

WINDCUBE®

100S/200S/400S

VISUALIZE ATMOSPHERIC RISK WITH 3D SCANNING DOPPLER LIDAR



SOLUTIONS:

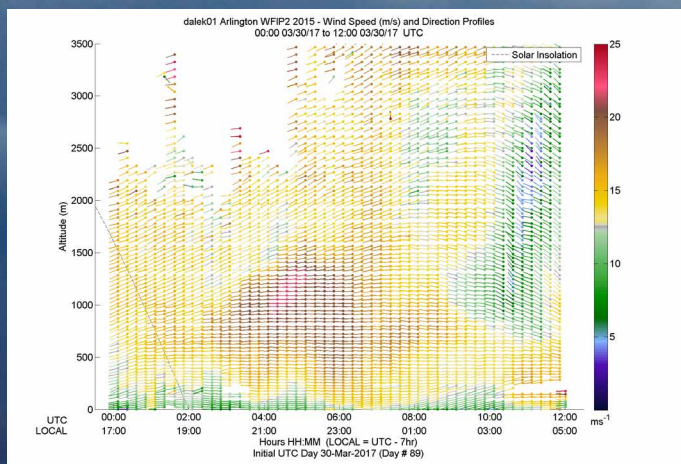
- Air Quality
- Research
- Weather Intelligence
- Aviation
- Aerospace



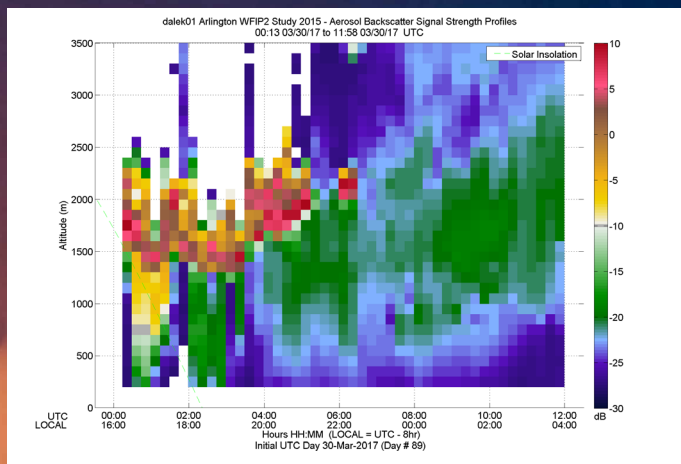
NRGSystems™

Windcube Lidar® from NRG Systems provides the world's leading environmental solutions for wind reconstruction, air pollution transport, and particulate matter remote sensing. Gain actionable intelligence for your organization with the most advanced Lidar atmospheric solutions available.

Leading scientific research organizations trust Windcube® Lidar solutions—and so can you.



Wind Speed (m/s) and Direction Profiles from the NOAA ESRL 'dalek01' WINDCUBE 200S, in support of the WFIP 2 Project, Arlington, OR. Image depicts nocturnal horizontal speed maxima and mixing levels through the boundary layer, March 30, 2017. (Courtesy NOAA Earth Sciences Research Laboratory, Chemical Sciences Division).



Aerosol Backscatter Signal Strength Profiles from the NOAA ESRL 'dalek01' WINDCUBE 200S, in support of the WFIP 2 Project, Arlington, OR. Image depicts nocturnal backscatter maxima, stable boundary and residual mixing layers, March 30, 2017. (Courtesy NOAA Earth Sciences Research Laboratory, Chemical Sciences Division).

Air Quality

From Shanghai to Southern California, air quality management agencies choose Windcube Lidar for proven technology, unrivaled scanning versatility, and unmatched commercial performance.

- Identify potential airborne environmental, health, safety, and industrial hazards
- Provision government emissions compliance and safety standards
- Quantify risk and provide actionable decisions intelligence

Research

Renowned academic, research, and government institutions choose Windcube Lidar for its global acceptance, proven scientific pedigree, and track record of performance excellence.

- Provision research advances in boundary layer remote sensing
- Advance model calibration, validation, and assimilation capabilities
- Enhance local data collection for improved weather monitoring and prediction

Weather Intelligence

Windcube Lidar provides atmospheric scientists and meteorological professionals with real-time, highly resolved decisions intelligence.

- Provide highly resolved, real time boundary layer information
- Monitor convective weather system initiation and evolution
- Provision skill and research advances in mesoscale modeling

Aviation

Windcube Lidar solutions enable hazard risk detection for terminal operations, and synergize seamlessly with complementary remote sensing technologies.

- Proactive detection and avoidance of wind hazards
- Optimization of terminal flight operations
- Anticipate and predict risk evolution

Aerospace

This remarkably versatile technology—capable of everything from detecting airborne aerosol threats to ensuring safe space exploration—has the potential to play a crucial role in creating a more secure future here on Earth and beyond.

- Airborne threat detection and assessment
- Safe and effective testing, launch, and evaluation of aerospace aircrafts
- Paving the way for innovations in airspace security, space travel, and more



PERFORMANCE & MEASUREMENT PARAMETERS

Maximum Wind, Cloud and Aerosol Detection Range	14km
Typical Wind Measurement Range*	WINDCUBE® 100S: 3km (100m resolution, 1s accumulation time) WINDCUBE® 200S: 6km (100m resolution, 1s accumulation time) WINDCUBE® 400S: 10km (200m resolution, 1s accumulation time)
Wind Velocity Range	LOS velocity from -30m/s to +30m/s (PPI, RHI, LOS scenarios) Horizontal wind speed range in DBS** mode depends on elevation angle
Precision of Velocity Measurements	Better than 0.5m/s
Accumulation Time	0.5 to 10s (1s is standard)
Physical Range Resolution	WINDCUBE® 100S/200S: 25, 50, 75, 100m WINDCUBE® 400S: 75, 100, 150, 200m Up to 320 range gates can be configured individually, with a possible overlap of range gates down to 1m
Output Data	Radial wind velocity and Doppler spectrum broadening Carrier-to-Noise Ratio (CNR) 3D wind components (DBS scenario)
Options	Backscatter profile, cloud and aerosol detection, PBL height Local meteorological conditions with optional TPH sensor Additional data displays with optional Rainbow®5 license

*The measurement range depends on various parameters such as accumulation time, physical data and display resolution, scanner rotation speed and atmospheric conditions.

**Consisting in 1 vertical LOS and 4 fixed LOS pointing at cardinal directions (with a user programmable elevation angle).

SCANNING FEATURES

Scanning Patterns	PPI (Plan Position Indicator) RHI (Range Height Indicator) DBS (Doppler Beam Swinging)** Fixed LOS (Line of Sight)
Scanning Angles	Azimuth: 0 to 360° (with 0.01° increment) Elevation: -10° to 90° (with 0.01° increment) Endless rotation
Scanning Speed	Up to 30°/s (increment of 0.01°/s) User programmable
Scanning Modes	Endless Loop User defined scenarios scheduler

HARDWARE

Laser Source	Pulsed laser @ 1.54µm Eye safety: Class 1M (compliant with IEC/EN60825-1 and ANSI-Z136.1-2007)
Outdoor Conditions	IP65 (dust and splash water resistant) Operating ambient temperature range: -25°C to 45°C (-13°F to 113°F) Operating humidity: 10% to 100% Resistant to salty environment (ISO 9227)
Dimensions	(L-W-H) (mm): 1008 x 814 x 1365
Power Consumption	500 W to 1600 W

ABOUT NRG SYSTEMS

NRG Systems is the exclusive North American distributor of Windcube Lidar technology manufactured by Leosphere, a leading specialist in the development of Lidar for atmospheric observations. We believe that products should be easy to use, precise, and well-supported, with technical service that goes beyond troubleshooting. NRG Systems focuses on every step of the ownership process—from sales consultation and shipping logistics, to installation—to ensure the best possible customer experience.

ABOUT OUR BUSINESS PARTNER

Leosphere develops and manufactures turnkey remote sensors that provide real-time tracking, wind measurement, and aerosol characterization. Leosphere has deployed more than 750 Lidars throughout the world across various applications including wind energy, climatology, meteorology, and air quality.

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