Hydrographic Services and Standards Committee

Report of the Tides, Water Level and Current Working Group

Gwenaële Jan[1], Louis Maltais[2], Kurt Hess[3], David Wyatt[4]

(1) Chair, SHOM, (2) Vice-Chair, Canadian Hydrographic Service, (3) SCPT, USA, NOAA, (4) Secretary, International Hydrographic Bureau

TWCWG activities for HSSC-8

WG objectives

- To monitor developments related to tidal, water level and current observation, analysis, prediction, vertical and horizontal datums;
- To develop and maintain the relevant IHO standards, specifications and publications for which it is responsible in liaison with the relevant IHO bodies and non-IHO entities;
- To develop standards for the delivery and presentation of navigationally relevant current information;
- To provide technical advice and coordination on matters related to tides, water levels, currents and vertical datums.

Principal activities and achievements

- **2016: First TWCWG enhanced by tidal WG and surface current WG**
  - Work centred around S-1xx products specifications.
  - Positive impact of the new WG: (1) for S-1xx product specification (Reports and documents on TWCWG IHO web pages) (2) permanent actions on ocean data exchange and analysis.
  - 5 industrials answered to the call from IHO task 2.7.5 of circular letter CL-74 /2015
    http://iho.int/mtg_docs/circular_letters/english/2015/Cl74e.pdf

Principal activities and achievements

- **1/ S-1xx product specification segmented in work-packages** (grid, forecast, obs, prediction, incertainty, quality flag, size of the product, etc.) Workpackages have to be included in the 3 following specifications.
  - S-104 – *Water Level Information for Surface Navigation*
  - S-111 – *Surface Currents*
  - S-112 – *Dynamic Water Level Data Transfer*
- **Provide S-104, S-111 and S-112 test datasets to IHB for uploading to the website** (a S-100 based Product Specification)
  - S-111 current : in good progress (TWCWG S-111 IHO web page)
  - S-104 Product Specification document : draft version: Process in progress. (TWCWG S-104 IHO web page)

Principal activities and achievements

- **2/ Capacity building:**
- Liaise with SAN
- Sept 2016. First review on courses documents (TWCWG IHO web page)
- Ongoing actions: Translation before submission it to the review committee TWCWG and IHB. Beginning process for translation of workshop material into Spanish (by USA stakeholders)
- Provide comments, amendments and feedback on the existing documents available on IHB web site (TWCWG). Send it to the leader of this task (SAN) and to the TWCWG.
  (https://www.iho.int/mtg_docs/com_wg/IHOTC/IHOTC_Misc/Tides_and_Water_Level_Workshop_Course_Material)

3/ Maintain and extend the relevant IHO standards, specifications and publications (CL27/2016)

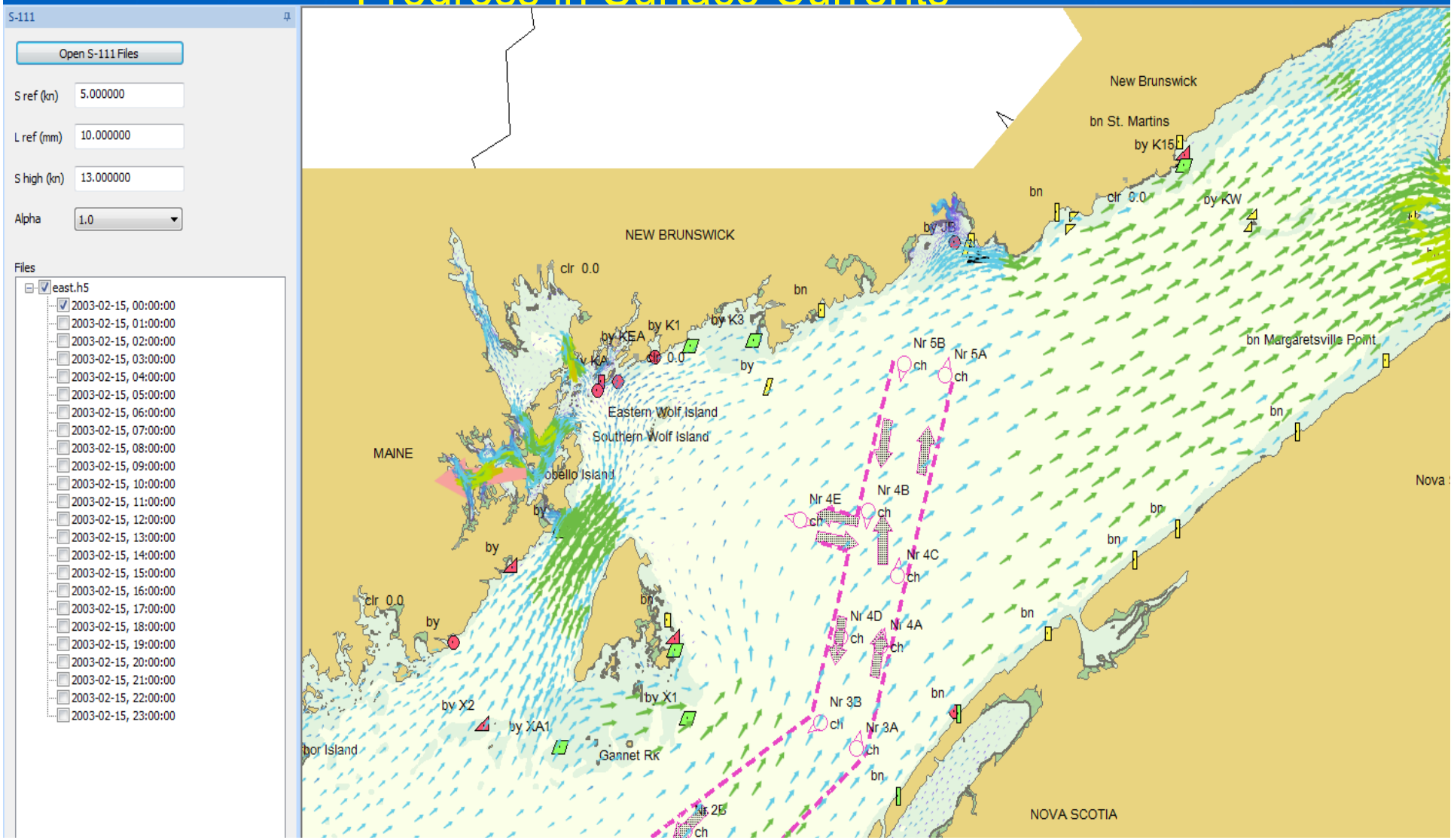
- Resolution 3/1919 as amended - Datums and Bench Marks (redrafted, the proposed revision is available on TWCWG IHO web page).
- 3/1919: Provide the latest version amended by HSSC and answer to the comment raised by IHB (May 2016)
- The IHB received 48 voting replies, 44 Member States supported the proposal, 4 Member States objected. There are currently 85 Member States of the IHO with three States suspended; Majority is in accordance with paragraph 6 of Article VI of the Convention on the IHO.
- Circular Letter can be drafted indicating that the resolution, taking into account the comments received, has been approved with the wording as indicated in the feedback comments, with a reference to previous IHO CLs (17/2014 and 44/2014).

Outstanding issues

- **S-111: The most in advance of WG PS: Finalise the dynamics information to include in the future e-navigation products**:
  - With a next milestone 2017-T1 : d**ataset for tests**: See S-111 TWCWG IHB web page
  - **Portrayal setup** (2018)
- Progress:
  - Addition to the IHO GI Registry:
    - Feature (pending): Surface Current
      - Attribute: Surface Current Speed
      - Attribute: Surface Current Direction

Outstanding issues

Progress in Surface Currents



Outstanding issues

Vertical Reference Frame

- Increase information on IHB TWCWG web page. 2nd term of 2017.
  - Required interaction with NSHC (IHO framework) and other programs

Future work programme

A	Maintain the list of standard tidal constituents (IHO Task 2.7.2.3)
B	Compare the tidal predictions generated as a result of analysis of a common data set using different analysis software
C	Develop, maintain and extend a Product Specification for digital tide tables (IHO Task 2.7.3 of CL74e/2015)
D	Develop, maintain and extend a Product Specification for the transmission of real-time tidal data (IHO Task 2.7.4)
E	Develop, maintain and extend a Product Specification for the transmission of real-time surface current data (S-111 - IHO Task 2.13.3)
F	Develop, maintain and extend a Product Specification for dynamic surface currents in ECDIS (IHO Task 2.13.4)
G	Develop, maintain and extend a Product specification for dynamic tides in ECDIS (IHO Task 2.7.5) + Water level
H	Liaise with S-100WG on tidal and current matters relevant to ECDIS applications
I	Liaise with industry experts on the development of product specifications for tides and currents
J	Prepare and maintain an inventory of tide gauges and current meters used by Member States and publish it on the IHO/TWLWG web site (IHO Task 2.7.2.4)
K	Review feedback of on-line real time water level observation document
L	Maintain and extend the relevant IHO standards, specifications and publications as required (IHO Tasks 2.7.2 and 2.13.2)
M	Conduct the 2016 and 2017 meetings of TWCWG and its sub-group(s) and project team(s) (IHO Tasks 2.7.1 and 2.13.1)
N	Develop and maintain material for course on Tides, Water Levels and Currents

Future work programme

Work item	Title	Priority H-high M-medium L-low	Next milestone	Start Date	End Date	Status P-planned O-ongoing C-completed S-Superseded	Contact Person(s)	Related Pubs / Standard	Remarks
A.1	Maintain the list of standard tidal constituents	M		-	Permanent	O	Chris Jones*		Review current list of published tidal constituents
B.1	Compare the tidal predictions generated as a result of analysis of a common data set using different analysis software.	M		-	Permanent	O	Hilda Sande * All		Select Common data set Analyze using different software Predict common set of tides Compare results
C.1	Develop, maintain and extend the standard for digital tide and tidal current tables	H	Prepare draft Standard	2009	~~2016~~ 2017	O	Peter Stone* Chris Jones Zarina Jayaswal		
D.1	Develop and maintain a standard for the transmission of real-time tidal data (S-112)	H		2009	~~2017~~ 2018	O	Chris Jones* All		Establish joint project teams as required. Liaise with S-100WG (see H.1) Liaise with industry experts (see I.1)
E.1	Develop and maintain a product specification for the transmission of real-time surface current data (S-111)	H		2013	~~2017~~ 2018	O	Kurt Hess* Louis Maltais		Establish joint project teams as required. Liaise with S-100WG (see H.1) Liaise with industry experts (see I.1)
F.1	Develop and maintain a product specification for dynamic application of navigationally significant surface currents in ECDIS	H		2013	~~2017~~ 2018	O	Louis Maltais* Kurt Hess		Establish joint project teams as required. Liaise with S-100WG (see H.1) Liaise with industry experts (see I.1)

Future work programme

Work item	Title	Priority H-high M-medium L-low	Next milestone	Start Date	End Date	Status P-planned O-ongoing C-completed S-Superseded	Contact Person(s)	Related Pubs / Standard	Remarks
G.1	Develop and maintain a product specification for dynamic application of tides in ECDIS	H	Prepare draft Product Specifications (S-1xx) for tidal data in S-100. Prepare draft Portrayal model for tidal data in S-100.	2009	~~2017~~ 2018	O	Zarina Jayaswal* Glen Rowe Jimin Ko Peter Stone* Zarina Jayaswal		Establish joint project teams as required. Liaise with S-100WG (see H.1) Liaise with industry experts (see I.1)
H.1	Liaise with S-100WG on tidal and current matters relevant to ECDIS applications	H		-	Permanent	O	Gwenaële Jan Kurt Hess		Establish joint project teams as required.
I.1	Liaise with industry experts on the development of product specifications for tides and currents	H		-	Permanent	O	All		
J.1	Maintain an inventory of tide gauges and current meters used by Member States and publish it on the IHO/TWCWG web site.	H		-	Permanent	O	David Wyatt* All		Initial inventory from TWCWG members available on IHO web site.
K.1	Review feedback of on-line real time water level observation document	L		-	Permanent	O	Zarina Jayaswal* All		

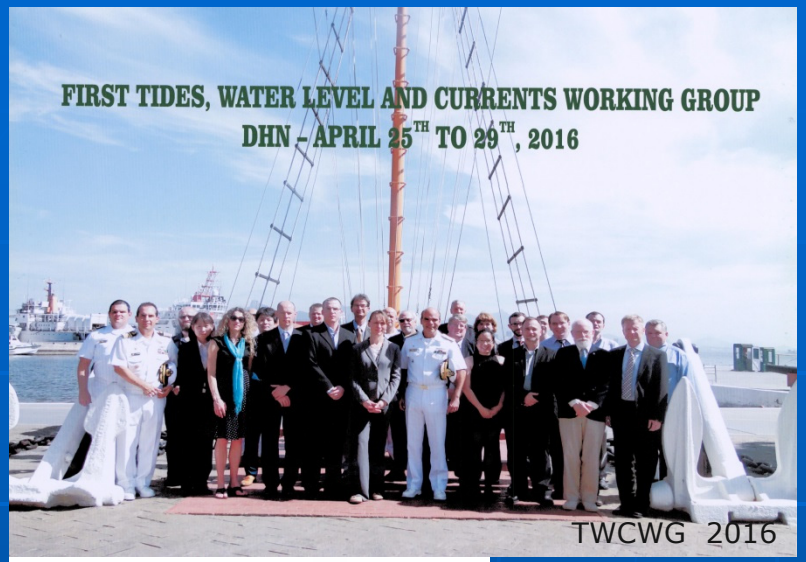
Future work programme

Work item	Title	Priority H-high M-medium L-low	Next milestone	Start Date	End Date	Status P-planned O-ongoing C-completed S-Superseded	Contact Person(s)	Related Pubs / Standard	Remarks
L.1	Maintain and extend the relevant IHO standards, specifications and publications	M M	Review wording of IHO Resolution 3/1919, as amended, in light of revised definitions for MSL and LAT	- 2014	Permanent ~~2015~~ 2016	O ~~O~~ C	Gwenaële Jan	IHO Resolutions in M-3 S-60 User's Handbook on Datum Transformations involving WGS 84	
N.1	Develop and maintain material for course on Tides	H	Delivery in 2015	-	Permanent	O	Ruth Farre* Louis Maltais Peter Stone Zarina Jayaswal		Adapt currently available course material to create a course suitable for delivery in support of CBSC requests

2016 action scheduled for S-111: Provide WG members with **a tool** to convert the revised v1.9 metadata file from ASCII/Excel to XML, and provide a sample XML file.

Open thought on tools for product specification for TWCWG

- **XML validator**
  - to detect S-100 consistency for variable defined, double information a unique data, wrong index for the data name, etc.
  - To check common definition with international programs for exchange data standardisation (ex: Inspire, SeaDataNet, similar programs)
  - Shared and that could be used by several WG.
    - Need an ark assembling elements and where pillars build up WG outputs
- **Download manager structure:**
  - Capacity to treat observations in RT flux and forecast, tidal prediction, online or offline (not yet validated data (Real time delivery), validated data
- **Netcdf format data file.**

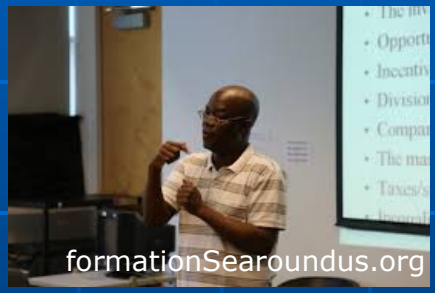


TWCWG 2016

Education.twitter

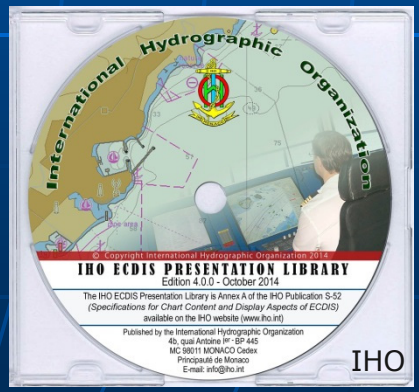

Blog.ugac.ca

- Thank you


formationSearoundus.org

Mobilesport.ch


WorldMaritimeNews



IHO

Two days before Super Moon 20161114 :18h

Super moon : Full Moon or New Moon coincides with the Moon's closest approach to Earth; also called perigee.

A Super Full Moon looks around 12% to 14% bigger than its counterpart. A Supermoon can be a Full or New Moon. The Supermoon on November 14, 2016, will be the closest a Full Moon has been to Earth since January 26, 1948. The next time a Full Moon is even closer to Earth will be on November 25, 2034 (dates based on UTC time). (OuestFrance.com)

Moon – Earth distance: 356 509 km (384 400 km mean distance and 406 700 km at maximum distance)

Image source: Key103.co.uk