



Unrivaled thought leadership

Scientific innovation and superior metrology



Lidar without limits

Our success — like our globally recognized WindCube® suite — is rooted in our long history of scientific discovery and investment. With years of experience, an impressive global client roster, and plethora of industry breakthroughs, we demonstrate that we are the iconic gold standard in wind energy.

All of this creates reliable value for customers, who are always looking for the best solutions backed by the strongest and most trusted global partnership.

How we power wind energy

Our scientific and R&D contributions are aggressive, strategic, and unrivaled.

In recent years, we have produced more than 500 authored or co-authored scientific publications at the highest levels of study, and we collaborate with more than 20 highly respected research institutes worldwide. One of our latest advancements, a hybrid measurement capability that integrates scalar and vector averaging to reduce uncertainty, is patent-pending and unlike anything offered elsewhere.

Revolutionary hybrid wind reconstruction

Leosphere scientists discovered that atmospheric turbulence exhibits two characteristic sources of bias in traditional measurements. Our hybrid reconstruction algorithm combines scalar and vector averaging, reducing these biases by an order of magnitude and improving accuracy over other lidar types.

Leosphere: Proud to produce the industry's reference lidar

15+ | Years of scientific lidar innovation

500+ | Co-authored or authored scientific publications in recent years

Vaisala: Pioneers of environmental science



80+ years of experience

in environmental measurements and monitoring



1,900+ professionals and a large distributor network



13% of net sales invested in R&D

Not all lidar is created equal

Two lidar types are most common in the marketplace: pulsed lidar and continuous wave (CW) lidar. Over decades of research and deployments, Leosphere, a Vaisala company, has relied on pulsed lidar technology for a variety of reasons. We have continuously developed its strengths to meet the specific needs of wind energy.

Benefits of pulsed lidar and WindCube technology	
Measures multiple heights simultaneously, providing the full wind profile with no compromises in temporal resolution or accuracy	✓
Multiple heights produce much more data, more quickly (10 heights = 10x faster and 10x more data, for example)	✓
Provides spatial resolution that is constant throughout the entire wind profile	✓
Measures greater height and distance ranges, with constant accuracy	✓
Uses only 5 laser beams, which operate without moving mechanical parts	✓
Can use a unique hybrid wind reconstruction algorithm that combines scalar and vector data for the highest possible accuracy and reliability	✓
Maintains constant accuracy no matter the weather or cloud/aerosol layers	✓
Easy to position almost anywhere because its few (5) laser beams can easily be oriented to avoid obstacles	✓
Provides accurate wind direction over a 0-360° range; not vulnerable to possible 180° error	✓
Can use a 5 th (vertical) beam for direct, accurate measurement of vertical wind speed and flow angle	✓
Maintains high data availability and sample rates in a wide range of conditions	✓
Data recovery not affected by strong wind shear or wind turbulence intensity	✓
Uses 50% less power on average	✓

The value of leadership

WindCube is informed by the best data and meteorology available, and our track record of innovation and research contributions are unmatched. This global leadership is directly reflected in the reliability and accuracy of our lidar systems.

We invite you to join us in making the wind energy industry ever-smarter.

Why Leosphere, a Vaisala company?

We are modern innovators, scientists, and discoverers who enable our customers to harness the power of wind energy in new ways. We are driven by passion, relentless curiosity, and the desire to create a better world, as evidenced in our commitment to four guiding principles:

1. Trustworthy, superior metrology
2. Unrivaled thought leadership
3. Innovative lidars from a one-stop shop
4. Easy, reliable global solution

As a result, Leosphere, a Vaisala company, is the iconic and trusted gold standard in wind lidar. Our turnkey WindCube product suite offers innovative, reliable, and highly accurate solutions for thousands of customers across the globe. All of this has enabled us to be catalysts for change and ambassadors for wind energy, always advancing the field and those we serve.



windcubelidar.com



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