



Features

- Independent data collection, storage, analysis, and reporting tool for use with Vaisala Ceilometers CL31 and CL51
- 24/7 visualization of mixing layer height (MLH) evolution and additional layers that may affect your local conditions
- Hourly average MLH
- Centralized view to data from up to 10 ceilometers
- Complete view of mixing layer height, clouds, and full-range backscatter profile
- Seamless integration of data for external applications, forecasting, and numerical model verification
- Provides easy understanding of current conditions to support faster and more reliable decision making

Vaisala Boundary Layer View BL-View is a software application for planetary boundary layer analysis and visualization. It is an independent data collection, storage, analysis, and presentation tool designed for use with Vaisala Ceilometers CL31 and CL51.

Improved Decision Making with Accurate Boundary Layer Visualization

The planetary boundary layer height, also known as the mixing layer height (MLH), is a key parameter in the characterization of air pollution, together with urban emission source strengths, traffic emissions, and weather influences. Because emissions and other near-surface pollutants are diluted in a vertical direction within the planetary boundary layer, monitoring the MLH is critical for estimating the nature, transformation, and removal of pollutants. It is also a necessary parameter for the verification of numerical air pollution simulations. BL-View generates an online visual representation of the MLH that provides you with an immediate understanding of local conditions. The MLH data can also be seamlessly integrated into numerical weather prediction models. You can view

and analyze logged data while logging and displaying real-time data. The insights enabled by BL-View help to improve your air quality monitoring and forecasting.

Reliable Data Whatever the Weather

Vaisala Ceilometer measures the backscatter profile of the atmosphere and provides the profile for analysis on BL-View. The software features an automatic algorithm for online retrieval of boundary layer depth and additional residual structures. BL-View calculation is based on combined gradient and idealized backscatter methods and enables reliable automatic reporting of the convective mixing layer height (MLH). The algorithm also takes into account time of day and location in order to improve automatic reporting in all conditions.



Ceilometers provide a vertical dimension to air quality monitoring by reporting the MLH. Typically, a low MLH indicates that the pollution level is high as the pollution is concentrated into a smaller volume.

The layer that is most relevant for air quality is reported as the MLH. In normal conditions, this layer follows the convective layer. But in some cases if a strong additional layer forms inside the convective layer, that layer is reported as the MLH due to the fact it traps all emissions and therefore is the most relevant for air quality. To ensure reliable reporting in all weather conditions, BL-View also uses an all-weather algorithm that takes into account possible precipitation and cloud events.

Manage Your Ceilometer Network

Up to 10 ceilometers can be connected to BL-View, providing a centralized view of the ceilometer data in the network. This facilitates concentrated data analysis.

The status information of the network is available in one place.

Fast Data Analysis

Vaisala BL-View is compatible with computers running Microsoft Windows®. Communication between the ceilometer and computer is via Ethernet or a serial line, and ceilometer messages are stored in netCDF format on the computer hard drive. This format enables easy and fast data analysis and sharing. The automatically analyzed boundary layer

data is stored in log files that can be easily transferred to other applications, for example as inputs to numerical weather prediction models.

Flexible User Interface

The ceilometer backscatter profile data is automatically analyzed by default parameters in order to report the convective mixing layer height (MLH) and other boundary layer structures such as residual boundary layer heights. In addition to real-time MLH reporting, the software reports the hourly average MLH.

It is possible to run simultaneous operator-specific analyses with user-set algorithm parameters. The stored profiles can be re-analyzed using any user-set parameters without interfering with the real-time data analysis and visualization.

The clear graphical user interface allows easy and convenient multiprocessing. Operators can zoom in on any point in a detailed analysis. The ceilometer and communication status is permanently displayed on the main screen so that possible operational alerts can be investigated. These warnings and alarms are also stored automatically to log files for easy retrieval.

Minimum System Requirements

Computer	Ethernet port, serial port, or USB serial converter
Operating system	Windows 10 Pro Windows 10 Pro Enterprise Windows 7 Ultimate (32-bit or 64-bit) Windows 7 Professional (32-bit or 64-bit)
RAM	2 GB
Hard disk space	For BL-View installation: 600 MB For BL-View data files: 40 GB / year / ceilometer (typically) Required total hard disk space depends on the number of ceilometers

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