

Paper for Consideration by TSMAD and DIPWG

Dynamic Water Level Data Transfer Product Specification - First Draft

Submitted by:	UKHO
Executive Summary:	This paper outlines the first draft of the Dynamic Water Level Data Transfer Product Specification for action HSSC5/51: “TSMAD to assist the TWLWG in the development of a tidal product specification for navigational surface and tidal data transfer that could be used for generating dynamic water levels and navigational surfaces in ECDIS. “
Related Documents:	HSSC6 - 03A - Minutes of the 5 th HSSC Meeting (section 5.8) TWLWG to liaise with TSMAD on tidal matters and develop, maintain and extend a Product Specification for Dynamic Application of Tides in ECDIS (IHO Task 2.7.5 refers) and a Product Specification for the transmission of real-time tidal data (IHO Task 2.7.4 refers), HSSC6 Draft Minutes, HSSC6-08INF8 - presentation by TSMAD Chair on the first draft of the Dynamic Water Level Data Transfer Product Specification, TSMAD29/DIPWG7 06.4C first draft of the Dynamic Water Level Data Transfer Product Specification (S-112).
Related Projects:	Development of S-100 and related product specifications.

Introduction / Background

The development of electronic navigation with high resolution bathymetric data, and the drive to increase safety of navigation are now demanding time-sensitive data such as dynamic tidal data to be available. IHO identified the fundamental requirement for a universal standard for the transmission of dynamic tidal data.

At HSSC5, the following action HSSC5/51 was assigned to TSMAD with a target date/event of HSSC6:

TSMAD to assist the TWLWG in the development of a tidal product specification for navigational surface and tidal data transfer that could be used for generating dynamic water levels and navigational surfaces in ECDIS.

TSMAD was tasked with working on a first draft of a Dynamic Water Level Data Product Specification to focus on the use of AIS messages to transmit tidal data suitable for use in any proposed dynamic tide application. It involved researching the current practices already used; including those used by the Maritime and Port Authority of Singapore within the Malacca and Singapore Straits Marine Electronic Highways (MEH) project and investigated the potential expansion of S-100 to accommodate AIS messages.

UKHO volunteered to assist TWLWG in cooperation with Singapore MPA and took the lead in developing the first draft of the S-100 based Dynamic Water Level Data Transfer Product Specification, using the example of an AIS sample string from Singapore MPA as the basis for the product specification. Following extensive research the decision to use the IMO approved Meteorological and Hydrographic Data AIS Application-Specific Message was approved by TWLWG Vice Chair.

At HSSC6, the Committee noted the work on the first draft of the Dynamic Water Level Data Transfer Product Specification, which was adopted by the IHO as S-112. Consequently TWLWG received action, HSSC6/29, to liaise with S-100WG to identify the appropriate expertise to progress in the development of real-time tidal data transfer product specification (IHO S-112); to present at HSSC7.

Analysis/Discussion

There are a number of IMO approved AIS Application-Specific Messages recommended for international use, including messages which contain clearance time to enter port, berthing data and route information. The Meteorological and Hydrographic Data AIS Application-Specific Message provides the means to transfer a multitude of different information in addition to the dynamic water level data, such as data for wind, weather, surface currents, sea state, salinity and ice, which could provide the scope for either extending this specification or developing new ones.

One of the main advantages of using this methodology is that it can be adopted by any ECDIS employing AIS integration either in the current S-57 environment or future S-100 implementations.

One possible disadvantage is that AIS uses an open protocol and is not intended for secure communications. The means for ensuring the quality and correctness of the AIS information needs to be discussed.

There are a number of areas in the first draft of the Dynamic Water Level Data Transfer Product Specification which require discussion and development.

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.

Conclusions

The applicability of using the IMO approved Meteorological and Hydrographic Data AIS Application-Specific Message via AIS will be far reaching for the availability of time-sensitive data for increasing safety of navigation.

Recommendations

It is recommended that TSMAD and DIPWG consider and discuss the first draft of the Dynamic Water Level Data Transfer Product Specification (S-112). Early perusal is advised to ensure that any necessary amendments are raised at TSMAD29/DIPWG7.

- Any necessary amendments raised at TSMAD29/DIPWG7 are to be discussed and either approved or rejected.
- UKHO to edit the first draft of S-112 for any approved amendments.
- Submission of the amended version of S-112 to the TWCWG meeting in April 2015.
- If the specification is accepted by both WGs it should then be distributed for a Stakeholder review.

Action Required of TSMAD and DIPWG

The TSMAD and DIPWG are invited to:

- a. discuss the draft S-112.
- b. agree any amendments to the draft S-112.
- c. UKHO to edit the draft S-112 for any approved amendments.
- d. accept the amended version of the draft S-112 for submission to the TWCWG meeting in April 2015.
- e. accept the amended version of the draft S-112 to be distributed for a Stakeholder review (acceptance required from both TSMAD/DIPWG and TWCWG).