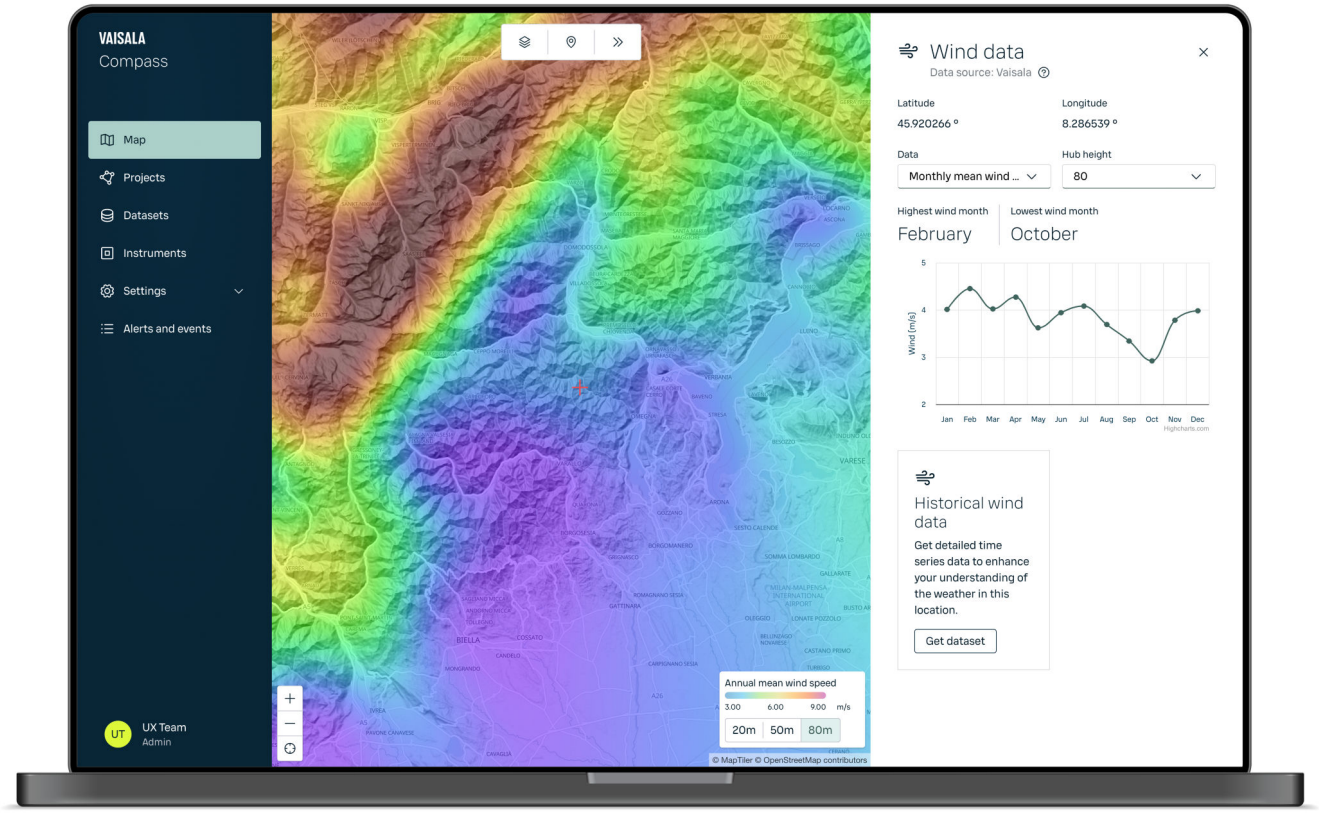
VAISALA

# Compass

## Weather intelligence platform for renewable energy




### Features

- Efficient and secure management of instrument fleet and observation data
- Extensive weather resource maps, historical datasets, and analysis tools for accurate decision making
- Project container for collecting and storing all weather and instrument data
- Remote monitoring of instrument health, measurement status, user actions, and system events

Vaisala Compass is a cloud-based weather platform that provides simple and secure access to reliable weather information from your measurement instruments and from historical wind and solar data resources.

The changing weather conditions pose challenges throughout the life cycle of renewable energy farms. To further address the challenges, Vaisala Compass also provides remote instrument monitoring, flexible fleet management, and robust data collecting, storing, and analysis applications.

### Make accurate decisions

Use the combination of weather resource maps, historical datasets, observation data, and analysis tools to make accurate decisions when selecting farm locations and designing measurement campaigns.

### Manage and monitor remotely

Manage your instrument fleet and observation data efficiently and securely. You can monitor instrument health and measurement status and modify configurations. You can also monitor alerts and events related to datasets, projects, system, and user actions.

### Collect and store data

Use a single project container to collect and store all the weather and instrument data needed for prospecting, developing, and estimating the performance of a renewable energy farm.

# Vaisala Compass edition comparison

| Component | Feature | Connect edition | Renewable edition |
|---|---|---|---|
| Weather exploration map and local statistics | Wind: Annual mean speed 20 m, 50 m, 80 m | ✔ | ✔ |
| | Solar: DNI, GHI | ✔ | ✔ |
| | Icing: Hours/year | ✔ | ✔ |
| Historical weather time series | Wind: 60-minute time series 50 - 200 m | In-app purchase | In-app purchase (some credits included) |
| | Solar: 60-minute time series / TMY | In-app purchase | In-app purchase (some credits included) |
| | Historical wind data calibration using observation data | – | In upcoming releases |
| Instrument management | Monitoring | ✔ | ✔ |
| | Diagnostics | ✔ | ✔ |
| | Configuration | ✔ | ✔ |
| | Operational management: Delegation, renting, certification, and maintenance | Limited | ✔ |
| | Documentation and administrative dates | – | In upcoming releases |
| Observation dataset management | Visualization and download | ✔ | ✔ |
| | Data storage: per instrument connected | 1 year equivalent (10-minute data) | 5 years equivalent (10-minute and high-frequency data) |
| | WRA monitoring and quality check | – | ✔ |
| | Advanced analytics and KPI | – | ✔ |
| | WindCube high-frequency data acquisition and storage | – | ✔ |
| | Multi-versioning data management for WindCube | – | ✔ |
| | Wind data availability booster for WindCube | – | ✔ |
| | Apply CFD-based correction factors for complex terrain | – | In upcoming releases |
| | Falcon TI - Turbulence Intensity determination using high-frequency data | – | In upcoming releases |
| Logbook management | Events and alerts | Instrument only | ✔ |
| Project management | Project area determination and dataset collection | – | ✔ |
| | Terrain complexity estimator | – | ✔ |
| | Sharing project data with a third party | – | In upcoming releases |
| Platform admin | Organization and third parties ecosystem management | Limited | ✔ |
| | Users and rights management | ✔ | ✔ |
| | API | Get observation data | ✔ |

# Technical data

## Wind and solar resources map and statistics

| | |
|---|---|
| Wind data on map | Annual mean wind speed (m/s): at 20, 50, and 80 meters |
| Wind statistics for selected location | • Monthly mean wind speed<br>• Wind speed distribution<br>• Annual mean wind rose<br>• Annual mean wind speed |
| Solar data on map | Annual mean solar irradiance ($W/m^2$):<br>• Direct Normal Irradiation (DNI)<br>• Global Horizontal Irradiation (GHI) |
| Solar statistics for selected location | Monthly mean values ($W/m^2$) and lowest and highest month:<br>• Monthly mean diffuse (DIF)<br>• Monthly mean GHI<br>• Monthly mean DNI<br>Annual mean ranges ($W/m^2$):<br>• Annual mean diffuse (DIF) range<br>• Annual mean DNI range<br>• Annual mean GHI range |

## Historical weather datasets

| | |
|---|---|
| Historical wind data | • Historical time series data, 60-minute<br>• Hub heights: 50 - 200 meters<br>• Sources: ERA5, MERRA-2 |
| Historical solar data | • Historical time series data, 60-minute<br>• Typical Meteorological Year (TMY)<br>• Sources: Vaisala |

## Alerts and events management

| | |
|---|---|
| Alerts and events | • Real-time and history list<br>• Related to system, instruments, datasets, projects, organizations<br>• Severity categorization<br>• Message indicating the issue<br>• Tracking user who requested data or action<br>• Acknowledgement feature |

## Project management

| | |
|---|---|
| Project area | Definition of the project's geographical area as KML file import |
| Datasets | List of historical and observation data sets used by the project |
| Analysis | Estimation of the complexity of the terrain and recommended post-processing of the data |
| Current weather | Live weather conditions for the project location |

## Observation dataset management

| | |
|---|---|
| Observation data - WindCube | • Carrier-to-Noise Ratio (CNR) (dB)<br>• Internal temperature<br>• Data availability<br>Wind measurements, per measurement height:<br>• Wind speed<br>• Wind direction<br>• Wind speed dispersion |
| Observation data - AWS810 Solar | • Global horizontal irradiation (W/m2)<br>• Relative humidity internal (%)<br>• X axis tilt angle (°)<br>• Y axis tilt angle (°)<br>• Internal temperature (°) |
| Metadata | Depending on the instrument and connected sensors:<br>• Source<br>• Start date<br>• Last day of data<br>• Estimated end date<br>• Period length<br>• GPS coordinates<br>• Altitudes AGL<br>• Reference height<br>• Installation offset AGL<br>• Direction offset<br>• Time zone<br>• Instrument software version |

## Instrument management

| | |
|---|---|
| WindCube | • Instrument and sensor status<br>• Data collection calendar<br>• Detailed instrument diagnostics<br>• Remote configuration (reboot, wiper activation)<br>• Instrument ownership history |
| AWS810 Solar | • Status of data management unit and sensors<br>• Instrument ownership history |
| Current weather | Live weather conditions for the instrument location |

## Additional analytics packages

| | |
|---|---|
| Historical wind data time series | 20 credits |
| Historical solar data time series | 25 credits |

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Published by Vaisala | B212916EN-B © Vaisala 2025