

**VAISALA**

# Port weather awareness: Real-time weather insights

Solutions Brochure



Make sound decisions to improve port safety and cargo handling efficiency with real-time, reliable weather and wind observation data.

Climate change is already exposing ports to more extreme weather occurrences, and these can cost millions in repairs and downtime. They also create substantial safety and liability risks for workers and others at or near port facilities. Legacy methods of getting weather information such as general forecasts and single weather stations are no longer enough for making timely decisions.

Wind is the invisible risk that can take your port operations by surprise. Local wind behaviors can vary significantly within a single port area, and the wide variety of structures and environments interact with the wind in complex ways. As a result, existing wind monitoring solutions are often insufficient.



# How weather intelligence helps ports

With more accurate information on prevailing weather plus short-term nowcasts, hyperlocal wind data and thunderstorm alerts, ports can optimize their operations and protect personnel before the storm hits. Aside from averting major accidents, this has serious implications for day-to-day operational continuity.

A better understanding of weather allows ports to act decisively to protect productivity. Instead of making an educated guess on closures, for example, port leaders can limit downtime without exposing personnel to undue risk, promptly getting operations back on track.

## Weather and oceanographic observations to measure at ports

### Meteorology

- Wind speed, direction and gusts
- Barometric pressure
- Air temperature and relative humidity
- Precipitation
- Visibility
- Ice coverage and thickness
- Lightning

### Oceanography

- Sea level
- Water temperature and salinity
- Tidal height
- Wave height and direction
- Current height and direction



# Total situational awareness for port operations

Modern weather intelligence helps ports to meet crucial goals. This includes a network of local, real-time weather sensor data, display software, data storage, and hosted data management services.

Not only does this provide a host of weather observation information and history when you need it, the information also frees port leaders to focus on core operations without diverting valuable time and resources to weather risks.

1. Weather parameters with sensors and weather stations
2. Weather radar with X-band >100 km
3. Remote wind detection with scan lidar up to 10 km
4. Alerts with thunderstorm detection
5. Localized weather data with APIs



# Weather and environmental measurement solutions for ports

## Sensors

### [Digital Barometer PTB330](#)

Exceptionally accurate barometric pressure readings with low hysteresis and long-term stability.

### [HUMICAP Humidity and Temperature Probe HMP155](#)

Highly accurate, reliable temperature and humidity data in even the harshest environments.

### [Present Weather Detectors and Visibility Sensors PWD Series](#)

A mix of meteorological optical range (MOR), characterization of reduced visibility, precipitation type identification, precipitation accumulation/intensity measurement, and report formats.

### [Pressure, Humidity, and Temperature Transmitter PTU300](#)

One instrument measures three parameters simultaneously: barometric pressure, humidity, and temperature.

### [Weather Transmitter WXT530 Series](#)

The perfect mix of accurate air pressure, temperature, humidity, rainfall, wind speed, and wind direction data.

### [WINDCAP Ultrasonic Wind Sensor WMT700](#)

Accurate wind data even in variable winds, complex terrain, and other challenging conditions.

## Data collection and visualization

### [Observation Network Manager NM10](#)

Consolidate data, monitoring, and control of all the sites in your weather observation network into a single place.

### [Thunderstorm Manager](#)

Web-based worldwide thunderstorm tracking with the most accurate lightning detection including up-to-the-second lightning data and real-time lightning alerts.

## Digital services

### [Global Lightning Dataset GLD360](#)

Reliable storm and lightning information with unmatched efficiency and location accuracy everywhere in the world.

### [Weather API](#)

Information and forecasts of waves, water temperatures and tides of the oceans and seas worldwide.

## Weather stations

### [Automatic Weather Station AWS310](#)

Accurate, real-time weather information for effective short- and long-term forecasting and monitoring of developing severe weather conditions.

### [Connected Compact Station BWS500 for Ports](#)

The power of hyperlocal weather intelligence in an all-in-one, compact weather station.

## Wind and weather detection

### [WindCube Scan lidar](#)

360°/3D wind awareness at long range with world-class accuracy.

### [X-Band Weather Radar WRS400](#)

The ideal short-range radar for accurate weather detection and filling gaps in established networks.

# How does your current setup stack up?

Many port managers might not know what's possible for real-time weather awareness – the technology has made massive leaps in recent years. The industry has relied on a few key practices for many years, but in many cases, it's time for a climate change resiliency upgrade.



Legacy practice	Modern alternative
Forecasting from national weather services or news	Hyperlocal nowcasting that combines many data sources
Single-function, traditional wind or weather stations	Comprehensive, highly accurate weather stations measuring all key weather parameters
Manual (or non-existent) data processing, sharing, and alerting	Instant, cloud-enabled data management and alerting
Generalized port-area weather awareness	Full dome of awareness capturing different weather behaviors for different infrastructures/locales
Difficult decision-making made on long time scales	Up-to-the-second decision-making using trustworthy, objective information
Single weather station	Broad network of weather stations covering the port area with surroundings



## Why Vaisala?

Weather and environmental insights are the greatest catalysts for successful maritime operations— from sensors to systems and digital services, Vaisala provides actionable insights that empower stakeholders to confidently meet challenges and harness new opportunities.

Our globally trusted maritime weather solutions enable remarkable efficiency gains, digital transformation, the protection of people and investments while supporting sustainable and responsible operations.

We are scientists and explorers driven by passion, relentless curiosity, and the desire to create a better world. Backed by 85+ years of unmatched scientific leadership, our solutions increase maritime weather awareness and drive innovation.

