

**VAISALA**

# When accuracy matters: Weather Observation Systems for Naval Forces

Solutions Brochure



Accurate weather information is vital for ensuring the safe and effective operation of naval vessels. Look to Vaisala Weather Measurement Systems for a comprehensive solution to your naval weather challenges.



### Enhanced weather sensing: the crucial edge

Vaisala provides weather sensors and systems to support naval operations. The environmental data we provide is a critical input to mission planning tools and to operational situational awareness. Our systems are specifically designed and built for onboard and offshore environments, especially in harsh and demanding maritime conditions.

We ensure compatibility and interoperability with other onboard systems by applying relevant design standards. Vaisala radiosounding systems are used when atmospheric profiling up to altitude is needed for ballistic preparation, atmospheric refraction measurements, or as input for Numerical Weather Prediction (NWP) models.

### Expandable and adaptable to your needs

Our modular and expandable systems allow you to customize the right solution for your needs. We can integrate sensors to provide you with a complete solution including all relevant meteorological, oceanographic, and hydrological instruments.

Your Vaisala Maritime Observation System can be configured in a variety of ways – from a basic system to a comprehensive, multiple measurement-point network. The system takes care of quality control and statistical calculations and incorporates observations from weather data products for distribution to onboard systems.

### Safe and precise navigation

Accurate weather information is crucial for safe navigation. Vaisala Maritime Observation Systems work as a single-point source for weather parameters that support your vessel's navigation system, such as wind and sea state information.

Lightning is one of the greatest safety hazards. Our web-based Thunderstorm Manager tracks global lightning storms, and the alert system helps you prepare for approaching storms and maintain operations when lightning is not an immediate threat.

Onboard wind measurement is especially challenging. When your ships are equipped with multiple Vaisala sensors, an advanced weather station algorithm selects the sensor in the best location to provide the most accurate true, relative, and head wind calculations.

Data acquisition and management for workstations, displays, and alarms

Meteorological measurements and weather forecast data	Oceanographic measurements and forecast data	Hydrological measurements
<ul style="list-style-type: none"><li>• Air: pressure, temperature, humidity</li><li>• Wind: speed, direction</li><li>• Thunderstorms &amp; lightning</li><li>• Visibility</li><li>• Precipitation</li><li>• Cloud height</li><li>• Quayside and ramp grip</li></ul>	<ul style="list-style-type: none"><li>• Wave: profile, height, period, direction</li><li>• Current: profile, speed, direction</li><li>• Tide: height, variations</li><li>• Airgap and draught</li><li>• Motion</li></ul>	<ul style="list-style-type: none"><li>• Level</li><li>• Salinity / conductivity</li><li>• Temperature</li><li>• Pressure, depth, density</li><li>• Dissolved oxygen</li><li>• Chlorophyll fluorescence</li><li>• Turbidity</li></ul>

Weather info for battle management systems

Weather information is needed to ensure the effective use of weapons systems. Vaisala Maritime Observation Systems are an essential component of the onboard METOC system. Wind speed and direction, atmospheric temperature, humidity and pressure can be forwarded to the battle management system.

Key parameters for aviation support

An automatic weather station is essential to enhance safety in naval aviation. Aircraft and helicopter operations as well as Unmanned Aircraft Systems (UAS) require timely and accurate weather information for flight preparations, take-offs, landings and flying at low altitudes.

Enhanced measurement capabilities for visibility, cloud base and cover, and vessel pitch and roll – in combination with true wind calculation – provide you with key weather parameters for naval aviation support.

Enhance your defense using weather knowledge

- Deploy countermeasures, decoys and smoke screens in the most effective direction, depending on wind conditions.
- Maximize the performance of radar and other electro-optical systems by minimizing uneven distribution of water vapor and temperature inversions.
- Identify particles such as water droplets before they degrade system performance.
- Optimize radio communications and performance by using a radiosounding system to evaluate the effect of ducting and abnormal signal refraction.

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.

