

## Addressing climate change at ports

AN OPERATIONAL GUIDE

### The new climate reality

Climate change is accelerating extreme and slow-onset climate impacts, especially at ports.<sup>1</sup>



**Extreme impacts:** Sudden oceanic and atmospheric events like severe wind, thunderstorms, and heat waves



**Slow-onset effects:** Problematic changes to factors like sea level, wind, and waves/swell

**The result:** Since 2018, climate change has risen from the 10th environmental priority at ports to the 2nd.

### Direct and indirect operational impacts of climate change

#### Direct

Infrastructure damages, safety, and health issues

Cost of downtime and lost productivity

#### Indirect

Changes in demand from broader environmental effects on trade

Degradation of other industries (fishing, energy, etc.) that also support ports

### How to start thinking about modernization

**A traditional, reactive posture** to weather risks no longer allows ports to meet the demands that climate change places on them.

**A modern, data-driven approach** allows ports to:

1. Adopt a proactive approach to climate change
2. Optimize their just-in-time operations
3. Enhance safety and decision-making
4. Confidently manage the risks related to extreme weather

This approach is attainable using proven, readily available, cost-effective weather sensors and related solutions.

# How better weather data meets ports' most important needs

## 1

### It improves operational efficiency.



With more accurate information on prevailing weather and nowcasts, **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.



They also **gain objective validation for their decision-making**, which can be important in post-event investigations or even litigation.

## 2

### It helps avoid PR and reputational damages.



In today's instantly connected world, **PR and reputational damages can stick with a company** long after a disaster takes place and is resolved.



Good weather intelligence and data-driven decisions can **help leaders demonstrate diligence** to the public, regulators, and other parties when it counts.



**Port customers and other outside stakeholders are increasingly aware** of a port's posture toward weather-related risks — and whether they're being proactive or just hoping for the best.

## 3

### It improves risk assessment and management.



Extreme weather caused by climate change **increases risks to infrastructure, business continuity**, and the safety of vessels and people.



With better data, ports can **accelerate weather risk assessments and response plans** — and be more confident of their outcomes.



Ports can also make **objective, reliable budget allocations** for mitigating weather-related risks.

Embracing new weather data also **puts ports a step ahead with the “twin transition” of digital transformation and sustainability development** – topics they must address intelligently in the coming years.



## Frequently used Vaisala technologies



**WindCube® Scan lidar** providing 3D, spatial wind data at ranges even beyond 10km



**Vaisala Beacon™ Station for Ports** for hyperlocal, continuous weather data



**AWS310 weather station** bundling essential port and coastal weather observations, with meteorological calculations and reports

# How does your current setup stack up?

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

## Storm's coming. But you'll be prepared.

Vaisala provides accurate information on prevailing weather conditions and nowcasts, enabling ports to optimize their just-in-time operations, enhance safety, and manage the risks related to extreme weather before it occurs.

We're ready to talk with you and plan for a more secure, less blustery future.

## Vaisala is here to help

Weather and environmental insights are the greatest catalysts for successful maritime operations — both onshore and offshore. From sensors to systems and digital services, Vaisala empowers maritime leaders to confidently meet new challenges and harness new opportunities.

### Our customers depend on Vaisala to:



**Master the weather  
to master the sea**



**Leverage oceans  
of insight**



**Embrace the currents  
of innovation**



**Become champions  
of sustainability**

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