



12th Meeting of the Hydrographic Services and Standards Committee

Report of the TWCWG

Agenda Item HSSC12-05.7A



IHO MISSION

International
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Organization

- 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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TWCWG TIDE WATER LEVEL AND CURRENT WG

2020 Objective concern: Compatibility, consistency with the S-100WG guidance, HSSC WGs outputs

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Ongoing consensus

- Trend definition , threshold value for trend removed, uncertainty on trend (TBC). Consensus for not including NRT Portrayal in ed 1.0.0

.Choice & task towards ed.1.0.0

- TWCWG chose NIPWG definition for trend that we apply to S-104
- Include water level trend modification and appropriate metadata to DCEG
- Finalize F&A

Note: G. Seroka, Y. Baek, J. Wootton and J. Powell

HSSC11



HSSC12



HSSC13



S-104 ed. 2.0.0
(S-100 next ed.)

S-111 ed. 2.0.0
(S-100 next ed.)

Target Ed.
1.0.0 (2021.04)

✓ Ed.0.0.7 (2018)

✓ Ed.1.0.1 (2018.12)

S-104

S-111

Portrayal harmonization

Use cases (2 S-104, 1 S-111)

Still current topic: Data uncertainty to be contained in PS, or not to be. That is the question.

Philosophy: We should keep this point in mind for the future products for navigation

Acronym and definition

- DCEG: Data Classification and Encoding Guide.
- F&A: Features and Attributes into IHO GI Registry.
- Trend definition : "the tendency of water level to change in a particular direction" .

Booby Island
03Aug2016 1512
1.93 m
Increasing
Tide Prediction



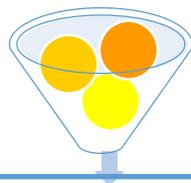
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PRINCIPAL ACTIVITIES AND ACHIEVEMENTS

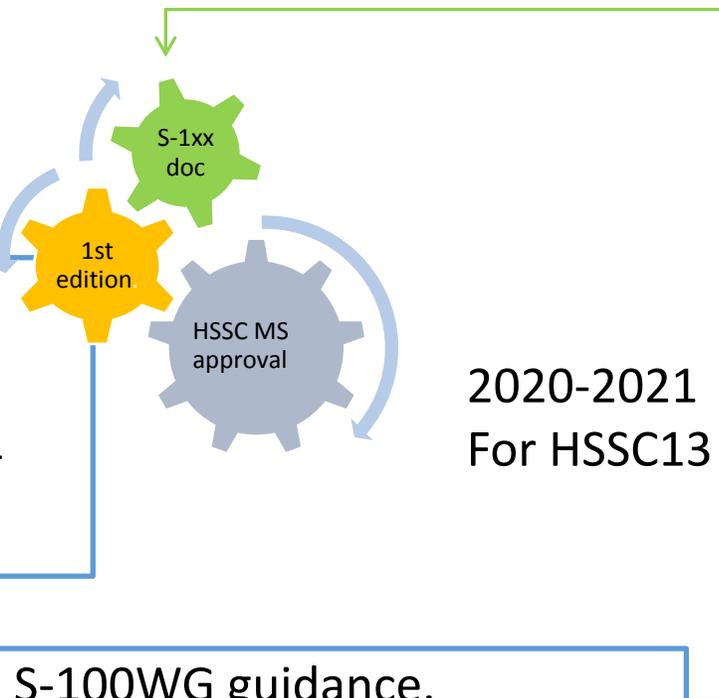
✓ **S-111** : Current product specification : edition 1.0.1 (2018-12)

* **S-104** : water level product specification;

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- 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.



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"
2. Finalize registering Features and Attributes (F&A) into IHO GI Registry.



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TWCWG TIDE WATER LEVEL AND CURRENT WG

The other core activities : 2019-2020 report & request to HSSC

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HSSC11



HSSC12



HSSC13



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(S-100 next ed.)

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S-104

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S-111

Use cases (2 S-104, 1 S-111)

- **Resolutions reviewed**

- **New data sets** for tidal amplitude pred. Analysis + A survey dedicated to this point

- **IHO& IOC Unesco GLOSS actions**

- ✓ IHO review on GLOSS document
- ✓ Data archaeology meeting
- TWCWG talk
- 2022 : repeating IHO-TWCWG& IOC GLOSS meeting

- **Capacity building**

- ✓ 4 languages now for lessons on tide & hydrography
- New language CB?
- A place (~1 Giga O.) for sharing it with MS <https://cb.iho.int/>



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PRINCIPAL ACTIVITIES AND ACHIEVEMENTS

3.2 S-111 Status product specification for current

✓ S-111 PS: 2018-12 (ed. 1.0.1)



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- 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 IHO Y. Baek, J. Wootton, G. Seroka and J. Powell.
 3. Members of S-100 WG provided useful information on S-100 viewer and catalogue.



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PRINCIPAL ACTIVITIES AND ACHIEVEMENTS

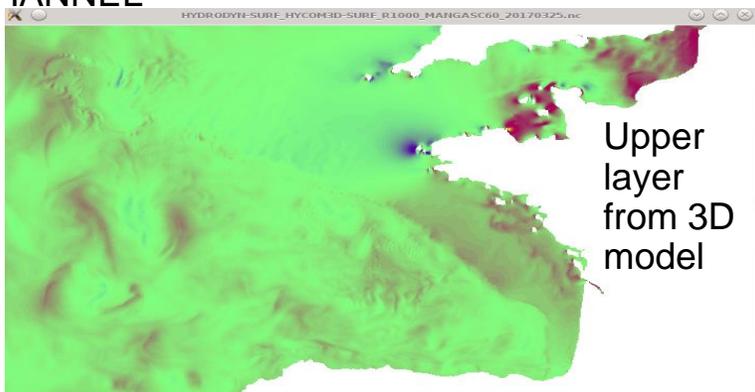
3.2 S-111 Status product specification for current

HDF5 TOOLS

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



Src: Hycom3D (chaîne opérationnelle Shom)
Composante méridienne du courant de surface (m.s⁻¹)

1
Input

2017 1^{er} 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)

2
Tools

3

Output, Display

Outstanding issues : Current

Progress in Surface Currents

- Sample S-111 compliant HDF5 surface current data files have been posted on the TWCWG website for (L. Maltais , K. Hess et al., Sewoong OH)
- Fixed current meter stations
- Regularly gridded fields of currents
- Irregularly gridded fields of currents
- Drifting current meter stations
- S-111 product specification viewed with South Korea viewer



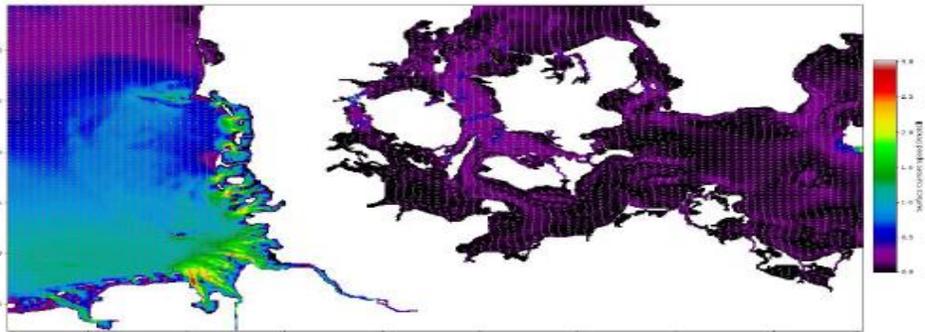
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PRINCIPAL ACTIVITIES AND ACHIEVEMENTS

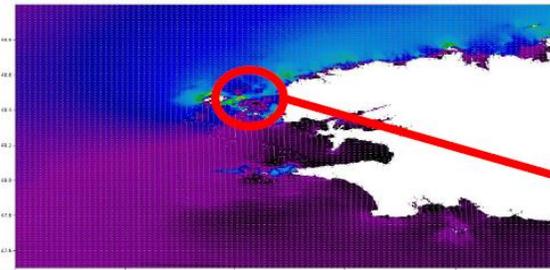
HDF5 TOOLS

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

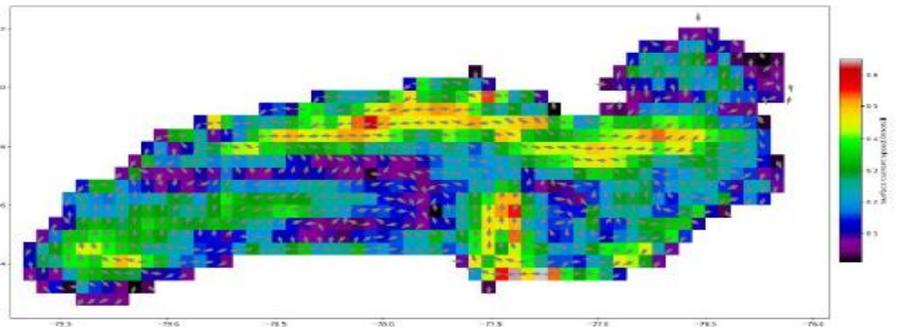
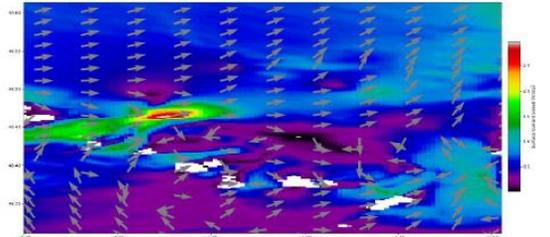
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From BSH (GE) Luis Becker, S. Dick (IHO TWCWG)



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



NOAA's Semi-Operational Production of S-111 HDF5 Files

Predicted currents from the Chesapeake Bay Operational Forecast System

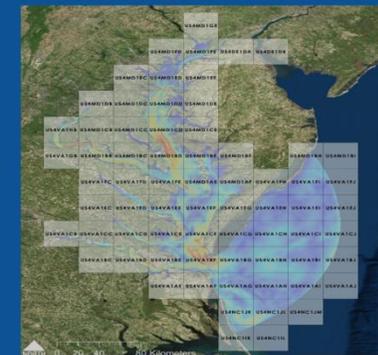
Interpolated to a regular grid (500 by 500 m), at 4.5m depth below surface

Supply currents in separate files, at high-resolution (band 4: 1 to 40k/80k) digital chart scale

69 Datasets, overall grid file size of ~12 MB

4 times daily cycle (0, 6, 12, 18 UTC), Forecasts are hourly out to 48 hours

Office of Coast Survey



Chesapeake Bay, with charts



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



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ACTIONS REQUESTED FROM HSSC12

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1. To consider the TWCWG suggestion : A tribute to Kurt Hess in the S-111 product specification documentation (1st page)
2. To note the S-104 target approval for HSSC13
3. 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
4. To note the suggestion that an IHO-TWCWG, IOC-GLOSS meeting could be held (2022)
5. To consider if there is a need for new translation of tide & hydrographic lessons (CB); courses, and tidal data, insuring that the web site can support the formats.
6. To note the TWCWG report
7. To reappoint the TWCWG to continue its work under its current Terms of Reference (Annex C)
8. To endorse the draft Work Plan at Annex B of the report to HSSC-12.



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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

- A father figure



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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)



TWCWG > CAPACITY_BUILDING > ENGLISH

Nom

- 1. Tides and Water level_Introduction to tides_2019.pptx
- 2. Tides and Water level_Introduction to Tidal Stream_2019.pptx
- 3. Tides and Water level_Levels and datums_2019.pptx
- 4. Tides and Water level_Tides and Tidal Stream equipment_2019.pptx
- 5. Tides and Water level_How to install a radar tide gauge_2019.pptx
- 6. Tides and Water level_What to do with the data_2019.pptx
- Foreword_ENG.pdf
- Intro to Tidal Theory_2019.pdf
- Outcomes_ENG.pdf
- TG Zero and Calibration_ENG.pdf
- Tidal Streams_ENG.pdf
- Tidal Streams_ENG.pdf
- Tides and Water Level Introductory Course_List (ENG).pdf
- TWLWG7-9.1.3-Definition List_ENG.pdf

TWCWG > CAPACITY_BUILDING

Ajoutez des notes, listes ou liens ...

Nom

- ENGLISH
- FRENCH
- SPANISH

3 dossiers

Taille

65.2 MB



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PRINCIPAL ACTIVITIES AND ACHIEVEMENTS

2. IHO-TWCWG & IOC-GLOSS, Unesco

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- **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.



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OTHER ITEMS

5. Proposals for business continuity during the pandemic

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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