Atmospheric boundary layer, wind, and air quality

Key concepts and technologies

Two pillars of air quality management

Atmospheric boundary layer (ABL) assessment | Wind assessment

- **ABL assessment** provides visibility into highly influential localized weather phenomena, which are often more difficult to assess and predict than large-scale meteorological patterns.
- **Wind assessment** significantly improves situational awareness of pollutant generation and transport. It shows the transport of pollutants by wind, local-level recirculation, horizontal dispersion, and other factors.

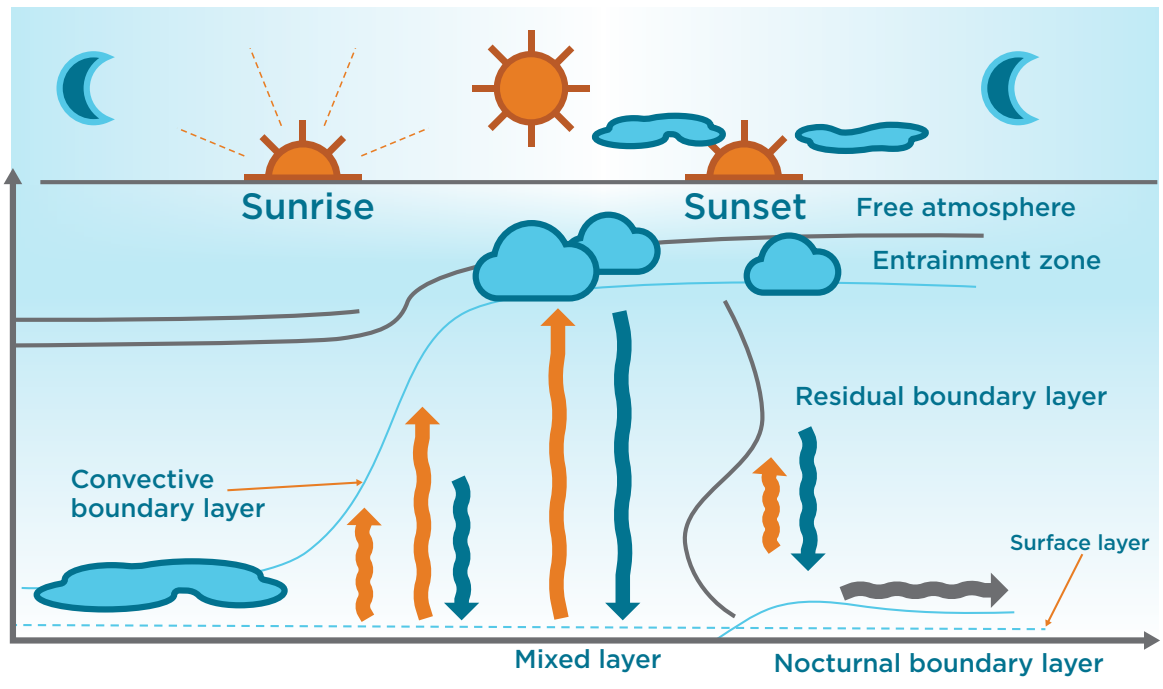
These assessments are highly valuable to communities because severe pollution events often take place when local weather phenomena are dominating larger-scale synoptic forces.

Key applications

- Emission source identification and mitigation
- Pollution management and tracking
- Public safety and air quality alerting
- Industrial area safety and compliance

Atmospheric boundary layer assessment

The ABL layer contains almost all pollutants. Monitoring it provides excellent hour-to-hour awareness of pollutant levels, their travel, and their danger to communities.



Solution

CL51 Ceilometer

Ceilometers are the primary means of directly measuring the ABL. Vaisala's CL51 is the industry's leading ceilometer, and it benefits from our years of experience deploying thousands of ceilometers worldwide.

- Uses proven, industry-leading lidar technology made withstand all weather conditions
- Plug-and-play, virtually maintenance-free, and fully automatic
- Accurate backscatter profiling at ranges up to 15km
- Cost-effective over a long, reliable service life

BL-VIEW software

BL-VIEW makes CL51 data visible and even more actionable. It provides immediate situational awareness through intuitive visualizations.

- Works online and offline (using the previous day's data, for example)
- Allows for simultaneous viewing of previously logged and current BL data
- Integrates up to 10 ceilometers, making it ideal for fleet management
- Analyses are easily exportable for further analysis or different applications

Wind assessment

Accurate wind profile measurement is critical for understanding complex patterns that occur within the ABL. These patterns often drive the dispersion of pollutants, so wind assessment can reduce uncertainty, augment ABL assessments, and enable better decision-making.

Today, lidar technology provides reliable data with outstanding flexibility, simplicity, and durability in even the harshest conditions.

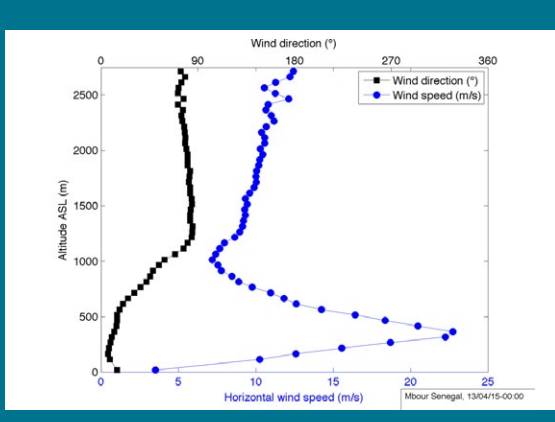
WindCube vertical profiling lidar

WindCube is the industry's leading wind lidar. Easily located almost anywhere, including rooftops or other urban structures, WindCube can do the work of a 300m met mast. Its wind data has been routinely validated by the most rigorous international governing bodies, including the IEC.

- Compact, lightweight, and easy to repurpose
- Little or no permitting or construction required
- Easily integrated with existing systems; low power consumption
- Independently validated

WindCube Scan

WindCube Scan provides full, 3D wind awareness at long ranges. It enables backscatter profile processing, which gives users detailed emissions mapping at ranges of 10km or greater.



Air quality has never been more important. The technology for assessing it has never been better.

Your communities rely on you to provide the most reliable and accurate air quality information available. You can rely on Leosphere and Vaisala for the globally recognized, reliable technology you need to succeed, even when your industry is changing rapidly.

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