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| **WORLD WEATHER WATCH COMMISSION FOR BASIC SYSTEMS** | banner | |
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| **ICT-ISS-2014**  Geneva, 8-10 July 2014 | | **ICT-ISS/Final Report** |
| 10 July 2014 |

FINAL REPORT

**Unedited draft produced during meeting**

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ICT-ISS 2014

Final Report

1. ORGANIZATION OF THE MEETING

1. The meeting of ICT ISS was held from 8 to 10 September in WMO Headquarters, Geneva, Switzerland. It was opened at 0325 by Mr dell’Acqua, chair of OPAG-ISS.

Opening remarks (D/WIS)

1. Mr Peiliang Shi, D/WIS, speaking on behalf of the Secretary General, welcomed participants to Geneva. He thanked participants and the teams they represented for the work they had done since CBS-15. He noted that teams from ICT-ISS had supported international civil aviation and WIGOS.
2. Looking to the future, Mr Shi noted that the Global Framework for Climate Services would make demands on CBS, and that OPAG-ISS would have a role to play, but that it was not yet clear precisely what would be required.
3. Mr Shi expected that the meeting will review and update the plans for WIS implementation, preparations for CBS Ext.(2014) and discuss how WIS can evolve to meet new demands and expectations for services, such as those arising from the climate community.
   1. Adoption of the agenda
4. The draft agenda was adoped (see Annex A). ICT-ISS noted that there was no item on the agenda specific to regional requirements, and agreed to raise regional issues as they arose.
5. The meeting would discuss the TECO focus session at CBS Ext.(2014) under agenda item 7.
   1. Working arrangements
6. The meeting would work from 0900 to 1730 each day (but ending at 1600 on the final day), with short breaks in the morning and afternoon at convenient breaks and an hour at lunchtime.

2. REPORT OF THE CHAIR ICT-ISS ON PAST AND RECENT ACTIVITIES INCLUDING BACKGROUND INFORMATION

1. Mr dell’Acqua thanked everyone for their contributions and those of their teams. He noted that many of the items on the work plan had been completed, and significant progress has been made on many others. Of the GISCS, only Casablanca still has to go through the assessment process. There is a new WIS Core Network; new methods of managing data have been developed; and competences and associated training guidance have been developed. However, there remains much to do to meeting the target from Cg-XVI of WIS being fully implemented by 2015.
2. ICT-ISS needs to oversee the implementation of WIS, developing it to meet the evolving needs of the users, and to incorporate all the WMO Programmes.
3. ICAO are also reviewing their operational information services based on a data centric view, and are using new technologies, such as web services. WIS may need to provide similar services.
4. The volume of data is growing rapidly, creating challenges for efficient and effective exchange of data.

3. OVERVIEW OF DRAFT WIS AND ICT-ISS PAPERS FOR CBS EXT(2014)

The following agenda items were considered together:

3.1. CBS Agenda Item 2.3: Technical, including on regulations,managed by ICT-ISS;

3.2. CBS Agenda Item 3.2: Decisions supporting WIS;

3.3. CBS Agenda Item 4.5: Recommendations on standardizing data management to support WMO

3.4. CBS Agenda Item 2.6: Managing changes to technical regulations

1. ICT-ISS was briefed on the topics that were expected to be covered in the CBS documents associated with ICT-ISS.
2. World Weather Watch monitoring results were presented. In Region I there are fewer CLIMAT reports available than SYNOP reports. There are problems associated with telecommunications, availability of people and the standards of operation of manned stations that result in irregular observations that means that it is not possible to calculate the statistics required for CLIMAT reports.
3. In Region III, most manual stations do not report at 06Z. There was a statistical improvement when the stations comprising the RBSN were reviewed and closed stations were removed.

4. REPORTS FROM EXPERT TEAMS

4.1. ET-CTS

WIS Core network

1. The new RMDCN is now operational and is used for the WIS Core Network. It has not been possible to obtain an export licence for the equipment to connect Iran to the RMDCN using the standard technologies. Alternative technical solutions are likely to be possible.
2. ICT-ISS decided that it would ask CBS to advise on whether it is appropriate to design a specific technical solution to allow Iran to connect to the WIS Core Network, and on who should perform the required work.

Investigation of technologies

1. ET-CTS has a pilot network using IPv6 involving 6 countries to assess the issues that will impact on Members. ET-CTS is investigating the business case for moving to IPv6. There will be impacts on the Guide on IT Security (WMO-No. 1116), Att II-15 of WMO-No. 386, *The Manual on the GTS.* It is likely that the requirement for IPv6 will be driven by the user community rather than by support for meteorological exchange between NMHS.
2. Multicast for exchange of data between GISCs has been considered, but ET-CTS has decided that it is not required. EUMETSAT is investigating multicast on fixed land networks.
3. ET-CTS decided that full direct exchange between GISCs would not be scalable. ET-CTS is investigating cloud-based solutions for data exchange between GISCs, based on testing by ECMWF. The aim is for a pilot to be available early in 2015 that will allow the technology to be assessed. Using the cloud also has policy implications.

File naming convention

1. Météo-France had requested a review of the file naming convention. ET-CTS will prepare background information to assist IPET-DRMM proposing revised file naming conventions. Mr Tandy commented that in future there will be increased requirements for data streaming, which will mean that not all compression techniques will be appropriate.

Satellite communications

1. There is no WMO body that can act on behalf of Members collectively when discussing options with suppliers of satellite telecommuncations (SATCOM). ET-CTS is working on setting up a dedicated task team (SATCOM) to work with other international stakeholders to create standard agreements with satellite providers.

ET-CTS terms of reference

1. ET-CTS sees no requirement to change its Terms of Reference.

4.2. ET-WISC

Procedures for exchange of information between GISCs

1. ICT-ISS approved the procedure for harvesting metadata records by GISCs at Appendix A. This should be added to the Guide to the WIS.
2. To make sure that the WIS discovery metadata catalogue treats fileIdentifiers as case insensitive, GISCs should: a) avoid using identifiers with only case difference as the primary rule, b) if there is no way other than using identifiers with only case difference, delete old records explicitly (by issuing OAI deleted message), before adding new records. This will be included in the Guidelines on GISC operation.
3. The user registration process should use encrypted transfers.
4. ICT-ISS clarified the statement on backup of regional data in the procedures for GISC backup (Appendix C); the Manual on WIS requires all information to be handled by the backup GISC. Data for regional exchange held by a GISC must be backed up by another GISC, but need not be backed up by all GISCs providing backup services to the GISC.

WIS monitoring

1. ICT-ISS supported the recommendation that WIS monitoring should include: a) the number of Cache updates in the last 24 hours and b) 24 hour input volume and c) the number of items in the cache. ICT-ISS noting that the requirement only applies to information intended for global exchange that is required to be held by all GISCs, and that there is no requirement to exchange additional data that GISCs may choose to cache.

Centres changing their principal GISC

1. ICT-ISS agreed the support to be provided by GISCs to attached NCs and DCPCs (Appendix D).
2. ICT-ISS agreed the procedure for a centre to change its Principal GISC (Appendix E) but noted that there may be circumstances in which the change could be triggered by the principal GISC

Coordination between GISCs

1. ICT-ISS asked that ET-WISC update the proposed standard format of messages to be used by GISCs to communicate information to support coordination between GISCs (Appendix F) so that it can support GISC/DCPC and DCPC/DCPC coordination.

Endorsement of WIS centres

1. ICT-ISS supported the recommendations of TT-CAC on endorsement of centres by CBS (Appendix g).
2. ICT-ISS agreed the process for re-auditing WIS centres that was proposed by TT-CAC (Appendix H). It asked the Secretariat to review the procedure to propose which elements should be recorded in the Manual on WIS, and which are better placed in the Guide to the WIS and to pass the revised proposal to ICT-ISS for approval by correspondence.

WIS Monitoring

1. ICT-ISS considered the recommendations of TT-GISC on the proposed WIS monitoring (Appendix I). It supported the view of the Monitoring Workshop that there is a need for a pilot implementation of WIS monitoring that should take account of the questions raised in Appendix I.
2. ICT-ISS asked TT-GISC to arrange a pilot implementation of WIS monitoring including at least two GISCs, one DCPC and one NC. The pilot should report by September 2015.

WIS Competences

1. Implementing the Training and Learning component of the WIS competences will need a meeting between WIS experts and experts from the Regional Training Centres. ICT-ISS asked for this to take place in early 2015.
2. ICT-ISS recommended that the WIS Competences and the associated Training and Learning Guide should be included as an Annex to the Guide to the WIS.

Common Alerting Protocol

1. ICT-ISS agreed the requirement for GISCs to publish on their website links to feeds of CAP alerts from the centres attached to them.
2. ICT-ISS concluded that there is no requirement for a WMO profile for CAP, and removed this task from IPET-MDRD.
3. ICT-ISS considered that reporting on progress with the use of CAP by WMO Members, including any profiles used, paying particular attention to the needs of least-developed countries, was a task for the Public Weather Services programme.
4. ICT-ISS agreed that ICT-ISS should provide technical support for the implementation of CAP, but that the implementation itself is not a WIS issue.
5. ICT-ISS agreed the modified recommendations from ET-WISC on CAP (Appendix J).

Registering WMO publications in the WIS catalogue

1. ICT-ISS recommended that WMO publications and services provided from the WMO web site should be registered in the WIS catalogue. It recommended that, to facilitate this, WMO is recognized as at DCPC, and that Toulouse would act as the principal GISC.
2. ICT-ISS identified that it was important to stress to Members that DCPCs (including the WMO DCPC) does not imply that the centre is connected to the GTS.

Databases to support WIS

1. ET-WISC uses three WMO databases to support its activities: the WIS GISC/DCPC Demonstration Database, the WIS wiki and the WIS centre database. These are implemented using a variety of technologies. Having to use three different systems to maintain information is counter-productive. It also noted that two of these were the only services remaining on one of the WMO servers.
2. ICT-ISS recommended that work is undertaken to rationalize the databases to support its activities, and integrating the WIS databases into the Country Profile Database would have advantages, but recognizing that a separate solution would be needed for the WIS wiki. It recognized that this would require substantial work, and that a secondment from a Member to the Secretariat might be a way of achieving the outcome.
3. IPET-MDRD was investigating the possibility of using the web-facing tools provided by ECMWF, and ICT-ISS recommended that, if this was possible, the toolset it would be appropriate for all other teams (wherever the tools were hosted).
4. The WIS wiki also needs to be migrated to a more sustainable platform. Migration of the wiki would involve substantial effort that is not available from the Secretariat’s normal resources.

Format of the cache

1. ICT-ISS agreed that the format for the cache contents, for items exchanged on the GTS, should include the full bulletin from the TTAAII to the final end-of-message marker (“=” in the case of text bulletins, “7777” for TDCF) (Manual on GTS, Att II-15, para 5).
2. ICT-ISS recommended that the decisions on what should be designated as for routine global exchange, and thus held in the cache, and its transmission priority, should be made by a cross-programme team. These decisions should be based on recommendations from a sub-group of TT-GISC for the total volume of information that can be routinely exchanged.

Monitoring exchange of Tsunami warning messages

1. Mr Tsunoda reported on the monitoring of Tsunami messages being exchanged on the GTS. He acts as a WMO focal point for tsunami information exchange issues, and takes part in the meetings of the IOC committees TOWS-WG and PTWS.
2. ICT-ISS nominated Mr Tsunoda as its Rapporteur on tsunami issues.
3. There are four Tsunami warning regions, of which the Pacific has the most developed warning infrastructure.
4. Tsunami warnings are promulgated to national Tsunami Focal Points through four techniques: GTS, FAX, SMS and email. In the December 2013 communications test, 18 out of the 21 receiving focal points received warnings through the GTS, but two of these focal points were not at centres connected to the WIS/GTS. Email remained the technique with greatest penetration.
5. The tsunami warning community is worried that advisory information may become available to general users and could be misinterpreted as official warnings.

4.3. IPET-DRMM

Coordination with ICAO

1. ICAO states its requirements in Annex 3 (WMO-No.49 Vol II), and the updates to the Manual on Codes become part of the ICAO regulations. ICAO and WMO have different lengths of decision making cycles. This can result in proposals from ICAO being rejected or (even if acceptable) unable to be implemented by the time the ICAO regulations come into force. To help resolve these discrepancies, IPET-DRMM proposes a Task Team (TT-AvCI – Aviation Coding Issues). This needs to be approved by Chair OPAG-ISS and President CBS.

Regulations for TDCF

1. Changes to the B/C regulations concerning climate reporting of precipitation will not be made mandatory because of the time needed for Members to change software.
2. BUFR uses all bits set to 1 as an indicator that an element is missing. For text fields, this is not a valid IA5 character. The regulations will be update to clarify that the intention was that every bit was set. In addition, flag tables will all require an extra bit to avoid ambiguity between every flag set and all flags missing.
3. Reporting of zero snow depth in TAC is not done at present. This needs to be updated so there is no ambiguity between missing reports and zero depth. The long term solution is to use BUFR or CREX.
4. IPET-DRMM had discussed migration. Training organized by ASECNA in Togo concentrated on CREX that is more suitable for the telecommunications facilities available in the participating states.
5. Migration issues
   1. Keep the current time table
   2. Some Members need the plans and status of other Members to be published
   3. Volume A is not consistent with the TDCF representations. This is causing operational problems. This needs to be highlighted at CBS.
   4. Some systems appear not to have been validated and there are differences between TAC and TDCF values outside the range of rounding errors. Members need to be urged to check their reports.
   5. A standard method of reporting coding issues has to be implemented supported by a handling procedure.
   6. A requirement to report on the status of migration might help Members achieve high enough priority for their migration activities.
   7. RA involvement in migration reporting and support has been successful for regions that have adopted it.
   8. TAC will continue to be used nationally, so advice may be needed to help these reports contain the information required for TDCF messages.
   9. Passing data from observing sites to RTHs can be very difficult, and observers often have no feedback on whether their messages have been received.
   10. IPET-DRMM has not prepared a time table for creating GRIB Edition 4 or BUFR Edition 5 so that Members are not discouraged from migration. IPET-DRMM will, however, produce outline time tables to support strategic planning and budgeting.
6. ICT-ISS supported the request from EUMETSAT to support Data Collection Platform manufacturers who need to provide bulletin headers for bulletins sent through EUMETSAT. EUMETSAT would like to reserve specific headers for DCP use. EUMETSAT recommend T1T2 = SH for DCP reports. A1A2 would be used to designate the country of origin. ii would be determined by the organization providing the DCP service.
7. Existing DCP bulletins would not be required to change the headers used.
8. A summary of all the new data designators that will be proposed to CBS is in Appendix O.

Inconsistencies in locations within BUFR

1. ICT-ISS noted that the inconsistencies have been detected between location metadata embedded within BUFR messages and that published within WMO-No. 9 Vol A catalogue of observing stations and radiosondes.
2. Members should ensure that the positions and other metadata reported in TDCF messages they are consistent with those listed in Vol A and take action to correct the incorrect positions.
3. **Ce**ntres that notice discrepancies between information in Vol A and that reported in TDCF messages should report these to the Secretariat contact point for Vol A, so that Secretariat can work with the originator of the observation to correct the problem. This will involve both the focal points on Vol A and on Codes.
4. ICT-ISS recommended that an archive of past versions of Vol A should be available from the WMO website labelled with the dates of the versions.

4.4. IPET-MDRD

1. IPET-MDRD recommended that the focal point roles for metadata and codes need to be separate, but they could be filled by the same individual.
2. Smaller, less technically developed, Members may be put off by requirements for multiple focal points; they will need help in filling the roles.
3. ICT-ISS agreed that the Secretariat should edit the entire set of ToRs for all ICT-ISS focal points to make sure that the common elements are worded in similar ways.
4. IPET-MDRD intends to use ISO 19115-1:2014 as the basis of the next major release of the WMO Core Profile. ISO publication of the XML implementation of ISO 19115-1 is not expected until 2015. IPET-MDRD plans to issue an early draft of their proposals for external comment before creating a final draft. This would need to be approved by correspondence to meet the time table. (See Appendix K).
5. ICT-ISS asked IPET-MDRD to include experts from ET-WISC teams in the task team to develop WMO Core Metadata Profile version 2.
6. ICT-ISS noted that the word “dataset” is used as a colloquial term for a (information) resource. The more generic “resource” or “information resource” is preferred, and ICT-ISS asked IPET-MDRD to make sure that future documents use this terminology.
7. The CBS paper should identify the cost of meeting the requests from ICAO for developing data representations.
8. Future maintenance of Vol I.3 of the Manual on Codes will need to be assigned to a team with sufficient skills in XML and UML, and this means that if IPET-DRMM is chosen, the membership will need to be chosen appropriately.
9. WaterML2 is being developed by OGC and CHy. IPET-MDRD proposed that the time series component of WaterML2 is generalized so that it can be used in different contexts.
10. WIGOS metadata is specified through the information that has to be exchanged. It will be the task of IPET\_MDRD (and IPET-DRMM) to specify how the information will be represented for exchange. There is a strong overlap between the WIGOS metadata requirements and those of climate data management.
11. CBS cannot be the sole source of expertise in developing data representations, so IPET-MDRD will need to consider how to provide other Commissions with the tools and knowledge to develop their capabilities. This requirement will need to be included in the CBS documents.
12. The WMO codes registry was implemented to support aviation XML, but can be extended to other application areas.
13. IPET-MDRD is seeking to work with the CF Community to develop cross-mapping between WMO and CF semantics.
14. ICT-ISS questioned the requirement for a WMO profile for the Common Alerting Profile (CAP). It concluded that there is no clear requirement for a WMO profile, but that there may be benefit in cataloguing approaches to mapping, for example, between meteorological impact levels and the CAP impact levels.
15. ICT-ISS decided that it was too early to consider automating development of TDCF templates from data models.
16. TT-Hum would like to be able to identify easily products that are intended for use by Humanitarian Agencies. Although IPET-MDRD could provide appropriate keywords, this would be unscaleable. IPET-MDRD needs to determine a strategy on how user communities can restrict searches to items most likely to be of interest to them.
17. IPET-MDRD had identified that implementing new data representations will need involvement of a broad community, including industry. There is a need for a workshop to progress this.
18. IPET-MDRD had identified that the regulations that specify what has to be reported should be separated from those that specify how the information is represented. Chair IPET-DRMM explained that the B/C regulations to map how requirements for the Traditional Alphanumeric Codes could be represented in BUFR/CREX. The Manual on the Global Observing station specifies those elements that have to be reported.
19. Web services will become increasingly important for WMO Members. At present there is no agreed set of guidance on how to implement web services in the WMO context. ICT-ISS concluded that it is important to provide such guidance, but it is not clear how this could be done.
20. ICT-ISS concluded that it would be appropriate to nominate a rapporteur with the joint WMO-OGC domain working groups to help guide WMO standardization of web services, reporting to ICT-ISS.
21. ICT-ISS decided to instigate a task team drawn from all its expert teams to create a vision of the future technical architecture of the WIS.
22. Chair IPET-DRMM asked that the file naming convention should point out that when using the ISO 3166-2 standard for two letter country names, lower case is acceptable as well as upper case, and both should be considered to be the same.
23. ICT-ISS recommended that the Terms of Reference for WIS-GTS Focal Points should be called WIS Focal Points.
24. ICT-ISS asked the Secretariat to propose consistent Terms of Reference for RMDCN, RTH, WIS Centre and GTS Focal Points, for approval by ICT-ISS by correspondence. It noted that these Focal Points had already been nominated by Permanent Representatives.
25. The Secretariat will prepare a document containing the Focal Point Terms of Reference for approval by CBS Management Group at its meeting in Asunçion.
    1. Region I
26. Many countries in Region I do not understand the distinction between WIGOS and WIS, and have concentrated on preparing WIGOS plans, and do not have WIS implementation plans.
27. Four sub-regional WIS/WIGOS planning meetings have taken place. A workshop is planned for September in Pretoria to prepare a WIS Implementation Plan for Region I that can be used to drive national implementation plans.
28. In some countries, the national telecommunications infrastructure does not exist to allow binary information to be exchanged or is prohibitively expensive. The cost of leased lines is high in most of Africa. The cost of a national 4 Mbps link is about USD 2k a month, and about twice as much for an international link. As a result, many countries are resorting to email over the internet.
29. Many countries still rely on voice SSB radio to transmit observations to the national centre. Mobile telephony is widely available, but operators give priority to voice rather than data traffic, so digital transmission of data remains a challenge even where there is adequate mobile telephone coverage.
30. Throughout most of Africa, observations are manual, and where there are automatic weather stations the data are often not transmitted, sometimes not even to the national centre.
31. Funding to procure equipment is often difficult to obtain because the government does not place high priority on funding meteorological services. Often the only IT systems are those provided for a specific purpose, such as those used to receive PUMA data.
32. Staff losses are having a major impact because some services use this as an opportunity to reduce costs, and because salaries offered by meteorological services are not competitive.
33. In Kenya it was realized that appropriate national infrastructure was needed. Not all systems are able to work together, or can handle TDCF. Kenya is updating their database management system, meteorological information (visualization) system and message switch, with the aim of implementation by Q2 2015. In addition, there is a need for training staff in WIS and the related technology.
34. RTH Nairobi is planning to use its new message switch to convert between TAC and TDCF to support countries connected to it that are unable to report in TDCF or to use information in TDCF.
35. TDCF migration in Region I faces particular challenges. In eastern and southern Africa, training in TDCF has been implemented, and countries now need to analyse what has to be done to work with TDCF, and in particular system updates. As a result, countries will be reliant on their RTHs for support.
36. Region I Members need to prepare and publish national WIS implementation plans, and implementation would benefit from the Secretariat monitoring progress with the plans.
37. Many countries do not have up to date training materials. If up to date material was available, this might alleviate the impacts of staff turnover.
38. WIS issues should be highlighted to the Ministers attending the ANCOMET conference in October so that the national priorities can be influenced.
39. Region I finds the cost of implementing new systems can be prohibitive. Encouraging manufacturers to provide inexpensive systems would alleviate the problems of Region I.

4.6 Region III

1. Recent training in Region III on TDCF had proved very useful in explaining to Members what was involved in TDCF and in raising awareness of what needs to be done. As a result, Chile is now ready to send information in BUFR.
2. Demonstations during the RA III WIS planning meeting helped to explain that using WIS did not mean replacing all existing equipment, and that the facilities of the GISC could be used to enhance the information available.
3. GISC Brasilia is looking after the countries directly connected to it, assisted by RTH Buenos Aires that is assisting Members attached to it in managing WIS Discovery Metadata.
4. GISC Brasilia has problems connecting to the RMDCN because of local procurement regulations. They do, however, have a direct link to Washington, but this is expensive for the capacity provided. It would be useful if both Buenos Aires and Brasilia could be connected to the RMDCN to provide resilience of RMDCN connectivity in RA III.

4.7 Region V

1. Region V has a solid infrastructure in its western part, but the small islands experience major challenges. These islands have small populations that can only support a small staff. As small islands, the telecommunications are limited. There is often reluctance to change from existing methods of working.
2. Region V has a WIS Implementation Plan and there has been good progress in its implementation. The plan calls for full implementation by November 2015.
3. Melbourne is the GISC used by most Members in the region.
4. Workshops have been funded by AusAid. Dr Qu has visited most island states, holding workshops on TDCF and WIS, and identifying focal points for each centre. All the country training is expected to be complete by September 2014.
5. Smaller countries in the SW Pacific rely on New Zealand and Australia for converting between TAC and TDCF.
6. Not every centre has a forecasting bench, with some nations relying on larger ones to provide services for them. Other nations are now developing their own capabilities supported by new technologies.

5. ICT-ISS ACTIVITIES UNTIL DECEMBER 2015

Terms of reference for focal points

1. The current (draft) Terms of Reference for Metadata Focal Points are in Appendix L.
2. The current (draft) Terms of Reference for WIS-GTS Focal Points are in Appendix M.
3. The current Terms of Reference for Metadata Codes and Data Representation are in Appendix N.
4. ICT-ISS agreed that the WIS Technical Specifications should be placed in the Manual on WIS for submission to CBS-16.
5. ICT-ISS asked ET-WISC to prepare final standards for WIS monitoring ready for approval at CBS-16.

Key non-routine activities of teams

1. Completion of the regional implementation plans, and work to have progressed, with the aim that the majority of NCs and DCPCs are using their own or GISC infrastructure.
2. The majority of centres providing metadata.
3. Completion of the competences and learning guides.
4. Completion of the first round of centre audits.
5. ET-CTS
   1. Report to CBS-16 on recommendations on the use of IPv6 in WIS and by Members, cloud infrastructure for GISC-to-GISC communications and data storage.
   2. Identify how to describe and visualize the connectivity between WIS centres to understand data flows, allow traffic management, allow monitoring and reporting of performance, and show the extent of WMO telecommunications and volume of traffic.
6. IPET-MDRD
   1. Preparation of version 2 of the WMO Core Metadata Profile, working with the GISC implementation teams.
   2. Response to ICAO Amendment 77 requirements for additional data to be represented in XML (not in original plan).
   3. TimeseriesML (not in original action plan)
   4. WIGOS metadata representation and surface based climate applications data representation (not in original plan)
   5. Support WMO Programmes with metadata implementation
   6. Completion of metadata guidance
   7. Metadata analysis and validation tools available for use to support WIS monitoring.
   8. Routine updates to metadata specification
7. IPET-DRMM
   1. Pursue completion of migration to TDCF
   2. Implement arrangements for synchronizing changes with ICAO.
   3. 3 fast track and one between sessions sets of updates to TDCF
8. ET-WISC
   1. Complete the endorsement procedures for centres that have already been identified.
   2. Planning for rolling review of centres
   3. Continue to update technical specifications and guidelines
   4. Implement pilot WIS monitoring and produce recommendations for final specification
   5. Support implementation of WIS competences
   6. Support WMO programmes in deriving benefit from WIS

Achieving full implementation of WIS

1. The Regional WIS implementation plans are the main tool for assisting all Members to implement WIS.
2. All GISCs need to run at least one operational implementation workshop and to participate in the regional implementation plans. This may include participation in the planning for all regions containing centres attached to the GISC.
3. National centres are largely unaware of the facilities that the GISCs are able to provide on their behalf.
4. Training by GISCs of WIS national focal points in their responsibilities, on the facilities available through the WIS and on how they can be accessed, would facilitate WIS implementation.
5. Propose options for the future direction for WIS. This should be a key responsibility of ICT-ISS and included in its Terms of Reference. Add the item “(g) Recommend to CBS the strategic direction for WIS evolution.”
6. Engagement with industry.

6. DEVELOPMENT OF WIS 2016-2019

1. ICT-ISS asked ET-WISC to plan for repeat centre audits as described in Appendix g so that the audits can be carried out from 2016.
2. ICT-ISS asked all Expert Teams to develop training strategies based on the Training and Learning Guide, preparing updates to that Guide as appropriate.
3. Implementation of WIS monitoring.
4. Preparation of future editions of TDCF.
5. Implementation and development WIS has to remain a priority activity for CBS for the period 2016-2019.
6. Implementation of items developed in the previous period
7. Support implementation of WIS across all WMO Programmes.
8. Completion of migration to TDCF.
9. (Pick up items listed under earlier agenda items).
10. Extending WIS to data management.
11. Engagement with industry.

7. AMENDMENTS TO THE DRAFT DOCUMENTS FROM OPAG ISS TO CBS

7.1 Documents for CBS

1. The Secretariat was asked to clarify the approvals procedures for Volume II of the guides.
2. WMO-No 49 Volume I provides the authority for the Codes fast track.
3. Chair OPAG-ISS will split his presentation into logical groupings around the documents to be discussed under each agenda item.

Doc 2.3(1) & Doc 2.3(2)

1. ET-WISC items on CAP no longer need to be in the paper.
2. Vol II of the Manual on GTS (regional aspects); recommend which items need to be moved to Volume I, and which can be maintained on the web.
3. The presentation should stress migration actions.
4. A paragraph on the inconsistencies in positions in Vol A and TDCF.
5. Include documentation on the support for SATCOM and identify that if SATCOM is supported by Congress, note that the ToRs of ET-CTS will need to be updated.

Doc 3.2(1)

1. Add item on ToR for ISS to provide strategic guidance on WIS development.
2. There is no need to include a change authorization procedure for the Codes Registry because the contents are a re-publication of material that has already been approved.
3. The paper needs to include the recommendation to create a group with responsibility for deciding which data should be designated as for global exchange.

Doc 4.5(1)

1. CBS should propose to Congress that it develops requirements for the items on this paper, rather than proposing specific plans for consideration by Congress.
2. ICT-ISS supported the expansion of WIS to include guidance and standards on practices for data management.
3. ICT-ISS recommended that Programmes requiring long term data archiving could implement DCPCs to do this that used the guidance or standards that would be developed under WIS. It need not be mentioned in the CBS document. This would be “Part C” of the WIS.

7.2 Preparations for TECO and RA III demonstration

1. ICT-ISS discussed the TECO Focus session that was reserved for ISS.
2. Possibilities were: implementation of WIS in Region III (repeat of RA III workshop demonstration), handling high priority data using WIS, assessment of WIS centres, WIS monitoring, WIS Competency and training, or what to do as a data provider.
3. ICT-ISS agreed that the focus session would include:
   1. A demonstration by GISC Brasilia and RTH Buenos Aires (Jose)
   2. A step by step explanation of what to do as a data provider and the benefits of publishing through the WIS. Use a tsunami data provider as an example. (Lothar)
   3. Using the WIS competences and the WIS Training and Learning Guide. (Kenji)
4. Possible contents of the TECO/RECO talk include:
   1. Cloud services
   2. Web services / handling data at rest; “data push” is at its limits
   3. Adoption of externally developed standards for data representation (eg aviation XML builds on OGC/ISO standards)
   4. Impact of increases in data volume (for example radar data)
   5. Potential of ICT to contribute to delivering services to end users of NMHS services.

8 ANY OTHER BUSINESS

1. Chair ICT-ISS offered to host a strategic planning meeting in Paris.
2. Chairs and co-chairs will remind members of the team that they should provide photographs to the Secretariat for inclusion on the lists of team members.
3. The Secretariat will update the contents of the ISS work plan to include the changes to tasks agreed at the meeting.
4. Chairs will update the lines in the work plan spreadsheet for their teams, adding in new items and updating progress. This information must be provided by 27th August.
5. CCl-16 discussed several items that are relevant to WIS. CCl is seeking to provide climate services, and is looking for guidance from OPAG-ISS on data management issues associated with the provision of these services. Details of the issues will be distributed to ICT‑ISS by email by the Secretariat.

9. CLOSURE OF MEETING

1. The meeting closed at 1540 on 10th July 2014.

Action and Decision Summary

Actions

[**A1** ICT-ISS asked that ET-WISC update the proposed standard format of messages to be used by GISCs to communicate information to support coordination between GISCs (Appendix F) so that it can support GISC/DCPC and DCPC/DCPC coordination.](#_Toc392769772)

[**A2** ICT-ISS agreed the process for re-auditing WIS centres that was proposed by TT-CAC (Appendix H). It asked the Secretariat to review the procedure to propose which elements should be recorded in the Manual on WIS, and which are better placed in the Guide to the WIS and to pass the revised proposal to ICT-ISS for approval by correspondence.](#_Toc392769773)

[**A3** ICT-ISS asked TT-GISC to arrange a pilot implementation of WIS monitoring including at least two GISCs, one DCPC and one NC. The pilot should report by September 2015.](#_Toc392769774)

[**A4** ICT-ISS agreed the modified recommendations from ET-WISC on CAP (Appendix J).](#_Toc392769775)

[**A5** ICT-ISS asked IPET-MDRD to include experts from ET-WISC teams in the task team to develop WMO Core Metadata Profile version 2.](#_Toc392769776)

[**A6** CBS cannot be the sole source of expertise in developing data representations, so IPET-MDRD will need to consider how to provide other Commissions with the tools and knowledge to develop their capabilities. This requirement will need to be included in the CBS documents.](#_Toc392769777)

[**A7** Chair IPET-DRMM asked that the file naming convention should point out that when using the ISO 3166-2 standard for two letter country names, lower case is acceptable as well as upper case, and both should be considered to be the same.](#_Toc392769778)

[**A8** ICT-ISS asked the Secretariat to propose consistent Terms of Reference for RMDCN, RTH, WIS Centre and GTS Focal Points, for approval by ICT-ISS by correspondence. It noted that these Focal Points had already been nominated by Permanent Representatives.](#_Toc392769779)

[**A9** The Secretariat will prepare a document containing the Focal Point Terms of Reference for approval by CBS Management Group at its meeting in Asunçion.](#_Toc392769780)

[**A10** ICT-ISS agreed that the WIS Technical Specifications should be placed in the Manual on WIS for submission to CBS-16.](#_Toc392769781)

[**A11** ICT-ISS asked ET-WISC to prepare final standards for WIS monitoring ready for approval at CBS-16.](#_Toc392769782)

[**A12** ICT-ISS asked ET-WISC to plan for repeat centre audits as described in Appendix g so that the audits can be carried out from 2016.](#_Toc392769783)

[**A13** ICT-ISS asked all Expert Teams to develop training strategies based on the Training and Learning Guide, preparing updates to that Guide as appropriate.](#_Toc392769784)

[**A14** The Secretariat was asked to clarify the approvals procedures for Volume II of the guides.](#_Toc392769785)

[**A15** Chairs and co-chairs will remind members of the team that they should provide photographs to the Secretariat for inclusion on the lists of team members.](#_Toc392769786)

[**A16** The Secretariat will update the contents of the ISS work plan to include the changes to tasks agreed at the meeting.](#_Toc392769787)

[**A17** Chairs will update the lines in the work plan spreadsheet for their teams, adding in new items and updating progress. This information must be provided by 27th August.](#_Toc392769788)

Decisions

[**D1** ICT-ISS decided that it would ask CBS to advise on whether it is appropriate to design a specific technical solution to allow Iran to connect to the WIS Core Network, and on who should perform the required work.](#_Toc392769789)

[**D2** ICT-ISS approved the procedure for harvesting metadata records by GISCs at Appendix A. This should be added to the Guide to the WIS.](#_Toc392769790)

[**D3** To make sure that the WIS discovery metadata catalogue treats fileIdentifiers as case insensitive, GISCs should: a) avoid using identifiers with only case difference as the primary rule, b) if there is no way other than using identifiers with only case difference, delete old records explicitly (by issuing OAI deleted message), before adding new records. This will be included in the Guidelines on GISC operation.](#_Toc392769791)

[**D4** ICT-ISS supported the recommendation that WIS monitoring should include: a) the number of Cache updates in the last 24 hours and b) 24 hour input volume and c) the number of items in the cache. ICT-ISS noting that the requirement only applies to information intended for global exchange that is required to be held by all GISCs, and that there is no requirement to exchange additional data that GISCs may choose to cache.](#_Toc392769792)

[**D5** The user registration process should use encrypted transfers.](#_Toc392769793)

[**D6** ICT-ISS clarified the statement on backup of regional data in the procedures for GISC backup (Appendix C); the Manual on WIS requires all information to be handled by the backup GISC. Data for regional exchange held by a GISC must be backed up by another GISC, but need not be backed up by all GISCs providing backup services to the GISC.](#_Toc392769794)

[**D7** ICT-ISS agreed the support to be provided by GISCs to attached NCs and DCPCs (Appendix D).](#_Toc392769795)

[**D8** ICT-ISS agreed the procedure for a centre to change its Principal GISC (Appendix E) but noted that there may be circumstances in which the change could be triggered by the principal GISC](#_Toc392769796)

[**D9** ICT-ISS supported the recommendations of TT-CAC on endorsement of centres by CBS (Appendix g).](#_Toc392769797)

[**D10** ICT-ISS recommended that the WIS Competences and the associated Training and Learning Guide should be included as an Annex to the Guide to the WIS.](#_Toc392769798)

[**D11** ICT-ISS agreed the requirement for GISCs to publish on their website links to feeds of CAP alerts from the centres attached to them.](#_Toc392769799)

[**D12** ICT-ISS concluded that there is no requirement for a WMO profile for CAP, and removed this task from IPET-MDRD.](#_Toc392769800)

[**D13** ICT-ISS considered that reporting on progress with the use of CAP by WMO Members, including any profiles used, paying particular attention to the needs of least-developed countries, was a task for the Public Weather Services programme.](#_Toc392769801)

[**D14** ICT-ISS agreed that ICT-ISS should provide technical support for the implementation of CAP, but that the implementation itself is not a WIS issue.](#_Toc392769802)

[**D15** ICT-ISS recommended that WMO publications and services provided from the WMO web site should be registered in the WIS catalogue. It recommended that, to facilitate this, WMO is recognized as at DCPC, and that Toulouse would act as the principal GISC.](#_Toc392769803)

[**D16** ICT-ISS recommended that the decisions on what should be designated as for routine global exchange, and thus held in the cache, and its transmission priority, should be made by a cross-programme team. These decisions should be based on recommendations from a sub-group of TT-GISC for the total volume of information that can be routinely exchanged.](#_Toc392769804)

[**D17** ICT-ISS nominated Mr Tsunoda as its Rapporteur on tsunami issues.](#_Toc392769805)

[**D18** ICT-ISS supported the request from EUMETSAT to support Data Collection Platform manufacturers who need to provide bulletin headers for bulletins sent through EUMETSAT. EUMETSAT would like to reserve specific headers for DCP use. EUMETSAT recommend T1T2 = SH for DCP reports. A1A2 would be used to designate the country of origin. ii would be determined by the organization providing the DCP service.](#_Toc392769806)

[**D19** Members should ensure that the positions and other metadata reported in TDCF messages they are consistent with those listed in Vol A and take action to correct the incorrect positions.](#_Toc392769807)

[**D20** **Ce**ntres that notice discrepancies between information in Vol A and that reported in TDCF messages should report these to the Secretariat contact point for Vol A, so that Secretariat can work with the originator of the observation to correct the problem. This will involve both the focal points on Vol A and on Codes.](#_Toc392769808)

[**D21** ICT-ISS recommended that an archive of past versions of Vol A should be available from the WMO website labelled with the dates of the versions.](#_Toc392769809)

[**D22** ICT-ISS agreed that the Secretariat should edit the entire set of ToRs for all ICT-ISS focal points to make sure that the common elements are worded in similar ways.](#_Toc392769810)

[**D23** ICT-ISS noted that the word “dataset” is used as a colloquial term for a (information) resource. The more generic “resource” or “information resource” is preferred, and ICT-ISS asked IPET-MDRD to make sure that future documents use this terminology.](#_Toc392769811)

[**D24** ICT-ISS decided that it was too early to consider automating development of TDCF templates from data models.](#_Toc392769812)

[**D25** ICT-ISS concluded that it would be appropriate to nominate a rapporteur with the joint WMO-OGC domain working groups to help guide WMO standardization of web services, reporting to ICT-ISS.](#_Toc392769813)

[**D26** ICT-ISS decided to instigate a task team drawn from all its expert teams to create a vision of the future technical architecture of the WIS.](#_Toc392769814)

[**D27** ICT-ISS recommended that the Terms of Reference for WIS-GTS Focal Points should be called WIS Focal Points.](#_Toc392769815)

[**D28** Propose options for the future direction for WIS. This should be a key responsibility of ICT-ISS and included in its Terms of Reference. Add the item “(g) Recommend to CBS the strategic direction for WIS evolution.”](#_Toc392769816)

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Annex: Migration Matrix



**NOTES:**

(1) Aviation Codes require ICAO coordination and approval, except for AMDAR.

(2) SAREP and RADOB require coordination by the ESCAP/WMO Typhoon Committee.

(3) For category 5, codes need to be reviewed in order to decide whether or not they should be migrated to BUFR/CREX.

(4) Codes in category 6 are not to be migrated.

(5) All dates above are meant as "not later than". However, Members and Organizations are encouraged to start experimental exchange, and, if all relevant conditions (see below) are satisfied, to start operational exchange as soon as possible.

* ***Start of experimental exchange***means: data will be made available in BUFR (CREX) but not operationally, i.e. in addition to the current alphanumeric codes, which are still operational.
* ***Start of operational exchange***means: data will be made available in BUFR (CREX) whereby some (but not all) Members rely on them operationally. Still the current alphanumeric codes will be distributed (parallel distribution).
* ***Migration complete*** means: at this date the BUFR (CREX) exchange becomes the standard WMO practice. Parallel distribution of TAC and TDCF may continue and will be discontinued within a zone in accordance with step-by-step arrangements made between the NMHS concerned.
* ***Parallel distribution of TAC and TDCF stopped*** means: at this date parallel TAC and TDCF distribution is terminated. For archiving purposes and at places where BUFR (CREX) exchange still causes problems the alphanumeric codes may be used only for the exchange of data between two NMHSs.

***Relevant conditions to be satisfied before experimental exchange may start:***

* Corresponding BUFR/CREX-tables and templates are available;
* Training of concerned testing parties has been completed;
* Required software of testing parties (encoding, decoding, viewing) is implemented;

***Relevant* conditions *to be satisfied before operational exchange may start:***

* Corresponding BUFR/CREX-tables and templates are fully validated;
* Training of all concerned parties has been completed;

***Relevant* conditions *to be satisfied before TAC ceasing may end:***

* All required software (encoding, decoding, viewing) is operational.

Appendix A: Guidelines for migrating metadata records from one GISC to another GISC

**Annex 7 - Guidelines for migrating metadata records from one GISC to another GISC**

**Scenario and use case**

Two GISCs are GISC A and GISC B. GISC B is newly becoming operational and starting metadata management for National Center X as its principal GISC. Accordingly, GISC A, which has been providing WMO Interim Metadata Management Service (WIMMS) for National Center X, is ending the service. Practically, a set of metadata records owned by National Center X needs to be moved from the OAI set that is provided by GISC A (assumedly WIS-GISC-A) to that of provided by GISC B (WIS-GISC-B).

**Operational guidelines**

***1. Give notice to other GISCs***

GISC A and B jointly give one-week prior notice to other operational GISCs that they will transfer the metadata management from GISC A to B, with the list of location identifiers CCCC, in case of metadata records are associated with GTS messages. This notification is necessary because other GISCs need to make configuration changes so that each CCCC belongs to specific OAI sets, before they start harvesting new records.

***2. Delete and add records at GISC A and B***

***A) GISC A - delete records from WIS-GISC-A***

This should be done through “deleted records” procedures in OAI-PMH, not the simple deletion of records from the database, so that harvesters of other GISCs can harvest the deletion information through the ordinary incremental harvesting. The specifications for deleted records are described in section 2.5.1 of The Open Archives Initiative Protocol for Metadata Harvesting.

In case GISC A needs to delete these records completely from the database, GISC A needs to do so after it makes sure that other GISCs complete harvesting the deletion.

***B) GISC B - add records to WIS-GISC-B set***

This should be done with an accurate datestamp, which allows harvesters of other GISCs to gain the added records through the ordinary incremental harvesting.

***3. Track other GISCs’ harvesting***

GISC A and B make sure that other GISCs harvest the change correctly, and if not they need to give notice and ask manual adjustments.

**References**

* <http://www.openarchives.org/OAI/openarchivesprotocol.html>

**AppendixB: User registration parameters**

**Annex 1 - User registration parameters**

User registration parameters can be categorized into next 6 items.

1. User properties (Mandatory)
2. User properties (Optional)
3. User privileges
4. Subscription
5. Metadata
6. Other parameters
7. **User properties (Mandatory)**

This is mandatory parameters as minimum set of user properties to login, to recognize user-roll and to communicate with users.

* User ID
* Password
* Organization
* User Name
* Email

1. **User properties (Optional)**

Following users parameters can be stored as necessary.

* Address
* Phone number
* Fax number
* Member of WMO
* Register Type
* Period
* Homepage
* Occupation

1. **User privileges**

* Group
* Class of service
* Backup
* User mode

1. **Subscription (GTS, DAR)**

* email address
* ftp settings (host, port, path, user, password, directory, active/passive, etc...)
* product/data name, interval, period (for DAR)

1. **Metadata**

* OAI –Set name

1. **Other parameters**

* As necessary

**Annex 2 - Standard procedures of user registration**

Following items can be procedure of user registration to keep consistency between GISCs. These are mainly for GISC portal transmitted by http protocol. Regarding ftp protocol (for subscription via GTS, DAR), users can transmit password without encryption. In that case, It will be recommended that user ID’s password and ftp account password will be set different each other.

**User ID**

* User ID must be provided to person.
* Administrator must provide user ID to users without delay.
* Administrator must set user role to users adequately.
* Administrator must be able to create, update, remove user ID.

**User registration parameters**

* Administrator must be able to modify user parameters.
* Users must be able to modify own parameters.

**Handling for user authorization data**

* User authorization data must be transmitted with encryption.
* User authorization data must be stored with encryption.

Appendix C: GISC BACKUP PROCEDURES

Annex to 9.1: GISC backup procedures(\*)

Scope of backup

* Data intended for global exchange from NCs and DCPCs are mandatory.
* Data intended for regional exchange from NCs and DCPCs are optional provided that at least one GISC is providing backup for those data.
* For short term outages, Metadata management is out of scope and metadata editing privileges should not be transferred between backup GISCs.

Backup services

* Data collection from AMDCN of the other GISC
* Data provision to other GISCs
  + Make available on its GISC cache
  + Disseminate through GISC core network (GTS, RMDCN)
* Data provision to NCs and DCPCs in AMDCN of the other GISC
  + Make available on its GISC cache
* Metadata management is out of scope for short term outages

User Information

If there is a need to exchange user information for the purpose, proper security measures should be taken based on the agreement on the two GISCs.

Networks

* A backup GISC needs to ensure network connectivity with Centres in the AMDCN it is backing up.

Appendix D: GISC support to NCs and DCPCs

**Annex to 9.2 GISC support to NCs and DCPCs (\*)**

GISCs are suggested to provide the following support activities to the centres (NCs and DCPCs) in its area of responsibility.

***Operation coordination***

Each GISC should organize regular meetings with the WIS Focal Points of the centres belonging to its AMDCN to coordinate the implementation, operation and improvement of AMDCN to ensure it meet WIS requirements.

Each GISC should maintain business continuity plans and handover arrangements to ensure continued service to the NCs and DCPCs in its area of responsibility, especially for the collection and distribution of data and products.

***Technical support***

Each GISC should provide technical consultation on implementing and improving WIS functionality, such as search and management of metadata, to the centres in its area of responsibility.

Each GISC should support the centres in its area of responsibility in creating and maintenance of metadata, in adoption of recommended data formats as well as in monitoring activities in suitable manners.

***Capacity-building support***

Each GISC should develop and provide training courses by reference to the WIS Training and Learning Guide to meet the capacity-building requirements of the centres in its area of responsibility.

***References***

[1] ET-WISC/2013-Final Report

[2] Manual on the WIS (WMO No 1060)

[3] Guide to the WIS (WMO No 1061)

[4] WIS Training and Learning Guide

Appendix E: Procedures for changing of principal GISC

Procedures for changing of principal GISC

The procedure for NCs and DCPCs changing their principal GISC is suggested as follows.

1. The centre (NC/DCPC) wishing to change its principal GISC should consult with its present and proposed principal GISCs and receive the new principal GISC ‘s approval.
2. The centre should communicate with the chosen GISC to check the communication network connectivity to the chosen GISC and ensure that the bandwidth is sufficient to send and receive all data without undue delays.
3. The centre should inform regional association and WMO by letter from the PR about the choice of new principal GISC. This letter through WMO, with a copy to its existing GISC should include endorsementof evidence that the new principal GISC has accepted accept the additional responsibility by the new principal GISC.
4. WMO shall inform CBS of the change, with copy to copying the original and new principal GISC of the change and CBS will to prepare an update to the Manual on WIS Annex B.
5. WMO should update the WIS centres Database (http://www.wmo.int/pages/prog/www/WIS/centres/index\_en.php) and the WMO Country Profile Database (http://www.wmo.int/cpdb).
6. The new principal GISC should coordinate with the associated GISC (s) for the center to arrange and setup the backup service.
7. The new Principal GISC should coordinate with the original principal GISC to take over responsibility for the metadata records describing the data and products of the centre, and notify all of the operational GISCs of the change of its responsibility area.
8. Once notified that the new Principal GISC is ready, the centre shall start using the WIS service of the new principal GISC, in particular the service of uploading and managing the metadata for its data and products.

Appendix F: GISC communications

**Annex to 9.4 – GISC communications**

***Technology***

Email, phone, fax, wiki, WIS Core network

***Message format***

1. The message should be on a standard form for TQM purpose and posted on the WIS-WIKI. For Example:

|  |  |
| --- | --- |
| Source GISC: | |
| Destination GISCs: | |
| Message date & Time: | Validity period: |
| Subject: | |
| Message body | |

***Communication Language***

1. English should be the primary language and if the GISC server supports a second language it can be added in the message part.

Appendix g: Status of GISC and DCPC Audits

***Table 1. Status of GISC Audits***

|  |  |  |  |
| --- | --- | --- | --- |
| Date of Review | Centre | Team | Result |
| 23-24 Aug 2010 | GISC Tokyo | Matteo & Baudouin | Endorsed |
| 26-27 Aug 2010 | GISC Beijing | Matteo & Baudouin | Endorsed |
| 17 & 20 Sep 2010 | GISC Offenbach | Hiroyuki & Li Xiang | Endorsed |
| 12 & 13 May 2011 | GISC Toulouse | Hiroyuki & Weiqing | Endorsed |
| 12 & 13 May 2011 | GISC Exeter | Hiroyuki & Weiqing | Endorsed |
| 27 & 28 May 2012 | GISC Seoul | Matteo & Lothar | Endorsed |
| 1 & 4 Jun 2012 | GISC Melbourne | Matteo & Lothar | Endorsed |
| 26-27 Mar 2013 | GISC Moscow | Lothar & Sunghoi | Endorsed |
| 8-9 Apr 2013 | GISC Brazil | Lothar & Kevin | Endorsed |
| 16-17 April 2013 | GISC Washington | Kevin & Sunghoi | Endorsed |
| 21-22 May 2013 | GISC Jeddah | Lothar & Markus | Endorsed |
| 29-31 May 2013 | GISC Tehran | Markus & Li Xiang | Endorsed |
| 10-12 Sept 2013 | GISC New Delhi | Lothar & Markus | Endorsed |
| 14-15 April 2014 | GISC Pretoria | Kevin & Weiqing | Endorsed |
| No date yet | GISC Casablanca | Sunghoi & Kevin | TBD |

***Table 2. DCPCs recommended by TT-CAC for CBS endorsement as WIS compliant***

| **Date of Review** | **Member State or Org** | **Centre** | **ID no.** | **Team** | **TT-CAC Result** | **Comments** | **GISC** | **WIS Manual** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| # Jun 2012 | Croatia | Croatia MMC | 9 | Li Xiang | Endorsed | ET-GDDP endorsed June 2012 | Offenbach | Conditional pending CBS endorsement |
| # May 2012 | Czech Republic | RTH Prague | 125 | Kevin | Endorsed | ET-GDDP reviewed May 2012 | Offenbach | Conditional pending CBS endorsement |
| # May 2013 | Italy | RTH Rome | 97 | Markus | Endorsed | Report signed 7 May 2013 | Offenbach | Conditional pending CBS endorsement |
| # April 2013 | Saudi Arabia | RTH Jeddah | 13 | Lothar & Markus | Endorsed | Internal DCPC | Jeddah | Conditional pending CBS endorsement |
| # June 2012 | Serbia | RCC Belgrade | 147 | Don | Endorsed | Complete and locked | Offenbach | Conditional pending CBS endorsement |
| # Jun 2012 | Sweden | RTH Norrkoping | 11 | Hiroyuki | Endorsed | 22-Jun-12 | Offenbach | Conditional pending CBS endorsement |
| # April 2013 | USA | WMC Washington (RTH) | G7 | Kevin & Sunghoi | Endorsed | Integrated with GISC | Washington | Conditional pending CBS endorsement |

Where the “ID No.” in the tables is the identification number from the WIS Demonstration Database. No prefix indicates the record was in the DCPC database, and G prefix (eg G7) indicates the record is from the GISC database.

***Table 3. Record of DCPCs already endorsed by CBS as WIS compliant***

| **Date of Review** | **Member State or Org** | **Centre** | **ID no.** | **Team** | **TT-CAC Result** | **Comments** | **GISC** | **WIS Manual** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| # May 2012 | Australia | IPS Australia | 40 | Matteo & Lothar | Endorsed | Done with GISC | Melbourne | OK |
| # May 2012 | Australia | Joint Australian Tsunami Warning Centre (JATWC) | 38 | Matteo & Lothar | Endorsed | Done with GISC | Melbourne | OK |
| # May 2012 | Australia | NCC Australia | 37 | Matteo & Lothar | Endorsed | Done with GISC | Melbourne | OK |
| # May 2012 | Australia | RSMC Darwin | 39 | Matteo & Lothar | Endorsed | Done with GISC | Melbourne | OK |
| # May 2012 | Australia | WMC Melbourne (RTH) | G11 | Matteo & Lothar | Endorsed | Done with GISC | Melbourne | OK |
| # TBD | Bulgaria | RTH Sofia | 75 | TBD | Endorsed |  | Offenbach | OK |
| # Mar 2013 | Canada | Canada RSMC-ATM | 17 | Weiqing | Endorsed | Mar-13 | Offenbach | OK |
| # Jun 2012 | China | China - Beijing National Climate Centre | 150 | Li Xiang | Endorsed | Internal DCPC - 21 june 2012 | Beijing | OK |
| # Jun 2012 | China | China - National Satellite Meteorological Centre | 151 | Li Xiang | Endorsed | Internal DCPC - 21 june 2012 | Beijing | OK |
| # Jun 2012 | China | China - RSMC-ATM (NMC) | 149 | Li Xiang | Endorsed | Internal DCPC - 21 june 2012 | Beijing | OK |
| # Jun 2012 | China | China - RSMC-Beijing (NMC) | 149 | Li Xiang | Endorsed | Internal DCPC - 21 june 2012 | Beijing | OK |
| # Jun 2012 | China | China – RTH Beijing | G1 | Li Xiang | Endorsed | Internal DCPC - 21 june 2012 | Beijing | OK |
| #Nov 2010 | ECMWF | ECMWF | 1 | Hiroyuki & Weiqing | Endorsed | Demo done Oct 2010 | GEONetwork server | OK |
| # Oct 2010 | EUMETSAT | EUMETSAT | 51 | Hiroyuki & Li Xiang | Endorsed | Demo done Oct 2010 | Signed off Nov 2010 | OK |
| # May 2011 | France | GPC/LRFMME Toulouse | 69 | Hiroyuki / Weiqing | Endorsed | Done with GISC | Toulouse | OK |
| # May 2011 | France | NWP Toulouse | 71 | Hiroyuki / Weiqing | Endorsed | Done with GISC | Toulouse | OK |
| # May 2011 | France | RCC (Toulouse, Lead RA VI on LRF) | 70 | Hiroyuki / Weiqing | Endorsed | Done with GISC | Toulouse | OK |
| # May 2011 | France | RSMC (EER) Toulouse | 72 | Hiroyuki / Weiqing | Endorsed | Done with GISC | Toulouse | OK |
| # Jun 2011 | France | RSMC (TC) | 73 | Matteo | Endorsed | Done by GISC Toulouse | Toulouse | OK |
| # May 2011 | France | RTH Toulouse | 68 | Hiroyuki / Weiqing | Endorsed | Done with GISC | Toulouse | OK |
| # May 2011 | France | VAAC Toulouse | 74 | Hiroyuki / Weiqing | Endorsed | Done with GISC | Toulouse | OK |
| # Sep 2010 | Germany | Global Collecting Centre (GCC) for observations from VOS under the MCSS (Marine Climatological Summaries Scheme) Offenbach | 45 | Hiroyuki & Li Xiang | Endorsed | Done with GISC Offenbach | Offenbach | OK |
| # Sep 2010 | Germany | Global Precipitation Climatology Centre (GPCC) Offenbach | 43 | Hiroyuki & Li Xiang | Endorsed | Done with GISC Offenbach | Offenbach | OK |
| # Sep 2010 | Germany | GRUAN Lead Centre DWD | 49 | Hiroyuki & Li Xiang | Endorsed | Done with GISC Offenbach | Offenbach | OK |
| # Sep 2010 | Germany | ICSU World Data Centre for Climate (WDCC) | 48 | Markus | Endorsed | Done by GISC Offenbach | Offenbach | OK |
| # Sep 2010 | Germany | Regional Climate Centre on Climate Monitoring (RCC-CM) for Europe | 50 | Hiroyuki & Li Xiang | Endorsed | Done with GISC Offenbach | Offenbach | OK |
| # Sep 2010 | Germany | RSMC-Geographical Offenbach | 42 | Hiroyuki & Li Xiang | Endorsed | Done with GISC Offenbach | Offenbach | OK |
| # Sep 2010 | Germany | World Data Center for Remote Sensing of the Atmosphere (WDC-RSAT) | 46 | Markus | Endorsed | Done by GISC Offenbach | Offenbach | OK |
| # Sep 2010 | Germany | World Radiation Monitoring Center (WRMC) | 44 | Markus | Endorsed | Done by GISC Offenbach | Offenbach | OK |
| # Apr 2011 | Hong Kong, China | WWIS - Hong Kong | 118 | Siegfried | Endorsed | April, 26 2011 | Offenbach | OK |
| # Aug 2010 | Japan | Global Producing Centre for Long-Range Forecast (GPC/LRF) | 59 | Matteo & Baudouin | Endorsed | Internal DCPC | Tokyo | OK |
| # Aug 2010 | Japan | Meteorological Satellite Centre (Tokyo) | 55 | Matteo & Baudouin | Endorsed | Internal DCPC | Tokyo | OK |
| # Aug 2010 | Japan | National Climate Centre Toyko | 60 | Matteo & Baudouin | Endorsed | Internal DCPC | Tokyo | OK |
| # Aug 2010 | Japan | RSMC – TC (Tokyo) | 56 | Matteo & Baudouin | Endorsed | Internal DCPC | Tokyo | OK |
| # Aug 2010 | Japan | RSMC on Data Processing and Forecasting System | 57 | Matteo & Baudouin | Endorsed | Internal DCPC | Tokyo | OK |
| # Aug 2010 | Japan | RSMC-ATM Products for EER and Backtracking | 58 | Matteo & Baudouin | Endorsed | Internal DCPC | Tokyo | OK |
| # Aug 2010 | Japan | WDC-GHG | 61 | Matteo & Baudouin | Endorsed | Internal DCPC | Tokyo | OK |
| # May 2012 | Republic of Korea | (GPC/LRFMME)–Seoul | 53 | Sunghoi | Endorsed | Internal DCPC | Seoul | OK |
| # May 2012 | Republic of Korea | NMSC (National Meteorological Satellite Centre (Tokyo) | 54 | Sunghoi | Endorsed | Internal DCPC | Seoul | OK |
| # May 2012 | Republic of Korea | WAMIS | 52 | Sunghoi | Endorsed | Internal DCPC | Seoul | OK |
| # May 2011 | UK | Marine Observations Centre | 65 | Hiroyuki & Weiqing | Endorsed | Internal DCPC to Exeter | Exeter | OK |
| # May 2011 | UK | RSMC - EER | 63 | Hiroyuki & Weiqing | Endorsed | Internal DCPC to Exeter | Exeter | OK |
| # May 2011 | UK | RSMC (Global and Regional Climate Centre) | 67 | Hiroyuki & Weiqing | Endorsed | Internal DCPC to Exeter | Exeter | OK |
| # May 2011 | UK | RSMC (NWP) | 66 | Hiroyuki & Weiqing | Endorsed | Internal DCPC to Exeter | Exeter | OK |
| # May 2011 | UK | RTH Exeter | 62 | Hiroyuki & Weiqing | Endorsed | Internal DCPC to Exeter | Exeter | OK |
| # May 2011 | UK | Specialised Ocean & Wave forecasting | 64 | Hiroyuki & Weiqing | Endorsed | Internal DCPC to Exeter | Exeter | OK |
| # May 2012 | Australia | IPS Australia | 40 | Matteo & Lothar | Endorsed | Done with GISC | Melbourne | OK |
| # May 2012 | Australia | Joint Australian Tsunami Warning Centre (JATWC) | 38 | Matteo & Lothar | Endorsed | Done with GISC | Melbourne | OK |
| # May 2012 | Australia | NCC Australia | 37 | Matteo & Lothar | Endorsed | Done with GISC | Melbourne | OK |
| # May 2012 | Australia | RSMC Darwin | 39 | Matteo & Lothar | Endorsed | Done with GISC | Melbourne | OK |
| # May 2012 | Australia | WMC Melbourne (RTH) | G11 | Matteo & Lothar | Endorsed | Done with GISC | Melbourne | OK |
| # TBD | Bulgaria | RTH Sofia | 75 | TBD | Endorsed |  | Offenbach | OK |
| # Mar 2013 | Canada | Canada RSMC-ATM | 17 | Weiqing | Endorsed | Mar-13 | Offenbach | OK |
| # Jun 2012 | China | China - Beijing National Climate Centre | 150 | Li Xiang | Endorsed | Internal DCPC - 21 june 2012 | Beijing | OK |
| # Jun 2012 | China | China - National Satellite Meteorological Centre | 151 | Li Xiang | Endorsed | Internal DCPC - 21 june 2012 | Beijing | OK |
| # Jun 2012 | China | China - RSMC-ATM (NMC) | 149 | Li Xiang | Endorsed | Internal DCPC - 21 june 2012 | Beijing | OK |
| # Jun 2012 | China | China - RSMC-Beijing (NMC) | 149 | Li Xiang | Endorsed | Internal DCPC - 21 june 2012 | Beijing | OK |
| # Jun 2012 | China | China – RTH Beijing | G1 | Li Xiang | Endorsed | Internal DCPC - 21 june 2012 | Beijing | OK |
| #Nov 2010 | ECMWF | ECMWF | 1 | Hiroyuki & Weiqing | Endorsed | Demo done Oct 2010 | GEONetwork server | OK |
| # Oct 2010 | EUMETSAT | EUMETSAT | 51 | Hiroyuki & Li Xiang | Endorsed | Demo done Oct 2010 | Signed off Nov 2010 | OK |
| # May 2011 | France | GPC/LRFMME Toulouse | 69 | Hiroyuki / Weiqing | Endorsed | Done with GISC | Toulouse | OK |
| # May 2011 | France | NWP Toulouse | 71 | Hiroyuki / Weiqing | Endorsed | Done with GISC | Toulouse | OK |
| # May 2011 | France | RCC (Toulouse, Lead RA VI on LRF) | 70 | Hiroyuki / Weiqing | Endorsed | Done with GISC | Toulouse | OK |
| # May 2011 | France | RSMC (EER) Toulouse | 72 | Hiroyuki / Weiqing | Endorsed | Done with GISC | Toulouse | OK |
| # Jun 2011 | France | RSMC (TC) | 73 | Matteo | Endorsed | Done by GISC Toulouse | Toulouse | OK |
| # May 2011 | France | RTH Toulouse | 68 | Hiroyuki / Weiqing | Endorsed | Done with GISC | Toulouse | OK |
| # May 2011 | France | VAAC Toulouse | 74 | Hiroyuki / Weiqing | Endorsed | Done with GISC | Toulouse | OK |
| # Sep 2010 | Germany | Global Collecting Centre (GCC) for observations from VOS under the MCSS (Marine Climatological Summaries Scheme) Offenbach | 45 | Hiroyuki & Li Xiang | Endorsed | Done with GISC Offenbach | Offenbach | OK |
| # Sep 2010 | Germany | Global Precipitation Climatology Centre (GPCC) Offenbach | 43 | Hiroyuki & Li Xiang | Endorsed | Done with GISC Offenbach | Offenbach | OK |
| # Sep 2010 | Germany | GRUAN Lead Centre DWD | 49 | Hiroyuki & Li Xiang | Endorsed | Done with GISC Offenbach | Offenbach | OK |
| # Sep 2010 | Germany | ICSU World Data Centre for Climate (WDCC) | 48 | Markus | Endorsed | Done by GISC Offenbach | Offenbach | OK |
| # Sep 2010 | Germany | Regional Climate Centre on Climate Monitoring (RCC-CM) for Europe | 50 | Hiroyuki & Li Xiang | Endorsed | Done with GISC Offenbach | Offenbach | OK |
| # Sep 2010 | Germany | RSMC-Geographical Offenbach | 42 | Hiroyuki & Li Xiang | Endorsed | Done with GISC Offenbach | Offenbach | OK |
| # Sep 2010 | Germany | World Data Center for Remote Sensing of the Atmosphere (WDC-RSAT) | 46 | Markus | Endorsed | Done by GISC Offenbach | Offenbach | OK |
| # Sep 2010 | Germany | World Radiation Monitoring Center (WRMC) | 44 | Markus | Endorsed | Done by GISC Offenbach | Offenbach | OK |
| # Apr 2011 | Hong Kong, China | WWIS - Hong Kong | 118 | Siegfried | Endorsed | April, 26 2011 | Offenbach | OK |
| # Aug 2010 | Japan | Global Producing Centre for Long-Range Forecast (GPC/LRF) | 59 | Matteo & Baudouin | Endorsed | Internal DCPC | Tokyo | OK |
| # Aug 2010 | Japan | Meteorological Satellite Centre (Tokyo) | 55 | Matteo & Baudouin | Endorsed | Internal DCPC | Tokyo | OK |
| # Aug 2010 | Japan | National Climate Centre Toyko | 60 | Matteo & Baudouin | Endorsed | Internal DCPC | Tokyo | OK |
| # Aug 2010 | Japan | RSMC – TC (Tokyo) | 56 | Matteo & Baudouin | Endorsed | Internal DCPC | Tokyo | OK |
| # Aug 2010 | Japan | RSMC on Data Processing and Forecasting System | 57 | Matteo & Baudouin | Endorsed | Internal DCPC | Tokyo | OK |
| # Aug 2010 | Japan | RSMC-ATM Products for EER and Backtracking | 58 | Matteo & Baudouin | Endorsed | Internal DCPC | Tokyo | OK |
| # Aug 2010 | Japan | WDC-GHG | 61 | Matteo & Baudouin | Endorsed | Internal DCPC | Tokyo | OK |
| # May 2012 | Republic of Korea | (GPC/LRFMME)–Seoul | 53 | Sunghoi | Endorsed | Internal DCPC | Seoul | OK |
| # May 2012 | Republic of Korea | NMSC (National Meteorological Satellite Centre (Tokyo) | 54 | Sunghoi | Endorsed | Internal DCPC | Seoul | OK |
| # May 2012 | Republic of Korea | WAMIS | 52 | Sunghoi | Endorsed | Internal DCPC | Seoul | OK |
| # May 2011 | UK | Marine Observations Centre | 65 | Hiroyuki & Weiqing | Endorsed | Internal DCPC to Exeter | Exeter | OK |
| # May 2011 | UK | RSMC - EER | 63 | Hiroyuki & Weiqing | Endorsed | Internal DCPC to Exeter | Exeter | OK |
| # May 2011 | UK | RSMC (Global and Regional Climate Centre) | 67 | Hiroyuki & Weiqing | Endorsed | Internal DCPC to Exeter | Exeter | OK |
| # May 2011 | UK | RSMC (NWP) | 66 | Hiroyuki & Weiqing | Endorsed | Internal DCPC to Exeter | Exeter | OK |
| # May 2011 | UK | RTH Exeter | 62 | Hiroyuki & Weiqing | Endorsed | Internal DCPC to Exeter | Exeter | OK |
| # May 2011 | UK | Specialised Ocean & Wave forecasting | 64 | Hiroyuki & Weiqing | Endorsed | Internal DCPC to Exeter | Exeter | OK |
| # May 2012 | Australia | IPS Australia | 40 | Matteo & Lothar | Endorsed | Done with GISC | Melbourne | OK |
| # May 2012 | Australia | Joint Australian Tsunami Warning Centre (JATWC) | 38 | Matteo & Lothar | Endorsed | Done with GISC | Melbourne | OK |
| # May 2012 | Australia | NCC Australia | 37 | Matteo & Lothar | Endorsed | Done with GISC | Melbourne | OK |
| # May 2012 | Australia | RSMC Darwin | 39 | Matteo & Lothar | Endorsed | Done with GISC | Melbourne | OK |
| # May 2012 | Australia | WMC Melbourne (RTH) | G11 | Matteo & Lothar | Endorsed | Done with GISC | Melbourne | OK |
| # TBD | Bulgaria | RTH Sofia | 75 | TBD | Endorsed |  | Offenbach | OK |
| # Mar 2013 | Canada | Canada RSMC-ATM | 17 | Weiqing | Endorsed | Mar-13 | Offenbach | OK |
| # Jun 2012 | China | China - Beijing National Climate Centre | 150 | Li Xiang | Endorsed | Internal DCPC - 21 june 2012 | Beijing | OK |
| # Jun 2012 | China | China - National Satellite Meteorological Centre | 151 | Li Xiang | Endorsed | Internal DCPC - 21 june 2012 | Beijing | OK |
| # Jun 2012 | China | China - RSMC-ATM (NMC) | 149 | Li Xiang | Endorsed | Internal DCPC - 21 june 2012 | Beijing | OK |
| # Jun 2012 | China | China - RSMC-Beijing (NMC) | 149 | Li Xiang | Endorsed | Internal DCPC - 21 june 2012 | Beijing | OK |
| # Jun 2012 | China | China – RTH Beijing | G1 | Li Xiang | Endorsed | Internal DCPC - 21 june 2012 | Beijing | OK |
| #Nov 2010 | ECMWF | ECMWF | 1 | Hiroyuki & Weiqing | Endorsed | Demo done Oct 2010 | GEONetwork server | OK |
| # Oct 2010 | EUMETSAT | EUMETSAT | 51 | Hiroyuki & Li Xiang | Endorsed | Demo done Oct 2010 | Signed off Nov 2010 | OK |
| # May 2011 | France | GPC/LRFMME Toulouse | 69 | Hiroyuki / Weiqing | Endorsed | Done with GISC | Toulouse | OK |
| # May 2011 | France | NWP Toulouse | 71 | Hiroyuki / Weiqing | Endorsed | Done with GISC | Toulouse | OK |
| # May 2011 | France | RCC (Toulouse, Lead RA VI on LRF) | 70 | Hiroyuki / Weiqing | Endorsed | Done with GISC | Toulouse | OK |
| # May 2011 | France | RSMC (EER) Toulouse | 72 | Hiroyuki / Weiqing | Endorsed | Done with GISC | Toulouse | OK |
| # Jun 2011 | France | RSMC (TC) | 73 | Matteo | Endorsed | Done by GISC Toulouse | Toulouse | OK |
| # May 2011 | France | RTH Toulouse | 68 | Hiroyuki / Weiqing | Endorsed | Done with GISC | Toulouse | OK |
| # May 2011 | France | VAAC Toulouse | 74 | Hiroyuki / Weiqing | Endorsed | Done with GISC | Toulouse | OK |
| # Sep 2010 | Germany | Global Collecting Centre (GCC) for observations from VOS under the MCSS (Marine Climatological Summaries Scheme) Offenbach | 45 | Hiroyuki & Li Xiang | Endorsed | Done with GISC Offenbach | Offenbach | OK |
| # Sep 2010 | Germany | Global Precipitation Climatology Centre (GPCC) Offenbach | 43 | Hiroyuki & Li Xiang | Endorsed | Done with GISC Offenbach | Offenbach | OK |
| # Sep 2010 | Germany | GRUAN Lead Centre DWD | 49 | Hiroyuki & Li Xiang | Endorsed | Done with GISC Offenbach | Offenbach | OK |
| # Sep 2010 | Germany | ICSU World Data Centre for Climate (WDCC) | 48 | Markus | Endorsed | Done by GISC Offenbach | Offenbach | OK |
| # Sep 2010 | Germany | Regional Climate Centre on Climate Monitoring (RCC-CM) for Europe | 50 | Hiroyuki & Li Xiang | Endorsed | Done with GISC Offenbach | Offenbach | OK |
| # Sep 2010 | Germany | RSMC-Geographical Offenbach | 42 | Hiroyuki & Li Xiang | Endorsed | Done with GISC Offenbach | Offenbach | OK |
| # Sep 2010 | Germany | World Data Center for Remote Sensing of the Atmosphere (WDC-RSAT) | 46 | Markus | Endorsed | Done by GISC Offenbach | Offenbach | OK |
| # Sep 2010 | Germany | World Radiation Monitoring Center (WRMC) | 44 | Markus | Endorsed | Done by GISC Offenbach | Offenbach | OK |
| # Apr 2011 | Hong Kong, China | WWIS - Hong Kong | 118 | Siegfried | Endorsed | April, 26 2011 | Offenbach | OK |
| # Aug 2010 | Japan | Global Producing Centre for Long-Range Forecast (GPC/LRF) | 59 | Matteo & Baudouin | Endorsed | Internal DCPC | Tokyo | OK |
| # Aug 2010 | Japan | Meteorological Satellite Centre (Tokyo) | 55 | Matteo & Baudouin | Endorsed | Internal DCPC | Tokyo | OK |
| # Aug 2010 | Japan | National Climate Centre Toyko | 60 | Matteo & Baudouin | Endorsed | Internal DCPC | Tokyo | OK |
| # Aug 2010 | Japan | RSMC – TC (Tokyo) | 56 | Matteo & Baudouin | Endorsed | Internal DCPC | Tokyo | OK |
| # Aug 2010 | Japan | RSMC on Data Processing and Forecasting System | 57 | Matteo & Baudouin | Endorsed | Internal DCPC | Tokyo | OK |
| # Aug 2010 | Japan | RSMC-ATM Products for EER and Backtracking | 58 | Matteo & Baudouin | Endorsed | Internal DCPC | Tokyo | OK |
| # Aug 2010 | Japan | WDC-GHG | 61 | Matteo & Baudouin | Endorsed | Internal DCPC | Tokyo | OK |
| # May 2012 | Republic of Korea | (GPC/LRFMME)–Seoul | 53 | Sunghoi | Endorsed | Internal DCPC | Seoul | OK |
| # May 2012 | Republic of Korea | NMSC (National Meteorological Satellite Centre (Tokyo) | 54 | Sunghoi | Endorsed | Internal DCPC | Seoul | OK |
| # May 2012 | Republic of Korea | WAMIS | 52 | Sunghoi | Endorsed | Internal DCPC | Seoul | OK |
| # May 2011 | UK | Marine Observations Centre | 65 | Hiroyuki & Weiqing | Endorsed | Internal DCPC to Exeter | Exeter | OK |
| # May 2011 | UK | RSMC - EER | 63 | Hiroyuki & Weiqing | Endorsed | Internal DCPC to Exeter | Exeter | OK |
| # May 2011 | UK | RSMC (Global and Regional Climate Centre) | 67 | Hiroyuki & Weiqing | Endorsed | Internal DCPC to Exeter | Exeter | OK |

***Table 4. DCPCs still to complete demonstrating wis compliance***

| **Date of Review** | **Member State or Org** | **Centre** | **ID no.** | **Team** | **TT-CAC Result** | **Comments** | **GISC** | **WIS Manual** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| # TBD | ACMAD | RSMC | 134 | TBD | Awaiting information |  | TBD | Not in Manual |
| # Apr/May 2012 | Finland | FMI-ARC | 16 | Markus | Awaiting information |  |  | Possibly, should still be conditional pending CBS endorsement |
| # TBD | ACMAD | RCC | 135 | TBD | Awaiting information |  | TBD | Not in Manual |
| # TBD | Germany | Global Runoff Data Centre (GRDC) | 47 | Markus | Awaiting internal endorsement |  | Offenbach | Should be conditional pending CBS endorsement |
| # TBD | Algeria | RTH Algiers | 20 | TBD | Awaiting information |  | TBD | Not in Manual |
| # 1st Qtr 2015 | Italy | RSMC Rome | 98 | Markus | Not ready for final review | ET-GDDP reviewed Dec 2011 | Offenbach | Conditional but not ready |
| # TBD | Algeria | RSMC Algiers | 159 | TBD | Awaiting information |  | TBD | Not in Manual |
| # TBD | Argentina | RTH Buenos Aires | 107 | TBD | Awaiting information |  | TBD | Not in Manual |
| # TBD | Argentina | RSMC Buenos Aires | 108 | TBD | Awaiting information |  | TBD | Not in Manual |
| # TBD | Argentina | VAAC Buenos Aires | 109 | TBD | Awaiting information |  | TBD | Not in Manual |
| # TBD | Argentina | Regional Ozone Centre | 110 | TBD | Awaiting information |  | TBD | Not in Manual |
| # TBD | Argentina | RIC Buenos Aires | 111 | TBD | Awaiting information | CIMO not accepting RICs as DCPCs without special justification to CIMO | TBD | Not in Manual |
| # TBD | Brazil | Marine Meteorological Center | 117 | TBD | Awaiting information | TBD | Brasilia | Not in Manual |
| # TBD | Egypt | RTH Cairo | 2 | TBD | Awaiting information |  | TBD | Not in Manual |
| # TBD | Egypt | RSMC Cairo | 101 | TBD | Awaiting information |  | TBD | Not in Manual |
| # TBD | Egypt | RIC Cairo | 102 | TBD | Awaiting information | CIMO not accepting RICs as DCPCs without special justification to CIMO | TBD | Not in Manual |
| # TBD | Egypt | Regional Ozone Centre | 103 | TBD | Awaiting information |  | TBD | Not in Manual |
| # TBD | Egypt | Regional Training Centre (RTC) | 104 | TBD | Awaiting information |  | TBD | Not in Manual |
| # TBD | Egypt | Regional Radiation Centre (RRC) | 105 | TBD | Awaiting information |  | TBD | Not in Manual |
| # TBD | Fiji | RSMC - TC | 106 | TBD | Awaiting information |  | TBD | Not in Manual |
| # | France | ODC Toulouse | 124 | Matteo | Awaiting information | Partnership with UKMO | Toulouse | Understood that Toulouse node operational and endorsed. Need to confirm |
| # TBD | India | RSMC-TC | 100 | TBD | Awaiting information |  | TBD | Not in Manual |
| # | IODE | IODE Ocean Data Portal | 119 | Kenji | Awaiting information | ET-GDDP reviewed Dec 2011 (Check Country) | TBD | Not in Manual |
| # Before CBS Ext 2014 | Japan | NICT (Space Weather) | 160 | Markus | Awaiting information | External DCPC | Tokyo | Not in Manual |
| # end 2014 | Kenya | RIC Nairobi | 96 | Markus | Awaiting information | CIMO not accepting RICs as DCPCs without special justification to CIMO | TBD | Not in Manual |
| # end 2014 | Kenya | RSMC Nairobi | 95 | Markus | Awaiting information |  | TBD | Not in Manual |
| # end 2014 | Kenya | RTH Nairobi | 6 | Markus | Awaiting information |  | TBD | Not in Manual |
| # TBD | Morocco | RSMC | 130 | TBD | Awaiting information | Internal to GISC | Casablanca | Not in Manual |
| # TBD | Morocco | RIC/RMIC | 131 | TBD | Awaiting information | CIMO not accepting RICs as DCPCs without special justification to CIMO | Casablanca | Not in Manual |
| # TBD | Morocco | RCC | 132 | TBD | Awaiting information | Internal to GISC | Casablanca | Not in Manual |
| TBA | UK | European Radar (ODC Exeter) | 123 | Chris Little | Awaiting information | Partnership with MF | Exeter | Not clear if operational. Not in manual, |
| # TBD | Morocco | AMDAR Centre | 133 | TBD | Awaiting information | Internal to GISC | Casablanca | Not in Manual |
| # TBD | Netherlands | RCC De Bilt | 21 | Li Xiang | Awaiting information |  |  | Conditional pending CBS endorsement |
| # TBD | Netherlands | Satellite Centre De Bilt | 78 | Li Xiang | Awaiting information |  |  | Conditional pending CBS endorsement |
| # Before CBS Ext 2014 | New Zealand | RSMC Wellington | 13 | Weiqing | Awaiting information |  | Melbourne | Not in Manual |
| # Before CBS Ext 2014 | New Zealand | RTH Wellington | 79 | Weiqing | Awaiting information |  | Melbourne | Not in Manual |
| # Before | New Zealand | VAAC Wellington | 140 | Weiqing | Awaiting information |  | Melbourne | Not in Manual |
| # TBD | Niger | AGRHYMET Niamey | 27 |  | Awaiting information |  | TBD | Not in Manual |
| # TBD | Niger | RTH Niamey | 26 |  | Awaiting information |  | TBD | Not in Manual |
| # TBD | Norway | Norwegian Institute for Air Research (NILU) | 115 | Kenji | Awaiting information | ET-GDDP reviewed Dec 2011 |  | Conditional but not ready |
| # Before CBS Ext 2014 | Qatar | Gulf Marine Center | 146 | Remy | Awaiting information | See email from Sunghoi | Jeddah | Not in Manual |
| # TBD | Russian Federation | RSMC (EER) | 84 | TBD | Awaiting information | To be done by Moscow | Moscow | OK |
| # TBD | Russian Federation | NODC & GDC - Obninsk | 85 | TBD | Awaiting information | To be done by Moscow | Moscow | OK |
| # TBD | Russian Federation | RSMC (EER) | 86 | TBD | Awaiting information | To be done by Moscow | Moscow | OK |
| # TBD | Russian Federation | RTH/RSMC Novosibirsk | 87 | TBD | Awaiting information | To be done by Moscow | Moscow | OK |
| # TBD | Russian Federation | WDC (ICE) - St Petersburg | 88 | TBD | Awaiting information | To be done by Moscow | Moscow | OK |
| # TBD | Russian Federation | RCC Moscow | 90 | TBD | Awaiting information | To be done by Moscow | Moscow | OK |
| # TBD | Russian Federation | GDC (Solar Radiation) | 91 | TBD | Awaiting information | To be done by Moscow | Moscow | OK |
| # TBD | Russian Federation | RTH/RSMC Khabarovsk | 92 | TBD | Awaiting information | To be done by Moscow | Moscow | OK |
| # TBD | Russian Federation | Ocean Data Portal - Obninsk node | 130 | TBD | Awaiting information | Internal to GISC | TBD | Not in Manual |
| # TBD | Saudi Arabia | RDMEC (Drought) | 81 | TBA | Awaiting information | Internal DCPC | Jeddah | Not in Manual |
| # TBD | Saudi Arabia | RSMC Jeddah | 80 | TBA | Awaiting information | Internal DCPC | Jeddah | Not in Manual |
| # Expected 2015 | Senegal | Dakar aviation centre | 93 | Sunghoi | Awaiting information | ASECNA | TBD | Not in Manual |
| # Expected 2015 | Senegal | RSMC Dakar | 94 | Sunghoi | Awaiting information | ASECNA | TBD | Not in Manual |
| # Expected 2015 | Senegal | RTH Dakar | 4 | Sunghoi | Awaiting information | ASECNA | TBD | Not in Manual |
| # Before CBS Ext 2014 | Spain | MEDARE | 139 | Kevin | Awaiting information | Under review Jan 2013 | TBD | Not in Manual |
| # TBD | Sweden | Baltrad | 83 | Don | Awaiting information | TBD | Offenbach | Conditional pending CBS endorsement |
| # TBD | Sweden | IPY data repository | 82 | Don | Awaiting information | TBD | Offenbach | Conditional pending CBS endorsement |
| #TBD | Switzerland | GAWSIS (Switzerland) | 145 | Don | Awaiting information | TBD | Offenbach | Conditional pending CBS endorsement |
| # ready for review | Thialand | RTH Bangkok | 5 | Kenji | Awaiting information | Kenji to follow up | TBD | Not in Manual |
| # Requested asap | Turkey | [RCC Turkey (EEMC) http://dcpc.mgm.gov.tr](http://dcpc.mgm.gov.tr/) | 162 | Markus | Awaiting information |  | Offenbach | Not in Manual |
| TBA | UK | BAS Cambridge | 142 | Chris Little / Steve Colwell | Awaiting information | External DCPC to Exeter | Exeter | Not in Manual |
| # TBD | UK | VAAC London | 137 | Chris Little / Nigel Gait | Awaiting information | Internal DCPC to Exeter | Exeter | Not in Manual |
| # TBD | UK | WAFC London | 136 | Chris Little / Nigel Gait | Awaiting information | Internal DCPC to Exeter | Exeter | Conditional pending CBS endorsement |
| # TBD | USA | COMET | 144 | Lothar | Awaiting information | Comments requested | Washington | Not in Manual |
| # TBD | USA | NCAR | 3 | Lothar | Awaiting information | Waiting on GISC | Washington | Conditional pending CBS endorsement |
| # TBD | USA | WAFC Washington | 28 | TBD | Awaiting information | Internal to GISC | Washington | Conditional pending CBS endorsement |
| # TBD | USA | RSMC Miami | 29 | TBD | Awaiting information | Internal to GISC | Washington | Not in Manual |
| # TBD | USA | RSMC Honolulu | 30 | TBD | Awaiting information | Internal to GISC | Washington | Not in Manual |
| # TBD | USA | NCEP | 31 | TBD | Awaiting information | Internal to GISC | Washington | Conditional pending CBS endorsement |
| # TBD | USA | ARL | 31 | TBD | Awaiting information | Internal to GISC | Washington | Conditional pending CBS endorsement |
| # TBD | USA | NCEP | 32 | TBD | Awaiting information | Internal to GISC | Washington | Conditional pending CBS endorsement |
| # TBD | USA | GOSIC | 33 | TBD | Awaiting information | Waiting on GISC | Washington | Conditional pending CBS endorsement |
| # TBD | USA | NODC | 34 | TBD | Awaiting information | Waiting on GISC | Washington | Conditional pending CBS endorsement |
| # TBD | USA | NGDC | 35 | TBD | Awaiting information | Waiting on GISC | Washington | Conditional pending CBS endorsement |
| # TBD | USA | NESDIS | 36 | TBD | Awaiting information | Waiting on GISC | Washington | Conditional pending CBS endorsement |
| # TBD | Uzbekistan | RTH Tashkent | 18 | Sunghoi | Awaiting information |  | TBD | Not in Manual |

Appendix H: Procedure on rolling review of WIS centres

Recommendations on practices

1. Requirement: WIS Centres must comply with Manual on WIS
   1. CBS is responsible for certification of WIS Centres’ compliance
      1. GISCs
         1. TT-CAC, on behalf of CBS, is responsible for audit and certification of GISCs
      2. DCPCs
         1. DCPCs are to be certified by the TT-CAC
         2. Where a DCPC is not using the GISC infrastructure, and its principal GISC is operational, then it can be certified by TT CAC once the principal GISC has performed the tests ; however, if the principal GISC is not operational, TT-CAC will arrange a suitable GISC;
         3. If a DCPC uses the GISC infrastructure then it is certified as a part of the GISC audit certification.
      3. NCs
         1. Compliance of NCs is the responsibility of the PR
         2. Testing of compliance of NCs should be done by its principal GISC.
         3. TT-CAC will monitor the NC compliance process in consultation with NCs and GISCs
   2. TT-CAC noted that the Manual on WIS refers to the Technical Specification Document[[1]](#footnote-1). It suggested that the fifteen technical specifications would be better included in the Manual, and associated test and use cases in the Guide to WIS.
2. Audits and certification
   1. Auditors and certifiers shall be members of TT-CAC
      1. New members must have relevant technical or audit experience ([nomination form](http://wis.wmo.int/doc=2155)[[2]](#footnote-2))
      2. Must be a member (core or associate) of ET-WISC
   2. Note that regional diversity should also be maintained (Ra I, III and IV are missing)
   3. Maintain that GISC auditors should continue to be from a different region to the GISC
   4. Maintain that GISC should be audited by two experts.
      1. One of the two experts must have been involved in previous GISC audit
   5. DCPCs require only one TT-CAC coordinator
      1. New members will be mentored
      2. Coordinator will ask a GISC to undertake tests with the DCPC
      3. It is expected that the centre’s principal GISC to undertake the tests
   6. TT-CAC workspace and online databases are restricted to access only by TT-CAC (and secretariat)
3. GISC audits
   1. In a similar way as an ISO 9001:2008 audit process, the audit will follow the principle of alternating full and intermediate audits aligned with CBS/EC cycle of four years.
   2. CBS endorsement is based on continued successful audit outcomes
      1. Validity, intermediate audit (interim four years)
         1. A mid-cycle review of performance and compliance to provide, if necessary, opportunities to introduce corrective actions well in advance of a full audit.
         2. Full audit (every second audit – i.e. every eight years)
            1. Will result in recommendation for affirmation or cancellation of endorsement
   3. Recurring audit will check that WIS Centres have implemented any new requirements or agreed practices due and corresponding tests will be identified and undertaken.
      1. These changes to audit procedure will be included in the guidelines on centre audit and demonstration process.
   4. Travel and per diem should be at GISCs expense and arranged through WMO.
4. Public notification of type of CBS endorsement
   1. Centre endorsements are published only as “CBS endorsed” with no public declaration of whether endorsement was with “qualifications”.
   2. Details of centres review audits are therefore also confidential
   3. Auditors will have access to the centre’s previous reports in order to perform their role.
5. Review of audits with qualification.
   1. GISCs that have received an “endorsed with qualifications” have two years from the day of the audit to demonstrate that they have taken remedial action on the points of qualification.
   2. GISCs that have received an “endorsed with qualifications” and have not demonstrated that they have taken remedial action on the points of qualification within 2 years from the day of audit, TT-CAC will investigate the situation and report to CBS on the progress in addressing the aspects that incurred the “Qualification”. TT-CAC can recommend to CBS that it revoke its endorsement.
6. Recurring audits.
   1. It agreed that GISC should be audited at least once every four years. It recommends that this frequency can be reviewed for its appropriateness in the future.
   2. Propose review cycle should start from date of “CBS endorsement**”**, or for centres endorsed before 1 Jan 2012 (WIS operational date) the date will be based on 1 Jan 2012.
      1. Audit timings will need to be coordinated with availability of experts to undertake the audit, but within the calendar year of the anniversary
      2. Should add The WIS Centre database must include the date of CBS endorsement to the WIS Centre db
      3. The WIS Centre database must include the date the centre became operational if known .
7. DCPCs reviews
   1. DCPCs review cycle will be eight years.
   2. Reviews will cover all aspects of WIS compliance.
8. NCs reviews
   1. Review of NCs compliance is the responsibility of the Permanent Representative in liaison with the NC and its Principal GISC
9. Ad hoc audits or reviews
   1. An ad hoc audit or review can be requested by the president of CBS
      1. For example due to non-conformance causing problems with WIS operations.
10. Full audits of GISCs
    1. Shall include site visit in line with ISO type practices
11. Audit process for GISCs
    1. Scope of audits
       1. “Full” audits will cover all aspects of WIS compliance
       2. “Interim” audits will focus on a particular subset of topics
          1. Actual elements to be focused on will be determined by ET-WISC in coordination with ICT-ISS members
          2. Centres will be told in advance of which subset of topics
          3. Possible focus areas for reviews in interim audits include:
             1. GISC to GISC back up
             2. Security
             3. Monitoring
             4. Quality of service provided by the WIS
             5. WIS core network (ie RMDCN in 2014)

connectivity and management

Cache “Globally distributed data” content

* + - * 1. Management of area of responsibility

Capacity development

AMDCN (connects GISC to NC and DCPCs in its area

Cache “Area of responsibility” content

Participation in WIS coordination and planning mechanisms (eg CBS IPETs, ETs and TTs)

1. Audit or review outcome
   1. Format of report
      1. The current template will continue to be used, although content will reflect topics audited.
   2. Will be categorised into Endorsed, Endorsed with Qualification or Not Endorsed
      1. [Remove above line if adding DCPC and GISC template to the guide]
   3. Audit or review recommendation will be provided to President of CBS and Director of WIS

Appendix I: tt-gisc cOMMENTS ON GISC MONITORING AND REPORTING REQUIREMENTS

1 Comments on real-time operations monitoring section

Regarding the real time monitoring, some items should be refreshed each five minutes compare to others which should be daily for example. It is suggested adding a “frequency” column on table in section 1. REAL-TIME OPERATIONS MONITORING. Then for each item a refresh frequency shall be recommended.

1. On section real-time monitoring table:

* Item 6 (b) *No. of new, modified or deleted records* what is the relevance/purpose of this information in “real-time”. A monthly reporting for turn-over of records which have been new/updated or deleted would be more relevant.
* Item 7 (a) *No. of data and products not made available by expected time.* What is the purpose of that monitoring? This point could be very complex and resource consumer:
  + Require to maintain a document which describes which data to monitor and what to monitor, or getting automatically these information from metadata.
  + A product could be the aggregation of several products (like a NWP output), for some others the content should be explode and analyze to be pertinent (ex synop bulletin collection).
  + We need to consider in the future the possibility of minute data/product in the cache…
* Item 7 (b) *No. of data records described in Vol C1 but not available in Cache* TheVolC1 is out of date, what is the purpose of real-time monitoring for this subject ? An universal tool which display the difference between WIS catalogue and volume C1should meet the need. But this item is not a part of WIS monitoring.
* Item 8 (a) *Cache updates in the last 24 Hrs* what is the relevance/purpose of this indicator.
* Item 9 (a) *Rolling count of No. of All Hazard Network Messages in the last 24 Hrs* What is the relevance/purpose of this indicator.

2 Comments on Quarterly reporting

a) Service performance

For item 2. Timeliness *Summary statistics describing "the total No. of data and products made available by expected time" expressed as a fraction of "the total No. of data and products that should have been available within the expected time"* same remarks as for Item 7 (a)

b) Operational Infrastructure Performance

Item 3. Data Management - Discovery Metadata Exchange Need clarification for “data link” for point *c) % of data links which return an HTTP 200 result code during a data crawl.*

Item 3. Data Management - Discovery Metadata Exchange Need clarification for “NOAA Spiral Tool” on point d)

f) User Service Statistics

Item 9 User Satisfaction Measures: a user satisfaction measures won’t be easy maintain on quarterly. Users could get bored to be regularly ask.

An ad hoc campaign (every year, two years ...) would be more relevant.

1. Actions summary

|  |  |  |  |
| --- | --- | --- | --- |
| **Type** | **Section** | **Ref** | **Annotation** |
| Evolution | 1.Real-time Operations Monitoring | Table | Adding a column on table. This column will be used to define the frequency of indicator refreshing. |
| Delete | 1.Real-time Operations Monitoring | 1 item 6 b |  |
| Delete | 1.Real-time Operations Monitoring | 1 item 7 a |  |
| Delete | 1.Real-time Operations Monitoring C | 1 item 7 b |  |
| Delete | 1.Real-time Operations Monitoring | 1 item 8 a |  |
| Delete | 1.Real-time Operations Monitoring | 1 item 9 a |  |
| Delete | 2.Quartely reporting | a)Service Performance  2. Timeliness |  |
| Clarification | 2.Quartely reporting | b) Operational Infrastructure Performance  3.Data Management Discovery Metadata Exchange | Clarifications require for c) d) |
| Delete | 2.Quartely reporting | f) User Service Statistics  9. User Satisfaction Measures |  |
| Addition | To be define |  | Add that a WIS user satisfaction campaign shall be done at least every two years pilot by WMO. |

Appendix J. WIS support for the Common Alerting Protocol

1. WIS needs to support WMO Members in implementing CAP as soon as possible in each of the WIS National Centres (NCs). Such implementation should encompass all hazard types within the purview of the NMHS and should eventually include all other alerting authorities registered by the WMO Member in the Register of Alerting Authorities.
2. Each of the WIS Global Information System Centres (GISCs) shall maintain on its website links to the news feeds of CAP alerts for all centres they support. Each of the WIS GISCs shall track and report to ET-WISC on CAP implementation progress for all centres they support. Where NCs are supported via Data Collection or Production Centres (DCPCs), the DCPCs shall track and report on CAP implementation progress of the NC's they support, and CAP implementation progress of the DCPC itself where appropriate.
3. ICT-ISS will support the Public Weather Services in advocating CAP usage across all areas of interest to WMO Members. In some cases, this includes climate services and internal communications among hazard experts and/or the emergency management community. WIS GISCs and DCPCs shall coordinate with PWS in identifying sources of CAP implementation training and technical support as needed by NCs and other WMO-related organizations interested in implementing CAP. The sources should include providers of WIS technology among others.
4. ET-WISC will act as the focal point for providing assistance to the Public Weather Services, seeking the assistance of other OPAG-ISS teams on specific issues.
5. The Public Weather Services programme should support CBS in facilitating consensus-building for optimizing the use of CAP across the range of natural hazard areas pertinent to NMHSs (severe weather, floods, volcanoes, space weather, etc.). This should include encouraging experts involved in WIS to consult on CAP technical matters with NMHSs and in various external fora.

Appendix K: Time table for developing WMO Core Metadata Profile version 2

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Team** | | **Deliverable** | | **Due** | | **Comment** | |
| ISO | | ISO 19115-3 DIS | | 2014-12 | |  | |
| MDRD | | WCMP2-RC1 requirements defined and first draft | | 2015-06 | | Can start before DIS | |
| MDRD | | WCMP2-RC2 specification | | 2015-12 | |  | |
| ISO | | ISO 19115-3 FDIS | | 2015-12 | |  | |
| MDRD | | GISC involvement in development of drafts | | 2016-03 | | Continuous engagement | |
| MDRD | | WCMP2-FD Final draft | | 2016-04 | | Based on FDIS; conformance classes, abstract test suites, etc | |
| MDRD | | Guide to WCMP v1.n | | 2016-04 | | For submission to CBS-16 | |
| ISO | | ISO 19115-3 IS | | 2016-06 | |  | |
| CBS-16 | | Approval of WCMP2-FD to go to between sessions approval | | 2016-09 | | Because draft subject to external change | |
| MDRD | | Guide-2.1 guide for WCMP2 metadata | | 2016-12 | |  | |
| MDRD | | Migration plan | | 2016-12 | | Plan for adoption of WCMP2 in WIS | |
| CBS | | Approval between sessions: WCMP2, Guide 2.1, Migration-WCMP2 | | 2017-03 | | Between sessions | |
| MDRD | | GISC Beta implementations | | 2017-06 | |  | |
| EC | | Approve WCMP2 package | | 2017-06 | |  | |
| WMO | | WCMP2 allowed in GISC catalogues | | 2018-01 | |  | |

Appendix L: Terms of Reference for Metadata Focal Points

National Focal Points for WIS Discovery Metadata matters are nominated by the Permanent Representatives of Member countries of WMO. These Focal Points provide the operational channel of communication between the WMO Secretariat and Members on WIS Discovery Metadata. The responsibilities of the Focal Points are:

(1) To receive notifications of amendments to the *Manual on the WMO Information System* (WMO-No. 1060) concerning WIS Discovery Metadata, and propagate the information within their country;

(2) To comment on amendments to WIS Discovery Metadata as defined in the *Manual on the WMO Information System* (WMO-No. 1060) by the fast-track procedure, on behalf of the Permanent Representative;

(3) To request amendments to the *Manual on the WMO Information System* (WMO-No. 1060) concerning WIS Discovery Metadata on behalf of the Permanent Representative,

(4) To communicate with the Secretariat on behalf of the Permanent Representative on issues relating to WIS Discovery Metadata.

(5) Assist centres within their Member country or state to prepare and maintain WIS Discovery Metadata.

Appendix M: Terms of Reference for WIS-GTS National WIS Focal Points

Draft TOR proposed at RA I WIGOS/WIS Implementation meetings for north and west Africa. At a national level:

(a) Act as a focal point on all WIS activities within the Member country or state with the secretariat and other national WIS Focal Points

(b) Monitor and report on the status of WIS implementation nationally and within participating centres

(c) Participate in regional or sub-regional WIS coordination and implementation activities

(d) Arrange for the authorization of national entities or people for access to WIS

(e) Ensure issues relating to WIS, including the GTS, and World Weather Watch monitoring are directed to the relevant person and followed up on.

(f) Monitor and participate in the overall maintenance of WIS including CBS expert teams addressing data management and data representation as well as network issues

(g) Oversee Ensure that the creation and management of WIS Discovery Metadata for data and products are created and managed appropriately by from participation centres

(h) Assist centre focal points for WIS centres in matters relating to WIS, including compliance and functional issues

(i) Identify and follow up on training and capacity development needs

(j) Represent the NMHS in WIS contributions and liaison with other initiatives such as WIGOS and GFCS.

Appendix N: Terms of Reference for Data Representation and Codes Focal Points

National Focal Points for Codes and Data Representation matters are nominated by the Permanent Representatives of Member countries of WMO. These Focal Points provide the operational channel of communication between the WMO Secretariat and Members on Codes and Data Representation Issues. The responsibilities of the Focal Points are:

1. To receive notifications of amendments to the Manual on Codes (WMO-No. 306), and propagate the information within their country;
2. To comment on amendments to the Manual on Codes (WMO-No. 306) by the fast-track procedure, on behalf of the Permanent Representative;
3. To request amendments to the Manual on Codes (WMO-No. 306) on behalf of the Permanent Representative,
4. To support verification of data resulting from migration process;
5. To communicate with the Secretariat on behalf of the Permanent Representative on issues relating to codes and data representation matters.

Appendix O. Addition of Data Designators

**Add a line** in Table B1 of Attachment II-5 in the sub-table for T1 = S

*T2 Data Type Code form (name)  
Designator*

H Reports from DCP stations (any format)

**Add a line** in Table B1 of Attachment II-5 in the sub-table for T1 = W

*T2 Data Type Code form (name)  
Designator*

R Humanitarian activities (any format)

**Add new entries in Table C6** of Attachment II-**:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *T1T2* | *A1* | *ii* | *Data type* | *TAC correspondence* | *Data category subcategory (Common Table C13)* |
| IN | C |  | CrIS (selected channels) |  | 003/030 |
| IN | I |  | IRAS |  | 003/020 |
| IN | J |  | HIRAS |  | 003/030 |
| IN | K |  | MWHS/MWHS-2 |  | 003/040 |
| IN | Q |  | IASI (Principle component scores) |  | 003/007 |
| IN | S |  | ATMS |  | 003/040 |
| IN | T |  | MWTS/MWTS-2 |  | 003/040 |

1. WIS Compliance Specifications GISC, DCPC,NC ( v1.2)  
    - <http://www.wmo.int/pages/prog/www/WIS/documents/TechnicalSpecification1-2.doc> [↑](#footnote-ref-1)
2. Nomination form for CBS experts, including TT-CAC - <http://wis.wmo.int/doc=2155> [↑](#footnote-ref-2)