

Vessel Traffic Services enhance maritime traffic safety

Local weather measurements important

In the past, maritime traffic monitoring has been carried out with a simple shore-based radar and voice radio system with the aim of enhancing navigation in poor visibility in port areas and their approaches.

The Vessel Traffic Services (VTS) concept has since developed into a modern system using multiple sensors. Its objective is to enhance safety, improve the efficiency of maritime traffic and to protect the marine environment. Authorities using the VTS have experienced improvements in sea traffic efficiency and safety, and a reduction in environmental pollution. The number of VTS has grown considerably throughout the world. There are 500 VTS operational today.

Over 160 sovereign states are members of the International Maritime Organization (IMO). IMO has set out several conventions that are relevant to VTS. The European Community has established a

vessel traffic monitoring and information system along the coasts of the member states (Directive 2002/59/EC). Encouraged by this legal framework, states worldwide are establishing VTS systems.

There are various categories of VTS including coastal, port or harbor, and river services. The IMO Resolution A 857(20) states that a port VTS is mainly concerned with vessel traffic to and from a port or harbor, while a coastal VTS is mainly concerned with vessel traffic passing through the area. A VTS could also be a combination of both types. Recently VTS systems have been built in inland waters as well.

Functions of Vessel Traffic Services

The purpose of VTS is to improve maritime safety and efficiency of navigation, safety of life at sea and the protection of the maritime environment and/or



adjacent shore areas, work sites and offshore installations from the possible adverse effects of marine traffic in a given area.

The service types that an authorized VTS can offer are information service, traffic organization service and navigational assistance service. The information service maintains a traffic image and allows interaction with traffic and response to developing traffic situations. Traffic organization concerns the forward planning of movements to maintain vessel safety and achieve efficiency. Essential and timely marine information is provided to vessels in the VTS area to assist the on-board decision-making process. Information about meteorological and hydrological conditions is included in these services.

Vessel Traffic Services' equipment

Factors like traffic density, navigation hazards, local climate, topography and the extent of a VTS area set the requirements for VTS equipment. A VTS is typically equipped with communications, VTS radar system, Automatic Identification System (AIS), Closed Circuit TV Cameras (CCTV), meteo/hydro equipment and/or a VTS data system.

For a VTS center it is essential to have access to meteorological/hydrological systems, which provide local information relevant to the VTS area. If required by the VTS authority, a VTS center must be able to disseminate local meteo/hydro data to their users and allied services.

Meteorological parameters that are typically measured include wind speed and direction, air temperature, relative humidity and visibility. In some VTS areas, hydrological parameters such as tidal level, current speed and direction are required. Meteo/hydro data is obtained most accurately and reliably from sensors, and some tables or databases are also used. Meteo/hydro sensors transmit data typically via a telecommunications link to VTS centers, where the data is presented in graphical and/or numerical format for the VTS operators.

VTS operators can use meteo/hydro data for a real-time assessment of the environmental situation in the VTS area and provide data to ships to assist in assessing the waterway conditions.

AIS equipment exchanges data from ship-to-ship and with shore-based AIS base stations. AIS binary messages aim to reduce verbal communications, enhance

reliable information exchange and reduce VTS operators' workload. These messages are dedicated to specific applications, e.g. exchanging meteo/hydro data.

Vaisala has a long history in VTS deliveries

For decades, Vaisala has supplied weather solutions to a large number of VTS systems throughout the world. As the global market leader in professional meteorology, Vaisala is the preferred weather solution supplier to many VTS organizations and system integrators.

Vaisala's reference deliveries range from meteo/hydro sensors for navigation aid and automatic weather stations for Port VTS systems to turnkey network weather solutions for coastal VTS systems, which consist of a large number of automatic weather stations with sensors, telemetry, network data collection, management and visualization software, installation and maintenance services.

New superior weather station MAWS410 for VTS and maritime customers

Vaisala has gained strong and extensive experience in maritime weather observations through hundreds of demanding customer projects in the harshest marine environment. In addition to numerous VTS installations, our maritime solutions can be found for example at a vast number of ports and harbors, and on vessels and oil/gas platforms worldwide.

Vaisala has recently launched a system for premium maritime weather observations - the Vaisala Maritime Observation System MAWS410. It is a superior automatic weather station that is most reliable even in the most demanding weather conditions. The hardware is especially designed to withstand the wet, salty freeze and thaw that are common in different maritime applications.

The MAWS410 is unique for marine applications due to the fact that it was designed in accordance with the internationally respected standards for maritime electrical instrumentation and navigation systems. Its anti-corrosive design and EMC characteristics are in compliance with Lloyd's Register Type Approval System specifications and IEC60945 standard requirements. The system enclosure is of hastelloy/acid-proof stainless steel and its protection class is min. IP66/NEMA4X. This ensures that corrosive sea conditions do not harm the

valuable electronics inside the station and the user can count on a long lifetime with minimum maintenance for the system.

The MAWS410 combines Vaisala's proven sensor technology with the new compact data logger design. All meteorological, hydrological and oceanographical sensors required in VTS installations can easily be integrated to the station. It facilitates the use of heated sensors, which means user benefits in terms of excellent data availability even in icy conditions.

Among other enhanced features the MAWS410 offers intelligent data validation, extensive calculations and customer-specific message output options. PC-based Vaisala Maritime Observation Console software is available, providing flexible real-time data visualization and archiving as well as visual observation augmentation to the universal FM-13 SHIP and IMMT-3 messages entered prior to transmission.

The Vaisala Maritime Observation System MAWS410 is an excellent choice for maritime applications, where reliable and rugged design, ease of installation, low power consumption, automatic operation, interface with modern telecommunication options and long lifetime are required. ■



Vaisala Maritime Observation System MAWS410 is the ideal tool for premium maritime weather observations.