World Meteorological Organization &

Intergovernmental Oceanographic Commission (of UNESCO)

Data Buoy Cooperation Panel Thirty Eighth Session,

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AGENDA ITEM 10.2: **Strategic Discussion – Relevance of DBCP**

AGENDA ITEM 10.2.1: **Decisions of WMO**

SUMMARY

This report provides a summary of the outcomes relevant to DBCP community arised from the WMO executive bodies.

A. SUMMARY (Draft text for inclusion in the final report):

The second session of the Joint WMO-IOC Collaborative Board (JCB-2) 01-02 March 2022.

Following the adoption of the Joint WMO-IOC Collaborative strategy(2022-2025)by both WMO 73rd Session of Executive Council(EC73) and IOC Assembly 31st Session in June 2021, the outcomes of JCB-2 session were to: consolidate the role of JCB in adding value to the joint activities and mutual interest between WMO and IOC, identify gaps/possible areas of strengthened collaboration and to formulate recommendations to address these gaps, and, draft the outline of a workplan for 2022 –2023. Accordingly, JCB-2 developed the JCB workplan for 2022-2023, focusing on enhancing synergies between WMO and IOC activities in the areas of GBON/RRR and GOOS co-design, WIS and ODIS, Ocean best practices, harmonization of WMO and IOC data policy, capacity development, and regional collaboration. JCB workplan also targeting increased focus on ocean carbon, co-hosting/leading ocean events, and increase opportunities for oceanographic and meteorological communities to come together. Detailed workplan is provided under the background information.

The second session of the WMO Commission for Weather, Water, Climate and Environmental Services (SERCOM-2), Geneva, 17-21 October.

Launched the WMO Guidelines on Implementation of a Costal Inundation Forecasting Early Warning System (CIF-EWS, WMO-No.1293). CIF-EWS is the result of a resolution of the World Meteorological Congress 18 (2019) to assist vulnerable countries to implement their own CIF-EWS. These Guidelines are based on the successful implementation of demonstration systems in four countries between 2009 and 2019 through the Coastal Inundation Forecasting Demonstration Project. These Guidelines can be used as a valuable planning tool for coastal zone management, in order to build resilience to inundation through reduced exposure and vulnerability of coastal communities.

WMO Technical Conference on: "the global early warning initiative for climate adaptation: early warnings for all"

UN Secretary-General António Guterres announced Early warning for all within next 5 years at the World Meteorological day on 23 March under the theme Early warning and early action. World Meteorological Organization (WMO) is tasked to lead the effort and present an action plan to achieve this goal at the next UN climate conference in Egypt this November 2022.

In response, WMO organized a technical conference to explore the global early warning system value cycle and develop strategic partnerships in support of a coordinated action plan for the UN global early warning initiative for climate adaptation: early warnings for all. The conference was attended by the INFCOM and SERCOM Members, and number of global Big Tech companies (Google, Microsoft, IBM, F24, Alibaba).

WMO will spearhead the effort to achieve universal coverage of early warning services, in close collaboration with key partners as a collective contribution towards global adaptation efforts. It will seek to close observation gaps, to expand the capacity for all countries to issue warnings ahead of a disaster, and simultaneously improve their capacity to act on those warnings, and to respond in a manner that is people-centred, inclusive, and accessible.

WMO will continue to convene key agencies, countries and groups already active in the field of Hydromet and Risk Informed Early Warning capacity development to build on the existing efforts and create a global plan by COP27. Closing the early warning gap will require inputs from actors throughout the entire early warning to early action value chain. The new plan seeks to build on existing WMO activities and partnerships.

The second session of the infrastructure commission (INFCOM-2) Geneva, 24-28 October.

Study Group on Ocean Observations and Infrastructure (SG-OOIS)

Study Group on Ocean Observations and Infrastructure (SG-OOIS) prepared the final report proposing optimal functional connections between WMO and IOC-GOOS bodies, programmes, and systems, aiming at ensuring effective and sustainable ocean observing infrastructures in the context of the WMO Earth System approach. SG-OOIS identified eight major areas where functional connections are requested and issued 29 recommendations in eight main domains.

Report states that the three most important items are to improve the connection among WMO and GOOS regional bodies and the establishment of new functional connections to the revised Rolling Review of Requirements (RRR) process. Further the SG-OOIS recommends setting up of an Advisory Group on Ocean (AG Ocean), which would function as an entry point for INFCOM technical developments, ensuring a smooth translation of requirements from the ocean observing communities into INFCOM activities, and the other way around from INFCOM outputs into ocean outcomes, supporting the work of, inter alia, the Observations Coordination Group (OCG) and the GOOS Steering Committee.

SG-OOIS submitted Draft Decision 6.5(1)/1 to INFCOM-2 session with following decisions:

- Request the Management Group of the Commission for Observation, Infrastructure and Information Systems and Standing Committees to implement relevant recommendations.

-Request the president of the Commission for Observation, Infrastructure, and Information Systems to engage with stakeholders listed in the report in order to implement relevant recommendations, with a priority on the collaboration among regional entities and the establishment of a Global Ocean Observing System (GOOS) satellite coordinator.

Through the Draft Resolution 5.2/1, INFCOM-2 established Advisory Group on the Oceans (AG-Ocean) to provide overall coordination on the application of ocean monitoring, including but not

limited to observations, data management, data sharing, data utilization and products, to the activities related to the terms of reference of the Infrastructure Commission.

Global Data Processing and Forecasting System (GDPFS)

At the INFCOM-2 session a new name for GDPFS was recommended. It will be named as WMO Integrated Processing and Prediction System (WIPPS) in the future once a resolution with the new name is approved by the next Congress in May 2023.

At the INFCOM-2 session, amendments were recommended to the Manual on Data Processing and Forecasting System (WMO-No 485) where there are number of updates and additions related to marine domain. Updates are introduced to the numerical ocean wave prediction products, and global numerical ocean prediction products, in Appendix 2.2.11-2.2.14**.** Panel members are requested to note these changes and implement them at their respective capacity.

Global Basic Observing System (GBON):

Following adoption by the 2021 Extraordinary World Meteorological Congress of Technical Regulations for the Global Basic Observing Network (GBON) per Resolution 2 (Cg-Ext(2021)), now included in the Manual for the WMO Integrated Global Observing System (WIGOS), WMO-No. 1160, and to come into force on 1 January 2023. The Commission for Observation, Infrastructure and Information Systems (INFCOM) was tasked to develop technical guidelines, processes and procedures needed to ensure expedient and efficient implementation of GBON, and to prepare for effective performance and compliance monitoring of GBON.

Today, GBON Technical Regulations are based on the requirements of Global Numerical Weather Prediction and Climate Data Re-Analysis. The Infrastructure Commission is investigating expansion of GBON in other domains, starting with hydrology and cryosphere, and then ocean, Green House Gas and atmospheric composition. This is a longer effort, and principles for GBON expansion are being developed to be followed by roadmaps for specific domains. Initial GBON requirements for ocean domain includes the exclusive economic zone of the countries and to report basic parameters (sea level pressure and sea surface temperature) exchanged in real time. More information on GBON Implementation is available here.

Rolling Review of Requirements (RRR):

A workshop on the management of observational user requirements for the evolved Rolling Review of Requirements (RRR) in the context of WMO's Earth System approach was held in 27-29 September 2022. The purpose of the workshop was to introduce the new, evolved RRR process to key user groups and main contributors to RRR, and to provide the opportunity to collect and discuss their feedback. Ocean observing community was represented at the meeting and requested an ocean focused discussion on RRR. Responding to this request, WMO has organized a roundtable discussion on the 15th of December with key actors (including ocean community and some of the WMO Application Area Points of Contact) on the contribution of the ocean community to the RRR.

WMO Unified Data Policy Implementation:

Implementation of WMO Unified Data Policy (Resolution 1), which was approved at the 2021 Extraordinary World Meteorological Congress (11-22 October), is a priority for WMO. Various groups of stakeholders in the WMO community are assigned tasks and responsibilities.

- *WMO Members* will need to work to broaden and enhance their international exchange of Earth system data, building partnerships and promoting alignment of national policies and regulations on Earth system data exchange, nationally and internationally, to support the new policy.

- *The governing bodies* of WMO are tasked with updating and in some cases strengthening relevant technical regulations, developing guidance materials, and setting up processes to engage partners and oversee implementation.

- *The Infrastructure Commission*, in particular, will - in collaboration with the Secretariat - set up systems and establish processes to support national implementation of various specific elements of the policy, so as to track progress and to monitor compliance.

- *The entire WMO community* - Members as well as the Secretariat - is expected to use the policy as a tool for their engagement with partners from the international development and climate finance communities on capacity development efforts aimed at strengthening climate adaptation, disaster preparedness and early warning systems in developed countries.

WMO will also actively support the parties to the United Nations Framework Convention on Climate Change (UNFCC) and the Paris Agreement in their commitment to ensuring that any decisions on mitigation or adaptation measures are made on the basis of solid scientific information, and WMO will to its utmost to ensure that all data necessary to generate this information is gathered and made widely available.

B. ACTIONS/DECISIONS/RECOMMENDATIONS:

(a) Panel members are requested to work with their counterparts towards fulfilling national GBON requirements for ocean domain.

B. BACKGROUND INFORMATION (not to be included in the session report):

JCB Workplan for 2022-2023:
The following identified items comprise the JCB workplan for 2022-2023 and way forward, including:

- Establishment of JCB Webinar Series across the value chain
- Development of proposals for Satellites Ocean position white paper
- Enhanced synergy between GBON/RRR process and GOOS Co-Design to promote sustainability observation
- Increased focus on ocean carbon research and observing capacity and design
- Joint development of an ocean data map
- Collaboration on interoperability between IOC/IODE OIH/ODIS and WMO WIS: Enhanced involvement of all JCB members in developing WIS 2.0 and ODIS imp. Plan and regional initiatives
- Collaboration between IOC/IODE and WMO on ocean best practices (IOC OBPS)
- Harmonization of WMO and IOC data policy, guidance, and consultations
- Strengthened response & resilience to coastal flooding hazards for coastal communities including tsunamis
- Advancement of ocean prediction & forecasting S/GDPFS to benefit end-users and Members
- Increased venues for marine meteorology and oceanographer expert community to come together at regional/local level in addition to increasing the involvement of decision makers
- Co-hosting of big ocean events between WMO and IOC and co-lead in other big event/conferences (e.g., COP)
- Increased regional collaboration between WMO and IOC (e.g. Ocean Side Event)
- Intensified leveraging of existing strategic plans from WMO and IOC to achieve stronger contribution
- Generation of link and harmonization of CD activities/ programmes/ strategies of WMO and IOC:
    - Better communication of regional focal points between WMO and IOC to address regional needs
    - Improve existing WMO-IOC Regional collaborative mechanism to Deliver as one (e.g., IOC OTGA and WMO RTCs, regional GOOS)
    - Consolidate online training resources
    - Synergy between IOC CD strategy and WMO CD Strategy and implementation at regional level
    - Public-Private Engagement for project proposals
    - Mutual CD collaboration for stability and advancement
    - Engage met/ocean community with decision makers, budget, admin et al with CD activities
    - Mobilize institutions at the regional level

Report from the Study Group on Ocean Observations and Infrastructure Systems (SG-OOIS)

EXECUTIVE SUMMARY

The Study Group on Ocean Observations and Infrastructure Systems (SG-OOIS) was established in 2020 by the Commission for Observation, Infrastructure and Information Systems (INFCOM) to propose optimal functional connections between WMO and IOC-GOOS bodies, programs and systems. In order to ensure the objectives defined by WMO Members after WMO Reform, aiming at ensuring effective and sustainable ocean observing infrastructures in the context of the WMO Earth System approach, can be met. Ensuring such connections is timely, allowing the identification of linkages to key developments such as Global Basic Observing Network (GBON), the new approach for the Rolling Review of

Requirements (RRR), actions in the UN Decade of Ocean Science for Sustainable Development, and the GOOS 2030 Strategy.

The group met virtually 18 times during the pandemic and liaised regularly with major partners and with WMO and IOC secretariats. SG-OOIS identified eight major areas where functional connections are requested and issued 33 recommendations in eight main domains. The most important are to improve the connection among WMO and GOOS regional bodies and the establishment of new functional connections to the revised RRR process. Further the SG-OOIS recommends the setting up of an Advisory Group on Ocean (AG Ocean), which would function as an entry point for INFCOM technical developments, ensuring a smooth translation of requirements from the ocean observing communities into INFCOM activities, and the other way around from INFCOM outputs into ocean outcomes, supporting the work of, inter alia., the Observations Coordination Group (OCG) and the GOOS Steering Committee.

All recommendations are summarized below:

Recommendation	Lead body
A. Services requirements	
A1. GOOS focal point/s (Ocean Observations Physics and Climate (OOPC) and OCG, to facilitate connection to expert panel for input and overview on observing requirements and to networks regarding capacity and fulfilment) to be identified for RRR activity. The GOOS community to be represented in JET-EOSDE[1] (possibly through the focal point/s)	GOOS, WMO JET-EOSDE
A2. GOOS (OOPC/OCG) to engage in the development of the relevant Statement of Guidance (RRR SoG's) in relation to the gap analyses, current status and envisioned opportunities of enhancement in the observing networks. A3. GOOS (OCG/OOPC) to review SoG's and input into value assessment design. If this requires OSSE or OSE experiments, input from the OCG and relevant networks towards OSSE/OSE experiments should be sought through the OCG. A4: GOOS (OCG) and SC-ON respond to SoG's with joint plans on supporting networks/systems evolution and priorities. A5 GOOS, through OCG and OceanOPS, to support the implementation of relevant SoG's with status report/view, dependent on the availability of resources to undertake this work.	GOOS, WMO SC-ON
A6. WMO JET-EOSDE to consider if the GOOS Ocean Decade Programme Ocean Observing Co-Design could take on the requirement scoping of some areas for improvement where marine observations are vital. Tropical storms, storm surge, and ocean carbon cycle are already underway as use area Co-Design Exemplar Projects, with input from the Numerical Weather Predication (NWP). Others can be co-designed.	SC-ON/ JET-EOSDE
A7. Foreseen WMO AG Ocean (see B5) to engage with GOOS (Expert Panels/OCG/Ocean Observing Co-Design Programme) and support development of pilot projects in areas of common interest, with a focus on RRR implementation and regional needs.	AG Ocean[2]

[1] Main acronyms specified in Annex 5.
[2] Dependent on AG OCEAN being created (see Recommendation B7).

Recommendation	Lead body
A8. GOOS to consider establishing a Coordinator of Satellite Data.	GOOS
B. Observations	
B1. A senior WMO Integrated Global Observing System (WIGOS) Secretariat member to be included in the OCG Exec meetings.	GOOS
B2. A marine observations focal point is created in the INFCOM secretariat	WMO Secretary-General
B3. GOOS to consider whether a strengthened connection to SC-ON is appropriate, and how this might best be supported. SOT and DBCP to maintain membership in, and/or assigned functional connections with, SC-ON, SC-IMT and SC-MINT	GOOS
B4. Representation of OceanOPS and GOOS (data expert) in ET Metadata Standards	OCG/ OceanOPS
B5. WMO INFCOM to establish an Advisory Group on Ocean (AG Ocean), ensuring sufficient WMO Secretariat support to aid AG Ocean members in their work.	INFCOM
C. Data management	
C1. Invite IOC and WMO to discuss through JCB the form of future collaborations on data and information management and ocean best practices aspects.	JCB
C2. In collaboration with WMO INFCOM and IODE, keep the mapping of data pathways created by GOOS (OCG) updated, as support is available to do so.	GOOS
C3. Invite WMO INFCOM, GOOS (OCG) and IODE to start a dialogue on the further development of Marine Climate Data System (MCDS).	INFCOM, GOOS
C4. Nominate WMO INFCOM representative/s and contact IOC IODE to join the Steering Group on IOC IODE Ocean Data and Information System (ODIS).	INFCOM (MG), IODE
C5. Invite WMO INFCOM, GOOS (OCG) and IODE to cooperate closer for capacity development in data management.	INFCOM, IODE, GOOS
C6. WMO INFCOM to join the efforts to coordinate the data-related activities under the UN Decade of Ocean Science for Sustainable Development (2021–2030). IODE to invite WMO INFCOM experts to join the IODE Intersessional Working Group to propose a strategy on Ocean Data and Information Stewardship for the Ocean Decade (IWG-SODIS)	IODE
C7. Membership of IODE experts in ET-IM, ET-AC and ET-W2WPE, and of GOOS (OCG/data expert) to SC-IMT (as appropriate for the agenda); will also be a recommendation to IODE-27 (Feb. 2023) and the JCB.	GOOS, IODE, INFCOM

Recommendation	Lead body
D. Communication and supporting mutual strategic reinforcement/alignment	
D1. Actively use WMO membership in GOOS SC to identify one new initiative per year for GOOS-WMO co-development.	INFCOM (MG)
D2. Support NMHS's and partners' engagement in the sustained observation and exchange in EEZ's in compliance with the GBON	INFCOM
D3. Support engagement with industry and citizen science initiatives.	INFCOM
D4. Consider possible joint case studies for communication, for example, to demonstrate the value of observations to numerical weather prediction and safety of life at sea.	INFCOM, GOOS
D5. Contribute to the JCB Webinar Series The GOOS: Oceans of Data for Earth System Predictions	INFCOM, GOOS
E. Taking joint regional approaches	
E1. High-level mandate to WMO Regional Offices in order to promote input from GRA's and/or oceanographic services to Regional Associations' Management Groups. Effective mechanisms evolved to have mutual participation of regional activities among the respective WMO-RAs & GRAs.	WMO (Secretary-General), GOOS (GRAs)
F. Cooperation in capacity development	
F1. Assess and enhance capacity development at regional level using existing activities (e.g., use a WMO call for UN Decade Project capacity development for forecast on storm surge and cyclone; flood warning / inundation, …). Identify a pilot project as a starting point.	WMO (Regional Associations) GOOS (GRAs)
G. Research	
No specific recommendation.	
H. Standards and best practices development	
H1. Communications and coordination related to the Standards and Best Practices Project to be carried out by the WMO Secretariat; Ocean Best Practice System representative (chair or similar) to be invited on a regular basis to present to SC-MINT / ET-SSM to connect on ocean matters.	WMO INFCOM / Secretary-General
H2. Recommend WMO INFCOM to contribute to Ocean Best Practices System repository and investigate existing practices to be applied.	INFCOM, IOC (GOOS/ IODE)

Those recommendations will be submitted to relevant bodies.

References (if any):

1. WMO Integrated Global Observing System (WIGOS), WMO-No. 1160

2. WMO Unified Data Policy Resolution (Res. 1)

3. WMO Guidelines on Implementation of a Costal Inundation Forecasting Early Warning System (CIF-EWS, WMO-No.1293)

4. World Meteorological Congress: Abridged final report of the Extraordinary session (2021) (WMO-No. 1281)