

DIAL Atmospheric Profiler DA10 for aviation

Product Spotlight

Providing trusted aviation weather from cloud to ground

Weather conditions can change fast at and around the airport. When it's your job to ensure safe and efficient airport traffic, advanced, real-time water vapor profiles make the difference in better severe weather nowcasting (0-6 hours) and short-range weather forecasting (6-24 hours).

The revolutionary Vaisala DA10 differential absorption lidar (DIAL) is the first atmospheric profiler of its kind to provide continuous, autonomous water vapor monitoring 24/7 within the boundary layer.

DA10 can play a crucial role in providing early warnings and mitigating risks associated with rapidly changing weather – from approach to the ground to takeoff.



Key benefits

Enhance flight safety and efficiency at and around the airport with real-time insights on changing weather conditions.

Respond quickly and appropriately by anticipating storm development and movement.

Access real-time water vapor profile data quickly, including uncertainty information (precision level) for each point. The NetCDF format data is perfect for direct data assimilation into weather prediction models (NWP) and model validation.

Take advantage of even greater insights with super ceilometer capabilities, including cloud and sky condition reporting.

Operate confidently with comprehensive system security down to the user level, while remote firmware upgrades fortify data management and sources.

Why Vaisala?

For over 45 years, Vaisala has been a pioneer in aviation weather technology, ensuring that every measure is taken for unparalleled safety, efficiency, and sustainability.

Our gold standard suite of solutions is trusted in more than 170 countries and over 2000 airports globally. In fact, every commercial flight around the world will use weather observations produced by Vaisala equipment or forecasts driven by our sensor measurements at some point in their journey.

With a commitment to constantly evolving our portfolio, Vaisala remains at the forefront of the industry, continuously exploring new horizons.

DIAL in smarter, faster, continuous humidity profiling

While globally coordinated upper-air observations provide an overall picture of humidity patterns, DA10 continuously measures water vapor in the boundary layer, in any location, under any conditions. DA10 unlocks access to extensive, research-grade data suitable for Numerical Weather Prediction (NWP) modeling that has not been readily available before, and doubles as a super ceilometer with high-resolution profiles.

Single lens technology minimizes multiple scattering for improved detection in harsh conditions, while excellent overlap ensures low altitude detection (below 200 m). Capable of water vapor profiling of up to 4 km, and enhanced near and far optics, DA10 provides excellent full-range measurement profiles with cloud reporting up to 18km.

Real-time humidity data that is readily assimilated into NWP models leads to more precise short-term forecasts to enhance proactive decision-making. Nowcasted severe weather alerts displayed alongside flight data allow for real-time adjustments within the short-term window. This empowers approach control supervisors to anticipate weather issues and plan accordingly, potentially including runway changes.

