

WindCube lidars for artillery test ranges

VAISALA

Product Spotlight

Making weather your ally

Accurate boundary layer wind data is vital for calculating ballistic trajectories

The firing distances for modern artillery can be tens of kilometers. Weather is responsible for two thirds of long-range fire accuracy error. Accurate weather measurements ensure that military test ranges understand the effects of weather on observed firing performance to ensure successful validation campaigns and development projects.



Key benefits

Mobile in-situ real-time wind profiling.

Short-range (300m) wind measurements with instant setup of a transportable WindCube.

3D scanning of boundary layer winds with ranges up to 10 km.

Accurate boundary layer wind profile.

NWP winds are accurate above boundary layer if supported by sounding data.

All-weather when combined with weather radar.

Line of Sight measurement capabilities: More accurate wind speed and direction all along projectile trajectory at longer distance.

Why Vaisala?

With over 85 years of experience in weather and environmental technology, Vaisala is the world's most trusted provider of weather observation systems for tactical operations.

Committed to excellence, we take every measure to ensure our systems are not only comprehensive in their observations but also meet the most stringent performance requirements in any situation.

We provide 24/7 global support, extensive project capabilities and thorough training throughout the entire lifespan of your system to help you make weather your ally when it matters most.

WindCube lidars provide accurate 3-dimensional, real-time wind information for improved awareness of weather impacts on artillery fires. As the weather is constantly changing, weather models alone cannot match live weather data enabled by Vaisala. With the insight WindCube provides, artilleries gain detailed understanding of wind speed and direction profiles in the lower atmosphere that affect the impact point of artillery fires.

WindCube is a compact, dependable, unattended solution ideal for artillery test ranges. WindCube lidar is easy to deploy. You can even set up and operate multiple WindCubes along the firing test range for detailed studies of the effects of weather to the trajectories.

Complementary technologies

- WindCube lidars are a complementary measurement to traditional radiosoundings with weather balloons
- Radiosoundings utilize a balloon-borne instrument, a radiosonde, to accurately measure atmospheric temperature, humidity, pressure and wind speed and direction during the flight path of the radiosonde. The measurement range of radiosondes reach from surface up to 35 km, and is defined by the size of balloon used
- While radiosonde observations can be considered reference measurements, some test ranges require a more frequent measurement of lower atmosphere winds
- The Vaisala WindCube Lidar allows real-time measurement of either a vertical atmospheric profile or a 3D scanned cross section of the lower atmosphere
- Deploying both Vaisala upper-air and Vaisala WindCube measurements ensures that the full-column atmospheric profile is understood. This unique combination provides reliable situational awareness of the slowly changing high-level winds, full-column temperature and humidity measurements and real-time measurement of the rapidly changing boundary layer winds

