TWCWG4 Outcomes

Busan, Republic of Korea (KHOA)

2019-04-08, 2019-04-11

Outcomes Day 1 TWCWG4

OUTCOMES DAY 1 TWCWG4

For TWCWG review : Who? ⇔ MS who will review the document
Send to chair, vice-chair, secretary, your answer (I'll review doc 1,2,../…) Answer before 2019-04-30

Document name	Link	Dead line	Who Answer before 2019-04-30
HSSC11-05.3C : Guidance to complete, design the Maritime Services MS15 (HGDM draft MS15 submitted to NCSR6, & to MSC101)	Document	2019-06	
https://www.iho.int/mtg_docs/com_wg/IHOTC/TWCWG4/TWCWG4_2019_4.5_EN_MS15_2019_EN_Water_level_information_for_navigation_v1.0.pdf			
NIPWG status report	Status report	2019-08	
https://www.iho.int/mtg_docs/com_wg/IHOTC/TWCWG4/TWCWG4_2019_4.5.5_EN_NIPWG_6_08.1_Status_report_S126_v1.0.pdf			
NIPWG strategy implementation	Strat. doc		
https://www.iho.int/mtg_docs/com_wg/IHOTC/TWCWG4/TWCWG4_2019_4.5.2_EN_NIPWG_S100_strategic_implementation_plan_v1.0.pdf			
DQWG	Doc	2019-09	
https://www.iho.int/mtg_docs/com_wg/IHOTC/TWCWG4/TWCWG4_2019_4.5.6_EN_DQWG_14.05D_Data_Quality_a_shared_interest_between_chart_producer_and_user_v1.0.pdf			
S-32 template Hydro. Dictionary	Doc	2019-05	
https://www.iho.int/mtg_docs/com_wg/IHOTC/TWCWG4/TWCWG4_2019_4.5.3_EN_HDWG_Chair_Letter_HD_Change_Proposal_Form_v1.0.pdf			

Background

Doc name	Link
HSSC10_S100WG Explanatory Note	Doc
S-129 draft : IHO GEOSPATIAL STANDARD FOR UNDER KEEL CLEARANCE MANAGEMENT INFORMATION	Doc

~~TWCWG4 outcomes~~

DEMONSTRATOR

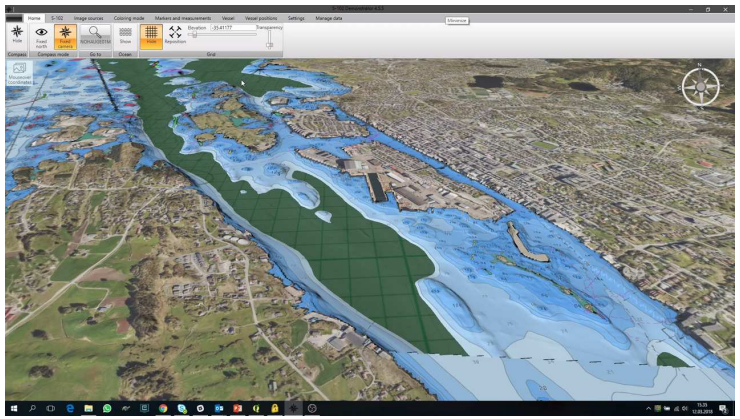
FOR EXEMPLE

For information, Kongsberg maritime developed a S-102 demonstrator : https://s102.no/

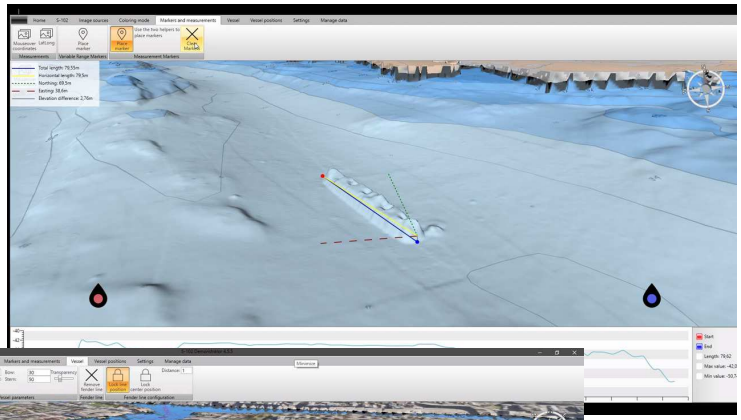
This alows us to show the relevance of a new data source in navigation surface

Inputs Day 2

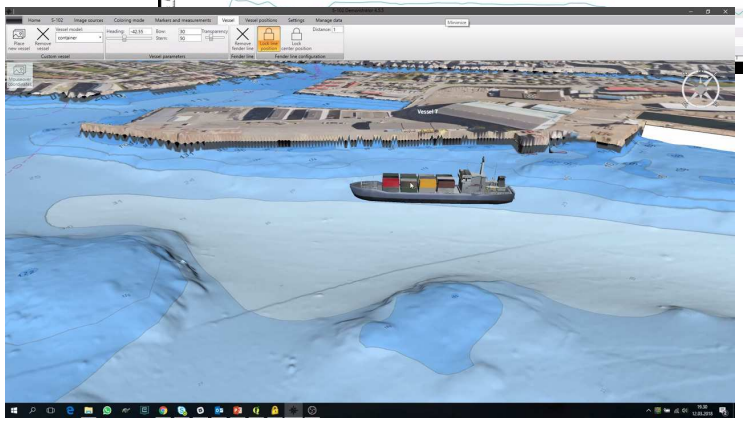
From S-102 Possibility to add different surface, semi-transparent layers



Possibility to generate depth profile between 2 markers



Adding a vessel model or transparent box model can visualize under keel clearance, safety depth etc.
Add Vessel model or transparent box model



DQWG Chair IHO Data Quality Working Group + NL input (Technical University Delft)

"In the Netherlands the Technical University of Delft has produced an updated realization of the LAT surface and new realization of the geoid at sea, covering the southern part of the North.

⇒Possibly use both LAT as well as geoid as a chart datum. LAT will remain for navigational purpose, for other means, the obvious choice would be to use to geoid. This allows a seamless integration of land and sea elevation data. The geoid has a far better vertical uncertainty than the LAT surface.

During the development, the TU-Delft has informed us of the difference between zero-tide, mean tide and free tide. See page 3 of paper DQWG14-05D.

With the usage of direct satellite derived bathymetry and/or using direct GNSS observations with real-time conversion from ellipsoidal height to LAT, the uncertainty and possible errors resulting from zero/mean/free tide need to be taken into account."

Could TWCWG-4 have an informal discussion if the size of the error is considered of importance. This is important when validating if a survey is meeting a certain S-44 standard. At DQWG-14, this was a briefly discussed and concluded as an item for TWCWG to be consulted.

- "Could TWCWG-4 have an informal discussion if the size of the error is considered of importance. This is important when validating if a survey is meeting a certain S-44 standard. At DQWG-14, this was a briefly discussed and concluded as an item for TWCWG to be consulted."

➔ **TWCWG4, first elements of answer :**

- Provide to DQWG the TWCWG background on the consideration of geoid and LAT regarding to vertical uncertainty : TWCWGN°1 to N°3 with items on geoid, LAT, CD and surface reference projects (among the documentation, R. Klees et al. 2017 TWCWG3.)
- The difference between zero-tide, mean tide and free tide correction in the geoid computation is recognized and the impact of tide correction and the method can be significant on the geoid (Chairs' remark). Within TWCWG, this point should be frequently discussed in TWCWG framework becomes an ongoing actions.
- Suggestion : In TWCWG meeting, promote the topic (vertical uncertainty method dependent) in the vertical reference session.

  Suggested step 1: Prepare a synthesis on the existing surfaces of references and compare it to CD (difference and uncertainty when available) (Chair + volunteers?) Milestone 2020-05 (TWCWG5)

Information :

Online IHO forms for circular letters answers and for IHO publications contributions (P-5 and C-55)

Dissemination of the lessons on tide (international echo)

Training support are now available in English, french, Portuguease and spannish.

Note: It has been noted that a reference to IHO should be added in the frame of the slides, pdf, ppt, doc.

A note could be provided with the lesson documentation to promote the source citation.

Following, the input provided bt TWCWG Secretary at TWCWG4 : Message from IHO :

"Material from relevant presentations of the International Hydrographic Organization (IHO) is reproduced with the permission of the IHO Secretariat, acting on behalf of the Organization, which does not accept responsibility for the correctness of the material as reproduced: in case of doubt, the IHO's authentic text shall prevail."

PS BREAKOUT

S-104

Ask for volunteers to join the effort done on S-104 product specification.

S-104 team : list of volunteers to join the effort done and to be done on S-104

+ (working on PS document + use cases definition and display)

For contributors volunteers, send an e-mail to Chair, Vice Chair, Secretary before April, 30th, 2019.

1. Registry access demand to be submitting organization : (Chair) //// 2019-04

2. Part 12 metadata section of S-104, S200 Vice-Chair will review that part and give you some comments on it. ///// Milestone : 2020-06

Guidance from S-100WG on validation method would help to develop in the framework of S-100 ecosystem.

N-B : For reading : S-201 document : An exemple Ais to Navigation Information

PS BREAKOUT

S-104

- S100WG Vice-Chair gave brief on S-100 registry beta – new changes to assist with S-100 product specs. http://registry.iho.int/beta/
- S-104 version 0.0.8 will have AIS taken out for version 1, until area of influence is resolved.
- Look at developing use cases and test scenarios for use of the products in S-104.
- Raise issue with S-100 WG to write a clear/concise scenario how AIS is to work /interact with “area of influence” and intent for use with other S-10X products
- Risk /issue with vertical datum difference between S-10x products “ should there be a warning message if different?”
- S-100 document covers general data validation in S-100 and then specific needs to be defined in S-104
- S-121 – ATON – example for naming convention of MNR
- S100wg Vice chair has take an action to compare S100 v4.0 against S-104

- HDF5 – cannot deal with meta data to be associated with the data, so each station metadata with time series is a separate instance within the hdf5 file.

- Action on chair to request to S-100 wg to extend S100_VerticalAndSoundingDatum

Value	Ellipsoidal Height	Not in S100!			31
Value	Geoid	Not in S100			32

plan with milestones //// and times,

* Eg. covering new HDF5 structure for plotting (Kurt), /// milestone = **Tbd**
* List of attributes from Yong,
* Definition of use case :
  Step1 : Send a template of use case definition (Gwenaële) //// 2019-04-19
  Step 2 .1: Volunteers send to the volunteers team their definition of one use case they want do. //// 2019-06-20
  Step 2.2 : review of all the use cases proposed and we select on and at least 3 use cases. **The simpliest they are, the best it is.**

Step 3. Decision on test plot for water level time series (e.g., obs for 1 day, HC prediction for 7 days, forecast for 2 days, residual?),

and next draft ready for review : My view : 2020 -03.

Any feedback is welcome.

To include trend, even for obs. Or not?

Also, we decided to have the value for 'steady' to be set by HO (so remove in text : 0.2 m)

LONG-TERM DATASET AND HARMONIC ANALYSIS BREAKOUT SESSION

Breakout session: Long-term dataset and harmonic analysis.

This session was related to Task B in the TWCWG work plan:

Work done by the group on this task earlier:

Some reports on analysis and comparisons is available at the TWCWG's page: These compare harmonic analysis on the four common data sets provided. In this setting, long term is 1 year or longer

The group did some work on how/if harmonic constituents changes with time for a long term data set. This report is not found on the webpage

What should the group focus on for the next year:

For now, the group should focus on harmonic analysis on common datasets (1 year or longer), first for heights, but then also on currents. Other topics related to long term analyzes might come later.

Tasks

A	Maintain the list of standard tidal constituents (IHO Task 2.8.4)
B	Compare the tidal predictions generated as a result of analysis of a common data set using different analysis software

Discussions included:

Uncertainty of the resulting analysis.

Choosing constituents: Different approaches in different countries. Different selections are used. Excluding non-significant constituents based on the results is not done by all.

How to cope with different long term effects such as trends in the analysis?

There is a need for a more scientific plan to resolve some of the problems and challenges one face in doing harmonic analyzes. It would be within the scope of this working group to come up with guidance or recommendations on harmonic analyses.

Why do this group need to deal with long-term datasets and trends? For instance, we need to take into account changes in mean sea level and/or other reference levels at some point.

LONG-TERM DATASET AND HARMONIC ANALYSIS BREAKOUT SESSION

Discussions included:

Discussions on reference frames: The way we deal with reference frames, separations models, LAT-surfaces, chart datum etc. will change with time.

What do we need in order to compare analysis: need to know what methods people use, what constituents is included etc. We also need to specify what results and output we do want. Not all compute LAT, but would be good to compare from those who do.

Data sets: Continue to collect common data set of 1 year or longer for interesting stations with a variety of tidal phenomena. For longer time series one could agree on a set of long series already available online to be studied.

Issues not discussed in the session, but raised during the meeting and other discussions:

Is there a need to specify the format for common datasets we share on the webpage?

Suggested actions with main contact and suggested deadlines (Hilde as main contact for the main actions – sending reminders and coordinate)

Gather the reports, analysis and data provided that are currently missing from the website
1st of June (for all items)

Check if reports or datasets provided is not on the list, and resend if possible Everyone

Recover reports and datasets we know are missing

- Report on harmonics for long term dataset (done by Steven Gill?) US?
- Dataset from Brazil Brazil/France
- Analyzes done by Australia Australia (Bill)

LONG-TERM DATASET AND HARMONIC ANALYSIS BREAKOUT SESSION

Expand the common dataset		1st of June?
Provide dataset of interest (with information on constituent list if possible)		Everyone (Spain, Japan, Norway, Brazil, France,+)
Select some longer datasets available online suitable for analysis of several years		??
Analyzes of common dataset		
Gather information about what methods people use today, including constituents		Hilde
Define/specify what results and output one should supply with/from the analysis		?? (Bill, Chris?)
Analyzing the common dataset available and report the results	end of November?	Everyone
Comparison of the results provided	next meeting	
First steps toward a recommendation or guideline for harmonic analysis		
Outline topics and challenges that should be resolved or covered		Bill/Hilde??
Make a first draft for recommendations concerning uncertainty		Bill??

IHO RESOLUTIONS

The working group agreed that there was a need to review the tidal relevant IHO resolutions under the working group's review.

Several members volunteered to review individual resolutions to ensure their relevancy and completeness. (Lead Ruth Fare (SAN))

Suggestion :

Add GLOSS documentation in TWCWG web page

(1) GLOSS manuals in our background documentation.

(2) Operating gauges in hostile environnement=> manuels which come from pratical experiences.

(3) JCOMM , PSMSL, SONEL, +.

https://www.jcomm.info/index.php?option=com_content&view=article&id=159&Itemid=23

More documentation: www.ioc-sealevelmonitoring.org

Data rescue : Organizing a group IOC/IHO/Other organizations on data archeology.

Need to get several countries involved in the data rescue effort.

GLOSS OUTCOMES

DAY 5 & 6

- Links (http) GLOSS meeting : www.ioc-sealevelmonitoring.org
- Items & talks : IGS tide gauge benchmark monitoring WG, data quality control, data network, GNSS data, +).
- WMO point: organisation and scope of the actions WMO, IOC-GLOSS, IHO.
- Outcomes form GLOSS meeting (IOC, GLOSS Secretary).
- From IOC-GLOSS meeting, IHO-TWCWG has been sensitive to the current state of the coastal UK tide gauges network available at PSMSL (GLOSS ecosystem). A map of the current operational tide gauges stressed the critical status of the UK tide gauges network weakening the capacity to deliver water level and tide gauge maintenance. A concrete consequence is the increasing sea height error bar.

Thank you