Open circuit sensitivity (insert voltage method, 250 Hz)		X			See below
Frequency response	Actuator response	X			63 – 200Hz: 0.3 dB 200 – 8000 Hz: 0.2 dB 8 – 10 kHz: 0.5 dB 10 – 20 kHz: 0.7 dB 20 – 50 kHz: 0.9 dB 50 – 100 kHz: 1.2 dB
	FF/Diffuse field responses	X			63 – 200Hz: 0.3 dB 200 – 4000 Hz: 0.2 dB 4 – 10 kHz: 0.6 dB 10 – 20 kHz: 0.9 dB 20 – 50 kHz: 2.2 dB 50 – 100 kHz: 4.4 dB
	Scantek, Inc. acoustical method			X	31.5 – 125 Hz: 0.16 dB 250, 1000 Hz: 0.12 dB 2 – 8 kHz: 0.8 dB 12.5 – 16 kHz: 2.4 dB

[1] The results of this calibration apply only to the instrument type with serial number identified in this report.

[2] Results are normalized to the reference conditions.

[3] The tests marked with (*) are not covered by the current NVLAP accreditation.

Note: The free field/diffuse field characteristics were calculated based on the measured actuator response and adjustment coefficients as provided by the manufacturer. The uncertainties reported for these characteristics may include assumed uncertainty components for the adjustment coefficients.

Comments: The instrument was tested and met all specifications found in the referenced procedures.

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
21.4 ± 1.0	100.94 ± 0.020	54.4 ± 2.0

Main measured parameters:

Tone frequency (Hz)	Measured[4] /Acceptable Open circuit sensitivity (dB re 1V/Pa)	Sensitivity (mV/Pa)
250	-27.19 ± 0.12/ -26.0 ±1.5	43.71

[4] The reported expanded uncertainty is calculated with a coverage factor k=2.00

Tests made with following attachments to instrument and auxiliary devices:

Protection grid mounted for sensitivity measurements
Actuator type: G.R.A.S. RA0014

Measured Data: Found on Microphone Test Report # 43717 of one page.

Place of Calibration: Scantek, Inc.
6430 Dobbin Road, Suite C
Columbia, MD 21045 USA
Ph/Fax: 410-290-7726/ -9167
callab@scantekinc.com

Scantek, Inc.
CALIBRATION LABORATORY

ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.44214

Instrument: **Sound Level Meter**
Model: **831**
Manufacturer: **Larson Davis**
Serial number: **0004373**
Tested with: **Microphone 377C20 s/n 165061**
Preamplifier PRM831 s/n 046514
Type (class): **1**
Customer: **Epsilon Associates, Inc.**
Tel/Fax: **978-461-6235 / choyt@epsilonassociates.com**

Date Calibrated: **1/16/2020** *Cal Due:* **1/16/2021**

Status:	Received	Sent
In tolerance:	X	X
Out of tolerance:		
See comments:		

Contains non-accredited tests: ___Yes _X_ No
Calibration service: ___ Basic _X_ Standard
Address: **3 Mill & Main Place, Suite 250, Maynard, MA 01754**

Tested in accordance with the following procedures and standards:
Calibration of Sound Level Meters, Scantek Inc., Rev. 6/26/2015
SLM & Dosimeters – Acoustical Tests, Scantek Inc., Rev. 7/6/2011

Instrumentation used for calibration: Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31052	Oct 31, 2019	Scantek, Inc./ NVLAP	Oct 31, 2020
DS-360-SRS	Function Generator	33584	Oct 23, 2019	ACR Env./ A2LA	Oct 23, 2021
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Oct 22, 2019	ACR Env. / A2LA	Oct 22, 2020
HM30-Thommen	Meteo Station	1040170/39633	Oct 24, 2019	ACR Env./ A2LA	Oct 24, 2020
PC Program 1019 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1251-Norsonic	Calibrator	30878	Oct 23, 2019	Scantek, Inc./ NVLAP	Oct 23, 2020

Instrumentation and test results are traceable to SI (International System of Units) through standards maintained by NIST (USA) and NPL (UK).

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
24.3	100.30	47.7

Calibrated by:	Lydon Dawkins	**Authorized signatory:**	William D. Gallagher
Signature	Lydon Dawkins	Signature	William D Gallagher
Date	1/16/2020	Date	1/16/2020

Results summary: Device complies with following clauses of mentioned specifications:

CLAUSES [1] FROM IEC/ANSI STANDARDS REFERENCED IN PROCEDURES:	RESULT[2,3]	EXPANDED UNCERTAINTY (coverage factor 2) [dB]
INDICATION AT THE CALIBRATION CHECK FREQUENCY - IEC61672-3 ED.2 CLAUSE 10	Passed	0.15
SELF-GENERATED NOISE - IEC 61672-3 ED.2 CLAUSE 11	Passed	0.30
FREQUENCY WEIGHTINGS: A NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	0.20
FREQUENCY WEIGHTINGS: C NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	0.20
FREQUENCY WEIGHTINGS: Z NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	0.20
FREQUENCY AND TIME WEIGHTINGS AT 1 KHZ IEC 61672-3 ED.2.0 CLAUSE 14	Passed	0.20
LEVEL LINEARITY ON THE REFERENCE LEVEL RANGE - IEC 61672-3 ED.2 CLAUSE 16	Passed	0.25
LEVEL LINEARITY INCLUDING THE LEVEL RANGE CONTROL - IEC 61672-3 ED.2.0 CLAUSE 17	Passed	0.25
TONEBURST RESPONSE - IEC 61672-3 ED.2.0 CLAUSE 18	Passed	0.30
PEAK C SOUND LEVEL - IEC 61672-3 ED.2.0 CLAUSE 19	Passed	0.35
OVERLOAD INDICATION - IEC 61672-3 ED.2.0 CLAUSE 20	Passed	0.25
HIGH LEVEL STABILITY TEST - IEC 61672-3 ED.2.0 CLAUSE 21	Passed	0.10
LONG TERM STABILITY TEST - IEC 61672-3 ED.2.0 CLAUSE 15	Passed	0.10
FILTER TEST 1/1OCTAVE: RELATIVE ATTENUATION - IEC 61260, CLAUSE 4.4 & #5.3	Passed	0.25
FILTER TEST 1/3OCTAVE: RELATIVE ATTENUATION - IEC 61260, CLAUSE 4.4 & #5.3	Passed	0.25
COMBINED ELECTRICAL AND ACOUSTICAL TEST - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	See test report

1 The results of this calibration apply only to the instrument type with serial number identified in this report.

2 Parameters are certified at actual environmental conditions.

3 The tests marked with (*) are not covered by the current NVLAP accreditation.

Comments: The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organization responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2, to demonstrate that the model of sound level meter fully conforms to the requirements in the IEC 61672-2, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1.

Note: The instrument was tested for the parameters listed in the table above, using the test methods described in the listed standards. All tests were performed around the reference conditions. The test results were compared with the manufacturer's or with the standard's specifications, whichever are larger.
Compliance with any standard cannot be claimed based solely on the periodic tests.

Tests made with the following attachments to the instrument:

Microphone: PCB Piezotronics 377C20 s/n 165061 for acoustical test
Preamplifier: Larson Davis PRM831 s/n 046514 for all tests
Other: line adaptor ADP005 (18pF) for electrical tests
Accompanying acoustical calibrator: Larson Davis CAL200 s/n 13675
Windscreen: none

Measured Data: in Test Report # 44214 of 9 + 1 pages.

Place of Calibration: Scantek, Inc.
6430 Dobbin Road, Suite C
Columbia, MD 21045 USA

Ph/Fax: 410-290-7726/ -9167
callab@scantekinc.com

Scantek, Inc.
CALIBRATION LABORATORY

ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.44215

Instrument: **Microphone**
Model: **377C20**
Manufacturer: **PCB Piezotronics**
Serial number: **165061**

Composed of:

Date Calibrated: **1/15/2020** *Cal Due:* **1/15/2021**

Status:	**Received**	**Sent**
In tolerance:	**X**	**X**
Out of tolerance:		
See comments:		

Contains non-accredited tests: **__Yes _X_ No**

Customer: **Epsilon Associates, Inc.**
Tel/Fax: **978-461-6235/choyt@epsilonassociates.com**

Address: **3 Mill & Main Place, Suite 250, Maynard, MA 01754**

Tested in accordance with the following procedures and standards:
Calibration of Measurement Microphones, Scantek, Inc., Rev. 2/25/2015

Instrumentation used for calibration: N-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31052	Oct 31, 2019	Scantek, Inc./ NVLAP	Oct 31, 2020
DS-360-SRS	Function Generator	33584	Oct 23, 2019	ACR Env./ A2LA	Oct 23, 2021
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Oct 22, 2019	ACR Env. / A2LA	Oct 22, 2020
HM30-Thommen	Meteo Station	1040170/39633	Oct 24, 2019	ACR Env./ A2LA	Oct 24, 2020
PC Program 1017 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1253-Norsonic	Calibrator	28326	Oct 23, 2019	Scantek, Inc./ NVLAP	Oct 23, 2020
1203-Norsonic	Preamplifier	14059	Feb 28, 2019	Scantek, Inc./ NVLAP	Feb 28, 2020
4180-Brüel&Kjær	Microphone	2246115	Oct 1, 2019	DPLA / DANAK	Oct 1, 2021

Instrumentation and test results are traceable to SI - BIPM through standards maintained by NPL (UK) and NIST (USA)

Calibrated by:	Lydon Dawkins	**Authorized signatory:**	William D. Gallagher
Signature	Lydon Dawkins	Signature	William D Gallagher
Date	1/15/2020	Date	1/16/2020

Results summary: Device was tested and complies with following clauses of mentioned specifications:

CLAUSES / METHODS[1] FROM PROCEDURES		MET[2,3]	NOT MET	NOT TESTED	MEASUREMENT EXPANDED UNCERTAINTY (coverage factor 2)
Open circuit sensitivity (insert voltage method, 250 Hz)		X			See below
Frequency response	Actuator response	X			63 – 200Hz: 0.3 dB 200 – 8000 Hz: 0.2 dB 8 – 10 kHz: 0.5 dB 10 – 20 kHz: 0.7 dB 20 – 50 kHz: 0.9 dB 50 – 100 kHz: 1.2 dB
	FF/Diffuse field responses	X			63 – 200Hz: 0.3 dB 200 – 4000 Hz: 0.2 dB 4 – 10 kHz: 0.6 dB 10 – 20 kHz: 0.9 dB 20 – 50 kHz: 2.2 dB 50 – 100 kHz: 4.4 dB
	Scantek, Inc. acoustical method			X	31.5 – 125 Hz: 0.16 dB 250, 1000 Hz: 0.12 dB 2 – 8 kHz: 0.8 dB 12.5 – 16 kHz: 2.4 dB

[1] The results of this calibration apply only to the instrument type with serial number identified in this report.

[2] Results are normalized to the reference conditions.

[3] The tests marked with (*) are not covered by the current NVLAP accreditation.

Note: The free field/diffuse field characteristics were calculated based on the measured actuator response and adjustment coefficients as provided by the manufacturer. The uncertainties reported for these characteristics may include assumed uncertainty components for the adjustment coefficients.

Comments: The instrument was tested and met all specifications found in the referenced procedures.

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
24.7 ± 1.0	100.43 ± 0.020	44.9 ± 2.0

Main measured parameters:

Tone frequency (Hz)	Measured[4]/Acceptable Open circuit sensitivity (dB re 1V/Pa)	Sensitivity (mV/Pa)
250	-27.25 ± 0.12/ -26.0 ±1.5	43.39

[4] The reported expanded uncertainty is calculated with a coverage factor k=2.00

Tests made with following attachments to instrument and auxiliary devices:

Protection grid mounted for sensitivity measurements
Actuator type: G.R.A.S. RA0014

Measured Data: Found on Microphone Test Report # 44215 of one page.

Place of Calibration: Scantek, Inc.
6430 Dobbin Road, Suite C
Columbia, MD 21045 USA
Ph/Fax: 410-290-7726/ -9167
callab@scantekinc.com

Scantek, Inc.
CALIBRATION LABORATORY

ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.44218

Instrument: **Sound Level Meter**
Model: **831**
Manufacturer: **Larson Davis**
Serial number: **0004375**
Tested with: **Microphone 377C20 s/n 165757**
Preamplifier PRM831 s/n 046516
Type (class): **1**
Customer: **Epsilon Associates, Inc.**
Tel/Fax: **978-461-6235 / choyt@epsilonassociates.com**

Date Calibrated: **1/16/2020** *Cal Due:* **1/16/2021**

Status:	Received	Sent
In tolerance:	X	X
Out of tolerance:		
See comments:		

Contains non-accredited tests: ___Yes _X_ No
Calibration service: ___ Basic _X_ Standard
Address: **3 Mill & Main Place, Suite 250, Maynard, MA 01754**

Tested in accordance with the following procedures and standards:
Calibration of Sound Level Meters, Scantek Inc., Rev. 6/26/2015
SLM & Dosimeters – Acoustical Tests, Scantek Inc., Rev. 7/6/2011

Instrumentation used for calibration: Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31052	Oct 31, 2019	Scantek, Inc./ NVLAP	Oct 31, 2020
DS-360-SRS	Function Generator	33584	Oct 23, 2019	ACR Env./ A2LA	Oct 23, 2021
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Oct 22, 2019	ACR Env. / A2LA	Oct 22, 2020
HM30-Thommen	Meteo Station	1040170/39633	Oct 24, 2019	ACR Env./ A2LA	Oct 24, 2020
PC Program 1019 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1251-Norsonic	Calibrator	30878	Oct 23, 2019	Scantek, Inc./ NVLAP	Oct 23, 2020

Instrumentation and test results are traceable to SI (International System of Units) through standards maintained by NIST (USA) and NPL (UK).

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
24.4	100.45	42.2

Calibrated by:	Lydon Dawkins	**Authorized signatory:**	William D. Gallagher
Signature	Lydon Dawkins	Signature	William D Gallagher
Date	1/16/2020	Date	1/16/2020

Results summary: Device complies with following clauses of mentioned specifications:

CLAUSES [1] FROM IEC/ANSI STANDARDS REFERENCED IN PROCEDURES:	RESULT [2,3]	EXPANDED UNCERTAINTY (coverage factor 2) [dB]
INDICATION AT THE CALIBRATION CHECK FREQUENCY - IEC61672-3 ED.2 CLAUSE 10	Passed	0.15
SELF-GENERATED NOISE - IEC 61672-3 ED.2 CLAUSE 11	Passed	0.30
FREQUENCY WEIGHTINGS: A NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	0.20
FREQUENCY WEIGHTINGS: C NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	0.20
FREQUENCY WEIGHTINGS: Z NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	0.20
FREQUENCY AND TIME WEIGHTINGS AT 1 KHZ IEC 61672-3 ED.2.0 CLAUSE 14	Passed	0.20
LEVEL LINEARITY ON THE REFERENCE LEVEL RANGE - IEC 61672-3 ED.2 CLAUSE 16	Passed	0.25
LEVEL LINEARITY INCLUDING THE LEVEL RANGE CONTROL - IEC 61672-3 ED.2.0 CLAUSE 17	Passed	0.25
TONEBURST RESPONSE - IEC 61672-3 ED.2.0 CLAUSE 18	Passed	0.30
PEAK C SOUND LEVEL - IEC 61672-3 ED.2.0 CLAUSE 19	Passed	0.35
OVERLOAD INDICATION - IEC 61672-3 ED.2.0 CLAUSE 20	Passed	0.25
HIGH LEVEL STABILITY TEST - IEC 61672-3 ED.2.0 CLAUSE 21	Passed	0.10
LONG TERM STABILITY TEST - IEC 61672-3 ED.2.0 CLAUSE 15	Passed	0.10
FILTER TEST 1/1OCTAVE: RELATIVE ATTENUATION - IEC 61260, CLAUSE 4.4 & #5.3	Passed	0.25
FILTER TEST 1/3OCTAVE: RELATIVE ATTENUATION - IEC 61260, CLAUSE 4.4 & #5.3	Passed	0.25
COMBINED ELECTRICAL AND ACOUSTICAL TEST - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	See test report

1 The results of this calibration apply only to the instrument type with serial number identified in this report.

2 Parameters are certified at actual environmental conditions.

3 The tests marked with (*) are not covered by the current NVLAP accreditation.

Comments: The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organization responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2, to demonstrate that the model of sound level meter fully conforms to the requirements in the IEC 61672-2, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1.

Note: The instrument was tested for the parameters listed in the table above, using the test methods described in the listed standards. All tests were performed around the reference conditions. The test results were compared with the manufacturer's or with the standard's specifications, whichever are larger.
Compliance with any standard cannot be claimed based solely on the periodic tests.

Tests made with the following attachments to the instrument:

Microphone: PCB Piezotronics 377C20 s/n 165757 for acoustical test
Preamplifier: Larson Davis PRM831 s/n 046516 for all tests
Other: line adaptor ADP005 (18pF) for electrical tests
Accompanying acoustical calibrator: Larson Davis CAL200 s/n 13676
Windscreen: none

Measured Data: in Test Report # 44218 of 9 + 1 pages.

Place of Calibration: Scantek, Inc.
6430 Dobbin Road, Suite C
Columbia, MD 21045 USA
Ph/Fax: 410-290-7726/ -9167
callab@scantekinc.com

Scantek, Inc.
CALIBRATION LABORATORY

ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.44219

Instrument: **Microphone**
Model: **377C20**
Manufacturer: **PCB Piezotronics**
Serial number: **165757**

Composed of:

Date Calibrated: **1/15/2020** *Cal Due:* **1/15/2021**

Status:	**Received**	**Sent**
In tolerance:	**X**	**X**
Out of tolerance:		
See comments:		

Contains non-accredited tests: __Yes _X_ No

Customer: **Epsilon Associates, Inc.**
Tel/Fax: **978-461-6235/choyt@epsilonassociates.com**

Address: **3 Mill & Main Place, Suite 250, Maynard, MA 01754**

Tested in accordance with the following procedures and standards:
Calibration of Measurement Microphones, Scantek, Inc., Rev. 2/25/2015

Instrumentation used for calibration: N-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31052	Oct 31, 2019	Scantek, Inc./ NVLAP	Oct 31, 2020
DS-360-SRS	Function Generator	33584	Oct 23, 2019	ACR Env./ A2LA	Oct 23, 2021
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Oct 22, 2019	ACR Env. / A2LA	Oct 22, 2020
HM30-Thommen	Meteo Station	1040170/39633	Oct 24, 2019	ACR Env./ A2LA	Oct 24, 2020
PC Program 1017 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1253-Norsonic	Calibrator	28326	Oct 23, 2019	Scantek, Inc./ NVLAP	Oct 23, 2020
1203-Norsonic	Preamplifier	14059	Feb 28, 2019	Scantek, Inc./ NVLAP	Feb 28, 2020
4180-Brüel&Kjær	Microphone	2246115	Oct 1, 2019	DPLA / DANAK	Oct 1, 2021

Instrumentation and test results are traceable to SI - BIPM through standards maintained by NPL (UK) and NIST (USA)

Calibrated by:	Lydon Dawkins	**Authorized signatory:**	William D. Gallagher
Signature	Lydon Dawkins	Signature	William D Gallagher
Date	1/15/2020	Date	1/16/2020

Results summary: Device was tested and complies with following clauses of mentioned specifications:

CLAUSES / METHODS[1] FROM PROCEDURES		MET[2,3]	NOT MET	NOT TESTED	MEASUREMENT EXPANDED UNCERTAINTY (coverage factor 2)
Open circuit sensitivity (insert voltage method, 250 Hz)		X			See below
Frequency response	Actuator response	X			63 – 200Hz: 0.3 dB 200 – 8000 Hz: 0.2 dB 8 – 10 kHz: 0.5 dB 10 – 20 kHz: 0.7 dB 20 – 50 kHz: 0.9 dB 50 – 100 kHz: 1.2 dB
	FF/Diffuse field responses	X			63 – 200Hz: 0.3 dB 200 – 4000 Hz: 0.2 dB 4 – 10 kHz: 0.6 dB 10 – 20 kHz: 0.9 dB 20 – 50 kHz: 2.2 dB 50 – 100 kHz: 4.4 dB
	Scantek, Inc. acoustical method			X	31.5 – 125 Hz: 0.16 dB 250, 1000 Hz: 0.12 dB 2 – 8 kHz: 0.8 dB 12.5 – 16 kHz: 2.4 dB

[1] The results of this calibration apply only to the instrument type with serial number identified in this report.

[2] Results are normalized to the reference conditions.

[3] The tests marked with (*) are not covered by the current NVLAP accreditation.

Note: The free field/diffuse field characteristics were calculated based on the measured actuator response and adjustment coefficients as provided by the manufacturer. The uncertainties reported for these characteristics may include assumed uncertainty components for the adjustment coefficients.

Comments: The instrument was tested and met all specifications found in the referenced procedures.

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
25.0 ± 1.0	100.35 ± 0.020	41.0 ± 2.0

Main measured parameters:

Tone frequency (Hz)	Measured[4] /Acceptable Open circuit sensitivity (dB re 1V/Pa)	Sensitivity (mV/Pa)
250	-26.87 ± 0.12/ -26.0 ±1.5	45.35

[4] The reported expanded uncertainty is calculated with a coverage factor k=2.00

Tests made with following attachments to instrument and auxiliary devices:

Protection grid mounted for sensitivity measurements
Actuator type: G.R.A.S. RA0014

Measured Data: Found on Microphone Test Report # 44219 of one page.

Place of Calibration: Scantek, Inc.
6430 Dobbin Road, Suite C
Columbia, MD 21045 USA
Ph/Fax: 410-290-7726/ -9167
callab@scantekinc.com

Scantek, Inc.
CALIBRATION LABORATORY
ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.43215

Instrument:	**Acoustical Calibrator**	*Date Calibrated:* **7/15/2019**	*Cal Due:* **7/15/2020**
Model:	**CAL200**	*Status:*	**Received** / **Sent**
Manufacturer:	**Larson Davis**	*In tolerance:*	X / X
Serial number:	**7146**	*Out of tolerance:*	
Class (IEC 60942):	**1**	*See comments:*	
Barometer type:		*Contains non-accredited tests:*	__Yes _X_ No
Barometer s/n:			
Customer:	**Epsilon Associates, Inc.**	*Address:*	**3 Mill & Main Place, Suite 250, Maynard, MA 01754**
Tel/Fax:	**978-461-6235 / choyt@epsilonassociates.com**		

Tested in accordance with the following procedures and standards:
Calibration of Acoustical Calibrators, Scantek Inc., Rev. 10/1/2010

Instrumentation used for calibration: Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31052	Oct 31, 2018	Scantek, Inc./ NVLAP	Oct 31, 2019
DS-360-SRS	Function Generator	33584	Oct 24, 2017	ACR Env./ A2LA	Oct 24, 2019
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Oct 1, 2018	ACR Env. / A2LA	Oct 1, 2019
HM30-Thommen	Meteo Station	1040170/39633	Nov 13, 2018	ACR Env./ A2LA	Nov 13, 2019
140-Norsonic	Real Time Analyzer	1406423	Nov 3, 2018	Scantek / NVLAP	Nov 3, 2019
PC Program 1018 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
4134-Brüel&Kjær	Microphone	173368	Nov 11, 2018	Scantek, Inc. / NVLAP	Nov 11, 2019
1203-Norsonic	Preamplifier	14059	Feb 28, 2019	Scantek, Inc./ NVLAP	Feb 28, 2020

Instrumentation and test results are traceable to SI (International System of Units) through standards maintained by NIST (USA) and NPL (UK)

Calibrated by:	Lydon Dawkins	**Authorized signatory:**	Steven E. Marshall
Signature	Lydon Dawkins	Signature	Steven E Marshall
Date	7/15/2019	Date	7/16/2019

Results summary: Device was tested and complies with following clauses of mentioned specifications:

CLAUSES[1] FROM STANDARDS REFERENCED IN PROCEDURES:	MET[2]	NOT MET	COMMENTS
Manufacturer specifications			
Manufacturer specifications: Sound pressure level	X		
Manufacturer specifications: Frequency	X		
Manufacturer specifications: Total harmonic distortion	X		
Current standards			
ANSI S1.40:2006 B.3 / IEC 60942: 2003 B.2 - Preliminary inspection	X		
ANSI S1.40:2006 B.4.4 / IEC 60942: 2003 B.3.4 - Sound pressure level	X		
ANSI S1.40:2006 A.5.4 / IEC 60942: 2003 A.4.4 - Sound pressure level stability	-	-	
ANSI S1.40:2006 B.4.5 / IEC 60942: 2003 B.3.5 - Frequency	X		
ANSI S1.40:2006 B.4.6 / IEC 60942: 2003 B.3.6 - Total harmonic distortion	X		

1 The results of this calibration apply only to the instrument type with serial number identified in this report.

2 The tests marked with (*) are not covered by the current NVLAP accreditation.

Main measured parameters [3]:

Measured[4]/Acceptable[5] Tone frequency (Hz):	Measured[4]/Acceptable[5] Total Harmonic Distortion (%):	Measured [4]/Acceptable Level[5] (dB):
1000.08 ± 1.0/1000.0 ± 10.0	0.36 ± 0.10/ < 3	93.82 ± 0.12/94.0 ± 0.4
1000.07 ± 1.0/1000.0 ± 10.0	0.44 ± 0.10/ < 3	113.80 ± 0.12/114.0 ± 0.4

3 The stated level is valid at measurement conditions.

4 The above expanded uncertainties for frequency and distortion are calculated with a coverage factor k=2; for level k=2.00

5 Acceptable parameters values are from the current standards

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
23.0 ± 1.1	100.43 ± 0.025	61.4 ± 2.6

Tests made with following attachments to instrument:

Calibrator ½" Adaptor Type:
Other:

Adjustments: Unit was not adjusted.
Comments: The instrument was tested and met all specifications found in the referenced procedures.

Note: The instrument was tested for the parameters listed in the table above, using the test methods described in the listed standards. All tests were performed around the reference conditions. The test results were compared with the manufacturer's or with the standard's specifications, whichever are larger.
Compliance with any standard cannot be claimed based solely on the periodic tests.

Measured Data: in Acoustical Calibrator Test Report # 43215 of two pages.

Place of Calibration: Scantek, Inc.
6430 Dobbin Road, Suite C
Columbia, MD 21045 USA
Ph/Fax: 410-290-7726/ -9167
callab@scantekinc.com

Scantek, Inc.
CALIBRATION LABORATORY

ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.44210

Instrument:	**Acoustical Calibrator**
Model:	**CAL200**
Manufacturer:	**Larson Davis**
Serial number:	**13676**
Class (IEC 60942):	**1**
Barometer type:	
Barometer s/n:	
Customer:	**Epsilon Associates, Inc.**
Tel/Fax:	**978-461-6235 / choyt@epsilonassociates.com**

Date Calibrated: **1/15/2020** *Cal Due:* **1/15/2021**

Status:	**Received**	**Sent**
In tolerance:	X	X
Out of tolerance:		
See comments:		

Contains non-accredited tests: __Yes _X_ No

Address: **3 Mill & Main Place, Suite 250, Maynard, MA 01754**

Tested in accordance with the following procedures and standards:
Calibration of Acoustical Calibrators, Scantek Inc., Rev. 10/1/2010

Instrumentation used for calibration: Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31052	Oct 31, 2019	Scantek, Inc./ NVLAP	Oct 31, 2020
DS-360-SRS	Function Generator	33584	Oct 23, 2019	ACR Env./ A2LA	Oct 23, 2021
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Oct 22, 2019	ACR Env. / A2LA	Oct 22, 2020
HM30-Thommen	Meteo Station	1040170/39633	Oct 24, 2019	ACR Env./ A2LA	Oct 24, 2020
140-Norsonic	Real Time Analyzer	1406423	Oct 31, 2019	Scantek / NVLAP	Oct 31, 2020
PC Program 1018 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
4134-Brüel&Kjær	Microphone	173368	Oct 23, 2019	Scantek, Inc. / NVLAP	Oct 23, 2020
1203-Norsonic	Preamplifier	14059	Feb 28, 2019	Scantek, Inc./ NVLAP	Feb 28, 2020

Instrumentation and test results are traceable to SI (International System of Units) through standards maintained by NIST (USA) and NPL (UK)

Calibrated by:	Lydon Dawkins	**Authorized signatory:**	William D. Gallagher
Signature	Lydon Dawkins	Signature	William D. Gallagher
Date	1/15/2020	Date	1/14/2020

Results summary: Device was tested and complies with following clauses of mentioned specifications:

CLAUSES[1] FROM STANDARDS REFERENCED IN PROCEDURES:	MET[2]	NOT MET	COMMENTS
Manufacturer specifications			
Manufacturer specifications: Sound pressure level	X		
Manufacturer specifications: Frequency	X		
Manufacturer specifications: Total harmonic distortion	X		
Current standards			
ANSI S1.40:2006 B.3 / IEC 60942: 2003 B.2 - Preliminary inspection	X		
ANSI S1.40:2006 B.4.4 / IEC 60942: 2003 B.3.4 - Sound pressure level	X		
ANSI S1.40:2006 A.5.4 / IEC 60942: 2003 A.4.4 - Sound pressure level stability	-	-	
ANSI S1.40:2006 B.4.5 / IEC 60942: 2003 B.3.5 - Frequency	X		
ANSI S1.40:2006 B.4.6 / IEC 60942: 2003 B.3.6 - Total harmonic distortion	X		

1 The results of this calibration apply only to the instrument type with serial number identified in this report.

2 The tests marked with (*) are not covered by the current NVLAP accreditation.

Main measured parameters [3]:

Measured[4]/Acceptable[5] Tone frequency (Hz):	Measured[4]/Acceptable[5] Total Harmonic Distortion (%):	Measured [4]/Acceptable Level[5] (dB):
1000.25 ± 1.0/1000.0 ± 10.0	0.34 ± 0.10/ < 3	93.94 ± 0.12/94.0 ± 0.4
1000.27 ± 1.0/1000.0 ± 10.0	0.38 ± 0.10/ < 3	113.94 ± 0.12/114.0 ± 0.4

3 The stated level is valid at measurement conditions.

4 The above expanded uncertainties for frequency and distortion are calculated with a coverage factor k=2; for level k=2.00

5 Acceptable parameters values are from the current standards

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
24.9 ± 1.0	100.52 ± 0.000	39.0 ± 2.0

Tests made with following attachments to instrument:

Calibrator ½" Adaptor Type:
Other:

Adjustments: Unit was not adjusted.
Comments: The instrument was tested and met all specifications found in the referenced procedures.

Note: The instrument was tested for the parameters listed in the table above, using the test methods described in the listed standards. All tests were performed around the reference conditions. The test results were compared with the manufacturer's or with the standard's specifications, whichever are larger.
Compliance with any standard cannot be claimed based solely on the periodic tests.

Measured Data: in Acoustical Calibrator Test Report # 44210 of two pages.

Place of Calibration: Scantek, Inc.
6430 Dobbin Road, Suite C
Columbia, MD 21045 USA
Ph/Fax: 410-290-7726/ -9167
callab@scantekinc.com

Scantek, Inc.
CALIBRATION LABORATORY

ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.42494

Instrument: **Sound Level Meter**
Model: **140**
Manufacturer: **Norsonic**
Serial number: **1403178**
Tested with: **Microphone 40AN s/n 73449**
Preamplifier 1209 s/n 12492
Type (class): **1**
Customer: **Epsilon Associates, Inc.**
Tel/Fax: **978-461-6235 / choyt@epsilonassociates.com**

Date Calibrated: **3/15/2019** *Cal Due:* **3/15/2020**

Status:	Received	Sent
In tolerance:	X	X
Out of tolerance:		
See comments:		

Contains non-accredited tests: __Yes X No
Calibration service: __ Basic X Standard
Address: **3 Mill & Main Place, Suite 250, Maynard, MA 01754**

Tested in accordance with the following procedures and standards:
- Calibration of Sound Level Meters, Scantek Inc., Rev. 6/26/2015
- SLM & Dosimeters – Acoustical Tests, Scantek Inc., Rev. 7/6/2011

Instrumentation used for calibration: Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31052	Oct 31, 2018	Scantek, Inc./ NVLAP	Oct 31, 2019
DS-360-SRS	Function Generator	33584	Oct 24, 2017	ACR Env./ A2LA	Oct 24, 2019
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Oct 1, 2018	ACR Env. / A2LA	Oct 1, 2019
HM30-Thommen	Meteo Station	1040170/39633	Nov 13, 2018	ACR Env./ A2LA	Nov 13, 2019
PC Program 1019 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1251-Norsonic	Calibrator	30878	Nov 11, 2018	Scantek, Inc./ NVLAP	Nov 11, 2019

Instrumentation and test results are traceable to SI (International System of Units) through standards maintained by NIST (USA) and NPL (UK).

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
23.9	99.33	45.0

Calibrated by:	Lydon Dawkins	**Authorized signatory:**	Steven E. Marshall
Signature	Lydon Dawkins	Signature	Steven E. Marshall
Date	3/15/2019	Date	3/18/2019

Results summary: Device complies with following clauses of mentioned specifications:

CLAUSES [1] FROM IEC/ANSI STANDARDS REFERENCED IN PROCEDURES:	RESULT[2,3]	EXPANDED UNCERTAINTY (coverage factor 2) [dB]
INDICATION AT THE CALIBRATION CHECK FREQUENCY - IEC61672-3 ED.2 CLAUSE 10	Passed	0.15
SELF-GENERATED NOISE - IEC 61672-3 ED.2 CLAUSE 11	Passed	0.30
FREQUENCY WEIGHTINGS: A NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	0.20
FREQUENCY WEIGHTINGS: C NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	0.20
FREQUENCY WEIGHTINGS: Z NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	0.20
FREQUENCY AND TIME WEIGHTINGS AT 1 KHZ IEC 61672-3 ED.2.0 CLAUSE 14	Passed	0.20
LEVEL LINEARITY ON THE REFERENCE LEVEL RANGE - IEC 61672-3 ED.2 CLAUSE 16	Passed	0.25
TONEBURST RESPONSE - IEC 61672-3 ED.2.0 CLAUSE 18	Passed	0.30
PEAK C SOUND LEVEL - IEC 61672-3 ED.2.0 CLAUSE 19	Passed	0.35
OVERLOAD INDICATION - IEC 61672-3 ED.2.0 CLAUSE 20	Passed	0.25
HIGH LEVEL STABILITY TEST - IEC 61672-3 ED.2.0 CLAUSE 21	Passed	0.10
LONG TERM STABILITY TEST - IEC 61672-3 ED.2.0 CLAUSE 15	Passed	0.10
FILTER TEST 1/1OCTAVE: RELATIVE ATTENUATION - IEC 61260, CLAUSE 4.4 & #5.3	Passed	0.25
FILTER TEST 1/3OCTAVE: RELATIVE ATTENUATION - IEC 61260, CLAUSE 4.4 & #5.3	Passed	0.25
COMBINED ELECTRICAL AND ACOUSTICAL TEST - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	See test report

1 The results of this calibration apply only to the instrument type with serial number identified in this report.

2 Parameters are certified at actual environmental conditions.

3 The tests marked with (*) are not covered by the current NVLAP accreditation.

Comments: The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organization responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2, to demonstrate that the model of sound level meter fully conforms to the requirements in the IEC 61672-2, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1.

Note: The instrument was tested for the parameters listed in the table above, using the test methods described in the listed standards. All tests were performed around the reference conditions. The test results were compared with the manufacturer's or with the standard's specifications, whichever are larger.
Compliance with any standard cannot be claimed based solely on the periodic tests.

Tests made with the following attachments to the instrument:

Microphone: GRAS 40AN s/n 73449 for acoustical test
Preamplifier: Norsonic 1209 s/n 12492 for all tests
Other: line adaptor ADP005 (18pF) for electrical tests
Accompanying acoustical calibrator: Norsonic 1251 s/n 32059
Windscreen: none

Measured Data: in Test Report # 42494 of 9 + 1 pages.

Place of Calibration: Scantek, Inc.
6430 Dobbin Road, Suite C
Columbia, MD 21045 USA
Ph/Fax: 410-290-7726/ -9167
callab@scantekinc.com

Scantek, Inc.
CALIBRATION LABORATORY

ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.42495

Instrument: **Microphone**
Model: **40AN**
Manufacturer: **GRAS**
Serial number: **73449**

Composed of:

Date Calibrated: **3/15/2019** *Cal Due:* **3/15/2020**

Status:	**Received**	**Sent**
In tolerance:	**X**	**X**
Out of tolerance:		
See comments:		

Contains non-accredited tests: __**Yes** _**X**_ **No**

Customer: **Epsilon Associates, Inc.**
978-461-
Tel/Fax: **6235/choyt@epsilonassociates.com**

Address:
3 Mill & Main Place, Suite 250,
Maynard, MA 01754

Tested in accordance with the following procedures and standards:
Calibration of Measurement Microphones, Scantek, Inc., Rev. 2/25/2015

Instrumentation used for calibration: N-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31052	Oct 31, 2018	Scantek, Inc./ NVLAP	Oct 31, 2019
DS-360-SRS	Function Generator	33584	Oct 24, 2017	ACR Env./ A2LA	Oct 24, 2019
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Oct 1, 2018	ACR Env. / A2LA	Oct 1, 2019
HM30-Thommen	Meteo Station	1040170/39633	Nov 13, 2018	ACR Env./ A2LA	Nov 13, 2019
PC Program 1017 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1253-Norsonic	Calibrator	28326	Nov 11, 2018	Scantek, Inc./ NVLAP	Nov 11, 2019
1203-Norsonic	Preamplifier	14059	Feb 28, 2019	Scantek, Inc./ NVLAP	Feb 28, 2020
4180-Brüel&Kjær	Microphone	2246115	Oct 24, 2017	DANAK / DPLA	Oct 24, 2019

Instrumentation and test results are traceable to SI - BIPM through standards maintained by NPL (UK) and NIST (USA)

Calibrated by:	Lydon Dawkins	**Authorized signatory:**	Steven E. Marshall
Signature	Lydon Dawkins	Signature	Steven E Marshall
Date	3/15/2019	Date	3/18/2019

Results summary: Device was tested and complies with following clauses of mentioned specifications:

CLAUSES / METHODS[1] FROM PROCEDURES		MET[2,3]	NOT MET	NOT TESTED	MEASUREMENT EXPANDED UNCERTAINTY (coverage factor 2)
Open circuit sensitivity (insert voltage method, 250 Hz)		X			See below
Frequency response	Actuator response	X			63 – 200Hz: 0.3 dB 200 – 8000 Hz: 0.2 dB 8 – 10 kHz: 0.5 dB 10 – 20 kHz: 0.7 dB 20 – 50 kHz: 0.9 dB 50 – 100 kHz: 1.2 dB
	FF/Diffuse field responses	X			63 – 200Hz: 0.3 dB 200 – 4000 Hz: 0.2 dB 4 – 10 kHz: 0.6 dB 10 – 20 kHz: 0.9 dB 20 – 50 kHz: 2.2 dB 50 – 100 kHz: 4.4 dB
	Scantek, Inc. acoustical method			X	31.5 – 125 Hz: 0.16 dB 250, 1000 Hz: 0.12 dB 2 – 8 kHz: 0.8 dB 12.5 – 16 kHz: 2.4 dB

[1] The results of this calibration apply only to the instrument type with serial number identified in this report.

[2] Results are normalized to the reference conditions.

[3] The tests marked with (*) are not covered by the current NVLAP accreditation.

Note: The free field/diffuse field characteristics were calculated based on the measured actuator response and adjustment coefficients as provided by the manufacturer. The uncertainties reported for these characteristics may include assumed uncertainty components for the adjustment coefficients.

Comments:	The instrument was tested and met all specifications found in the referenced procedures.

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
23.3 ± 1.1	99.44 ± 0.040	44.3 ± 2.3

Main measured parameters:

Tone frequency (Hz)	Measured[4]/Nominal Open circuit sensitivity (dB re 1V/Pa)	Sensitivity (mV/Pa)
250	-25.26 ± 0.12/ -26.0	54.61

[4] The reported expanded uncertainty is calculated with a coverage factor k=2.00

Tests made with following attachments to instrument and auxiliary devices:

Protection grid mounted for sensitivity measurements
Actuator type: G.R.A.S. RA0014

Measured Data: Found on Microphone Test Report # 42495 of one page.

Place of Calibration: Scantek, Inc.
6430 Dobbin Road, Suite C
Columbia, MD 21045 USA
Ph/Fax: 410-290-7726/ -9167
callab@scantekinc.com

Scantek, Inc.
CALIBRATION LABORATORY

ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.44209

Instrument:	**Acoustical Calibrator**	*Date Calibrated:* **1/15/2020**	*Cal Due:* **1/15/2021**
Model:	**1251**	*Status:*	**Received** / **Sent**
Manufacturer:	**Norsonic**	*In tolerance:*	**X** / **X**
Serial number:	**34880**	*Out of tolerance:*	
Class (IEC 60942):	**1**	*See comments:*	
Barometer type:		*Contains non-accredited tests:*	**__Yes _X_ No**
Barometer s/n:			
Customer:	**Epsilon Associates, Inc.**	*Address:*	**3 Mill & Main Place, Suite 250, Maynard, MA 01754**
Tel/Fax:	**978-461-6235 / choyt@epsilonassociates.com**		

Tested in accordance with the following procedures and standards:
Calibration of Acoustical Calibrators, Scantek Inc., Rev. 10/1/2010

Instrumentation used for calibration: Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31052	Oct 31, 2019	Scantek, Inc./ NVLAP	Oct 31, 2020
DS-360-SRS	Function Generator	33584	Oct 23, 2019	ACR Env./ A2LA	Oct 23, 2021
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Oct 22, 2019	ACR Env. / A2LA	Oct 22, 2020
HM30-Thommen	Meteo Station	1040170/39633	Oct 24, 2019	ACR Env./ A2LA	Oct 24, 2020
140-Norsonic	Real Time Analyzer	1406423	Oct 31, 2019	Scantek / NVLAP	Oct 31, 2020
PC Program 1018 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
4134-Brüel&Kjær	Microphone	173368	Oct 23, 2019	Scantek, Inc. / NVLAP	Oct 23, 2020
1203-Norsonic	Preamplifier	14059	Feb 28, 2019	Scantek, Inc./ NVLAP	Feb 28, 2020

Instrumentation and test results are traceable to SI (International System of Units) through standards maintained by NIST (USA) and NPL (UK)

Calibrated by:	Lydon Dawkins	**Authorized signatory:**	William D. Gallagher
Signature	Lydon Dawkins	Signature	William D Gallagher
Date	1/15/2020	Date	1/16/2020

Results summary: Device was tested and complies with following clauses of mentioned specifications:

CLAUSES[1] FROM STANDARDS REFERENCED IN PROCEDURES:	MET[2]	NOT MET	COMMENTS
Manufacturer specifications			
Manufacturer specifications: Sound pressure level	X		
Manufacturer specifications: Frequency	X		
Manufacturer specifications: Total harmonic distortion	X		
Current standards			
ANSI S1.40:2006 B.3 / IEC 60942: 2003 B.2 - Preliminary inspection	X		
ANSI S1.40:2006 B.4.4 / IEC 60942: 2003 B.3.4 - Sound pressure level	X		
ANSI S1.40:2006 A.5.4 / IEC 60942: 2003 A.4.4 - Sound pressure level stability	-	-	
ANSI S1.40:2006 B.4.5 / IEC 60942: 2003 B.3.5 - Frequency	X		
ANSI S1.40:2006 B.4.6 / IEC 60942: 2003 B.3.6 - Total harmonic distortion	X		

1 The results of this calibration apply only to the instrument type with serial number identified in this report.

2 The tests marked with (*) are not covered by the current NVLAP accreditation.

Main measured parameters [3]:

Measured[4]/Acceptable[5] Tone frequency (Hz):	Measured[4]/Acceptable[5] Total Harmonic Distortion (%):	Measured [4]/Acceptable Level[5] (dB):
1000.41 ± 1.0/1000.0 ± 10.0	0.19 ± 0.10/ < 3	114.14 ± 0.12/114.0 ± 0.4

3 The stated level is valid at reference conditions.

4 The above expanded uncertainties for frequency and distortion are calculated with a coverage factor k=2; for level k=2.00

5 Acceptable parameters values are from the current standards

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
23.3 ± 1.0	100.74 ± 0.000	55.3 ± 2.0

Tests made with following attachments to instrument:

Calibrator ½" Adaptor Type: 1443
Other:

Adjustments: Unit was not adjusted.
Comments: The instrument was tested and met all specifications found in the referenced procedures.

Note: The instrument was tested for the parameters listed in the table above, using the test methods described in the listed standards. All tests were performed around the reference conditions. The test results were compared with the manufacturer's or with the standard's specifications, whichever are larger.
Compliance with any standard cannot be claimed based solely on the periodic tests.

Measured Data: in Acoustical Calibrator Test Report # 44209 of one page.

Place of Calibration: Scantek, Inc.
6430 Dobbin Road, Suite C
Columbia, MD 21045 USA
Ph/Fax: 410-290-7726/ -9167
callab@scantekinc.com

Appendix C

SUNY MesoNet Meteorological Data

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190910T000000	2019	09	10	00:00	47.8	99	0
20190910T000500	2019	09	10	00:05	48.6	99.2	0
20190910T001000	2019	09	10	00:10	48.2	99.1	0
20190910T001500	2019	09	10	00:15	47.5	99	0
20190910T002000	2019	09	10	00:20	46.8	98.7	0
20190910T002500	2019	09	10	00:25	46.7	98.7	0
20190910T003000	2019	09	10	00:30	47	98.8	0
20190910T003500	2019	09	10	00:35	46.9	99	0
20190910T004000	2019	09	10	00:40	47.3	99.2	0
20190910T004500	2019	09	10	00:45	47.8	99.2	0
20190910T005000	2019	09	10	00:50	47.1	99.1	0
20190910T005500	2019	09	10	00:55	46.8	99	0
20190910T010000	2019	09	10	01:00	46.8	99.1	0
20190910T010500	2019	09	10	01:05	46.7	99	0
20190910T011000	2019	09	10	01:10	47.1	99.1	0
20190910T011500	2019	09	10	01:15	46.8	99.2	0
20190910T012000	2019	09	10	01:20	46.5	99.1	0
20190910T012500	2019	09	10	01:25	46.6	99.1	0
20190910T013000	2019	09	10	01:30	46.4	99.1	0
20190910T013500	2019	09	10	01:35	46.6	99.3	0
20190910T014000	2019	09	10	01:40	46.9	99.3	0
20190910T014500	2019	09	10	01:45	46.5	99.3	0
20190910T015000	2019	09	10	01:50	46.6	99.3	0
20190910T015500	2019	09	10	01:55	46.8	99.3	0
20190910T020000	2019	09	10	02:00	46.7	99.3	0
20190910T020500	2019	09	10	02:05	46.9	99.3	0
20190910T021000	2019	09	10	02:10	47.1	99.4	0
20190910T021500	2019	09	10	02:15	47.2	99.4	0
20190910T022000	2019	09	10	02:20	46.7	99.3	0
20190910T022500	2019	09	10	02:25	46.6	99.3	0
20190910T023000	2019	09	10	02:30	46.4	99.3	0
20190910T023500	2019	09	10	02:35	46.7	99.3	0
20190910T024000	2019	09	10	02:40	46.8	99.5	0
20190910T024500	2019	09	10	02:45	46.4	99.4	0
20190910T025000	2019	09	10	02:50	46	99.2	0
20190910T025500	2019	09	10	02:55	46	99.3	0
20190910T030000	2019	09	10	03:00	46.2	99.3	0
20190910T030500	2019	09	10	03:05	46.1	99.4	0
20190910T031000	2019	09	10	03:10	46.2	99.4	0
20190910T031500	2019	09	10	03:15	46.1	99.4	0
20190910T032000	2019	09	10	03:20	45.9	99.4	0
20190910T032500	2019	09	10	03:25	46.1	99.4	0
20190910T033000	2019	09	10	03:30	46.4	99.4	0
20190910T033500	2019	09	10	03:35	46.4	99.5	0
20190910T034000	2019	09	10	03:40	46.7	99.5	0
20190910T034500	2019	09	10	03:45	46.5	99.5	0
20190910T035000	2019	09	10	03:50	46.4	99.5	0
20190910T035500	2019	09	10	03:55	46.8	99.6	0
20190910T040000	2019	09	10	04:00	47.3	99.7	0
20190910T040500	2019	09	10	04:05	47.2	99.6	0
20190910T041000	2019	09	10	04:10	46.8	99.5	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190910T041500	2019	09	10	04:15	46.6	99.5	0
20190910T042000	2019	09	10	04:20	46.6	99.5	0
20190910T042500	2019	09	10	04:25	46.7	99.5	0
20190910T043000	2019	09	10	04:30	46.7	99.6	0
20190910T043500	2019	09	10	04:35	46.7	99.6	0
20190910T044000	2019	09	10	04:40	46.4	99.5	0
20190910T044500	2019	09	10	04:45	46.3	99.5	0
20190910T045000	2019	09	10	04:50	46.2	99.5	0
20190910T045500	2019	09	10	04:55	46.3	99.6	0
20190910T050000	2019	09	10	05:00	46.2	99.5	0
20190910T050500	2019	09	10	05:05	46.3	99.6	0
20190910T051000	2019	09	10	05:10	46.4	99.6	0
20190910T051500	2019	09	10	05:15	46.3	99.6	0
20190910T052000	2019	09	10	05:20	46.3	99.6	0
20190910T052500	2019	09	10	05:25	46.2	99.6	0
20190910T053000	2019	09	10	05:30	46.3	99.6	0
20190910T053500	2019	09	10	05:35	46.3	99.6	0
20190910T054000	2019	09	10	05:40	46	99.5	0
20190910T054500	2019	09	10	05:45	45.9	99.6	0
20190910T055000	2019	09	10	05:50	46.1	99.6	0
20190910T055500	2019	09	10	05:55	46	99.6	0
20190910T060000	2019	09	10	06:00	46	99.6	0
20190910T060500	2019	09	10	06:05	46.2	99.7	0
20190910T061000	2019	09	10	06:10	46.3	99.7	0
20190910T061500	2019	09	10	06:15	46.8	99.7	0
20190910T062000	2019	09	10	06:20	46.9	99.7	0
20190910T062500	2019	09	10	06:25	47.2	99.8	0
20190910T063000	2019	09	10	06:30	47.9	99.8	0
20190910T063500	2019	09	10	06:35	48.3	99.8	0
20190910T064000	2019	09	10	06:40	48.3	99.8	0
20190910T064500	2019	09	10	06:45	48.2	99.8	0
20190910T065000	2019	09	10	06:50	47.9	99.7	0
20190910T065500	2019	09	10	06:55	47.5	99.6	0
20190910T070000	2019	09	10	07:00	47.7	99.7	0
20190910T070500	2019	09	10	07:05	48	99.7	0
20190910T071000	2019	09	10	07:10	48.4	99.7	0
20190910T071500	2019	09	10	07:15	48.8	99.6	0
20190910T072000	2019	09	10	07:20	49.3	99.7	0
20190910T072500	2019	09	10	07:25	50	99.7	0
20190910T073000	2019	09	10	07:30	50.4	99.6	0
20190910T073500	2019	09	10	07:35	50.8	99.7	0
20190910T074000	2019	09	10	07:40	51	99.7	0
20190910T074500	2019	09	10	07:45	51.6	99.7	0
20190910T075000	2019	09	10	07:50	52.2	99.8	0
20190910T075500	2019	09	10	07:55	52.7	99.7	0
20190910T080000	2019	09	10	08:00	53.4	99.7	0
20190910T080500	2019	09	10	08:05	54.3	99.7	0
20190910T081000	2019	09	10	08:10	54.9	99.5	0
20190910T081500	2019	09	10	08:15	55.1	99.2	0
20190910T082000	2019	09	10	08:20	55.5	99	0
20190910T082500	2019	09	10	08:25	55.7	98.4	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190910T083000	2019	09	10	08:30	56.3	96.9	0
20190910T083500	2019	09	10	08:35	56.4	94.4	0
20190910T084000	2019	09	10	08:40	57	93.4	0
20190910T084500	2019	09	10	08:45	57.6	91	0
20190910T085000	2019	09	10	08:50	57.5	89.1	0
20190910T085500	2019	09	10	08:55	58	87.5	0
20190910T090000	2019	09	10	09:00	58.4	87	0
20190910T090500	2019	09	10	09:05	58.6	84.8	0
20190910T091000	2019	09	10	09:10	58.7	84.8	0
20190910T091500	2019	09	10	09:15	59.2	84.2	0
20190910T092000	2019	09	10	09:20	60.1	83.9	0
20190910T092500	2019	09	10	09:25	60.8	80.9	0
20190910T093000	2019	09	10	09:30	61	80.4	0
20190910T093500	2019	09	10	09:35	61.3	79.2	0
20190910T094000	2019	09	10	09:40	61.5	78.1	0
20190910T094500	2019	09	10	09:45	62.4	78.4	0
20190910T095000	2019	09	10	09:50	62.6	78	0
20190910T095500	2019	09	10	09:55	63.1	78.4	0
20190910T100000	2019	09	10	10:00	63.7	77	0
20190910T100500	2019	09	10	10:05	63.9	76.6	0
20190910T101000	2019	09	10	10:10	64.7	76	0
20190910T101500	2019	09	10	10:15	64.9	75.2	0
20190910T102000	2019	09	10	10:20	65.1	75.4	0
20190910T102500	2019	09	10	10:25	66.1	75.4	0
20190910T103000	2019	09	10	10:30	65.9	74.4	0
20190910T103500	2019	09	10	10:35	66.1	74.2	0
20190910T104000	2019	09	10	10:40	66.4	73.1	0
20190910T104500	2019	09	10	10:45	66.9	72.9	0
20190910T105000	2019	09	10	10:50	67.2	73.1	0
20190910T105500	2019	09	10	10:55	67.6	73.5	0
20190910T110000	2019	09	10	11:00	68.1	73.4	0
20190910T110500	2019	09	10	11:05	68.3	72.2	0
20190910T111000	2019	09	10	11:10	68.5	72.6	0
20190910T111500	2019	09	10	11:15	68.8	71.9	0
20190910T112000	2019	09	10	11:20	69.2	71.8	0
20190910T112500	2019	09	10	11:25	69.7	71.7	0
20190910T113000	2019	09	10	11:30	70.1	70.8	0
20190910T113500	2019	09	10	11:35	70.5	71.1	0
20190910T114000	2019	09	10	11:40	71	71.7	0
20190910T114500	2019	09	10	11:45	72.2	70.9	0
20190910T115000	2019	09	10	11:50	72.3	68.3	0
20190910T115500	2019	09	10	11:55	72.8	68.3	0
20190910T120000	2019	09	10	12:00	73.5	69.1	0
20190910T120500	2019	09	10	12:05	73.6	66.2	0
20190910T121000	2019	09	10	12:10	73.6	65.8	0
20190910T121500	2019	09	10	12:15	74.4	66	0
20190910T122000	2019	09	10	12:20	74.5	65.6	0
20190910T122500	2019	09	10	12:25	74.7	65.7	0
20190910T123000	2019	09	10	12:30	74.8	64.9	0
20190910T123500	2019	09	10	12:35	74.7	63.5	0
20190910T124000	2019	09	10	12:40	75.2	62.6	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190910T124500	2019	09	10	12:45	76.2	63.3	0
20190910T125000	2019	09	10	12:50	76.3	60.6	0
20190910T125500	2019	09	10	12:55	76.4	61.8	0
20190910T130000	2019	09	10	13:00	76.6	60.6	0
20190910T130500	2019	09	10	13:05	76.8	60.5	0
20190910T131000	2019	09	10	13:10	77.3	61.5	0
20190910T131500	2019	09	10	13:15	77.3	59.9	0
20190910T132000	2019	09	10	13:20	77.2	59.8	0
20190910T132500	2019	09	10	13:25	77.3	59.7	0
20190910T133000	2019	09	10	13:30	78	60.5	0
20190910T133500	2019	09	10	13:35	78.5	60.7	0
20190910T134000	2019	09	10	13:40	78.6	59.2	0
20190910T134500	2019	09	10	13:45	78.5	59.3	0
20190910T135000	2019	09	10	13:50	77.9	58.9	0
20190910T135500	2019	09	10	13:55	78.3	59.6	0
20190910T140000	2019	09	10	14:00	78.8	60.3	0
20190910T140500	2019	09	10	14:05	79.1	59.1	0
20190910T141000	2019	09	10	14:10	79	58.3	0
20190910T141500	2019	09	10	14:15	79.2	58.8	0
20190910T142000	2019	09	10	14:20	78.8	59	0
20190910T142500	2019	09	10	14:25	78.7	59.6	0
20190910T143000	2019	09	10	14:30	78.3	59.6	0
20190910T143500	2019	09	10	14:35	79.6	60.6	0
20190910T144000	2019	09	10	14:40	79.9	59	0
20190910T144500	2019	09	10	14:45	80.2	59.6	0
20190910T145000	2019	09	10	14:50	79.6	59.5	0
20190910T145500	2019	09	10	14:55	80.4	58.7	0
20190910T150000	2019	09	10	15:00	80.1	59.6	0
20190910T150500	2019	09	10	15:05	79.8	59.2	0
20190910T151000	2019	09	10	15:10	80	59.5	0
20190910T151500	2019	09	10	15:15	80.4	59.1	0
20190910T152000	2019	09	10	15:20	80.7	59.1	0
20190910T152500	2019	09	10	15:25	80.7	59.1	0
20190910T153000	2019	09	10	15:30	80.9	59.3	0
20190910T153500	2019	09	10	15:35	81.1	59.1	0
20190910T154000	2019	09	10	15:40	80.8	58.7	0
20190910T154500	2019	09	10	15:45	81.1	59.1	0
20190910T155000	2019	09	10	15:50	81.5	58.8	0
20190910T155500	2019	09	10	15:55	81	58.8	0
20190910T160000	2019	09	10	16:00	81.1	59.3	0
20190910T160500	2019	09	10	16:05	81.5	59.6	0
20190910T161000	2019	09	10	16:10	82.1	59.5	0
20190910T161500	2019	09	10	16:15	82.2	58.8	0
20190910T162000	2019	09	10	16:20	82.4	57.8	0
20190910T162500	2019	09	10	16:25	81.6	58.6	0
20190910T163000	2019	09	10	16:30	81.5	59.5	0
20190910T163500	2019	09	10	16:35	81.8	58.5	0
20190910T164000	2019	09	10	16:40	82.6	58.5	0
20190910T164500	2019	09	10	16:45	82.3	57.2	0
20190910T165000	2019	09	10	16:50	81.8	58.3	0
20190910T165500	2019	09	10	16:55	82.2	58.4	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190910T170000	2019	09	10	17:00	81.8	57.5	0
20190910T170500	2019	09	10	17:05	81.8	58.9	0
20190910T171000	2019	09	10	17:10	81.7	59.5	0
20190910T171500	2019	09	10	17:15	81.2	60.1	0
20190910T172000	2019	09	10	17:20	80.8	60.1	0
20190910T172500	2019	09	10	17:25	80.7	59.2	0
20190910T173000	2019	09	10	17:30	80.5	59.6	0
20190910T173500	2019	09	10	17:35	80.2	60.3	0
20190910T174000	2019	09	10	17:40	80	60.9	0
20190910T174500	2019	09	10	17:45	80.2	60.6	0
20190910T175000	2019	09	10	17:50	79.9	61.5	0
20190910T175500	2019	09	10	17:55	79.7	62.5	0
20190910T180000	2019	09	10	18:00	79.6	63.1	0
20190910T180500	2019	09	10	18:05	79.6	63.4	0
20190910T181000	2019	09	10	18:10	79.8	63	0
20190910T181500	2019	09	10	18:15	79.8	63	0
20190910T182000	2019	09	10	18:20	79.4	64.2	0
20190910T182500	2019	09	10	18:25	78.9	65.4	0
20190910T183000	2019	09	10	18:30	78.7	66.1	0
20190910T183500	2019	09	10	18:35	78.5	66.3	0
20190910T184000	2019	09	10	18:40	78.4	66.4	0
20190910T184500	2019	09	10	18:45	78.4	66.7	0
20190910T185000	2019	09	10	18:50	78.3	66.7	0
20190910T185500	2019	09	10	18:55	78.1	66.8	0
20190910T190000	2019	09	10	19:00	78	66.5	0
20190910T190500	2019	09	10	19:05	78	66.5	0
20190910T191000	2019	09	10	19:10	77.7	66.9	0
20190910T191500	2019	09	10	19:15	77.4	67.4	0
20190910T192000	2019	09	10	19:20	77.4	67.4	0
20190910T192500	2019	09	10	19:25	77.2	67.6	0
20190910T193000	2019	09	10	19:30	77.3	67.4	0
20190910T193500	2019	09	10	19:35	77	67.5	0
20190910T194000	2019	09	10	19:40	77.1	67.5	0
20190910T194500	2019	09	10	19:45	77	67.3	0
20190910T195000	2019	09	10	19:50	76.7	67.8	0
20190910T195500	2019	09	10	19:55	76.8	68	0
20190910T200000	2019	09	10	20:00	76.8	67.8	0
20190910T200500	2019	09	10	20:05	76.3	68.8	0
20190910T201000	2019	09	10	20:10	76.3	68.8	0
20190910T201500	2019	09	10	20:15	76.5	68.7	0
20190910T202000	2019	09	10	20:20	76.4	68.6	0
20190910T202500	2019	09	10	20:25	76.1	69.3	0
20190910T203000	2019	09	10	20:30	75.9	69.9	0
20190910T203500	2019	09	10	20:35	75.4	70.8	0
20190910T204000	2019	09	10	20:40	75.3	71.4	0
20190910T204500	2019	09	10	20:45	75.4	71.7	0
20190910T205000	2019	09	10	20:50	75	72.3	0
20190910T205500	2019	09	10	20:55	74.9	73	0
20190910T210000	2019	09	10	21:00	75	72.8	0
20190910T210500	2019	09	10	21:05	74.8	73	0
20190910T211000	2019	09	10	21:10	74.6	73.6	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190910T211500	2019	09	10	21:15	74.5	73.6	0
20190910T212000	2019	09	10	21:20	74.7	73.6	0
20190910T212500	2019	09	10	21:25	74.6	73.7	0
20190910T213000	2019	09	10	21:30	74.7	73.6	0
20190910T213500	2019	09	10	21:35	74.8	73.1	0
20190910T214000	2019	09	10	21:40	74.7	73.2	0
20190910T214500	2019	09	10	21:45	74.6	73.5	0
20190910T215000	2019	09	10	21:50	74.4	73.8	0
20190910T215500	2019	09	10	21:55	74.1	74.5	0
20190910T220000	2019	09	10	22:00	73.8	75.1	0
20190910T220500	2019	09	10	22:05	73.5	75.7	0
20190910T221000	2019	09	10	22:10	73	76.6	0
20190910T221500	2019	09	10	22:15	72.7	77.5	0
20190910T222000	2019	09	10	22:20	72.5	78.1	0
20190910T222500	2019	09	10	22:25	72.5	78.7	0
20190910T223000	2019	09	10	22:30	72.6	78.7	0
20190910T223500	2019	09	10	22:35	72.8	78.5	0
20190910T224000	2019	09	10	22:40	72.7	78.2	0
20190910T224500	2019	09	10	22:45	72.6	78.2	0
20190910T225000	2019	09	10	22:50	73.1	77.7	0
20190910T225500	2019	09	10	22:55	73.2	76.5	0
20190910T230000	2019	09	10	23:00	73.6	76	0
20190910T230500	2019	09	10	23:05	73.6	75.3	0
20190910T231000	2019	09	10	23:10	73.4	75.8	0
20190910T231500	2019	09	10	23:15	73.3	75.9	0
20190910T232000	2019	09	10	23:20	73.5	75.9	0
20190910T232500	2019	09	10	23:25	73.3	75.8	0
20190910T233000	2019	09	10	23:30	73.2	75.8	0
20190910T233500	2019	09	10	23:35	73.3	76.2	0
20190910T234000	2019	09	10	23:40	73.3	76.1	0
20190910T234500	2019	09	10	23:45	73.3	75.9	0
20190910T235000	2019	09	10	23:50	73.3	76.2	0
20190910T235500	2019	09	10	23:55	73.3	76.5	0
20190911T000000	2019	09	11	00:00	73.5	76.3	0
20190911T000500	2019	09	11	00:05	73.6	76.1	0
20190911T001000	2019	09	11	00:10	73.5	76.3	0
20190911T001500	2019	09	11	00:15	73.7	76	0
20190911T002000	2019	09	11	00:20	73.6	75.9	0
20190911T002500	2019	09	11	00:25	73.7	75.7	0
20190911T003000	2019	09	11	00:30	73.7	75.4	0
20190911T003500	2019	09	11	00:35	73.7	75.4	0
20190911T004000	2019	09	11	00:40	73.8	75.2	0
20190911T004500	2019	09	11	00:45	73.6	75.5	0
20190911T005000	2019	09	11	00:50	73.6	75.8	0
20190911T005500	2019	09	11	00:55	73.4	76	0
20190911T010000	2019	09	11	01:00	73.6	76	0
20190911T010500	2019	09	11	01:05	73.6	75.7	0
20190911T011000	2019	09	11	01:10	73.6	75.6	0
20190911T011500	2019	09	11	01:15	73.7	75.2	0
20190911T012000	2019	09	11	01:20	73.8	75.1	0
20190911T012500	2019	09	11	01:25	73.7	75.2	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190911T013000	2019	09	11	01:30	73.8	75	0
20190911T013500	2019	09	11	01:35	73.7	75.3	0
20190911T014000	2019	09	11	01:40	73.6	75.3	0
20190911T014500	2019	09	11	01:45	73.8	75.1	0
20190911T015000	2019	09	11	01:50	73.8	75	0
20190911T015500	2019	09	11	01:55	73.8	75.2	0
20190911T020000	2019	09	11	02:00	73.7	75.4	0
20190911T020500	2019	09	11	02:05	73.6	75.4	0
20190911T021000	2019	09	11	02:10	73.5	75.7	0
20190911T021500	2019	09	11	02:15	73.5	76	0
20190911T022000	2019	09	11	02:20	73.4	76.1	0
20190911T022500	2019	09	11	02:25	73.4	76.3	0
20190911T023000	2019	09	11	02:30	73.3	76.6	0
20190911T023500	2019	09	11	02:35	73.2	76.9	0
20190911T024000	2019	09	11	02:40	73.5	76.1	0
20190911T024500	2019	09	11	02:45	73.6	75.5	0
20190911T025000	2019	09	11	02:50	73.8	75.2	0
20190911T025500	2019	09	11	02:55	73.9	74.8	0
20190911T030000	2019	09	11	03:00	73.6	75.5	0
20190911T030500	2019	09	11	03:05	73.4	76.5	0
20190911T031000	2019	09	11	03:10	73.1	77.7	0
20190911T031500	2019	09	11	03:15	73	78.3	0
20190911T032000	2019	09	11	03:20	72.9	79.1	0.006
20190911T032500	2019	09	11	03:25	72	80.8	0
20190911T033000	2019	09	11	03:30	70.6	85	0
20190911T033500	2019	09	11	03:35	70.1	89.1	0.003
20190911T034000	2019	09	11	03:40	70.4	88.9	0.004
20190911T034500	2019	09	11	03:45	70.5	88.5	0.011
20190911T035000	2019	09	11	03:50	69.5	90.2	0.008
20190911T035500	2019	09	11	03:55	69	92.5	0.007
20190911T040000	2019	09	11	04:00	68.5	94.3	0.009
20190911T040500	2019	09	11	04:05	68.3	95.2	0.015
20190911T041000	2019	09	11	04:10	68.3	96.1	0.008
20190911T041500	2019	09	11	04:15	68.2	96.7	0.008
20190911T042000	2019	09	11	04:20	68.1	97.2	0.019
20190911T042500	2019	09	11	04:25	68.1	97.6	0.015
20190911T043000	2019	09	11	04:30	68.1	97.8	0.019
20190911T043500	2019	09	11	04:35	68.1	97.9	0.015
20190911T044000	2019	09	11	04:40	68.1	98	0.004
20190911T044500	2019	09	11	04:45	68.3	98.1	0.012
20190911T045000	2019	09	11	04:50	68.3	98.1	0.004
20190911T045500	2019	09	11	04:55	68.2	98.1	0.006
20190911T050000	2019	09	11	05:00	68	98.1	0.02
20190911T050500	2019	09	11	05:05	68.1	98.2	0.004
20190911T051000	2019	09	11	05:10	68.1	98.2	0.001
20190911T051500	2019	09	11	05:15	68.3	98.2	0
20190911T052000	2019	09	11	05:20	68.5	98.2	0
20190911T052500	2019	09	11	05:25	68.5	98	0
20190911T053000	2019	09	11	05:30	68.4	97.8	0
20190911T053500	2019	09	11	05:35	68.4	97.5	0
20190911T054000	2019	09	11	05:40	68.4	97.3	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190911T054500	2019	09	11	05:45	68.4	97.3	0
20190911T055000	2019	09	11	05:50	68.3	97.2	0
20190911T055500	2019	09	11	05:55	68.3	97.2	0
20190911T060000	2019	09	11	06:00	68.4	97.2	0
20190911T060500	2019	09	11	06:05	68.6	96.7	0
20190911T061000	2019	09	11	06:10	68.5	96.3	0
20190911T061500	2019	09	11	06:15	68.6	96.3	0
20190911T062000	2019	09	11	06:20	68.5	96	0
20190911T062500	2019	09	11	06:25	68.5	95.8	0
20190911T063000	2019	09	11	06:30	68.6	95.4	0
20190911T063500	2019	09	11	06:35	68.4	95.3	0
20190911T064000	2019	09	11	06:40	68.2	95.5	0
20190911T064500	2019	09	11	06:45	68.1	95.6	0
20190911T065000	2019	09	11	06:50	68.1	95.8	0
20190911T065500	2019	09	11	06:55	68.3	95.8	0
20190911T070000	2019	09	11	07:00	68.2	95.5	0
20190911T070500	2019	09	11	07:05	68.2	95.5	0
20190911T071000	2019	09	11	07:10	68.2	95.5	0
20190911T071500	2019	09	11	07:15	68.2	95.5	0
20190911T072000	2019	09	11	07:20	68.3	95.7	0
20190911T072500	2019	09	11	07:25	68.4	95.8	0
20190911T073000	2019	09	11	07:30	68.6	95.6	0
20190911T073500	2019	09	11	07:35	68.6	95.3	0
20190911T074000	2019	09	11	07:40	68.4	95.3	0
20190911T074500	2019	09	11	07:45	68.3	95.6	0
20190911T075000	2019	09	11	07:50	68.6	95.3	0
20190911T075500	2019	09	11	07:55	68.9	94.3	0
20190911T080000	2019	09	11	08:00	69.2	93.8	0
20190911T080500	2019	09	11	08:05	69.6	93.2	0
20190911T081000	2019	09	11	08:10	70.1	91.9	0
20190911T081500	2019	09	11	08:15	70.5	91	0
20190911T082000	2019	09	11	08:20	70.8	90.4	0
20190911T082500	2019	09	11	08:25	71.2	89	0
20190911T083000	2019	09	11	08:30	71.6	87.9	0
20190911T083500	2019	09	11	08:35	72	86.7	0
20190911T084000	2019	09	11	08:40	72.4	86.2	0
20190911T084500	2019	09	11	08:45	72.9	85.4	0
20190911T085000	2019	09	11	08:50	73.2	84.2	0
20190911T085500	2019	09	11	08:55	73.6	83.4	0
20190911T090000	2019	09	11	09:00	74	83.2	0
20190911T090500	2019	09	11	09:05	74.2	81.9	0
20190911T091000	2019	09	11	09:10	74.4	81.9	0
20190911T091500	2019	09	11	09:15	74.4	81.8	0
20190911T092000	2019	09	11	09:20	74.9	81.3	0
20190911T092500	2019	09	11	09:25	75.2	81.2	0
20190911T093000	2019	09	11	09:30	75.2	80.6	0
20190911T093500	2019	09	11	09:35	75.5	81	0
20190911T094000	2019	09	11	09:40	76	80.5	0
20190911T094500	2019	09	11	09:45	76.2	80.2	0
20190911T095000	2019	09	11	09:50	76.5	79.7	0
20190911T095500	2019	09	11	09:55	76.8	79.9	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190911T100000	2019	09	11	10:00	77.6	79.1	0
20190911T100500	2019	09	11	10:05	77.5	77.6	0
20190911T101000	2019	09	11	10:10	77.7	78.1	0
20190911T101500	2019	09	11	10:15	78.2	77.7	0
20190911T102000	2019	09	11	10:20	78.4	76.9	0
20190911T102500	2019	09	11	10:25	78.4	77.1	0
20190911T103000	2019	09	11	10:30	78.7	76.3	0
20190911T103500	2019	09	11	10:35	78.6	76.1	0
20190911T104000	2019	09	11	10:40	79.2	76.7	0
20190911T104500	2019	09	11	10:45	79.2	74.8	0
20190911T105000	2019	09	11	10:50	79.5	76.1	0
20190911T105500	2019	09	11	10:55	79.2	75.5	0
20190911T110000	2019	09	11	11:00	79.1	76.6	0
20190911T110500	2019	09	11	11:05	79.3	76.3	0
20190911T111000	2019	09	11	11:10	79.2	75.2	0
20190911T111500	2019	09	11	11:15	79.2	76.5	0
20190911T112000	2019	09	11	11:20	79.5	75.3	0
20190911T112500	2019	09	11	11:25	79.7	74.9	0
20190911T113000	2019	09	11	11:30	79.8	74.5	0
20190911T113500	2019	09	11	11:35	79.7	75.1	0
20190911T114000	2019	09	11	11:40	79.8	74.7	0
20190911T114500	2019	09	11	11:45	80.3	75.4	0
20190911T115000	2019	09	11	11:50	79.8	74.1	0
20190911T115500	2019	09	11	11:55	79.9	75	0
20190911T120000	2019	09	11	12:00	80.3	74.9	0
20190911T120500	2019	09	11	12:05	80.1	74	0
20190911T121000	2019	09	11	12:10	80.8	74.1	0
20190911T121500	2019	09	11	12:15	80.1	73.3	0
20190911T122000	2019	09	11	12:20	80.2	74.3	0
20190911T122500	2019	09	11	12:25	80.2	73.1	0
20190911T123000	2019	09	11	12:30	79.9	74.3	0
20190911T123500	2019	09	11	12:35	80.2	74.5	0
20190911T124000	2019	09	11	12:40	81.3	74.5	0
20190911T124500	2019	09	11	12:45	81.3	72.5	0
20190911T125000	2019	09	11	12:50	79.8	75.2	0
20190911T125500	2019	09	11	12:55	79.5	75.4	0
20190911T130000	2019	09	11	13:00	79.7	74.3	0
20190911T130500	2019	09	11	13:05	80.6	73.3	0
20190911T131000	2019	09	11	13:10	81.7	71.5	0
20190911T131500	2019	09	11	13:15	82.1	69.6	0
20190911T132000	2019	09	11	13:20	82.5	71.2	0
20190911T132500	2019	09	11	13:25	81.4	68.9	0
20190911T133000	2019	09	11	13:30	80.8	70.3	0
20190911T133500	2019	09	11	13:35	81.5	71.1	0
20190911T134000	2019	09	11	13:40	82.1	69.8	0
20190911T134500	2019	09	11	13:45	83	69.5	0
20190911T135000	2019	09	11	13:50	82.5	67.1	0
20190911T135500	2019	09	11	13:55	83	68	0
20190911T140000	2019	09	11	14:00	83.1	66.1	0
20190911T140500	2019	09	11	14:05	83.3	65.3	0
20190911T141000	2019	09	11	14:10	83.8	64.7	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190911T141500	2019	09	11	14:15	83.5	63	0
20190911T142000	2019	09	11	14:20	83.2	64.9	0
20190911T142500	2019	09	11	14:25	82.8	65.4	0
20190911T143000	2019	09	11	14:30	83.1	66	0
20190911T143500	2019	09	11	14:35	83.3	63.1	0
20190911T144000	2019	09	11	14:40	83.8	63.8	0
20190911T144500	2019	09	11	14:45	84	62.7	0
20190911T145000	2019	09	11	14:50	83.9	64.4	0
20190911T145500	2019	09	11	14:55	83.7	65.8	0
20190911T150000	2019	09	11	15:00	83.5	64.2	0
20190911T150500	2019	09	11	15:05	82.2	66	0
20190911T151000	2019	09	11	15:10	83.2	66.8	0
20190911T151500	2019	09	11	15:15	84.1	64.9	0
20190911T152000	2019	09	11	15:20	84.3	63.4	0
20190911T152500	2019	09	11	15:25	83.3	65	0
20190911T153000	2019	09	11	15:30	82.7	66.2	0
20190911T153500	2019	09	11	15:35	82.5	64.9	0
20190911T154000	2019	09	11	15:40	83.6	63.9	0
20190911T154500	2019	09	11	15:45	84	63.8	0
20190911T155000	2019	09	11	15:50	84.2	61.8	0
20190911T155500	2019	09	11	15:55	84.2	61.2	0
20190911T160000	2019	09	11	16:00	83.2	63.7	0
20190911T160500	2019	09	11	16:05	82.6	64.1	0
20190911T161000	2019	09	11	16:10	82.8	64.2	0
20190911T161500	2019	09	11	16:15	83.4	62.8	0
20190911T162000	2019	09	11	16:20	81.8	69.4	0
20190911T162500	2019	09	11	16:25	79.4	75.7	0
20190911T163000	2019	09	11	16:30	79.2	77.4	0
20190911T163500	2019	09	11	16:35	79.6	77.4	0
20190911T164000	2019	09	11	16:40	80.5	77.2	0
20190911T164500	2019	09	11	16:45	80.4	76.2	0
20190911T165000	2019	09	11	16:50	80.3	76.6	0
20190911T165500	2019	09	11	16:55	80.2	76.2	0
20190911T170000	2019	09	11	17:00	80.5	76.9	0
20190911T170500	2019	09	11	17:05	80	75	0
20190911T171000	2019	09	11	17:10	79.6	75	0
20190911T171500	2019	09	11	17:15	79.7	75.8	0
20190911T172000	2019	09	11	17:20	79.3	75.9	0
20190911T172500	2019	09	11	17:25	79	76	0
20190911T173000	2019	09	11	17:30	78.9	76.6	0
20190911T173500	2019	09	11	17:35	78.7	76.2	0
20190911T174000	2019	09	11	17:40	78.4	76.4	0
20190911T174500	2019	09	11	17:45	78.2	77	0
20190911T175000	2019	09	11	17:50	78.4	76.5	0
20190911T175500	2019	09	11	17:55	78.3	76.4	0
20190911T180000	2019	09	11	18:00	78.4	76.7	0
20190911T180500	2019	09	11	18:05	78.2	76.9	0
20190911T181000	2019	09	11	18:10	78.1	77.2	0
20190911T181500	2019	09	11	18:15	77.7	77.9	0
20190911T182000	2019	09	11	18:20	77.5	78.5	0
20190911T182500	2019	09	11	18:25	77.4	77.5	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190911T183000	2019	09	11	18:30	77.1	76.2	0
20190911T183500	2019	09	11	18:35	76.8	76.4	0
20190911T184000	2019	09	11	18:40	76.5	77.3	0
20190911T184500	2019	09	11	18:45	76	78.1	0
20190911T185000	2019	09	11	18:50	75.6	78.9	0
20190911T185500	2019	09	11	18:55	75.5	79	0
20190911T190000	2019	09	11	19:00	75.1	79.4	0
20190911T190500	2019	09	11	19:05	74.2	81.3	0
20190911T191000	2019	09	11	19:10	73.7	83.4	0
20190911T191500	2019	09	11	19:15	72.1	85.6	0
20190911T192000	2019	09	11	19:20	71.6	87.8	0
20190911T192500	2019	09	11	19:25	71.1	89.5	0
20190911T193000	2019	09	11	19:30	70.3	90.1	0
20190911T193500	2019	09	11	19:35	69.4	92	0
20190911T194000	2019	09	11	19:40	69.2	92.8	0
20190911T194500	2019	09	11	19:45	68.8	93.4	0
20190911T195000	2019	09	11	19:50	68.5	93.9	0
20190911T195500	2019	09	11	19:55	68	94.1	0
20190911T200000	2019	09	11	20:00	67.9	94.8	0
20190911T200500	2019	09	11	20:05	67.8	95	0
20190911T201000	2019	09	11	20:10	67.6	95.3	0
20190911T201500	2019	09	11	20:15	67.2	95.9	0
20190911T202000	2019	09	11	20:20	66.8	95.9	0
20190911T202500	2019	09	11	20:25	66.6	96.2	0
20190911T203000	2019	09	11	20:30	66.5	96.3	0
20190911T203500	2019	09	11	20:35	66.3	96.3	0
20190911T204000	2019	09	11	20:40	66.2	96.6	0
20190911T204500	2019	09	11	20:45	66.7	97.2	0
20190911T205000	2019	09	11	20:50	66.6	97.4	0
20190911T205500	2019	09	11	20:55	66.7	97.3	0
20190911T210000	2019	09	11	21:00	66.8	97.6	0
20190911T210500	2019	09	11	21:05	66.8	97.6	0
20190911T211000	2019	09	11	21:10	67.1	97.9	0
20190911T211500	2019	09	11	21:15	67.5	98.1	0
20190911T212000	2019	09	11	21:20	67.6	98.1	0
20190911T212500	2019	09	11	21:25	67.3	98	0
20190911T213000	2019	09	11	21:30	67.3	98	0
20190911T213500	2019	09	11	21:35	67.5	98	0
20190911T214000	2019	09	11	21:40	67.7	98.1	0
20190911T214500	2019	09	11	21:45	67.6	98.1	0
20190911T215000	2019	09	11	21:50	67.5	98.1	0
20190911T215500	2019	09	11	21:55	67.3	98	0
20190911T220000	2019	09	11	22:00	67.3	98	0
20190911T220500	2019	09	11	22:05	67.4	98.1	0
20190911T221000	2019	09	11	22:10	67.4	98	0
20190911T221500	2019	09	11	22:15	67.7	97.9	0
20190911T222000	2019	09	11	22:20	67.9	97.9	0
20190911T222500	2019	09	11	22:25	67.4	97.6	0
20190911T223000	2019	09	11	22:30	67.6	97.5	0
20190911T223500	2019	09	11	22:35	67.3	97.4	0
20190911T224000	2019	09	11	22:40	66.9	97.4	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190911T224500	2019	09	11	22:45	66.4	97	0
20190911T225000	2019	09	11	22:50	66.5	97.4	0
20190911T225500	2019	09	11	22:55	67.1	98	0
20190911T230000	2019	09	11	23:00	67.1	98.1	0
20190911T230500	2019	09	11	23:05	67.2	98	0
20190911T231000	2019	09	11	23:10	67.2	98.1	0
20190911T231500	2019	09	11	23:15	67.4	98.2	0
20190911T232000	2019	09	11	23:20	67.8	98.2	0
20190911T232500	2019	09	11	23:25	67.8	98.2	0
20190911T233000	2019	09	11	23:30	68.1	98.2	0
20190911T233500	2019	09	11	23:35	68.1	98.1	0
20190911T234000	2019	09	11	23:40	68.1	97.9	0
20190911T234500	2019	09	11	23:45	68.5	97.6	0
20190911T235000	2019	09	11	23:50	68.6	97.1	0
20190911T235500	2019	09	11	23:55	68.9	96.7	0
20190912T000000	2019	09	12	00:00	68.8	96.3	0
20190912T000500	2019	09	12	00:05	69	96	0.002
20190912T001000	2019	09	12	00:10	69.3	95.9	0.002
20190912T001500	2019	09	12	00:15	68.9	95.7	0
20190912T002000	2019	09	12	00:20	69	96.3	0
20190912T002500	2019	09	12	00:25	68.8	96.4	0.002
20190912T003000	2019	09	12	00:30	68.8	96.6	0
20190912T003500	2019	09	12	00:35	68.7	96.2	0
20190912T004000	2019	09	12	00:40	68.6	95	0
20190912T004500	2019	09	12	00:45	68.3	94.4	0
20190912T005000	2019	09	12	00:50	68	94.5	0
20190912T005500	2019	09	12	00:55	67.7	94.4	0
20190912T010000	2019	09	12	01:00	67.5	94.6	0
20190912T010500	2019	09	12	01:05	67.2	95	0
20190912T011000	2019	09	12	01:10	66.9	95	0
20190912T011500	2019	09	12	01:15	66.5	94.7	0
20190912T012000	2019	09	12	01:20	66.2	94.7	0
20190912T012500	2019	09	12	01:25	65.9	94.4	0
20190912T013000	2019	09	12	01:30	65.7	92.8	0
20190912T013500	2019	09	12	01:35	65.3	91.5	0
20190912T014000	2019	09	12	01:40	64.9	91.1	0
20190912T014500	2019	09	12	01:45	64.7	91.7	0
20190912T015000	2019	09	12	01:50	64.6	90.9	0
20190912T015500	2019	09	12	01:55	64.5	90.7	0
20190912T020000	2019	09	12	02:00	64.3	91.1	0
20190912T020500	2019	09	12	02:05	64.1	92	0
20190912T021000	2019	09	12	02:10	64.1	93	0
20190912T021500	2019	09	12	02:15	64.1	92.6	0
20190912T022000	2019	09	12	02:20	63.9	92.1	0
20190912T022500	2019	09	12	02:25	63.8	92.2	0
20190912T023000	2019	09	12	02:30	63.8	91.7	0
20190912T023500	2019	09	12	02:35	63.6	91.7	0
20190912T024000	2019	09	12	02:40	63.4	91.9	0
20190912T024500	2019	09	12	02:45	63.2	92.2	0
20190912T025000	2019	09	12	02:50	63.2	91.7	0
20190912T025500	2019	09	12	02:55	63.2	91.9	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190912T030000	2019	09	12	03:00	63.1	92.6	0
20190912T030500	2019	09	12	03:05	63	92.7	0
20190912T031000	2019	09	12	03:10	63	92.1	0
20190912T031500	2019	09	12	03:15	62.9	91.8	0
20190912T032000	2019	09	12	03:20	62.9	91.8	0
20190912T032500	2019	09	12	03:25	62.8	92.1	0
20190912T033000	2019	09	12	03:30	62.7	92	0
20190912T033500	2019	09	12	03:35	62.5	92.4	0
20190912T034000	2019	09	12	03:40	62.4	92.3	0
20190912T034500	2019	09	12	03:45	62.4	92	0
20190912T035000	2019	09	12	03:50	62.3	91.8	0
20190912T035500	2019	09	12	03:55	62.4	91.2	0
20190912T040000	2019	09	12	04:00	62.4	91.2	0
20190912T040500	2019	09	12	04:05	62.3	91.4	0
20190912T041000	2019	09	12	04:10	62.2	91.3	0
20190912T041500	2019	09	12	04:15	62.2	91.2	0
20190912T042000	2019	09	12	04:20	62.1	90.9	0
20190912T042500	2019	09	12	04:25	62.1	90.7	0
20190912T043000	2019	09	12	04:30	62.1	90.3	0
20190912T043500	2019	09	12	04:35	62	89.9	0
20190912T044000	2019	09	12	04:40	62	89.7	0
20190912T044500	2019	09	12	04:45	62	89.6	0
20190912T045000	2019	09	12	04:50	62	88.5	0
20190912T045500	2019	09	12	04:55	61.9	88.5	0
20190912T050000	2019	09	12	05:00	61.9	88.7	0
20190912T050500	2019	09	12	05:05	61.9	88.4	0
20190912T051000	2019	09	12	05:10	61.8	88.3	0
20190912T051500	2019	09	12	05:15	61.7	88.2	0
20190912T052000	2019	09	12	05:20	61.7	88.1	0
20190912T052500	2019	09	12	05:25	61.6	87.5	0
20190912T053000	2019	09	12	05:30	61.5	88.3	0
20190912T053500	2019	09	12	05:35	61.4	88.2	0
20190912T054000	2019	09	12	05:40	61.4	87.5	0
20190912T054500	2019	09	12	05:45	61.3	87.9	0
20190912T055000	2019	09	12	05:50	61.3	88.3	0
20190912T055500	2019	09	12	05:55	61.2	88.7	0
20190912T060000	2019	09	12	06:00	61.1	89	0
20190912T060500	2019	09	12	06:05	60.9	90.1	0
20190912T061000	2019	09	12	06:10	60.8	90.1	0
20190912T061500	2019	09	12	06:15	60.7	91.1	0
20190912T062000	2019	09	12	06:20	60.6	91.7	0
20190912T062500	2019	09	12	06:25	60.5	92	0
20190912T063000	2019	09	12	06:30	60.4	92.5	0
20190912T063500	2019	09	12	06:35	60.3	92.9	0
20190912T064000	2019	09	12	06:40	60.2	93	0
20190912T064500	2019	09	12	06:45	60.2	93	0
20190912T065000	2019	09	12	06:50	60.1	93.3	0
20190912T065500	2019	09	12	06:55	60.1	93.5	0
20190912T070000	2019	09	12	07:00	60	94.2	0
20190912T070500	2019	09	12	07:05	60	94.2	0
20190912T071000	2019	09	12	07:10	60	94	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190912T071500	2019	09	12	07:15	60	94.3	0
20190912T072000	2019	09	12	07:20	59.9	94.4	0
20190912T072500	2019	09	12	07:25	59.8	94.4	0
20190912T073000	2019	09	12	07:30	59.8	94.5	0
20190912T073500	2019	09	12	07:35	59.7	94.3	0
20190912T074000	2019	09	12	07:40	59.7	94.3	0
20190912T074500	2019	09	12	07:45	59.6	94.6	0
20190912T075000	2019	09	12	07:50	59.6	94.8	0
20190912T075500	2019	09	12	07:55	59.6	94.9	0
20190912T080000	2019	09	12	08:00	59.6	95	0
20190912T080500	2019	09	12	08:05	59.6	95.1	0
20190912T081000	2019	09	12	08:10	59.6	95.4	0
20190912T081500	2019	09	12	08:15	59.6	95.3	0
20190912T082000	2019	09	12	08:20	59.6	94.8	0
20190912T082500	2019	09	12	08:25	59.6	94.4	0
20190912T083000	2019	09	12	08:30	59.7	94	0
20190912T083500	2019	09	12	08:35	59.8	94.3	0
20190912T084000	2019	09	12	08:40	59.6	94.2	0
20190912T084500	2019	09	12	08:45	59.6	94.4	0
20190912T085000	2019	09	12	08:50	59.6	94.3	0
20190912T085500	2019	09	12	08:55	59.6	94.3	0
20190912T090000	2019	09	12	09:00	59.6	94.5	0
20190912T090500	2019	09	12	09:05	59.8	94.9	0
20190912T091000	2019	09	12	09:10	59.8	94.8	0
20190912T091500	2019	09	12	09:15	59.6	94.2	0
20190912T092000	2019	09	12	09:20	59.6	93.6	0
20190912T092500	2019	09	12	09:25	59.6	93.2	0
20190912T093000	2019	09	12	09:30	59.6	92.9	0
20190912T093500	2019	09	12	09:35	59.7	93.2	0
20190912T094000	2019	09	12	09:40	59.6	92.8	0
20190912T094500	2019	09	12	09:45	59.7	92.6	0
20190912T095000	2019	09	12	09:50	59.9	92.8	0
20190912T095500	2019	09	12	09:55	59.7	92.6	0
20190912T100000	2019	09	12	10:00	59.6	92.2	0
20190912T100500	2019	09	12	10:05	59.9	92.2	0
20190912T101000	2019	09	12	10:10	60	91	0
20190912T101500	2019	09	12	10:15	60.1	90.7	0
20190912T102000	2019	09	12	10:20	60.3	90	0
20190912T102500	2019	09	12	10:25	60.7	88.3	0
20190912T103000	2019	09	12	10:30	60.6	87.9	0
20190912T103500	2019	09	12	10:35	60.4	88.4	0
20190912T104000	2019	09	12	10:40	60.1	89.1	0
20190912T104500	2019	09	12	10:45	60.3	88.6	0
20190912T105000	2019	09	12	10:50	60.5	87.3	0
20190912T105500	2019	09	12	10:55	60.6	86.6	0
20190912T110000	2019	09	12	11:00	60.8	87.2	0
20190912T110500	2019	09	12	11:05	60.6	86.9	0
20190912T111000	2019	09	12	11:10	60.5	86.8	0
20190912T111500	2019	09	12	11:15	60.7	86.7	0
20190912T112000	2019	09	12	11:20	60.8	86	0
20190912T112500	2019	09	12	11:25	61.2	85.6	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190912T113000	2019	09	12	11:30	61.5	84.3	0
20190912T113500	2019	09	12	11:35	62	84.2	0
20190912T114000	2019	09	12	11:40	62.1	82.2	0
20190912T114500	2019	09	12	11:45	62.6	82.7	0
20190912T115000	2019	09	12	11:50	63.1	81.6	0
20190912T115500	2019	09	12	11:55	63.1	80.1	0
20190912T120000	2019	09	12	12:00	62.7	80.8	0
20190912T120500	2019	09	12	12:05	62.7	79.8	0
20190912T121000	2019	09	12	12:10	62.9	79.7	0
20190912T121500	2019	09	12	12:15	62.7	79.1	0
20190912T122000	2019	09	12	12:20	63.1	80.6	0
20190912T122500	2019	09	12	12:25	63.1	78.1	0
20190912T123000	2019	09	12	12:30	63.1	78.4	0
20190912T123500	2019	09	12	12:35	63.1	78.9	0
20190912T124000	2019	09	12	12:40	63.3	79.2	0
20190912T124500	2019	09	12	12:45	63.4	78.4	0
20190912T125000	2019	09	12	12:50	63.7	78.1	0
20190912T125500	2019	09	12	12:55	63.9	77.5	0
20190912T130000	2019	09	12	13:00	63.6	77	0
20190912T130500	2019	09	12	13:05	63.7	77.6	0
20190912T131000	2019	09	12	13:10	63.9	78.1	0
20190912T131500	2019	09	12	13:15	64.3	78	0
20190912T132000	2019	09	12	13:20	63.9	78.4	0
20190912T132500	2019	09	12	13:25	63.8	78.7	0
20190912T133000	2019	09	12	13:30	63.4	79.6	0
20190912T133500	2019	09	12	13:35	63.2	79	0
20190912T134000	2019	09	12	13:40	63.4	78.3	0
20190912T134500	2019	09	12	13:45	64.1	77.7	0
20190912T135000	2019	09	12	13:50	63.7	76.3	0
20190912T135500	2019	09	12	13:55	63.8	76.5	0
20190912T140000	2019	09	12	14:00	63.8	75.6	0
20190912T140500	2019	09	12	14:05	63.9	75.2	0
20190912T141000	2019	09	12	14:10	64	75.3	0
20190912T141500	2019	09	12	14:15	64.1	75.4	0
20190912T142000	2019	09	12	14:20	64.5	74.9	0
20190912T142500	2019	09	12	14:25	64.4	74.5	0
20190912T143000	2019	09	12	14:30	64.9	74.4	0
20190912T143500	2019	09	12	14:35	65	74	0
20190912T144000	2019	09	12	14:40	64.7	74.1	0
20190912T144500	2019	09	12	14:45	64.3	74.1	0
20190912T145000	2019	09	12	14:50	64.4	73.4	0
20190912T145500	2019	09	12	14:55	64.4	74	0
20190912T150000	2019	09	12	15:00	64.2	73.8	0
20190912T150500	2019	09	12	15:05	64.1	74.4	0
20190912T151000	2019	09	12	15:10	64.5	74.1	0
20190912T151500	2019	09	12	15:15	65	73.6	0
20190912T152000	2019	09	12	15:20	65.3	72.2	0
20190912T152500	2019	09	12	15:25	65.1	72.3	0
20190912T153000	2019	09	12	15:30	65.5	72	0
20190912T153500	2019	09	12	15:35	66	71	0
20190912T154000	2019	09	12	15:40	65.7	70.3	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190912T154500	2019	09	12	15:45	65.6	70.6	0
20190912T155000	2019	09	12	15:50	66.6	70.3	0
20190912T155500	2019	09	12	15:55	66.3	67.7	0
20190912T160000	2019	09	12	16:00	66.5	68.5	0
20190912T160500	2019	09	12	16:05	65.6	68.9	0
20190912T161000	2019	09	12	16:10	65.5	69.2	0
20190912T161500	2019	09	12	16:15	66.3	69.2	0
20190912T162000	2019	09	12	16:20	66.7	68.9	0
20190912T162500	2019	09	12	16:25	65.7	68.4	0
20190912T163000	2019	09	12	16:30	65.2	69.8	0
20190912T163500	2019	09	12	16:35	65.5	71.3	0
20190912T164000	2019	09	12	16:40	66	69.5	0
20190912T164500	2019	09	12	16:45	65.6	70.2	0
20190912T165000	2019	09	12	16:50	65.7	70.1	0
20190912T165500	2019	09	12	16:55	65.8	69.6	0
20190912T170000	2019	09	12	17:00	66.3	69.6	0
20190912T170500	2019	09	12	17:05	65.8	70.2	0
20190912T171000	2019	09	12	17:10	65.2	70.4	0
20190912T171500	2019	09	12	17:15	65	70.8	0
20190912T172000	2019	09	12	17:20	64.9	70.3	0
20190912T172500	2019	09	12	17:25	64.4	70.2	0
20190912T173000	2019	09	12	17:30	64.3	70.9	0
20190912T173500	2019	09	12	17:35	64.8	70.5	0
20190912T174000	2019	09	12	17:40	65	70.2	0
20190912T174500	2019	09	12	17:45	65.2	70	0
20190912T175000	2019	09	12	17:50	65	69.3	0
20190912T175500	2019	09	12	17:55	65.1	70.4	0
20190912T180000	2019	09	12	18:00	65	70.6	0
20190912T180500	2019	09	12	18:05	64.7	69.8	0
20190912T181000	2019	09	12	18:10	64.6	70.9	0
20190912T181500	2019	09	12	18:15	64.6	70.9	0
20190912T182000	2019	09	12	18:20	64.4	70.8	0
20190912T182500	2019	09	12	18:25	64.3	70.6	0
20190912T183000	2019	09	12	18:30	64	71.4	0
20190912T183500	2019	09	12	18:35	63.8	72.1	0
20190912T184000	2019	09	12	18:40	63.7	72.7	0
20190912T184500	2019	09	12	18:45	63.4	73.3	0
20190912T185000	2019	09	12	18:50	63.1	73.9	0
20190912T185500	2019	09	12	18:55	62.6	75.3	0
20190912T190000	2019	09	12	19:00	62.2	75.6	0
20190912T190500	2019	09	12	19:05	61.9	76.1	0
20190912T191000	2019	09	12	19:10	61.4	76.7	0
20190912T191500	2019	09	12	19:15	61.2	77	0
20190912T192000	2019	09	12	19:20	60.8	77.8	0
20190912T192500	2019	09	12	19:25	60.4	78.5	0
20190912T193000	2019	09	12	19:30	60.3	78.5	0
20190912T193500	2019	09	12	19:35	60.2	79	0
20190912T194000	2019	09	12	19:40	60	79.1	0
20190912T194500	2019	09	12	19:45	59.6	80.2	0
20190912T195000	2019	09	12	19:50	59	81.9	0
20190912T195500	2019	09	12	19:55	58.4	83.4	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190912T200000	2019	09	12	20:00	58.5	84.2	0
20190912T200500	2019	09	12	20:05	58.8	83.3	0
20190912T201000	2019	09	12	20:10	58.7	82.8	0
20190912T201500	2019	09	12	20:15	58.7	82.8	0
20190912T202000	2019	09	12	20:20	58.1	84.1	0
20190912T202500	2019	09	12	20:25	57.7	85.5	0
20190912T203000	2019	09	12	20:30	57.2	86.7	0
20190912T203500	2019	09	12	20:35	57	86.9	0
20190912T204000	2019	09	12	20:40	57	86.8	0
20190912T204500	2019	09	12	20:45	56.9	86.7	0
20190912T205000	2019	09	12	20:50	57.1	86	0
20190912T205500	2019	09	12	20:55	56.5	85.6	0
20190912T210000	2019	09	12	21:00	55.8	87	0
20190912T210500	2019	09	12	21:05	56	87.9	0
20190912T211000	2019	09	12	21:10	56.4	87.3	0
20190912T211500	2019	09	12	21:15	56.5	85.6	0
20190912T212000	2019	09	12	21:20	56.5	85.2	0
20190912T212500	2019	09	12	21:25	56.6	84.8	0
20190912T213000	2019	09	12	21:30	56.5	84.9	0
20190912T213500	2019	09	12	21:35	56.4	85	0
20190912T214000	2019	09	12	21:40	56.2	85.1	0
20190912T214500	2019	09	12	21:45	55.9	85	0
20190912T215000	2019	09	12	21:50	55.6	85.5	0
20190912T215500	2019	09	12	21:55	55.6	85.8	0
20190912T220000	2019	09	12	22:00	55.4	85.6	0
20190912T220500	2019	09	12	22:05	54.8	86.1	0
20190912T221000	2019	09	12	22:10	54.4	87.1	0
20190912T221500	2019	09	12	22:15	53.7	88.3	0
20190912T222000	2019	09	12	22:20	53.2	89.9	0
20190912T222500	2019	09	12	22:25	52.3	90.9	0
20190912T223000	2019	09	12	22:30	52.1	92.5	0
20190912T223500	2019	09	12	22:35	51.8	93.1	0
20190912T224000	2019	09	12	22:40	51.8	94	0
20190912T224500	2019	09	12	22:45	51.6	94.5	0
20190912T225000	2019	09	12	22:50	52.8	95.1	0
20190912T225500	2019	09	12	22:55	53.4	94.4	0
20190912T230000	2019	09	12	23:00	54.2	91.5	0
20190912T230500	2019	09	12	23:05	54	88.9	0
20190912T231000	2019	09	12	23:10	53.6	88.4	0
20190912T231500	2019	09	12	23:15	53.4	88.5	0
20190912T232000	2019	09	12	23:20	53	88.8	0
20190912T232500	2019	09	12	23:25	52.2	89.2	0
20190912T233000	2019	09	12	23:30	52.3	90.1	0
20190912T233500	2019	09	12	23:35	52.7	90.5	0
20190912T234000	2019	09	12	23:40	53.2	90	0
20190912T234500	2019	09	12	23:45	52.6	89.1	0
20190912T235000	2019	09	12	23:50	51.8	89.7	0
20190912T235500	2019	09	12	23:55	50.9	90.1	0
20190913T000000	2019	09	13	00:00	51.3	92.5	0
20190913T000500	2019	09	13	00:05	52.9	92.7	0
20190913T001000	2019	09	13	00:10	52.8	91.2	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190913T001500	2019	09	13	00:15	52.1	91	0
20190913T002000	2019	09	13	00:20	52	92	0
20190913T002500	2019	09	13	00:25	51.3	92.4	0
20190913T003000	2019	09	13	00:30	50.8	92.5	0
20190913T003500	2019	09	13	00:35	50.5	93.4	0
20190913T004000	2019	09	13	00:40	50.2	94.3	0
20190913T004500	2019	09	13	00:45	50.1	94.7	0
20190913T005000	2019	09	13	00:50	49.8	95	0
20190913T005500	2019	09	13	00:55	49.7	95.4	0
20190913T010000	2019	09	13	01:00	49.3	95.7	0
20190913T010500	2019	09	13	01:05	49.1	95.9	0
20190913T011000	2019	09	13	01:10	48.9	96.2	0
20190913T011500	2019	09	13	01:15	48.7	96.2	0
20190913T012000	2019	09	13	01:20	48.1	96.3	0
20190913T012500	2019	09	13	01:25	48.1	96.7	0
20190913T013000	2019	09	13	01:30	48.1	97.2	0
20190913T013500	2019	09	13	01:35	47.9	97.5	0
20190913T014000	2019	09	13	01:40	48.2	98.1	0
20190913T014500	2019	09	13	01:45	48.3	98.1	0
20190913T015000	2019	09	13	01:50	48	98	0
20190913T015500	2019	09	13	01:55	47.7	98.2	0
20190913T020000	2019	09	13	02:00	48.2	98.3	0
20190913T020500	2019	09	13	02:05	47.7	98.5	0
20190913T021000	2019	09	13	02:10	47.4	98.3	0
20190913T021500	2019	09	13	02:15	47.4	98.4	0
20190913T022000	2019	09	13	02:20	47.2	98.4	0
20190913T022500	2019	09	13	02:25	47.1	98.4	0
20190913T023000	2019	09	13	02:30	46.8	98.6	0
20190913T023500	2019	09	13	02:35	46.6	98.4	0
20190913T024000	2019	09	13	02:40	46.6	98.4	0
20190913T024500	2019	09	13	02:45	46.5	98.5	0
20190913T025000	2019	09	13	02:50	46.3	98.6	0
20190913T025500	2019	09	13	02:55	46.2	98.6	0
20190913T030000	2019	09	13	03:00	46.2	98.7	0
20190913T030500	2019	09	13	03:05	45.9	98.7	0
20190913T031000	2019	09	13	03:10	45.4	98.6	0
20190913T031500	2019	09	13	03:15	46.3	98.8	0
20190913T032000	2019	09	13	03:20	46.7	99.1	0
20190913T032500	2019	09	13	03:25	46.6	99.1	0
20190913T033000	2019	09	13	03:30	46.3	99	0
20190913T033500	2019	09	13	03:35	45.8	99	0
20190913T034000	2019	09	13	03:40	45.8	98.9	0
20190913T034500	2019	09	13	03:45	46.3	99.1	0
20190913T035000	2019	09	13	03:50	46.2	99.2	0
20190913T035500	2019	09	13	03:55	46.1	99.2	0
20190913T040000	2019	09	13	04:00	46.4	99.3	0
20190913T040500	2019	09	13	04:05	45.9	99.1	0
20190913T041000	2019	09	13	04:10	46.5	99.3	0
20190913T041500	2019	09	13	04:15	46.6	99.3	0
20190913T042000	2019	09	13	04:20	46.3	99.3	0
20190913T042500	2019	09	13	04:25	46.3	99.2	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190913T043000	2019	09	13	04:30	46	99.2	0
20190913T043500	2019	09	13	04:35	46.7	99.2	0
20190913T044000	2019	09	13	04:40	47.7	99.5	0
20190913T044500	2019	09	13	04:45	46.3	99.2	0
20190913T045000	2019	09	13	04:50	45.4	99	0
20190913T045500	2019	09	13	04:55	45.1	98.7	0
20190913T050000	2019	09	13	05:00	45.3	99.1	0
20190913T050500	2019	09	13	05:05	45	99.1	0
20190913T051000	2019	09	13	05:10	45.4	99.2	0
20190913T051500	2019	09	13	05:15	46.1	99.2	0
20190913T052000	2019	09	13	05:20	47.9	99.2	0
20190913T052500	2019	09	13	05:25	47.5	98.5	0
20190913T053000	2019	09	13	05:30	48.2	97.9	0
20190913T053500	2019	09	13	05:35	48.6	96.5	0
20190913T054000	2019	09	13	05:40	48.5	94.3	0
20190913T054500	2019	09	13	05:45	48.2	93.5	0
20190913T055000	2019	09	13	05:50	48.2	93.5	0
20190913T055500	2019	09	13	05:55	48.7	93.3	0
20190913T060000	2019	09	13	06:00	48.7	92.5	0
20190913T060500	2019	09	13	06:05	47.6	92.5	0
20190913T061000	2019	09	13	06:10	47.2	93.3	0
20190913T061500	2019	09	13	06:15	46.6	93.9	0
20190913T062000	2019	09	13	06:20	46.3	94	0
20190913T062500	2019	09	13	06:25	46.5	95	0
20190913T063000	2019	09	13	06:30	46.6	95.9	0
20190913T063500	2019	09	13	06:35	46.6	96.4	0
20190913T064000	2019	09	13	06:40	46.2	96.3	0
20190913T064500	2019	09	13	06:45	45.5	96.4	0
20190913T065000	2019	09	13	06:50	46.2	97	0
20190913T065500	2019	09	13	06:55	46.1	97	0
20190913T070000	2019	09	13	07:00	47.7	97.1	0
20190913T070500	2019	09	13	07:05	48.5	95.5	0
20190913T071000	2019	09	13	07:10	49.5	93.4	0
20190913T071500	2019	09	13	07:15	50.2	91.5	0
20190913T072000	2019	09	13	07:20	50.6	90.3	0
20190913T072500	2019	09	13	07:25	50.8	89.9	0
20190913T073000	2019	09	13	07:30	51.2	89.6	0
20190913T073500	2019	09	13	07:35	51.9	88.4	0
20190913T074000	2019	09	13	07:40	52.4	87.4	0
20190913T074500	2019	09	13	07:45	52.9	86.5	0
20190913T075000	2019	09	13	07:50	53.4	86	0
20190913T075500	2019	09	13	07:55	53.8	85.8	0
20190913T080000	2019	09	13	08:00	54.4	84.6	0
20190913T080500	2019	09	13	08:05	55	84.4	0
20190913T081000	2019	09	13	08:10	55.5	83.3	0
20190913T081500	2019	09	13	08:15	56	82.9	0
20190913T082000	2019	09	13	08:20	56.2	82	0
20190913T082500	2019	09	13	08:25	56.4	81.3	0
20190913T083000	2019	09	13	08:30	56.9	80.8	0
20190913T083500	2019	09	13	08:35	57.4	79.6	0
20190913T084000	2019	09	13	08:40	57.6	80.4	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190913T084500	2019	09	13	08:45	57.5	80.6	0
20190913T085000	2019	09	13	08:50	57.8	81.9	0
20190913T085500	2019	09	13	08:55	58.2	80.7	0
20190913T090000	2019	09	13	09:00	58.5	80.2	0
20190913T090500	2019	09	13	09:05	58.9	79.2	0
20190913T091000	2019	09	13	09:10	58.9	78.7	0
20190913T091500	2019	09	13	09:15	58.9	78	0
20190913T092000	2019	09	13	09:20	59	77.8	0
20190913T092500	2019	09	13	09:25	59.2	77.6	0
20190913T093000	2019	09	13	09:30	59.6	77.7	0
20190913T093500	2019	09	13	09:35	60.1	77.3	0
20190913T094000	2019	09	13	09:40	60.5	77.3	0
20190913T094500	2019	09	13	09:45	60.8	75.9	0
20190913T095000	2019	09	13	09:50	61.2	75.8	0
20190913T095500	2019	09	13	09:55	61.3	75.3	0
20190913T100000	2019	09	13	10:00	61.5	75.4	0
20190913T100500	2019	09	13	10:05	61.6	75.5	0
20190913T101000	2019	09	13	10:10	61.9	75.6	0
20190913T101500	2019	09	13	10:15	62.1	75.5	0
20190913T102000	2019	09	13	10:20	62.5	75	0
20190913T102500	2019	09	13	10:25	62.4	74.7	0
20190913T103000	2019	09	13	10:30	62.3	75.1	0
20190913T103500	2019	09	13	10:35	62.2	75.6	0
20190913T104000	2019	09	13	10:40	62.2	75.5	0
20190913T104500	2019	09	13	10:45	62.6	75.9	0
20190913T105000	2019	09	13	10:50	62.7	75.3	0
20190913T105500	2019	09	13	10:55	62.9	74.9	0
20190913T110000	2019	09	13	11:00	63.2	74.7	0
20190913T110500	2019	09	13	11:05	63.6	73.1	0
20190913T111000	2019	09	13	11:10	63.7	72.5	0
20190913T111500	2019	09	13	11:15	63.6	72.3	0
20190913T112000	2019	09	13	11:20	63.5	71.8	0
20190913T112500	2019	09	13	11:25	63.7	71.7	0
20190913T113000	2019	09	13	11:30	63.9	72.3	0
20190913T113500	2019	09	13	11:35	64.4	71	0
20190913T114000	2019	09	13	11:40	64.8	70.9	0
20190913T114500	2019	09	13	11:45	65	70	0
20190913T115000	2019	09	13	11:50	65.4	69.6	0
20190913T115500	2019	09	13	11:55	65.1	69.4	0
20190913T120000	2019	09	13	12:00	65.6	69.7	0
20190913T120500	2019	09	13	12:05	65.2	67.7	0
20190913T121000	2019	09	13	12:10	65.6	67.4	0
20190913T121500	2019	09	13	12:15	66.2	66.6	0
20190913T122000	2019	09	13	12:20	66	66.5	0
20190913T122500	2019	09	13	12:25	66.4	66.8	0
20190913T123000	2019	09	13	12:30	68	66.1	0
20190913T123500	2019	09	13	12:35	67.2	65.3	0
20190913T124000	2019	09	13	12:40	67.6	65.7	0
20190913T124500	2019	09	13	12:45	67.6	65.1	0
20190913T125000	2019	09	13	12:50	66.2	65.7	0
20190913T125500	2019	09	13	12:55	66.3	67.7	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190913T130000	2019	09	13	13:00	67.6	67	0
20190913T130500	2019	09	13	13:05	67.5	65.7	0
20190913T131000	2019	09	13	13:10	67.4	67.5	0
20190913T131500	2019	09	13	13:15	67.2	65.9	0
20190913T132000	2019	09	13	13:20	66.6	64.7	0
20190913T132500	2019	09	13	13:25	66.5	65.2	0
20190913T133000	2019	09	13	13:30	66.2	64.4	0
20190913T133500	2019	09	13	13:35	66.5	64.9	0
20190913T134000	2019	09	13	13:40	66.6	64	0
20190913T134500	2019	09	13	13:45	66.7	64.9	0
20190913T135000	2019	09	13	13:50	67.4	63.7	0
20190913T135500	2019	09	13	13:55	67.4	63.3	0
20190913T140000	2019	09	13	14:00	67.7	62.9	0
20190913T140500	2019	09	13	14:05	68.4	63.9	0
20190913T141000	2019	09	13	14:10	68.8	62.8	0
20190913T141500	2019	09	13	14:15	68.9	61.8	0
20190913T142000	2019	09	13	14:20	68.8	62.3	0
20190913T142500	2019	09	13	14:25	68.8	61.8	0
20190913T143000	2019	09	13	14:30	68.8	60.6	0
20190913T143500	2019	09	13	14:35	68.4	60.5	0
20190913T144000	2019	09	13	14:40	68.3	59.9	0
20190913T144500	2019	09	13	14:45	68.2	60.4	0
20190913T145000	2019	09	13	14:50	68.1	61.1	0
20190913T145500	2019	09	13	14:55	68.3	61	0
20190913T150000	2019	09	13	15:00	68	60.8	0
20190913T150500	2019	09	13	15:05	68.2	60.8	0
20190913T151000	2019	09	13	15:10	68.4	61.1	0
20190913T151500	2019	09	13	15:15	68.2	61.2	0
20190913T152000	2019	09	13	15:20	67.9	61.2	0
20190913T152500	2019	09	13	15:25	67.3	61.8	0
20190913T153000	2019	09	13	15:30	67	62.8	0
20190913T153500	2019	09	13	15:35	67.3	63.4	0
20190913T154000	2019	09	13	15:40	67.8	63.2	0
20190913T154500	2019	09	13	15:45	68.1	63.1	0
20190913T155000	2019	09	13	15:50	67.8	62.3	0
20190913T155500	2019	09	13	15:55	67.4	62.2	0
20190913T160000	2019	09	13	16:00	67	62.6	0
20190913T160500	2019	09	13	16:05	66.6	63	0
20190913T161000	2019	09	13	16:10	66.6	63.4	0
20190913T161500	2019	09	13	16:15	66.6	63.4	0
20190913T162000	2019	09	13	16:20	66.3	63.6	0
20190913T162500	2019	09	13	16:25	66.2	64.2	0
20190913T163000	2019	09	13	16:30	66.1	64.3	0
20190913T163500	2019	09	13	16:35	66.3	64.7	0
20190913T164000	2019	09	13	16:40	66.3	64.8	0
20190913T164500	2019	09	13	16:45	66.3	64.3	0
20190913T165000	2019	09	13	16:50	66.2	64.6	0
20190913T165500	2019	09	13	16:55	66.1	65.2	0
20190913T170000	2019	09	13	17:00	66.1	65.4	0
20190913T170500	2019	09	13	17:05	65.9	64.4	0
20190913T171000	2019	09	13	17:10	65.8	64.2	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190913T171500	2019	09	13	17:15	65.8	63.5	0
20190913T172000	2019	09	13	17:20	65.9	63.4	0
20190913T172500	2019	09	13	17:25	66.2	63.3	0
20190913T173000	2019	09	13	17:30	66.2	63	0
20190913T173500	2019	09	13	17:35	66.2	63.2	0
20190913T174000	2019	09	13	17:40	66.2	63.8	0
20190913T174500	2019	09	13	17:45	66	63.2	0
20190913T175000	2019	09	13	17:50	65.3	63.8	0
20190913T175500	2019	09	13	17:55	65.2	64.4	0
20190913T180000	2019	09	13	18:00	65.1	65	0
20190913T180500	2019	09	13	18:05	65	65	0
20190913T181000	2019	09	13	18:10	64.9	65.5	0
20190913T181500	2019	09	13	18:15	64.8	66	0
20190913T182000	2019	09	13	18:20	64.6	66.3	0
20190913T182500	2019	09	13	18:25	64.4	66.6	0
20190913T183000	2019	09	13	18:30	64.1	67.1	0
20190913T183500	2019	09	13	18:35	64	67.3	0
20190913T184000	2019	09	13	18:40	63.9	67.7	0
20190913T184500	2019	09	13	18:45	63.9	67.9	0
20190913T185000	2019	09	13	18:50	63.8	67.9	0
20190913T185500	2019	09	13	18:55	63.7	68.1	0
20190913T190000	2019	09	13	19:00	63.6	68.3	0
20190913T190500	2019	09	13	19:05	63.5	68.5	0
20190913T191000	2019	09	13	19:10	63.5	68.8	0
20190913T191500	2019	09	13	19:15	63.5	68.8	0
20190913T192000	2019	09	13	19:20	63.4	68.9	0
20190913T192500	2019	09	13	19:25	63.3	69.2	0
20190913T193000	2019	09	13	19:30	63.1	69.5	0
20190913T193500	2019	09	13	19:35	62.9	70.1	0
20190913T194000	2019	09	13	19:40	62.9	70.2	0
20190913T194500	2019	09	13	19:45	62.8	70.6	0
20190913T195000	2019	09	13	19:50	62.7	70.8	0
20190913T195500	2019	09	13	19:55	62.7	71.1	0
20190913T200000	2019	09	13	20:00	62.7	71.2	0
20190913T200500	2019	09	13	20:05	62.5	71.6	0
20190913T201000	2019	09	13	20:10	62.6	71.9	0
20190913T201500	2019	09	13	20:15	62.5	72	0
20190913T202000	2019	09	13	20:20	62.7	71.8	0
20190913T202500	2019	09	13	20:25	62.8	71.7	0
20190913T203000	2019	09	13	20:30	62.7	72.1	0
20190913T203500	2019	09	13	20:35	62.8	72.1	0
20190913T204000	2019	09	13	20:40	62.8	72.2	0
20190913T204500	2019	09	13	20:45	62.8	72.3	0
20190913T205000	2019	09	13	20:50	62.8	72.4	0
20190913T205500	2019	09	13	20:55	62.7	72.7	0
20190913T210000	2019	09	13	21:00	62.8	72.7	0
20190913T210500	2019	09	13	21:05	62.5	73.4	0
20190913T211000	2019	09	13	21:10	62.6	73.7	0
20190913T211500	2019	09	13	21:15	62.5	73.7	0
20190913T212000	2019	09	13	21:20	62.5	74	0
20190913T212500	2019	09	13	21:25	62.5	74.3	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190913T213000	2019	09	13	21:30	62.6	73.9	0
20190913T213500	2019	09	13	21:35	62.6	74.1	0
20190913T214000	2019	09	13	21:40	62.5	74.5	0
20190913T214500	2019	09	13	21:45	62.5	74.6	0
20190913T215000	2019	09	13	21:50	62.5	74.8	0
20190913T215500	2019	09	13	21:55	62.6	74.4	0
20190913T220000	2019	09	13	22:00	62.7	74.4	0
20190913T220500	2019	09	13	22:05	62.8	74.2	0
20190913T221000	2019	09	13	22:10	63	73.6	0
20190913T221500	2019	09	13	22:15	63.1	73.2	0
20190913T222000	2019	09	13	22:20	63.1	73.2	0
20190913T222500	2019	09	13	22:25	63.1	73.2	0
20190913T223000	2019	09	13	22:30	63.1	72.8	0
20190913T223500	2019	09	13	22:35	63.2	72.5	0
20190913T224000	2019	09	13	22:40	63.3	72	0
20190913T224500	2019	09	13	22:45	63.3	71.9	0
20190913T225000	2019	09	13	22:50	63.4	71.7	0
20190913T225500	2019	09	13	22:55	63.4	71.5	0
20190913T230000	2019	09	13	23:00	63.4	71.4	0
20190913T230500	2019	09	13	23:05	63.4	71.4	0
20190913T231000	2019	09	13	23:10	63.3	71.4	0
20190913T231500	2019	09	13	23:15	63.2	71.7	0
20190913T232000	2019	09	13	23:20	63.2	71.8	0
20190913T232500	2019	09	13	23:25	63.3	71.8	0
20190913T233000	2019	09	13	23:30	63.4	71.5	0
20190913T233500	2019	09	13	23:35	63.4	71.5	0
20190913T234000	2019	09	13	23:40	63.5	71.3	0
20190913T234500	2019	09	13	23:45	63.6	71	0
20190913T235000	2019	09	13	23:50	63.8	70.7	0
20190913T235500	2019	09	13	23:55	63.8	70.6	0
20190914T000000	2019	09	14	00:00	63.7	70.9	0
20190914T000500	2019	09	14	00:05	63.6	71.4	0
20190914T001000	2019	09	14	00:10	63.6	71.4	0
20190914T001500	2019	09	14	00:15	63.5	71.5	0
20190914T002000	2019	09	14	00:20	63.6	71.7	0
20190914T002500	2019	09	14	00:25	63.6	71.3	0
20190914T003000	2019	09	14	00:30	63.4	72	0
20190914T003500	2019	09	14	00:35	63.4	72.1	0
20190914T004000	2019	09	14	00:40	63.4	72.1	0
20190914T004500	2019	09	14	00:45	63.4	72	0
20190914T005000	2019	09	14	00:50	63.3	72.2	0
20190914T005500	2019	09	14	00:55	63.3	72.2	0
20190914T010000	2019	09	14	01:00	63.2	72.4	0
20190914T010500	2019	09	14	01:05	63.2	72.6	0
20190914T011000	2019	09	14	01:10	63.2	72.6	0
20190914T011500	2019	09	14	01:15	63.2	72.6	0
20190914T012000	2019	09	14	01:20	63.3	72.3	0
20190914T012500	2019	09	14	01:25	63.3	72.3	0
20190914T013000	2019	09	14	01:30	63.5	72.1	0
20190914T013500	2019	09	14	01:35	63.6	72	0
20190914T014000	2019	09	14	01:40	63.6	71.9	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190914T014500	2019	09	14	01:45	63.7	71.9	0
20190914T015000	2019	09	14	01:50	63.7	72.2	0
20190914T015500	2019	09	14	01:55	63.7	72.3	0
20190914T020000	2019	09	14	02:00	63.7	72.6	0
20190914T020500	2019	09	14	02:05	63.8	72.5	0
20190914T021000	2019	09	14	02:10	63.7	73	0
20190914T021500	2019	09	14	02:15	63.9	72.8	0
20190914T022000	2019	09	14	02:20	63.9	73	0
20190914T022500	2019	09	14	02:25	64.1	73	0
20190914T023000	2019	09	14	02:30	64.2	72.6	0
20190914T023500	2019	09	14	02:35	64.3	72.5	0
20190914T024000	2019	09	14	02:40	64.3	72.5	0
20190914T024500	2019	09	14	02:45	64.4	72.3	0
20190914T025000	2019	09	14	02:50	64.3	72.5	0
20190914T025500	2019	09	14	02:55	64.3	72.5	0
20190914T030000	2019	09	14	03:00	64.3	72.5	0
20190914T030500	2019	09	14	03:05	64.3	72.8	0
20190914T031000	2019	09	14	03:10	64.3	72.8	0
20190914T031500	2019	09	14	03:15	64.1	73.4	0
20190914T032000	2019	09	14	03:20	64.2	73.4	0
20190914T032500	2019	09	14	03:25	64.1	73.6	0
20190914T033000	2019	09	14	03:30	64.1	73.7	0
20190914T033500	2019	09	14	03:35	64.1	73.9	0
20190914T034000	2019	09	14	03:40	63.8	75.2	0.002
20190914T034500	2019	09	14	03:45	62.7	80.1	0.006
20190914T035000	2019	09	14	03:50	62	83.9	0.009
20190914T035500	2019	09	14	03:55	61.8	85	0.008
20190914T040000	2019	09	14	04:00	61.4	87	0.01
20190914T040500	2019	09	14	04:05	61.2	88.5	0.007
20190914T041000	2019	09	14	04:10	61	89.4	0.004
20190914T041500	2019	09	14	04:15	60.9	89.8	0
20190914T042000	2019	09	14	04:20	61	89.7	0
20190914T042500	2019	09	14	04:25	60.9	90.1	0
20190914T043000	2019	09	14	04:30	61	90.1	0
20190914T043500	2019	09	14	04:35	61	90.3	0.011
20190914T044000	2019	09	14	04:40	61	90.5	0.005
20190914T044500	2019	09	14	04:45	60.9	90.6	0
20190914T045000	2019	09	14	04:50	61	90.6	0
20190914T045500	2019	09	14	04:55	61	90.4	0
20190914T050000	2019	09	14	05:00	60.8	90.8	0
20190914T050500	2019	09	14	05:05	60.9	90.3	0
20190914T051000	2019	09	14	05:10	60.9	90.6	0
20190914T051500	2019	09	14	05:15	61	90.1	0
20190914T052000	2019	09	14	05:20	60.9	90.8	0.005
20190914T052500	2019	09	14	05:25	60.8	91.3	0.006
20190914T053000	2019	09	14	05:30	60.7	91.7	0.005
20190914T053500	2019	09	14	05:35	60.4	92.4	0.007
20190914T054000	2019	09	14	05:40	60.3	93	0.004
20190914T054500	2019	09	14	05:45	60.3	93.1	0
20190914T055000	2019	09	14	05:50	60.3	92.9	0.011
20190914T055500	2019	09	14	05:55	60.2	93.1	0.01

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190914T060000	2019	09	14	06:00	60.2	93.4	0.002
20190914T060500	2019	09	14	06:05	60.2	93.4	0.003
20190914T061000	2019	09	14	06:10	60.1	93.3	0
20190914T061500	2019	09	14	06:15	60.2	93	0
20190914T062000	2019	09	14	06:20	60.2	92.8	0
20190914T062500	2019	09	14	06:25	60.3	92.6	0
20190914T063000	2019	09	14	06:30	60.2	92.8	0
20190914T063500	2019	09	14	06:35	60.3	92.9	0
20190914T064000	2019	09	14	06:40	60.4	92.8	0
20190914T064500	2019	09	14	06:45	60.4	92.8	0
20190914T065000	2019	09	14	06:50	60.5	92.4	0
20190914T065500	2019	09	14	06:55	60.5	92.2	0
20190914T070000	2019	09	14	07:00	60.6	92.5	0
20190914T070500	2019	09	14	07:05	60.6	92.6	0
20190914T071000	2019	09	14	07:10	60.8	92.4	0
20190914T071500	2019	09	14	07:15	61	91.7	0
20190914T072000	2019	09	14	07:20	61.3	90.5	0
20190914T072500	2019	09	14	07:25	61.4	90.3	0
20190914T073000	2019	09	14	07:30	61.6	89.5	0
20190914T073500	2019	09	14	07:35	61.6	89.7	0
20190914T074000	2019	09	14	07:40	61.9	89.2	0
20190914T074500	2019	09	14	07:45	62.1	88.5	0
20190914T075000	2019	09	14	07:50	62.4	87.5	0
20190914T075500	2019	09	14	07:55	62.7	86.9	0
20190914T080000	2019	09	14	08:00	62.8	86.3	0
20190914T080500	2019	09	14	08:05	63.1	85.8	0
20190914T081000	2019	09	14	08:10	63.3	85.6	0
20190914T081500	2019	09	14	08:15	63.6	85.1	0
20190914T082000	2019	09	14	08:20	63.6	84.7	0
20190914T082500	2019	09	14	08:25	63.7	84.6	0
20190914T083000	2019	09	14	08:30	64.1	83.9	0
20190914T083500	2019	09	14	08:35	64.2	83.7	0
20190914T084000	2019	09	14	08:40	64.2	83.6	0
20190914T084500	2019	09	14	08:45	64.3	83.7	0
20190914T085000	2019	09	14	08:50	64.3	83.8	0
20190914T085500	2019	09	14	08:55	64.5	83.4	0
20190914T090000	2019	09	14	09:00	64.6	83.6	0
20190914T090500	2019	09	14	09:05	64.7	83.4	0
20190914T091000	2019	09	14	09:10	64.5	83.5	0
20190914T091500	2019	09	14	09:15	64.5	83.5	0
20190914T092000	2019	09	14	09:20	65	82.9	0
20190914T092500	2019	09	14	09:25	65.1	82.5	0
20190914T093000	2019	09	14	09:30	65.8	81.8	0
20190914T093500	2019	09	14	09:35	65.9	81.2	0
20190914T094000	2019	09	14	09:40	66.9	80.1	0
20190914T094500	2019	09	14	09:45	67.4	78.5	0
20190914T095000	2019	09	14	09:50	67	78.5	0
20190914T095500	2019	09	14	09:55	67.1	78.9	0
20190914T100000	2019	09	14	10:00	67.1	78.9	0
20190914T100500	2019	09	14	10:05	66.7	80	0
20190914T101000	2019	09	14	10:10	67	79.5	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190914T101500	2019	09	14	10:15	67.6	79.2	0
20190914T102000	2019	09	14	10:20	67.2	79	0
20190914T102500	2019	09	14	10:25	67.3	78.9	0
20190914T103000	2019	09	14	10:30	67.6	79.4	0
20190914T103500	2019	09	14	10:35	68.3	78.6	0
20190914T104000	2019	09	14	10:40	68.8	77.6	0
20190914T104500	2019	09	14	10:45	68.5	77.3	0
20190914T105000	2019	09	14	10:50	69.1	77.7	0
20190914T105500	2019	09	14	10:55	69.2	76.1	0
20190914T110000	2019	09	14	11:00	69.6	76.4	0
20190914T110500	2019	09	14	11:05	70.2	76	0
20190914T111000	2019	09	14	11:10	70.5	74.8	0
20190914T111500	2019	09	14	11:15	70.3	75.1	0
20190914T112000	2019	09	14	11:20	69.8	74.8	0
20190914T112500	2019	09	14	11:25	69.4	75.7	0
20190914T113000	2019	09	14	11:30	70.6	75.4	0
20190914T113500	2019	09	14	11:35	70.8	74.4	0
20190914T114000	2019	09	14	11:40	70.7	74.4	0
20190914T114500	2019	09	14	11:45	71.3	75	0
20190914T115000	2019	09	14	11:50	71.6	73.7	0
20190914T115500	2019	09	14	11:55	72.2	73.3	0
20190914T120000	2019	09	14	12:00	71.7	72.4	0
20190914T120500	2019	09	14	12:05	71.7	73.1	0
20190914T121000	2019	09	14	12:10	72	73	0
20190914T121500	2019	09	14	12:15	72.1	72.8	0
20190914T122000	2019	09	14	12:20	72.6	72.8	0
20190914T122500	2019	09	14	12:25	72.7	72.1	0
20190914T123000	2019	09	14	12:30	72.8	71.9	0
20190914T123500	2019	09	14	12:35	73	71.6	0
20190914T124000	2019	09	14	12:40	73.1	72.2	0
20190914T124500	2019	09	14	12:45	73.1	71.7	0
20190914T125000	2019	09	14	12:50	73.5	71.9	0
20190914T125500	2019	09	14	12:55	73.7	71.5	0
20190914T130000	2019	09	14	13:00	72.8	71.9	0
20190914T130500	2019	09	14	13:05	72.9	72.4	0
20190914T131000	2019	09	14	13:10	73.6	71.4	0
20190914T131500	2019	09	14	13:15	74.4	70.5	0
20190914T132000	2019	09	14	13:20	73.5	70.4	0
20190914T132500	2019	09	14	13:25	73	71.8	0
20190914T133000	2019	09	14	13:30	73.6	72	0
20190914T133500	2019	09	14	13:35	73.1	71	0
20190914T134000	2019	09	14	13:40	73	71.4	0
20190914T134500	2019	09	14	13:45	73.6	71.3	0
20190914T135000	2019	09	14	13:50	74.2	70.8	0
20190914T135500	2019	09	14	13:55	73.5	70.8	0
20190914T140000	2019	09	14	14:00	73.2	71.2	0
20190914T140500	2019	09	14	14:05	73.2	71.8	0
20190914T141000	2019	09	14	14:10	74	71.1	0
20190914T141500	2019	09	14	14:15	74	71	0
20190914T142000	2019	09	14	14:20	73.9	70.5	0
20190914T142500	2019	09	14	14:25	73.9	71	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190914T143000	2019	09	14	14:30	73.7	71	0
20190914T143500	2019	09	14	14:35	74.2	71.4	0
20190914T144000	2019	09	14	14:40	75	70.1	0
20190914T144500	2019	09	14	14:45	75.2	68.9	0
20190914T145000	2019	09	14	14:50	74.7	69.6	0
20190914T145500	2019	09	14	14:55	74.9	69.9	0
20190914T150000	2019	09	14	15:00	75.2	69.9	0
20190914T150500	2019	09	14	15:05	75.4	69.1	0
20190914T151000	2019	09	14	15:10	74.9	69.4	0
20190914T151500	2019	09	14	15:15	75.4	69.4	0
20190914T152000	2019	09	14	15:20	74.7	70.1	0
20190914T152500	2019	09	14	15:25	75.3	70	0
20190914T153000	2019	09	14	15:30	74.8	69.1	0
20190914T153500	2019	09	14	15:35	74.6	70	0
20190914T154000	2019	09	14	15:40	74.5	70.4	0
20190914T154500	2019	09	14	15:45	75.4	70.1	0
20190914T155000	2019	09	14	15:50	75	70	0
20190914T155500	2019	09	14	15:55	75.7	70.1	0
20190914T160000	2019	09	14	16:00	75	69.9	0
20190914T160500	2019	09	14	16:05	74.6	70.7	0
20190914T161000	2019	09	14	16:10	75.2	70.3	0
20190914T161500	2019	09	14	16:15	75.4	70.7	0
20190914T162000	2019	09	14	16:20	75.5	70	0
20190914T162500	2019	09	14	16:25	75.1	70.4	0
20190914T163000	2019	09	14	16:30	75	71.3	0
20190914T163500	2019	09	14	16:35	75.5	71.2	0
20190914T164000	2019	09	14	16:40	75.4	70.3	0
20190914T164500	2019	09	14	16:45	74.9	70.8	0
20190914T165000	2019	09	14	16:50	75.1	69.8	0
20190914T165500	2019	09	14	16:55	76.2	57.7	0
20190914T170000	2019	09	14	17:00	76.5	55.1	0
20190914T170500	2019	09	14	17:05	75.9	54.4	0
20190914T171000	2019	09	14	17:10	75.8	54.8	0
20190914T171500	2019	09	14	17:15	75.6	55	0
20190914T172000	2019	09	14	17:20	74.8	55.7	0
20190914T172500	2019	09	14	17:25	74.4	57	0
20190914T173000	2019	09	14	17:30	74	57.3	0
20190914T173500	2019	09	14	17:35	73.8	58.3	0
20190914T174000	2019	09	14	17:40	73.4	58.7	0
20190914T174500	2019	09	14	17:45	72.9	59.8	0
20190914T175000	2019	09	14	17:50	72.9	59.4	0
20190914T175500	2019	09	14	17:55	72.6	59.9	0
20190914T180000	2019	09	14	18:00	72.3	61.1	0
20190914T180500	2019	09	14	18:05	72.1	60.6	0
20190914T181000	2019	09	14	18:10	72.1	60.3	0
20190914T181500	2019	09	14	18:15	71.9	60.9	0
20190914T182000	2019	09	14	18:20	71.6	60.8	0
20190914T182500	2019	09	14	18:25	71.3	60.1	0
20190914T183000	2019	09	14	18:30	71	61	0
20190914T183500	2019	09	14	18:35	70.7	61.2	0
20190914T184000	2019	09	14	18:40	70.3	61.3	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190914T184500	2019	09	14	18:45	69.8	61.6	0
20190914T185000	2019	09	14	18:50	69.6	61.6	0
20190914T185500	2019	09	14	18:55	69.2	62.2	0
20190914T190000	2019	09	14	19:00	68.7	63.4	0
20190914T190500	2019	09	14	19:05	68.2	64.4	0
20190914T191000	2019	09	14	19:10	67.8	65.6	0
20190914T191500	2019	09	14	19:15	67.3	66.9	0
20190914T192000	2019	09	14	19:20	67.3	67.4	0
20190914T192500	2019	09	14	19:25	66.9	67.8	0
20190914T193000	2019	09	14	19:30	66.9	67.4	0
20190914T193500	2019	09	14	19:35	66.9	66.9	0
20190914T194000	2019	09	14	19:40	66.9	66.4	0
20190914T194500	2019	09	14	19:45	66.8	66.3	0
20190914T195000	2019	09	14	19:50	66.6	66.5	0
20190914T195500	2019	09	14	19:55	66.3	67.1	0
20190914T200000	2019	09	14	20:00	66.1	67.7	0
20190914T200500	2019	09	14	20:05	66	67.8	0
20190914T201000	2019	09	14	20:10	65.7	68.5	0
20190914T201500	2019	09	14	20:15	65.1	69.8	0
20190914T202000	2019	09	14	20:20	64.4	71.4	0
20190914T202500	2019	09	14	20:25	64	72.8	0
20190914T203000	2019	09	14	20:30	62.1	75.6	0
20190914T203500	2019	09	14	20:35	61.2	79	0
20190914T204000	2019	09	14	20:40	60.9	80.5	0
20190914T204500	2019	09	14	20:45	59.8	81	0
20190914T205000	2019	09	14	20:50	59.1	83.3	0
20190914T205500	2019	09	14	20:55	57.9	86.9	0
20190914T210000	2019	09	14	21:00	57.4	89.2	0
20190914T210500	2019	09	14	21:05	57.2	90	0
20190914T211000	2019	09	14	21:10	57.2	91.3	0
20190914T211500	2019	09	14	21:15	56.7	92.4	0
20190914T212000	2019	09	14	21:20	56.1	92.9	0
20190914T212500	2019	09	14	21:25	56.9	93.6	0
20190914T213000	2019	09	14	21:30	58.8	90.2	0
20190914T213500	2019	09	14	21:35	57.6	87.4	0
20190914T214000	2019	09	14	21:40	58	88.5	0
20190914T214500	2019	09	14	21:45	56.8	87.7	0
20190914T215000	2019	09	14	21:50	56.9	89.3	0
20190914T215500	2019	09	14	21:55	57	91	0
20190914T220000	2019	09	14	22:00	56.5	92.4	0
20190914T220500	2019	09	14	22:05	56.3	93	0
20190914T221000	2019	09	14	22:10	56.8	93.7	0
20190914T221500	2019	09	14	22:15	57.9	93.4	0
20190914T222000	2019	09	14	22:20	57.1	91.5	0
20190914T222500	2019	09	14	22:25	57.2	91.8	0
20190914T223000	2019	09	14	22:30	56	91.1	0
20190914T223500	2019	09	14	22:35	56.9	93.3	0
20190914T224000	2019	09	14	22:40	56.8	92.5	0
20190914T224500	2019	09	14	22:45	56.2	91.7	0
20190914T225000	2019	09	14	22:50	57.7	91.9	0
20190914T225500	2019	09	14	22:55	60.1	85.8	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190914T230000	2019	09	14	23:00	60	83.2	0
20190914T230500	2019	09	14	23:05	60	82.9	0
20190914T231000	2019	09	14	23:10	58.2	84.6	0
20190914T231500	2019	09	14	23:15	57.7	86.6	0
20190914T232000	2019	09	14	23:20	57.5	89	0
20190914T232500	2019	09	14	23:25	56.6	89.8	0
20190914T233000	2019	09	14	23:30	56.7	91.6	0
20190914T233500	2019	09	14	23:35	56.6	92.2	0
20190914T234000	2019	09	14	23:40	56.3	92.2	0
20190914T234500	2019	09	14	23:45	55.1	91.9	0
20190914T235000	2019	09	14	23:50	56.2	94.1	0
20190914T235500	2019	09	14	23:55	55.2	93.3	0
20190915T000000	2019	09	15	00:00	55.6	93.4	0
20190915T000500	2019	09	15	00:05	55.1	93.1	0
20190915T001000	2019	09	15	00:10	54.6	93.8	0
20190915T001500	2019	09	15	00:15	54.8	94.6	0
20190915T002000	2019	09	15	00:20	54.8	95.2	0
20190915T002500	2019	09	15	00:25	56.3	96	0
20190915T003000	2019	09	15	00:30	56.7	93.5	0
20190915T003500	2019	09	15	00:35	56.5	92.2	0
20190915T004000	2019	09	15	00:40	56	92.3	0
20190915T004500	2019	09	15	00:45	55.3	92.9	0
20190915T005000	2019	09	15	00:50	55.6	93.8	0
20190915T005500	2019	09	15	00:55	56.5	94	0
20190915T010000	2019	09	15	01:00	56.9	93.7	0
20190915T010500	2019	09	15	01:05	56.8	93.4	0
20190915T011000	2019	09	15	01:10	57.1	92.7	0
20190915T011500	2019	09	15	01:15	56.3	91.8	0
20190915T012000	2019	09	15	01:20	57	92.7	0
20190915T012500	2019	09	15	01:25	56	91.5	0
20190915T013000	2019	09	15	01:30	56	92.7	0
20190915T013500	2019	09	15	01:35	55.6	92.5	0
20190915T014000	2019	09	15	01:40	54.6	92.1	0
20190915T014500	2019	09	15	01:45	55.2	93.8	0
20190915T015000	2019	09	15	01:50	55	93.9	0
20190915T015500	2019	09	15	01:55	55.1	94.8	0
20190915T020000	2019	09	15	02:00	55	94.9	0
20190915T020500	2019	09	15	02:05	54.2	94.6	0
20190915T021000	2019	09	15	02:10	55.6	95	0
20190915T021500	2019	09	15	02:15	56.1	94.9	0
20190915T022000	2019	09	15	02:20	56.4	94.6	0
20190915T022500	2019	09	15	02:25	56.4	93.9	0
20190915T023000	2019	09	15	02:30	56.6	94.1	0
20190915T023500	2019	09	15	02:35	57.1	94.1	0
20190915T024000	2019	09	15	02:40	57.3	93.7	0
20190915T024500	2019	09	15	02:45	57.9	93.8	0
20190915T025000	2019	09	15	02:50	57.6	92.6	0
20190915T025500	2019	09	15	02:55	57	92.8	0
20190915T030000	2019	09	15	03:00	56.2	93.2	0
20190915T030500	2019	09	15	03:05	55.9	94.4	0
20190915T031000	2019	09	15	03:10	56.2	95.1	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190915T031500	2019	09	15	03:15	56.7	95.9	0
20190915T032000	2019	09	15	03:20	56.5	95.6	0
20190915T032500	2019	09	15	03:25	55.9	95.4	0
20190915T033000	2019	09	15	03:30	55.7	95.7	0
20190915T033500	2019	09	15	03:35	55.8	96.3	0
20190915T034000	2019	09	15	03:40	56	96.8	0
20190915T034500	2019	09	15	03:45	56	97.1	0
20190915T035000	2019	09	15	03:50	56	96.8	0
20190915T035500	2019	09	15	03:55	56.1	96.9	0
20190915T040000	2019	09	15	04:00	56	96.7	0
20190915T040500	2019	09	15	04:05	55.9	97.1	0
20190915T041000	2019	09	15	04:10	55.7	97.1	0
20190915T041500	2019	09	15	04:15	55.8	97.2	0
20190915T042000	2019	09	15	04:20	55.9	97.4	0
20190915T042500	2019	09	15	04:25	56.3	97.8	0
20190915T043000	2019	09	15	04:30	56.2	97.8	0
20190915T043500	2019	09	15	04:35	55.9	97.6	0
20190915T044000	2019	09	15	04:40	55.6	97.4	0
20190915T044500	2019	09	15	04:45	55.6	97.7	0
20190915T045000	2019	09	15	04:50	55.6	97.7	0
20190915T045500	2019	09	15	04:55	55.3	97.7	0
20190915T050000	2019	09	15	05:00	55.1	97.8	0
20190915T050500	2019	09	15	05:05	55.2	97.9	0
20190915T051000	2019	09	15	05:10	55.6	98.2	0
20190915T051500	2019	09	15	05:15	55.8	98.3	0
20190915T052000	2019	09	15	05:20	55.8	98.2	0
20190915T052500	2019	09	15	05:25	55.6	98	0
20190915T053000	2019	09	15	05:30	55.6	98	0
20190915T053500	2019	09	15	05:35	55.8	98.1	0
20190915T054000	2019	09	15	05:40	56	98.2	0
20190915T054500	2019	09	15	05:45	56.1	98.1	0
20190915T055000	2019	09	15	05:50	56.1	97.9	0
20190915T055500	2019	09	15	05:55	56.1	97.9	0
20190915T060000	2019	09	15	06:00	56.2	97.7	0
20190915T060500	2019	09	15	06:05	56.1	97.5	0
20190915T061000	2019	09	15	06:10	56	97.4	0
20190915T061500	2019	09	15	06:15	56	97.4	0
20190915T062000	2019	09	15	06:20	56	97.4	0
20190915T062500	2019	09	15	06:25	56	97.3	0
20190915T063000	2019	09	15	06:30	56	97.3	0
20190915T063500	2019	09	15	06:35	56.1	97.4	0
20190915T064000	2019	09	15	06:40	56.3	97.6	0
20190915T064500	2019	09	15	06:45	56.2	97.6	0
20190915T065000	2019	09	15	06:50	56.2	97.6	0
20190915T065500	2019	09	15	06:55	56.2	97.6	0
20190915T070000	2019	09	15	07:00	56.1	97.6	0
20190915T070500	2019	09	15	07:05	55.4	97.2	0
20190915T071000	2019	09	15	07:10	55.5	97.3	0
20190915T071500	2019	09	15	07:15	55.7	97.2	0
20190915T072000	2019	09	15	07:20	55.9	96.9	0
20190915T072500	2019	09	15	07:25	56.2	96.6	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190915T073000	2019	09	15	07:30	56.6	96.2	0
20190915T073500	2019	09	15	07:35	56.8	95.2	0
20190915T074000	2019	09	15	07:40	57	94.8	0
20190915T074500	2019	09	15	07:45	57.3	94.3	0
20190915T075000	2019	09	15	07:50	57.6	94.1	0
20190915T075500	2019	09	15	07:55	57.6	93.7	0
20190915T080000	2019	09	15	08:00	57.9	93.8	0
20190915T080500	2019	09	15	08:05	58.3	92.7	0
20190915T081000	2019	09	15	08:10	58.7	93	0
20190915T081500	2019	09	15	08:15	59.1	92.2	0
20190915T082000	2019	09	15	08:20	59.6	91.5	0
20190915T082500	2019	09	15	08:25	60	90.3	0
20190915T083000	2019	09	15	08:30	60.3	88.5	0
20190915T083500	2019	09	15	08:35	60.9	88.3	0
20190915T084000	2019	09	15	08:40	61.1	87.7	0
20190915T084500	2019	09	15	08:45	61.5	88.2	0
20190915T085000	2019	09	15	08:50	61.9	88.5	0
20190915T085500	2019	09	15	08:55	62.3	88	0
20190915T090000	2019	09	15	09:00	62.8	87.7	0
20190915T090500	2019	09	15	09:05	63	86.5	0
20190915T091000	2019	09	15	09:10	63.1	85.2	0
20190915T091500	2019	09	15	09:15	63.6	85.7	0
20190915T092000	2019	09	15	09:20	63.8	84.3	0
20190915T092500	2019	09	15	09:25	64	83.8	0
20190915T093000	2019	09	15	09:30	64.5	83.3	0
20190915T093500	2019	09	15	09:35	64.8	82.7	0
20190915T094000	2019	09	15	09:40	65.2	82.2	0
20190915T094500	2019	09	15	09:45	65.4	80.9	0
20190915T095000	2019	09	15	09:50	65.9	80.9	0
20190915T095500	2019	09	15	09:55	66.1	79.3	0
20190915T100000	2019	09	15	10:00	66.4	79.1	0
20190915T100500	2019	09	15	10:05	67.1	77	0
20190915T101000	2019	09	15	10:10	67.1	77.8	0
20190915T101500	2019	09	15	10:15	67.9	76.2	0
20190915T102000	2019	09	15	10:20	67.7	75.4	0
20190915T102500	2019	09	15	10:25	67.9	75.6	0
20190915T103000	2019	09	15	10:30	68	74.1	0
20190915T103500	2019	09	15	10:35	68.1	74	0
20190915T104000	2019	09	15	10:40	67.7	74.7	0
20190915T104500	2019	09	15	10:45	67.2	75.2	0
20190915T105000	2019	09	15	10:50	67.5	75.8	0
20190915T105500	2019	09	15	10:55	67.6	75.2	0
20190915T110000	2019	09	15	11:00	68.4	75.4	0
20190915T110500	2019	09	15	11:05	68.9	74.7	0
20190915T111000	2019	09	15	11:10	69	73.3	0
20190915T111500	2019	09	15	11:15	68.8	71.4	0
20190915T112000	2019	09	15	11:20	69.5	72.5	0
20190915T112500	2019	09	15	11:25	70	71.3	0
20190915T113000	2019	09	15	11:30	70.3	71.3	0
20190915T113500	2019	09	15	11:35	70.5	71.2	0
20190915T114000	2019	09	15	11:40	69.5	70.9	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190915T114500	2019	09	15	11:45	70.5	71.9	0
20190915T115000	2019	09	15	11:50	70.9	68.9	0
20190915T115500	2019	09	15	11:55	70.3	69.4	0
20190915T120000	2019	09	15	12:00	70.4	70	0
20190915T120500	2019	09	15	12:05	70.9	69.7	0
20190915T121000	2019	09	15	12:10	71.2	67.8	0
20190915T121500	2019	09	15	12:15	71.1	68.3	0
20190915T122000	2019	09	15	12:20	70.6	69.2	0
20190915T122500	2019	09	15	12:25	70.3	70.8	0
20190915T123000	2019	09	15	12:30	70.6	71.4	0
20190915T123500	2019	09	15	12:35	72.2	71.5	0
20190915T124000	2019	09	15	12:40	71.8	66.6	0
20190915T124500	2019	09	15	12:45	73.2	66.6	0
20190915T125000	2019	09	15	12:50	72.9	66.1	0
20190915T125500	2019	09	15	12:55	73.3	65.5	0
20190915T130000	2019	09	15	13:00	73.8	65.1	0
20190915T130500	2019	09	15	13:05	73.2	64.3	0
20190915T131000	2019	09	15	13:10	73	63.5	0
20190915T131500	2019	09	15	13:15	73.9	64	0
20190915T132000	2019	09	15	13:20	74.2	62.1	0
20190915T132500	2019	09	15	13:25	73.2	62.7	0
20190915T133000	2019	09	15	13:30	73	63.7	0
20190915T133500	2019	09	15	13:35	74.9	61.5	0
20190915T134000	2019	09	15	13:40	75.3	58.8	0
20190915T134500	2019	09	15	13:45	74.6	58.7	0
20190915T135000	2019	09	15	13:50	73.7	60.2	0
20190915T135500	2019	09	15	13:55	73.1	61.3	0
20190915T140000	2019	09	15	14:00	73.5	62.3	0
20190915T140500	2019	09	15	14:05	73.5	61.1	0
20190915T141000	2019	09	15	14:10	73.1	61.9	0
20190915T141500	2019	09	15	14:15	72.7	63.2	0
20190915T142000	2019	09	15	14:20	72.7	63.7	0
20190915T142500	2019	09	15	14:25	72.7	63.7	0
20190915T143000	2019	09	15	14:30	72.5	65.2	0
20190915T143500	2019	09	15	14:35	72.3	67.2	0
20190915T144000	2019	09	15	14:40	72.1	68.3	0
20190915T144500	2019	09	15	14:45	72.1	69	0
20190915T145000	2019	09	15	14:50	71.8	70.1	0
20190915T145500	2019	09	15	14:55	71.2	73.8	0
20190915T150000	2019	09	15	15:00	70.7	78	0
20190915T150500	2019	09	15	15:05	70	79.8	0
20190915T151000	2019	09	15	15:10	69	81.2	0
20190915T151500	2019	09	15	15:15	68.3	82.7	0
20190915T152000	2019	09	15	15:20	68	84	0.015
20190915T152500	2019	09	15	15:25	67.3	86.4	0.011
20190915T153000	2019	09	15	15:30	66.7	88.3	0.005
20190915T153500	2019	09	15	15:35	66	90.1	0
20190915T154000	2019	09	15	15:40	65.5	91.6	0
20190915T154500	2019	09	15	15:45	65	92.4	0
20190915T155000	2019	09	15	15:50	64.7	92.7	0.017
20190915T155500	2019	09	15	15:55	64.6	91.2	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190915T160000	2019	09	15	16:00	64.6	90.2	0
20190915T160500	2019	09	15	16:05	64.5	91.2	0
20190915T161000	2019	09	15	16:10	64.6	91.9	0
20190915T161500	2019	09	15	16:15	64.7	91.5	0
20190915T162000	2019	09	15	16:20	64.8	91.7	0
20190915T162500	2019	09	15	16:25	64.7	91.1	0
20190915T163000	2019	09	15	16:30	64.7	92.1	0
20190915T163500	2019	09	15	16:35	64.8	92.2	0
20190915T164000	2019	09	15	16:40	64.9	92.3	0
20190915T164500	2019	09	15	16:45	64.9	92.9	0
20190915T165000	2019	09	15	16:50	64.9	92	0
20190915T165500	2019	09	15	16:55	64.9	91.4	0
20190915T170000	2019	09	15	17:00	64.9	91.4	0
20190915T170500	2019	09	15	17:05	64.7	90.8	0
20190915T171000	2019	09	15	17:10	64.8	91	0
20190915T171500	2019	09	15	17:15	64.6	91.4	0
20190915T172000	2019	09	15	17:20	64.4	91.8	0
20190915T172500	2019	09	15	17:25	64.4	93.1	0
20190915T173000	2019	09	15	17:30	64.3	93.7	0
20190915T173500	2019	09	15	17:35	64	92.2	0
20190915T174000	2019	09	15	17:40	63.9	92.1	0
20190915T174500	2019	09	15	17:45	63.8	92.1	0
20190915T175000	2019	09	15	17:50	63.8	92.6	0
20190915T175500	2019	09	15	17:55	63.6	92.9	0
20190915T180000	2019	09	15	18:00	63.4	93.1	0
20190915T180500	2019	09	15	18:05	63.3	93.4	0
20190915T181000	2019	09	15	18:10	63.2	93.9	0
20190915T181500	2019	09	15	18:15	63.2	94.2	0.003
20190915T182000	2019	09	15	18:20	63.2	94.8	0.001
20190915T182500	2019	09	15	18:25	63.1	95	0
20190915T183000	2019	09	15	18:30	63.1	95.4	0
20190915T183500	2019	09	15	18:35	63	95.4	0
20190915T184000	2019	09	15	18:40	63	95.2	0
20190915T184500	2019	09	15	18:45	63	95.1	0
20190915T185000	2019	09	15	18:50	63.1	94.7	0
20190915T185500	2019	09	15	18:55	63	95	0
20190915T190000	2019	09	15	19:00	62.8	95.3	0
20190915T190500	2019	09	15	19:05	62.7	95.5	0
20190915T191000	2019	09	15	19:10	62.7	95.5	0
20190915T191500	2019	09	15	19:15	62.6	95.6	0
20190915T192000	2019	09	15	19:20	62.6	95.8	0
20190915T192500	2019	09	15	19:25	62.5	95.9	0
20190915T193000	2019	09	15	19:30	62.5	96	0
20190915T193500	2019	09	15	19:35	62.4	96.1	0
20190915T194000	2019	09	15	19:40	62.4	96.2	0
20190915T194500	2019	09	15	19:45	62.4	96.4	0
20190915T195000	2019	09	15	19:50	62.4	96.5	0
20190915T195500	2019	09	15	19:55	62.4	96.6	0
20190915T200000	2019	09	15	20:00	62.3	96.7	0
20190915T200500	2019	09	15	20:05	62.3	96.8	0
20190915T201000	2019	09	15	20:10	62.3	96.8	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190915T201500	2019	09	15	20:15	62.3	96.8	0
20190915T202000	2019	09	15	20:20	62.3	96.9	0
20190915T202500	2019	09	15	20:25	62.3	96.9	0
20190915T203000	2019	09	15	20:30	62.3	97	0
20190915T203500	2019	09	15	20:35	62.3	97.1	0
20190915T204000	2019	09	15	20:40	62.3	97.1	0
20190915T204500	2019	09	15	20:45	62.2	97.1	0
20190915T205000	2019	09	15	20:50	62.2	97.1	0
20190915T205500	2019	09	15	20:55	62.1	97.1	0
20190915T210000	2019	09	15	21:00	62	97	0
20190915T210500	2019	09	15	21:05	61.9	96.9	0
20190915T211000	2019	09	15	21:10	61.8	96.6	0
20190915T211500	2019	09	15	21:15	61.7	96.2	0
20190915T212000	2019	09	15	21:20	61.7	96.2	0
20190915T212500	2019	09	15	21:25	61.7	96.3	0.002
20190915T213000	2019	09	15	21:30	61.7	96.5	0
20190915T213500	2019	09	15	21:35	61.6	96.7	0
20190915T214000	2019	09	15	21:40	61.7	96.7	0
20190915T214500	2019	09	15	21:45	61.6	96.9	0
20190915T215000	2019	09	15	21:50	61.6	97	0
20190915T215500	2019	09	15	21:55	61.6	97.2	0
20190915T220000	2019	09	15	22:00	61.6	97.4	0
20190915T220500	2019	09	15	22:05	61.5	97.5	0
20190915T221000	2019	09	15	22:10	61.6	97.6	0
20190915T221500	2019	09	15	22:15	61.5	97.7	0
20190915T222000	2019	09	15	22:20	61.5	97.6	0
20190915T222500	2019	09	15	22:25	61.5	97.7	0
20190915T223000	2019	09	15	22:30	61.4	97.6	0
20190915T223500	2019	09	15	22:35	61.4	97.6	0
20190915T224000	2019	09	15	22:40	61.4	97.5	0
20190915T224500	2019	09	15	22:45	61.4	97.3	0
20190915T225000	2019	09	15	22:50	61.4	97.3	0
20190915T225500	2019	09	15	22:55	61.3	97.3	0
20190915T230000	2019	09	15	23:00	61.3	97.3	0
20190915T230500	2019	09	15	23:05	61.3	97.3	0
20190915T231000	2019	09	15	23:10	61.3	97.3	0
20190915T231500	2019	09	15	23:15	61.3	97.4	0
20190915T232000	2019	09	15	23:20	61.2	97.4	0
20190915T232500	2019	09	15	23:25	61.2	97.4	0
20190915T233000	2019	09	15	23:30	61.2	97.3	0
20190915T233500	2019	09	15	23:35	61.2	97.3	0
20190915T234000	2019	09	15	23:40	61.2	97.4	0
20190915T234500	2019	09	15	23:45	61.2	97.5	0
20190915T235000	2019	09	15	23:50	61.2	97.6	0
20190915T235500	2019	09	15	23:55	61.2	97.8	0
20190916T000000	2019	09	16	00:00	61.1	97.8	0
20190916T000500	2019	09	16	00:05	61	97.8	0
20190916T001000	2019	09	16	00:10	60.9	97.8	0
20190916T001500	2019	09	16	00:15	60.9	97.7	0
20190916T002000	2019	09	16	00:20	60.9	97.6	0
20190916T002500	2019	09	16	00:25	60.8	97.4	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190916T003000	2019	09	16	00:30	60.7	97.3	0
20190916T003500	2019	09	16	00:35	60.7	97.4	0
20190916T004000	2019	09	16	00:40	60.7	97.4	0
20190916T004500	2019	09	16	00:45	60.7	97.4	0
20190916T005000	2019	09	16	00:50	60.8	97.3	0
20190916T005500	2019	09	16	00:55	60.7	97.5	0
20190916T010000	2019	09	16	01:00	60.7	97.5	0
20190916T010500	2019	09	16	01:05	60.7	97.5	0
20190916T011000	2019	09	16	01:10	60.6	97.6	0
20190916T011500	2019	09	16	01:15	60.6	97.6	0
20190916T012000	2019	09	16	01:20	60.6	97.7	0
20190916T012500	2019	09	16	01:25	60.6	97.8	0
20190916T013000	2019	09	16	01:30	60.6	97.8	0
20190916T013500	2019	09	16	01:35	60.5	97.9	0
20190916T014000	2019	09	16	01:40	60.6	98	0
20190916T014500	2019	09	16	01:45	60.6	98	0
20190916T015000	2019	09	16	01:50	60.5	98	0
20190916T015500	2019	09	16	01:55	60.5	98	0
20190916T020000	2019	09	16	02:00	60.5	98	0
20190916T020500	2019	09	16	02:05	60.5	98	0
20190916T021000	2019	09	16	02:10	60.5	98	0
20190916T021500	2019	09	16	02:15	60.4	98.1	0
20190916T022000	2019	09	16	02:20	60.4	98.1	0
20190916T022500	2019	09	16	02:25	60.4	98.1	0
20190916T023000	2019	09	16	02:30	60.4	98.2	0
20190916T023500	2019	09	16	02:35	60.5	98.2	0
20190916T024000	2019	09	16	02:40	60.5	98.2	0
20190916T024500	2019	09	16	02:45	60.4	98.2	0
20190916T025000	2019	09	16	02:50	60.4	98.2	0
20190916T025500	2019	09	16	02:55	60.4	98.3	0
20190916T030000	2019	09	16	03:00	60.4	98.3	0
20190916T030500	2019	09	16	03:05	60.4	98.4	0
20190916T031000	2019	09	16	03:10	60.4	98.4	0
20190916T031500	2019	09	16	03:15	60.4	98.4	0
20190916T032000	2019	09	16	03:20	60.4	98.5	0.007
20190916T032500	2019	09	16	03:25	60.4	98.5	0.007
20190916T033000	2019	09	16	03:30	60.3	98.5	0.001
20190916T033500	2019	09	16	03:35	60.3	98.5	0
20190916T034000	2019	09	16	03:40	60.3	98.5	0
20190916T034500	2019	09	16	03:45	60.4	98.6	0
20190916T035000	2019	09	16	03:50	60.4	98.6	0
20190916T035500	2019	09	16	03:55	60.5	98.7	0
20190916T040000	2019	09	16	04:00	60.5	98.7	0
20190916T040500	2019	09	16	04:05	60.4	98.7	0
20190916T041000	2019	09	16	04:10	60.4	98.7	0
20190916T041500	2019	09	16	04:15	60.4	98.7	0
20190916T042000	2019	09	16	04:20	60.4	98.8	0
20190916T042500	2019	09	16	04:25	60.4	98.8	0
20190916T043000	2019	09	16	04:30	60.4	98.7	0
20190916T043500	2019	09	16	04:35	60.4	98.6	0
20190916T044000	2019	09	16	04:40	60.3	98.5	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190916T044500	2019	09	16	04:45	60.3	98.3	0
20190916T045000	2019	09	16	04:50	60.3	98.1	0
20190916T045500	2019	09	16	04:55	60.3	97.9	0
20190916T050000	2019	09	16	05:00	60.3	97.6	0
20190916T050500	2019	09	16	05:05	60.3	97.2	0
20190916T051000	2019	09	16	05:10	60.3	97	0
20190916T051500	2019	09	16	05:15	60.3	96.5	0
20190916T052000	2019	09	16	05:20	60.3	96.3	0
20190916T052500	2019	09	16	05:25	60.3	96.3	0
20190916T053000	2019	09	16	05:30	60.2	96.3	0
20190916T053500	2019	09	16	05:35	60.3	96.3	0
20190916T054000	2019	09	16	05:40	60.2	96.4	0
20190916T054500	2019	09	16	05:45	60.1	96.8	0
20190916T055000	2019	09	16	05:50	60	97.1	0
20190916T055500	2019	09	16	05:55	60	97.3	0
20190916T060000	2019	09	16	06:00	60.1	97.4	0
20190916T060500	2019	09	16	06:05	60.1	97.7	0
20190916T061000	2019	09	16	06:10	60	97.8	0
20190916T061500	2019	09	16	06:15	60.1	97.9	0
20190916T062000	2019	09	16	06:20	60.2	98	0
20190916T062500	2019	09	16	06:25	60.2	98.1	0
20190916T063000	2019	09	16	06:30	60.2	98.1	0
20190916T063500	2019	09	16	06:35	60.2	98	0
20190916T064000	2019	09	16	06:40	60.2	97.8	0
20190916T064500	2019	09	16	06:45	60.1	97.6	0
20190916T065000	2019	09	16	06:50	60	97.5	0
20190916T065500	2019	09	16	06:55	60	97.3	0
20190916T070000	2019	09	16	07:00	60	97	0
20190916T070500	2019	09	16	07:05	60	96.7	0
20190916T071000	2019	09	16	07:10	60	96.4	0
20190916T071500	2019	09	16	07:15	60	96.3	0
20190916T072000	2019	09	16	07:20	60	96	0
20190916T072500	2019	09	16	07:25	60	95.6	0
20190916T073000	2019	09	16	07:30	60	95.4	0
20190916T073500	2019	09	16	07:35	59.9	95.4	0
20190916T074000	2019	09	16	07:40	59.9	95.3	0
20190916T074500	2019	09	16	07:45	60	95.3	0
20190916T075000	2019	09	16	07:50	60	95	0
20190916T075500	2019	09	16	07:55	60	94.7	0
20190916T080000	2019	09	16	08:00	60	94.3	0
20190916T080500	2019	09	16	08:05	59.9	94.1	0
20190916T081000	2019	09	16	08:10	59.9	94.1	0
20190916T081500	2019	09	16	08:15	60	93.9	0
20190916T082000	2019	09	16	08:20	60	93.9	0
20190916T082500	2019	09	16	08:25	60.1	93.7	0
20190916T083000	2019	09	16	08:30	60	93.4	0
20190916T083500	2019	09	16	08:35	60	93.1	0
20190916T084000	2019	09	16	08:40	60	92.7	0
20190916T084500	2019	09	16	08:45	60	92.8	0
20190916T085000	2019	09	16	08:50	60.1	92.8	0
20190916T085500	2019	09	16	08:55	60.3	92.5	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190916T090000	2019	09	16	09:00	60.4	92.2	0
20190916T090500	2019	09	16	09:05	60.6	92	0
20190916T091000	2019	09	16	09:10	60.7	91.2	0
20190916T091500	2019	09	16	09:15	60.7	90.4	0
20190916T092000	2019	09	16	09:20	61	90.1	0
20190916T092500	2019	09	16	09:25	61.1	89.1	0
20190916T093000	2019	09	16	09:30	60.7	88.6	0
20190916T093500	2019	09	16	09:35	60.8	88.3	0
20190916T094000	2019	09	16	09:40	61	87.6	0
20190916T094500	2019	09	16	09:45	61.2	85.8	0
20190916T095000	2019	09	16	09:50	61.2	84.5	0
20190916T095500	2019	09	16	09:55	61.2	84.4	0
20190916T100000	2019	09	16	10:00	61.4	84.1	0
20190916T100500	2019	09	16	10:05	61.4	83.5	0
20190916T101000	2019	09	16	10:10	61.5	82.7	0
20190916T101500	2019	09	16	10:15	61.6	81	0
20190916T102000	2019	09	16	10:20	61.8	80.2	0
20190916T102500	2019	09	16	10:25	61.8	78.6	0
20190916T103000	2019	09	16	10:30	62.3	77.4	0
20190916T103500	2019	09	16	10:35	62.4	75.4	0
20190916T104000	2019	09	16	10:40	62.9	74.5	0
20190916T104500	2019	09	16	10:45	62.7	74	0
20190916T105000	2019	09	16	10:50	62.7	74.3	0
20190916T105500	2019	09	16	10:55	62.7	73.3	0
20190916T110000	2019	09	16	11:00	63	71.4	0
20190916T110500	2019	09	16	11:05	63.4	69.8	0
20190916T111000	2019	09	16	11:10	64.5	68.6	0
20190916T111500	2019	09	16	11:15	64.4	65.8	0
20190916T112000	2019	09	16	11:20	64.7	64.2	0
20190916T112500	2019	09	16	11:25	64.5	63	0
20190916T113000	2019	09	16	11:30	64.9	62.4	0
20190916T113500	2019	09	16	11:35	65	61.4	0
20190916T114000	2019	09	16	11:40	65.2	62.6	0
20190916T114500	2019	09	16	11:45	66.3	62.9	0
20190916T115000	2019	09	16	11:50	66.4	60.4	0
20190916T115500	2019	09	16	11:55	66.5	59.6	0
20190916T120000	2019	09	16	12:00	67.2	60.1	0
20190916T120500	2019	09	16	12:05	66.9	57	0
20190916T121000	2019	09	16	12:10	66.9	57	0
20190916T121500	2019	09	16	12:15	67.2	57.2	0
20190916T122000	2019	09	16	12:20	67.5	58.1	0
20190916T122500	2019	09	16	12:25	67.4	56.2	0
20190916T123000	2019	09	16	12:30	67.9	57.4	0
20190916T123500	2019	09	16	12:35	67.3	55.2	0
20190916T124000	2019	09	16	12:40	67.6	56	0
20190916T124500	2019	09	16	12:45	68.1	59	0
20190916T125000	2019	09	16	12:50	68.1	58.5	0
20190916T125500	2019	09	16	12:55	68.4	57.3	0
20190916T130000	2019	09	16	13:00	68.3	55.8	0
20190916T130500	2019	09	16	13:05	68.1	56.8	0
20190916T131000	2019	09	16	13:10	68.7	57.1	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190916T131500	2019	09	16	13:15	69.2	57.3	0
20190916T132000	2019	09	16	13:20	69.5	56	0
20190916T132500	2019	09	16	13:25	69.3	54.9	0
20190916T133000	2019	09	16	13:30	69.8	56.1	0
20190916T133500	2019	09	16	13:35	69.5	54.3	0
20190916T134000	2019	09	16	13:40	69.4	53.3	0
20190916T134500	2019	09	16	13:45	69.6	53.7	0
20190916T135000	2019	09	16	13:50	69.9	54.9	0
20190916T135500	2019	09	16	13:55	70.5	55.7	0
20190916T140000	2019	09	16	14:00	70.5	55.3	0
20190916T140500	2019	09	16	14:05	70.2	54.2	0
20190916T141000	2019	09	16	14:10	70.1	56.3	0
20190916T141500	2019	09	16	14:15	70.7	56.4	0
20190916T142000	2019	09	16	14:20	70.1	56	0
20190916T142500	2019	09	16	14:25	70.6	53.9	0
20190916T143000	2019	09	16	14:30	70.4	53.5	0
20190916T143500	2019	09	16	14:35	71	54.6	0
20190916T144000	2019	09	16	14:40	70.7	52.8	0
20190916T144500	2019	09	16	14:45	70.7	50.4	0
20190916T145000	2019	09	16	14:50	70.8	49.7	0
20190916T145500	2019	09	16	14:55	70.8	49.1	0
20190916T150000	2019	09	16	15:00	71	47.8	0
20190916T150500	2019	09	16	15:05	71.1	48.9	0
20190916T151000	2019	09	16	15:10	71.4	47.6	0
20190916T151500	2019	09	16	15:15	71.9	47.5	0
20190916T152000	2019	09	16	15:20	71.8	46.6	0
20190916T152500	2019	09	16	15:25	71.5	47	0
20190916T153000	2019	09	16	15:30	70.7	49.8	0
20190916T153500	2019	09	16	15:35	70.6	49.2	0
20190916T154000	2019	09	16	15:40	70.6	49.7	0
20190916T154500	2019	09	16	15:45	71.6	49.3	0
20190916T155000	2019	09	16	15:50	71.7	47.9	0
20190916T155500	2019	09	16	15:55	71.5	47.8	0
20190916T160000	2019	09	16	16:00	71	47.5	0
20190916T160500	2019	09	16	16:05	70.9	47.7	0
20190916T161000	2019	09	16	16:10	70.5	48.5	0
20190916T161500	2019	09	16	16:15	70.1	47.9	0
20190916T162000	2019	09	16	16:20	70.2	48.4	0
20190916T162500	2019	09	16	16:25	70.4	50.2	0
20190916T163000	2019	09	16	16:30	71.2	50.8	0
20190916T163500	2019	09	16	16:35	71.3	48.1	0
20190916T164000	2019	09	16	16:40	70.5	46.7	0
20190916T164500	2019	09	16	16:45	69.5	48.8	0
20190916T165000	2019	09	16	16:50	69.2	50.1	0
20190916T165500	2019	09	16	16:55	69.2	53.6	0
20190916T170000	2019	09	16	17:00	69.9	53.8	0
20190916T170500	2019	09	16	17:05	69.8	54.8	0
20190916T171000	2019	09	16	17:10	69.7	57.6	0
20190916T171500	2019	09	16	17:15	69.6	58	0
20190916T172000	2019	09	16	17:20	69.5	58.3	0
20190916T172500	2019	09	16	17:25	68.6	58.8	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190916T173000	2019	09	16	17:30	68	60.6	0
20190916T173500	2019	09	16	17:35	67.6	63.2	0
20190916T174000	2019	09	16	17:40	67.4	64.5	0
20190916T174500	2019	09	16	17:45	67.1	65.1	0
20190916T175000	2019	09	16	17:50	66.9	67	0
20190916T175500	2019	09	16	17:55	66.7	64.9	0
20190916T180000	2019	09	16	18:00	66.1	64.8	0
20190916T180500	2019	09	16	18:05	66	66.1	0
20190916T181000	2019	09	16	18:10	65.8	66.7	0
20190916T181500	2019	09	16	18:15	65.4	65.2	0
20190916T182000	2019	09	16	18:20	64.9	67.1	0
20190916T182500	2019	09	16	18:25	64.7	69.5	0
20190916T183000	2019	09	16	18:30	64.4	69.5	0
20190916T183500	2019	09	16	18:35	64.2	69.1	0
20190916T184000	2019	09	16	18:40	63.9	69.2	0
20190916T184500	2019	09	16	18:45	63.4	69.6	0
20190916T185000	2019	09	16	18:50	63.1	69.6	0
20190916T185500	2019	09	16	18:55	62.9	69.5	0
20190916T190000	2019	09	16	19:00	62.6	69.8	0
20190916T190500	2019	09	16	19:05	62.1	70.6	0
20190916T191000	2019	09	16	19:10	61.9	71.8	0
20190916T191500	2019	09	16	19:15	61.6	72.7	0
20190916T192000	2019	09	16	19:20	60.9	74.8	0
20190916T192500	2019	09	16	19:25	60.6	76.3	0
20190916T193000	2019	09	16	19:30	60	77.5	0
20190916T193500	2019	09	16	19:35	59.8	78.5	0
20190916T194000	2019	09	16	19:40	59.4	79.6	0
20190916T194500	2019	09	16	19:45	59.7	80.5	0
20190916T195000	2019	09	16	19:50	59.6	80.5	0
20190916T195500	2019	09	16	19:55	59.4	79.7	0
20190916T200000	2019	09	16	20:00	58.9	80.6	0
20190916T200500	2019	09	16	20:05	58.4	80.9	0
20190916T201000	2019	09	16	20:10	58	81.7	0
20190916T201500	2019	09	16	20:15	57.2	83.2	0
20190916T202000	2019	09	16	20:20	56.8	84.3	0
20190916T202500	2019	09	16	20:25	55.4	86.2	0
20190916T203000	2019	09	16	20:30	54.9	88.3	0
20190916T203500	2019	09	16	20:35	54.8	90.9	0
20190916T204000	2019	09	16	20:40	54.5	92.9	0
20190916T204500	2019	09	16	20:45	54.5	93.6	0
20190916T205000	2019	09	16	20:50	54	94.2	0
20190916T205500	2019	09	16	20:55	53.7	94.6	0
20190916T210000	2019	09	16	21:00	53.6	95	0
20190916T210500	2019	09	16	21:05	53.6	95.6	0
20190916T211000	2019	09	16	21:10	53.5	95.7	0
20190916T211500	2019	09	16	21:15	53.4	95.6	0
20190916T212000	2019	09	16	21:20	53.2	95.8	0
20190916T212500	2019	09	16	21:25	52.9	96.2	0
20190916T213000	2019	09	16	21:30	52.9	96.6	0
20190916T213500	2019	09	16	21:35	53	96.7	0
20190916T214000	2019	09	16	21:40	53	96.8	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190916T214500	2019	09	16	21:45	53	97	0
20190916T215000	2019	09	16	21:50	52.4	97	0
20190916T215500	2019	09	16	21:55	52.1	96.8	0
20190916T220000	2019	09	16	22:00	52.1	97.1	0
20190916T220500	2019	09	16	22:05	51.8	97	0
20190916T221000	2019	09	16	22:10	51.7	97.1	0
20190916T221500	2019	09	16	22:15	51.2	97.2	0
20190916T222000	2019	09	16	22:20	50.8	97.1	0
20190916T222500	2019	09	16	22:25	50.7	97.4	0
20190916T223000	2019	09	16	22:30	50.6	97.5	0
20190916T223500	2019	09	16	22:35	50.7	97.6	0
20190916T224000	2019	09	16	22:40	50.4	97.7	0
20190916T224500	2019	09	16	22:45	50.2	97.6	0
20190916T225000	2019	09	16	22:50	50	97.5	0
20190916T225500	2019	09	16	22:55	49.9	97.7	0
20190916T230000	2019	09	16	23:00	49.9	97.8	0
20190916T230500	2019	09	16	23:05	49.7	97.9	0
20190916T231000	2019	09	16	23:10	49.4	97.8	0
20190916T231500	2019	09	16	23:15	49.1	97.9	0
20190916T232000	2019	09	16	23:20	49.2	98	0
20190916T232500	2019	09	16	23:25	48.9	98.1	0
20190916T233000	2019	09	16	23:30	48.8	98.2	0
20190916T233500	2019	09	16	23:35	48.6	98.1	0
20190916T234000	2019	09	16	23:40	48.7	98.4	0
20190916T234500	2019	09	16	23:45	48.7	98.2	0
20190916T235000	2019	09	16	23:50	48.6	98.4	0
20190916T235500	2019	09	16	23:55	48.2	98.5	0
20190917T000000	2019	09	17	00:00	48.1	98.4	0
20190917T000500	2019	09	17	00:05	48.8	98.7	0
20190917T001000	2019	09	17	00:10	48.7	98.9	0
20190917T001500	2019	09	17	00:15	48.1	98.8	0
20190917T002000	2019	09	17	00:20	47.6	98.6	0
20190917T002500	2019	09	17	00:25	47.5	98.5	0
20190917T003000	2019	09	17	00:30	47.7	98.6	0
20190917T003500	2019	09	17	00:35	47.6	98.7	0
20190917T004000	2019	09	17	00:40	47.6	98.7	0
20190917T004500	2019	09	17	00:45	47.8	98.8	0
20190917T005000	2019	09	17	00:50	48.1	98.9	0
20190917T005500	2019	09	17	00:55	47.2	98.9	0
20190917T010000	2019	09	17	01:00	47.6	98.8	0
20190917T010500	2019	09	17	01:05	47.3	98.9	0
20190917T011000	2019	09	17	01:10	47	98.8	0
20190917T011500	2019	09	17	01:15	47.3	98.9	0
20190917T012000	2019	09	17	01:20	47.1	99	0
20190917T012500	2019	09	17	01:25	47.2	98.9	0
20190917T013000	2019	09	17	01:30	47	98.9	0
20190917T013500	2019	09	17	01:35	46.6	99	0
20190917T014000	2019	09	17	01:40	46.4	98.9	0
20190917T014500	2019	09	17	01:45	46.6	99	0
20190917T015000	2019	09	17	01:50	46.5	99	0
20190917T015500	2019	09	17	01:55	46	99	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190917T020000	2019	09	17	02:00	46.1	99	0
20190917T020500	2019	09	17	02:05	46.3	99.1	0
20190917T021000	2019	09	17	02:10	45.9	99.2	0
20190917T021500	2019	09	17	02:15	45.9	99.2	0
20190917T022000	2019	09	17	02:20	46.2	99.1	0
20190917T022500	2019	09	17	02:25	46.2	99.2	0
20190917T023000	2019	09	17	02:30	46.4	99.2	0
20190917T023500	2019	09	17	02:35	46.2	99.2	0
20190917T024000	2019	09	17	02:40	46	99.2	0
20190917T024500	2019	09	17	02:45	45.8	99.2	0
20190917T025000	2019	09	17	02:50	45.8	99.2	0
20190917T025500	2019	09	17	02:55	45.5	99.2	0
20190917T030000	2019	09	17	03:00	45.8	99.2	0
20190917T030500	2019	09	17	03:05	45.9	99.2	0
20190917T031000	2019	09	17	03:10	45.8	99.3	0
20190917T031500	2019	09	17	03:15	45.4	99.3	0
20190917T032000	2019	09	17	03:20	45.6	99.2	0
20190917T032500	2019	09	17	03:25	45.6	99.2	0
20190917T033000	2019	09	17	03:30	45.9	99.4	0
20190917T033500	2019	09	17	03:35	45.6	99.4	0
20190917T034000	2019	09	17	03:40	44.9	99.3	0
20190917T034500	2019	09	17	03:45	45.1	99.2	0
20190917T035000	2019	09	17	03:50	45.2	99.3	0
20190917T035500	2019	09	17	03:55	45.1	99.4	0
20190917T040000	2019	09	17	04:00	45	99.3	0
20190917T040500	2019	09	17	04:05	45	99.3	0
20190917T041000	2019	09	17	04:10	44.9	99.3	0
20190917T041500	2019	09	17	04:15	44.9	99.3	0
20190917T042000	2019	09	17	04:20	44.6	99.3	0
20190917T042500	2019	09	17	04:25	44.3	99.4	0
20190917T043000	2019	09	17	04:30	44.4	99.4	0
20190917T043500	2019	09	17	04:35	44.6	99.4	0
20190917T044000	2019	09	17	04:40	44.4	99.4	0
20190917T044500	2019	09	17	04:45	44.5	99.5	0
20190917T045000	2019	09	17	04:50	44.4	99.4	0
20190917T045500	2019	09	17	04:55	44.3	99.4	0
20190917T050000	2019	09	17	05:00	44.2	99.4	0
20190917T050500	2019	09	17	05:05	44.2	99.4	0
20190917T051000	2019	09	17	05:10	44.2	99.4	0
20190917T051500	2019	09	17	05:15	44.1	99.4	0
20190917T052000	2019	09	17	05:20	44.2	99.4	0
20190917T052500	2019	09	17	05:25	44.2	99.5	0
20190917T053000	2019	09	17	05:30	44.1	99.5	0
20190917T053500	2019	09	17	05:35	44.5	99.5	0
20190917T054000	2019	09	17	05:40	43.7	99.5	0
20190917T054500	2019	09	17	05:45	43.7	99.4	0
20190917T055000	2019	09	17	05:50	43.8	99.4	0
20190917T055500	2019	09	17	05:55	43.3	99.5	0
20190917T060000	2019	09	17	06:00	43.3	99.5	0
20190917T060500	2019	09	17	06:05	43.2	99.5	0
20190917T061000	2019	09	17	06:10	43	99.5	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190917T061500	2019	09	17	06:15	43.2	99.5	0
20190917T062000	2019	09	17	06:20	43.5	99.5	0
20190917T062500	2019	09	17	06:25	43.7	99.6	0
20190917T063000	2019	09	17	06:30	42.9	99.6	0
20190917T063500	2019	09	17	06:35	43	99.6	0
20190917T064000	2019	09	17	06:40	43.1	99.6	0
20190917T064500	2019	09	17	06:45	43.1	99.6	0
20190917T065000	2019	09	17	06:50	43.1	99.6	0
20190917T065500	2019	09	17	06:55	43.2	99.6	0
20190917T070000	2019	09	17	07:00	43.4	99.6	0
20190917T070500	2019	09	17	07:05	43.6	99.6	0
20190917T071000	2019	09	17	07:10	43.8	99.7	0
20190917T071500	2019	09	17	07:15	43.8	99.6	0
20190917T072000	2019	09	17	07:20	44.1	99.8	0
20190917T072500	2019	09	17	07:25	44.9	99.8	0
20190917T073000	2019	09	17	07:30	45.6	99.7	0
20190917T073500	2019	09	17	07:35	46.3	99.5	0
20190917T074000	2019	09	17	07:40	46.9	99.9	0
20190917T074500	2019	09	17	07:45	47.7	99.7	0
20190917T075000	2019	09	17	07:50	48.2	99.5	0
20190917T075500	2019	09	17	07:55	48.8	99.6	0
20190917T080000	2019	09	17	08:00	49.5	99.7	0
20190917T080500	2019	09	17	08:05	50.1	99.6	0
20190917T081000	2019	09	17	08:10	50.9	99.6	0
20190917T081500	2019	09	17	08:15	51.5	99.4	0
20190917T082000	2019	09	17	08:20	52.3	99.3	0
20190917T082500	2019	09	17	08:25	53.3	99.2	0
20190917T083000	2019	09	17	08:30	53.8	98.9	0
20190917T083500	2019	09	17	08:35	54.4	98.3	0
20190917T084000	2019	09	17	08:40	55.1	96.5	0
20190917T084500	2019	09	17	08:45	55.5	93.7	0
20190917T085000	2019	09	17	08:50	55.8	91.7	0
20190917T085500	2019	09	17	08:55	56.1	90.6	0
20190917T090000	2019	09	17	09:00	56.8	90.5	0
20190917T090500	2019	09	17	09:05	57.8	89.9	0
20190917T091000	2019	09	17	09:10	58	87.7	0
20190917T091500	2019	09	17	09:15	58.4	86.6	0
20190917T092000	2019	09	17	09:20	58.4	84.5	0
20190917T092500	2019	09	17	09:25	58.6	84.7	0
20190917T093000	2019	09	17	09:30	59.3	83.1	0
20190917T093500	2019	09	17	09:35	59.6	78.2	0
20190917T094000	2019	09	17	09:40	59.6	77.4	0
20190917T094500	2019	09	17	09:45	60.1	77.8	0
20190917T095000	2019	09	17	09:50	60.4	76.1	0
20190917T095500	2019	09	17	09:55	60.3	75.3	0
20190917T100000	2019	09	17	10:00	60.7	74.9	0
20190917T100500	2019	09	17	10:05	61	72.8	0
20190917T101000	2019	09	17	10:10	61.6	74.2	0
20190917T101500	2019	09	17	10:15	61.3	72.8	0
20190917T102000	2019	09	17	10:20	61.7	73.3	0
20190917T102500	2019	09	17	10:25	62.4	73.9	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190917T103000	2019	09	17	10:30	62.6	70.5	0
20190917T103500	2019	09	17	10:35	63	69.7	0
20190917T104000	2019	09	17	10:40	63	69.1	0
20190917T104500	2019	09	17	10:45	64.2	68.4	0
20190917T105000	2019	09	17	10:50	64.1	69.5	0
20190917T105500	2019	09	17	10:55	64	68.3	0
20190917T110000	2019	09	17	11:00	64.4	67.4	0
20190917T110500	2019	09	17	11:05	64.6	69.2	0
20190917T111000	2019	09	17	11:10	65.5	69.2	0
20190917T111500	2019	09	17	11:15	65.4	66.4	0
20190917T112000	2019	09	17	11:20	65.2	66.5	0
20190917T112500	2019	09	17	11:25	65.9	66.4	0
20190917T113000	2019	09	17	11:30	66.5	66.3	0
20190917T113500	2019	09	17	11:35	66.4	62	0
20190917T114000	2019	09	17	11:40	66.7	63.2	0
20190917T114500	2019	09	17	11:45	67.4	63.6	0
20190917T115000	2019	09	17	11:50	67.1	61.2	0
20190917T115500	2019	09	17	11:55	67.1	60.9	0
20190917T120000	2019	09	17	12:00	67.2	60.1	0
20190917T120500	2019	09	17	12:05	67.3	60.7	0
20190917T121000	2019	09	17	12:10	68.4	61.1	0
20190917T121500	2019	09	17	12:15	68.4	59.5	0
20190917T122000	2019	09	17	12:20	68.7	59.6	0
20190917T122500	2019	09	17	12:25	68.8	59.4	0
20190917T123000	2019	09	17	12:30	68.7	57.2	0
20190917T123500	2019	09	17	12:35	69.1	56.2	0
20190917T124000	2019	09	17	12:40	69.2	56.8	0
20190917T124500	2019	09	17	12:45	69.9	55	0
20190917T125000	2019	09	17	12:50	69.8	57.3	0
20190917T125500	2019	09	17	12:55	69.5	56.5	0
20190917T130000	2019	09	17	13:00	70.5	54.3	0
20190917T130500	2019	09	17	13:05	70	53.6	0
20190917T131000	2019	09	17	13:10	70.1	53.9	0
20190917T131500	2019	09	17	13:15	70.1	53	0
20190917T132000	2019	09	17	13:20	70.1	54.3	0
20190917T132500	2019	09	17	13:25	70.2	54.9	0
20190917T133000	2019	09	17	13:30	70.8	55.2	0
20190917T133500	2019	09	17	13:35	70.6	55.5	0
20190917T134000	2019	09	17	13:40	70.8	55	0
20190917T134500	2019	09	17	13:45	71.6	56.8	0
20190917T135000	2019	09	17	13:50	71.5	55.6	0
20190917T135500	2019	09	17	13:55	70.5	54.9	0
20190917T140000	2019	09	17	14:00	71.2	53.2	0
20190917T140500	2019	09	17	14:05	71.8	53.6	0
20190917T141000	2019	09	17	14:10	71.4	53.5	0
20190917T141500	2019	09	17	14:15	70.6	52.4	0
20190917T142000	2019	09	17	14:20	71.4	52.7	0
20190917T142500	2019	09	17	14:25	71.6	52.6	0
20190917T143000	2019	09	17	14:30	72.1	53.1	0
20190917T143500	2019	09	17	14:35	72	50.2	0
20190917T144000	2019	09	17	14:40	71.6	49.3	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190917T144500	2019	09	17	14:45	71.8	49.9	0
20190917T145000	2019	09	17	14:50	71.9	50.6	0
20190917T145500	2019	09	17	14:55	72.2	48.9	0
20190917T150000	2019	09	17	15:00	71.5	48.1	0
20190917T150500	2019	09	17	15:05	71.8	49.7	0
20190917T151000	2019	09	17	15:10	71.6	48.5	0
20190917T151500	2019	09	17	15:15	71.2	46.2	0
20190917T152000	2019	09	17	15:20	71.6	49.2	0
20190917T152500	2019	09	17	15:25	71.4	48.2	0
20190917T153000	2019	09	17	15:30	71.7	48.3	0
20190917T153500	2019	09	17	15:35	71.4	46.7	0
20190917T154000	2019	09	17	15:40	71.8	46.3	0
20190917T154500	2019	09	17	15:45	71.4	44.4	0
20190917T155000	2019	09	17	15:50	71.7	46.7	0
20190917T155500	2019	09	17	15:55	71.5	46.6	0
20190917T160000	2019	09	17	16:00	71.4	44.6	0
20190917T160500	2019	09	17	16:05	71.1	45.2	0
20190917T161000	2019	09	17	16:10	70.9	45.8	0
20190917T161500	2019	09	17	16:15	70.8	45.9	0
20190917T162000	2019	09	17	16:20	70.7	45.7	0
20190917T162500	2019	09	17	16:25	70.7	46.5	0
20190917T163000	2019	09	17	16:30	70.5	47	0
20190917T163500	2019	09	17	16:35	70.6	47.5	0
20190917T164000	2019	09	17	16:40	70.4	47	0
20190917T164500	2019	09	17	16:45	70.2	47.6	0
20190917T165000	2019	09	17	16:50	70	48.3	0
20190917T165500	2019	09	17	16:55	70.1	48.8	0
20190917T170000	2019	09	17	17:00	69.8	48.3	0
20190917T170500	2019	09	17	17:05	69.6	48.6	0
20190917T171000	2019	09	17	17:10	69.5	48.1	0
20190917T171500	2019	09	17	17:15	69.3	48.6	0
20190917T172000	2019	09	17	17:20	69.4	49.6	0
20190917T172500	2019	09	17	17:25	69.2	48.7	0
20190917T173000	2019	09	17	17:30	68.7	49.7	0
20190917T173500	2019	09	17	17:35	68.7	49.4	0
20190917T174000	2019	09	17	17:40	68.4	50.7	0
20190917T174500	2019	09	17	17:45	68.1	51.4	0
20190917T175000	2019	09	17	17:50	68.1	51.8	0
20190917T175500	2019	09	17	17:55	67.8	51.1	0
20190917T180000	2019	09	17	18:00	67.6	52.9	0
20190917T180500	2019	09	17	18:05	67.1	51.8	0
20190917T181000	2019	09	17	18:10	66.8	52	0
20190917T181500	2019	09	17	18:15	66.6	52	0
20190917T182000	2019	09	17	18:20	66.2	52.8	0
20190917T182500	2019	09	17	18:25	65.5	55.1	0
20190917T183000	2019	09	17	18:30	65.3	57.6	0
20190917T183500	2019	09	17	18:35	65.4	56.1	0
20190917T184000	2019	09	17	18:40	64.3	58.9	0
20190917T184500	2019	09	17	18:45	63.8	60.3	0
20190917T185000	2019	09	17	18:50	63.6	61.4	0
20190917T185500	2019	09	17	18:55	62.8	64.3	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190917T190000	2019	09	17	19:00	61.9	66.3	0
20190917T190500	2019	09	17	19:05	60.6	68.4	0
20190917T191000	2019	09	17	19:10	60.3	68.9	0
20190917T191500	2019	09	17	19:15	58.5	71.9	0
20190917T192000	2019	09	17	19:20	57.1	74.9	0
20190917T192500	2019	09	17	19:25	56.4	77.3	0
20190917T193000	2019	09	17	19:30	55.7	79.9	0
20190917T193500	2019	09	17	19:35	55.1	83.3	0
20190917T194000	2019	09	17	19:40	54.2	86.5	0
20190917T194500	2019	09	17	19:45	53.7	88.1	0
20190917T195000	2019	09	17	19:50	53.3	90	0
20190917T195500	2019	09	17	19:55	52.9	91.2	0
20190917T200000	2019	09	17	20:00	52.8	91.5	0
20190917T200500	2019	09	17	20:05	52.4	91.9	0
20190917T201000	2019	09	17	20:10	52.2	92.7	0
20190917T201500	2019	09	17	20:15	52.1	93.3	0
20190917T202000	2019	09	17	20:20	52.1	94.2	0
20190917T202500	2019	09	17	20:25	52	93.8	0
20190917T203000	2019	09	17	20:30	51.8	93.8	0
20190917T203500	2019	09	17	20:35	51.9	94.4	0
20190917T204000	2019	09	17	20:40	51.5	94.6	0
20190917T204500	2019	09	17	20:45	51	94.8	0
20190917T205000	2019	09	17	20:50	50.9	95.4	0
20190917T205500	2019	09	17	20:55	50.6	94.8	0
20190917T210000	2019	09	17	21:00	50.5	95.2	0
20190917T210500	2019	09	17	21:05	50.5	95.9	0
20190917T211000	2019	09	17	21:10	51.1	96.3	0
20190917T211500	2019	09	17	21:15	50.5	96	0
20190917T212000	2019	09	17	21:20	50.2	95.9	0
20190917T212500	2019	09	17	21:25	49.9	95.9	0
20190917T213000	2019	09	17	21:30	49.7	95.9	0
20190917T213500	2019	09	17	21:35	49.4	95.9	0
20190917T214000	2019	09	17	21:40	49.3	96.3	0
20190917T214500	2019	09	17	21:45	49.5	96.9	0
20190917T215000	2019	09	17	21:50	49.3	97.2	0
20190917T215500	2019	09	17	21:55	49.5	97.2	0
20190917T220000	2019	09	17	22:00	49.1	97.3	0
20190917T220500	2019	09	17	22:05	48.9	96.9	0
20190917T221000	2019	09	17	22:10	48.8	97.1	0
20190917T221500	2019	09	17	22:15	48.7	97.1	0
20190917T222000	2019	09	17	22:20	49	97.4	0
20190917T222500	2019	09	17	22:25	48.7	97.5	0
20190917T223000	2019	09	17	22:30	48.5	97.4	0
20190917T223500	2019	09	17	22:35	48.2	97.3	0
20190917T224000	2019	09	17	22:40	48.2	97.5	0
20190917T224500	2019	09	17	22:45	48	97.6	0
20190917T225000	2019	09	17	22:50	48.1	97.6	0
20190917T225500	2019	09	17	22:55	48.1	97.9	0
20190917T230000	2019	09	17	23:00	47.9	97.9	0
20190917T230500	2019	09	17	23:05	47.8	97.8	0
20190917T231000	2019	09	17	23:10	47.9	98	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190917T231500	2019	09	17	23:15	48.2	98	0
20190917T232000	2019	09	17	23:20	48.2	98.2	0
20190917T232500	2019	09	17	23:25	47.8	98.1	0
20190917T233000	2019	09	17	23:30	47.6	98	0
20190917T233500	2019	09	17	23:35	47.4	98.1	0
20190917T234000	2019	09	17	23:40	47.2	98.1	0
20190917T234500	2019	09	17	23:45	47.3	98	0
20190917T235000	2019	09	17	23:50	47.1	98.1	0
20190917T235500	2019	09	17	23:55	47	98.2	0
20190918T000000	2019	09	18	00:00	46.7	98.2	0
20190918T000500	2019	09	18	00:05	47.1	98.2	0
20190918T001000	2019	09	18	00:10	46.8	98.3	0
20190918T001500	2019	09	18	00:15	46.3	98.3	0
20190918T002000	2019	09	18	00:20	46.4	98.4	0
20190918T002500	2019	09	18	00:25	46.2	98.5	0
20190918T003000	2019	09	18	00:30	46.1	98.3	0
20190918T003500	2019	09	18	00:35	46	98.5	0
20190918T004000	2019	09	18	00:40	45.8	98.5	0
20190918T004500	2019	09	18	00:45	46	98.6	0
20190918T005000	2019	09	18	00:50	46.3	98.7	0
20190918T005500	2019	09	18	00:55	46.2	98.7	0
20190918T010000	2019	09	18	01:00	45.9	98.8	0
20190918T010500	2019	09	18	01:05	46	98.7	0
20190918T011000	2019	09	18	01:10	46.3	98.8	0
20190918T011500	2019	09	18	01:15	45.5	98.9	0
20190918T012000	2019	09	18	01:20	45.5	98.9	0
20190918T012500	2019	09	18	01:25	45.6	98.9	0
20190918T013000	2019	09	18	01:30	46.3	99	0
20190918T013500	2019	09	18	01:35	45.8	98.9	0
20190918T014000	2019	09	18	01:40	45.7	98.8	0
20190918T014500	2019	09	18	01:45	45.4	98.8	0
20190918T015000	2019	09	18	01:50	45.1	98.8	0
20190918T015500	2019	09	18	01:55	45.2	98.9	0
20190918T020000	2019	09	18	02:00	44.9	99	0
20190918T020500	2019	09	18	02:05	45.9	99.2	0
20190918T021000	2019	09	18	02:10	45.6	99.1	0
20190918T021500	2019	09	18	02:15	46.3	99.3	0
20190918T022000	2019	09	18	02:20	45.1	99.1	0
20190918T022500	2019	09	18	02:25	45.1	99.1	0
20190918T023000	2019	09	18	02:30	44.6	98.9	0
20190918T023500	2019	09	18	02:35	44.6	99	0
20190918T024000	2019	09	18	02:40	44.6	99	0
20190918T024500	2019	09	18	02:45	44.7	99	0
20190918T025000	2019	09	18	02:50	44.7	99.1	0
20190918T025500	2019	09	18	02:55	44.4	99.1	0
20190918T030000	2019	09	18	03:00	44.1	99.1	0
20190918T030500	2019	09	18	03:05	44.3	99.1	0
20190918T031000	2019	09	18	03:10	44.6	99.2	0
20190918T031500	2019	09	18	03:15	44.3	99.1	0
20190918T032000	2019	09	18	03:20	44.3	99.2	0
20190918T032500	2019	09	18	03:25	44.4	99.2	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190918T033000	2019	09	18	03:30	44.3	99.1	0
20190918T033500	2019	09	18	03:35	44.3	99.2	0
20190918T034000	2019	09	18	03:40	44.3	99.2	0
20190918T034500	2019	09	18	03:45	44.4	99.3	0
20190918T035000	2019	09	18	03:50	43.8	99.2	0
20190918T035500	2019	09	18	03:55	43.7	99.2	0
20190918T040000	2019	09	18	04:00	43.5	99.2	0
20190918T040500	2019	09	18	04:05	43.8	99.2	0
20190918T041000	2019	09	18	04:10	43.9	99.3	0
20190918T041500	2019	09	18	04:15	43.9	99.3	0
20190918T042000	2019	09	18	04:20	43	99.1	0
20190918T042500	2019	09	18	04:25	43.1	99.2	0
20190918T043000	2019	09	18	04:30	43.5	99.3	0
20190918T043500	2019	09	18	04:35	43.4	99.3	0
20190918T044000	2019	09	18	04:40	43.5	99.3	0
20190918T044500	2019	09	18	04:45	43.3	99.3	0
20190918T045000	2019	09	18	04:50	43.6	99.3	0
20190918T045500	2019	09	18	04:55	43.7	99.3	0
20190918T050000	2019	09	18	05:00	43.7	99.4	0
20190918T050500	2019	09	18	05:05	43	99.2	0
20190918T051000	2019	09	18	05:10	43	99.3	0
20190918T051500	2019	09	18	05:15	43.2	99.4	0
20190918T052000	2019	09	18	05:20	43.2	99.4	0
20190918T052500	2019	09	18	05:25	43.2	99.4	0
20190918T053000	2019	09	18	05:30	43.1	99.3	0
20190918T053500	2019	09	18	05:35	43.1	99.4	0
20190918T054000	2019	09	18	05:40	42.8	99.4	0
20190918T054500	2019	09	18	05:45	42.8	99.4	0
20190918T055000	2019	09	18	05:50	42.9	99.4	0
20190918T055500	2019	09	18	05:55	43.1	99.4	0
20190918T060000	2019	09	18	06:00	43.3	99.4	0
20190918T060500	2019	09	18	06:05	43.7	99.5	0
20190918T061000	2019	09	18	06:10	43.1	99.5	0
20190918T061500	2019	09	18	06:15	43.7	99.6	0
20190918T062000	2019	09	18	06:20	42.7	99.4	0
20190918T062500	2019	09	18	06:25	42.9	99.4	0
20190918T063000	2019	09	18	06:30	43	99.4	0
20190918T063500	2019	09	18	06:35	42.7	99.4	0
20190918T064000	2019	09	18	06:40	42.9	99.4	0
20190918T064500	2019	09	18	06:45	43.1	99.5	0
20190918T065000	2019	09	18	06:50	43.2	99.5	0
20190918T065500	2019	09	18	06:55	44.6	99.7	0
20190918T070000	2019	09	18	07:00	44	99.7	0
20190918T070500	2019	09	18	07:05	43.9	99.6	0
20190918T071000	2019	09	18	07:10	43.5	99.6	0
20190918T071500	2019	09	18	07:15	43.3	99.5	0
20190918T072000	2019	09	18	07:20	43.9	99.6	0
20190918T072500	2019	09	18	07:25	44.6	99.6	0
20190918T073000	2019	09	18	07:30	46.1	99.7	0
20190918T073500	2019	09	18	07:35	46.9	99.8	0
20190918T074000	2019	09	18	07:40	47.9	99.7	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190918T074500	2019	09	18	07:45	49	99.7	0
20190918T075000	2019	09	18	07:50	49.9	99.9	0
20190918T075500	2019	09	18	07:55	50.7	99.7	0
20190918T080000	2019	09	18	08:00	51.1	99.4	0
20190918T080500	2019	09	18	08:05	51.7	99.6	0
20190918T081000	2019	09	18	08:10	52.3	99.5	0
20190918T081500	2019	09	18	08:15	52.8	99.1	0
20190918T082000	2019	09	18	08:20	53.1	98.8	0
20190918T082500	2019	09	18	08:25	53.7	98.1	0
20190918T083000	2019	09	18	08:30	54	96.1	0
20190918T083500	2019	09	18	08:35	54.6	93.6	0
20190918T084000	2019	09	18	08:40	55.3	90.8	0
20190918T084500	2019	09	18	08:45	55.2	87.5	0
20190918T085000	2019	09	18	08:50	55.5	87.6	0
20190918T085500	2019	09	18	08:55	55.8	87.2	0
20190918T090000	2019	09	18	09:00	56.1	85.2	0
20190918T090500	2019	09	18	09:05	56.7	84.9	0
20190918T091000	2019	09	18	09:10	57.3	83.6	0
20190918T091500	2019	09	18	09:15	57.8	82.6	0
20190918T092000	2019	09	18	09:20	58.2	77.7	0
20190918T092500	2019	09	18	09:25	58.2	76	0
20190918T093000	2019	09	18	09:30	58.7	76.5	0
20190918T093500	2019	09	18	09:35	59.8	75.3	0
20190918T094000	2019	09	18	09:40	59.7	73.4	0
20190918T094500	2019	09	18	09:45	60.2	71.9	0
20190918T095000	2019	09	18	09:50	60.4	68.9	0
20190918T095500	2019	09	18	09:55	60.5	69.6	0
20190918T100000	2019	09	18	10:00	61	70	0
20190918T100500	2019	09	18	10:05	61.8	68	0
20190918T101000	2019	09	18	10:10	62.4	66.2	0
20190918T101500	2019	09	18	10:15	62.9	63.2	0
20190918T102000	2019	09	18	10:20	63	62.9	0
20190918T102500	2019	09	18	10:25	63.6	62	0
20190918T103000	2019	09	18	10:30	63.3	61.2	0
20190918T103500	2019	09	18	10:35	63.5	61.9	0
20190918T104000	2019	09	18	10:40	64.3	62.2	0
20190918T104500	2019	09	18	10:45	64.2	61.8	0
20190918T105000	2019	09	18	10:50	64.2	60.9	0
20190918T105500	2019	09	18	10:55	64.6	60.7	0
20190918T110000	2019	09	18	11:00	64.8	60.2	0
20190918T110500	2019	09	18	11:05	65.4	58.6	0
20190918T111000	2019	09	18	11:10	65.4	57.5	0
20190918T111500	2019	09	18	11:15	65.6	59.7	0
20190918T112000	2019	09	18	11:20	65.6	59	0
20190918T112500	2019	09	18	11:25	65.4	59.9	0
20190918T113000	2019	09	18	11:30	66.3	58.2	0
20190918T113500	2019	09	18	11:35	65.5	56.4	0
20190918T114000	2019	09	18	11:40	66.5	57.3	0
20190918T114500	2019	09	18	11:45	66.9	57.7	0
20190918T115000	2019	09	18	11:50	67.6	57.8	0
20190918T115500	2019	09	18	11:55	67.5	56.7	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190918T120000	2019	09	18	12:00	67.8	56.3	0
20190918T120500	2019	09	18	12:05	68.1	55.7	0
20190918T121000	2019	09	18	12:10	68.1	56.1	0
20190918T121500	2019	09	18	12:15	68.7	52.9	0
20190918T122000	2019	09	18	12:20	68.9	53.1	0
20190918T122500	2019	09	18	12:25	69	52.5	0
20190918T123000	2019	09	18	12:30	68.9	47.3	0
20190918T123500	2019	09	18	12:35	69.1	47.8	0
20190918T124000	2019	09	18	12:40	69.3	45.7	0
20190918T124500	2019	09	18	12:45	69.3	45.9	0
20190918T125000	2019	09	18	12:50	68.5	45	0
20190918T125500	2019	09	18	12:55	69.3	45.5	0
20190918T130000	2019	09	18	13:00	69.6	44.5	0
20190918T130500	2019	09	18	13:05	69.7	45.4	0
20190918T131000	2019	09	18	13:10	70.2	44	0
20190918T131500	2019	09	18	13:15	70.4	44.8	0
20190918T132000	2019	09	18	13:20	71.6	46.9	0
20190918T132500	2019	09	18	13:25	71.3	43.7	0
20190918T133000	2019	09	18	13:30	71.4	44	0
20190918T133500	2019	09	18	13:35	71.6	41.8	0
20190918T134000	2019	09	18	13:40	71.4	42.2	0
20190918T134500	2019	09	18	13:45	71.7	41.8	0
20190918T135000	2019	09	18	13:50	71.6	40.2	0
20190918T135500	2019	09	18	13:55	72.2	41	0
20190918T140000	2019	09	18	14:00	71.7	38.7	0
20190918T140500	2019	09	18	14:05	72.1	40.8	0
20190918T141000	2019	09	18	14:10	72.1	40.3	0
20190918T141500	2019	09	18	14:15	71.6	40	0
20190918T142000	2019	09	18	14:20	72	39.8	0
20190918T142500	2019	09	18	14:25	71.9	40.3	0
20190918T143000	2019	09	18	14:30	72.1	39.3	0
20190918T143500	2019	09	18	14:35	72.1	38.6	0
20190918T144000	2019	09	18	14:40	72.3	37.6	0
20190918T144500	2019	09	18	14:45	72.3	37.9	0
20190918T145000	2019	09	18	14:50	72.9	39.4	0
20190918T145500	2019	09	18	14:55	73.1	38.9	0
20190918T150000	2019	09	18	15:00	72.1	34.8	0
20190918T150500	2019	09	18	15:05	72	35.2	0
20190918T151000	2019	09	18	15:10	72.7	35.9	0
20190918T151500	2019	09	18	15:15	72.4	35.9	0
20190918T152000	2019	09	18	15:20	72.5	37	0
20190918T152500	2019	09	18	15:25	72.4	37.6	0
20190918T153000	2019	09	18	15:30	72.1	37.2	0
20190918T153500	2019	09	18	15:35	71.9	37.4	0
20190918T154000	2019	09	18	15:40	72.3	38.4	0
20190918T154500	2019	09	18	15:45	72.3	37.4	0
20190918T155000	2019	09	18	15:50	72.1	35.1	0
20190918T155500	2019	09	18	15:55	72	36.1	0
20190918T160000	2019	09	18	16:00	71.9	35.8	0
20190918T160500	2019	09	18	16:05	71.9	36.9	0
20190918T161000	2019	09	18	16:10	72	37.7	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190918T161500	2019	09	18	16:15	71.7	37.6	0
20190918T162000	2019	09	18	16:20	71.2	39	0
20190918T162500	2019	09	18	16:25	71.2	39.3	0
20190918T163000	2019	09	18	16:30	71.4	39.7	0
20190918T163500	2019	09	18	16:35	70.6	40.5	0
20190918T164000	2019	09	18	16:40	71.2	42.8	0
20190918T164500	2019	09	18	16:45	71.2	42.4	0
20190918T165000	2019	09	18	16:50	71	43	0
20190918T165500	2019	09	18	16:55	70.8	42.7	0
20190918T170000	2019	09	18	17:00	70.6	42.3	0
20190918T170500	2019	09	18	17:05	70.4	44	0
20190918T171000	2019	09	18	17:10	70.6	44.8	0
20190918T171500	2019	09	18	17:15	70.7	44.5	0
20190918T172000	2019	09	18	17:20	70.4	44	0
20190918T172500	2019	09	18	17:25	70	45.1	0
20190918T173000	2019	09	18	17:30	69.3	47.9	0
20190918T173500	2019	09	18	17:35	68.6	51.2	0
20190918T174000	2019	09	18	17:40	68.9	50.1	0
20190918T174500	2019	09	18	17:45	69.2	49.4	0
20190918T175000	2019	09	18	17:50	68.7	50.4	0
20190918T175500	2019	09	18	17:55	68.8	52.5	0
20190918T180000	2019	09	18	18:00	68.8	52.7	0
20190918T180500	2019	09	18	18:05	68.7	53.1	0
20190918T181000	2019	09	18	18:10	68.8	55.2	0
20190918T181500	2019	09	18	18:15	68.7	53.2	0
20190918T182000	2019	09	18	18:20	68.1	53.7	0
20190918T182500	2019	09	18	18:25	67	56.9	0
20190918T183000	2019	09	18	18:30	65.8	59.7	0
20190918T183500	2019	09	18	18:35	64.6	64.2	0
20190918T184000	2019	09	18	18:40	63.7	68.9	0
20190918T184500	2019	09	18	18:45	63.3	72.2	0
20190918T185000	2019	09	18	18:50	63	74	0
20190918T185500	2019	09	18	18:55	62.5	74.9	0
20190918T190000	2019	09	18	19:00	62.1	76	0
20190918T190500	2019	09	18	19:05	61.9	76.6	0
20190918T191000	2019	09	18	19:10	61.3	77.7	0
20190918T191500	2019	09	18	19:15	60.9	79	0
20190918T192000	2019	09	18	19:20	60.7	79.7	0
20190918T192500	2019	09	18	19:25	60.1	80.5	0
20190918T193000	2019	09	18	19:30	60.1	80.6	0
20190918T193500	2019	09	18	19:35	59.8	80.3	0
20190918T194000	2019	09	18	19:40	58.5	81	0
20190918T194500	2019	09	18	19:45	57.3	82.6	0
20190918T195000	2019	09	18	19:50	56.6	84.7	0
20190918T195500	2019	09	18	19:55	56.2	86.6	0
20190918T200000	2019	09	18	20:00	55.5	88.1	0
20190918T200500	2019	09	18	20:05	55.3	90.2	0
20190918T201000	2019	09	18	20:10	55.2	91.4	0
20190918T201500	2019	09	18	20:15	53.8	91	0
20190918T202000	2019	09	18	20:20	53.4	92.2	0
20190918T202500	2019	09	18	20:25	53.2	92.9	0

Table C-1: Summer SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20190918T203000	2019	09	18	20:30	53	93.6	0
20190918T203500	2019	09	18	20:35	52.8	94.5	0
20190918T204000	2019	09	18	20:40	52.8	95.1	0
20190918T204500	2019	09	18	20:45	52.5	95.2	0
20190918T205000	2019	09	18	20:50	52.6	95.7	0
20190918T205500	2019	09	18	20:55	52.7	95.9	0
20190918T210000	2019	09	18	21:00	52.7	96.2	0
20190918T210500	2019	09	18	21:05	51.5	95.5	0
20190918T211000	2019	09	18	21:10	51.4	95.5	0
20190918T211500	2019	09	18	21:15	51.3	95.9	0
20190918T212000	2019	09	18	21:20	51.4	96	0
20190918T212500	2019	09	18	21:25	51.1	96.4	0
20190918T213000	2019	09	18	21:30	50.6	96.3	0
20190918T213500	2019	09	18	21:35	51.4	97.2	0
20190918T214000	2019	09	18	21:40	51.2	96.9	0
20190918T214500	2019	09	18	21:45	51.4	96.8	0
20190918T215000	2019	09	18	21:50	50.9	96.9	0
20190918T215500	2019	09	18	21:55	50.6	97	0
20190918T220000	2019	09	18	22:00	50.2	96.9	0
20190918T220500	2019	09	18	22:05	50.1	96.9	0
20190918T221000	2019	09	18	22:10	50.3	97.1	0
20190918T221500	2019	09	18	22:15	50.3	97.4	0
20190918T222000	2019	09	18	22:20	50.8	97.7	0
20190918T222500	2019	09	18	22:25	50.2	97.6	0
20190918T223000	2019	09	18	22:30	49.3	97.3	0
20190918T223500	2019	09	18	22:35	48.9	97.4	0
20190918T224000	2019	09	18	22:40	48.8	97.6	0
20190918T224500	2019	09	18	22:45	48.7	97.7	0
20190918T225000	2019	09	18	22:50	49	97.7	0
20190918T225500	2019	09	18	22:55	48.5	97.7	0
20190918T230000	2019	09	18	23:00	48.4	97.7	0
20190918T230500	2019	09	18	23:05	48.3	97.9	0
20190918T231000	2019	09	18	23:10	48	97.9	0
20190918T231500	2019	09	18	23:15	48	97.9	0
20190918T232000	2019	09	18	23:20	47.7	98.2	0
20190918T232500	2019	09	18	23:25	47.6	98.3	0
20190918T233000	2019	09	18	23:30	47.8	98.3	0
20190918T233500	2019	09	18	23:35	47.5	98.3	0
20190918T234000	2019	09	18	23:40	47.6	98.3	0
20190918T234500	2019	09	18	23:45	47.7	98.4	0
20190918T235000	2019	09	18	23:50	47	98.2	0
20190918T235500	2019	09	18	23:55	46.9	98.4	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200121T000000	2020	01	21	00:00	19.6	69.1	0
20200121T000500	2020	01	21	00:05	19.8	69.6	0
20200121T001000	2020	01	21	00:10	19.8	70.2	0
20200121T001500	2020	01	21	00:15	19.9	71	0
20200121T002000	2020	01	21	00:20	20	71.5	0
20200121T002500	2020	01	21	00:25	20.3	71.5	0
20200121T003000	2020	01	21	00:30	20.3	71.8	0
20200121T003500	2020	01	21	00:35	20.3	72.4	0
20200121T004000	2020	01	21	00:40	20.4	72.2	0
20200121T004500	2020	01	21	00:45	20.4	72.6	0
20200121T005000	2020	01	21	00:50	20.5	72.6	0
20200121T005500	2020	01	21	00:55	20.6	73.2	0
20200121T010000	2020	01	21	01:00	20.4	74.1	0
20200121T010500	2020	01	21	01:05	20.4	74.1	0
20200121T011000	2020	01	21	01:10	20.1	74	0
20200121T011500	2020	01	21	01:15	20.3	74.5	0
20200121T012000	2020	01	21	01:20	20.6	74.2	0
20200121T012500	2020	01	21	01:25	20.6	74.4	0
20200121T013000	2020	01	21	01:30	20.1	74.3	0
20200121T013500	2020	01	21	01:35	20.2	74.1	0
20200121T014000	2020	01	21	01:40	19.7	74.1	0
20200121T014500	2020	01	21	01:45	19.6	74.5	0
20200121T015000	2020	01	21	01:50	19.2	74.5	0
20200121T015500	2020	01	21	01:55	19.5	74.3	0
20200121T020000	2020	01	21	02:00	19.3	74.2	0
20200121T020500	2020	01	21	02:05	19.1	73.8	0
20200121T021000	2020	01	21	02:10	19.1	73.9	0
20200121T021500	2020	01	21	02:15	19.1	73.3	0
20200121T022000	2020	01	21	02:20	19	72.9	0
20200121T022500	2020	01	21	02:25	18.6	72.9	0
20200121T023000	2020	01	21	02:30	18.5	72.9	0
20200121T023500	2020	01	21	02:35	18.5	72.7	0
20200121T024000	2020	01	21	02:40	17.9	72.8	0
20200121T024500	2020	01	21	02:45	17.6	73.8	0
20200121T025000	2020	01	21	02:50	17.3	73.9	0
20200121T025500	2020	01	21	02:55	17	74.4	0
20200121T030000	2020	01	21	03:00	16.7	74.5	0
20200121T030500	2020	01	21	03:05	16.9	75.1	0
20200121T031000	2020	01	21	03:10	16.4	74.7	0
20200121T031500	2020	01	21	03:15	15.5	74.4	0
20200121T032000	2020	01	21	03:20	16.2	75.3	0
20200121T032500	2020	01	21	03:25	16.5	73.8	0
20200121T033000	2020	01	21	03:30	16.4	72.7	0
20200121T033500	2020	01	21	03:35	15.7	72.3	0
20200121T034000	2020	01	21	03:40	13.1	72.8	0
20200121T034500	2020	01	21	03:45	12.8	76.6	0
20200121T035000	2020	01	21	03:50	11.8	77.9	0
20200121T035500	2020	01	21	03:55	10.5	79.5	0
20200121T040000	2020	01	21	04:00	10.1	82.7	0
20200121T040500	2020	01	21	04:05	10.7	84.4	0
20200121T041000	2020	01	21	04:10	10.2	84	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200121T041500	2020	01	21	04:15	8.7	83.1	0
20200121T042000	2020	01	21	04:20	7.9	82.8	0
20200121T042500	2020	01	21	04:25	6.7	84	0
20200121T043000	2020	01	21	04:30	5.3	84	0
20200121T043500	2020	01	21	04:35	6.2	86.3	0
20200121T044000	2020	01	21	04:40	5.8	88	0
20200121T044500	2020	01	21	04:45	5.2	88.3	0
20200121T045000	2020	01	21	04:50	5	87.8	0
20200121T045500	2020	01	21	04:55	4.5	88.2	0
20200121T050000	2020	01	21	05:00	4.1	88.3	0
20200121T050500	2020	01	21	05:05	3.9	88.7	0
20200121T051000	2020	01	21	05:10	2.6	87.8	0
20200121T051500	2020	01	21	05:15	1.6	87.6	0
20200121T052000	2020	01	21	05:20	2.2	88.2	0
20200121T052500	2020	01	21	05:25	1.6	88.9	0
20200121T053000	2020	01	21	05:30	2.1	88.3	0
20200121T053500	2020	01	21	05:35	2.9	89.3	0
20200121T054000	2020	01	21	05:40	2.2	89	0
20200121T054500	2020	01	21	05:45	2	87.5	0
20200121T055000	2020	01	21	05:50	2.4	88.4	0
20200121T055500	2020	01	21	05:55	2.3	88.4	0
20200121T060000	2020	01	21	06:00	2.5	88.5	0
20200121T060500	2020	01	21	06:05	3.9	89.5	0
20200121T061000	2020	01	21	06:10	2.3	89.2	0
20200121T061500	2020	01	21	06:15	1.8	86	0
20200121T062000	2020	01	21	06:20	3.5	88.3	0
20200121T062500	2020	01	21	06:25	2.6	87.5	0
20200121T063000	2020	01	21	06:30	2.1	85.9	0
20200121T063500	2020	01	21	06:35	1.6	86.3	0
20200121T064000	2020	01	21	06:40	1	85.6	0
20200121T064500	2020	01	21	06:45	0.9	85.3	0
20200121T065000	2020	01	21	06:50	0.9	85.6	0
20200121T065500	2020	01	21	06:55	-0.6	84.8	0
20200121T070000	2020	01	21	07:00	-0.6	84.2	0
20200121T070500	2020	01	21	07:05	-0.1	85.4	0
20200121T071000	2020	01	21	07:10	-0.5	84.7	0
20200121T071500	2020	01	21	07:15	-0.3	85.2	0
20200121T072000	2020	01	21	07:20	-0.6	85.6	0
20200121T072500	2020	01	21	07:25	-1.1	85.2	0
20200121T073000	2020	01	21	07:30	-1.6	84.2	0
20200121T073500	2020	01	21	07:35	-1.3	84.4	0
20200121T074000	2020	01	21	07:40	-0.8	84.7	0
20200121T074500	2020	01	21	07:45	-1	85.1	0
20200121T075000	2020	01	21	07:50	-0.5	85.2	0
20200121T075500	2020	01	21	07:55	0.5	85.8	0
20200121T080000	2020	01	21	08:00	0.9	85.7	0
20200121T080500	2020	01	21	08:05	1	85.7	0
20200121T081000	2020	01	21	08:10	2	85.8	0
20200121T081500	2020	01	21	08:15	2.5	86.5	0
20200121T082000	2020	01	21	08:20	3.1	86	0
20200121T082500	2020	01	21	08:25	4.3	87	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200121T083000	2020	01	21	08:30	5	87.1	0
20200121T083500	2020	01	21	08:35	5.9	87.6	0
20200121T084000	2020	01	21	08:40	7.1	90	0
20200121T084500	2020	01	21	08:45	7.6	90.5	0
20200121T085000	2020	01	21	08:50	8.2	90.3	0
20200121T085500	2020	01	21	08:55	8.7	89.3	0
20200121T090000	2020	01	21	09:00	9.6	89.3	0
20200121T090500	2020	01	21	09:05	10.8	89.1	0
20200121T091000	2020	01	21	09:10	11.6	89.1	0
20200121T091500	2020	01	21	09:15	12.3	88.9	0
20200121T092000	2020	01	21	09:20	13.1	88.5	0
20200121T092500	2020	01	21	09:25	13.5	88	0
20200121T093000	2020	01	21	09:30	13.9	86.8	0
20200121T093500	2020	01	21	09:35	14.6	85.5	0
20200121T094000	2020	01	21	09:40	15.4	82.1	0
20200121T094500	2020	01	21	09:45	16.4	77	0
20200121T095000	2020	01	21	09:50	17.2	75.4	0
20200121T095500	2020	01	21	09:55	17.9	71.4	0
20200121T100000	2020	01	21	10:00	18.2	71.4	0
20200121T100500	2020	01	21	10:05	18.5	71.3	0
20200121T101000	2020	01	21	10:10	18.7	71.4	0
20200121T101500	2020	01	21	10:15	19	71	0
20200121T102000	2020	01	21	10:20	19.2	70.5	0
20200121T102500	2020	01	21	10:25	19.6	68.8	0
20200121T103000	2020	01	21	10:30	19.7	68.4	0
20200121T103500	2020	01	21	10:35	19.8	68.3	0
20200121T104000	2020	01	21	10:40	19.9	68.1	0
20200121T104500	2020	01	21	10:45	20.1	67.6	0
20200121T105000	2020	01	21	10:50	20.2	66.5	0
20200121T105500	2020	01	21	10:55	20.4	66.7	0
20200121T110000	2020	01	21	11:00	20.8	67.4	0
20200121T110500	2020	01	21	11:05	21.1	66.1	0
20200121T111000	2020	01	21	11:10	21.2	64.1	0
20200121T111500	2020	01	21	11:15	21.2	64.4	0
20200121T112000	2020	01	21	11:20	21.4	65.8	0
20200121T112500	2020	01	21	11:25	21.5	65.6	0
20200121T113000	2020	01	21	11:30	21.7	65.7	0
20200121T113500	2020	01	21	11:35	22.1	63.4	0
20200121T114000	2020	01	21	11:40	22.6	61.8	0
20200121T114500	2020	01	21	11:45	23.1	61.3	0
20200121T115000	2020	01	21	11:50	23.7	58	0
20200121T115500	2020	01	21	11:55	23.9	53.8	0
20200121T120000	2020	01	21	12:00	23.8	54.8	0
20200121T120500	2020	01	21	12:05	23.7	57.2	0
20200121T121000	2020	01	21	12:10	23.7	58.3	0
20200121T121500	2020	01	21	12:15	23.8	59.1	0
20200121T122000	2020	01	21	12:20	23.8	59.2	0
20200121T122500	2020	01	21	12:25	23.8	58.2	0
20200121T123000	2020	01	21	12:30	24	59.2	0
20200121T123500	2020	01	21	12:35	24.1	59.3	0
20200121T124000	2020	01	21	12:40	24.3	59.8	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200121T124500	2020	01	21	12:45	24.3	58.9	0
20200121T125000	2020	01	21	12:50	24.4	59.7	0
20200121T125500	2020	01	21	12:55	24.5	60.1	0
20200121T130000	2020	01	21	13:00	24.5	60.3	0
20200121T130500	2020	01	21	13:05	24.5	60.7	0
20200121T131000	2020	01	21	13:10	24.8	60.6	0
20200121T131500	2020	01	21	13:15	24.8	60.1	0
20200121T132000	2020	01	21	13:20	24.8	60.3	0
20200121T132500	2020	01	21	13:25	24.9	60.5	0
20200121T133000	2020	01	21	13:30	25	60.6	0
20200121T133500	2020	01	21	13:35	25.1	60.4	0
20200121T134000	2020	01	21	13:40	25.3	59.8	0
20200121T134500	2020	01	21	13:45	25.3	60.2	0
20200121T135000	2020	01	21	13:50	25.2	60.3	0
20200121T135500	2020	01	21	13:55	25.5	60.7	0
20200121T140000	2020	01	21	14:00	25.6	60.7	0
20200121T140500	2020	01	21	14:05	25.6	61	0
20200121T141000	2020	01	21	14:10	25.9	61.1	0
20200121T141500	2020	01	21	14:15	26	60.6	0
20200121T142000	2020	01	21	14:20	26.1	61.7	0
20200121T142500	2020	01	21	14:25	26.1	62.1	0
20200121T143000	2020	01	21	14:30	26.3	63.2	0
20200121T143500	2020	01	21	14:35	26.5	63.5	0
20200121T144000	2020	01	21	14:40	26.4	64	0
20200121T144500	2020	01	21	14:45	26.3	64.4	0
20200121T145000	2020	01	21	14:50	26.3	63.7	0
20200121T145500	2020	01	21	14:55	26.5	64.8	0
20200121T150000	2020	01	21	15:00	26.5	64.9	0
20200121T150500	2020	01	21	15:05	26.8	64.5	0
20200121T151000	2020	01	21	15:10	27.1	65.4	0
20200121T151500	2020	01	21	15:15	27.6	67.4	0
20200121T152000	2020	01	21	15:20	27.8	68.2	0
20200121T152500	2020	01	21	15:25	27.9	66.5	0
20200121T153000	2020	01	21	15:30	27.9	65.9	0
20200121T153500	2020	01	21	15:35	27.8	66.4	0
20200121T154000	2020	01	21	15:40	27.8	66.5	0
20200121T154500	2020	01	21	15:45	27.8	67.6	0
20200121T155000	2020	01	21	15:50	27.7	69.1	0
20200121T155500	2020	01	21	15:55	27.5	70.2	0
20200121T160000	2020	01	21	16:00	27.4	71.7	0
20200121T160500	2020	01	21	16:05	27.4	72.4	0
20200121T161000	2020	01	21	16:10	27.5	72.1	0
20200121T161500	2020	01	21	16:15	27.5	72.5	0
20200121T162000	2020	01	21	16:20	27.5	72.6	0
20200121T162500	2020	01	21	16:25	27.6	72.4	0
20200121T163000	2020	01	21	16:30	27.8	70.9	0
20200121T163500	2020	01	21	16:35	27.7	71.3	0
20200121T164000	2020	01	21	16:40	27.6	71.7	0
20200121T164500	2020	01	21	16:45	27.6	71.1	0
20200121T165000	2020	01	21	16:50	27.5	71.5	0
20200121T165500	2020	01	21	16:55	27.5	71.5	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200121T170000	2020	01	21	17:00	27.2	71.2	0
20200121T170500	2020	01	21	17:05	27	71.4	0
20200121T171000	2020	01	21	17:10	26.8	71	0
20200121T171500	2020	01	21	17:15	27.1	66.8	0
20200121T172000	2020	01	21	17:20	26.8	64	0
20200121T172500	2020	01	21	17:25	26.4	64.4	0
20200121T173000	2020	01	21	17:30	26	65	0
20200121T173500	2020	01	21	17:35	25.5	65.4	0
20200121T174000	2020	01	21	17:40	25.3	65.6	0
20200121T174500	2020	01	21	17:45	25.5	65.5	0
20200121T175000	2020	01	21	17:50	25	65.6	0
20200121T175500	2020	01	21	17:55	24.9	67	0
20200121T180000	2020	01	21	18:00	24.6	67.1	0
20200121T180500	2020	01	21	18:05	24.3	68	0
20200121T181000	2020	01	21	18:10	23.4	68.2	0
20200121T181500	2020	01	21	18:15	24	69.9	0
20200121T182000	2020	01	21	18:20	24.7	69.5	0
20200121T182500	2020	01	21	18:25	25	69.6	0
20200121T183000	2020	01	21	18:30	25.2	69.8	0
20200121T183500	2020	01	21	18:35	25.6	69.7	0
20200121T184000	2020	01	21	18:40	25.5	69.8	0
20200121T184500	2020	01	21	18:45	25.7	70	0
20200121T185000	2020	01	21	18:50	25.5	70.7	0
20200121T185500	2020	01	21	18:55	26.2	69.8	0
20200121T190000	2020	01	21	19:00	26.6	67.8	0
20200121T190500	2020	01	21	19:05	26.7	66.9	0
20200121T191000	2020	01	21	19:10	26.7	67.1	0
20200121T191500	2020	01	21	19:15	26.7	67.2	0
20200121T192000	2020	01	21	19:20	26.8	66.1	0
20200121T192500	2020	01	21	19:25	26.7	66.6	0
20200121T193000	2020	01	21	19:30	26.7	67	0
20200121T193500	2020	01	21	19:35	26.7	67.2	0
20200121T194000	2020	01	21	19:40	26.6	68.3	0
20200121T194500	2020	01	21	19:45	26.8	67.7	0
20200121T195000	2020	01	21	19:50	26.8	68.1	0
20200121T195500	2020	01	21	19:55	26.9	67.6	0
20200121T200000	2020	01	21	20:00	26.9	66.7	0
20200121T200500	2020	01	21	20:05	26.6	67.7	0
20200121T201000	2020	01	21	20:10	26.4	67.7	0
20200121T201500	2020	01	21	20:15	26.2	67.9	0
20200121T202000	2020	01	21	20:20	25.9	67.4	0
20200121T202500	2020	01	21	20:25	25.4	68	0
20200121T203000	2020	01	21	20:30	25	68.3	0
20200121T203500	2020	01	21	20:35	24.3	68.4	0
20200121T204000	2020	01	21	20:40	24	68.4	0
20200121T204500	2020	01	21	20:45	23.6	68.7	0
20200121T205000	2020	01	21	20:50	23.4	69.1	0
20200121T205500	2020	01	21	20:55	22.6	69.3	0
20200121T210000	2020	01	21	21:00	21.3	71	0
20200121T210500	2020	01	21	21:05	21	73.2	0
20200121T211000	2020	01	21	21:10	21.4	72.7	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200121T211500	2020	01	21	21:15	21.7	71.5	0
20200121T212000	2020	01	21	21:20	22	71.4	0
20200121T212500	2020	01	21	21:25	21.8	70.2	0
20200121T213000	2020	01	21	21:30	21.4	70.8	0
20200121T213500	2020	01	21	21:35	21	71.3	0
20200121T214000	2020	01	21	21:40	21.2	70.2	0
20200121T214500	2020	01	21	21:45	20.4	70.6	0
20200121T215000	2020	01	21	21:50	20.7	71.9	0
20200121T215500	2020	01	21	21:55	20.2	71.2	0
20200121T220000	2020	01	21	22:00	18.4	71.2	0
20200121T220500	2020	01	21	22:05	18.9	73.1	0
20200121T221000	2020	01	21	22:10	18.5	73.6	0
20200121T221500	2020	01	21	22:15	18.9	73.4	0
20200121T222000	2020	01	21	22:20	18.5	73.1	0
20200121T222500	2020	01	21	22:25	17.4	74.8	0
20200121T223000	2020	01	21	22:30	18.4	76.8	0
20200121T223500	2020	01	21	22:35	18.8	78	0
20200121T224000	2020	01	21	22:40	17.8	77.6	0
20200121T224500	2020	01	21	22:45	18.2	78.9	0
20200121T225000	2020	01	21	22:50	16	77.4	0
20200121T225500	2020	01	21	22:55	13	76.6	0
20200121T230000	2020	01	21	23:00	14.3	81	0
20200121T230500	2020	01	21	23:05	15.1	83.4	0
20200121T231000	2020	01	21	23:10	15.6	82.8	0
20200121T231500	2020	01	21	23:15	15.8	82.2	0
20200121T232000	2020	01	21	23:20	14.7	81.1	0
20200121T232500	2020	01	21	23:25	13.6	81.3	0
20200121T233000	2020	01	21	23:30	15.2	82.5	0
20200121T233500	2020	01	21	23:35	16.5	82.3	0
20200121T234000	2020	01	21	23:40	15.4	80.1	0
20200121T234500	2020	01	21	23:45	15	80.7	0
20200121T235000	2020	01	21	23:50	13.2	81	0
20200121T235500	2020	01	21	23:55	12.7	82.4	0
20200122T000000	2020	01	22	00:00	13.7	84.3	0
20200122T000500	2020	01	22	00:05	11.9	83.5	0
20200122T001000	2020	01	22	00:10	10.7	83.3	0
20200122T001500	2020	01	22	00:15	9.5	83.6	0
20200122T002000	2020	01	22	00:20	9.8	85.2	0
20200122T002500	2020	01	22	00:25	10.1	86.1	0
20200122T003000	2020	01	22	00:30	9.5	86.3	0
20200122T003500	2020	01	22	00:35	10.9	87.5	0
20200122T004000	2020	01	22	00:40	9	86.9	0
20200122T004500	2020	01	22	00:45	7.8	84.9	0
20200122T005000	2020	01	22	00:50	9.1	86.5	0
20200122T005500	2020	01	22	00:55	10.5	88.3	0
20200122T010000	2020	01	22	01:00	8.2	85.4	0
20200122T010500	2020	01	22	01:05	9.9	86.4	0
20200122T011000	2020	01	22	01:10	11.9	88	0
20200122T011500	2020	01	22	01:15	12.8	87.5	0
20200122T012000	2020	01	22	01:20	13.5	86.8	0
20200122T012500	2020	01	22	01:25	14.3	85.3	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200122T013000	2020	01	22	01:30	14.2	84.9	0
20200122T013500	2020	01	22	01:35	14.1	84.3	0
20200122T014000	2020	01	22	01:40	14.5	84.1	0
20200122T014500	2020	01	22	01:45	14.7	83.1	0
20200122T015000	2020	01	22	01:50	14.3	84	0
20200122T015500	2020	01	22	01:55	13.2	82.4	0
20200122T020000	2020	01	22	02:00	13.6	84	0
20200122T020500	2020	01	22	02:05	14.8	85.7	0
20200122T021000	2020	01	22	02:10	14.3	84.6	0
20200122T021500	2020	01	22	02:15	13	83.8	0
20200122T022000	2020	01	22	02:20	14.7	85.8	0
20200122T022500	2020	01	22	02:25	14.8	84.6	0
20200122T023000	2020	01	22	02:30	15.1	83.1	0
20200122T023500	2020	01	22	02:35	14.2	81	0
20200122T024000	2020	01	22	02:40	13.5	82.8	0
20200122T024500	2020	01	22	02:45	14.2	83.7	0
20200122T025000	2020	01	22	02:50	14.1	82.4	0
20200122T025500	2020	01	22	02:55	14.4	82.6	0
20200122T030000	2020	01	22	03:00	14	82.2	0
20200122T030500	2020	01	22	03:05	13.7	83.3	0
20200122T031000	2020	01	22	03:10	14.9	83.9	0
20200122T031500	2020	01	22	03:15	15.2	82.2	0
20200122T032000	2020	01	22	03:20	14.9	81.1	0
20200122T032500	2020	01	22	03:25	14.4	80.9	0
20200122T033000	2020	01	22	03:30	15.1	81.4	0
20200122T033500	2020	01	22	03:35	14.1	80.7	0
20200122T034000	2020	01	22	03:40	13.9	81.4	0
20200122T034500	2020	01	22	03:45	13.2	81.9	0
20200122T035000	2020	01	22	03:50	13.4	82.9	0
20200122T035500	2020	01	22	03:55	13.5	82.7	0
20200122T040000	2020	01	22	04:00	14.3	83.1	0
20200122T040500	2020	01	22	04:05	13.6	81.9	0
20200122T041000	2020	01	22	04:10	13.5	82.7	0
20200122T041500	2020	01	22	04:15	13.1	82.6	0
20200122T042000	2020	01	22	04:20	12.9	83.6	0
20200122T042500	2020	01	22	04:25	11.5	83	0
20200122T043000	2020	01	22	04:30	12.1	84.7	0
20200122T043500	2020	01	22	04:35	12	84.7	0
20200122T044000	2020	01	22	04:40	11.6	84.7	0
20200122T044500	2020	01	22	04:45	11.5	85.3	0
20200122T045000	2020	01	22	04:50	11.5	85.4	0
20200122T045500	2020	01	22	04:55	10.8	84.9	0
20200122T050000	2020	01	22	05:00	11.9	85.8	0
20200122T050500	2020	01	22	05:05	10.9	86.1	0
20200122T051000	2020	01	22	05:10	9.6	85.6	0
20200122T051500	2020	01	22	05:15	10	88	0
20200122T052000	2020	01	22	05:20	11.4	89.6	0
20200122T052500	2020	01	22	05:25	10.5	87.8	0
20200122T053000	2020	01	22	05:30	10.8	88	0
20200122T053500	2020	01	22	05:35	12.3	89.4	0
20200122T054000	2020	01	22	05:40	11.8	89.1	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200122T054500	2020	01	22	05:45	12.8	89.7	0
20200122T055000	2020	01	22	05:50	10	87.5	0
20200122T055500	2020	01	22	05:55	10.3	88.8	0
20200122T060000	2020	01	22	06:00	9.8	88.9	0
20200122T060500	2020	01	22	06:05	9.3	89.4	0
20200122T061000	2020	01	22	06:10	8.6	89.2	0
20200122T061500	2020	01	22	06:15	8.4	88.9	0
20200122T062000	2020	01	22	06:20	8.5	89.8	0
20200122T062500	2020	01	22	06:25	9.1	90.5	0
20200122T063000	2020	01	22	06:30	10.2	91.5	0
20200122T063500	2020	01	22	06:35	10.4	92	0
20200122T064000	2020	01	22	06:40	9.6	90.6	0
20200122T064500	2020	01	22	06:45	11.4	92.1	0
20200122T065000	2020	01	22	06:50	10.6	91.4	0
20200122T065500	2020	01	22	06:55	11.3	91.1	0
20200122T070000	2020	01	22	07:00	12.1	90.8	0
20200122T070500	2020	01	22	07:05	12.8	90.6	0
20200122T071000	2020	01	22	07:10	13.1	88.4	0
20200122T071500	2020	01	22	07:15	12.5	85.5	0
20200122T072000	2020	01	22	07:20	12.2	84.3	0
20200122T072500	2020	01	22	07:25	12.7	85.6	0
20200122T073000	2020	01	22	07:30	12.9	84.9	0
20200122T073500	2020	01	22	07:35	14.5	85.7	0
20200122T074000	2020	01	22	07:40	15.9	86	0
20200122T074500	2020	01	22	07:45	16.6	85.1	0
20200122T075000	2020	01	22	07:50	16.4	82.6	0
20200122T075500	2020	01	22	07:55	16.8	82.8	0
20200122T080000	2020	01	22	08:00	16.7	82.4	0
20200122T080500	2020	01	22	08:05	17	82.3	0
20200122T081000	2020	01	22	08:10	16.9	81.5	0
20200122T081500	2020	01	22	08:15	16.9	81.6	0
20200122T082000	2020	01	22	08:20	17.5	81.9	0
20200122T082500	2020	01	22	08:25	18.1	81.9	0
20200122T083000	2020	01	22	08:30	18.2	81.6	0
20200122T083500	2020	01	22	08:35	18.7	81.4	0
20200122T084000	2020	01	22	08:40	18.9	80.2	0
20200122T084500	2020	01	22	08:45	19.2	79.8	0
20200122T085000	2020	01	22	08:50	19.6	79.8	0
20200122T085500	2020	01	22	08:55	20	79.2	0
20200122T090000	2020	01	22	09:00	20.5	78.6	0
20200122T090500	2020	01	22	09:05	20.9	77.9	0
20200122T091000	2020	01	22	09:10	21.2	77.5	0
20200122T091500	2020	01	22	09:15	21.2	78.4	0
20200122T092000	2020	01	22	09:20	21.4	78.7	0
20200122T092500	2020	01	22	09:25	21.7	77.7	0
20200122T093000	2020	01	22	09:30	21.9	76.1	0
20200122T093500	2020	01	22	09:35	22.1	74.8	0
20200122T094000	2020	01	22	09:40	22.1	74.3	0
20200122T094500	2020	01	22	09:45	22.2	75.1	0
20200122T095000	2020	01	22	09:50	22.3	75.5	0
20200122T095500	2020	01	22	09:55	22.6	76.4	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200122T100000	2020	01	22	10:00	22.8	76.6	0
20200122T100500	2020	01	22	10:05	22.9	76.4	0
20200122T101000	2020	01	22	10:10	23.1	76	0
20200122T101500	2020	01	22	10:15	23.4	73.7	0
20200122T102000	2020	01	22	10:20	23.6	70.7	0
20200122T102500	2020	01	22	10:25	23.9	69.5	0
20200122T103000	2020	01	22	10:30	24.3	67.7	0
20200122T103500	2020	01	22	10:35	24.7	67.1	0
20200122T104000	2020	01	22	10:40	25.1	66.1	0
20200122T104500	2020	01	22	10:45	25.3	65.2	0
20200122T105000	2020	01	22	10:50	25.7	63.7	0
20200122T105500	2020	01	22	10:55	25.6	63.2	0
20200122T110000	2020	01	22	11:00	25.7	63.3	0
20200122T110500	2020	01	22	11:05	25.9	65.3	0
20200122T111000	2020	01	22	11:10	26.1	64	0
20200122T111500	2020	01	22	11:15	26.2	64	0
20200122T112000	2020	01	22	11:20	26	63.8	0
20200122T112500	2020	01	22	11:25	26.3	63.8	0
20200122T113000	2020	01	22	11:30	26.2	63.2	0
20200122T113500	2020	01	22	11:35	26.6	62.8	0
20200122T114000	2020	01	22	11:40	27.1	63.7	0
20200122T114500	2020	01	22	11:45	27.3	63.4	0
20200122T115000	2020	01	22	11:50	27.3	62.5	0
20200122T115500	2020	01	22	11:55	27.4	62.6	0
20200122T120000	2020	01	22	12:00	27.5	61.5	0
20200122T120500	2020	01	22	12:05	27.8	60.9	0
20200122T121000	2020	01	22	12:10	28	61.7	0
20200122T121500	2020	01	22	12:15	28.3	61.1	0
20200122T122000	2020	01	22	12:20	28.5	61.6	0
20200122T122500	2020	01	22	12:25	28.9	61.4	0
20200122T123000	2020	01	22	12:30	28.8	60.1	0
20200122T123500	2020	01	22	12:35	29.1	59.2	0
20200122T124000	2020	01	22	12:40	29.3	58.5	0
20200122T124500	2020	01	22	12:45	29.7	58.4	0
20200122T125000	2020	01	22	12:50	30.2	59.4	0
20200122T125500	2020	01	22	12:55	30.1	60.1	0
20200122T130000	2020	01	22	13:00	30.6	59.9	0
20200122T130500	2020	01	22	13:05	30.3	58.9	0
20200122T131000	2020	01	22	13:10	30.4	59.9	0
20200122T131500	2020	01	22	13:15	30.5	60.5	0
20200122T132000	2020	01	22	13:20	30.4	59.8	0
20200122T132500	2020	01	22	13:25	30.6	59.5	0
20200122T133000	2020	01	22	13:30	30.8	58	0
20200122T133500	2020	01	22	13:35	31	57.6	0
20200122T134000	2020	01	22	13:40	31	57.7	0
20200122T134500	2020	01	22	13:45	31.4	57.6	0
20200122T135000	2020	01	22	13:50	31.7	58.6	0
20200122T135500	2020	01	22	13:55	31.7	57.7	0
20200122T140000	2020	01	22	14:00	31.9	58.6	0
20200122T140500	2020	01	22	14:05	32.2	57.8	0
20200122T141000	2020	01	22	14:10	32.3	56.9	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200122T141500	2020	01	22	14:15	32.6	58.2	0
20200122T142000	2020	01	22	14:20	32.4	57.9	0
20200122T142500	2020	01	22	14:25	32.5	57.4	0
20200122T143000	2020	01	22	14:30	32.7	56	0
20200122T143500	2020	01	22	14:35	32.9	56.5	0
20200122T144000	2020	01	22	14:40	33.1	55.9	0
20200122T144500	2020	01	22	14:45	33.2	54.8	0
20200122T145000	2020	01	22	14:50	33.3	55	0
20200122T145500	2020	01	22	14:55	33.3	55.5	0
20200122T150000	2020	01	22	15:00	33.3	55.3	0
20200122T150500	2020	01	22	15:05	33.5	53.9	0
20200122T151000	2020	01	22	15:10	33.3	54.6	0
20200122T151500	2020	01	22	15:15	33.5	54.1	0
20200122T152000	2020	01	22	15:20	33.7	53.5	0
20200122T152500	2020	01	22	15:25	33.8	53.4	0
20200122T153000	2020	01	22	15:30	34.1	52.2	0
20200122T153500	2020	01	22	15:35	34	53.1	0
20200122T154000	2020	01	22	15:40	34.2	52.2	0
20200122T154500	2020	01	22	15:45	34.2	52.4	0
20200122T155000	2020	01	22	15:50	34	52.4	0
20200122T155500	2020	01	22	15:55	33.8	52.6	0
20200122T160000	2020	01	22	16:00	33.8	52.8	0
20200122T160500	2020	01	22	16:05	33.8	52.6	0
20200122T161000	2020	01	22	16:10	33.6	52.8	0
20200122T161500	2020	01	22	16:15	33.4	52.6	0
20200122T162000	2020	01	22	16:20	32.2	53.4	0
20200122T162500	2020	01	22	16:25	31.2	55	0
20200122T163000	2020	01	22	16:30	31.6	54	0
20200122T163500	2020	01	22	16:35	32.4	52.7	0
20200122T164000	2020	01	22	16:40	32.7	54.4	0
20200122T164500	2020	01	22	16:45	32.7	54.8	0
20200122T165000	2020	01	22	16:50	32.6	53.6	0
20200122T165500	2020	01	22	16:55	31.2	53.5	0
20200122T170000	2020	01	22	17:00	31	53.6	0
20200122T170500	2020	01	22	17:05	31.3	53.9	0
20200122T171000	2020	01	22	17:10	30.2	54.9	0
20200122T171500	2020	01	22	17:15	30	55	0
20200122T172000	2020	01	22	17:20	30.2	53.1	0
20200122T172500	2020	01	22	17:25	30.4	56.1	0
20200122T173000	2020	01	22	17:30	32.2	56.8	0
20200122T173500	2020	01	22	17:35	33.3	54.5	0
20200122T174000	2020	01	22	17:40	33.8	51.5	0
20200122T174500	2020	01	22	17:45	34.2	50	0
20200122T175000	2020	01	22	17:50	34.2	49.5	0
20200122T175500	2020	01	22	17:55	34.2	49.5	0
20200122T180000	2020	01	22	18:00	34.1	51.1	0
20200122T180500	2020	01	22	18:05	33.7	51.9	0
20200122T181000	2020	01	22	18:10	33.6	53.7	0
20200122T181500	2020	01	22	18:15	32.9	55.5	0
20200122T182000	2020	01	22	18:20	32.9	57.2	0
20200122T182500	2020	01	22	18:25	32.3	58.6	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200122T183000	2020	01	22	18:30	32.8	59.8	0
20200122T183500	2020	01	22	18:35	33.2	59.5	0
20200122T184000	2020	01	22	18:40	33.1	59.6	0
20200122T184500	2020	01	22	18:45	33	60.1	0
20200122T185000	2020	01	22	18:50	32.9	60.7	0
20200122T185500	2020	01	22	18:55	33	60.9	0
20200122T190000	2020	01	22	19:00	32.8	60.7	0
20200122T190500	2020	01	22	19:05	32.9	60.9	0
20200122T191000	2020	01	22	19:10	32.8	60.6	0
20200122T191500	2020	01	22	19:15	32.7	60.6	0
20200122T192000	2020	01	22	19:20	33	59.3	0
20200122T192500	2020	01	22	19:25	33	58.7	0
20200122T193000	2020	01	22	19:30	32.9	58.5	0
20200122T193500	2020	01	22	19:35	32.7	58.6	0
20200122T194000	2020	01	22	19:40	32.6	59.5	0
20200122T194500	2020	01	22	19:45	32.7	59.1	0
20200122T195000	2020	01	22	19:50	32.6	59.3	0
20200122T195500	2020	01	22	19:55	32.4	59.6	0
20200122T200000	2020	01	22	20:00	32.3	59.4	0
20200122T200500	2020	01	22	20:05	32.1	59.5	0
20200122T201000	2020	01	22	20:10	32.1	59.3	0
20200122T201500	2020	01	22	20:15	32	58.7	0
20200122T202000	2020	01	22	20:20	32	58.5	0
20200122T202500	2020	01	22	20:25	32	58.3	0
20200122T203000	2020	01	22	20:30	31.7	58.7	0
20200122T203500	2020	01	22	20:35	31.8	58.7	0
20200122T204000	2020	01	22	20:40	32	58	0
20200122T204500	2020	01	22	20:45	31.9	57.7	0
20200122T205000	2020	01	22	20:50	31.3	58.1	0
20200122T205500	2020	01	22	20:55	31.6	57.8	0
20200122T210000	2020	01	22	21:00	31.5	57.4	0
20200122T210500	2020	01	22	21:05	31	57.1	0
20200122T211000	2020	01	22	21:10	30.5	58.3	0
20200122T211500	2020	01	22	21:15	30.6	58.5	0
20200122T212000	2020	01	22	21:20	30.7	58.2	0
20200122T212500	2020	01	22	21:25	30.8	57.1	0
20200122T213000	2020	01	22	21:30	31	56.6	0
20200122T213500	2020	01	22	21:35	31.2	55.7	0
20200122T214000	2020	01	22	21:40	30.9	55.8	0
20200122T214500	2020	01	22	21:45	30.6	56.6	0
20200122T215000	2020	01	22	21:50	30.8	56.3	0
20200122T215500	2020	01	22	21:55	30.7	56.1	0
20200122T220000	2020	01	22	22:00	30.6	56.4	0
20200122T220500	2020	01	22	22:05	30.2	57	0
20200122T221000	2020	01	22	22:10	30.7	56.5	0
20200122T221500	2020	01	22	22:15	30.6	56	0
20200122T222000	2020	01	22	22:20	30.5	56.5	0
20200122T222500	2020	01	22	22:25	30.7	56.6	0
20200122T223000	2020	01	22	22:30	30.7	56.4	0
20200122T223500	2020	01	22	22:35	30.6	56.3	0
20200122T224000	2020	01	22	22:40	30.5	56.2	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200122T224500	2020	01	22	22:45	30.5	55.9	0
20200122T225000	2020	01	22	22:50	30.2	56.4	0
20200122T225500	2020	01	22	22:55	30.5	55.6	0
20200122T230000	2020	01	22	23:00	30.4	55	0
20200122T230500	2020	01	22	23:05	30.4	54.6	0
20200122T231000	2020	01	22	23:10	30.4	54.5	0
20200122T231500	2020	01	22	23:15	30	54.6	0
20200122T232000	2020	01	22	23:20	30	54.8	0
20200122T232500	2020	01	22	23:25	29.7	55	0
20200122T233000	2020	01	22	23:30	29.4	55.2	0
20200122T233500	2020	01	22	23:35	29.2	55.8	0
20200122T234000	2020	01	22	23:40	29.3	55.6	0
20200122T234500	2020	01	22	23:45	29	55.9	0
20200122T235000	2020	01	22	23:50	29	55.6	0
20200122T235500	2020	01	22	23:55	28.9	55.3	0
20200123T000000	2020	01	23	00:00	28.8	55.7	0
20200123T000500	2020	01	23	00:05	29	55.8	0
20200123T001000	2020	01	23	00:10	29.6	55	0
20200123T001500	2020	01	23	00:15	29.3	55	0
20200123T002000	2020	01	23	00:20	29.3	55.8	0
20200123T002500	2020	01	23	00:25	29.2	56.5	0
20200123T003000	2020	01	23	00:30	29.5	57	0
20200123T003500	2020	01	23	00:35	29.1	58.1	0
20200123T004000	2020	01	23	00:40	29	58.4	0
20200123T004500	2020	01	23	00:45	29.2	58.4	0
20200123T005000	2020	01	23	00:50	29.1	58.1	0
20200123T005500	2020	01	23	00:55	29.1	58.1	0
20200123T010000	2020	01	23	01:00	28.7	58.1	0
20200123T010500	2020	01	23	01:05	28	58.3	0
20200123T011000	2020	01	23	01:10	27.6	58.4	0
20200123T011500	2020	01	23	01:15	27.5	59.1	0
20200123T012000	2020	01	23	01:20	28.2	58.4	0
20200123T012500	2020	01	23	01:25	28.2	58.5	0
20200123T013000	2020	01	23	01:30	27.7	58.8	0
20200123T013500	2020	01	23	01:35	27.6	59.2	0
20200123T014000	2020	01	23	01:40	27.4	59.3	0
20200123T014500	2020	01	23	01:45	26.9	59.7	0
20200123T015000	2020	01	23	01:50	26.4	60	0
20200123T015500	2020	01	23	01:55	26.1	60.1	0
20200123T020000	2020	01	23	02:00	24.9	59.6	0
20200123T020500	2020	01	23	02:05	25.2	60.4	0
20200123T021000	2020	01	23	02:10	24.8	60.4	0
20200123T021500	2020	01	23	02:15	24.5	60.8	0
20200123T022000	2020	01	23	02:20	24.7	61.4	0
20200123T022500	2020	01	23	02:25	24.5	61.8	0
20200123T023000	2020	01	23	02:30	25.2	62.5	0
20200123T023500	2020	01	23	02:35	26.5	61.4	0
20200123T024000	2020	01	23	02:40	27.3	60.2	0
20200123T024500	2020	01	23	02:45	27.9	58.4	0
20200123T025000	2020	01	23	02:50	27.6	58.6	0
20200123T025500	2020	01	23	02:55	27.6	59.2	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200123T030000	2020	01	23	03:00	27.2	59.4	0
20200123T030500	2020	01	23	03:05	26.9	60.5	0
20200123T031000	2020	01	23	03:10	26.6	60.4	0
20200123T031500	2020	01	23	03:15	26.1	60.9	0
20200123T032000	2020	01	23	03:20	26.1	61.7	0
20200123T032500	2020	01	23	03:25	25.9	61.4	0
20200123T033000	2020	01	23	03:30	26.6	61	0
20200123T033500	2020	01	23	03:35	26.4	60.3	0
20200123T034000	2020	01	23	03:40	26.3	60.4	0
20200123T034500	2020	01	23	03:45	26.6	60.2	0
20200123T035000	2020	01	23	03:50	26.9	59.6	0
20200123T035500	2020	01	23	03:55	26.9	59.8	0
20200123T040000	2020	01	23	04:00	27.2	59	0
20200123T040500	2020	01	23	04:05	26.9	58.1	0
20200123T041000	2020	01	23	04:10	26.8	57.6	0
20200123T041500	2020	01	23	04:15	26.9	56.9	0
20200123T042000	2020	01	23	04:20	26.8	57	0
20200123T042500	2020	01	23	04:25	26.8	57.6	0
20200123T043000	2020	01	23	04:30	26.9	57.9	0
20200123T043500	2020	01	23	04:35	26.8	59.6	0
20200123T044000	2020	01	23	04:40	26.8	61.1	0
20200123T044500	2020	01	23	04:45	26.9	61.8	0
20200123T045000	2020	01	23	04:50	26.9	61.9	0
20200123T045500	2020	01	23	04:55	26.9	62	0
20200123T050000	2020	01	23	05:00	26.9	62.2	0
20200123T050500	2020	01	23	05:05	26.9	61.9	0
20200123T051000	2020	01	23	05:10	27	61.6	0
20200123T051500	2020	01	23	05:15	26.7	61.3	0
20200123T052000	2020	01	23	05:20	26.7	61.4	0
20200123T052500	2020	01	23	05:25	26.4	61.8	0
20200123T053000	2020	01	23	05:30	26.4	62.1	0
20200123T053500	2020	01	23	05:35	26.1	63.1	0
20200123T054000	2020	01	23	05:40	26	64.1	0
20200123T054500	2020	01	23	05:45	26	65.3	0
20200123T055000	2020	01	23	05:50	26.2	65.3	0
20200123T055500	2020	01	23	05:55	26	65.7	0
20200123T060000	2020	01	23	06:00	26	66.4	0
20200123T060500	2020	01	23	06:05	25.8	67.4	0
20200123T061000	2020	01	23	06:10	25.9	68.2	0
20200123T061500	2020	01	23	06:15	25.8	68	0
20200123T062000	2020	01	23	06:20	25.7	67.5	0
20200123T062500	2020	01	23	06:25	25.8	67.6	0
20200123T063000	2020	01	23	06:30	25.4	66.8	0
20200123T063500	2020	01	23	06:35	24.9	67.1	0
20200123T064000	2020	01	23	06:40	25.1	68	0
20200123T064500	2020	01	23	06:45	24.7	68	0
20200123T065000	2020	01	23	06:50	24.3	68.5	0
20200123T065500	2020	01	23	06:55	24.7	67.8	0
20200123T070000	2020	01	23	07:00	24.6	67.9	0
20200123T070500	2020	01	23	07:05	24.9	67.8	0
20200123T071000	2020	01	23	07:10	25.2	67.1	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200123T071500	2020	01	23	07:15	24.9	67.1	0
20200123T072000	2020	01	23	07:20	25	67	0
20200123T072500	2020	01	23	07:25	25	65.6	0
20200123T073000	2020	01	23	07:30	25.4	64.9	0
20200123T073500	2020	01	23	07:35	25.2	65.2	0
20200123T074000	2020	01	23	07:40	25.5	65.6	0
20200123T074500	2020	01	23	07:45	25.8	66.2	0
20200123T075000	2020	01	23	07:50	26.1	66.6	0
20200123T075500	2020	01	23	07:55	25.6	67.9	0
20200123T080000	2020	01	23	08:00	25.5	69.1	0
20200123T080500	2020	01	23	08:05	25.1	69.4	0
20200123T081000	2020	01	23	08:10	24.8	69.4	0
20200123T081500	2020	01	23	08:15	24.9	69.4	0
20200123T082000	2020	01	23	08:20	25.1	69.1	0
20200123T082500	2020	01	23	08:25	25.1	68.3	0
20200123T083000	2020	01	23	08:30	24.7	67.8	0
20200123T083500	2020	01	23	08:35	24.8	67.9	0
20200123T084000	2020	01	23	08:40	24.7	67.1	0
20200123T084500	2020	01	23	08:45	24.4	67	0
20200123T085000	2020	01	23	08:50	24.3	66.6	0
20200123T085500	2020	01	23	08:55	24.8	66.7	0
20200123T090000	2020	01	23	09:00	24.8	66.3	0
20200123T090500	2020	01	23	09:05	24.9	65.5	0
20200123T091000	2020	01	23	09:10	25.2	65.2	0
20200123T091500	2020	01	23	09:15	25.5	65.1	0
20200123T092000	2020	01	23	09:20	25.3	65.1	0
20200123T092500	2020	01	23	09:25	25.4	64.8	0
20200123T093000	2020	01	23	09:30	25.5	64.5	0
20200123T093500	2020	01	23	09:35	26.1	64.8	0
20200123T094000	2020	01	23	09:40	26.7	64.6	0
20200123T094500	2020	01	23	09:45	27	63.5	0
20200123T095000	2020	01	23	09:50	27.4	60.5	0
20200123T095500	2020	01	23	09:55	27.5	59.4	0
20200123T100000	2020	01	23	10:00	27.8	58.9	0
20200123T100500	2020	01	23	10:05	28.2	55.7	0
20200123T101000	2020	01	23	10:10	28.5	55	0
20200123T101500	2020	01	23	10:15	28.9	55.6	0
20200123T102000	2020	01	23	10:20	29.1	56.2	0
20200123T102500	2020	01	23	10:25	29.5	55.3	0
20200123T103000	2020	01	23	10:30	30	53.9	0
20200123T103500	2020	01	23	10:35	30.2	54.6	0
20200123T104000	2020	01	23	10:40	30.4	54	0
20200123T104500	2020	01	23	10:45	30.3	54.3	0
20200123T105000	2020	01	23	10:50	30.7	53.4	0
20200123T105500	2020	01	23	10:55	30.9	52.6	0
20200123T110000	2020	01	23	11:00	31.1	54.1	0
20200123T110500	2020	01	23	11:05	31.4	53.5	0
20200123T111000	2020	01	23	11:10	31.7	53.1	0
20200123T111500	2020	01	23	11:15	31.9	52.1	0
20200123T112000	2020	01	23	11:20	31.9	53.6	0
20200123T112500	2020	01	23	11:25	31.9	54.7	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200123T113000	2020	01	23	11:30	32.2	54.6	0
20200123T113500	2020	01	23	11:35	32.6	54.5	0
20200123T114000	2020	01	23	11:40	33	53.4	0
20200123T114500	2020	01	23	11:45	33.2	54.7	0
20200123T115000	2020	01	23	11:50	33.4	53.9	0
20200123T115500	2020	01	23	11:55	33.6	53.9	0
20200123T120000	2020	01	23	12:00	33.9	52.6	0
20200123T120500	2020	01	23	12:05	34.3	52.7	0
20200123T121000	2020	01	23	12:10	34.5	51.2	0
20200123T121500	2020	01	23	12:15	34.8	52.6	0
20200123T122000	2020	01	23	12:20	35.2	53	0
20200123T122500	2020	01	23	12:25	35.7	52.5	0
20200123T123000	2020	01	23	12:30	35.5	53.9	0
20200123T123500	2020	01	23	12:35	35.6	52.8	0
20200123T124000	2020	01	23	12:40	36	53.1	0
20200123T124500	2020	01	23	12:45	36.2	51.3	0
20200123T125000	2020	01	23	12:50	36.5	51.1	0
20200123T125500	2020	01	23	12:55	36.5	49.6	0
20200123T130000	2020	01	23	13:00	36.6	49.4	0
20200123T130500	2020	01	23	13:05	36.7	49.2	0
20200123T131000	2020	01	23	13:10	36.9	49.1	0
20200123T131500	2020	01	23	13:15	36.9	48.7	0
20200123T132000	2020	01	23	13:20	37	49.1	0
20200123T132500	2020	01	23	13:25	37.1	48.1	0
20200123T133000	2020	01	23	13:30	37.3	47.4	0
20200123T133500	2020	01	23	13:35	37.4	47	0
20200123T134000	2020	01	23	13:40	37.5	46.2	0
20200123T134500	2020	01	23	13:45	37.6	46.9	0
20200123T135000	2020	01	23	13:50	37.7	47.7	0
20200123T135500	2020	01	23	13:55	37.7	47.3	0
20200123T140000	2020	01	23	14:00	38.2	47.8	0
20200123T140500	2020	01	23	14:05	38	47.5	0
20200123T141000	2020	01	23	14:10	37.6	47.6	0
20200123T141500	2020	01	23	14:15	37.6	47	0
20200123T142000	2020	01	23	14:20	37.5	49.3	0
20200123T142500	2020	01	23	14:25	37.6	48.7	0
20200123T143000	2020	01	23	14:30	38	47.4	0
20200123T143500	2020	01	23	14:35	38.1	48.1	0
20200123T144000	2020	01	23	14:40	37.9	51.3	0
20200123T144500	2020	01	23	14:45	37.9	50.3	0
20200123T145000	2020	01	23	14:50	37.6	49.9	0
20200123T145500	2020	01	23	14:55	37.6	51.3	0
20200123T150000	2020	01	23	15:00	37.6	51.5	0
20200123T150500	2020	01	23	15:05	37.7	51.5	0
20200123T151000	2020	01	23	15:10	37.5	50.3	0
20200123T151500	2020	01	23	15:15	37.7	47.9	0
20200123T152000	2020	01	23	15:20	37.9	47.5	0
20200123T152500	2020	01	23	15:25	37.5	49.8	0
20200123T153000	2020	01	23	15:30	37.4	50.8	0
20200123T153500	2020	01	23	15:35	37.1	51.6	0
20200123T154000	2020	01	23	15:40	37.2	51	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200123T154500	2020	01	23	15:45	36.9	52	0
20200123T155000	2020	01	23	15:50	37.3	51.1	0
20200123T155500	2020	01	23	15:55	37.4	50.3	0
20200123T160000	2020	01	23	16:00	37	51.3	0
20200123T160500	2020	01	23	16:05	36.6	52.2	0
20200123T161000	2020	01	23	16:10	36.1	50.7	0
20200123T161500	2020	01	23	16:15	35.7	51.1	0
20200123T162000	2020	01	23	16:20	36.2	51.6	0
20200123T162500	2020	01	23	16:25	35.9	51.9	0
20200123T163000	2020	01	23	16:30	35.9	52.7	0
20200123T163500	2020	01	23	16:35	34.2	58.4	0
20200123T164000	2020	01	23	16:40	32.8	62.6	0
20200123T164500	2020	01	23	16:45	33.1	65.3	0
20200123T165000	2020	01	23	16:50	34.3	62.8	0
20200123T165500	2020	01	23	16:55	35	59.5	0
20200123T170000	2020	01	23	17:00	34.2	59.4	0
20200123T170500	2020	01	23	17:05	32.6	64.6	0
20200123T171000	2020	01	23	17:10	33.1	63.8	0
20200123T171500	2020	01	23	17:15	32.1	67.1	0
20200123T172000	2020	01	23	17:20	32.3	68.6	0
20200123T172500	2020	01	23	17:25	31.9	69	0
20200123T173000	2020	01	23	17:30	31.2	68.6	0
20200123T173500	2020	01	23	17:35	31	69.4	0
20200123T174000	2020	01	23	17:40	31.1	70.1	0
20200123T174500	2020	01	23	17:45	31.7	68.3	0
20200123T175000	2020	01	23	17:50	31.3	67.3	0
20200123T175500	2020	01	23	17:55	32.1	67.2	0
20200123T180000	2020	01	23	18:00	30.8	67.2	0
20200123T180500	2020	01	23	18:05	30.9	62.2	0
20200123T181000	2020	01	23	18:10	30.5	62.5	0
20200123T181500	2020	01	23	18:15	29.3	67.3	0
20200123T182000	2020	01	23	18:20	30.4	65.3	0
20200123T182500	2020	01	23	18:25	28.5	70.1	0
20200123T183000	2020	01	23	18:30	30.7	68.2	0
20200123T183500	2020	01	23	18:35	30.5	68.2	0
20200123T184000	2020	01	23	18:40	31.3	62.3	0
20200123T184500	2020	01	23	18:45	28.9	70.6	0
20200123T185000	2020	01	23	18:50	30	72.7	0
20200123T185500	2020	01	23	18:55	29.1	73.9	0
20200123T190000	2020	01	23	19:00	29.7	68.9	0
20200123T190500	2020	01	23	19:05	29.9	67	0
20200123T191000	2020	01	23	19:10	30.3	64.6	0
20200123T191500	2020	01	23	19:15	30.3	60.4	0
20200123T192000	2020	01	23	19:20	29.6	62.4	0
20200123T192500	2020	01	23	19:25	30	63.8	0
20200123T193000	2020	01	23	19:30	28.9	64.5	0
20200123T193500	2020	01	23	19:35	29	66.6	0
20200123T194000	2020	01	23	19:40	28.6	66.5	0
20200123T194500	2020	01	23	19:45	28	70	0
20200123T195000	2020	01	23	19:50	27.6	70.8	0
20200123T195500	2020	01	23	19:55	25.8	73	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200123T200000	2020	01	23	20:00	25.9	74.5	0
20200123T200500	2020	01	23	20:05	24.9	77.5	0
20200123T201000	2020	01	23	20:10	24.5	78.9	0
20200123T201500	2020	01	23	20:15	23.9	79.3	0
20200123T202000	2020	01	23	20:20	24	80.3	0
20200123T202500	2020	01	23	20:25	24.7	81.9	0
20200123T203000	2020	01	23	20:30	25.1	81.6	0
20200123T203500	2020	01	23	20:35	24.5	80.3	0
20200123T204000	2020	01	23	20:40	24.7	82.3	0
20200123T204500	2020	01	23	20:45	25.7	81.4	0
20200123T205000	2020	01	23	20:50	23.4	79	0
20200123T205500	2020	01	23	20:55	24.3	80.8	0
20200123T210000	2020	01	23	21:00	24.5	80.3	0
20200123T210500	2020	01	23	21:05	24.9	80.5	0
20200123T211000	2020	01	23	21:10	25.2	79.4	0
20200123T211500	2020	01	23	21:15	24.8	79.1	0
20200123T212000	2020	01	23	21:20	24.8	79.3	0
20200123T212500	2020	01	23	21:25	25.3	79.9	0
20200123T213000	2020	01	23	21:30	25.5	78.6	0
20200123T213500	2020	01	23	21:35	25.6	78.2	0
20200123T214000	2020	01	23	21:40	25.5	78	0
20200123T214500	2020	01	23	21:45	25.1	77.9	0
20200123T215000	2020	01	23	21:50	25.5	77.2	0
20200123T215500	2020	01	23	21:55	25.1	77.2	0
20200123T220000	2020	01	23	22:00	24.2	77.7	0
20200123T220500	2020	01	23	22:05	23.6	79.6	0
20200123T221000	2020	01	23	22:10	24.4	82.7	0
20200123T221500	2020	01	23	22:15	24.8	82.9	0
20200123T222000	2020	01	23	22:20	24.6	81	0
20200123T222500	2020	01	23	22:25	24.3	81.2	0
20200123T223000	2020	01	23	22:30	23.6	81	0
20200123T223500	2020	01	23	22:35	24.3	82.2	0
20200123T224000	2020	01	23	22:40	25.3	82.1	0
20200123T224500	2020	01	23	22:45	24.7	79.8	0
20200123T225000	2020	01	23	22:50	24.7	80.1	0
20200123T225500	2020	01	23	22:55	24.5	80.2	0
20200123T230000	2020	01	23	23:00	25.2	80.8	0
20200123T230500	2020	01	23	23:05	25.9	80.2	0
20200123T231000	2020	01	23	23:10	26.2	79	0
20200123T231500	2020	01	23	23:15	25.6	78.7	0
20200123T232000	2020	01	23	23:20	25	78.5	0
20200123T232500	2020	01	23	23:25	24.3	79.3	0
20200123T233000	2020	01	23	23:30	24.1	80.2	0
20200123T233500	2020	01	23	23:35	23.8	81	0
20200123T234000	2020	01	23	23:40	23.5	82.1	0
20200123T234500	2020	01	23	23:45	24.2	83.5	0
20200123T235000	2020	01	23	23:50	24.8	83	0
20200123T235500	2020	01	23	23:55	23.6	81.6	0
20200124T000000	2020	01	24	00:00	23.9	82.9	0
20200124T000500	2020	01	24	00:05	24.8	82.7	0
20200124T001000	2020	01	24	00:10	23.7	83	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200124T001500	2020	01	24	00:15	25.4	82.5	0
20200124T002000	2020	01	24	00:20	24.7	79.5	0
20200124T002500	2020	01	24	00:25	23.8	80.5	0
20200124T003000	2020	01	24	00:30	24.6	83	0
20200124T003500	2020	01	24	00:35	25.3	81.8	0
20200124T004000	2020	01	24	00:40	25	81.5	0
20200124T004500	2020	01	24	00:45	24.5	82.2	0
20200124T005000	2020	01	24	00:50	24.7	82.8	0
20200124T005500	2020	01	24	00:55	25.8	82.8	0
20200124T010000	2020	01	24	01:00	26.8	80.3	0
20200124T010500	2020	01	24	01:05	26.6	78.7	0
20200124T011000	2020	01	24	01:10	26.7	78.4	0
20200124T011500	2020	01	24	01:15	26.3	78.6	0
20200124T012000	2020	01	24	01:20	26.9	77.9	0
20200124T012500	2020	01	24	01:25	26.9	78.7	0
20200124T013000	2020	01	24	01:30	26.8	79	0
20200124T013500	2020	01	24	01:35	27.5	79.6	0
20200124T014000	2020	01	24	01:40	27	79	0
20200124T014500	2020	01	24	01:45	27.3	80.1	0
20200124T015000	2020	01	24	01:50	28.7	80.5	0
20200124T015500	2020	01	24	01:55	31.1	78.9	0
20200124T020000	2020	01	24	02:00	32.2	73.4	0
20200124T020500	2020	01	24	02:05	31.9	73.3	0
20200124T021000	2020	01	24	02:10	31.9	74.8	0
20200124T021500	2020	01	24	02:15	31.3	75.1	0
20200124T022000	2020	01	24	02:20	30.2	75.2	0
20200124T022500	2020	01	24	02:25	32.1	75.4	0
20200124T023000	2020	01	24	02:30	33.5	73	0
20200124T023500	2020	01	24	02:35	33.4	71.2	0
20200124T024000	2020	01	24	02:40	33.7	70	0
20200124T024500	2020	01	24	02:45	33.7	68	0
20200124T025000	2020	01	24	02:50	33.7	66.6	0
20200124T025500	2020	01	24	02:55	33.7	63.8	0
20200124T030000	2020	01	24	03:00	33.9	60.3	0
20200124T030500	2020	01	24	03:05	33.9	58.1	0
20200124T031000	2020	01	24	03:10	33.7	57.5	0
20200124T031500	2020	01	24	03:15	33.6	56.5	0
20200124T032000	2020	01	24	03:20	33.5	56.8	0
20200124T032500	2020	01	24	03:25	33.3	58.2	0
20200124T033000	2020	01	24	03:30	33.1	58.9	0
20200124T033500	2020	01	24	03:35	33.3	58.4	0
20200124T034000	2020	01	24	03:40	33.5	58.1	0
20200124T034500	2020	01	24	03:45	33.5	58.1	0
20200124T035000	2020	01	24	03:50	33.2	58.5	0
20200124T035500	2020	01	24	03:55	33	58.3	0
20200124T040000	2020	01	24	04:00	32.6	61.2	0
20200124T040500	2020	01	24	04:05	32.7	62	0
20200124T041000	2020	01	24	04:10	32.5	62.8	0
20200124T041500	2020	01	24	04:15	32.6	63.5	0
20200124T042000	2020	01	24	04:20	33.5	62.6	0
20200124T042500	2020	01	24	04:25	33.6	61.4	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200124T043000	2020	01	24	04:30	33.3	62.2	0
20200124T043500	2020	01	24	04:35	33.5	61.7	0
20200124T044000	2020	01	24	04:40	33.2	61.9	0
20200124T044500	2020	01	24	04:45	33.1	60.7	0
20200124T045000	2020	01	24	04:50	32.6	60.9	0
20200124T045500	2020	01	24	04:55	32.3	62.8	0
20200124T050000	2020	01	24	05:00	32.5	62.3	0
20200124T050500	2020	01	24	05:05	32.8	61.5	0
20200124T051000	2020	01	24	05:10	33	59.6	0
20200124T051500	2020	01	24	05:15	32.8	59.7	0
20200124T052000	2020	01	24	05:20	32.5	61.4	0
20200124T052500	2020	01	24	05:25	32.6	61.8	0
20200124T053000	2020	01	24	05:30	32.5	62.7	0
20200124T053500	2020	01	24	05:35	32.5	64	0
20200124T054000	2020	01	24	05:40	32.3	65.3	0
20200124T054500	2020	01	24	05:45	31.8	66.3	0
20200124T055000	2020	01	24	05:50	30.2	69.4	0
20200124T055500	2020	01	24	05:55	29.9	71.7	0
20200124T060000	2020	01	24	06:00	29.8	72.8	0
20200124T060500	2020	01	24	06:05	29.8	72.8	0
20200124T061000	2020	01	24	06:10	30.6	69.6	0
20200124T061500	2020	01	24	06:15	31.6	64.8	0
20200124T062000	2020	01	24	06:20	32.4	63.7	0
20200124T062500	2020	01	24	06:25	33.5	59.1	0
20200124T063000	2020	01	24	06:30	33.7	58.5	0
20200124T063500	2020	01	24	06:35	33.3	61.2	0
20200124T064000	2020	01	24	06:40	33.3	61.5	0
20200124T064500	2020	01	24	06:45	33.6	62.4	0
20200124T065000	2020	01	24	06:50	33.4	63.8	0
20200124T065500	2020	01	24	06:55	33.2	65.5	0
20200124T070000	2020	01	24	07:00	33.3	66.5	0
20200124T070500	2020	01	24	07:05	33.7	65.6	0
20200124T071000	2020	01	24	07:10	33.6	64.3	0
20200124T071500	2020	01	24	07:15	33.5	64.7	0
20200124T072000	2020	01	24	07:20	33.6	64.4	0
20200124T072500	2020	01	24	07:25	33.5	64.3	0
20200124T073000	2020	01	24	07:30	33.8	63.1	0
20200124T073500	2020	01	24	07:35	33.6	64	0
20200124T074000	2020	01	24	07:40	33.7	63.9	0
20200124T074500	2020	01	24	07:45	33.5	63.4	0
20200124T075000	2020	01	24	07:50	33.5	63.3	0
20200124T075500	2020	01	24	07:55	33.2	63	0
20200124T080000	2020	01	24	08:00	33	63.3	0
20200124T080500	2020	01	24	08:05	33.3	63	0
20200124T081000	2020	01	24	08:10	33.1	63.5	0
20200124T081500	2020	01	24	08:15	33.1	64.3	0
20200124T082000	2020	01	24	08:20	33	64.2	0
20200124T082500	2020	01	24	08:25	32.6	64.5	0
20200124T083000	2020	01	24	08:30	33.1	64.5	0
20200124T083500	2020	01	24	08:35	32.7	65.1	0
20200124T084000	2020	01	24	08:40	32.7	65.5	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200124T084500	2020	01	24	08:45	33	64.7	0
20200124T085000	2020	01	24	08:50	33	64.8	0
20200124T085500	2020	01	24	08:55	33.4	64.1	0
20200124T090000	2020	01	24	09:00	33.8	63.6	0
20200124T090500	2020	01	24	09:05	34.1	63.4	0
20200124T091000	2020	01	24	09:10	34.9	61.3	0
20200124T091500	2020	01	24	09:15	35.7	58.8	0
20200124T092000	2020	01	24	09:20	36.4	55.9	0
20200124T092500	2020	01	24	09:25	36.8	55	0
20200124T093000	2020	01	24	09:30	36.8	55.5	0
20200124T093500	2020	01	24	09:35	36.7	55.5	0
20200124T094000	2020	01	24	09:40	36.8	54.4	0
20200124T094500	2020	01	24	09:45	36.9	53.8	0
20200124T095000	2020	01	24	09:50	37	53.2	0
20200124T095500	2020	01	24	09:55	37.2	52	0
20200124T100000	2020	01	24	10:00	37.4	51	0
20200124T100500	2020	01	24	10:05	37.5	50.9	0
20200124T101000	2020	01	24	10:10	37.8	49.3	0
20200124T101500	2020	01	24	10:15	37.8	48.8	0
20200124T102000	2020	01	24	10:20	38	48.3	0
20200124T102500	2020	01	24	10:25	38.4	46.9	0
20200124T103000	2020	01	24	10:30	39	45.8	0
20200124T103500	2020	01	24	10:35	39.3	44.9	0
20200124T104000	2020	01	24	10:40	39.3	45.9	0
20200124T104500	2020	01	24	10:45	39.5	45.5	0
20200124T105000	2020	01	24	10:50	39.7	45.2	0
20200124T105500	2020	01	24	10:55	39.7	45.7	0
20200124T110000	2020	01	24	11:00	39.8	45.1	0
20200124T110500	2020	01	24	11:05	39.9	45	0
20200124T111000	2020	01	24	11:10	40.2	45.2	0
20200124T111500	2020	01	24	11:15	40.7	44.2	0
20200124T112000	2020	01	24	11:20	41	43.7	0
20200124T112500	2020	01	24	11:25	41.2	43.1	0
20200124T113000	2020	01	24	11:30	41.2	44.5	0
20200124T113500	2020	01	24	11:35	41.7	43.4	0
20200124T114000	2020	01	24	11:40	41.8	44.1	0
20200124T114500	2020	01	24	11:45	42	44.2	0
20200124T115000	2020	01	24	11:50	42.4	44.4	0
20200124T115500	2020	01	24	11:55	42.7	43.8	0
20200124T120000	2020	01	24	12:00	42.7	44.6	0
20200124T120500	2020	01	24	12:05	42.8	45.2	0
20200124T121000	2020	01	24	12:10	42.9	44.9	0
20200124T121500	2020	01	24	12:15	43	44.7	0
20200124T122000	2020	01	24	12:20	43	45.4	0
20200124T122500	2020	01	24	12:25	43.2	45	0
20200124T123000	2020	01	24	12:30	43.3	46.1	0
20200124T123500	2020	01	24	12:35	43.5	46.9	0
20200124T124000	2020	01	24	12:40	43.5	46.5	0
20200124T124500	2020	01	24	12:45	43.4	46.9	0
20200124T125000	2020	01	24	12:50	43.6	47.2	0
20200124T125500	2020	01	24	12:55	43.9	48	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200124T130000	2020	01	24	13:00	44.1	48.9	0
20200124T130500	2020	01	24	13:05	44.4	49.7	0
20200124T131000	2020	01	24	13:10	44.6	50.2	0
20200124T131500	2020	01	24	13:15	44.5	51.7	0
20200124T132000	2020	01	24	13:20	44.7	53.7	0
20200124T132500	2020	01	24	13:25	45.1	54.1	0
20200124T133000	2020	01	24	13:30	45.3	55	0
20200124T133500	2020	01	24	13:35	45.4	55.7	0
20200124T134000	2020	01	24	13:40	45.4	56.2	0
20200124T134500	2020	01	24	13:45	45.4	56.9	0
20200124T135000	2020	01	24	13:50	45.5	57.5	0
20200124T135500	2020	01	24	13:55	45.2	58.4	0
20200124T140000	2020	01	24	14:00	45.1	58.6	0
20200124T140500	2020	01	24	14:05	45.1	58.2	0
20200124T141000	2020	01	24	14:10	44.6	59.5	0
20200124T141500	2020	01	24	14:15	44.7	60	0
20200124T142000	2020	01	24	14:20	44.4	60.2	0
20200124T142500	2020	01	24	14:25	44.4	60.4	0
20200124T143000	2020	01	24	14:30	44.3	60.7	0
20200124T143500	2020	01	24	14:35	44.5	60.6	0
20200124T144000	2020	01	24	14:40	44.5	60.4	0
20200124T144500	2020	01	24	14:45	44.3	60.3	0
20200124T145000	2020	01	24	14:50	44.2	60.6	0
20200124T145500	2020	01	24	14:55	44.4	61.3	0
20200124T150000	2020	01	24	15:00	44.2	62.4	0
20200124T150500	2020	01	24	15:05	44.3	63.5	0
20200124T151000	2020	01	24	15:10	45.2	62.5	0
20200124T151500	2020	01	24	15:15	45.6	62.2	0
20200124T152000	2020	01	24	15:20	45.8	61.8	0
20200124T152500	2020	01	24	15:25	46.4	60.8	0
20200124T153000	2020	01	24	15:30	46.4	61.1	0
20200124T153500	2020	01	24	15:35	46.8	60.8	0
20200124T154000	2020	01	24	15:40	46.9	60.1	0
20200124T154500	2020	01	24	15:45	47	59.7	0
20200124T155000	2020	01	24	15:50	46.6	60.2	0
20200124T155500	2020	01	24	15:55	46	61.3	0
20200124T160000	2020	01	24	16:00	45.8	62	0
20200124T160500	2020	01	24	16:05	45.5	62.1	0
20200124T161000	2020	01	24	16:10	45.6	62.3	0
20200124T161500	2020	01	24	16:15	45.3	62.2	0
20200124T162000	2020	01	24	16:20	45.4	62.3	0
20200124T162500	2020	01	24	16:25	45.6	62	0
20200124T163000	2020	01	24	16:30	44.8	62.4	0
20200124T163500	2020	01	24	16:35	43.2	63.5	0
20200124T164000	2020	01	24	16:40	42.6	65.4	0
20200124T164500	2020	01	24	16:45	43.1	65.7	0
20200124T165000	2020	01	24	16:50	43.5	65.5	0
20200124T165500	2020	01	24	16:55	44.2	65.7	0
20200124T170000	2020	01	24	17:00	44.7	63.9	0
20200124T170500	2020	01	24	17:05	44.6	63.3	0
20200124T171000	2020	01	24	17:10	44.2	63.1	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200124T171500	2020	01	24	17:15	44.5	63	0
20200124T172000	2020	01	24	17:20	43.3	63.9	0
20200124T172500	2020	01	24	17:25	42.2	68.6	0
20200124T173000	2020	01	24	17:30	41.9	69.6	0
20200124T173500	2020	01	24	17:35	41.5	70.7	0
20200124T174000	2020	01	24	17:40	40.7	72.2	0
20200124T174500	2020	01	24	17:45	40.8	74.1	0
20200124T175000	2020	01	24	17:50	41.6	72.9	0
20200124T175500	2020	01	24	17:55	42.3	70.5	0
20200124T180000	2020	01	24	18:00	42.3	70	0
20200124T180500	2020	01	24	18:05	42.7	69.2	0
20200124T181000	2020	01	24	18:10	42.1	69.3	0
20200124T181500	2020	01	24	18:15	40.9	71.2	0
20200124T182000	2020	01	24	18:20	39.6	73.9	0
20200124T182500	2020	01	24	18:25	39.5	75.3	0
20200124T183000	2020	01	24	18:30	38.3	77.2	0
20200124T183500	2020	01	24	18:35	37.9	79.4	0
20200124T184000	2020	01	24	18:40	37.7	78.8	0
20200124T184500	2020	01	24	18:45	38.9	78	0
20200124T185000	2020	01	24	18:50	40.5	73.5	0
20200124T185500	2020	01	24	18:55	40.2	73	0
20200124T190000	2020	01	24	19:00	40.5	71.1	0
20200124T190500	2020	01	24	19:05	39.8	71.3	0
20200124T191000	2020	01	24	19:10	40.1	71.4	0
20200124T191500	2020	01	24	19:15	40.3	70.6	0
20200124T192000	2020	01	24	19:20	40.1	69.9	0
20200124T192500	2020	01	24	19:25	40.5	68.9	0
20200124T193000	2020	01	24	19:30	41	67.9	0
20200124T193500	2020	01	24	19:35	41.8	66.8	0
20200124T194000	2020	01	24	19:40	43.1	63	0
20200124T194500	2020	01	24	19:45	43.7	60.1	0
20200124T195000	2020	01	24	19:50	42.8	60	0
20200124T195500	2020	01	24	19:55	41.8	62.4	0
20200124T200000	2020	01	24	20:00	41.7	62.5	0
20200124T200500	2020	01	24	20:05	41.7	63	0
20200124T201000	2020	01	24	20:10	42.3	62	0
20200124T201500	2020	01	24	20:15	42.5	60.7	0
20200124T202000	2020	01	24	20:20	43	58.9	0
20200124T202500	2020	01	24	20:25	43.1	57.7	0
20200124T203000	2020	01	24	20:30	42.9	56.2	0
20200124T203500	2020	01	24	20:35	43.3	53.2	0
20200124T204000	2020	01	24	20:40	42.9	53	0
20200124T204500	2020	01	24	20:45	43.3	51.1	0
20200124T205000	2020	01	24	20:50	43.6	49.1	0
20200124T205500	2020	01	24	20:55	42.4	50.6	0
20200124T210000	2020	01	24	21:00	42.7	51.5	0
20200124T210500	2020	01	24	21:05	43	48.8	0
20200124T211000	2020	01	24	21:10	43	46.8	0
20200124T211500	2020	01	24	21:15	42.6	48.9	0
20200124T212000	2020	01	24	21:20	42.7	48.2	0
20200124T212500	2020	01	24	21:25	42.1	49	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200124T213000	2020	01	24	21:30	41.9	50.2	0
20200124T213500	2020	01	24	21:35	41.9	49.7	0
20200124T214000	2020	01	24	21:40	41.7	49.5	0
20200124T214500	2020	01	24	21:45	42.4	47.5	0
20200124T215000	2020	01	24	21:50	42.1	48	0
20200124T215500	2020	01	24	21:55	42.2	47.6	0
20200124T220000	2020	01	24	22:00	41.9	48.2	0
20200124T220500	2020	01	24	22:05	42	48.1	0
20200124T221000	2020	01	24	22:10	42.1	48.5	0
20200124T221500	2020	01	24	22:15	42	48.4	0
20200124T222000	2020	01	24	22:20	42.5	46.5	0
20200124T222500	2020	01	24	22:25	43	45.5	0
20200124T223000	2020	01	24	22:30	43.3	44.5	0
20200124T223500	2020	01	24	22:35	42.5	46.7	0
20200124T224000	2020	01	24	22:40	42.6	47.3	0
20200124T224500	2020	01	24	22:45	43	46.6	0
20200124T225000	2020	01	24	22:50	43	47.1	0
20200124T225500	2020	01	24	22:55	42.8	48.2	0
20200124T230000	2020	01	24	23:00	43.4	46.2	0
20200124T230500	2020	01	24	23:05	43.1	46.3	0
20200124T231000	2020	01	24	23:10	42.9	46.4	0
20200124T231500	2020	01	24	23:15	43.6	45.9	0
20200124T232000	2020	01	24	23:20	43.2	45.9	0
20200124T232500	2020	01	24	23:25	42.9	47.3	0
20200124T233000	2020	01	24	23:30	42.9	46.9	0
20200124T233500	2020	01	24	23:35	42.5	47.9	0
20200124T234000	2020	01	24	23:40	42.5	46.5	0
20200124T234500	2020	01	24	23:45	42.4	45.6	0
20200124T235000	2020	01	24	23:50	42.5	44.6	0
20200124T235500	2020	01	24	23:55	42.6	44.1	0
20200125T000000	2020	01	25	00:00	43	42.5	0
20200125T000500	2020	01	25	00:05	43	41.7	0
20200125T001000	2020	01	25	00:10	42.9	41.2	0
20200125T001500	2020	01	25	00:15	42.8	41.2	0
20200125T002000	2020	01	25	00:20	42.5	42.5	0
20200125T002500	2020	01	25	00:25	42.7	41.6	0
20200125T003000	2020	01	25	00:30	42.5	41.8	0
20200125T003500	2020	01	25	00:35	42.7	41	0
20200125T004000	2020	01	25	00:40	42.2	42.1	0
20200125T004500	2020	01	25	00:45	42.2	41.9	0
20200125T005000	2020	01	25	00:50	42.1	42.4	0
20200125T005500	2020	01	25	00:55	42.4	40.5	0
20200125T010000	2020	01	25	01:00	41.9	42.5	0
20200125T010500	2020	01	25	01:05	41.7	43.8	0
20200125T011000	2020	01	25	01:10	42	42.7	0
20200125T011500	2020	01	25	01:15	42.3	41.9	0
20200125T012000	2020	01	25	01:20	42.2	41.4	0
20200125T012500	2020	01	25	01:25	41.7	42.4	0
20200125T013000	2020	01	25	01:30	41.5	42.8	0
20200125T013500	2020	01	25	01:35	41.5	42.8	0
20200125T014000	2020	01	25	01:40	41.2	43.3	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200125T014500	2020	01	25	01:45	41.5	43.3	0
20200125T015000	2020	01	25	01:50	41.4	43.8	0
20200125T015500	2020	01	25	01:55	41.6	42.9	0
20200125T020000	2020	01	25	02:00	41.7	42.1	0
20200125T020500	2020	01	25	02:05	41.3	43.8	0
20200125T021000	2020	01	25	02:10	41.2	44.2	0
20200125T021500	2020	01	25	02:15	40.8	45.6	0
20200125T022000	2020	01	25	02:20	41	46.7	0
20200125T022500	2020	01	25	02:25	41.5	45.8	0
20200125T023000	2020	01	25	02:30	41.7	46.2	0
20200125T023500	2020	01	25	02:35	41.6	47.6	0
20200125T024000	2020	01	25	02:40	41.2	49.7	0
20200125T024500	2020	01	25	02:45	41.2	50.7	0
20200125T025000	2020	01	25	02:50	41.3	50.9	0
20200125T025500	2020	01	25	02:55	40.8	52.8	0
20200125T030000	2020	01	25	03:00	41	53	0
20200125T030500	2020	01	25	03:05	41.3	52.5	0
20200125T031000	2020	01	25	03:10	41.7	51.3	0
20200125T031500	2020	01	25	03:15	41.3	52.2	0
20200125T032000	2020	01	25	03:20	41.7	50.9	0
20200125T032500	2020	01	25	03:25	41.5	50.6	0
20200125T033000	2020	01	25	03:30	41.7	49.9	0
20200125T033500	2020	01	25	03:35	41.7	49.1	0
20200125T034000	2020	01	25	03:40	41.2	49.6	0
20200125T034500	2020	01	25	03:45	41.5	48.1	0
20200125T035000	2020	01	25	03:50	41.2	48.2	0
20200125T035500	2020	01	25	03:55	41.7	46.1	0
20200125T040000	2020	01	25	04:00	41.4	46.4	0
20200125T040500	2020	01	25	04:05	41.3	46.3	0
20200125T041000	2020	01	25	04:10	41	46.9	0
20200125T041500	2020	01	25	04:15	41	46.6	0
20200125T042000	2020	01	25	04:20	41	46.6	0
20200125T042500	2020	01	25	04:25	41.3	45.3	0
20200125T043000	2020	01	25	04:30	40.7	46.5	0
20200125T043500	2020	01	25	04:35	40.5	46.5	0
20200125T044000	2020	01	25	04:40	40.3	47.4	0
20200125T044500	2020	01	25	04:45	40.6	46	0
20200125T045000	2020	01	25	04:50	40.7	45.6	0
20200125T045500	2020	01	25	04:55	40.4	46.4	0
20200125T050000	2020	01	25	05:00	40	46.7	0
20200125T050500	2020	01	25	05:05	40	46.7	0
20200125T051000	2020	01	25	05:10	40	47.1	0
20200125T051500	2020	01	25	05:15	40.4	45.7	0
20200125T052000	2020	01	25	05:20	40.1	46.6	0
20200125T052500	2020	01	25	05:25	40.1	46.5	0
20200125T053000	2020	01	25	05:30	40.3	45.3	0
20200125T053500	2020	01	25	05:35	40.7	42.8	0
20200125T054000	2020	01	25	05:40	40.6	43.4	0.006
20200125T054500	2020	01	25	05:45	39.6	48.8	0.008
20200125T055000	2020	01	25	05:50	39.3	50.3	0.007
20200125T055500	2020	01	25	05:55	38.8	53.1	0.011

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200125T060000	2020	01	25	06:00	38.6	54.5	0.011
20200125T060500	2020	01	25	06:05	38.1	56.9	0.007
20200125T061000	2020	01	25	06:10	37.9	58.9	0.007
20200125T061500	2020	01	25	06:15	37.8	59.5	0.006
20200125T062000	2020	01	25	06:20	37.3	61.5	0.006
20200125T062500	2020	01	25	06:25	36.4	67.8	0.006
20200125T063000	2020	01	25	06:30	36.5	70.9	0.004
20200125T063500	2020	01	25	06:35	36.7	70.4	0
20200125T064000	2020	01	25	06:40	35.8	72.9	0.009
20200125T064500	2020	01	25	06:45	35.1	78.3	0.006
20200125T065000	2020	01	25	06:50	35.2	78.4	0.003
20200125T065500	2020	01	25	06:55	35.5	76.8	0
20200125T070000	2020	01	25	07:00	35.7	76.3	0.007
20200125T070500	2020	01	25	07:05	35.2	77.8	0.001
20200125T071000	2020	01	25	07:10	35	78.5	0.002
20200125T071500	2020	01	25	07:15	34.9	79.3	0
20200125T072000	2020	01	25	07:20	35	78.8	0.012
20200125T072500	2020	01	25	07:25	34.7	80.1	0.004
20200125T073000	2020	01	25	07:30	34.4	81.9	0.001
20200125T073500	2020	01	25	07:35	34.3	83.8	0.01
20200125T074000	2020	01	25	07:40	34.2	85.3	0.008
20200125T074500	2020	01	25	07:45	34.1	86.8	0.004
20200125T075000	2020	01	25	07:50	34.5	86.6	0.017
20200125T075500	2020	01	25	07:55	34.5	86.4	0.009
20200125T080000	2020	01	25	08:00	34.4	84.9	0.009
20200125T080500	2020	01	25	08:05	34.1	85.6	0.009
20200125T081000	2020	01	25	08:10	34.1	86.2	0.008
20200125T081500	2020	01	25	08:15	34.3	85.9	0.007
20200125T082000	2020	01	25	08:20	34.1	86.4	0.009
20200125T082500	2020	01	25	08:25	33.8	88.1	0.007
20200125T083000	2020	01	25	08:30	33.5	89.8	0.009
20200125T083500	2020	01	25	08:35	33.4	91.5	0.012
20200125T084000	2020	01	25	08:40	33.6	91.8	0.015
20200125T084500	2020	01	25	08:45	33.6	91.6	0.022
20200125T085000	2020	01	25	08:50	33.6	92	0.026
20200125T085500	2020	01	25	08:55	33.7	91.5	0.019
20200125T090000	2020	01	25	09:00	33.6	91.1	0.019
20200125T090500	2020	01	25	09:05	33.4	91.6	0.017
20200125T091000	2020	01	25	09:10	33.5	92.3	0.009
20200125T091500	2020	01	25	09:15	33.8	92.1	0.004
20200125T092000	2020	01	25	09:20	33.8	91.7	0.006
20200125T092500	2020	01	25	09:25	34.1	91.2	0.002
20200125T093000	2020	01	25	09:30	34.4	91	0
20200125T093500	2020	01	25	09:35	34.5	89.9	0
20200125T094000	2020	01	25	09:40	34.7	89.4	0.005
20200125T094500	2020	01	25	09:45	34.7	89.1	0.007
20200125T095000	2020	01	25	09:50	34.8	89	0.011
20200125T095500	2020	01	25	09:55	34.6	89.8	0.013
20200125T100000	2020	01	25	10:00	34.7	90.3	0.008
20200125T100500	2020	01	25	10:05	34.7	90.4	0.007
20200125T101000	2020	01	25	10:10	34.6	91.3	0.01

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200125T101500	2020	01	25	10:15	34.5	91.8	0.012
20200125T102000	2020	01	25	10:20	34.6	92.2	0.008
20200125T102500	2020	01	25	10:25	34.6	92.5	0.005
20200125T103000	2020	01	25	10:30	34.6	93.1	0.006
20200125T103500	2020	01	25	10:35	35.2	93.1	0.008
20200125T104000	2020	01	25	10:40	35.6	92	0.014
20200125T104500	2020	01	25	10:45	35.3	92	0.015
20200125T105000	2020	01	25	10:50	35.7	92.2	0.014
20200125T105500	2020	01	25	10:55	35.8	91.7	0.011
20200125T110000	2020	01	25	11:00	35.7	91.8	0.009
20200125T110500	2020	01	25	11:05	35.5	92.2	0.006
20200125T111000	2020	01	25	11:10	35.4	92.7	0.007
20200125T111500	2020	01	25	11:15	35.4	93.3	0.009
20200125T112000	2020	01	25	11:20	35.3	93.5	0.005
20200125T112500	2020	01	25	11:25	35.2	93.7	0.004
20200125T113000	2020	01	25	11:30	35	94	0.005
20200125T113500	2020	01	25	11:35	34.8	94.3	0.011
20200125T114000	2020	01	25	11:40	34.8	94.6	0.009
20200125T114500	2020	01	25	11:45	34.7	94.8	0.007
20200125T115000	2020	01	25	11:50	34.7	95.1	0.01
20200125T115500	2020	01	25	11:55	34.7	95.2	0.01
20200125T120000	2020	01	25	12:00	34.7	95.4	0.009
20200125T120500	2020	01	25	12:05	34.6	95.5	0.004
20200125T121000	2020	01	25	12:10	34.6	95.6	0.009
20200125T121500	2020	01	25	12:15	34.5	95.7	0.007
20200125T122000	2020	01	25	12:20	34.4	95.9	0.006
20200125T122500	2020	01	25	12:25	34.5	95.8	0.004
20200125T123000	2020	01	25	12:30	34.2	95.7	0.008
20200125T123500	2020	01	25	12:35	34.2	95.9	0.004
20200125T124000	2020	01	25	12:40	34.1	96	0.005
20200125T124500	2020	01	25	12:45	34.1	96	0.006
20200125T125000	2020	01	25	12:50	34.1	96.1	0.006
20200125T125500	2020	01	25	12:55	34	96.1	0.012
20200125T130000	2020	01	25	13:00	33.9	96.1	0.008
20200125T130500	2020	01	25	13:05	33.8	96.2	0.005
20200125T131000	2020	01	25	13:10	33.7	96.3	0.006
20200125T131500	2020	01	25	13:15	33.6	96.4	0.005
20200125T132000	2020	01	25	13:20	33.3	96.4	0.007
20200125T132500	2020	01	25	13:25	33.1	96.5	0.007
20200125T133000	2020	01	25	13:30	32.9	96.6	0.011
20200125T133500	2020	01	25	13:35	32.7	96.6	0.009
20200125T134000	2020	01	25	13:40	32.6	96.8	0.008
20200125T134500	2020	01	25	13:45	32.6	96.9	0.007
20200125T135000	2020	01	25	13:50	32.5	97.1	0.006
20200125T135500	2020	01	25	13:55	32.5	97.1	0.005
20200125T140000	2020	01	25	14:00	32.4	97.1	0.012
20200125T140500	2020	01	25	14:05	32.4	97.2	0.009
20200125T141000	2020	01	25	14:10	32.5	97.3	0.008
20200125T141500	2020	01	25	14:15	32.5	97.4	0.008
20200125T142000	2020	01	25	14:20	32.5	97.4	0.005
20200125T142500	2020	01	25	14:25	32.5	97.5	0.012

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200125T143000	2020	01	25	14:30	32.4	97.5	0.005
20200125T143500	2020	01	25	14:35	32.5	97.6	0.004
20200125T144000	2020	01	25	14:40	32.4	97.7	0.008
20200125T144500	2020	01	25	14:45	32.5	97.8	0.006
20200125T145000	2020	01	25	14:50	32.5	97.8	0.009
20200125T145500	2020	01	25	14:55	32.6	97.8	0.007
20200125T150000	2020	01	25	15:00	32.6	97.9	0.004
20200125T150500	2020	01	25	15:05	32.7	97.9	0.004
20200125T151000	2020	01	25	15:10	32.8	97.9	0.001
20200125T151500	2020	01	25	15:15	32.8	98	0.001
20200125T152000	2020	01	25	15:20	32.8	98	0
20200125T152500	2020	01	25	15:25	32.8	98.1	0
20200125T153000	2020	01	25	15:30	32.8	98.1	0
20200125T153500	2020	01	25	15:35	32.9	98.1	0
20200125T154000	2020	01	25	15:40	32.9	98	0
20200125T154500	2020	01	25	15:45	33.1	98	0.004
20200125T155000	2020	01	25	15:50	33.1	98	0.004
20200125T155500	2020	01	25	15:55	33	98	0.002
20200125T160000	2020	01	25	16:00	33	98.1	0
20200125T160500	2020	01	25	16:05	33	98.1	0
20200125T161000	2020	01	25	16:10	33	98.1	0.004
20200125T161500	2020	01	25	16:15	33	98.1	0.001
20200125T162000	2020	01	25	16:20	33.1	98.1	0.001
20200125T162500	2020	01	25	16:25	33.1	98.2	0
20200125T163000	2020	01	25	16:30	33	98.2	0
20200125T163500	2020	01	25	16:35	33	98.2	0
20200125T164000	2020	01	25	16:40	32.9	98.2	0
20200125T164500	2020	01	25	16:45	32.9	98.2	0
20200125T165000	2020	01	25	16:50	33	98.2	0
20200125T165500	2020	01	25	16:55	33	98.2	0.002
20200125T170000	2020	01	25	17:00	33	98.2	0.001
20200125T170500	2020	01	25	17:05	32.9	98.2	0.001
20200125T171000	2020	01	25	17:10	32.9	98.3	0
20200125T171500	2020	01	25	17:15	32.9	98.3	0
20200125T172000	2020	01	25	17:20	32.8	98.3	0
20200125T172500	2020	01	25	17:25	32.7	98.3	0
20200125T173000	2020	01	25	17:30	32.7	98.4	0
20200125T173500	2020	01	25	17:35	32.7	98.4	0
20200125T174000	2020	01	25	17:40	32.7	98.5	0.004
20200125T174500	2020	01	25	17:45	32.6	98.4	0.001
20200125T175000	2020	01	25	17:50	32.6	98.5	0
20200125T175500	2020	01	25	17:55	32.6	98.5	0.003
20200125T180000	2020	01	25	18:00	32.7	98.6	0.001
20200125T180500	2020	01	25	18:05	32.9	98.6	0.004
20200125T181000	2020	01	25	18:10	32.9	98.6	0.003
20200125T181500	2020	01	25	18:15	32.9	98.6	0.001
20200125T182000	2020	01	25	18:20	32.8	98.6	0.002
20200125T182500	2020	01	25	18:25	32.8	98.6	0.001
20200125T183000	2020	01	25	18:30	32.9	98.7	0.001
20200125T183500	2020	01	25	18:35	32.9	98.6	0
20200125T184000	2020	01	25	18:40	32.9	98.6	0.002

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200125T184500	2020	01	25	18:45	32.9	98.6	0.001
20200125T185000	2020	01	25	18:50	32.8	98.6	0.001
20200125T185500	2020	01	25	18:55	32.9	98.6	0
20200125T190000	2020	01	25	19:00	32.8	98.6	0.002
20200125T190500	2020	01	25	19:05	32.6	98.6	0
20200125T191000	2020	01	25	19:10	32.6	98.6	0.001
20200125T191500	2020	01	25	19:15	32.6	98.7	0
20200125T192000	2020	01	25	19:20	32.5	98.6	0
20200125T192500	2020	01	25	19:25	32.6	98.7	0
20200125T193000	2020	01	25	19:30	32.6	98.7	0
20200125T193500	2020	01	25	19:35	32.7	98.7	0
20200125T194000	2020	01	25	19:40	32.7	98.8	0
20200125T194500	2020	01	25	19:45	32.9	98.8	0
20200125T195000	2020	01	25	19:50	33	98.8	0
20200125T195500	2020	01	25	19:55	33	98.8	0
20200125T200000	2020	01	25	20:00	33	98.8	0.002
20200125T200500	2020	01	25	20:05	33.1	98.8	0
20200125T201000	2020	01	25	20:10	33.4	98.9	0.001
20200125T201500	2020	01	25	20:15	33.5	98.9	0
20200125T202000	2020	01	25	20:20	33.4	98.8	0
20200125T202500	2020	01	25	20:25	33.4	98.8	0.004
20200125T203000	2020	01	25	20:30	33.7	98.8	0.001
20200125T203500	2020	01	25	20:35	33.8	98.8	0.001
20200125T204000	2020	01	25	20:40	34.1	98.8	0
20200125T204500	2020	01	25	20:45	33.9	98.7	0.002
20200125T205000	2020	01	25	20:50	34	98.7	0.001
20200125T205500	2020	01	25	20:55	33.9	98.6	0
20200125T210000	2020	01	25	21:00	33.9	98.6	0
20200125T210500	2020	01	25	21:05	34	98.6	0.002
20200125T211000	2020	01	25	21:10	34.2	98.6	0.002
20200125T211500	2020	01	25	21:15	34.4	98.6	0
20200125T212000	2020	01	25	21:20	34.4	98.4	0.004
20200125T212500	2020	01	25	21:25	34	98.2	0
20200125T213000	2020	01	25	21:30	33.9	98.1	0.001
20200125T213500	2020	01	25	21:35	34	98.1	0.002
20200125T214000	2020	01	25	21:40	34.1	98.1	0.003
20200125T214500	2020	01	25	21:45	33.9	97.9	0.003
20200125T215000	2020	01	25	21:50	33.9	98	0.003
20200125T215500	2020	01	25	21:55	34.1	98	0
20200125T220000	2020	01	25	22:00	34.2	98	0
20200125T220500	2020	01	25	22:05	34.1	98	0
20200125T221000	2020	01	25	22:10	33.9	97.9	0
20200125T221500	2020	01	25	22:15	33.5	97.9	0
20200125T222000	2020	01	25	22:20	33.6	98	0
20200125T222500	2020	01	25	22:25	34.1	98.1	0
20200125T223000	2020	01	25	22:30	33.9	98	0
20200125T223500	2020	01	25	22:35	34	98	0
20200125T224000	2020	01	25	22:40	34	97.9	0
20200125T224500	2020	01	25	22:45	33.8	97.7	0
20200125T225000	2020	01	25	22:50	33.7	97.7	0
20200125T225500	2020	01	25	22:55	33.7	97.7	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200125T230000	2020	01	25	23:00	33.9	97.8	0
20200125T230500	2020	01	25	23:05	34	97.8	0
20200125T231000	2020	01	25	23:10	33.9	97.7	0
20200125T231500	2020	01	25	23:15	34.1	97.8	0
20200125T232000	2020	01	25	23:20	34.2	97.8	0
20200125T232500	2020	01	25	23:25	34.4	97.7	0
20200125T233000	2020	01	25	23:30	34.5	97.6	0
20200125T233500	2020	01	25	23:35	34.5	97.5	0
20200125T234000	2020	01	25	23:40	34.5	97.3	0
20200125T234500	2020	01	25	23:45	33.9	97.1	0
20200125T235000	2020	01	25	23:50	33.6	97	0
20200125T235500	2020	01	25	23:55	33.9	97.1	0
20200126T000000	2020	01	26	00:00	33.6	97.3	0
20200126T000500	2020	01	26	00:05	33.1	97	0
20200126T001000	2020	01	26	00:10	33.1	97.1	0
20200126T001500	2020	01	26	00:15	33.5	97.5	0
20200126T002000	2020	01	26	00:20	33.8	97.7	0
20200126T002500	2020	01	26	00:25	33.7	97.6	0
20200126T003000	2020	01	26	00:30	33.8	97.6	0
20200126T003500	2020	01	26	00:35	34	97.7	0
20200126T004000	2020	01	26	00:40	33.8	97.7	0
20200126T004500	2020	01	26	00:45	33.9	97.7	0
20200126T005000	2020	01	26	00:50	33.8	97.7	0
20200126T005500	2020	01	26	00:55	33.5	97.6	0
20200126T010000	2020	01	26	01:00	33.9	97.6	0
20200126T010500	2020	01	26	01:05	33.9	97.7	0
20200126T011000	2020	01	26	01:10	33.9	97.7	0
20200126T011500	2020	01	26	01:15	33.9	97.7	0
20200126T012000	2020	01	26	01:20	34.1	97.7	0
20200126T012500	2020	01	26	01:25	34.1	97.6	0
20200126T013000	2020	01	26	01:30	33.3	97.3	0
20200126T013500	2020	01	26	01:35	33.4	97.2	0
20200126T014000	2020	01	26	01:40	33.2	97.4	0
20200126T014500	2020	01	26	01:45	33	97.5	0
20200126T015000	2020	01	26	01:50	33	97.5	0
20200126T015500	2020	01	26	01:55	33.2	97.6	0.002
20200126T020000	2020	01	26	02:00	33	97.7	0
20200126T020500	2020	01	26	02:05	33.5	97.8	0.001
20200126T021000	2020	01	26	02:10	34	98.1	0
20200126T021500	2020	01	26	02:15	34.1	97.9	0
20200126T022000	2020	01	26	02:20	34.3	97.9	0
20200126T022500	2020	01	26	02:25	34.5	97.6	0
20200126T023000	2020	01	26	02:30	34.2	96.9	0
20200126T023500	2020	01	26	02:35	34.3	96.8	0
20200126T024000	2020	01	26	02:40	34.2	96.8	0
20200126T024500	2020	01	26	02:45	33.5	96.6	0
20200126T025000	2020	01	26	02:50	33.1	96.5	0
20200126T025500	2020	01	26	02:55	33.1	96.7	0
20200126T030000	2020	01	26	03:00	32.9	96.8	0
20200126T030500	2020	01	26	03:05	33.3	97.3	0.006
20200126T031000	2020	01	26	03:10	33.5	97.5	0.004

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200126T031500	2020	01	26	03:15	34.1	97.9	0
20200126T032000	2020	01	26	03:20	34.1	97.8	0.001
20200126T032500	2020	01	26	03:25	34.7	97.9	0.002
20200126T033000	2020	01	26	03:30	35	97.7	0.001
20200126T033500	2020	01	26	03:35	35.1	97.4	0
20200126T034000	2020	01	26	03:40	35.1	96.9	0
20200126T034500	2020	01	26	03:45	35	96.5	0
20200126T035000	2020	01	26	03:50	34.9	96.2	0
20200126T035500	2020	01	26	03:55	34.9	96	0
20200126T040000	2020	01	26	04:00	34.9	95.9	0
20200126T040500	2020	01	26	04:05	34.7	95.8	0
20200126T041000	2020	01	26	04:10	34.4	95.8	0
20200126T041500	2020	01	26	04:15	33.9	95.9	0
20200126T042000	2020	01	26	04:20	33.9	96.1	0
20200126T042500	2020	01	26	04:25	33.8	96.2	0
20200126T043000	2020	01	26	04:30	33.8	96.6	0
20200126T043500	2020	01	26	04:35	33.6	96.7	0
20200126T044000	2020	01	26	04:40	34.1	97.1	0
20200126T044500	2020	01	26	04:45	34	97.2	0
20200126T045000	2020	01	26	04:50	34.2	97.3	0
20200126T045500	2020	01	26	04:55	34.1	97.2	0
20200126T050000	2020	01	26	05:00	34.1	97.1	0
20200126T050500	2020	01	26	05:05	34.4	97.1	0
20200126T051000	2020	01	26	05:10	34.5	96.8	0
20200126T051500	2020	01	26	05:15	34.7	95.7	0
20200126T052000	2020	01	26	05:20	35	89.7	0
20200126T052500	2020	01	26	05:25	35.1	86.3	0
20200126T053000	2020	01	26	05:30	35.1	85.9	0
20200126T053500	2020	01	26	05:35	35	85.7	0
20200126T054000	2020	01	26	05:40	34.9	85.4	0
20200126T054500	2020	01	26	05:45	34.6	86.5	0
20200126T055000	2020	01	26	05:50	34.8	86	0
20200126T055500	2020	01	26	05:55	34.7	85.9	0
20200126T060000	2020	01	26	06:00	34.6	85.7	0
20200126T060500	2020	01	26	06:05	34.1	87.5	0
20200126T061000	2020	01	26	06:10	33.9	88.3	0
20200126T061500	2020	01	26	06:15	34.2	88.8	0
20200126T062000	2020	01	26	06:20	34.4	88.3	0
20200126T062500	2020	01	26	06:25	34.5	88.4	0
20200126T063000	2020	01	26	06:30	34.6	88.8	0
20200126T063500	2020	01	26	06:35	34.9	88.6	0
20200126T064000	2020	01	26	06:40	35	88	0
20200126T064500	2020	01	26	06:45	35	87.5	0
20200126T065000	2020	01	26	06:50	35.1	86.8	0
20200126T065500	2020	01	26	06:55	35.1	86.6	0
20200126T070000	2020	01	26	07:00	35	87.3	0
20200126T070500	2020	01	26	07:05	34.9	87.6	0
20200126T071000	2020	01	26	07:10	34.9	87.7	0
20200126T071500	2020	01	26	07:15	34.9	87.8	0
20200126T072000	2020	01	26	07:20	34.9	87.7	0
20200126T072500	2020	01	26	07:25	34.8	87.8	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200126T073000	2020	01	26	07:30	34.8	87.2	0
20200126T073500	2020	01	26	07:35	35.1	84.8	0
20200126T074000	2020	01	26	07:40	35.4	81.7	0
20200126T074500	2020	01	26	07:45	35.5	81.1	0
20200126T075000	2020	01	26	07:50	35.6	79.7	0
20200126T075500	2020	01	26	07:55	35.6	78.8	0
20200126T080000	2020	01	26	08:00	35.6	78.9	0
20200126T080500	2020	01	26	08:05	35.6	79.2	0
20200126T081000	2020	01	26	08:10	35.6	79	0
20200126T081500	2020	01	26	08:15	35.6	79.3	0
20200126T082000	2020	01	26	08:20	35.5	79.5	0
20200126T082500	2020	01	26	08:25	35.4	80.1	0
20200126T083000	2020	01	26	08:30	35.4	80.4	0
20200126T083500	2020	01	26	08:35	35.3	80.9	0
20200126T084000	2020	01	26	08:40	35.3	81.2	0
20200126T084500	2020	01	26	08:45	35.2	82.1	0
20200126T085000	2020	01	26	08:50	35	83.7	0
20200126T085500	2020	01	26	08:55	34.9	84.4	0
20200126T090000	2020	01	26	09:00	34.9	84.6	0
20200126T090500	2020	01	26	09:05	34.9	84.7	0
20200126T091000	2020	01	26	09:10	34.9	85	0
20200126T091500	2020	01	26	09:15	34.8	85.6	0
20200126T092000	2020	01	26	09:20	34.8	86	0
20200126T092500	2020	01	26	09:25	34.9	85.9	0
20200126T093000	2020	01	26	09:30	34.9	85.6	0
20200126T093500	2020	01	26	09:35	35	85.3	0
20200126T094000	2020	01	26	09:40	35	85.5	0
20200126T094500	2020	01	26	09:45	35.1	85.4	0
20200126T095000	2020	01	26	09:50	35.1	85.7	0
20200126T095500	2020	01	26	09:55	35.2	85.5	0
20200126T100000	2020	01	26	10:00	35.4	84.9	0
20200126T100500	2020	01	26	10:05	35.5	84	0
20200126T101000	2020	01	26	10:10	35.5	84.1	0
20200126T101500	2020	01	26	10:15	35.6	83.7	0
20200126T102000	2020	01	26	10:20	35.7	83.6	0
20200126T102500	2020	01	26	10:25	35.6	84.3	0
20200126T103000	2020	01	26	10:30	35.8	83.6	0
20200126T103500	2020	01	26	10:35	35.8	83.3	0
20200126T104000	2020	01	26	10:40	35.8	83.7	0
20200126T104500	2020	01	26	10:45	36	83.4	0
20200126T105000	2020	01	26	10:50	36.2	82.4	0
20200126T105500	2020	01	26	10:55	36.2	82.3	0
20200126T110000	2020	01	26	11:00	36.4	81.2	0
20200126T110500	2020	01	26	11:05	36.6	79.8	0
20200126T111000	2020	01	26	11:10	36.7	79.9	0
20200126T111500	2020	01	26	11:15	36.7	80	0
20200126T112000	2020	01	26	11:20	36.9	78.6	0
20200126T112500	2020	01	26	11:25	37.5	74.3	0
20200126T113000	2020	01	26	11:30	37.7	73.2	0
20200126T113500	2020	01	26	11:35	37.7	72.9	0
20200126T114000	2020	01	26	11:40	37.9	72.6	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200126T114500	2020	01	26	11:45	38	72.2	0
20200126T115000	2020	01	26	11:50	38	72.4	0
20200126T115500	2020	01	26	11:55	37.9	72.3	0
20200126T120000	2020	01	26	12:00	37.8	72.9	0
20200126T120500	2020	01	26	12:05	37.9	72.3	0
20200126T121000	2020	01	26	12:10	38.1	70.8	0
20200126T121500	2020	01	26	12:15	38.1	70.6	0
20200126T122000	2020	01	26	12:20	37.9	71.9	0
20200126T122500	2020	01	26	12:25	38.1	71.5	0
20200126T123000	2020	01	26	12:30	37.9	72.4	0
20200126T123500	2020	01	26	12:35	38	72.4	0
20200126T124000	2020	01	26	12:40	38	72.4	0
20200126T124500	2020	01	26	12:45	37.7	74	0
20200126T125000	2020	01	26	12:50	37.7	74.8	0
20200126T125500	2020	01	26	12:55	37.7	74.5	0
20200126T130000	2020	01	26	13:00	37.6	75.5	0
20200126T130500	2020	01	26	13:05	37.7	74.9	0
20200126T131000	2020	01	26	13:10	37.8	74.5	0
20200126T131500	2020	01	26	13:15	37.9	74.5	0
20200126T132000	2020	01	26	13:20	38.1	73.9	0
20200126T132500	2020	01	26	13:25	38.2	73.5	0
20200126T133000	2020	01	26	13:30	38.2	73.4	0
20200126T133500	2020	01	26	13:35	38.3	72.9	0
20200126T134000	2020	01	26	13:40	38.3	72.5	0
20200126T134500	2020	01	26	13:45	38.3	72.7	0
20200126T135000	2020	01	26	13:50	38.3	73.1	0
20200126T135500	2020	01	26	13:55	38.2	73.5	0
20200126T140000	2020	01	26	14:00	38.1	73.8	0
20200126T140500	2020	01	26	14:05	38	74.1	0
20200126T141000	2020	01	26	14:10	38	74.3	0
20200126T141500	2020	01	26	14:15	37.9	74.6	0
20200126T142000	2020	01	26	14:20	38	74.5	0
20200126T142500	2020	01	26	14:25	38	74.8	0
20200126T143000	2020	01	26	14:30	38	75	0
20200126T143500	2020	01	26	14:35	38.2	74.1	0
20200126T144000	2020	01	26	14:40	38.3	73.1	0
20200126T144500	2020	01	26	14:45	38.2	73.9	0
20200126T145000	2020	01	26	14:50	38.2	73.6	0
20200126T145500	2020	01	26	14:55	38.4	72.2	0
20200126T150000	2020	01	26	15:00	38.2	73.1	0
20200126T150500	2020	01	26	15:05	38.2	73.8	0
20200126T151000	2020	01	26	15:10	38.4	73.2	0
20200126T151500	2020	01	26	15:15	38.4	73.2	0
20200126T152000	2020	01	26	15:20	38.5	72.6	0
20200126T152500	2020	01	26	15:25	38.4	72.8	0
20200126T153000	2020	01	26	15:30	38.4	72.3	0
20200126T153500	2020	01	26	15:35	38.4	72.6	0
20200126T154000	2020	01	26	15:40	38.5	72	0
20200126T154500	2020	01	26	15:45	38.5	71.6	0
20200126T155000	2020	01	26	15:50	38.4	71.8	0
20200126T155500	2020	01	26	15:55	38.2	73	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200126T160000	2020	01	26	16:00	38.1	73.2	0
20200126T160500	2020	01	26	16:05	38.1	73.3	0
20200126T161000	2020	01	26	16:10	38	73.5	0
20200126T161500	2020	01	26	16:15	37.9	73.9	0
20200126T162000	2020	01	26	16:20	37.7	74.2	0
20200126T162500	2020	01	26	16:25	37.9	74.2	0
20200126T163000	2020	01	26	16:30	37.7	74.4	0
20200126T163500	2020	01	26	16:35	37.4	75.8	0
20200126T164000	2020	01	26	16:40	37.2	76.1	0
20200126T164500	2020	01	26	16:45	37.6	75.3	0
20200126T165000	2020	01	26	16:50	37.5	74.9	0
20200126T165500	2020	01	26	16:55	37.5	75.3	0
20200126T170000	2020	01	26	17:00	37.5	75.1	0
20200126T170500	2020	01	26	17:05	37.6	74.3	0
20200126T171000	2020	01	26	17:10	37.6	74	0
20200126T171500	2020	01	26	17:15	37.4	74.6	0
20200126T172000	2020	01	26	17:20	37.4	74.6	0
20200126T172500	2020	01	26	17:25	37.2	75	0
20200126T173000	2020	01	26	17:30	37.3	75.2	0
20200126T173500	2020	01	26	17:35	37.2	75.2	0
20200126T174000	2020	01	26	17:40	37.3	74.9	0
20200126T174500	2020	01	26	17:45	37.6	73.7	0
20200126T175000	2020	01	26	17:50	37.4	73.9	0
20200126T175500	2020	01	26	17:55	37.1	74.9	0
20200126T180000	2020	01	26	18:00	37.2	75	0
20200126T180500	2020	01	26	18:05	37.1	74.6	0
20200126T181000	2020	01	26	18:10	37	75.1	0
20200126T181500	2020	01	26	18:15	37.3	74.4	0
20200126T182000	2020	01	26	18:20	37.3	73.8	0
20200126T182500	2020	01	26	18:25	37.5	73.4	0
20200126T183000	2020	01	26	18:30	37.5	73.7	0
20200126T183500	2020	01	26	18:35	37.7	73.4	0
20200126T184000	2020	01	26	18:40	37.8	72.7	0
20200126T184500	2020	01	26	18:45	37.7	73.4	0
20200126T185000	2020	01	26	18:50	37.7	73.4	0
20200126T185500	2020	01	26	18:55	37.6	73.5	0
20200126T190000	2020	01	26	19:00	37.7	73.4	0
20200126T190500	2020	01	26	19:05	37.4	74.2	0
20200126T191000	2020	01	26	19:10	37.3	74.9	0
20200126T191500	2020	01	26	19:15	37.4	74.6	0
20200126T192000	2020	01	26	19:20	37.4	74.3	0
20200126T192500	2020	01	26	19:25	37.3	74.8	0
20200126T193000	2020	01	26	19:30	37.4	74.3	0
20200126T193500	2020	01	26	19:35	37.5	73.6	0
20200126T194000	2020	01	26	19:40	37.4	73.8	0
20200126T194500	2020	01	26	19:45	37.5	73.3	0
20200126T195000	2020	01	26	19:50	37.6	72.7	0
20200126T195500	2020	01	26	19:55	37.5	72.7	0
20200126T200000	2020	01	26	20:00	37.3	73.7	0
20200126T200500	2020	01	26	20:05	37.3	73.6	0
20200126T201000	2020	01	26	20:10	37.3	73.6	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200126T201500	2020	01	26	20:15	37.5	72.3	0
20200126T202000	2020	01	26	20:20	37.5	72.5	0
20200126T202500	2020	01	26	20:25	37.6	71.7	0
20200126T203000	2020	01	26	20:30	37.5	72.3	0
20200126T203500	2020	01	26	20:35	37.4	72.7	0
20200126T204000	2020	01	26	20:40	37.5	72.9	0
20200126T204500	2020	01	26	20:45	37.3	73.2	0
20200126T205000	2020	01	26	20:50	37.2	73.9	0
20200126T205500	2020	01	26	20:55	37.2	74	0
20200126T210000	2020	01	26	21:00	37.2	74.6	0
20200126T210500	2020	01	26	21:05	37.2	74.9	0
20200126T211000	2020	01	26	21:10	37	76.1	0
20200126T211500	2020	01	26	21:15	36.9	76.3	0
20200126T212000	2020	01	26	21:20	36.6	77.9	0
20200126T212500	2020	01	26	21:25	36.5	79.3	0.002
20200126T213000	2020	01	26	21:30	36.4	80.1	0
20200126T213500	2020	01	26	21:35	36.3	80.4	0
20200126T214000	2020	01	26	21:40	36.3	80.1	0
20200126T214500	2020	01	26	21:45	36.4	79.8	0
20200126T215000	2020	01	26	21:50	36.3	79.8	0
20200126T215500	2020	01	26	21:55	36.3	80.4	0
20200126T220000	2020	01	26	22:00	36.2	80.9	0
20200126T220500	2020	01	26	22:05	36.1	81.2	0
20200126T221000	2020	01	26	22:10	35.9	82.2	0
20200126T221500	2020	01	26	22:15	35.8	83.2	0
20200126T222000	2020	01	26	22:20	35.7	84.3	0.002
20200126T222500	2020	01	26	22:25	35.5	84.9	0
20200126T223000	2020	01	26	22:30	35.5	85.3	0
20200126T223500	2020	01	26	22:35	35.4	85.5	0
20200126T224000	2020	01	26	22:40	35.3	86.1	0
20200126T224500	2020	01	26	22:45	35.2	86.7	0
20200126T225000	2020	01	26	22:50	35.2	87.4	0
20200126T225500	2020	01	26	22:55	35	87.8	0
20200126T230000	2020	01	26	23:00	34.9	88.7	0
20200126T230500	2020	01	26	23:05	34.7	89.3	0
20200126T231000	2020	01	26	23:10	34.8	89.7	0
20200126T231500	2020	01	26	23:15	34.8	89.7	0
20200126T232000	2020	01	26	23:20	34.7	89.8	0
20200126T232500	2020	01	26	23:25	34.8	89.7	0
20200126T233000	2020	01	26	23:30	34.8	89.5	0
20200126T233500	2020	01	26	23:35	34.9	89.3	0
20200126T234000	2020	01	26	23:40	34.8	89.2	0
20200126T234500	2020	01	26	23:45	34.9	89	0
20200126T235000	2020	01	26	23:50	35	88.2	0
20200126T235500	2020	01	26	23:55	34.9	88.1	0
20200127T000000	2020	01	27	00:00	35	88	0
20200127T000500	2020	01	27	00:05	35.1	87.5	0
20200127T001000	2020	01	27	00:10	35.1	87.5	0
20200127T001500	2020	01	27	00:15	35	87.7	0
20200127T002000	2020	01	27	00:20	35	88	0
20200127T002500	2020	01	27	00:25	35	87.9	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200127T003000	2020	01	27	00:30	35.1	87.2	0
20200127T003500	2020	01	27	00:35	35.2	86.6	0
20200127T004000	2020	01	27	00:40	35.2	86.3	0
20200127T004500	2020	01	27	00:45	35.3	84.9	0
20200127T005000	2020	01	27	00:50	35.5	84	0
20200127T005500	2020	01	27	00:55	35.5	84	0
20200127T010000	2020	01	27	01:00	35.4	84.2	0
20200127T010500	2020	01	27	01:05	35.4	84.4	0
20200127T011000	2020	01	27	01:10	35.3	84.9	0
20200127T011500	2020	01	27	01:15	35.2	85.4	0
20200127T012000	2020	01	27	01:20	35.2	85.4	0
20200127T012500	2020	01	27	01:25	35.1	85.6	0
20200127T013000	2020	01	27	01:30	35.3	84.8	0
20200127T013500	2020	01	27	01:35	35.2	84.7	0
20200127T014000	2020	01	27	01:40	35.2	84.4	0
20200127T014500	2020	01	27	01:45	35.1	83.8	0
20200127T015000	2020	01	27	01:50	35.4	82.3	0
20200127T015500	2020	01	27	01:55	35.7	79.7	0
20200127T020000	2020	01	27	02:00	35.5	80.2	0
20200127T020500	2020	01	27	02:05	35.2	81.9	0
20200127T021000	2020	01	27	02:10	35.4	81.7	0
20200127T021500	2020	01	27	02:15	35.3	81.6	0
20200127T022000	2020	01	27	02:20	35.6	80.8	0
20200127T022500	2020	01	27	02:25	35.6	80.4	0
20200127T023000	2020	01	27	02:30	35.6	80.6	0
20200127T023500	2020	01	27	02:35	35.6	80.2	0
20200127T024000	2020	01	27	02:40	35.6	80.2	0
20200127T024500	2020	01	27	02:45	35.5	80.7	0
20200127T025000	2020	01	27	02:50	35.5	81	0
20200127T025500	2020	01	27	02:55	35.3	81.7	0
20200127T030000	2020	01	27	03:00	35.2	82.9	0
20200127T030500	2020	01	27	03:05	35	84.1	0
20200127T031000	2020	01	27	03:10	34.8	85.5	0
20200127T031500	2020	01	27	03:15	34.6	87.4	0
20200127T032000	2020	01	27	03:20	34.5	88.3	0
20200127T032500	2020	01	27	03:25	34.4	88.6	0
20200127T033000	2020	01	27	03:30	34.4	88.5	0
20200127T033500	2020	01	27	03:35	34.6	87.8	0
20200127T034000	2020	01	27	03:40	34.8	86.4	0
20200127T034500	2020	01	27	03:45	34.8	85.5	0
20200127T035000	2020	01	27	03:50	35	84.4	0
20200127T035500	2020	01	27	03:55	35.1	83.1	0
20200127T040000	2020	01	27	04:00	35.1	82.5	0
20200127T040500	2020	01	27	04:05	35.1	82	0
20200127T041000	2020	01	27	04:10	35.1	81.8	0
20200127T041500	2020	01	27	04:15	35.1	81.6	0
20200127T042000	2020	01	27	04:20	34.9	82.5	0
20200127T042500	2020	01	27	04:25	34.9	82.9	0
20200127T043000	2020	01	27	04:30	34.8	83.8	0
20200127T043500	2020	01	27	04:35	34.6	85	0
20200127T044000	2020	01	27	04:40	34.5	86.2	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200127T044500	2020	01	27	04:45	34.4	87	0
20200127T045000	2020	01	27	04:50	34.3	87.5	0
20200127T045500	2020	01	27	04:55	34.2	88.4	0
20200127T050000	2020	01	27	05:00	34.1	89.2	0
20200127T050500	2020	01	27	05:05	34.1	89.6	0
20200127T051000	2020	01	27	05:10	34	90	0.002
20200127T051500	2020	01	27	05:15	33.9	90.3	0.001
20200127T052000	2020	01	27	05:20	33.7	90.8	0
20200127T052500	2020	01	27	05:25	33.6	91.4	0.002
20200127T053000	2020	01	27	05:30	33.5	92.1	0.001
20200127T053500	2020	01	27	05:35	33.4	92.7	0.001
20200127T054000	2020	01	27	05:40	33.4	92.9	0
20200127T054500	2020	01	27	05:45	33.4	93.2	0
20200127T055000	2020	01	27	05:50	33.5	93.1	0
20200127T055500	2020	01	27	05:55	33.4	93.1	0
20200127T060000	2020	01	27	06:00	33.4	93.2	0
20200127T060500	2020	01	27	06:05	33.5	93.2	0
20200127T061000	2020	01	27	06:10	33.4	93.2	0
20200127T061500	2020	01	27	06:15	33.4	93.4	0
20200127T062000	2020	01	27	06:20	33.5	93.2	0
20200127T062500	2020	01	27	06:25	33.6	92.7	0
20200127T063000	2020	01	27	06:30	33.7	91.8	0.002
20200127T063500	2020	01	27	06:35	33.8	90.7	0
20200127T064000	2020	01	27	06:40	33.9	89.9	0
20200127T064500	2020	01	27	06:45	33.9	89.8	0
20200127T065000	2020	01	27	06:50	33.9	89.8	0
20200127T065500	2020	01	27	06:55	33.9	89.3	0
20200127T070000	2020	01	27	07:00	34	88.4	0
20200127T070500	2020	01	27	07:05	34	88.6	0
20200127T071000	2020	01	27	07:10	34	88.5	0
20200127T071500	2020	01	27	07:15	34	88.4	0
20200127T072000	2020	01	27	07:20	34	88.4	0
20200127T072500	2020	01	27	07:25	34	87.8	0
20200127T073000	2020	01	27	07:30	34.1	87	0
20200127T073500	2020	01	27	07:35	34.1	86.7	0
20200127T074000	2020	01	27	07:40	34.1	86.7	0
20200127T074500	2020	01	27	07:45	34.1	86.9	0
20200127T075000	2020	01	27	07:50	34.1	86.9	0
20200127T075500	2020	01	27	07:55	34.1	87.2	0
20200127T080000	2020	01	27	08:00	34.1	87.4	0
20200127T080500	2020	01	27	08:05	34	87.6	0
20200127T081000	2020	01	27	08:10	34.1	87.3	0
20200127T081500	2020	01	27	08:15	34.2	87	0
20200127T082000	2020	01	27	08:20	34.3	86.2	0
20200127T082500	2020	01	27	08:25	34.3	86.3	0
20200127T083000	2020	01	27	08:30	34.3	86.2	0
20200127T083500	2020	01	27	08:35	34.4	85.9	0
20200127T084000	2020	01	27	08:40	34.4	85.5	0
20200127T084500	2020	01	27	08:45	34.4	85.6	0
20200127T085000	2020	01	27	08:50	34.4	85.6	0
20200127T085500	2020	01	27	08:55	34.5	85.2	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200127T090000	2020	01	27	09:00	34.5	85.2	0
20200127T090500	2020	01	27	09:05	34.5	85.3	0
20200127T091000	2020	01	27	09:10	34.5	85.3	0
20200127T091500	2020	01	27	09:15	34.5	85.5	0
20200127T092000	2020	01	27	09:20	34.5	85.4	0
20200127T092500	2020	01	27	09:25	34.5	85.5	0
20200127T093000	2020	01	27	09:30	34.5	85.7	0
20200127T093500	2020	01	27	09:35	34.4	87.1	0
20200127T094000	2020	01	27	09:40	34.4	87.8	0
20200127T094500	2020	01	27	09:45	34.5	87.2	0
20200127T095000	2020	01	27	09:50	34.4	87.1	0
20200127T095500	2020	01	27	09:55	34.3	88.4	0
20200127T100000	2020	01	27	10:00	34.1	89.5	0
20200127T100500	2020	01	27	10:05	34.1	90.3	0
20200127T101000	2020	01	27	10:10	34.2	89.8	0
20200127T101500	2020	01	27	10:15	34.2	89.4	0
20200127T102000	2020	01	27	10:20	34.3	89.1	0
20200127T102500	2020	01	27	10:25	34.3	88.1	0
20200127T103000	2020	01	27	10:30	34.4	88.1	0
20200127T103500	2020	01	27	10:35	34.5	87.8	0
20200127T104000	2020	01	27	10:40	34.7	87	0
20200127T104500	2020	01	27	10:45	34.8	86.7	0
20200127T105000	2020	01	27	10:50	34.8	86	0
20200127T105500	2020	01	27	10:55	34.9	85.6	0
20200127T110000	2020	01	27	11:00	34.9	85.2	0
20200127T110500	2020	01	27	11:05	35	85.7	0
20200127T111000	2020	01	27	11:10	35.1	85.8	0
20200127T111500	2020	01	27	11:15	35.1	85.3	0
20200127T112000	2020	01	27	11:20	35	85.8	0
20200127T112500	2020	01	27	11:25	35.1	85.2	0
20200127T113000	2020	01	27	11:30	35.2	84.7	0
20200127T113500	2020	01	27	11:35	35.2	84.3	0
20200127T114000	2020	01	27	11:40	35.2	84.8	0
20200127T114500	2020	01	27	11:45	35.2	85.1	0
20200127T115000	2020	01	27	11:50	35.2	86.1	0
20200127T115500	2020	01	27	11:55	35.2	86.3	0
20200127T120000	2020	01	27	12:00	35.3	85.8	0
20200127T120500	2020	01	27	12:05	35.3	85.4	0
20200127T121000	2020	01	27	12:10	35.3	85	0
20200127T121500	2020	01	27	12:15	35.1	86	0
20200127T122000	2020	01	27	12:20	35.1	86.3	0
20200127T122500	2020	01	27	12:25	35.2	85.8	0
20200127T123000	2020	01	27	12:30	35.2	86.1	0
20200127T123500	2020	01	27	12:35	35.3	85.6	0
20200127T124000	2020	01	27	12:40	35.3	86	0
20200127T124500	2020	01	27	12:45	35.3	85.4	0
20200127T125000	2020	01	27	12:50	35.3	84.9	0
20200127T125500	2020	01	27	12:55	35.5	85.2	0
20200127T130000	2020	01	27	13:00	35.5	85	0
20200127T130500	2020	01	27	13:05	35.4	84.1	0
20200127T131000	2020	01	27	13:10	35.3	84.4	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200127T131500	2020	01	27	13:15	35.2	85.6	0
20200127T132000	2020	01	27	13:20	34.5	87.6	0.003
20200127T132500	2020	01	27	13:25	33.9	91.4	0.001
20200127T133000	2020	01	27	13:30	34.2	92.8	0
20200127T133500	2020	01	27	13:35	34.5	91.2	0
20200127T134000	2020	01	27	13:40	34.5	89.7	0
20200127T134500	2020	01	27	13:45	34.6	89.9	0
20200127T135000	2020	01	27	13:50	34.6	89.5	0
20200127T135500	2020	01	27	13:55	34.6	89.2	0
20200127T140000	2020	01	27	14:00	34.5	88.9	0
20200127T140500	2020	01	27	14:05	33.7	89.5	0.002
20200127T141000	2020	01	27	14:10	33.3	91.6	0.001
20200127T141500	2020	01	27	14:15	33.3	92.5	0.001
20200127T142000	2020	01	27	14:20	33.2	92.8	0
20200127T142500	2020	01	27	14:25	33.2	93.3	0
20200127T143000	2020	01	27	14:30	33.4	93.2	0
20200127T143500	2020	01	27	14:35	33.5	92.6	0
20200127T144000	2020	01	27	14:40	33.7	92.5	0
20200127T144500	2020	01	27	14:45	33.9	92.4	0
20200127T145000	2020	01	27	14:50	34	92.2	0
20200127T145500	2020	01	27	14:55	34	91.9	0
20200127T150000	2020	01	27	15:00	34	91.6	0
20200127T150500	2020	01	27	15:05	34	91.7	0
20200127T151000	2020	01	27	15:10	34	91.6	0
20200127T151500	2020	01	27	15:15	34	91.3	0
20200127T152000	2020	01	27	15:20	34.1	91.3	0
20200127T152500	2020	01	27	15:25	34.1	90.8	0
20200127T153000	2020	01	27	15:30	34.1	90.1	0
20200127T153500	2020	01	27	15:35	34.2	89.3	0
20200127T154000	2020	01	27	15:40	34.2	88.3	0
20200127T154500	2020	01	27	15:45	34.2	88	0
20200127T155000	2020	01	27	15:50	34.3	87.8	0
20200127T155500	2020	01	27	15:55	34.3	87.4	0
20200127T160000	2020	01	27	16:00	34.3	86.7	0
20200127T160500	2020	01	27	16:05	34.3	86.4	0
20200127T161000	2020	01	27	16:10	34.3	85.9	0
20200127T161500	2020	01	27	16:15	34.4	83.3	0
20200127T162000	2020	01	27	16:20	34.4	82.4	0
20200127T162500	2020	01	27	16:25	34.3	82	0
20200127T163000	2020	01	27	16:30	34.2	81.9	0
20200127T163500	2020	01	27	16:35	34.2	82.1	0
20200127T164000	2020	01	27	16:40	34.1	83.1	0
20200127T164500	2020	01	27	16:45	34	83.3	0
20200127T165000	2020	01	27	16:50	33.9	82.9	0
20200127T165500	2020	01	27	16:55	33.8	82.9	0
20200127T170000	2020	01	27	17:00	33.7	82.2	0
20200127T170500	2020	01	27	17:05	33.7	81.9	0
20200127T171000	2020	01	27	17:10	33.6	82.3	0
20200127T171500	2020	01	27	17:15	33.7	81.7	0
20200127T172000	2020	01	27	17:20	33.6	82	0
20200127T172500	2020	01	27	17:25	33.6	82.4	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200127T173000	2020	01	27	17:30	33.5	82.8	0
20200127T173500	2020	01	27	17:35	33.5	82.5	0
20200127T174000	2020	01	27	17:40	33.5	82.8	0
20200127T174500	2020	01	27	17:45	33.5	82.4	0
20200127T175000	2020	01	27	17:50	33.4	82.6	0
20200127T175500	2020	01	27	17:55	33.4	83.2	0
20200127T180000	2020	01	27	18:00	33.3	83.7	0
20200127T180500	2020	01	27	18:05	33.3	83.5	0
20200127T181000	2020	01	27	18:10	33.3	83.3	0
20200127T181500	2020	01	27	18:15	33.3	83.1	0
20200127T182000	2020	01	27	18:20	33.3	83	0
20200127T182500	2020	01	27	18:25	33.3	83.2	0
20200127T183000	2020	01	27	18:30	33.3	83.2	0
20200127T183500	2020	01	27	18:35	33.3	83.2	0
20200127T184000	2020	01	27	18:40	33.3	82.7	0
20200127T184500	2020	01	27	18:45	33.2	83.8	0
20200127T185000	2020	01	27	18:50	33.1	84.4	0
20200127T185500	2020	01	27	18:55	33	85.3	0
20200127T190000	2020	01	27	19:00	33	85.8	0
20200127T190500	2020	01	27	19:05	33	85.9	0
20200127T191000	2020	01	27	19:10	33.1	85.4	0
20200127T191500	2020	01	27	19:15	32.9	86.1	0
20200127T192000	2020	01	27	19:20	32.8	87.2	0
20200127T192500	2020	01	27	19:25	32.7	87.5	0
20200127T193000	2020	01	27	19:30	32.7	87.5	0
20200127T193500	2020	01	27	19:35	32.7	87.5	0
20200127T194000	2020	01	27	19:40	32.9	86.1	0
20200127T194500	2020	01	27	19:45	32.9	85.6	0
20200127T195000	2020	01	27	19:50	32.9	85.4	0
20200127T195500	2020	01	27	19:55	32.9	85.4	0
20200127T200000	2020	01	27	20:00	32.9	85.6	0
20200127T200500	2020	01	27	20:05	32.9	85.7	0
20200127T201000	2020	01	27	20:10	32.9	85.7	0
20200127T201500	2020	01	27	20:15	32.9	85.5	0
20200127T202000	2020	01	27	20:20	32.9	85.7	0
20200127T202500	2020	01	27	20:25	32.9	86.1	0
20200127T203000	2020	01	27	20:30	32.9	86.2	0
20200127T203500	2020	01	27	20:35	32.8	86.2	0
20200127T204000	2020	01	27	20:40	32.9	85.9	0
20200127T204500	2020	01	27	20:45	32.9	85.5	0
20200127T205000	2020	01	27	20:50	32.9	85.1	0
20200127T205500	2020	01	27	20:55	32.9	85.1	0
20200127T210000	2020	01	27	21:00	32.9	84.8	0
20200127T210500	2020	01	27	21:05	33	84.3	0
20200127T211000	2020	01	27	21:10	33	84.3	0
20200127T211500	2020	01	27	21:15	33	83.7	0
20200127T212000	2020	01	27	21:20	33	83.8	0
20200127T212500	2020	01	27	21:25	33	84.2	0
20200127T213000	2020	01	27	21:30	33	84	0
20200127T213500	2020	01	27	21:35	32.8	85.2	0
20200127T214000	2020	01	27	21:40	32.7	86.4	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200127T214500	2020	01	27	21:45	32.5	87.5	0
20200127T215000	2020	01	27	21:50	32.5	87.4	0
20200127T215500	2020	01	27	21:55	32.5	87.1	0
20200127T220000	2020	01	27	22:00	32.5	86.9	0
20200127T220500	2020	01	27	22:05	32.6	86.6	0
20200127T221000	2020	01	27	22:10	32.6	86.6	0
20200127T221500	2020	01	27	22:15	32.6	86.8	0
20200127T222000	2020	01	27	22:20	32.6	87.1	0
20200127T222500	2020	01	27	22:25	32.4	88.2	0
20200127T223000	2020	01	27	22:30	32.3	89.5	0
20200127T223500	2020	01	27	22:35	32.3	89.8	0
20200127T224000	2020	01	27	22:40	32.4	89.4	0
20200127T224500	2020	01	27	22:45	32.4	89.3	0
20200127T225000	2020	01	27	22:50	32.4	89.2	0
20200127T225500	2020	01	27	22:55	32.3	89.8	0
20200127T230000	2020	01	27	23:00	32.2	90.7	0
20200127T230500	2020	01	27	23:05	32.1	91.9	0.002
20200127T231000	2020	01	27	23:10	31.9	93	0.001
20200127T231500	2020	01	27	23:15	31.8	94	0
20200127T232000	2020	01	27	23:20	31.8	94.5	0
20200127T232500	2020	01	27	23:25	31.8	94.9	0
20200127T233000	2020	01	27	23:30	31.8	95.1	0
20200127T233500	2020	01	27	23:35	31.8	95.3	0.003
20200127T234000	2020	01	27	23:40	31.8	95.5	0
20200127T234500	2020	01	27	23:45	31.8	95.7	0
20200127T235000	2020	01	27	23:50	31.8	95.7	0
20200127T235500	2020	01	27	23:55	31.8	95.4	0
20200128T000000	2020	01	28	00:00	31.9	95.1	0
20200128T000500	2020	01	28	00:05	31.9	94.7	0.002
20200128T001000	2020	01	28	00:10	31.8	94.6	0.001
20200128T001500	2020	01	28	00:15	31.8	94.8	0
20200128T002000	2020	01	28	00:20	31.8	95	0
20200128T002500	2020	01	28	00:25	31.7	95	0
20200128T003000	2020	01	28	00:30	31.7	95.1	0.002
20200128T003500	2020	01	28	00:35	31.6	95.3	0.002
20200128T004000	2020	01	28	00:40	31.6	95.6	0
20200128T004500	2020	01	28	00:45	31.6	95.9	0.004
20200128T005000	2020	01	28	00:50	31.5	96.2	0.002
20200128T005500	2020	01	28	00:55	31.4	96.6	0.002
20200128T010000	2020	01	28	01:00	31.4	96.8	0.001
20200128T010500	2020	01	28	01:05	31.4	97.1	0.001
20200128T011000	2020	01	28	01:10	31.4	97.2	0
20200128T011500	2020	01	28	01:15	31.4	97.2	0
20200128T012000	2020	01	28	01:20	31.4	97.2	0
20200128T012500	2020	01	28	01:25	31.4	97.2	0
20200128T013000	2020	01	28	01:30	31.4	97.2	0.002
20200128T013500	2020	01	28	01:35	31.4	97.2	0
20200128T014000	2020	01	28	01:40	31.3	97.2	0.001
20200128T014500	2020	01	28	01:45	31.3	97.3	0.003
20200128T015000	2020	01	28	01:50	31.2	97.4	0.002
20200128T015500	2020	01	28	01:55	31.2	97.5	0.001

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200128T020000	2020	01	28	02:00	31.2	97.6	0
20200128T020500	2020	01	28	02:05	31.2	97.7	0.004
20200128T021000	2020	01	28	02:10	31.2	97.7	0.004
20200128T021500	2020	01	28	02:15	31.3	97.8	0.001
20200128T022000	2020	01	28	02:20	31.3	97.9	0.002
20200128T022500	2020	01	28	02:25	31.3	97.9	0.002
20200128T023000	2020	01	28	02:30	31.3	98	0.001
20200128T023500	2020	01	28	02:35	31.3	98	0.002
20200128T024000	2020	01	28	02:40	31.3	98.1	0.002
20200128T024500	2020	01	28	02:45	31.3	98.1	0.001
20200128T025000	2020	01	28	02:50	31.3	98.1	0
20200128T025500	2020	01	28	02:55	31.3	98.2	0.002
20200128T030000	2020	01	28	03:00	31.3	98.2	0.001
20200128T030500	2020	01	28	03:05	31.3	98.2	0.005
20200128T031000	2020	01	28	03:10	31.3	98.2	0.009
20200128T031500	2020	01	28	03:15	31.3	98.2	0.002
20200128T032000	2020	01	28	03:20	31.3	98.3	0
20200128T032500	2020	01	28	03:25	31.3	98.3	0
20200128T033000	2020	01	28	03:30	31.3	98.3	0
20200128T033500	2020	01	28	03:35	31.2	98.3	0
20200128T034000	2020	01	28	03:40	31.2	98.2	0
20200128T034500	2020	01	28	03:45	31.1	98.1	0
20200128T035000	2020	01	28	03:50	31.1	98.1	0
20200128T035500	2020	01	28	03:55	31.1	98	0
20200128T040000	2020	01	28	04:00	31.1	98	0.002
20200128T040500	2020	01	28	04:05	31.1	97.9	0
20200128T041000	2020	01	28	04:10	31.1	97.9	0
20200128T041500	2020	01	28	04:15	31.1	97.8	0
20200128T042000	2020	01	28	04:20	31.1	97.8	0
20200128T042500	2020	01	28	04:25	31.1	97.7	0
20200128T043000	2020	01	28	04:30	31.1	97.6	0
20200128T043500	2020	01	28	04:35	31	97.6	0.002
20200128T044000	2020	01	28	04:40	31	97.6	0.001
20200128T044500	2020	01	28	04:45	30.9	97.6	0
20200128T045000	2020	01	28	04:50	30.9	97.6	0
20200128T045500	2020	01	28	04:55	30.8	97.6	0
20200128T050000	2020	01	28	05:00	30.7	97.5	0.003
20200128T050500	2020	01	28	05:05	30.4	97.4	0.001
20200128T051000	2020	01	28	05:10	30.3	97.4	0
20200128T051500	2020	01	28	05:15	30.2	97.4	0
20200128T052000	2020	01	28	05:20	30.1	97.4	0
20200128T052500	2020	01	28	05:25	30.1	97.5	0
20200128T053000	2020	01	28	05:30	30.1	97.5	0
20200128T053500	2020	01	28	05:35	30	97.4	0
20200128T054000	2020	01	28	05:40	30	97.4	0
20200128T054500	2020	01	28	05:45	30.1	97.4	0
20200128T055000	2020	01	28	05:50	30.1	97.3	0
20200128T055500	2020	01	28	05:55	30.2	97.1	0
20200128T060000	2020	01	28	06:00	30.2	96.8	0
20200128T060500	2020	01	28	06:05	30.2	96.5	0
20200128T061000	2020	01	28	06:10	30.2	96.2	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200128T061500	2020	01	28	06:15	30.1	96	0
20200128T062000	2020	01	28	06:20	30.1	95.9	0
20200128T062500	2020	01	28	06:25	30.1	95.8	0
20200128T063000	2020	01	28	06:30	30.1	95.7	0
20200128T063500	2020	01	28	06:35	30.1	95.7	0
20200128T064000	2020	01	28	06:40	30	95.7	0
20200128T064500	2020	01	28	06:45	30	95.9	0
20200128T065000	2020	01	28	06:50	29.9	96.1	0.002
20200128T065500	2020	01	28	06:55	29.9	96.4	0
20200128T070000	2020	01	28	07:00	29.8	96.6	0
20200128T070500	2020	01	28	07:05	29.7	96.5	0
20200128T071000	2020	01	28	07:10	29.7	96.4	0
20200128T071500	2020	01	28	07:15	29.6	96.5	0
20200128T072000	2020	01	28	07:20	29.6	96.5	0
20200128T072500	2020	01	28	07:25	29.6	96.6	0.002
20200128T073000	2020	01	28	07:30	29.6	96.7	0
20200128T073500	2020	01	28	07:35	29.6	96.7	0.001
20200128T074000	2020	01	28	07:40	29.6	96.8	0
20200128T074500	2020	01	28	07:45	29.5	96.9	0
20200128T075000	2020	01	28	07:50	29.5	97	0
20200128T075500	2020	01	28	07:55	29.6	97	0
20200128T080000	2020	01	28	08:00	29.6	97.1	0.002
20200128T080500	2020	01	28	08:05	29.7	97.1	0.001
20200128T081000	2020	01	28	08:10	29.7	97.1	0
20200128T081500	2020	01	28	08:15	29.8	97.2	0.002
20200128T082000	2020	01	28	08:20	29.8	97.2	0.002
20200128T082500	2020	01	28	08:25	29.9	97.3	0.001
20200128T083000	2020	01	28	08:30	29.9	97.3	0.003
20200128T083500	2020	01	28	08:35	29.9	97.3	0.004
20200128T084000	2020	01	28	08:40	29.9	97.4	0.002
20200128T084500	2020	01	28	08:45	30	97.4	0.004
20200128T085000	2020	01	28	08:50	30	97.4	0.001
20200128T085500	2020	01	28	08:55	30.1	97.5	0.001
20200128T090000	2020	01	28	09:00	30.1	97.5	0
20200128T090500	2020	01	28	09:05	30.2	97.4	0
20200128T091000	2020	01	28	09:10	30.3	97.5	0
20200128T091500	2020	01	28	09:15	30.3	97.4	0
20200128T092000	2020	01	28	09:20	30.4	97.4	0
20200128T092500	2020	01	28	09:25	30.5	97.4	0
20200128T093000	2020	01	28	09:30	30.5	97.2	0.005
20200128T093500	2020	01	28	09:35	30.5	97.2	0
20200128T094000	2020	01	28	09:40	30.4	97.1	0.001
20200128T094500	2020	01	28	09:45	30.3	97	0
20200128T095000	2020	01	28	09:50	30.1	97	0
20200128T095500	2020	01	28	09:55	30.1	97	0
20200128T100000	2020	01	28	10:00	30.1	97	0.003
20200128T100500	2020	01	28	10:05	30.2	97.1	0
20200128T101000	2020	01	28	10:10	30.3	97.1	0
20200128T101500	2020	01	28	10:15	30.4	97.1	0
20200128T102000	2020	01	28	10:20	30.5	97	0
20200128T102500	2020	01	28	10:25	30.5	96.8	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200128T103000	2020	01	28	10:30	30.5	96.8	0.004
20200128T103500	2020	01	28	10:35	30.4	96.7	0.001
20200128T104000	2020	01	28	10:40	30.5	96.7	0.001
20200128T104500	2020	01	28	10:45	30.5	96.7	0
20200128T105000	2020	01	28	10:50	30.5	96.7	0
20200128T105500	2020	01	28	10:55	30.6	96.7	0
20200128T110000	2020	01	28	11:00	30.7	96.7	0
20200128T110500	2020	01	28	11:05	30.9	96.6	0
20200128T111000	2020	01	28	11:10	30.8	96.4	0
20200128T111500	2020	01	28	11:15	30.8	96.3	0.002
20200128T112000	2020	01	28	11:20	30.8	96.4	0.001
20200128T112500	2020	01	28	11:25	30.8	96.2	0
20200128T113000	2020	01	28	11:30	30.9	96.2	0
20200128T113500	2020	01	28	11:35	31	96.2	0
20200128T114000	2020	01	28	11:40	31	96	0
20200128T114500	2020	01	28	11:45	30.5	95.5	0.004
20200128T115000	2020	01	28	11:50	30.3	95.7	0.003
20200128T115500	2020	01	28	11:55	30.2	95.9	0
20200128T120000	2020	01	28	12:00	30.3	96	0
20200128T120500	2020	01	28	12:05	30.5	96.2	0
20200128T121000	2020	01	28	12:10	30.6	96.1	0
20200128T121500	2020	01	28	12:15	30.7	95.8	0
20200128T122000	2020	01	28	12:20	30.8	95.8	0
20200128T122500	2020	01	28	12:25	30.7	95.9	0.004
20200128T123000	2020	01	28	12:30	30.4	95.9	0.001
20200128T123500	2020	01	28	12:35	30.2	95.8	0
20200128T124000	2020	01	28	12:40	30.1	95.5	0
20200128T124500	2020	01	28	12:45	30.5	95.2	0
20200128T125000	2020	01	28	12:50	30.4	94.6	0
20200128T125500	2020	01	28	12:55	30.5	93.9	0
20200128T130000	2020	01	28	13:00	30.3	93.7	0
20200128T130500	2020	01	28	13:05	30.3	94	0
20200128T131000	2020	01	28	13:10	30.2	94.1	0
20200128T131500	2020	01	28	13:15	30.1	94.4	0
20200128T132000	2020	01	28	13:20	30	94.6	0
20200128T132500	2020	01	28	13:25	30.1	94.8	0.006
20200128T133000	2020	01	28	13:30	30	94.9	0
20200128T133500	2020	01	28	13:35	29.9	94.8	0.001
20200128T134000	2020	01	28	13:40	29.9	95	0
20200128T134500	2020	01	28	13:45	30	95.3	0
20200128T135000	2020	01	28	13:50	30.2	95.5	0
20200128T135500	2020	01	28	13:55	30.3	95.1	0
20200128T140000	2020	01	28	14:00	30.2	94.6	0
20200128T140500	2020	01	28	14:05	30.1	94.7	0.003
20200128T141000	2020	01	28	14:10	30.1	95.1	0.001
20200128T141500	2020	01	28	14:15	30.1	95.1	0
20200128T142000	2020	01	28	14:20	30.2	94.9	0
20200128T142500	2020	01	28	14:25	30.3	94.6	0
20200128T143000	2020	01	28	14:30	30.5	94.3	0
20200128T143500	2020	01	28	14:35	30.9	94.2	0
20200128T144000	2020	01	28	14:40	31	93.8	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200128T144500	2020	01	28	14:45	31	93.4	0
20200128T145000	2020	01	28	14:50	30.6	93.2	0
20200128T145500	2020	01	28	14:55	30.2	93.8	0
20200128T150000	2020	01	28	15:00	29.9	94.4	0
20200128T150500	2020	01	28	15:05	29.9	94.8	0
20200128T151000	2020	01	28	15:10	30	95.2	0.004
20200128T151500	2020	01	28	15:15	30	95.2	0
20200128T152000	2020	01	28	15:20	30	95.4	0.002
20200128T152500	2020	01	28	15:25	30	95.6	0
20200128T153000	2020	01	28	15:30	30	96	0
20200128T153500	2020	01	28	15:35	29.9	96.2	0
20200128T154000	2020	01	28	15:40	29.9	96.3	0.004
20200128T154500	2020	01	28	15:45	29.8	96.3	0.003
20200128T155000	2020	01	28	15:50	29.6	96.3	0
20200128T155500	2020	01	28	15:55	29.5	96.3	0
20200128T160000	2020	01	28	16:00	29.6	96.5	0
20200128T160500	2020	01	28	16:05	29.5	96.4	0
20200128T161000	2020	01	28	16:10	29.5	96.5	0
20200128T161500	2020	01	28	16:15	29.5	96.5	0
20200128T162000	2020	01	28	16:20	29.5	96.6	0.004
20200128T162500	2020	01	28	16:25	29.6	96.7	0
20200128T163000	2020	01	28	16:30	29.5	96.7	0
20200128T163500	2020	01	28	16:35	29.6	96.7	0
20200128T164000	2020	01	28	16:40	29.6	96.7	0
20200128T164500	2020	01	28	16:45	29.5	96.7	0
20200128T165000	2020	01	28	16:50	29.6	96.8	0
20200128T165500	2020	01	28	16:55	29.5	96.8	0
20200128T170000	2020	01	28	17:00	29.5	96.8	0
20200128T170500	2020	01	28	17:05	29.6	96.9	0
20200128T171000	2020	01	28	17:10	29.6	97	0
20200128T171500	2020	01	28	17:15	29.7	97	0
20200128T172000	2020	01	28	17:20	29.7	97.1	0
20200128T172500	2020	01	28	17:25	29.7	97.1	0
20200128T173000	2020	01	28	17:30	29.8	97.1	0
20200128T173500	2020	01	28	17:35	29.8	97.1	0
20200128T174000	2020	01	28	17:40	29.8	97.1	0
20200128T174500	2020	01	28	17:45	29.8	97.2	0.002
20200128T175000	2020	01	28	17:50	29.8	97.2	0
20200128T175500	2020	01	28	17:55	29.9	97.3	0.001
20200128T180000	2020	01	28	18:00	29.9	97.4	0
20200128T180500	2020	01	28	18:05	29.7	97.4	0
20200128T181000	2020	01	28	18:10	29.8	97.5	0.003
20200128T181500	2020	01	28	18:15	29.7	97.5	0.001
20200128T182000	2020	01	28	18:20	29.8	97.6	0.001
20200128T182500	2020	01	28	18:25	29.4	97.5	0.004
20200128T183000	2020	01	28	18:30	29.3	97.5	0.002
20200128T183500	2020	01	28	18:35	29.3	97.5	0.001
20200128T184000	2020	01	28	18:40	29.3	97.5	0.004
20200128T184500	2020	01	28	18:45	29.2	97.5	0.001
20200128T185000	2020	01	28	18:50	29.3	97.6	0
20200128T185500	2020	01	28	18:55	29.3	97.6	0.002

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200128T190000	2020	01	28	19:00	29.3	97.7	0.002
20200128T190500	2020	01	28	19:05	29.3	97.7	0.001
20200128T191000	2020	01	28	19:10	29.2	97.7	0
20200128T191500	2020	01	28	19:15	29.2	97.7	0.002
20200128T192000	2020	01	28	19:20	29.2	97.7	0.001
20200128T192500	2020	01	28	19:25	29.1	97.6	0
20200128T193000	2020	01	28	19:30	29.1	97.5	0
20200128T193500	2020	01	28	19:35	29	97.3	0
20200128T194000	2020	01	28	19:40	29	97.1	0
20200128T194500	2020	01	28	19:45	28.9	96.8	0
20200128T195000	2020	01	28	19:50	29	96.7	0
20200128T195500	2020	01	28	19:55	28.9	96.6	0
20200128T200000	2020	01	28	20:00	28.9	96.6	0
20200128T200500	2020	01	28	20:05	28.8	96.5	0
20200128T201000	2020	01	28	20:10	28.7	96.1	0
20200128T201500	2020	01	28	20:15	28.7	95.8	0
20200128T202000	2020	01	28	20:20	28.7	95.7	0
20200128T202500	2020	01	28	20:25	28.7	95.7	0
20200128T203000	2020	01	28	20:30	28.6	95.7	0
20200128T203500	2020	01	28	20:35	28.6	95.6	0
20200128T204000	2020	01	28	20:40	28.5	95.4	0
20200128T204500	2020	01	28	20:45	28.5	95	0
20200128T205000	2020	01	28	20:50	28.6	94.6	0
20200128T205500	2020	01	28	20:55	28.6	94.6	0
20200128T210000	2020	01	28	21:00	28.6	94.4	0
20200128T210500	2020	01	28	21:05	28.5	94.2	0
20200128T211000	2020	01	28	21:10	28.5	94.2	0
20200128T211500	2020	01	28	21:15	28.6	94.4	0
20200128T212000	2020	01	28	21:20	28.5	94.4	0
20200128T212500	2020	01	28	21:25	28.5	94.5	0
20200128T213000	2020	01	28	21:30	28.5	94.6	0
20200128T213500	2020	01	28	21:35	28.5	94.6	0
20200128T214000	2020	01	28	21:40	28.4	94.5	0
20200128T214500	2020	01	28	21:45	28.5	94.5	0
20200128T215000	2020	01	28	21:50	28.4	94.5	0
20200128T215500	2020	01	28	21:55	28.4	94.5	0
20200128T220000	2020	01	28	22:00	28.4	94.6	0
20200128T220500	2020	01	28	22:05	28.4	94.8	0
20200128T221000	2020	01	28	22:10	28.4	94.8	0
20200128T221500	2020	01	28	22:15	28.4	94.9	0
20200128T222000	2020	01	28	22:20	28.4	94.9	0
20200128T222500	2020	01	28	22:25	28.5	95	0
20200128T223000	2020	01	28	22:30	28.5	95.2	0
20200128T223500	2020	01	28	22:35	28.5	95.3	0.002
20200128T224000	2020	01	28	22:40	28.4	95.5	0.001
20200128T224500	2020	01	28	22:45	28.4	95.6	0.002
20200128T225000	2020	01	28	22:50	28.3	95.9	0
20200128T225500	2020	01	28	22:55	28.4	96.1	0
20200128T230000	2020	01	28	23:00	28.4	96.3	0
20200128T230500	2020	01	28	23:05	28.5	96.4	0
20200128T231000	2020	01	28	23:10	28.4	96.5	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200128T231500	2020	01	28	23:15	28.4	96.6	0
20200128T232000	2020	01	28	23:20	28.4	96.5	0.002
20200128T232500	2020	01	28	23:25	28.4	96.1	0
20200128T233000	2020	01	28	23:30	28.4	95.5	0
20200128T233500	2020	01	28	23:35	28.4	95	0
20200128T234000	2020	01	28	23:40	28.3	94.5	0
20200128T234500	2020	01	28	23:45	28.3	94.3	0
20200128T235000	2020	01	28	23:50	28.2	94.1	0
20200128T235500	2020	01	28	23:55	28.2	94.1	0
20200129T000000	2020	01	29	00:00	28.2	93.9	0
20200129T000500	2020	01	29	00:05	28.2	93.7	0
20200129T001000	2020	01	29	00:10	28.2	93.7	0
20200129T001500	2020	01	29	00:15	28.2	93.8	0
20200129T002000	2020	01	29	00:20	28.1	93.8	0
20200129T002500	2020	01	29	00:25	28.1	93.9	0
20200129T003000	2020	01	29	00:30	28	93.2	0
20200129T003500	2020	01	29	00:35	27.9	92.7	0
20200129T004000	2020	01	29	00:40	27.8	92.9	0
20200129T004500	2020	01	29	00:45	27.7	92.9	0
20200129T005000	2020	01	29	00:50	27.5	92.2	0
20200129T005500	2020	01	29	00:55	27.5	92.1	0
20200129T010000	2020	01	29	01:00	27.5	91.7	0
20200129T010500	2020	01	29	01:05	27.4	91.6	0
20200129T011000	2020	01	29	01:10	27.3	91.6	0
20200129T011500	2020	01	29	01:15	27.3	91.7	0
20200129T012000	2020	01	29	01:20	27.3	91.5	0
20200129T012500	2020	01	29	01:25	27.3	91.4	0
20200129T013000	2020	01	29	01:30	27.2	91.5	0
20200129T013500	2020	01	29	01:35	27.2	91.3	0
20200129T014000	2020	01	29	01:40	27.1	91	0
20200129T014500	2020	01	29	01:45	27.1	91.1	0
20200129T015000	2020	01	29	01:50	27.1	91.2	0
20200129T015500	2020	01	29	01:55	27	90.8	0
20200129T020000	2020	01	29	02:00	27	90.8	0
20200129T020500	2020	01	29	02:05	26.9	91.1	0
20200129T021000	2020	01	29	02:10	26.9	91.2	0
20200129T021500	2020	01	29	02:15	26.9	91.5	0
20200129T022000	2020	01	29	02:20	26.8	91.2	0
20200129T022500	2020	01	29	02:25	26.5	90.2	0
20200129T023000	2020	01	29	02:30	26.4	89.9	0
20200129T023500	2020	01	29	02:35	26.4	90.3	0
20200129T024000	2020	01	29	02:40	26.3	90.1	0
20200129T024500	2020	01	29	02:45	26	88.4	0
20200129T025000	2020	01	29	02:50	25.9	87.7	0
20200129T025500	2020	01	29	02:55	25.9	87.7	0
20200129T030000	2020	01	29	03:00	25.7	87.8	0
20200129T030500	2020	01	29	03:05	25.7	87.9	0
20200129T031000	2020	01	29	03:10	25.6	88.3	0
20200129T031500	2020	01	29	03:15	25.5	87.8	0
20200129T032000	2020	01	29	03:20	25.5	87.5	0
20200129T032500	2020	01	29	03:25	25.5	88	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200129T033000	2020	01	29	03:30	25.4	87.8	0
20200129T033500	2020	01	29	03:35	25.4	88.3	0
20200129T034000	2020	01	29	03:40	25.3	88.3	0
20200129T034500	2020	01	29	03:45	25.3	88.1	0
20200129T035000	2020	01	29	03:50	25.3	87.9	0
20200129T035500	2020	01	29	03:55	25.3	88.3	0
20200129T040000	2020	01	29	04:00	25.3	88.3	0
20200129T040500	2020	01	29	04:05	25.3	88.2	0
20200129T041000	2020	01	29	04:10	25.3	88.2	0
20200129T041500	2020	01	29	04:15	25.3	88.8	0
20200129T042000	2020	01	29	04:20	25.3	88.7	0
20200129T042500	2020	01	29	04:25	25.3	88.7	0
20200129T043000	2020	01	29	04:30	25.3	89.2	0
20200129T043500	2020	01	29	04:35	25.3	89.2	0
20200129T044000	2020	01	29	04:40	25.3	88.8	0
20200129T044500	2020	01	29	04:45	25.3	88.9	0
20200129T045000	2020	01	29	04:50	25.2	89.2	0
20200129T045500	2020	01	29	04:55	25.2	89.2	0
20200129T050000	2020	01	29	05:00	25.3	89.3	0
20200129T050500	2020	01	29	05:05	25.3	88.7	0
20200129T051000	2020	01	29	05:10	25.3	87.5	0
20200129T051500	2020	01	29	05:15	25.3	88.3	0
20200129T052000	2020	01	29	05:20	25.3	88.3	0
20200129T052500	2020	01	29	05:25	25.3	87.8	0
20200129T053000	2020	01	29	05:30	25.3	87.8	0
20200129T053500	2020	01	29	05:35	25.2	88.2	0
20200129T054000	2020	01	29	05:40	25.2	88.7	0
20200129T054500	2020	01	29	05:45	25.2	88.6	0
20200129T055000	2020	01	29	05:50	25.1	88.8	0
20200129T055500	2020	01	29	05:55	25.1	89.2	0
20200129T060000	2020	01	29	06:00	25.1	89.1	0
20200129T060500	2020	01	29	06:05	25.1	89.1	0
20200129T061000	2020	01	29	06:10	25.1	89.5	0
20200129T061500	2020	01	29	06:15	25.1	90	0
20200129T062000	2020	01	29	06:20	25	89.8	0
20200129T062500	2020	01	29	06:25	24.9	89.9	0
20200129T063000	2020	01	29	06:30	24.8	89.9	0
20200129T063500	2020	01	29	06:35	24.7	89.6	0
20200129T064000	2020	01	29	06:40	24.6	89	0
20200129T064500	2020	01	29	06:45	24.5	88.9	0
20200129T065000	2020	01	29	06:50	24.5	89.4	0
20200129T065500	2020	01	29	06:55	24.4	89.4	0
20200129T070000	2020	01	29	07:00	24.2	89.7	0
20200129T070500	2020	01	29	07:05	24.1	89.3	0
20200129T071000	2020	01	29	07:10	24	89	0
20200129T071500	2020	01	29	07:15	23.9	89.6	0
20200129T072000	2020	01	29	07:20	23.7	89.9	0
20200129T072500	2020	01	29	07:25	23.5	90.2	0
20200129T073000	2020	01	29	07:30	23.5	90.9	0
20200129T073500	2020	01	29	07:35	23.4	90.4	0
20200129T074000	2020	01	29	07:40	23.2	90	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200129T074500	2020	01	29	07:45	23.2	89.6	0
20200129T075000	2020	01	29	07:50	23.3	89.6	0
20200129T075500	2020	01	29	07:55	23.4	89.5	0
20200129T080000	2020	01	29	08:00	23.5	89.7	0
20200129T080500	2020	01	29	08:05	23.5	89.4	0
20200129T081000	2020	01	29	08:10	23.4	89	0
20200129T081500	2020	01	29	08:15	23.4	88.6	0
20200129T082000	2020	01	29	08:20	23.4	88.3	0
20200129T082500	2020	01	29	08:25	23.4	89.2	0
20200129T083000	2020	01	29	08:30	23.4	87.8	0
20200129T083500	2020	01	29	08:35	23.4	85.8	0
20200129T084000	2020	01	29	08:40	23.4	85.2	0
20200129T084500	2020	01	29	08:45	23.3	84.6	0
20200129T085000	2020	01	29	08:50	23.2	84.6	0
20200129T085500	2020	01	29	08:55	23.3	84.3	0
20200129T090000	2020	01	29	09:00	23.5	84.9	0
20200129T090500	2020	01	29	09:05	23.3	82.5	0
20200129T091000	2020	01	29	09:10	23.3	82.2	0
20200129T091500	2020	01	29	09:15	23.3	83.2	0
20200129T092000	2020	01	29	09:20	23.3	84.1	0
20200129T092500	2020	01	29	09:25	23	83.5	0
20200129T093000	2020	01	29	09:30	23	82.1	0
20200129T093500	2020	01	29	09:35	22.9	80.5	0
20200129T094000	2020	01	29	09:40	23	78.9	0
20200129T094500	2020	01	29	09:45	23	80.4	0
20200129T095000	2020	01	29	09:50	23.2	80.2	0
20200129T095500	2020	01	29	09:55	23.4	80.4	0
20200129T100000	2020	01	29	10:00	23.2	79.5	0
20200129T100500	2020	01	29	10:05	23.2	80.4	0
20200129T101000	2020	01	29	10:10	23.2	81	0
20200129T101500	2020	01	29	10:15	23.1	82.2	0
20200129T102000	2020	01	29	10:20	23.1	83.3	0
20200129T102500	2020	01	29	10:25	23.2	83.8	0
20200129T103000	2020	01	29	10:30	23.3	84.3	0
20200129T103500	2020	01	29	10:35	23.4	84.3	0
20200129T104000	2020	01	29	10:40	23.4	84	0
20200129T104500	2020	01	29	10:45	23.3	84.1	0
20200129T105000	2020	01	29	10:50	23.5	84.8	0
20200129T105500	2020	01	29	10:55	23.6	84.7	0
20200129T110000	2020	01	29	11:00	23.5	83.6	0
20200129T110500	2020	01	29	11:05	23.6	83.5	0
20200129T111000	2020	01	29	11:10	23.8	82.9	0
20200129T111500	2020	01	29	11:15	23.8	82.5	0
20200129T112000	2020	01	29	11:20	23.9	82.2	0
20200129T112500	2020	01	29	11:25	23.9	80	0
20200129T113000	2020	01	29	11:30	23.9	80.3	0
20200129T113500	2020	01	29	11:35	23.9	79.1	0
20200129T114000	2020	01	29	11:40	23.8	78.6	0
20200129T114500	2020	01	29	11:45	23.9	78.7	0
20200129T115000	2020	01	29	11:50	24.2	79.2	0
20200129T115500	2020	01	29	11:55	24	79.5	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200129T120000	2020	01	29	12:00	23.9	78.9	0
20200129T120500	2020	01	29	12:05	24.2	78.6	0
20200129T121000	2020	01	29	12:10	24.1	78.1	0
20200129T121500	2020	01	29	12:15	24	78.3	0
20200129T122000	2020	01	29	12:20	24	78.1	0
20200129T122500	2020	01	29	12:25	24.1	77.9	0
20200129T123000	2020	01	29	12:30	24	79	0
20200129T123500	2020	01	29	12:35	24.1	78.7	0
20200129T124000	2020	01	29	12:40	23.9	76.8	0
20200129T124500	2020	01	29	12:45	24.3	77.5	0
20200129T125000	2020	01	29	12:50	24	75	0
20200129T125500	2020	01	29	12:55	24.1	73.9	0
20200129T130000	2020	01	29	13:00	23.9	74.6	0
20200129T130500	2020	01	29	13:05	23.9	74.4	0
20200129T131000	2020	01	29	13:10	24.1	73.9	0
20200129T131500	2020	01	29	13:15	24.1	73.4	0
20200129T132000	2020	01	29	13:20	24	72	0
20200129T132500	2020	01	29	13:25	24.3	73.3	0
20200129T133000	2020	01	29	13:30	24.4	73.9	0
20200129T133500	2020	01	29	13:35	24.2	73	0
20200129T134000	2020	01	29	13:40	24.5	73.8	0
20200129T134500	2020	01	29	13:45	24.3	72.1	0
20200129T135000	2020	01	29	13:50	24.5	73.1	0
20200129T135500	2020	01	29	13:55	24.4	74.6	0
20200129T140000	2020	01	29	14:00	24.5	75.3	0
20200129T140500	2020	01	29	14:05	24.4	74	0
20200129T141000	2020	01	29	14:10	24.4	73.7	0
20200129T141500	2020	01	29	14:15	24.3	73.6	0
20200129T142000	2020	01	29	14:20	24.5	73.7	0
20200129T142500	2020	01	29	14:25	24.5	73.9	0
20200129T143000	2020	01	29	14:30	24.3	73.5	0
20200129T143500	2020	01	29	14:35	24.4	73.9	0
20200129T144000	2020	01	29	14:40	24.5	75.3	0
20200129T144500	2020	01	29	14:45	24.5	75.2	0
20200129T145000	2020	01	29	14:50	24.4	75	0
20200129T145500	2020	01	29	14:55	24.4	75	0
20200129T150000	2020	01	29	15:00	24.3	73.4	0
20200129T150500	2020	01	29	15:05	24.3	72.5	0
20200129T151000	2020	01	29	15:10	24.4	73.4	0
20200129T151500	2020	01	29	15:15	24.5	73.8	0
20200129T152000	2020	01	29	15:20	24.5	73.9	0
20200129T152500	2020	01	29	15:25	24.4	73.2	0
20200129T153000	2020	01	29	15:30	24.4	73.9	0
20200129T153500	2020	01	29	15:35	24.3	74.7	0
20200129T154000	2020	01	29	15:40	24.3	74.3	0
20200129T154500	2020	01	29	15:45	24.1	72.3	0
20200129T155000	2020	01	29	15:50	24	71.3	0
20200129T155500	2020	01	29	15:55	24	71.7	0
20200129T160000	2020	01	29	16:00	24.1	73.1	0
20200129T160500	2020	01	29	16:05	24	72	0
20200129T161000	2020	01	29	16:10	23.9	73	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200129T161500	2020	01	29	16:15	23.9	74.4	0
20200129T162000	2020	01	29	16:20	24	74.8	0
20200129T162500	2020	01	29	16:25	24	75.8	0
20200129T163000	2020	01	29	16:30	23.9	74.9	0
20200129T163500	2020	01	29	16:35	23.8	73	0
20200129T164000	2020	01	29	16:40	23.8	74.3	0
20200129T164500	2020	01	29	16:45	23.8	74.5	0
20200129T165000	2020	01	29	16:50	23.7	75	0
20200129T165500	2020	01	29	16:55	23.6	75.1	0
20200129T170000	2020	01	29	17:00	23.5	75.9	0
20200129T170500	2020	01	29	17:05	23.4	76.7	0
20200129T171000	2020	01	29	17:10	23.2	75.7	0
20200129T171500	2020	01	29	17:15	23.1	76.1	0
20200129T172000	2020	01	29	17:20	23	76.8	0
20200129T172500	2020	01	29	17:25	22.8	77	0
20200129T173000	2020	01	29	17:30	22.8	76.7	0
20200129T173500	2020	01	29	17:35	22.6	77.7	0
20200129T174000	2020	01	29	17:40	22.5	77.8	0
20200129T174500	2020	01	29	17:45	22.4	77.5	0
20200129T175000	2020	01	29	17:50	22.4	77.7	0
20200129T175500	2020	01	29	17:55	22.3	78.1	0
20200129T180000	2020	01	29	18:00	22.2	77.5	0
20200129T180500	2020	01	29	18:05	22.1	77.8	0
20200129T181000	2020	01	29	18:10	21.9	77.2	0
20200129T181500	2020	01	29	18:15	22	77.5	0
20200129T182000	2020	01	29	18:20	21.8	77.5	0
20200129T182500	2020	01	29	18:25	21.6	77.8	0
20200129T183000	2020	01	29	18:30	21.5	77.2	0
20200129T183500	2020	01	29	18:35	21.5	77.8	0
20200129T184000	2020	01	29	18:40	21.5	79	0
20200129T184500	2020	01	29	18:45	21.6	78.9	0
20200129T185000	2020	01	29	18:50	21.6	79.6	0
20200129T185500	2020	01	29	18:55	21.5	79.9	0
20200129T190000	2020	01	29	19:00	21.6	80.8	0
20200129T190500	2020	01	29	19:05	21.6	79.8	0
20200129T191000	2020	01	29	19:10	21.7	81.3	0
20200129T191500	2020	01	29	19:15	21.6	80.9	0
20200129T192000	2020	01	29	19:20	21.5	80.7	0
20200129T192500	2020	01	29	19:25	21.3	79.3	0
20200129T193000	2020	01	29	19:30	21	79.9	0
20200129T193500	2020	01	29	19:35	21	78.9	0
20200129T194000	2020	01	29	19:40	21.1	79.7	0
20200129T194500	2020	01	29	19:45	21.1	80.3	0
20200129T195000	2020	01	29	19:50	21.1	80	0
20200129T195500	2020	01	29	19:55	21.2	81	0
20200129T200000	2020	01	29	20:00	21.2	80.8	0
20200129T200500	2020	01	29	20:05	21.2	80.8	0
20200129T201000	2020	01	29	20:10	21.2	80.9	0
20200129T201500	2020	01	29	20:15	21.1	81.1	0
20200129T202000	2020	01	29	20:20	20.9	81.2	0
20200129T202500	2020	01	29	20:25	20.9	80.4	0

Table C-2: Winter SUNY MesoNet Meteorological Data (Waterloo Station)

Raw Date/Time	Year	Month	Day	Time	Temperature [F]	Relative Humidity [%]	Precipitation [in]
20200129T203000	2020	01	29	20:30	20.7	81.5	0
20200129T203500	2020	01	29	20:35	20.7	80.9	0
20200129T204000	2020	01	29	20:40	20.7	79.5	0
20200129T204500	2020	01	29	20:45	20.5	79.9	0
20200129T205000	2020	01	29	20:50	20.5	80.7	0
20200129T205500	2020	01	29	20:55	20.5	81.4	0
20200129T210000	2020	01	29	21:00	20.4	81.2	0
20200129T210500	2020	01	29	21:05	20.4	81.1	0
20200129T211000	2020	01	29	21:10	20.2	81.7	0
20200129T211500	2020	01	29	21:15	19.3	83.3	0
20200129T212000	2020	01	29	21:20	19	85.3	0
20200129T212500	2020	01	29	21:25	18.9	87.1	0
20200129T213000	2020	01	29	21:30	19.4	86.9	0
20200129T213500	2020	01	29	21:35	19.3	85.4	0
20200129T214000	2020	01	29	21:40	19.2	86.3	0
20200129T214500	2020	01	29	21:45	19.1	86.6	0
20200129T215000	2020	01	29	21:50	18.9	86	0
20200129T215500	2020	01	29	21:55	18.7	86.2	0
20200129T220000	2020	01	29	22:00	18.7	86.8	0
20200129T220500	2020	01	29	22:05	19.5	86.7	0
20200129T221000	2020	01	29	22:10	19.4	85.1	0
20200129T221500	2020	01	29	22:15	18.8	85.7	0
20200129T222000	2020	01	29	22:20	19.5	86.6	0
20200129T222500	2020	01	29	22:25	19.9	85	0
20200129T223000	2020	01	29	22:30	19.5	83.2	0
20200129T223500	2020	01	29	22:35	19	83.6	0
20200129T224000	2020	01	29	22:40	19.3	84.8	0
20200129T224500	2020	01	29	22:45	19.1	85.6	0
20200129T225000	2020	01	29	22:50	19	86.4	0
20200129T225500	2020	01	29	22:55	19	86.8	0
20200129T230000	2020	01	29	23:00	19.2	87.4	0
20200129T230500	2020	01	29	23:05	19.3	87.6	0
20200129T231000	2020	01	29	23:10	19.2	87.6	0
20200129T231500	2020	01	29	23:15	18.9	87.9	0
20200129T232000	2020	01	29	23:20	19.2	88.7	0
20200129T232500	2020	01	29	23:25	19.7	88.7	0
20200129T233000	2020	01	29	23:30	19.8	87.5	0
20200129T233500	2020	01	29	23:35	19.8	86.7	0
20200129T234000	2020	01	29	23:40	19.7	86.6	0
20200129T234500	2020	01	29	23:45	19.7	86.4	0
20200129T235000	2020	01	29	23:50	19.7	86.2	0
20200129T235500	2020	01	29	23:55	19.2	86.2	0