Subject:	Improved safety with weather monitoring instruments
Reference	AN0019

Improved safety with weather monitoring instruments

Introduction

Data collected by weather stations is used not only to forecast future weather and to pre-determine risk but also to deal with real time weather conditions during critical events. Weather data forms a fundamental part of the essential information provided to a huge number of industries and in particular, the marine industry relies on weather data. Reliable data from weather stations provides crucial information which improves safety both on and off-shore and helps to reduce costs.



Applications

Here are some examples of how fitting professional sensors improves safety and reduces operating costs across the marine industry:

Dynamic Positioning System

A dependable, accurate anemometer on a ship or offshore platform provides real-time wind speed and direction measurement to the systems dynamic positioning systems.
The navigation systems are used by ship's captain to make informed decisions when manoeuvering or keeping a vessel on station during drilling or maintenance operations. In the case of fully automated systems wind data collected from an ultrasonic anemometer is fed via a control system to the vessels thrusters. This ensures that near immediate compensation is applied to the vessel should gusts of wind attempt to push it off station.

Safe docking and operation



Ferries, cargo ships and cruise ships with professional weather stations provide valuable meteorological data back to meteorological centres.
This data is used to provide real time information to other vessels and enables weather centres to produce more accurate shipping forecast for other marine workers and for coastal communities.
With a collection of accurate weather data, shipping routes can be automatically calculated which have the benefit of saving fuel, improving safety and decreasing journey times.

Offshore Oil and Gas

Weather conditions play an essential part in the safe operation and supply of offshore oil and gas rigs and continuous, accurate monitoring of the weather is crucial for safe helicopter and supply vessel operation. All sensors operating in these environments must conform to CAAS, FAA and WMO regulations to provide accurate and reliable data.



Additionally, weather monitoring provides alarms when safe working limits are exceeded, such as crane or maintenance operations.

Navigation

The International Maritime Organisation sub-committee on Safety of Navigation states that the wind measuring equipment on a vessel should be regarded as navigational equipment providing the wind information necessary for safe navigation, as well as a general meteorological instrument.
This emphasises that understanding weather and its behaviour is one of the core skills needed for safety at sea and the provision of reliable, accurate information from high-quality instruments is crucial to safe navigation.

Offshore Wind Farms



Wind energy is a growing sector and offshore wind farms are popular with developers and energy companies alike, but understanding wind movements before and after installation is critical to their success.

Safe working on ever larger and distant installations is also paramount and accurate weather reporting on-site not only enables companies to profile the amount of energy they can generate with the available winds, but also ensures that safety limits are not exceeded for maintenance operations.