Title – NOAA PSL CL31 Ceilometer Backscatter and Cloud Base Height Data

Authors

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1.0 Data Set Description

This dataset contains data from two CL31 ceilometers manufactured by Vaisala that were deployed during the Propagation, Evolution and Rotation in Linear Storms (PERiLS) experiment in Columbia, LA, and Courtland, AL. The ceilometers were operated continuously between the middle of February 2022 and the middle of May 2023. In this dataset, data between September 1 until the end of the deployment are available. The data sets contain backscatter profiles, cloud base heights, and visibility.

- Data status: Final
- Time period:
  Columbia, LA: 1 September 2022 – 20 May 2023
  Courtland, AL: 1 September 2022 – 18 May 2023
- Physical location:
  Columbia, LA: 32.124322 N, 92.055569 W, 20 m above mean sea level
  Courtland, AL: 34.66 N, 87.35 W, 187 m above mean sea level
- Data Frequency: continuous
- Data set restrictions: none

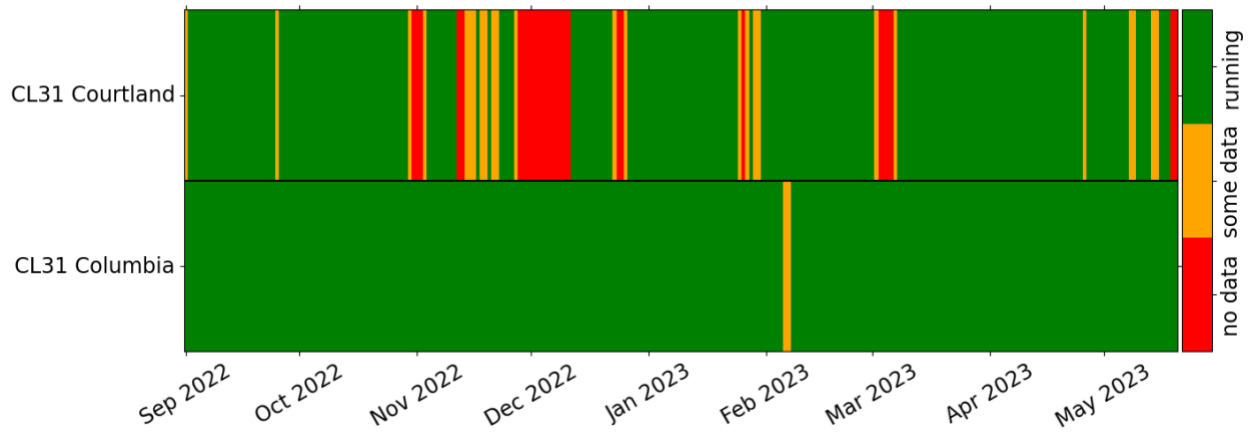
2.0 Instrument Description

The ceilometers measure vertical profiles of backscatter using laser technology. From the backscatter profiles, cloud base height and vertical visibility are determined using with the Vaisala software CL-view. For details on the instrument specifics and the methods, see the manufacturer manual (cl31usersguide.pdf).

3.0 Data Collection and Processing

Data are collected continuously. No data processing outside of the Vaisala software was performed.

Data availability is given in Fig. 1 for the period September 1 2022 to May 20 2023. Short data gaps occurred due to power failures, and AC and laptop issues.



4.0 Data Format

The data format is the original Vaisala format (.DAT). For a description of the format see the manufacturer manual. To convert the .DAT file format to netcdf format, the open source command line Python program 'cl2nc' (https://github.com/peterkuma/cl2nc) can, for example, be used.
The file naming conventions for the .DAT files are as follows:
NOAA_PSL_CL31_Columbia_yyyymmdd_HH.DAT
NOAA_PSL_CL31_Courtland_yyyymmdd_HH.DAT

with
yyyy: Year
mm: Month
dd: Day
HH: Hour when the first sample was written to the file

The time stamp of all data is in UTC.

5.0 Data Remarks

None

6.0 References

None

7.0 Appendix

GCMD keywords

EARTH SCIENCE	SPECTRAL/ENGINEERING	LIDAR	LIDAR BACKSCATTER				ca776e14-fc3d-4044-9d1a-fd7c07569399
EARTH SCIENCE	ATMOSPHERE	CLOUDS	CLOUD PROPERTIES	CLOUD BASE HEIGHT			1f0765e3-4ea3-42be-8ed5-3e26bdebb219
EARTH SCIENCE	ATMOSPHERE	AIR QUALITY	VISIBILITY				9337898d-68dc-43d7-93a9-6afdb4ab1784