



4 ALBERT EMBANKMENT
LONDON SE1 7SR
Telephone: +44 (0)20 7735 7611 Fax: +44 (0)20 7587 3210

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**GUIDANCE FOR THE PRESENTATION AND DISPLAY OF AIS
APPLICATION-SPECIFIC MESSAGES INFORMATION**

- 1 The Maritime Safety Committee, at its seventy-eighth session (12 to 21 May 2004), approved SN/Circ.236 on Guidance on the application of AIS binary messages as prepared by the Sub-Committee on Safety of Navigation, at its forty-ninth session (30 June to 4 July 2003).
- 2 The Sub-Committee on Safety of Navigation, at its forty-ninth session, selected seven (7) Application-Specific Messages as shown in annex 2 to SN/Circ.236 to be used as a trial set of messages for a period of four years with no change. It was noted that four additional system-related messages were identified in Recommendation ITU-R M.1371 for the operation of the system.
- 3 The Sub-Committee on Safety of Navigation (NAV), at its fifty-fifth session (27 to 31 July 2009), after evaluating the use of Application-Specific Messages in the trial period defined in SN/Circ.236, agreed on Guidance for the presentation and display of AIS Application-Specific Messages information.
- 4 The Maritime Safety Committee, at its eighty-seventh session (12 to 21 May 2010), concurred with the Sub-Committee's views and approved the Guidance for the presentation and display of AIS Application-Specific Messages information, as set out in the annex.
- 5 Member Governments are invited to bring the annexed Guidance to the attention of all concerned.

ANNEX

PRESENTATION AND DISPLAY OF AIS APPLICATION-SPECIFIC MESSAGES INFORMATION

Introduction

At present, there is no specific guidance or standards related to the presentation and display of AIS Application-Specific Messages information on shipborne equipment or systems. While the Minimum Keyboard Display (MKD) is capable of displaying text messages, it was never intended for the graphical display and presentation of AIS Application-Specific Messages information. However, there are a number of general and equipment-specific international standards that have been adopted by IMO, IHO and IEC that contain "guidance" related to the presentation and display of various types of shipborne navigation-related information.

Standards/Guidelines

General

Performance Standards for the Presentation of Navigation-related Information on Shipborne Navigational Displays, resolution MSC.191(79), 6 December 2004.

Guidelines for the Presentation of Navigation-related Symbols, Terms and Abbreviations, SN/Circ.243, 15 December 2004.

Presentation of Navigation-related Information on Shipborne Navigational Displays – General Requirements, methods of testing, required test requirements. IEC 62288, Edition 1.0, July 2008.

Equipment-Specific

There are specific equipment/system standards that have been adopted by IMO, IHO and IEC that contain "guidance" related to the presentation/display of shipborne navigation-related information. However, most were adopted prior to resolution MSC.191(79), SN/Circ.236, or IEC 62288 being issued. Eventually, these equipment-specific performance standards will need to be "updated" in order to comply with the overall harmonized requirements contained in resolution MSC.191(79). In the interim, there does not appear to be any existing requirement that would preclude the presentation/display of any of the AIS Application-Specific Messages applications contained in SN/Circ.236 or the revised/new messages. However, it will not be possible to reach a general consensus about the consistent and uniform display of AIS binary messages until the performance standards for individual shipboard equipment and systems are aligned with resolution MSC.191(79).

ECDIS

Revised Performance Standards for ECDIS, resolution MSC.232(82), 2006.
Specifications for Chart Content and Display Aspects of ECDIS, IHO S-52, Ed. 4.2, Appendix 2, *Colour and Symbol Specifications for ECDIS*, March 2004.

Radar

Performance Standards for Radar Equipment, resolution MSC.192(79), 2004.

INS

Performance Standards for an Integrated Navigation System (INS), resolution MSC.86(70), Annex 3.

Integrated Navigation Systems (INS) – Operational and performance requirements, methods of testing and required test results. IEC 61294, Ed. 1, 2004.

AIS

Performance Standards for a Universal Shipborne Automatic Identification System (AIS), resolution MSC.74(69), Annex 3, 19 May 1998.

Guidelines for the Onboard Operational Use of Shipborne Automatic Identification Systems (AIS), resolution A.917(22), 25 January 2002.

Display of AIS Target Information, SN/Circ.217, 11 July 2001.

Guidance of the Application of AIS Binary Messages, SN/Circ.236, 28 May 2004.

Guiding Principles for the Presentation/Display of AIS Application-Specific Messages

At this time, it is premature to propose specific presentation and display standards for AIS Application-Specific Messages. More experience is needed in order to determine how AIS Application-Specific Messages information should be displayed in conjunction with other chart-related and operational information. Further, the presentation and display of AIS Application Specific Messages information should conform to the concept of operation envisioned for e-navigation. As currently defined:

"e-navigation is the harmonized collection, integration, exchange, presentation and analysis of marine information on board and ashore by electronic means to enhance berth-to-berth navigation and related services for safety and security at sea and protection of the marine environment." (NAV 54/25, annex 12).

Most likely, AIS Application-Specific Messages will become means to achieve many of the core objectives of e-navigation (NAV 54/25, annex 12):

- .1 *facilitate safe and secure navigation of vessels having regard to hydrographic, meteorological and navigational information and risks;*
- .2 *facilitate vessel traffic observation and management from shore/coastal facilities, where appropriate;*
- .3 *facilitate communications, including data exchange, among ship to ship, ship to shore, shore to ship, shore to shore and other users;*
- .4 *provide opportunities for improving the efficiency of transport and logistics;*
- .5 *support the effective operation of contingency response, and search and rescue services;*

- .6 *demonstrate defined levels of accuracy, integrity and continuity appropriate to a safety-critical system;*
- .7 *integrate and present information on board and ashore through a human-machine interface which maximizes navigational safety benefits and minimizes any risks of confusion or misinterpretation on the part of the user;*
- .8 *integrate and present information on board and ashore to manage the workload of the users, while also motivating and engaging the user and supporting decision-making.*

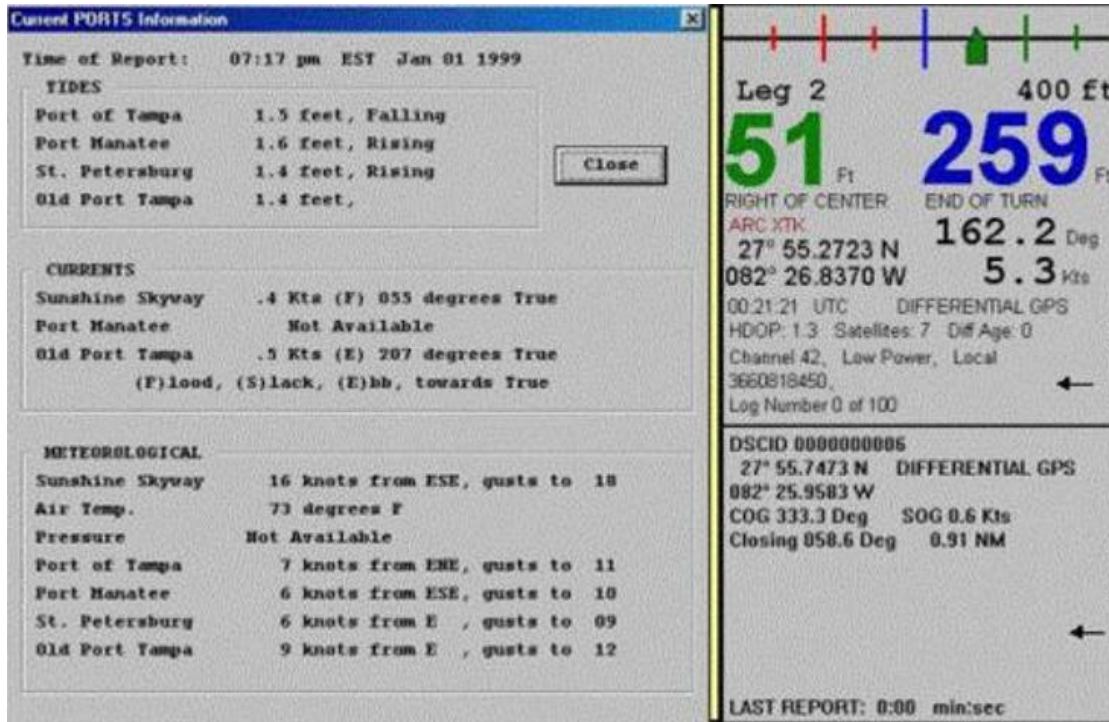
In the interim, the following guiding principles should apply to the display of AIS Application-Specific Messages information both for shipborne equipment/systems (e.g., ECDIS, radar and INS) and for shore-based systems (e.g., VTS Centre console):

1. Use **consistent** symbology across all displays
2. **Uniqueness** – only one possible meaning
3. **Non-ambiguous** – ability to determine differences (i.e. distinct)
4. **Intuitively obvious** – an easily recognized symbol, icon or pattern
5. Have a **basic symbol** for different categories. Further attributes should be enhancements (not changes) to the basic symbol.

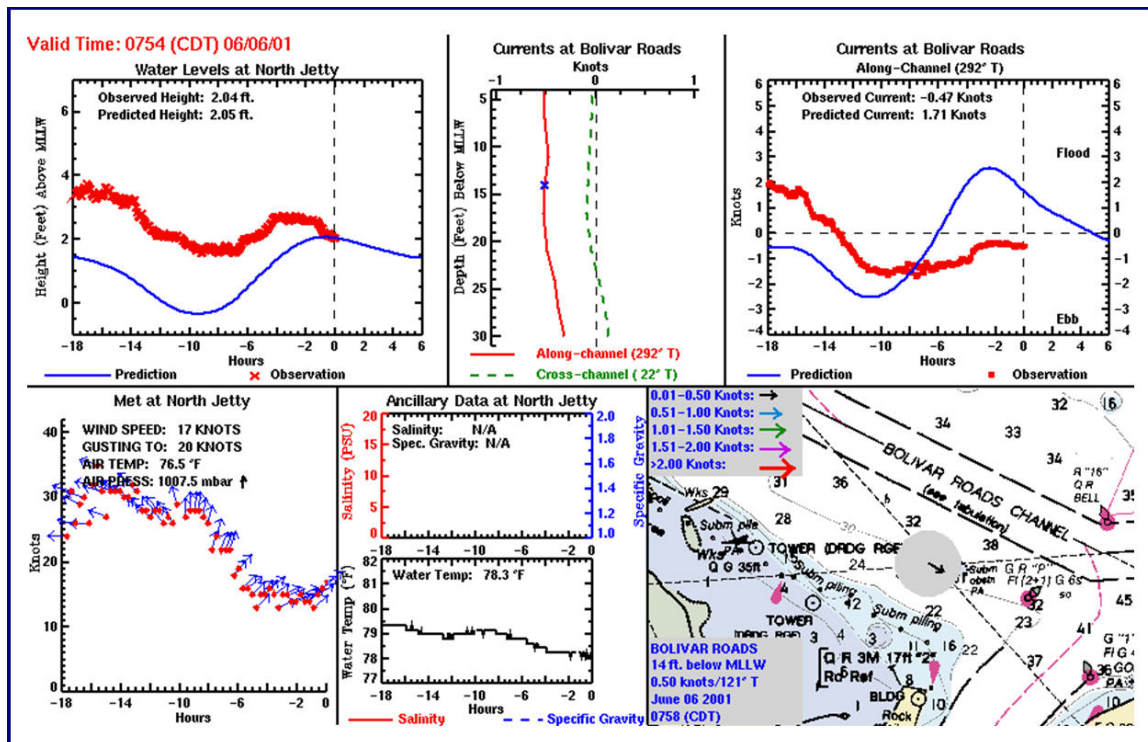
Application-Specific Message Information: Portrayal Examples

"Portrayal" is the process of representing or depicting (i.e. showing an example of what is or could be). The following are selected examples of how some of current and new Application-Specific Messages applications are being portrayed. This includes alpha-numeric, graphs, symbols and geographic (i.e. spatial) information.

Meteorological and hydrographic data (FI = 11, FI = 26)

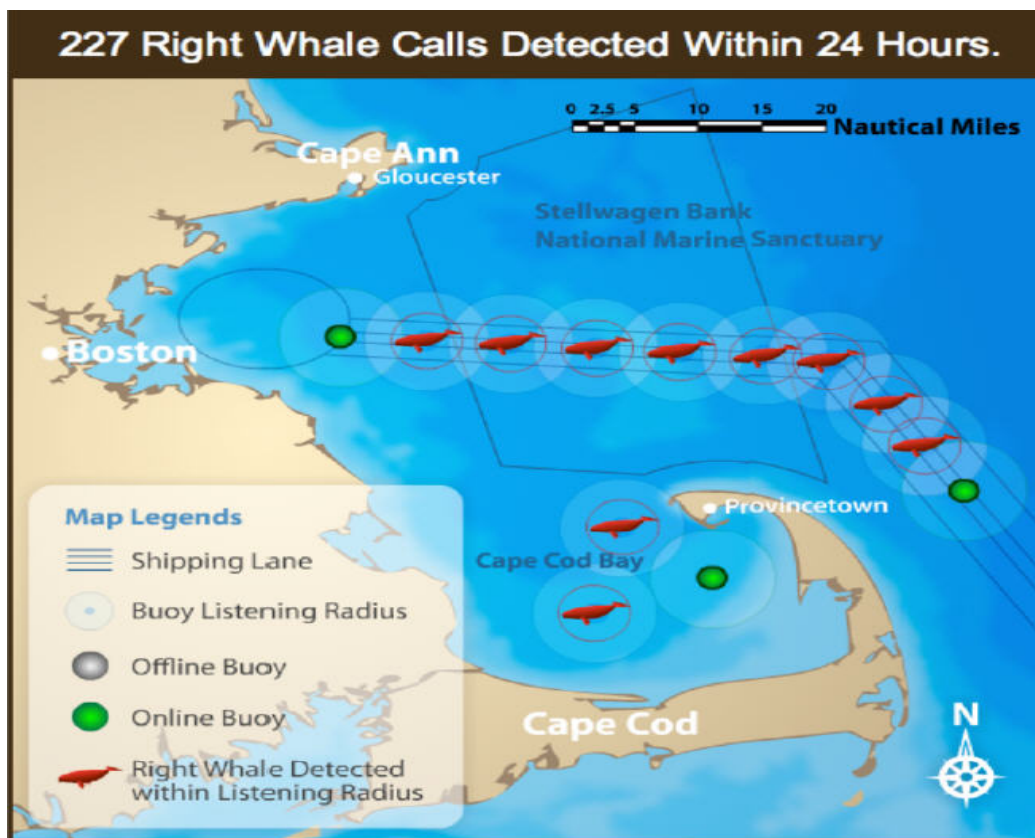


Example 1 – This is an example of real-time alpha-numeric data pertaining to tidal changes, current flow velocity, and meteorological conditions. Transmitted as an AIS Application-Specific Message from a VTS Centre, the information is displayed on Portable Pilot Units (PPUs) that are carried on board vessels by Maritime Pilots.

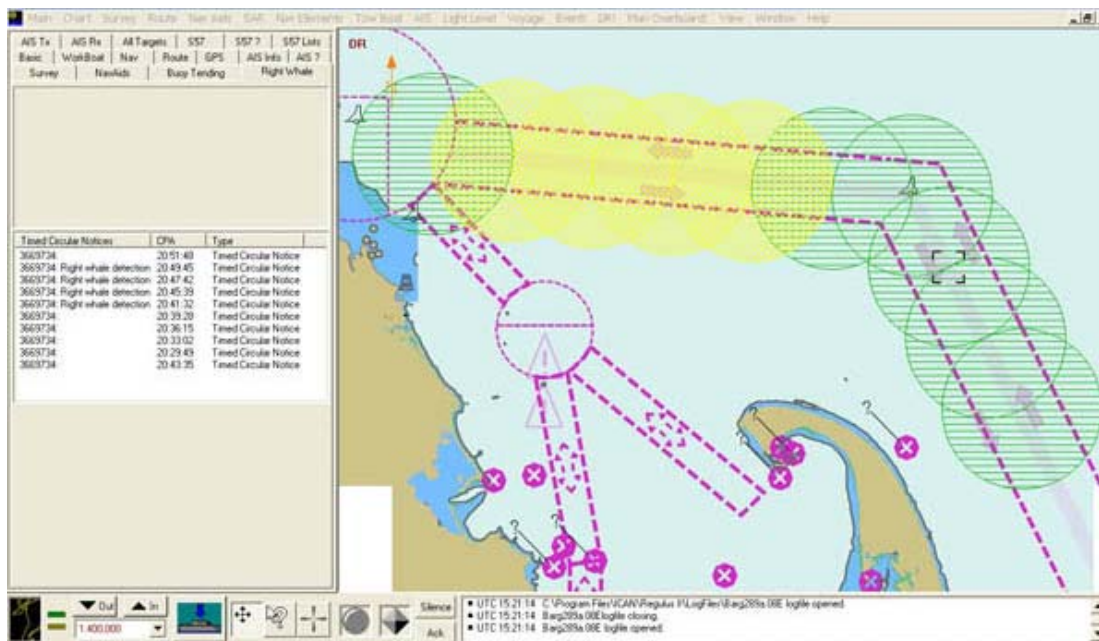


Example 2 – This is a graphical display of both predicted and observed met/hydro data. While similar to alpha-numeric text in terms of data content, the information is displayed as a time-series graphs capable of depicting differences and trends (i.e. predicted vs. observed). This also includes alpha-numeric text that is displayed over geographic data (a raster navigational chart).

Area Notice – Broadcast (FI = 22)

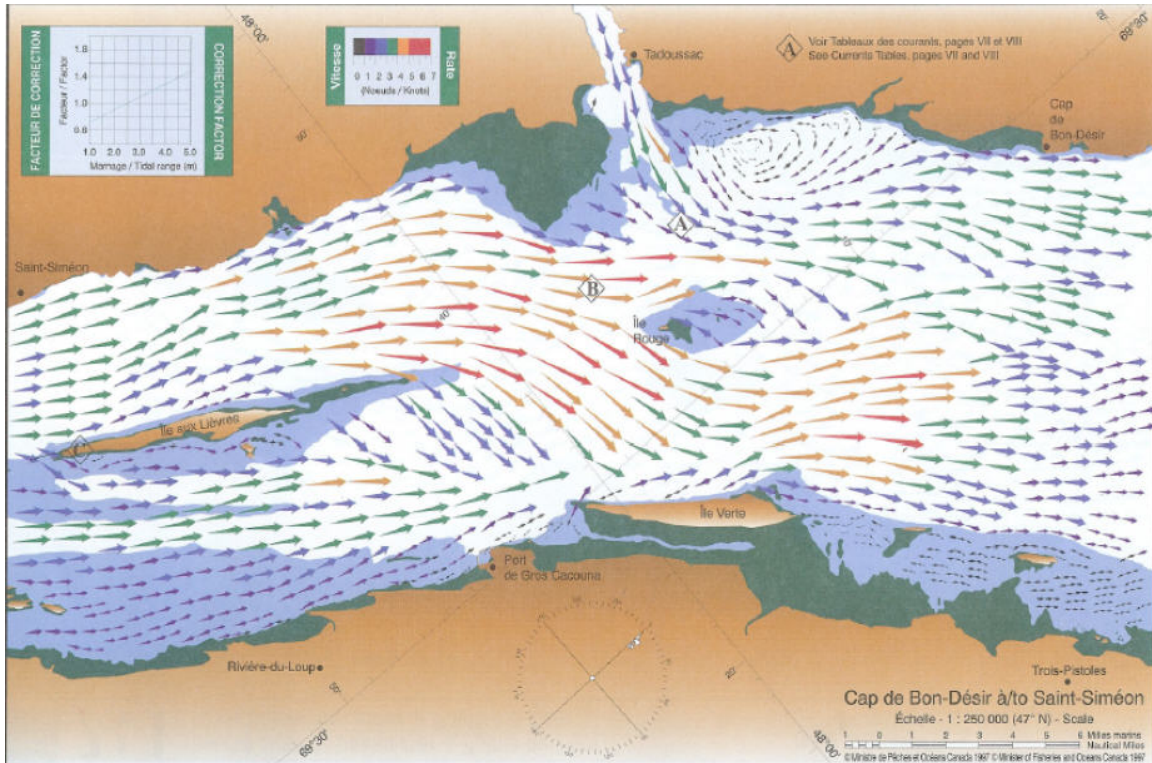


Example 1 – This is an example of shore-based geographic display of a marine sanctuary area, traffic separation scheme, locations of passive-acoustic buoys, and acoustic detections of North Atlantic right whales (an endangered species). The red-green colour scheme indicates the status of buoy operation.

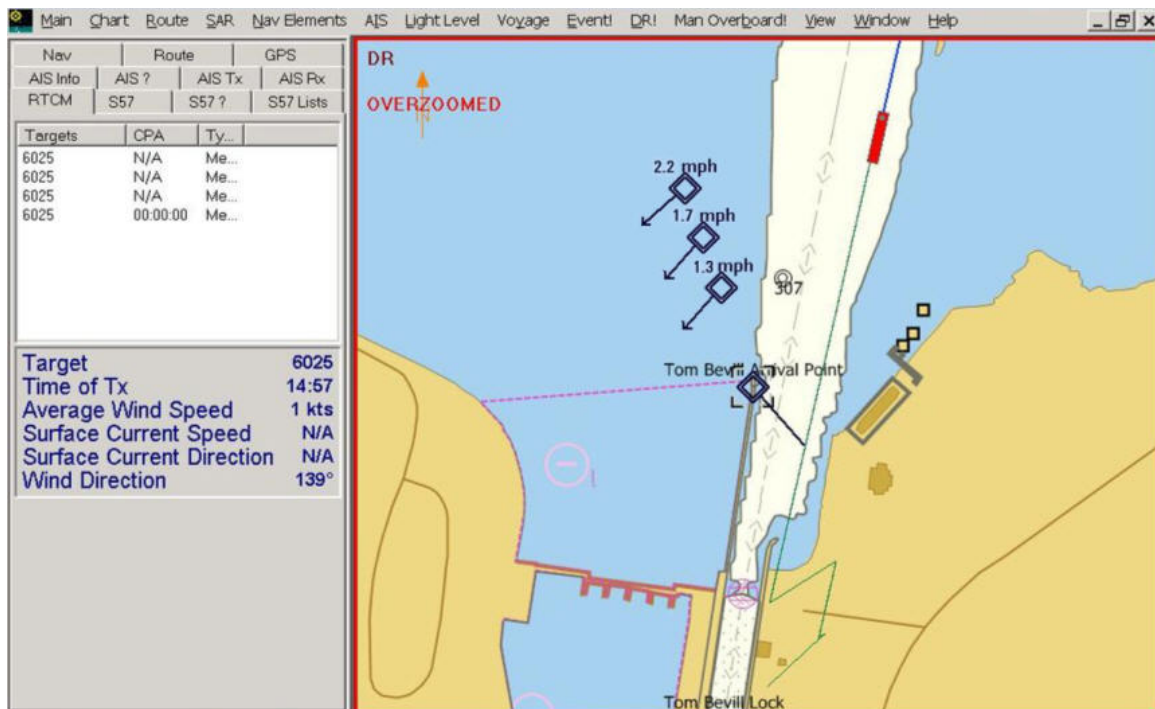


Example 2 – This is an example of data pertaining to the date/time detection and location of North Atlantic right whales (an endangered species) in a traffic separation scheme within a marine sanctuary area. Transmitted via AIS Application-Specific Message from an Operations Centre, this information is displayed on shipborne Electronic Chart System (ECS) as semi-transparent red-yellow-green colours that do not obscure the underlying Electronic Navigational Chart (ENC) data.

Tidal window (FI = 14)

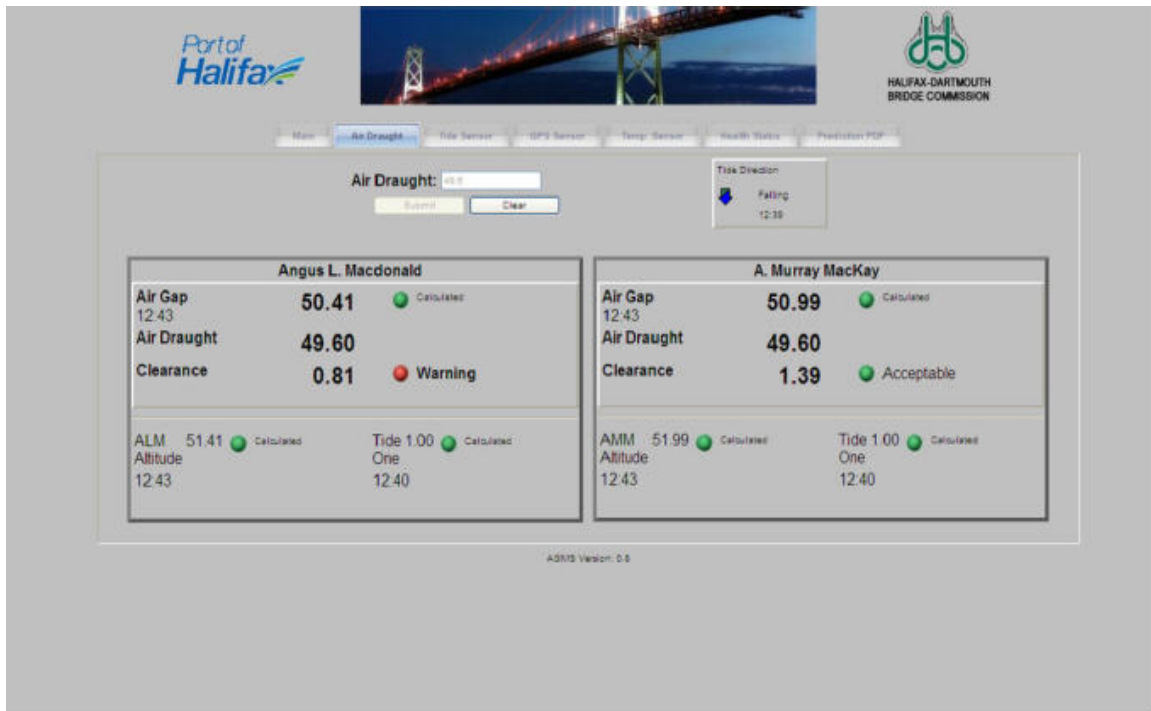


Example 1 – This is a geographical example of tidal current data. Current flow information is shown as coloured arrows (symbols) that indicate both the direction and speed of current flow for a date/time period at a specific location. This display is similar to the colour scheme used in the "Tidal Atlas" that is issued as a printed nautical publication.

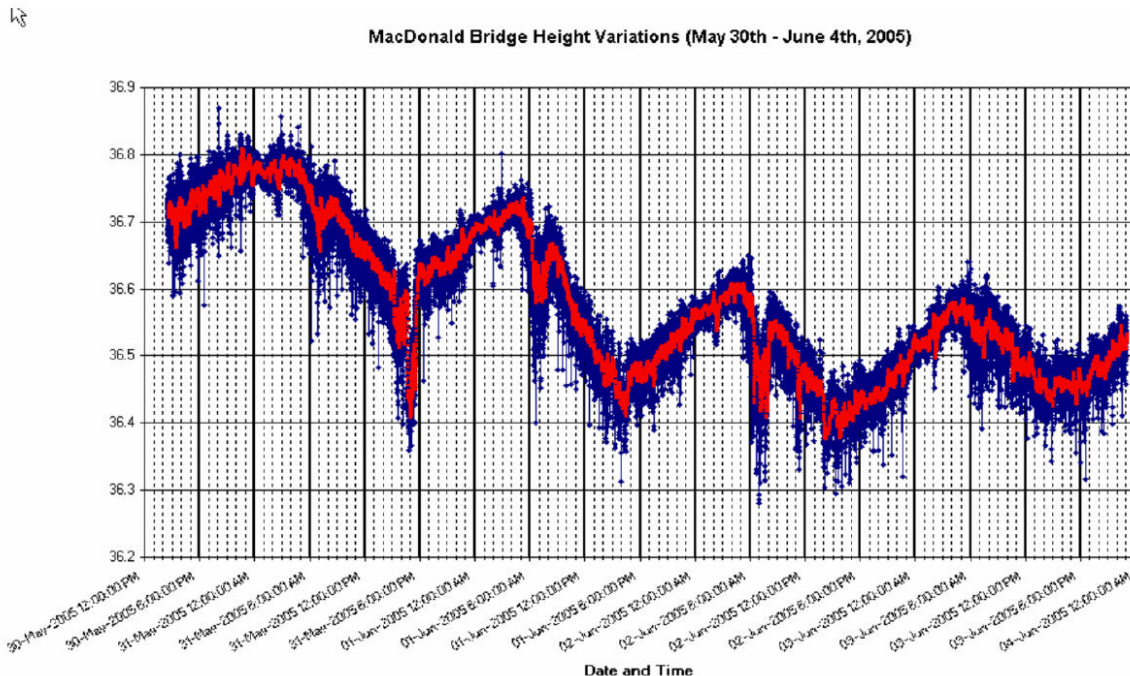


Example 2 – This is a geographic display of current flow data at the entrance of a lock on a major inland waterway. Current flow information is shown as arrow symbols that indicate the surface current speed/direction on a continuous basis. This information is transmitted via AIS Application-Specific Message from a VTS Centre, and displayed on an Electronic Chart System installed on board a towboat vessel using Inland ENC data.

Extended ship static and voyage-related data (FI = 15)

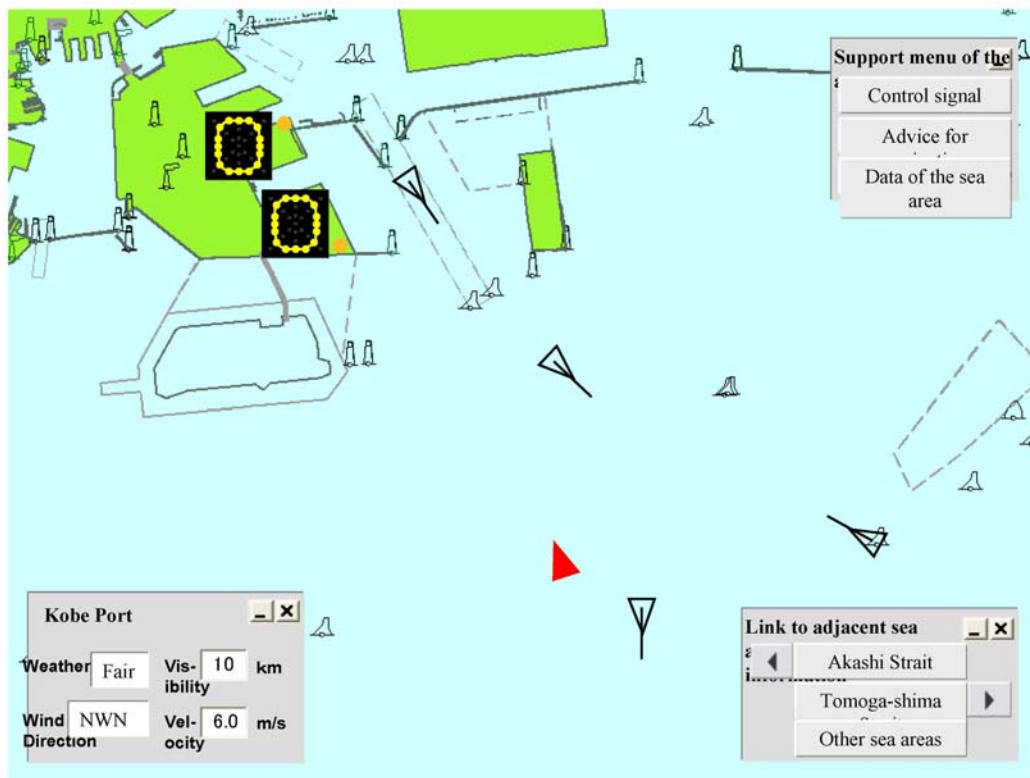


Example 1 – This is an example of real-time alpha-numeric data pertaining to air gap/air draft. Transmitted via AIS Application-Specific Message from a Port Authority, the information is displayed on Portable Pilot Units that are carried on board vessels by Maritime Pilots. A red-green colour scheme is used to indicate a warning of exceeding minimum clearance parameters.



Example 2 – This is a graphical display of the same air gap/air draft data. While similar to alpha-numeric text in terms of data content, the information is displayed as a date/time series graph that indicates variations and trends.

Marine traffic signal (Fl = 19)



Example 1 – This is an example of a geographic display of marine traffic signal data that would be sent from a VTS Centre to a vessel entering port. In addition to displaying information on a signal station and status of the control signal, there are other links capable of providing advice about the harbour and adjacent sea area, and alpha-numeric text information on local weather conditions.