UNL Mobile Sounding Meteorological Data

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Summary

Contained herein are data collected by the University of Nebraska-Lincoln mobile sounding team during the TORUS-LItE field campaign. Data was collected using InterMet iMet-4 radiosondes and the iMet-3050A 403 MHz Portable receiver. Tolerances of the iMet-4 radiosonde are included below; more details can be found at https://www.intermetsystems.com. Each file corresponds to a single launch. Data collection was terminated automatically at loss of signal or loss of altitude, and manually after sufficient altitude had been achieved (< 100 hPa).

Radiosonde Tolerances

Temperature
- Range: +60°C to -90°C
- Resolution: 0.01°C
- Response time: still air/ 5 ms-1 (1000 hPa) 2 / < 1 sec
- Combined Uncertainty/Reproducibility:
  - \> 100 hPa: 0.5 C / 0.3 C
  - < 100 hPa: 1.0 C / 0.75 C
- Solar correction: ≤ 1.2 C

Humidity
- Range: 0-100% RH
- Resolution 0.1%
- Response time
  - @ 25 C 0.6 seconds
  - @ 5 C 5.2 seconds
  - @ -10 C 11 seconds
  - @ -40 C 61 seconds
- Uncertainty/Reproducibility:
  - \> 0 C: 5% / 3%
  - -40-0 C 5% / 5%

Pressure
- Range: 1200 hPa – 10 hPa
- Resolution: 0.01 hPa
- Response time: 0.5 ms
- Uncertainty/Reproducibility
  - Whole range: 2.0 / 1.5 hPa
  - 1200 – 400 hPa: 1.0 / 0.75 hPa
  - 400 – 10 hPa: 2.0 / 1.5 hPa

Wind Speed & Direction
- Resolution: 0.1 m/s / 1 degree
- Combined Uncertainty/Reproducibility:
    - Speed: 0.5 / 0.25 m/s
    - Direction: 1 degree

Data Format

Each file contains a string of comma delimited values. The first line of each file contains the name of each variable, while the second contains information about the units of each variable. Individual files are labeled by launch time: YYYY_MM_DD_HHMMZ.csv; all times GMT.

The following variables can be found in each file:

Elapsed:	Total time elapsed since launch (seconds)
HeightMSL:	Height above sea level (meters)
P:	Pressure (hPa)
Temp:	Temperature (°C)
Dewp:	Derived dew point (°C)
RH:	Relative Humidity (%)
Speed:	Wind Speed (m/s)
Dir:	GPS derived wind direction (degrees)
Lat:	Latitude of radiosonde (degrees)
Lon:	Longitude of radiosonde (degrees)
HeightE:	Ellipsoid height, computed using the WGS84 ellipsoid convention (meters)

List of Available Launches

May 23rd, 2030 UTC
May 23rd, 2230 UTC
May 24th, 1930 UTC
May 24th, 2200 UTC
May 26th, 1730 UTC
May 26th, 1920 UTC
May 27th, 0020 UTC
May 27th, 1930 UTC
May 27th, 2100 UTC
May 27th, 2245 UTC
May 28th, 0000 UTC
May 28th, 0100 UTC
June 1st, 1700 UTC
June 1st, 1900 UTC
June 1st, 2100 UTC
June 1st, 2220 UTC
June 2nd, 0000 UTC

June 2nd, 1630 UTC
June 2nd, 1840 UTC
June 2nd, 2000 UTC
June 9th, 1715 UTC
June 9th, 1905 UTC
June 11th, 1820 UTC
June 11th, 1900 UTC
June 11th, 2315 UTC
June 12th, 1915 UTC
June 12th, 2105 UTC
June 12th, 2240 UTC
June 13th, 1730 UTC
June 13th, 2030 UTC
June 13th, 2245 UTC
June 13th, 2345 UTC
June 15th, 1700 UTC
June 15th, 1830 UTC
June 15th, 2100 UTC
June 15th, 2300 UTC
June 16th, 0000 UTC