



14th Meeting of the Hydrographic Services and Standards Committee

Report of the Tides Water Levels and Surface Currents Working Group (TWCWG)

Agenda Item 5.7

HSSC-14, Denpasar, Bali, Indonesia - Hybrid Event, 16 – 19 May 2022



IHO

PRINCIPAL ACTIVITIES AND ACHIEVEMENTS

International
Hydrographic
Organization

Intersessional work between TWCWG5 (March 2021) and TWCWG6 (April 2022)

1. Finalised and circulated Draft Edition 1.0.0 of S-104 (Water Level information for Surface Navigation Product Specification) [including XML feature catalogue and exchange schema].
 - (Ref: HSSC CL 01/2022 10th Jan 2022 & HSSC CL 02/2022 21st April 2022)
2. Finalised and circulated the ‘proposed new’ and ‘revised existing’ IHO Resolutions [Action HSSC13/60].
 - (Ref: HSSC CL 03/2022 26th April 2022)



IHO

PRINCIPAL ACTIVITIES AND ACHIEVEMENTS *CONTINUED*

International
Hydrographic
Organization

TWCWG6 held via VTC, 5-7 April 2022. ~50 Attendees.

- a) Initially planned as a hybrid meeting hosted in South Africa (SANHO).
Final decision taken in March to conduct meeting as full VTC.
- b) Comprehensive Agenda – good participation & engagement.
- c) First meeting with an entirely new ‘top team’ (Chair, Vice Chair & IHO Secretariat).



IHO

PRINCIPAL ACTIVITIES AND ACHIEVEMENTS *CONTINUED*

Outcomes from TWCWG6

Agreement on the TWCWG S-104 & S-111 PT work required for the further development of the Product Specifications

- a. S-104, to publish Edition 1.1.0 in 2022 (Autumn / Fall)
 - b. S-111, to publish Edition 1.2.0 in 2022 (Autumn / Fall)
- (Note: this work depends on the finalization of Ed 5.0.0 of S-100).

- **For S-104 Ed 1.1.0**

- Update external metadata (exchange catalogue and discovery metadata)
- Finalize exchange set format
- Add additional vertical datums
- Add Validation Checks Annex (re-use much of S-111 Validation Checks)
- Minor updates to sample datasets to align embedded metadata with S-100 Ed 5.0.0, e.g. remove *chunking* attribute

- **For S-111 Ed 1.2.0**

- Include non-uniform time interval data, as in S-104
- Use 4 character producer codes in file naming
- Require *fillValue*, code, and uom.name to be those values listed in Group_F
- Include Use case appendix
- Update UML diagrams



IHO

PRINCIPAL ACTIVITIES AND ACHIEVEMENTS *CONTINUED*

International
Hydrographic
Organization

Outcomes from TWCWG6

S-104 & S-111

- a. Prepare a list or survey of the ‘**what & how**’ regarding Member States’ water level data (S-104) and surface current data (S-111) are created (i.e. Astronomical Prediction, Model Forecast, Discrete Points, Gridded, coverage, duration, update frequency,....etc.).
- b. Additional required discussion identified about setting ‘priority order’ in the data type, and also on providing more guidance on handling **long term** datasets (i.e. as per national tide tables etc.) in S-104 & S-111 formats.

Proposal to establish a Best Practice Study group on Tidal Analysis

- a. Join forces with IAPSO (International Association for the Physical Sciences of the Oceans).
- b. Synergy with TWCWG Work Plan Item Task B.1 “*Compare the tidal predictions generated as a result of analysis of a common data set using different analysis software*”
- c. Propose adding a new task “B.2, Support and Contribute to the International Association for the Physical Sciences of the Oceans (IAPSO) Best Practice Study group on Tidal Analysis”.
- d. Ultimate aim is to output an IAPSO guideline, a formal Best Practice document.
- e. Meeting of the study group in Berlin in July 2023 (International Union of Geodesy & Geophysics General Assembly)



IHO

PROBLEMS OR OUTSTANDING ISSUES

International
Hydrographic
Organization

1. No significant problems identified or experienced identified over the course of the past 2 TWCWG meetings (other than the constraints imposed by Covid-19, as is the case for all).
2. VTC meetings have worked well for TWCWG (last two meetings have been exclusively VTC). It is still planned, however, for future meetings to be wholly 'in person'.



IHO

FUTURE WORK PROGRAMME

International
Hydrographic
Organization

TWCWG Work Plan 2022-2023

1. Maintain the list of standard tidal constituents.
2. Compare the tidal and tidal current predictions generated as a result of analysis of a common data set using different analysis software.
3. Support and Contribute to the International Association for the Physical Sciences of the Oceans (IAPSO) Best Practice Study group on Tidal Analysis **[NEW WORK PLAN ITEM, B.2]**.
4. Draft S-111 Ed 1.2.0 in 3rd quarter of 2022.
5. Draft S-104 Ed 1.1.0 in 3rd quarter of 2022.
6. Liaise with S-100WG on water level and current matters relevant to ECDIS applications. (Ed 5.0.0 of S-100).
7. Liaise with industry experts on the development of product specifications for water levels and currents.
8. Maintain an inventory of water level gauges and current meters used by Member States.
9. Review and maintain the Actual Tides and Currents On-Line links (ATOL).
10. Maintain and extend the relevant IHO standards, specifications and publications. (S-44 and C-13)
11. Maintain IHO Resolutions & Charting Specifications.
12. Develop and maintain material for CB course on Tides and Tide gauges.
13. Review and maintain the List of Chart Datums (CD) in use by Member States **[proposed NEW WORK PLAN ITEM, M.1 and new IHO Task 2.8.8]**.



IHO

ACTIONS REQUESTED FROM HSSC

International
Hydrographic
Organization

1. Note the TWCWG6 report.
2. Note proposed plan to draft Ed 1.1.0 of S-104 & Ed 1.2.0 of S-111 in 3rd quarter of 2022.
3. Endorse the New Work Plan Item B.2 (*Support and Contribute to the International Association for the Physical Sciences of the Oceans (IAPSO) Best Practice Study group on Tidal Analysis*).
4. Endorse the New Work Plan Item M.1 (*Review and maintain the List of Chart Datums (CD) in use by Member States*).
5. Agree and support proposed work plan.