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COMMISSION FOR BASIC SYSTEMS

Management Group

Eighteenth Session

(CBS-MG-18)

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29 March, 2018**

FINAL REPORT



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 Approved by Fernando Belda Esplugues, Tue May 01 14:30:14 UTC 2018

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AGENDA

1. Opening of the meeting
 2. Public Weather Services Delivery
 3. Data Processing and Forecasting Systems
 4. Information Systems and Services, including WMO Information System (WIS)
 5. Integrated Observing Systems, including WMO Integrated Global Observing System (WIGOS)
 6. Decisions on management of CBS
 7. Any other business
 8. Close of meeting
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Approved by Fernando Belda Esplugaes, Tue May 01 14:30:14 UTC 2018

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EXECUTIVE SUMMARY

The eighteenth Session of the Commission for Basic Systems (CBS) Management Group was held in Geneva, Switzerland at the headquarters of WMO in the afternoon of 29 March 2018. This was the second meeting of the Group after the Sixteenth Session of the CBS (CBS-16) in Guangzhou, China, November 2016.

The meeting discussed the draft decisions and recommendations that had been submitted to CBS TECO 2018 (Geneva, Switzerland, 26-29 March 2018) for CBS Experts' review, took TECO feedback into account, agreed on changes that ought to be made, and tasked the Secretariat to finalize input to EC-70.

Ref.: 12002/2018.1.2 OBS- WIGOS/OSD
Approved by Fernando Belda Esplugaes, Tue May 01 14:30:14 UTC 2018

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CBS-MG-18, Final report
GENERAL SUMMARY

1. OPENING OF THE MEETING

The Meeting of the CBS Management Group opened at 13:30 hours on Friday, 29 March 2018 at the WMO Headquarters in Geneva, Switzerland.

The CBS President and vice-President, Mr Michel Jean (Canada) and Ms Meiyang Jiao (China) respectively welcomed the participants and wished for a successful meeting.

They referred to the successful outcome of the CBS Technical Conference (TECO), which was held in Geneva from 26 to 29 March 2018. The TECO received substantial and useful feedback from CBS Experts on key draft decisions and recommendations to be submitted to EC-70 and Cg-18, for their consideration by the Management Group and submission through the agreed CBS governance process.

Assistant Secretary General, Wenjian Zhang, highlighted the importance to review the draft Strategic Plan 2020-2023 and to provide feedback through the Executive Council Working Group on Strategic Operational Planning (EC-SOP).

The list of participants is given in **Annex I**.

The meeting adopted its Agenda.

The President of CBS provided an overview of the meeting goals and objectives, which consisted essentially in reviewing the draft decisions and recommendations that were submitted to CBS TECO for experts' review and feedback.

2. PUBLIC WEATHER SERVICES DELIVERY

The meeting discussed the draft decisions and recommendations from the following CBS TECO 2018 documents, taking into account discussion at the Conference:

- Doc. 3(1) - Report of the Chair of the Open Programme Area Group (OPAG) on Public Weather Service Delivery (PWSD)
- Doc. 3(2) - Public Weather Services Delivery top-level Competencies
- Doc. 3(3) - Guide to Public Weather Services and General Service Guide
- Doc. 3(4) - Common Interfaces for Service Delivery

All Decisions and Recommendations of the Management Group with regard to OPAG PWSD and the issues raised in the above documents are provided in **Annex 3**.

3. DATA PROCESSING AND FORECASTING SYSTEMS

The meeting discussed the draft decisions and recommendations from the following CBS TECO 2018 documents, taking into account discussion at the Conference:

- Doc. 4(1) - Report of the Chair of the Open Programme Area Group (OPAG) on Data Processing and Forecasting Systems (DPFS)
- Doc. 4(2) - Global Data Processing and Forecasting System (GDPFS) Technical Regulations
- Doc. 4(3) - Seamless GDPFS Implementation Plan
- Doc. 4(4) - Integration of Key Climate Services Information System (CSIS) functions with the evolving GDPFS

- Doc. 4(5) - Enhancement of Emergency Response Activities (ERA) Services
- Doc. 4(6) - Future Strategy for expanding the Severe Weather Forecasting Demonstration Project (SWFDP)
- Doc. 4(7) - Global Multi-Hazard Alert System (GMAS)

All Decisions and Recommendations of the Management Group with regard to OPAG DPFS and the issues raised in the above documents are provided in **Annex 4**.

4. INFORMATION SYSTEMS AND SERVICES, INCLUDING WMO INFORMATION SYSTEM (WIS)

The meeting discussed the draft decisions and recommendations from the following CBS TECO 2018 documents, taking into account discussion at the Conference:

- Doc. 5(1) - WMO Information System (WIS) Background, including its annex 1 on Satellite Data Telecommunication (Satcom) Handbook
- Doc. 5(2) - WMO Information System (WIS) 2.0
- Doc. 5(3) - WMO Information System (WIS) Operations, includes its annexes (1) on Section 1: Proposed Terms of Reference of Expert Team on Centre Audit/Certification (ET-CAC), and (2) on WIS Information Technology (IT) Security Incident Management Process

All Decisions and Recommendations of the Management Group with regard to OPAG ISS and the issues raised in the above documents are provided in **Annex 5**.

5. INTEGRATED OBSERVING SYSTEMS, INCLUDING WMO INTEGRATED GLOBAL OBSERVING SYSTEM (WIGOS)

The meeting discussed the draft decisions and recommendations from the following CBS TECO 2018 documents, taking into account discussion at the Conference:

- Doc. 6(1) - Report of the Chair of the Open Programme Area Group (OPAG) on Integrated Observing System (IOS)
- Doc. 6(2) - WMO Integrated Global Observing System (WIGOS) Vision 2040
- Doc. 6(3) - WIGOS Regulatory Material, including on the Regional Basic Observing Network (RBON)
- Doc. 6(4) - Collaboration with the International Air Transport Association (IATA) regarding Aircraft-Based Observations
- Doc. 6(5) - New Requirements for Data Exchange in the context of Annex 1 to WMO Resolution 40 (Cg-12)
- Doc. 6(6) - Global Climate Observing System (GCOS) requirements with CBS
- Doc. 6(7) - Radio-Frequency Coordination
- Doc. 6(8) - Observing System Capability Analysis and Review tool (OSCAR)
- Doc. 6(9) - Satellite Data Utilization and Products
- Doc. 6(10) - WIGOS Station Identifiers

All Decisions and Recommendations of the Management Group with regard to OPAG IOS and the issues raised in the above documents are provided in **Annex 6**.

In particular, the Group agreed with the following:

- On the WMO-IATA Collaboration with regard to AMDAR, there will be the need to establish a Task Team to sort out the financial and procurement-type issues. Fred Branski was tasked to bring issue of collaborative arrangements between Members for funding specific operational activities to EC-SOP, e.g. under partnership with the private sector (**action; F. Branki; asap**). Material to EC-70 ought to be redrafted, and

reference made to the Cache in the Cloud proposal for WIS (procurement aspects), which requires similar financial arrangements.

- Draft Regulatory Material on Regional Basic Observing Network (RBON) are not mature enough for their submission to EC-70, but a strategy and summary could be presented for EC-70 to note work in progress. In particular, some questions are unanswered at this stage. The Group agreed that draft an EC-70 Decision should give authority to CBS and the WIGOS Editorial Board to redraft Regulatory Material to introduce consistent data policy and incentives for making more observational data available. Based on the experience with the RBSN/RBCN the Group agreed that leaving the decision on network composition up to the Regions alone will not lead to an adequate global network and that a top--down decision approach will be needed, with Cg-18 tasking Regional Associations to design and implement their observing systems according to requirements and Technical Regulations. There is also the need to highlight deficiencies against the current Vision for the GOS in 2025. An RBON Implementation Strategy should be formulated and submitted to EC-70, for EC-70 to note work in progress, and for Cg-18 to approve it. The Group also agreed that a Global Baseline Observing System is needed to provide a level of consistency across Regions to address global requirements, and those of GNWP in particular.
- Regarding updating Annex 1 of Resolution 40 (Cg-12), the Group noted that a very poor level of compliance with WMO regulatory material and CBS recommendations on data sharing that was illustrated during the Side Event on Resolution 40 earlier in the week. The group recognized that there is some reluctance to re-open the Resolution for discussion, noting also that the historical context in which it was drafted is very different from the situation today. However, there are inconsistencies in its Annex 1, and elements contradicting existing or new Regulatory Material. The Group considered the following options: (a) to simplify Annex 1 and remove dead/ambiguous language, (b) proposing a new Resolution establishing a global baseline observing system, and (c) working on Regulatory Material, and prioritizing application areas. The Group decided to promote options (b) and (c) The CBS-MG proposed that EC-70 adopt a resolution that (i) recommits WMO to the notion of free and open exchange of observational data to support global weather and climate applications, and (ii) gives authority to CBS and ICG-WIGOS to draft and/or amend the relevant provisions in the WIGOS regulatory material and propose to Cg-18.
- Regional WIGOS Centres: the Group noted the slow pace of implementation of the RWC concept and the relatively low level of activity and/or responsiveness of some of the Regional Management Groups in this regard. Since this is considered one of the main risk factors in the implementation of WIGOS at this time. The MG decided that EC-70 should be made aware of the development of the RWC network, and of the associated risks and potential impacts on the implementation of WIGOS. The Group also noted that EC-PHORS proposed establishing RWC for Antarctica.
- The Group noted the successful collaboration with CIMO with regard to Operational Weather Radars, and the new Expert Team on OWR (IPET-OWR). It concurred with establishing similar collaboration with regard to Aircraft Based Observations, and the merging of the CBS ET-ABO with the CIMO ET-AO as a new IPET. The Group agreed to seek establishment of an IPET-ABO by EC-70, and invited the Presidents of CBS and CIMO to exchange letters in this regard, with agreement on concept and ToRs (**action; CBS President; asap**).

6. DECISIONS ON MANAGEMENT OF CBS

The Group agreed that its decisions and recommendations made under agenda items 2 to 5 above and reflected in Annexes 3 to 6 should be addressed by the Secretariat, in consultation with the OPAG chairs as needed, with a view to have related draft EC-70 documents submitted in due course (**action; Secr.; end Apr. 2018**).

7. ANY OTHER BUSINESS

The Meeting considered the following additional items of business requiring attention of the

Management Group, but not covered above:

- The need to pay better attention to the geographic and gender balance and engagement of experts in the work of the Commission and its Expert Teams. CBS members were invited to promote engagement of experts accordingly (**action; CBS MG members; ongoing**).
- A schematic describing interdependencies between programmes is needed; the Secretariat was invited to initiate such development (**action; Secr.; end 2018**).
- The Group requested the Secretariat to organize one or two teleconferences in April and May (**action; Secr.; Apr. 2018**), in particular to address cross cutting issues.
- The Group requested the Secretariat to write to TECO participants and seek their additional feedback through the cbs-teco@wmo.int mailing list (**action; Secr.; asap**).
- Need to have a decision from EC-70 on the CBS-led Review on Emerging Data Issues.
- Consideration should be given to organizing side events of EC-70 to address the following issues:
 - Status of Observing System and international data exchange as evidenced by WDQMS pilot. (*should be merged with the following bullet as a single side event focused on data availability; the MG was not in favor of doing this in the context of Res 40 but rather as a new resolution; LPR*)
 - Data availability and update of annex 1 to Resolution 40 (Cg-12)
 - Collaboration with IATA on AMDAR
 - CBS-Led Review on Emerging Data Issues
 - The Regional WIGOS Centres
 - WIS 2.0 and Cache in the cloud project, with PRs of the GISCs
 - Seamless GDPFS
 - GMAS
 - CISD (to be linked to one of the other side events)
 - Competency frameworks (PWSD)
 - General Service Guide (PWSD)
 - Joint event with CAS on Urban environmental issues

8. CLOSE OF MEETING

The President and vice-President thanked the Group members and the Secretariat for contributing to the successful outcome of the meeting. The meeting, while expressing its appreciation to all Secretariat staff who contributed to the discussion, also wished to pay special thanks to Mr Steve Foreman for his past contributions to the work of the Commission.

The session closed at 16:02 on Friday 29 March 2018.

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LIST OF ACTION ITEMS ARISING FROM THE MEETING

(CBS-MG-18, Geneva, Switzerland, 29 March 2018)

No.	Ref.	Action item	By	Deadline
1	CBS-MG-18	to bring issue of collaborative funding arrangements between Members to EC-SOP, e.g. under partnership with the private sector	<i>F. Branki</i>	<i>asap</i>
2	CBS-MG-18	to seek establishment of an IPET-ABO by EC-70, and invite the Presidents of CBS and CIMO to exchange letters in this regard, with agreement on concept and ToRs	<i>CBS President</i>	<i>asap</i>
3	CBS-MG-18	Secretariat, in consultation with the OPAG chairs as needed to finalize draft EC-70 decisions and recommendations in due course	<i>Secr.</i>	<i>end Apr. 2018</i>
4	CBS-MG-18	to pay better attention to the geographic and gender balance and engagement of experts in the work of the Commission and its Expert Teams and to promote engagement of experts accordingly	<i>CBS MG members</i>	<i>ongoing</i>
5	CBS-MG-18	to initiate development of schematic describing interdependencies between programmes	<i>Secr.</i>	<i>end 2018</i>
6	CBS-MG-18	to organize one or two teleconferences in April and May in particular to address cross cutting issues	<i>Secr.</i>	<i>Apr. 2018</i>
7	CBS-MG-18	to write to TECO participants and seek their additional feedback through the cbs-teco@wmo.int mailing list	<i>Secr.</i>	<i>asap</i>
8	CBS-MG-18	to investigate ASAP whether some resources could be set aside for a consultant (to be recruited) to undertake the review of the various IPs in 2018	<i>Secr.</i>	<i>asap</i>
9	CBS-MG-18	to undertake review of the various Implementation Plans	<i>consultant</i>	<i>June 2018</i>
10	CBS-MG-18	IPET-OSDE to consider ICT-IOS and the consultant feedback when developing the work plan for developing the new WIGOS-IP (by Cg-18)	<i>OPAG IOS Chair</i>	<i>end 2018</i>
11	CBS-MG-18	MG to invite GCW Steering Committee to update the GCW Implementation Plan with consideration of CBS efforts and guidance (by Cg-18)	<i>CBS President</i>	<i>mid- 2018</i>
12	CBS-MG-18	MG to invite CHy to develop the WHOS Implementation Plan with consideration of CBS efforts and guidance (by Cg-18)	<i>CBS President</i>	<i>mid- 2018</i>
13	CBS-MG-18	To invite JCOMM and OOPC to develop the new GOOS Implementation Plan with consideration of CBS efforts and guidance (by Cg-18)	<i>CBS President</i>	<i>mid- 2018</i>
14	CBS-MG-18	CBS Management Group requestsd C-SEIS, the SOC and IPET-OSDE (i) to share the information of the workshop scope and objectives (in particular with OPAG-DPFS, ET-SBO, ET-SAT, ET-ABO, IPET-OWR) and encourage the active participation of the NMHSs & NWP centres, (ii) to engage early enough (mid 2018 is recommended) with NMHSs to conduct OSEs and OSSEs and other impact experiments, to address the identified Science Questions Requiring NWP Impact Assessments for Observing System Design and Evolutions (Appendix	<i>OPAG IOS Chair</i>	<i>2020</i>

		1), (iii) to coordinate the organisation of the next workshop on Impacts of Observing Systems on NWP (PRK, 2020) according to IPET-OSDE-3 plan, (iv) to produce report on impacts workshop, and (v) to report to ICT-IOS on outcomes of workshop		
15	CBS-MG-18	Management Group to request ICG-WIGOS, in consultation with ET-SBO, to coordinate the review of WIGOS guidance material and, if necessary, make changes to ensure that Members are given adequate guidance and instruction on this matter (by Jan. 2019)	CBS President: end 2018	
16	CBS-MG-18	President of CBS, with input from ICT-IOS and ET-SBO in particular, to write to the President of CIMO to highlight the findings from recent requests for feedback from RA I and RA III experts in particular, and to take further action as deemed necessary (by CIMO Session Oct./2018)	CBS President	Oct. 2018
17	CBS-MG-18	ET-SBO to directly approach suitable experts for nomination of operational lightning observations experts to membership of team	OPAG IOS Chair	ongoing
18	CBS-MG-18	OPAG-IOS to consider and determine whether it is possible to answer this question: "For which of the 14 WMO Application Areas does the GOS aim to satisfy the observational requirements?"	OPAG IOS Chair	end 2018
19	CBS-MG-18	IPET-OSDE to consider the proposal to add a new "sub-principle" (in the Principles 3 and 9) for global applications with shall; the "regional level/applications" would stay with should	OPAG IOS Chair	asap
20	CBS-MG-18	OPAG-IOS to (i) prioritize the urgent improvement of the contents of the OSCAR Requirements database (asap), (ii) devise concrete steps for detailed and active technical collaboration between CBS experts and regional experts in relation to the implementation of RBON, and (iii) consider the need for Global Basic Observing Network (GBON) provisions	OPAG IOS Chair	asap
21	CBS-MG-18	CBS-MG to devise concrete steps for detailed and active technical collaboration between CBS experts and Regional experts in relation to the implementation of WDQMS	CBS-MG	end 2018
22	CBS-MG-18	CBS-MG to Consider mechanism by which Members could form a consortium for developing a stand-alone solution for national management of observing station metadata that is compatible with the WIGOS Metadata Standard and the OSCAR/Surface machine-machine interface	CBS-MG	end 2018
23	CBS-MG-18	Secretariat to facilitate development and implementation of desired evolutions of OSCAR/Requirements (see TECO doc. 6(8))	Secr.	end 2018
24	CBS-MG-18	ICG-WIGOS to concur with the OSCAR development plan (Annex XV of IPET-OSDE-3 Final Report) with consideration of the following priorities: (1) OSCAR/Surface operational use, (2) other evolutions of OSCAR/Surface, (3) tools and foundation for gap analysis	CBS President	mid-2018
25	CBS-MG-18	to finalize specification of the proposed analysis tool using OSCAR with a view to estimating the cost of and options for its development	Secr.	asap
26	CBS-MG-18	ICG-WIGOS to concur with OPAG IOS proposal for analysis using OSCAR as described in Appendix 2	CBS President	mid- 2018
27	CBS-MG-18	To contact specific PRs in the view to identify appropriate resources (people) to complete the development of the TCM within the ERA programme and define procedures to be integrated into the Manual	CBS President	Mid-2018

OPAG PWSD DRAFT DECISIONS AND RECOMMENDATIONS

No.	TECO item	Refs	Topic	Decision
3/1	3(1)/1	Doc 3(1)	Endorse the draft of the guidelines for the development of an integrated operational platform to meet urban service delivery needs, and recommend to EC-70 for further consideration.	Recommend to EC-70
3/2	3(1)/2	Doc 3(1)	Note the plans to hold two workshops on IBFWS in 2018, and a conference/symposium to collect Members experiences with IBFWS in 2019. CBS-MG is requested to support this latter proposal.	Approve
3/2	3(2)/1	Doc 3(2)	Endorse the top-level competencies for PWSD and recommend that consideration of these be placed on the Congress agenda.	Recommend for Cg agenda
3/3	3(3)/1	Doc 3(3)	Endorse the skeleton outline of the "Guide to General Service Delivery" and recommend to EC-70 for further consideration.	Recommend to EC-70
3/4	3(3)/2	Doc 3(3)	Revision and updating of WMO-No. 834 "Guide to Public Weather Services Practices"	CBS-MG considered feedback from TECO on proposed structure and outline contents of revised "Guide to PWS Practices" and provided guidance to Secretariat for discussion with the consultant
3/5)	3(4)/1	Doc 3(4)	Endorse the Concept Paper on the development of Common Interfaces for Service Delivery and recommend to EC-70 for their further consideration.	Recommend to EC-70

OPAG DPFS DRAFT DECISIONS AND RECOMMENDATIONS

No.	TECO item	Refs	Topic	Decision
4/1	4(2)/1	Doc 4-2	Update on Renewal of Guide to the GDPFS	<ul style="list-style-type: none"> CBS MG endorsed the outlines of the Guide (WMO-No.305) related to the Manual on GDPFS (WMO-No. 485) and decided to seek EC-70 approval
4/2	4(2)/2	Doc 4-2	Implementation of new GDPFS Manual (WMO-No.485) and, if necessary, some GDPFS activities at national levels could be regulated in the Manual	<ul style="list-style-type: none"> CBS MG endorsed designation of new centres (see note 1) CBS MG endorse the proposed amendment by JCOMM (see note 2) CBS MG designate the new GDPFS Centres proposed by JCOMM (see note 2) CBS MG agree in principle to CHy proposal (see Note 3) CBS MG endorsed the organization of WMC workshop as per S-GDPFS implementation plan and to ensure coordination among WMCs CBS MG endorsed the initiative to develop the new regular audit process for GDPFS Centres
4/3	4(3)/1	Doc 4-3	Development of Implementation plan for Seamless GDPFS	<ul style="list-style-type: none"> EC-70 to recommend tabling of the IP at Cg-18 and to endorse the IP after integrating comments by TECO, CBS MG and other Constituent Bodies
4/4	4(4)/1	Doc 4-4	To integrate with the core functions of CSIS encompassing climate data, climate monitoring, climate prediction and climate projection, evolve GDPFS to include a class of RSMCs to include (i) centres that maintain Climate Reanalysis, and (ii) centres that provide Climate Monitoring on global scale	<ul style="list-style-type: none"> Recommend this activity to move forward and to Inform EC-70 about the development of new class of RSMCs in support of climate monitoring.
4/5	4(4)/2	Doc 4-4	Support close alignment of the CSIS Technical Reference (being developed by CCI, including the development and deployment of the Climate Services Toolkit), with the elements of the GDPFS by engaging with CCI on the development of the Technical Reference Manual	<ul style="list-style-type: none"> CBS-MG endorsed the effort between CBS and CCI to integrate operational functions of CSIS into GDPFS. IPET OPSLS to take the lead.
4/6	4(4)/3	Doc 4-4	Expansion of GPC portfolio to cover sub-seasonal forecasts on the global scale	<ul style="list-style-type: none"> CBS-MG endorsed the effort between CBS and CCI for expansion of GPC portfolio to cover sub-seasonal forecasts on the global

No.	TECO item	Refs	Topic	Decision
4/7	4(5)/1	Doc 4-5	CBS-16 (decision 28) invited "Members to provide adequate resources (people) to facilitation the completion of the work related to the development of new products as well as the Transfer Coefficient Matrix methods for atmospheric transport and dispersion modelling." Little progress has taken place since due to a lack of dedicated resources within the ET-ERA	<p>scale</p> <ul style="list-style-type: none"> • Agree to identify appropriate resources (people) to complete the development of the TCM within the ERA programme and define procedures to be integrated into the Manual. • President CBS to Contact appropriate PR(s) (action; M. Jean; asap)
4/8	4(6)/1	Doc 4-6	Future strategy of expanding SWFDP [SWFDP01, SWFDP02, SWFDP03, SWFDP04] (Joint with OPAG-PWSD)	<ul style="list-style-type: none"> • EC-70 to request Secr./SG-SWFDM to conduct overall assessment of SWFDP since its inception in 2006 and develop a future strategy for SWFDP • CBS MG endorsed the recommendation to accelerate the implementation of Resolution 13 (Cg-17), incl. Cg-18 approval of additional P.3 position for SWF programme office (to be funded from regular budget) – As per Resolution 13 (Cg-17). • CBS MG concurred with establishment of Severe Weather Forecasting program Trust Funds • EC-70 to Establish a general Trust Fund for severe weather forecasting
4/9	4(7)/1	Doc 4-7	CBS working mechanisms that should be leveraged for GMAS	EC-WG-DRR to submit GMAS concept and plan to EC-70

Notes:

Endorses amendments to the Manual on GDPFS (WMO-No 485) as follows:

1. Designation of new centres:
 - a. WMC, Offenbach (Germany)
 - b. RSMC for Nowcasting, Hong Kong Observatory (Hong Kong, China)
 - c. RSMC for Severe Weather Forecasting, Wellington (New Zealand)
 - d. RSMC for Severe Weather Forecasting, Pretoria (South Africa)
 - e. RSMC for non-Nuclear and Nuclear Emergency Response, Offenbach (Germany)

2. Integrate in the manual on GDPFS, designation of Centres as adopted by JCOMM at its 5th Session (Geneva, Switzerland; October 2017) as per the draft Recommendation 14 (JCOMM-5) regarding Criteria for, and designation of, marine-related GDPFS centres. Designate the new GDPFS Centres proposed by JCOMM
3. Agree in principle to CHy proposal for a new GDPFS structure in hydrology to be included in the revised Manual in future. Work in progress: Resolution 7 (CHy-15) regarding the contribution of CHy to the future integrated and seamless WMO DPFS and requested to develop a proposal of a comprehensive structure for hydrology within the new seamless Data-processing and Forecasting System.

OPAG ISS DRAFT DECISIONS AND RECOMMENDATIONS

No.	TECO item Issue	Refs	Topic	Decision
5/01	5(1)/1	Ref 5(1)/1/1	Publish the SATCOM handbook as an attachment to WMO-No. 1061 <i>Guide to WIS</i> . Amendment in TECO – publish in all languages update Document CBS-TECO-2018-Doc-5(1)-Annex1-SATCOM-Handbook_draft1 to include amendments proposed by the SATCOM Forum Executive on 26 March 2018, and add a reference to the Handbook from the Guide to the WIS.	Recommend to EC-70
5/02	5(1)/3	Ref 5(1)/3/2	Agree procedure for resolving issues with BUFR reports	Approve
5/03	5(1)/3	Ref 5(1)/3/2	Secretariat issue circular letter implementing BUFR problem procedure	Approve
5/04	5(1)/4	Ref 5(1)/4/3	Approve the use of the between sessions approval procedure for iwxxm 3.0	Approve for between sessions
5/05	5(1)/5	Ref 5(1)/5/2	Following further testing and formal consultation, recommend wmdr 1.0 to Cg-18	Recommend for Cg-18 agenda and consultation
5/06	5(2)/1	Ref 5(2)/1/2	WIS 2.0 implementation plan: formal consultation and subsequent submission of outcome to Cg-18	Recommend for Cg-18 agenda and consultation
5/07	5(2)/2	Ref 5(2)/2/1	Endorse the operational cache in the cloud service .	Endorse the project proposal
5/08	5(2)/2	Ref 5(2)/2/1	Ask EC70 to request that the SG tenders for a cache in the cloud solution and manages the supplier of cache in the cloud provider. The wording of the draft EC-70 document will be amended to reflect discussions in TECO and its side meetings.	Recommend to EC-70
5/09	5(2)/3	Ref 5(2)/3/1	Guidance on ICT operations: issue consultation on amendments to WMO-No. 1060 Manual on the WMO Information System and WMO-No. 1061 Guide to the WMO Information System and recommend outcome to Cg-18	Recommend for Cg-18 agenda and consultation
5/09a	5(2)/4	Ref 5(2)/4/2	WIS Information management: issue amendments to WMO-No. 1060 (Manual) and WMO-No. 1061 (Guide) on WIS and recommend outcome to Cg-18	Recommend for Cg-18 agenda and consultation
5/10	5(3)/1	Ref 5(3)/1/2	Issue formal consultation on including the generic audit process in WMO-No. 1061 <i>Guide to WIS</i> and recommend the outcome to Cg-18	Recommend for Cg-18 agenda and consultation
5/11	5(3)/1	Ref 5(3)/1/1	Authorize editorial changes to WMO-No. 1061 <i>Guide to WIS</i> to be consistent with the role of ET-CAC (Ref. section 3)	Approve editorial change
5/12	5(3)/1	Ref 5(3)/1/1	Interim audits of GISCs should be on-site; the start of this audit cycle should be agreed with the GISC to be audited	Approve

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5/13	5(3)/2	Ref 5(3)/2/1	Add the WIS IT security management procedure to WMO-No. 1060 (Manual) and 1061 (Guide) to WIS and designation of WMO-No. 1115 as an attachment to WMO-No. 1061 <i>Guide to WIS</i> : issue formal consultation and recommend outcome for inclusion in Cg-18 agenda	Recommend for Cg-18 agenda and consultation
5/14	5(3)/2	Ref 5(3)/2/2	Approve the terms of reference for WIS IT security focal points and request Secretariat to distribute circular letter requesting participation in the WIS IT security reporting procedure	Approve
5/15	5(3)/3	Ref 5(3)/3/3	Amend WMO-No.1060 (Manual) and WMO-No. 1061 (Guide) to WIS to clarify coordination of GISC activities: issue for consultation and recommend outcome to Cg-18	Recommend for Cg-18 agenda and consultation
5/16	5(3)/3	Ref 5(3)/3/3	Include requirement for annual face-to-face meetings between GISC operators: consult and recommend outcome to Cg-18	Recommend for Cg-18 agenda and consultation
5/17	5(3)/3	Ref 5(3)/3/3	Request all GISC operators to participate in annual face-to-face meetings of TT-GISC	Approve
5/18	5(3)/4	Ref 5(3)/4/3	GISC watch: consult on amendments WMO-No. 1060 (Manual) and 1061 (Guide) to WIS and recommend outcome to Cg-18. CBS-MG recommended that the duration of a GISC watch should be agreed by TT-GISC rather than being specified in the Manual or Guide to WIS.	Recommend for Cg-18 agenda and consultation
5/19	5(3)/4	Ref 5(3)/4/3	GISC watch: Secretariat ask all GISCs to take part in the pre-operational GISC watch from 1 May 2018 as operational demonstration of feasibility	Approve
5/20	5(3)/5	Ref 5(3)/5/3	Escalation procedures for WIS-related disputes on global exchange of information: issue amendments to WMO-No. 1060 (Manual) and 1061 (Guide) to WIS for consultation and recommend outcome to Cg-18	Recommend for Cg-18 agenda and consultation
5/21	5(3)/5	Ref 5(3)/5/3	Escalation procedures for WIS-related disputes on global exchange of information: Request GISCs to implement the procedure as an operational demonstration	Approve
5/22	5(3)/6	Ref 5(3)/6/2	Add DCPSs and NCs to Appendix B of WMO-No. 1060 <i>Manual on WIS</i>	Recommend to EC-70
5/23	5(3)/7	Ref 5(3)/7/3	Include WIS responsibilities for GTS communications in WMO-No. 386 Manual on GTS (diagram). Include a note to indicate that RTH Tashkent is reconsidering its Principal GISC (if the process is completed before EC-70, modify the table and diagram to reflect the new association).	Recommend to EC-70
5/23a	5(3)/7		Identify a suitable structure for the Manual and Guide to the WIS that will allow information that is still relevant that is contained in the Manual on GTS to be transferred to the WIS Manual and Guide, request the Technical Commission responsible to WIS to make the transfer, and authorize EC to remove the Manual on GTS when the transfer has been completed.	Recommend for Cg-18 agenda and consultation

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5/24	5(3)/7	Ref 5(3)/7/4	Amend the text on responsibilities of Regional Telecommunications Hubs in WMO-No. 386 Manual on GTS (text)	Recommend to EC-70
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OPAG IOS DRAFT DECISIONS AND RECOMMENDATIONS

No.	TECO Item Issue	Refs.	Topic	Decision
6/1	6(1)/2	TECO doc 6(1)	Members contributions toward implementing actions of the Implementation Plan for the Evolution of Global Observing Systems (EGOS-IP), pending adopted of future WIGOS Implementation Plan (WIGOS-IP)	EC-70 to Recommend to Cg-18 to request Members and identified implementing agents to take steps to better address implementation of some specific EGOS-IP Actions
6/2	6(1)/3	TECO doc 6(1)	Review of Implementation Plans of WIGOS Component Observing Systems	<ol style="list-style-type: none"> 1. Secretariat to investigate ASAP whether some resources could be set aside for a consultant (to be recruited) to undertake the review of the various IPs in 2018 (action; Secr.; asap) 2. Consultant to undertake review of the various Implementation Plans (action; consultant; June 2018) 3. IPET-OSDE to consider ICT-IOS and the consultant feedback when developing the work plan for developing the new WIGOS-IP (by Cg-18) (action; OPAG IOS Chair; end 2018) 4. MG to invite GCW Steering Committee to update the GCW Implementation Plan with consideration of CBS efforts and guidance (by Cg-18) (action; CBS President; mid-2018) 5. MG to invite CHy to develop the WHOS Implementation Plan with consideration of CBS efforts and guidance (by Cg-18) (action; CBS President; mid-2018) 6. To invite JCOMM and OOPC to develop the new GOOS Implementation Plan with consideration of CBS efforts and guidance (by Cg-18) (action; CBS President; mid-2018)
6/3	6(1)/6	TECO doc 6(1)	Impact assessment for observing system design and evolution	<ol style="list-style-type: none"> 1. MG concurred with the updated list of Science Questions Requiring NWP Impact Assessments for Observing System Design and Evolutions as provided in Appendix 1, and agreed to submit draft EC-70 Decision on Impact assessment for observing system design and evolution. 2. MG concurred with the composition of the Scientific Organizing Committee (SOC) of the Seventh WMO Workshop on the Impact of Various Observing Systems on NWP to be organized in the Republic of Korea in 2020: <ul style="list-style-type: none"> • Sid Boukabara (NOAA, ET-SAT, C-SEIS), Chair • SeiYoung Park (KMA, C-SEIS, POC from local host), Co-chair • Erik Andersson (ECMWF, Chair of IPET-OSDE), • Lars Peter Riishojgaard (WMO/WIGOS-PO), • John Eyre (UKMO, IPET-OSDE), • Tom Auligne (UCAR),

				<ul style="list-style-type: none"> • Jianxia Guo (CMA) <p>3. CBS Management Group requested C-SEIS, the SOC and IPET-OSDE (i) to share the information of the workshop scope and objectives (in particular with OPAG-DPFS, ET-SBO, ET-SAT, ET-ABO, IPET-OWR) and encourage the active participation of the NMHSs & NWP centres, (ii) to engage early enough (mid 2018 is recommended) with NMHSs to conduct OSEs and OSSEs and other impact experiments, to address the identified Science Questions Requiring NWP Impact Assessments for Observing System Design and Evolutions (Appendix 1), (iii) to coordinate the organisation of the next workshop on Impacts of Observing Systems on NWP (PRK, 2020) according to IPET-OSDE-3 plan, (iv) to produce report on impacts workshop, and (v) to report to ICT-IOS on outcomes of workshop (action; OPAG IOS Chair; 2020).</p> <p>4. MG decided to submit draft EC-70 Decision to:</p> <ul style="list-style-type: none"> • Agree that priority should be given to studies that address the identified Science Questions Requiring NWP Impact Assessments for Observing System Design and Evolutions that are anticipated to include observation impact assessment for longer-range forecasting and non-NWP application areas; • Request CBS to organize the Seventh WMO Workshop on the Impact of Various Observing Systems on NWP in the Republic of Korea in 2020; • Request Members: (i) to continue the development and research of adjoint- and ensemble-based observation impact assessment tools, as a complement to traditional OSEs; (ii) to develop OSEs for the optimization of regional composite networks; (iii) to address the science questions listed in Appendix 1, and have Numerical Weather Prediction Centres to undertake the required impact studies (e.g. OSEs, OSSEs) during the period 2018 to 2020, and have NMHSs and NWP centres to actively participate in the Seventh WMO Workshop on the Impact of Various Observing Systems on NWP (Republic of Korea, 2020); <p>(Note: Decision 24 (EC-69) to no longer be in force)</p>
6/4	6(1)/7	TECO doc 6(1)	Strengthening collaboration with CGMS regarding Risk Assessment and Gap Analysis	CBS MG agreed to submit draft EC-70 Recommendation, to recommend to Congress that WMO and CGMS (through its working group III) should define and adopt a formal process for detecting and addressing gaps in the space-based component of WIGOS. This should include risk assessment and contingency planning.
6/5	6(1)/10	TECO doc 6(1)	Sustained funding of the VLab Technical support officer	CBS MG agreed to submit draft EC-70 Decision to request Members to consider providing financial contributions to the WMO VLab Trust Fund.
6/6	6(1)/12(1)	TECO doc 6(1)	Utilising the correct Geoid	<ul style="list-style-type: none"> • CBS TECO members were reminded on the need to check settings on position devices to ensure correct model is selected when confirming the location of an observing station. ICT-IOS to be invited to also address the issue, possibly from a regulatory material standpoint, but more specifically from a guidance material one. • Management Group to request ICG-WIGOS, in consultation with ET-SBO, to coordinate the review of WIGOS guidance material and, if necessary, make changes to ensure that Members

				are given adequate guidance and instruction on this matter (by Jan. 2019) (action; CBS President: end 2018)
6/7	6(1)/12(2)	TECO doc 6(1)	Traceability to Standards and access to Calibration Facilities	President of CBS, with input from ICT-IOS and ET-SBO in particular, to write to the President of CIMO to highlight the findings from recent requests for feedback from RA I and RA III experts in particular, and to take further action as deemed necessary (by CIMO Session Oct./2018) (action; CBS President; Oct. 2018).
6/8	6(1)/12(3)	TECO doc 6(1)	ET-SBO Access to Lightning Observations Expertise	CBS Management Group allowed ET-SBO to directly approach suitable experts for nomination of operational lightning observations experts to membership to team (action; OPAG IOS Chair; ongoing).
6/9	6(1)/12(4)	TECO doc 6(1)	Provision of High-resolution Radiosonde Data in BUFR	CBS MG agreed to submit draft EC-70 Recommendation (TECO Doc. 6.1(1), Appendix 2) for Members to be urged to increase their efforts to undertake provision of high-resolution radiosonde data in line with the procedures developed by OPAG-ISS and approved by CBS.
6/10	6(1)/12(5)	TECO doc 6(1)	Reducing the number of Voluntary Observing Ship (VOS) classifications	CBS Management Group to took note of OPAG IOS recommendations with regard to reducing the number of VOS Classifications, and accepted JCOMM to propose changes to MO No. 1160, WIGOS Manual, and MWO No. 306, Manual on Codes.
6/11	6(1)/13	TECO doc 6(1)	Lack of resources to conduct a more detailed analysis of observational requirements and to develop a detailed SoG for the Climate Science Application Area.	CBS MG agreed to submit draft EC-70 Decision to request Secretary General to identify resources to further review Climate Science requirements and gap analysis
6/12	6(5)/1	TECO doc 6(5)	New requirements for the Exchange of Observational Data in Support of WMO Applications	Regarding updating Annex 1 of Resolution 40 (Cg-12), the CBS-MG recognized that there is some reluctance to re-open the resolution. However, there are inconsistencies in its Annex 1, and elements contradicting existing or new Regulatory Material. The Group decided to (i) propose new Resolution establishing a global baseline observing system, and (ii) work on Regulatory Material, and prioritizing application areas. The CBS-MG also proposed that EC-70 should be recommended to give authority to CBS and ICG-WIGOS to make proposal to Cg-18 on the above options, and on the opportunity to make recommendation to Cg-18 on updating Annex 1 of Resolution 40 (Cg-12) to allow this annex to better reflect evolving requirements for the exchange of observational data in support of WMO Applications and be consistent with current Technical Regulations.
6/13	6(4)/1	TECO doc 6(4)	Review and endorsement of the Concept of Operations for the IATA-WMO Collaborative AMDAR Programme	CBS MG agreed to submit draft EC-70 Resolution X.X(n)/N (EC-70) (Appendix 2 of TECO doc 6(4)), Establishment of the IATA-WMO Collaboration on the Operation and Development of the AMDAR Programme, to EC-70. However, Fred Branski was tasked to bring issue of collaborative arrangements between Members for funding specific operational activities to EC-SOP, e.g. under partnership with the private sector. Material to EC-70 ought to be redrafted, and reference made to the Cache in the Cloud proposal for WIS (procurement aspects), which requires similar financial arrangements.
6/14	6(4)/2	TECO doc 6(4)	Establishment of a CBS Task Team on the IATA-	<ul style="list-style-type: none"> • CBS-MG reviewed and concurred with the proposed terms of reference and establishment of the Task Team on the IATA-WMO Collaboration on AMDAR (TT-IWCA).

			WMO Collaborative AMDAR Programme	<ul style="list-style-type: none"> EC-70 to review the terms of reference and re-establish the Task Team on the IATA-WMO Collaboration on AMDAR (TT-IWCA).
6/15	6(9)/1	TECO doc 6(9)	Publicize the Critical Satellite Data Position Paper and translate its content into WMO guidance material	CBS-MG agreed to submit draft EC-70 Decision to publish WMO guidelines document on global exchange of observation data, taking TECO and MG feedback into account.
6/16	WIGOS Vision 2040	TECO doc 6(2)	TECO to ICG-WIGOS efforts leading this development	CBS-MG took note of TECO document 6(2).
6/17	6(3)/1	TECO doc 6(3)	Scope of GOS of the World Weather Watch as a component of WIGOS	CBS-MG requested OPAG-IOS to consider and determine whether it is possible to answer this question: "For which of the 14 WMO Application Areas does the GOS aim to satisfy the observational requirements?" (action; OPAG IOS Chair; end 2018)
	6(3)/2	TECO doc 6(3)	Update of Appendix 2.1 Observing Network Design (OND) Principles (No. 3 and 9)	CBS-MAG requested IPET-OSDE to consider the proposal to add a new "sub-principle" (in the Principles 3 and 9) for global applications with shall ; the "regional level/applications" would stay with should (action; OPAG IOS Chair; asap)
6/18	6(3)/3	TECO doc 6(3)	Enabling Members to meet their new obligations for the implementation of Regional Basic Observing Networks (RBONs)	<ul style="list-style-type: none"> Draft Regulatory Material on Regional Basic Observing Network (RBON) are not mature enough for their submission to EC-70, but a strategy and summary could be presented for EC-70 to note work in progress. In particular, some questions are unanswered at this stage. The Group agreed that draft EC-70 Decision should give authority to CBS and the WIGOS Editorial Board to redraft Regulatory Material to introduce consistent data policy and incentive for making observational data available. The Group agreed that a top down decision approach is needed, with Cg-18 tasking Regional Associations to design and implement their observing systems according to requirements and Technical Regulations. There is also the need to highlight deficiencies against the current Vision for the GOS in 2025. An RBON Implementation Strategy should be formulated and submitted to EC-70, for EC-70 to note work in progress, and for Cg-18 to approve it. The Group also agreed that a Global Baseline Observing System is needed to address global requirements, and those of GNWP in particular. CBS-MG requested OPAG-IOS to (i) prioritize the urgent improvement of the contents of the OSCAR Requirements database (asap), (ii) devise concrete steps for detailed and active technical collaboration between CBS experts and regional experts in relation to the implementation of RBON, and (iii) consider the need for Global Basic Observing Network (GBON) provisions (action; OPAG IOS Chair; asap)
6/19	6(3)/4	TECO doc 6(3)	Enabling Members to implement the WIGOS Data Quality Monitoring System (WDQMS)	CBS-MG to devise concrete steps for detailed and active technical collaboration between CBS experts and Regional experts in relation to the implementation of WDQMS (action; CBS-MG; end 2018)

6/20	6(3)/5	TECO doc 6(3)	Supporting the growth of WIGOS Data Partnerships	<ul style="list-style-type: none"> Through current CBS experts and other means of contact, CBS-MG agreed to seek stimulating a broader involvement in CBS of relevant experts from non-NMHS partner organisations who share observations in Member countries. CBS MG agreed to give priority to successful implementation of the new WSIs and procedures for escalation when PRs fail to issue a WSI
6/21	6(3)/6	TECO doc 6(3)	Future mechanism for consistency and completeness of Technical Regulations Technical Regulations (WMO-No. 49) (TR)	CBS-MG concurred with draft EC-70/Cg-18 Decisions as part of ICG-WIGOS Editorial Board draft Regulatory Material
6/22	6(3)/7	TECO doc 6(3)	Formulas and Tables in Technical Regulations	CBS-MG concurred with draft EC-70/Cg-18 Decisions as part of ICG-WIGOS Editorial Board draft Regulatory Material
6/23	6(3)/8	TECO doc 6(3)	Terminology and definitions in Technical Regulations	CBS-MG concurred with draft EC-70/Cg-18 Decisions as part of ICG-WIGOS Editorial Board draft Regulatory Material
6/24	6(10)/1	TECO doc 6(10)	Procedures for a station operator to apply for a WSI	CBS-MG concurred with developing draft EC-70 recommendations to Cg-18 to approve Procedure for a station operator to apply for a WIGOS Station Identifier (Appendix 1(1) of TECO doc 6(10))
6/25	6(10)/2	TECO doc 6(10)	Procedures for the Secretary General to issue a WSI	CBS-MG concurred with developing draft EC-70 recommendations to Cg-18 to approve Procedure for the Secretary-General to issue a WIGOS Station Identifier (Appendix 1(2) of TECO doc 6(10))
6/26	6(10)/3	TECO doc 6(10)	WSI Transition plan	CBS-MG concurred with developing draft EC-70 recommendations to Cg-18 to approve WSI Transition Plan (Appendix 2 of TECO doc 6(10))
6/27	6(8)/1	TECO doc 6(8)	Use of OSCAR/Surface for the collection and recording of WIGOS metadata	<ul style="list-style-type: none"> CBS-MG to Consider mechanism by which Members could form a consortium for developing a stand-alone solution for national management of observing station metadata that is compatible with the WIGOS Metadata Standard and the OSCAR/Surface machine-machine interface (action; CBS-MG; end 2018). CBS-MG concurred with Draft EC-70 Recommendation (see details in TECO doc 6(8))
6/28	6(8)/2	TECO doc 6(8)	Evolution of OSCAR/Requirement	<ul style="list-style-type: none"> The CBS-MG agreed to advise the WIGOS Editorial Board to avoid making reference to the OSCAR/Requirements database with regard to regional observational user requirements (as there is no plan to have such requirements recorded in OSCAR), and to update draft regulatory material accordingly. The CBS-MG concurred with the list of desired evolutions of OSCAR/Requirements (see TECO doc. 6(8)), and request the Secretariat to facilitate their development and implementation (action; Secr.; end 2018). To invite Members to contribute resources in support of development of the required changes
6/29	6(8)/3	TECO doc 6(8)	Strengthening collaboration with CGMS regarding operations and evolution of OSCAR/Space	CBS-MG concurred with draft EC-70 Recommendation to Congress to strengthen the cooperation between WMO and CGMS members and observers from other space agencies through establishment of relevant advisory and support groups to assist maintenance of information on satellite capabilities in OSCAR/Space.

6/30	6(8)/4	TECO doc 6(8)	Plan for the evolution of OSCAR	CBS-MG invited ICG-WIGOS to concur with the OSCAR development plan (Annex XV of IPET-OSDE-3 Final Report) with consideration of the following priorities: (1) OSCAR/Surface operational use, (2) other evolutions of OSCAR/Surface, (3) tools and foundation for gap analysis (action; CBS President; mid-2018)
6/31	6(8)/5	TECO doc 6(8)	Proposed analysis tool using OSCAR	<ul style="list-style-type: none"> • CBS-MG requested the Secretariat to finalize specification of the proposed analysis tool using OSCAR with a view to estimating the cost of and options for its development (action; Secr.; asap). • CBS-MG invited ICG-WIGOS to concur with OPAG IOS proposal for analysis using OSCAR as described in Appendix 2 (action; CBS President; mid- 2018)
6/32	6(7)/1	TECO doc 6(7)	Radio Frequencies for Meteorological and Related Environmental Activities	CBS-MG concurred with draft EC-70 Recommendation for draft Resolution of Cg-18 on Radio Frequencies for Meteorological and Related Environmental Activities (proposed draft in Appendix 1 of TECO doc 6(7))

Ref.: 1200Z/2018-12 OBS-WIGOS/OSD
 Approved by Fernando Belda Esplugaes, Tue May 01 14:30:14 UTC 2018

ACRONYMS

asap	As soon as possible
AWG	CHy Advisory Working Group
AWS	Automatic Weather Station
BUFR	Binary Universal Form for the Representation of Meteorological Data
CAeM	Commission for Aeronautical Meteorology
CAS	Commission for Atmospheric Sciences
CBS	Commission for Basic Systems
CBS Ext.	CBS Extraordinary Session
CBS-16	Sixteenth Session of the CBS
CBSLR-EDI	CBS Led Review on Emerging Data Issues
CBS-MG	CBS Management Group
C-CF	OPAG-PWSD Coordinator on the Competency Framework
CCI	Commission for Climatology
CD	Capacity Development
Cg	Congress
CHy	Commission for Hydrology
CIMO	Commission for Instruments and Methods of Observation
C-MAR	OPAG-IOS Coordinator on Marine Observing Systems
C-RAL	OPAG-PWSD Coordinator on Regional Association Liaison
C-SEIS	OPAG-IOS Coordinator on Scientific Evaluation of Impact Studies undertaken by NWP centres
CSIS	Climate Services Information System
DCPC(s)	Data Collection and Production Centre(s)
DPFS	Data Processing and Forecasting System
DRR	Disaster Risk Reduction
EC	Executive Council
EC-69	Sixty-Ninth Session of the Executive Council
EC-PHORS	Executive Council Panel of Experts on Polar and High Mountain Observations, Research and Services
EC-SOP	EC working Group on WMO Strategic and Operational Planning
EGOS-IP	Implementation Plan for the Evolution of Global Observing Systems
EIG	Economical Interest Group
EPS	Ensemble Prediction System
ET-ABO	OPAG-IOS Expert Team on Aircraft Based Observing Systems
ET-CAC	OPAG-ISS Expert Team on Centre Audit/Certification
ET-CTS	OPAG-ISS Expert Team on Communication Techniques and Systems
ET-ERA	OPAG-DPFS Expert Team on Emergency Response Activities
ET-IMPACT	OPAG-PWSD Expert Team on Impact-Based Forecasting and Risk-Based Warning
ET-OPSLS	OPAG-DPFS Expert Team on Operational Predictions from Sub-Seasonal to Longer-time Scales
ET-OWFPS	OPAG-DPFS Expert Team on the Operational Weather Forecasting Process and Support
ET-SAT	OPAG-IOS Expert-Team on Satellite Systems
ET-SBO	OPAG-IOS Expert Team on Surface-Based Observing Systems
ET-SPII	OPAG-PWSD Expert Team on Service Provision Innovation and Improvement
ET-WISC	OPAG-ISS Expert Team on WIS Centres
EUMETNET	EIG Grouping of European Meteorological Services
EUMETSAT	European Organization for the Exploitation of Meteorological Satellites
GAW	Global Atmosphere Watch
GCOS	WMO-IOC-UNEP-ICSU Global Climate Observing System
GCOS-IP	GCOS Implementation Plan
GCW	Global Cryosphere Watch
GDPFS	Global Data Processing and Forecasting System
GEO	Group on Earth Observations
GEO	Operational geostationary satellites
GFCS	Global Framework for Climate Services

GISC(s)	Global Information System Centre(s) (of WIS)
GMAS	Global MeteoAlarm System
GML	Geography Markup Language
GOOS	IOC-WMO-UNEP-ICSU Global Ocean Observing System
GOS	Global Observing System
GTS	Global Telecommunications System
HMEI	Association of Hydro-Meteorological Equipment Industry
IABM	International Association of Broadcast Meteorology
ICAO	International Civil Aviation Organization
ICG-WIGOS	Inter-Commission Coordination Group on WIGOS
ICSU	International Council for Science
ICT	Implementation Coordination Team
ICT-DPFS	ICT on Data Processing and Forecasting System
ICT-IOS	ICT on Integrated Observing Systems
ICT-ISS	ICT on Information Systems and Services
ICT-PWSD	ICT on Public Weather Services Delivery
ICTT-WIS	Ad hoc Inter-Commission Task Team on WIS
IMO	International Maritime Organization
IOC	Intergovernmental Oceanographic Commission (UNESCO)
IOS	Integrated Observing Systems
IPET	Inter-Programme Expert Team
IPET-CM	OPAG-ISS Inter-Programme Expert Team on Codes Maintenance
IPET-DD	OPAG-ISS Inter-Programme Expert Team on Data Representation Development
IPET-OSDE	OPAG-IOE IPET on the Observing System Design and Evolution
IPET-OWR	CIMO Inter-Programme Expert Team on Operational Weather Radars
IPET-SUP	OPAG-IOE IPET on Satellite Utilization and Products
IPT-SWeISS	OPAG-DPFS Inter-Programme Team on Space Weather Information, Systems and Services
ITU	International Telecommunication Union
JCOMM	Joint WMO-IOC Technical Commission for Oceanography and Marine Meteorology
NFP	National Focal Point
NMHSS	National Meteorological and Hydrological Services
NOAA	US National Oceanic and Atmospheric Administration
NWP	Numerical Weather Prediction
OPAG	Open Programme Area Group
OPAG-DPFS	CBS OPAG on Data-Processing and Forecasting System
OPAG-IOE	CBS OPAG on Integrated Observing Systems
OPAG-ISS	CBS OPAG on Information Systems and Services
OPAG-PWSD	CBS OPAG on Public Weather Services Delivery
OSCAR	Observing System Capability Analysis and Review tool
OSCAR/Requirements	Observational user requirements component of OSCAR
OSCAR/Space	Space-based observing systems capabilities component of OSCAR
OSCAR/Surface	Surface-based observing systems capabilities component of OSCAR
OSE	Observing System Experiment
OSSE	Observing System Simulation Experiment
PoC	Point of Contact
PPP	Public Private Partnership
PRA	President of Regional Associations
PTC	President of Technical Commissions
RA	Regional Association
RBCN	Regional Basic Climatological Network
RBON	Regional Basic Observing Network
RBSN	Regional Basic Synoptic Network
RRR	Rolling Review of Requirements
RSMC	Regional Specialized Meteorological Centre
S/GDPFS	Seamless Global Data Processing and Forecasting System
SG-GDPFS	Steering Group on GDPFS

SG-RFC	OPAG-IOS Steering Group on Radio-Frequency Coordination
SG-SWFDP	OPAG-DPFS Steering Group on Severe Weather Forecasting Demonstration Project
SOLAS	International Convention for Safety of Life at Sea
SWFDP	Severe Weather Forecasting Demonstration Project
SWIC	Severe Weather Information Centre
SWIM	System-Wide Information Management
SWOT	Strengths, Weaknesses, Opportunities and Threats
TAC	Traditional Alphanumeric Code
TBD	To be defined
TC	Technical Commission
TDC(s)	Table Driven Code Form(s)
ToR	Terms of Reference
TT(s)	Task Team(s)
TT-ATG	Management Group Task Team on Approaches to Technical Governance
TT-DGNT	Task Team on Development of Guidelines for Nowcasting Technique
TT-EPS-PP	Task Team on Development of a Strategy for EPS Data Exchange and Guidelines on post-processing/calibration
TT-eWIS	ICT-ISS Task Team on Evolution of the WIS
TT-HR-NWP	Task Team on Development of Guidelines for High-resolution NWP
TT-HUM	OPAG-DPFS Task Team on the provision of operational meteorological assistance to Humanitarian Agencies
TT-IM	ICT-ISS Task Team on Information Management
TT-SV	Task team on Development of Standard Verification
TT-UABUFR	Task Team on Migration of Upper Air Reports to Table Driven Code Forms
TT-WDQMS	Task Team on the WDQMS
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
VoIA	WMO No. 9, Weather Reporting, Volume A, Observing Stations and WMO Catalogue of Radio-sondes
WDQMS	WIGOS Data Quality Monitoring System
WHOS	WMO Hydrological Observing System
WIGOS	WMO Integrated Global Observing System
WIR	WIGOS Information Resource
WIS	WMO Information System
WMO	World Meteorological Organization
WWIS	World Weather Information System
WWW	World Weather Watch
XML	Extensible Markup Language

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