12th Meeting of the Hydrographic Services and Standards Committee

Report of the TWCWG

Agenda Item HSSC12-05.7A

HSSC-12, IHO Secretariat, Monaco + VTC, 19 – 22 October 2020

IHO

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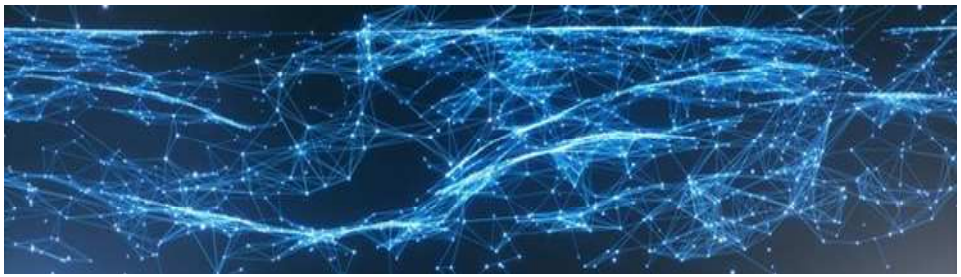
MISSION

- 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 surface current/water level information;
- To provide technical advice and coordination on matters related to tides, water levels, currents and vertical datums.



4th meeting of the Tides, Water Level and Currents Working Group (TWCWG)
Busan, Republic of Korea – 8-10 April 2019

· Chair:	Gwenaële Jan, (Shom, France)
· Vice-Chair:	Peter Stone (NOAA, USA)
· Secretary:	David Wyatt, IHO
· Expert Contributor: Organisations:	CCOM-UNH, SPAWAR Atlantic, C-Map, IOC-GLOSS

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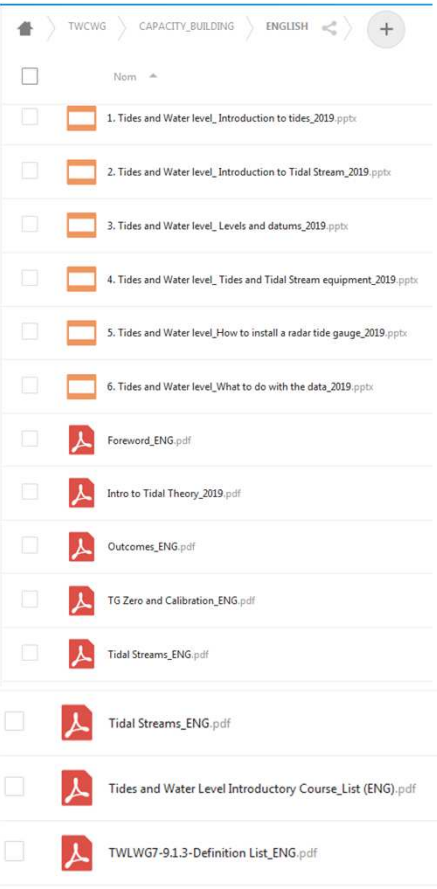
PRINCIPAL ACTIVITIES AND ACHIEVEMENTS

1. Capacity building https://cb.iho.int/
2. IHO-TWCWG & GLOSS Unesco
3. S-111 and S-104 status and harmonic analysis
4. Link with other IHO-working groups
5. Status report on key priorities identified

PRINCIPAL ACTIVITIES AND ACHIEVEMENTS

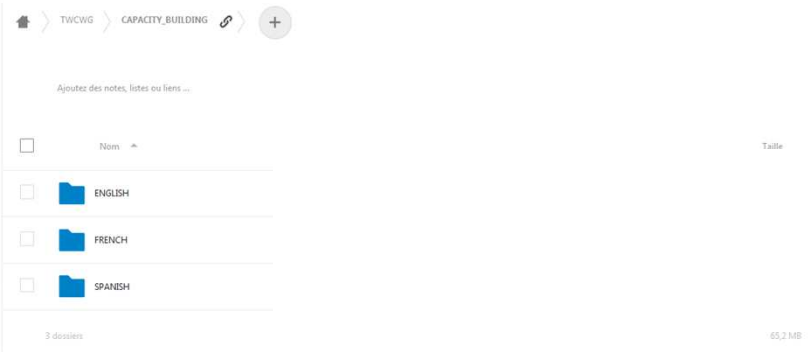
1. Capacity building https://cb.iho.int/

☑ Course with the basics for a first learning on hydrography and tides has been provided. Delivered in English, French, Spanish and in Portuguese (Milestone S.A.N, 2017-2019). Translation of workshop material in Portuguese is in validation phase. TWCWG cloud created 2020-04 and used before cb.iho upload.



Suggestion : Add links on web pages
Library for the reading & references, Manuals and publication giving additional details.
Unesco publications.

Look at where there is a need , a benefit => New language?



IHO Capacity Building / *Renforcement des capacités de l'OHI*

Course material / *Matériel de cours*

Last update / *Dernière mise à jour*: 29 July 2020

See also the Capacity Building web page
Voir également la page de renforcement des capacités

Year / *Année*	No/ *n°*	Title *Titre*	Responsible / *Responsable*	Link / *Lien*	Observations / *Observations*
2020	1	Technical Workshop on MSI for Managers and Disaster Framework	SWPHC	Download	
2019	2	Marine Spatial Data Infrastructures Training Material	MSDIWG	http://www.iho-ohi.net/MSDI/	Created by IIC Technologies together with input from DGA and IHO
2019	3	Tides and water level course (English)	TWCWG	Download	
2019	4	Marée et niveau d'eau (Français)	TWCWG	Download	
2018	5	Technical Workshop on Implementing Hydrographic Governance (English)	SWPHC	Download	
2014	6	Hydrographic Governance (English)	IHO-IMO	Download	Delivered by NZ in the SWPHC
2014	7	Gobernancia hidrográfica (Español)	IHO-IMO	Download	Delivered by Cocatram

IHO space to store courses for sharing within IHO framework (~ 1. Giga O.) (https://cb.iho.int) (IHO time target information)

PRINCIPAL ACTIVITIES AND ACHIEVEMENTS

2. IHO-TWCWG & IOC-GLOSS, Unesco

- **Memo 1, 2018: From HSSC10** : Possible GLOSS session on data archaeology with TWCWG participation.
  - 2019: Done with a joint session IOC-GLOSS, Unesco & TWCWG 2019-04. TWCWG4.
- **Memo 2, 2019**: **From HSSC11** : “Investigate what historical data is held and to consider preserving it as digital data for future use (All MS TWCWG)“.
  - 2020: TWCWG work plan : Nature : Ongoing action ; reinforced by the GLOSS group actions.
    - Talk TWCWG Chair to Unesco Gloss Workshop sea level data archaeology focus on IHO-TWCWG activities (long terms time series) Thorkild Aarup IOC, GLOSS.
    - IHO-TWCWG of IOC-GLOSS document on Quality Control data : IOC Manual N°83.
- **2022** : Repeating joint meeting / maintaining the link via capacity building & ongoing work on data archaeology.

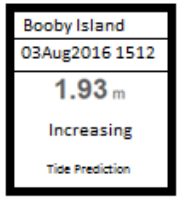
PRINCIPAL ACTIVITIES AND ACHIEVEMENTS

3.1 S-104 status. Products specification (PS) Water Level Information for Surface Navigation

Milestones 2017-18 : Ed. 0.0.7

- Dataset for tests ; Prototype S-104 data sets. Progression in the wake of S-111 aligned with the PSs, S-100WG.
- 2020 Objective concern: Compatibility, consistency with the S-100WG guidance, HSSC WGs outputs. S-104 project team + G. Seroka, Y. Baek and IHO J. Wootton.
  - A significant coordinating-work done to maintain the flow of the exchanges. 1 direct effect: significant progress on S-104 doc.

1. Finalize water level trend, includes appropriate metadata and possible small modifications to the Data Classification and Encoding Guide (DCEG)
2. TWCWG chose using NIPWG's registered definition in the S-104 DCEG. NIPWG's definition of trend is : "the tendency of water level to change in a particular direction“
3. Finalize registering Features and Attributes (F&A) into IHO GI Registry.



- S-104, describes how an HDF5-formatted file can contain water level data of four types: (1) time series at a stations, (2) forecasts on a regular grid, (3) data on an irregular grid, (4) data in TINs.

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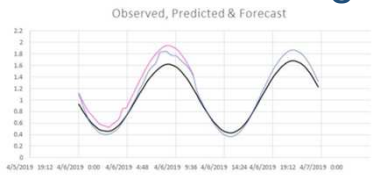
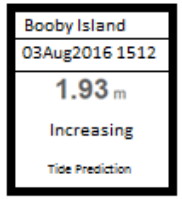
PRINCIPAL ACTIVITIES AND ACHIEVEMENTS

3.1 S-104 status. Products specification (PS) Water Level Information for Surface Navigation





- Consensus : Sea level trend threshold value 0.2m is removed ; largely discussed before consensus
- We're faced with the data uncertainty to be contained in the PS, or not to be. That is the question.
  - Philosophy / We'll need to keep this in mind for the future products for navigation
  - TWCWGs' answer : End of October 2020
- Use cases: Today, 2 documents describing 2 uses cases provided by Germany, Spain use cases for S-104

Timeschedule : 2020-12. -> Target approval for HSSC 2021. Portrayal Features Catalogue and S100 product metadata variables. From S-100 & TWCWG-S-104 project team, consensus found for removing from PS ed. 1.0 the NRT displaying not NRT data, not delivering but displaying. Ed.2.0.0 : Portrayal specification will be needed in Ed. 2.0.0, as interoperability with other S-1xx PS can be worked on at the S-100 level 1. (S100 ed.5)

PRINCIPAL ACTIVITIES AND ACHIEVEMENTS

3.2 S-111 Status product specification for current

✓ S-111 PS: 2018-12 (ed. 1.0.1)

- An increased number of members States volunteers to contribute to this task

- Still a slight lack of available shared tools to encode and view HDF5. But, this point is being met thanks to:

1. TWCWG tools development and data sets

2. Very useful support from KHOA Y. Baek, IHO J. Wootton, G. Seroka and J. Powell.

3. Members of S-100 WG provided useful information on S-100 viewer and catalogue.

PRINCIPAL ACTIVITIES AND ACHIEVEMENTS

3.2 S-111 Status product specification for current

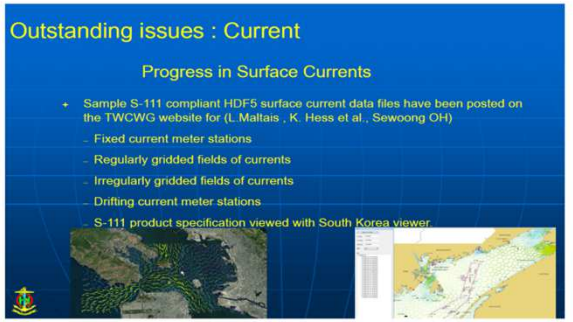
HDF5 TOOLS

1 Input

2 Tools

3 Output, Display

2017 1er try using CARIS)
Action from Canada (TWCWG)

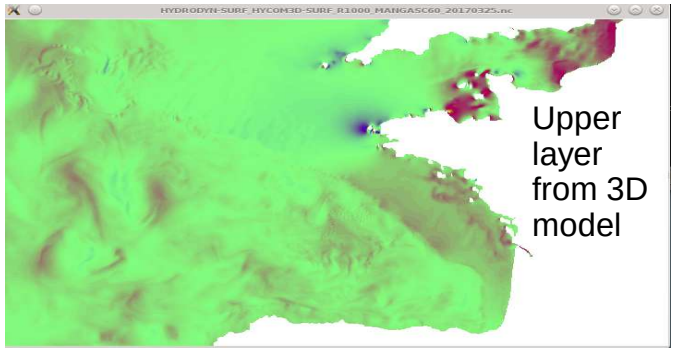


2019 : Tools/ Python :

VHFR_to_S111e.py
Input : .nc Output : .h5
S111FR_20190204T10Z_MANCHE_GASCOGNE_TYP2.h5
(Shom+ NOAA)

Hdfview (ex In python conda package)

TEST INPUT : CURRENT FROM HYCOM MODEL
ATLANTIC OCEAN GULF OF GASCOGNE – CHANNEL



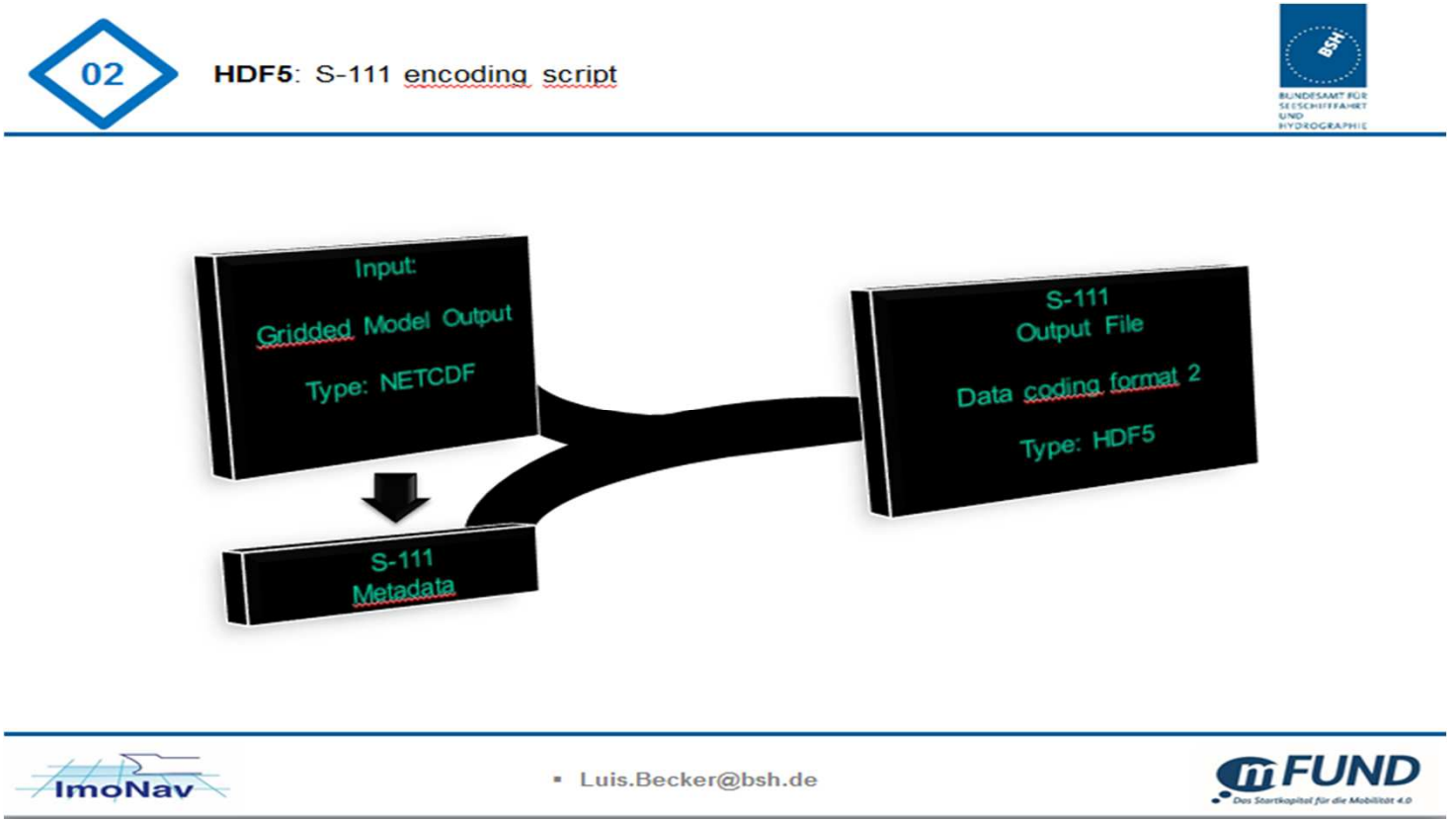
Src: Hycom3D (chaine opérationnelle Shom)
Composante méridienne du courant de surface ($m.s^{-1}$)

20.10.20

PRINCIPAL ACTIVITIES AND ACHIEVEMENTS

- HDF5 tools encoding S-111 (Src: IHO-TWCWG)

HDF5 TOOLS



From BSH (GE) Luis Becker, S. Dick (IHO TWCWG framework)

PRINCIPAL ACTIVITIES AND ACHIEVEMENTS

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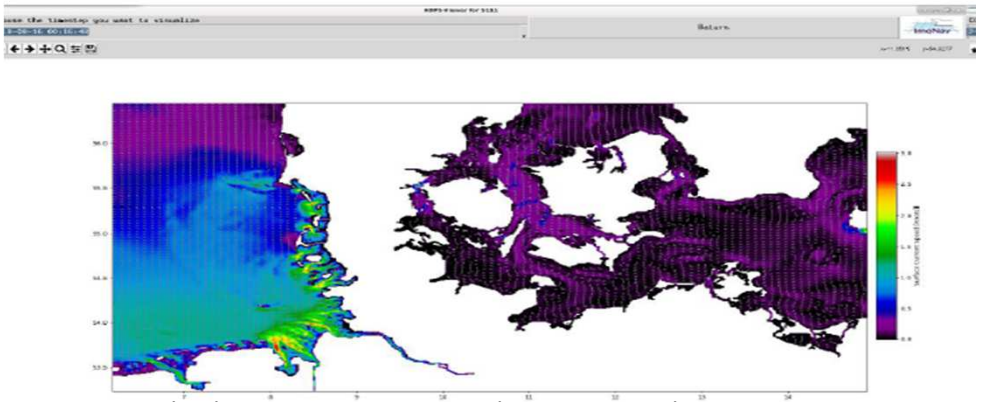
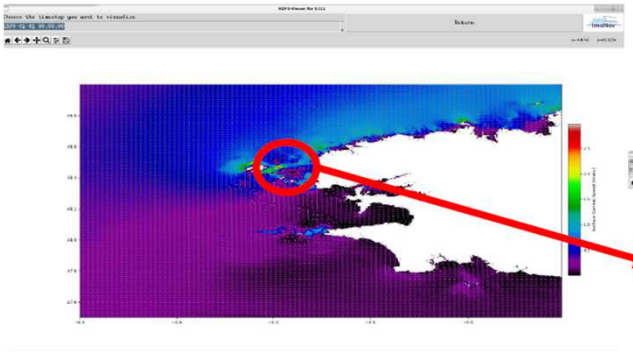
HDF5 TOOLS

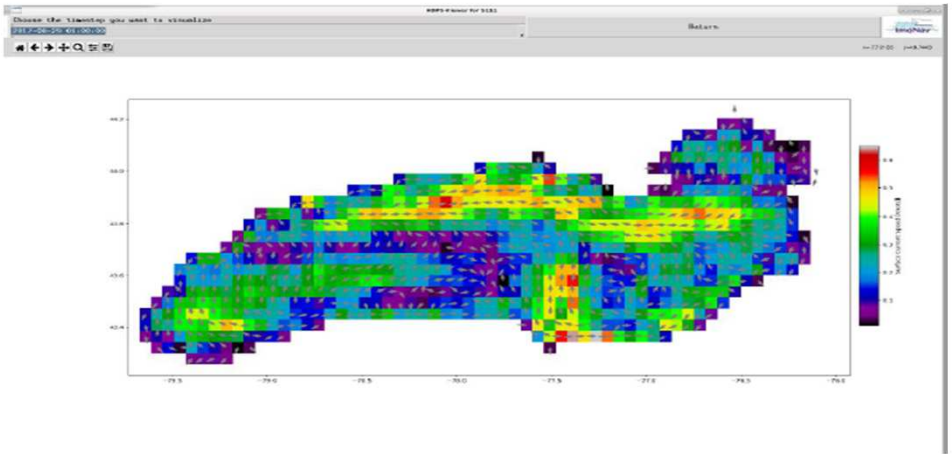
- HDF5 tools encoding S-111 (Src: IHO-TWCWG)

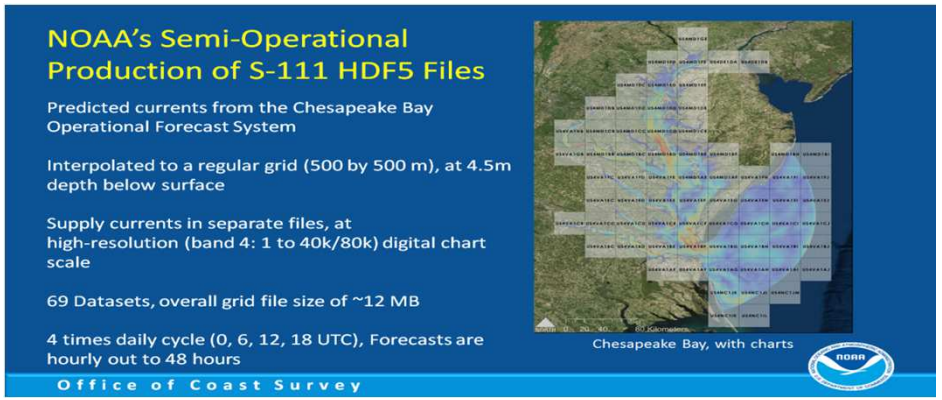


From BSH (GE) Luis Becker, S. Dick (IHO TWCWG)



From BSH + Shom (FR) : L. Becker, S. Dick, G. Jan (IHO TWCWG)





From NOAA (USA) Erin, K. Hess (IHO TWCWG)

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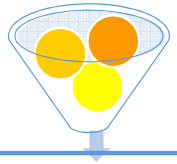
PRINCIPAL ACTIVITIES AND ACHIEVEMENTS

☑ **S-111** : Current product specification : edition 1.0.1 (2018-12)

* S-104 : water level product specification;



- S-111: PS Documentation developed with the S-100WG guidance.
- The PS is in compliance with the HDF5 file formatting as proposed at S-100WG.

2020-2021
For HSSC13

S-104: PS Documentation developed with the S-100WG guidance.

1. Finalize water level trend, includes appropriate metadata and possible small modifications to the Data Classification and Encoding Guide (DCEG).
1. NIPWG's registered definition in the S-104 DCEG for trend is : "the tendency of water level to change in a particular direction"
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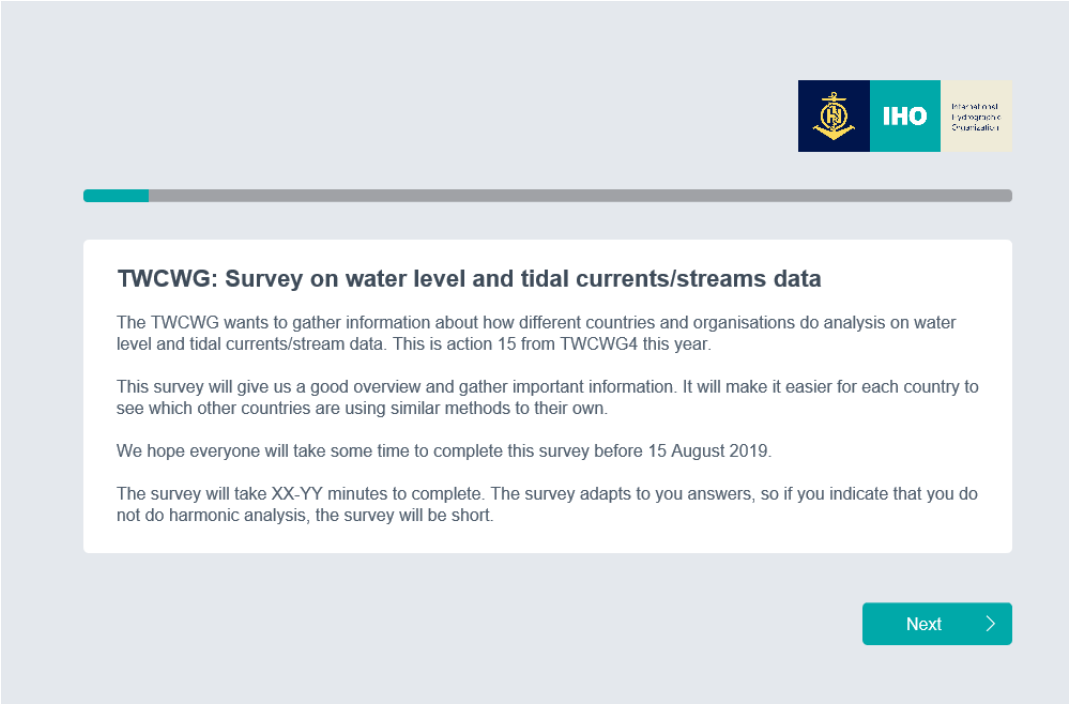
PRINCIPAL ACTIVITIES AND ACHIEVEMENTS

3.3 Harmonic analysis

Survey on harmonic analysis



For the upcoming year, Suggested list of actions

Action	Deadline	Comment
Report from survey	May 2020	(finalize action 15 from TWCWG4)
Deadline analyses of common datasets (water level)	Nov 2020	Action 17 from TWCWG4
Report on analysis (heights)	TWCWG5	Action 18 from TWCWG4
Actions from TWCWG 4 on best practice	TWCWG5	Action 19 and 20 with an extended deadline to 2021

Comparing tidal analysis methodologies using long term data sets: Increased activities. Next step : Develop a work plan with milestones to add new test data sets and conduct standardized analysis. Compare the tidal predictions generated as a result of analysis of a common data set using different analysis software.

PRINCIPAL ACTIVITIES AND ACHIEVEMENTS

4. Link with other working groups

- 2020 Inputs provided to DQWG15 05-01.B
- 2020 S-100WG Chair & several members of S-100WG
- CB Sub Committee
- IOC-GLOSS (slide 5)

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OTHER ITEMS

5. Proposals for business continuity during the pandemic

Workflow April up to now

An increase in video conferences (S-104 product specification + tidal analysis + Exchanges via cloud (created and used for our WG work during pandemic Covid-19 situation, and more)

Statuts : Increased number of e-mails dealing with actions, issues, question, survey & choices, from TWCWG-2020> 2020-10

TWCWG5 2021 : Norway: Adaptation to pandemic situation and an objective : organizing TWCWG5 in accordance with HSSC13 time frame

ACTIONS REQUESTED FROM HSSC12

1. To consider the TWCWG suggestion : A tribute to Kurt Hess in the S-111 product specification documentation (1st page)
2. To consider the need for a web space to share and store the TWCWG use cases, courses, and tidal data, insuring that the web site can support the formats.
3. To note the progress of S-104 PS and the target approval for HSSC13

1. 4. To consider aligning the publication of S-104 Edition 1.0.0 to the next S-100 edition by 2021. <= > S-104 as a part of the S-100 Implementation Plan
2. 5. To note the TWCWG report
3. 6. To reappoint the TWCWG to continue its work under its current Terms of Reference, (Annex C)
4. 7. To endorse the draft Work Plan at Annex B of the report to HSSC-12.

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- A father figure

TWCWG PROPOSITION : A TRIBUTE TO THE MEMORY OF KURT HESS

3rd meeting of the Tides, Water Level and Currents Working Group (TWCWG)
Viña del Mar, Chile – 16-20 April 2018