

**9<sup>th</sup> Meeting of the IHO TIDES, WATER LEVEL AND CURRENTS Working Group  
(TWCWG9)**

**IHO Monaco, 19-22 November 2024**

**All times in Central European Time (CET) [UTC+1 Hr]**

Tuesday - 19 November – TWCWG9 – Day 1				
Time	Agenda	Event/Topic	Lead	Remarks
0900	<b>1</b> 1.1 1.2	<b>Opening</b> Opening address. IHO comments.	Chair / Vice Chair IHO	
0920	<b>2</b> 2.1 2.2 2.3 2.4	<b>Administrative Arrangements</b> Adoption of the Agenda and Apologies. Programme and timetable of the Sessions. Report on Intercessional Activities including HSSC16. Matters arising from TWCWG8/Review of Action Items.	Chair/IHO Chair/IHO Chair Chair	
1000	<b>3</b> 3.1	<b>National Presentations</b> Presentations by delegates on “National Tidal, Water Level and Current issues and projects”.	All	Presentations from: Japan Chile Sweden
1100		<b>Coffee Break</b>		
1130	<b>3</b>	<b>National Presentations <i>continued</i></b>		
1230		<b>Lunch Break</b>		
1345	<b>4</b> 4.1 4.2 4.3 4.4 9.2	<b>Programme Matters</b> Standard Constituent List.  The study of long-term data sets for the determination of global sea level rise and changes in tidal range.  Compare Tidal Predictions generated as a result of analysis of a common data set by different analysis software (including Application for an International Association for the Physical Sciences of the Oceans (IAPSO) Best Practice Study group on Tidal Analysis).  Historical data recovery/data archaeology.  Minimum metadata requirements for tide & water level gauges	GBR/Chair  NOR/USA  USA/NOR/GBR [UK National Oceanography Centre, NOC]  Chair / GBR [UK National Oceanography Centre (NOC)] / All  GBR [UK National Oceanography Centre (NOC)]	<i>This agenda item taken here for NOC availability</i>
1500		<b>Coffee Break</b>		
1530	<b>4.5</b> 4.6 4.7 4.8 4.9	<b>Programme Matters <i>continued</i></b> Establishment and Maintenance of VRF for High Resolution Bathymetric Surfaces.  Determining ellipsoidal height of MSL at the coast.  Inventory of Tide gauges used by IHO Member States.  Actual Tides On-line Link status.  List of vertical datums in use to describe Chart Datum.	GBR/NLD  NLD  IHO/Chair  IHO/Chair  IHO/Chair	
1700		<b>Close Day 1</b>		

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Wednesday – 20th November – TWCWG9 – Day 2

Time	Agenda	Event/Topic	Lead	Remarks
0900	<b>5</b>	<b>Product Specification Updates &amp; Presentations (S-104 &amp; S-111)</b>		
	5.1	Water Level Information for Surface Navigation Product Specification (S-104); Ed 2.0.0; Report.	AUS/USA	
	5.2	Surface Currents Product Specification (S-111); Ed 2.0.0; Report.	USA	
	5.3	S-104 & S-111 Impact Studies.	USA	
	5.4	The TWCWG GitHub repository.	USA	
1100		<b>Coffee Break</b>		
	5.5	S-158 (Validation Checks) report; S-158:100; Validation Checks in general.	USA	
	5.6	S-104 Validation and S-158:104; progress to date.	USA	
	5.7	S-111 Validation and S-158:111; progress to date.	USA	
1230		Lunch Break		
1345		<b>Product Specification Updates &amp; Presentations (S-104 &amp; S-111) <i>continued</i></b>		
	5.8	<i>Production of S-104:</i>		
	5.8.1	Representing station-based data in regular grid format.	USA/All	
	5.8.2	Uncertainty, (vertical datum) epochs, interpolation, method of evaluation (processing techniques, quality of input data, etc.).	USA/All	
	5.9	Next editions of S-104 and S-111 (When? Changes beyond Ed 2.0.0).	USA/All	
	5.10	Additional S-10x; e.g. "S-105" (for all detail 'removed' from the original S-104).	Chair/USA/All	
1500		<b>Coffee Break</b>		
1530	5.11	S-104 & S-111 Member State developments, Use cases, etc.	All	
	5.12	Engagement with S-100WG and other relevant subordinate bodies.	USA/Chair Chair S-102 PT	To include S-102 PT Chair discussion on Projected vs Unprojected data types
1700		<b>Close Day 2</b>		

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### Thursday – 21st November – TWCWG9 – Day 3

Time	Agenda	Event/Topic	Lead	Remarks
0900	<b>6</b>	<b>IHO Resolutions and Charting Specifications.</b>		
	6.1	Review of relevant IHO Resolutions.	ZAF	
	6.2	IHO Resolutions - Chart Datum definition in non-tidal areas (and tidal areas).	BRA	
	6.3	Review of relevant IHO Charting Specifications.	IHO/Chair	
1100		<b>Coffee Break</b>		
	<b>8</b>	<b>Capacity Building</b>		
		Tides and Water Levels Workshop training material.	ZAF/AUS/USA	
1230		<b>Lunch Break</b>		
1345	<b>7</b>	<b>IOC Programmes</b>		
	7.1	Update on IOC Global Sea Level Observing System (GLOSS) Programme items and events.	USA (GLOSS Chair)	
	7.2	Update on IOC Tsunamis & Other Hazards Related to Sea-Level Warning & Mitigation Systems (TOWS) Programme items and events.	CHL	
	9.1	Offer by the Hydrographic Surveys WG (HSWG) for TWCWG collaboration to improve tidal observation uncertainty standards within the relevant sections of S-44 (Standards for Hydrographic Surveys).	BRA/All	
1500		<b>Coffee Break</b>		
1530		<i>Session to re-visit any Agenda Items as required</i> Or take 'day 4' agenda early.		
1700		<b>Close Day 3</b>		

### Friday – 22nd November – TWCWG9 – Day 4

Time	Agenda	Event/Topic	Lead	Remarks
0900	<b>10</b>	<b>Work Plan and ToR's</b>		
	10.1	TWCWG Work Plan 2024-2025 updates	IHO/Chair	
	10.2	Review TWCWG ToRs and RoPs.	IHO/Chair	
	<b>11</b>	<b>Venue and dates of the 10<sup>th</sup> TWCWG Meeting (TWCWG10)</b>	IHO/Chair	
	<b>12</b>	<b>Review of Action Items from TWCWG9.</b>	Chair/Vice Chair/All	
	<b>13</b>	<b>Development of TWCWG9 report to HSSC17.</b>	Chair/Vice Chair	
	<b>14</b>	<b>Draft Agenda for TWCWG10.</b>	Chair/Vice Chair	
	<b>15</b>	<b>Closing Remarks.</b>	Chair/ Vice Chair/IHO/All	
1200		<b>Close Day 4</b> <b>Meeting ends</b>		