# MEETING OF THE CBS EXPERT TEAM ON WIS CENTRES (ET-WISC) Beijing, China 15-18 July 2013

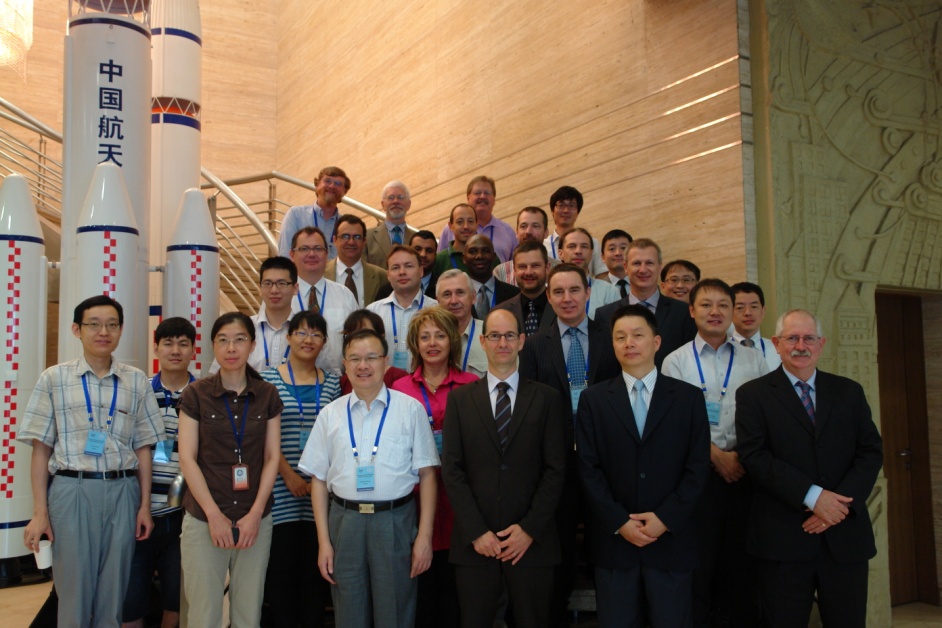
## Disclaimer

### Regulation 42

Recommendations of working groups shall have no status within the Organization until they have been approved by the responsible constituent body. In the case of joint working groups the recommendations must be concurred with by the presidents of the constituent bodies concerned before being submitted to the designated constituent body.

### Regulation 43

In the case of a recommendation made by a working group between sessions of the responsible constituent body, either in a session of a working group or by correspondence, the president of the body may, as an exceptional measure, approve the recommendation on behalf of the constituent body when the matter is, in his opinion, urgent, and does not appear to imply new obligations for Members. He may then submit this recommendation for adoption by the Executive Council or to the President of the Organization for action in accordance with Regulation 9(5).



## Executive Summary

1. The sixth meeting of the CBS Expert Team on WIS Centres (ET-WISC) was held at the headquarters of the Chinese Meteorological Agency, Beijing, China from 15 to 18 July 2013. The meeting was chaired by Ms Li Xiang (CMA), chair of ET-WISC, with support from co-chairs Mr Al Kellie (NCAR) and Mr Markus Heene (DWD).
2. ET-WISC was tasked by CBS to: (a) Review and further develop the technical and operational specifications for the components and interfaces of WIS Centres and criteria for interoperability, certification and Quality Management of WIS Centres; (b) Operate the procedures for technical endorsement of WIS centres and advise CBS on centres’ level of technical compliance with standards and procedures; (c) Review and develop the Manual on WIS (WMO-No 1060), the Guide to WIS (WMO No. 1061) and associated informal guidance to better meet the needs of Members; (d) Review, further develop and oversee WIS monitoring activities, including those aspects of monitoring relating to the effectiveness of information exchange on behalf of the WWW and other Programmes, and take action to address issues that are identified by monitoring; (e) Review, develop and coordinate recommended practices and guidance on management of and access to operational information related to exchange of information through the WIS; (f) Provide coordination and collaboration mechanisms for supporting the implementation and operation of WIS centres; (g) Advise the technical commissions and partner organizations on roles, responsibilities and implementation of WIS Centres; (h) Identify implementation and operational issues requiring the urgent consideration of the OPAG on ISS; and (i) Propose procedures for periodic assessment of the WIS centres, especially GISCs.
3. The meeting, taking into consideration the instruction from the latest Congress, EC and CBS sessions reviewed over 80 document contributions. It reviewed its terms of reference, established task teams and their associated terms of reference (TOR) and membership. The task teams were: Task Team on GISCs (TT-GISC); Task Team on Data Centres (TT-DC); Task Team on Operations and Monitoring (TT-OM); Task Team on Centre Audits and Certification (TT-CAC) In addition to the main plenary, task team leaders held side meetings to review their TOR and to establish work plans for the period up to CBS-16.
4. The meeting addressed several key areas relating to practices and procedures and to improving the user experience of WIS. These included: the need to progress WIS monitoring; identification of a set of WIS competencies and associated education and capacity development strategy and guidance; inclusion of all GISCs on the WIS core network and the migration to the RMDCN Next Generation (NG-RMDCN); identification and review of suitable WIS solutions or contributing applications, including the need agree on interoperability with respect to user management and authorisation; and the benefits of partnership with industry under commercial collaboration. The meeting noted that to meet the timelines for WIS implementation established by Cg-XVI, ET-WISC has a lot to address and deliver by CBS 2014 and that continued collaboration with ET-CTS, IPET-MDRD and IPET-DRMM through ICT-ISS is essential.
5. The chair and participants were extremely grateful to CMA for hosting the meeting and to the CMA staff who made them feel very welcome and supported the meeting throughout the event.

## 1. Organization of the Meeting

### 1.1 Opening

1. A meeting of the CBS Expert Team on WMO Information System Centres (ET-WISC) was held in the China Meteorological Administration Convention Centre, Beijing from 15 to 18 July 2013. Ms Li Xiang, chair of ET-WISC, opened the meeting.
2. Mr Licheng Zhao, Director-general of CMA’s National Meteorological Information Centre (NMIC), welcomed participants to Beijing on behalf of the China Meteorological Administration and GISC Beijing. He noted that it was a great pleasure for CMA to host this first meeting of the CBS Expert Team on WIS Centres since its reestablishment at CBS-15. Mr Zhao recalling that WIS had been operational since 31 January 2012, noted that WIS aimed to promote the sharing and exchange of the global weather, climate and water data, to reduce the disastrous risk and to enhance the related scientific research. He noted that CBS had tasked the Open Programme Area Group on Information System and Services (OPAG-ISS) with the responsibility of pushing the development of WIS and that at its Fifteenth Session in Jakarta last year CBS re-established the ET-WISC and its members for the period of 2012-2016. CBS also defined the terms of reference of ET-WISC, which included reviewing and improving the technical and operational specifications of WIS centres, as well as the interoperability, identification and quality management standards of WIS centres. In addition, ET-WISC is to supply sustainable coordination and technical support to all the domains in the process of implementing the WMO Information System.
3. Mr Zhao emphasized that CMA attaches great importance to the development of WIS and had made extensive contributions to this process. In 2011, CMA organized a Regional WIS Training Seminar and donated the integrated CMACast and MICAPS system to 19 Asia Pacific countries. He stated that “currently, CMA is hosting one GISC and four DCPCs. Several experts are serving as the experts of CBS and Regional Association II subsidiary bodies”. He noted that WIS is a key pillar supporting the functions of WMO programmes and activities. He stated that he “highly appreciated participants’ contributions and looked forward to a positive outcome of this meeting, which will promote the stable implementation and operation of WIS.” Mr Zhao invited participants to visit the NMIC and to provide comments and suggestion on the development of WIS in China. He wished the meeting a great success and wished everyone a pleasant stay in Beijing!
4. Mr Peiliang Shi, Director of WIS Branch thanked Mr Zhao and CMA on behalf of the WMO Secretary General, Mr Michel Jarraud, for CMA’s support of this meeting and the longstanding contributions and support of the implementation of WIS overall. Mr Shi noted that WIS was at an important crossroad in its moving from development and implementation to making it fully operational. CBS’s successful auditing of several GISCs is the outcome of some very diligent work of experts whose time and resources have been made available by Members. This is a great achievement with over 10 GISCs completed and with India to be scheduled soon followed by Region I GISCs in South Africa and Morocco.
5. Mr Shi emphasized the need for development of further guidance on WIS and how to involve and support other programmes. In particular, new initiatives such as the GFCS are going to be a big challenge as well as an opportunity for WIS as it is faced with a wider climate community than in the past.
6. Mr Shi highlighted that the meeting faced a very heavy workload with many documents provided by members and a lot to cover in the discussions. He thanked the GISC Beijing team for the amount of work that had gone into the preparation and support of the meeting. He noted that this is a very busy time of year for them given the hot and humid weather and subsequent range of extreme conditions they have to monitor and respond to.
7. Mr Matteo Dell’Aqua, chair of the Implementation-coordination Team on Information Systems and Services (ICT-ISS), thanked CMA for organizing and providing the facilities for the meeting. He highlighted that this is a very important meeting for OPAG ISS and for CBS with a main goal of the meeting being to progress the implementation of WIS. He noted that WIS was declared operational in January 2012 and that Congress XVI had highlighted the importance of all WMO Members implementing WIS and or ensuring WIS can fulfil all the requirements of Members and Programmes.
8. Mr Dell’Aqua stated that Capacity Development and Capacity Building are now critical noting that in his view, many NMHSs are not read to join WIS functionality. He stated that the reasons for this are varied, but highlighted that two elements to keep in mind are that some Members are yet to see the benefit of WIS, and many do not know how easy implementing WIS is. It is a major role of GISCs to assist in enabling Members to see and understand these two elements at least.
9. Mr Dell’Aqua highlighted that an important role of WIS is to share data between wider communities. Presently only experts can easily find data and products in WIS. ET-WISC needs to find ways to make WIS better in this regard. This also applies to WIS in its support of other priority activities, in particular WIGOS and GFCS. We need to ensure that relevant operational requirements of these activities are fully met by WIS. He noted that the expertise evident around the table of people at the meeting was essential in order to meet to meet these goals and thanked everyone for their submitted contributions and for making the time to be here.

### 1.2 Adoption of agenda and 1.3 Working arrangements

1. The meeting adopted the Agenda ([Doc 1](mailto:lixiang@cma.gov.cn)) attached as [Annex 1](#_Annex_1_–) to this report. It agreed to the working hours of 9am to 5:30pm. Lunch will be from Noon to 1:30pm, with morning and afternoon tea scheduled around 10:30am and 3:30pm respectively. It agreed to allocation of documents to agenda items as listed in the Document Plan ([Info 03 Rev 12](http://wis.wmo.int/doc=2613)) attached as [Annex 2](#_Annex_2_-) to this report. The agreed work plan is available online ([Info 04](mailto:don@ucar.edu) – Draft Work Plan Rev 5).

### 1.4 Background from Cg, EC and CBS

1. The meeting noted the report on the Sixteenth Session of World Meteorological Congress ([Doc 5](mailto:machua@meteo.go.ke%20;%20smmachua@yahoo.com)). It was pleased that most of the GISCs identified in Resolution 51 (Cg-XVI) as conditionally designated have now been certified by CBS with only Morocco and Pretoria still to set definite audit dates for TT-CAC. The meeting noted that progress on DCPCs has been less evident but that EC has recognized the work being undertaken by centres to be able to demonstrate their WIS functionality and that the conditional requirements identified in Resolution 51 (Cg-XVI) have been extended by both EC-64 and EC-65.
2. The meeting recalled the timelines on WIS implementation established by Cg XVI under paragraph 11.4.9 in which Congress noted and supported the following major activities and implementation target dates: (a) Improving the knowledge and capabilities of Members to benefit from WIS functionality, in particular least developed countries, developing countries and small island states through regional workshops and information sessions: 2012–2013; (b) Implementation of WIS at all NMHS national centres (NCs): 2012–2015; (c) Implementation of remaining candidate GISCs: 2012–2013; (d) Implementation of more DCPCs, i.e. WIS interfaces at WMO Programmes’ centres: 2012–2015; (e) Amendments to the Manual on WIS for enhanced operational arrangements of WIS centres, especially GISCs: 2014.
3. The meeting further noted that Congress had urged all Members and the Secretary-General to identify the necessary resources for reaching the objective.

1. The meeting reviewed the extracts ([Doc 6](http://wis.wmo.int/doc=2471)) from the “Abridged Final Report with Resolutions and Recommendations, Fifteenth Session CBS”. (WMO No. 1101). It noted that Resolutions 1, 2, 3 and 4 directly related to WIS, in the form of approval to updates to the Guide to WIS and Guides to VPN and IT Security, along with removal of Guides to the use of TCP/IP on the GTS and Provisional Arrangement for the use of IP Addresses over the GTS. It further noted the Recommendations 8, 9, 10 and 11 relating to the Manuals on WIS, GTS and Codes were subsequently approved by EC-65. All updates approved in the Report on CBS 15 are to be available by the end of 2013.
2. The meeting noted that several issues identified in the CBS report were relevant to the work of ET-WISC and that these will be addressed under the relevant agenda items
3. The meeting reviewed the EC “Approved working paper” on WIS as provided in ET-WISC-2013, Document 2, “Report on EC-65” ([Doc 2](mailto:Lothar.Wolf@eumetsat.int;%20DCPC@eumetsat.int)). It noted the Resolution 4.4(2)/1 in the document will appear in the Final Report on EC-65 as Resolution 13 (EC-65) “Amendments to the Manual on the WMO Information System”, Resolution 4. 4(2)/2 will be Resolution 14 (EC-65) “Quality Management and Infrastructure Development of the World Meteorological Organization Information System” and Resolution 4. 4(2)/3 will be Resolution 15 (EC-65) “Report of the Fifteenth Session of the Commission for Basic Systems Relevant to the Global Telecommunication System and Data Management-Related Technical Regulations”.
4. The meeting noted that in this way EC-65 has approved the recommendations and decisions of CBS-15, which incorporated the outputs of ET-WISC and other expert teams of OPAG-ISS including the addition of NCs to the Manual on WIS, the basis for the WIS monitoring and substantial increase in information about metadata management. As with the CBS document, it noted that the report of EC-65 had many issues relevant to the work of ET-WISC and that these will be addressed under the relevant agenda items.

## 2. Structure and Terms of Reference of ET-WISC and Task Teams

1. The meeting reviewed the structure and TOR of ET-WISC and its Task Teams (TT) based on Documents “Review of Task Team TOR” ([Doc 59](mailto:s_nishikawa@met.kishou.go.jp;%20gce00463@gmail.com)) and “ET-WISC TOR and Membership” ([Doc 68](http://wis.wmo.int/doc=2587) and its [Addendum](http://www.openarchives.org/OAI/openarchivesprotocol.html)). The meeting reviewed the Terms of Reference for ET-WISC as shown in [Table 1](#_Table_1_TOR) below and its task teams as summarized in the Tables 1 to 4 in “[Annex 3 - Task Team TORs](#_Annex_3_–).” The four Task Teams are: TT on Centre Audit and Certification ([TT-CAC](#_Annex_3_Table)); TT on Data Centres ([TT-DC](#_Annex_3_–_1)) covering all WIS DCPCs and NCs; TT on GISCs ([TT-GISC](#_Annex_3_-)); and TT on WIS Operations and Monitoring ([TT-OM](#_Annex_3_-_1)). ET-WISC core members, associate members and associated experts are listed in [Annex 4](#_Annex_4_–). Document 68 and its addendum also included work plans. Details of the ET-WISC and its Task Team work plans are covered under agenda item 8.

#### Table 1 - TOR for ET-WISC

|  |  |
| --- | --- |
| (a) | Review and further develop the technical and operational specifications for the components and interfaces of WIS Centres and criteria for interoperability, certification and Quality Management of WIS Centres; |
| (b) | Operate the procedures for technical endorsement of WIS centres and advise CBS on centres’ level of technical compliance with standards and procedures; |
| (c) | Review and develop the Manual on WIS (WMO-No 1060), the Guide to WIS and associated informal guidance to better meet the needs of Members; |
| (d) | Review, further develop and oversee WIS monitoring activities, including those aspects of monitoring relating to the effectiveness of information exchange on behalf of the WWW and other Programmes, and take action to address issues that are identified by monitoring; |
| (e) | Review, develop and coordinate recommended practices and guidance on management of and access to operational information related to exchange of information through the WIS; |
| (f) | Provide coordination and collaboration mechanisms for supporting the implementation and operation of WIS centres; |
| (g) | Advise the technical commissions and partner organizations on roles, responsibilities and implementation of WIS Centres; |
| (h) | Identify implementation and operational issues requiring the urgent consideration of the OPAG on ISS; |
| (i) | Propose procedures for periodic assessment of the WIS centres, especially GISCs. |

## 3. Review of WIS implementation

### 3.1. Status report of WIS centres

1. Sixteen documents were submitted to the meeting covering agenda item 3.1 on the details of centres implementation status of WIS. Most were also relevant to other agenda items including reports on AMDCNs and the GTS. Participants introduced their documents and the key details. Each document was also taken into consideration under the relevant agenda items. The session was chaired by Mr Markus Heene.
2. Dr PAN Chi-kin reported on the status of WIS implementation in Hong Kong, China ([Doc 11](http://wis.wmo.int/page=discover-weather_info)). The meeting noted that the DCPC for World Weather Information System (WWIS) would be made available to NMHSs that have joined the WWIS project with restricted access in the first phase. After the issue of data policy is agreed and established, the DCPC will be launched for access by the public.
3. Mr Henry Karanja reported on the status of WIS implementation at Nairobi RTH ([Doc 28](mailto:rabia.merrouchi@gmail.com,%20merrouchi.rabia@marocmeteo.ma)). His report addressed the responsibilities of the RTH, its GTS connections and use of TRANSMET systems, real time data monitoring. The meeting supported his recommended use of permanent internet to all outstations to complement existing means of communication; regular training of communication personal; and the upgrade of all AMSS to be able to handle TDCF. His report included Kenya’s roadmap to implementing WIS functionality based on an OpenWIS solution.
4. Mr Lothar Wolf reported on the status of WIS implementation at EUMETSAT ([Doc 30](http://wis.wmo.int/doc=2405)). The meeting noted that EUMESAT is an operational DCPC since 2010 and continuously evolves its WIS related services and interfaces. In particular to mention are the evolution towards a DVB-S2 service for EUMETCast satellite dissemination, creation of a complementary EUMETCast terrestrial dissemination infrastructure in Europe and the creation of an operational interface to vGISC node Toulouse for business continuity.
5. Mr Shigeharu Nishikawa reported on the status of WIS implementation in Japan. Three documents were presented: JMA Status Report ([Doc 34](http://wis.wmo.int/doc=2413)); Report on the GTS and AMDCN ([Doc 35](mailto:dgpakmet@gmail.com)); and Report GISC Workshop and Training Activities ([Doc 24](http://wis.wmo.int/doc=2459)). The meeting noted that JMA will migrate their MSS in October 2013. In this migration, there will be no need to change network configuration, the current status and architecture of which was described in the GTS and AMDCN report ([Doc 35](mailto:w.qu@bom.gov.au)). Aspects of the reports relating to training are under Capacity Building ([agenda item 7.3](#_7.3._GISC_workshops)).
6. Mr Leonid Bezruk and Mr Sergey Belov reported on the status of WIS implementation in Russia. Three documents were presented: Status report of WIS centres in Russia ([Doc 40](mailto:tzu@mecom.ru)); Current status of GTS at RTH Moscow ([Doc 52](mailto:shuahibu.gueye@orange.sn)) and a report on GISC Moscow workshops ([Doc 41](mailto:omerhudai@dmi.gov.tr)). The meeting noted the reported activities within the GISC Moscow implementation process. GISC Moscow implementation started in 2011, was completed in December 2012 and successfully passed the CBS audit in March 2013 thus meeting the conditional component of Cg XVI’s designation of Moscow as a GISC. The meeting further noted that GISC Moscow is going to be operational from the fourth quarter of 2013. Mr Bezruk highlighted that Roshydromet face some great challenges in making GISC Moscow operational. These include: GISC backup procedures implementation; Implementation of metadata templates for national data and products; and Identification and application of national data policy for non WMO data and products. Aspects of the reports relating to training are under Capacity Building ([agenda item 7.3](#_7.3._GISC_workshops)).
7. Mr Kevin Alder reported on the status of WIS activities in New Zealand ([Doc 47](http://wis.wmo.int/doc=2345)). The meeting noted that Wellington intended to seek endorsement in 2014 following an audit in late 2013. It also noted that Wellington is liaising with the following RA V national centres for WIS, providing advice on metadata and WIS activities: Fiji; Niue; Cook Islands; Samoa; Tonga; Tuvalu; Kiribati; and Tokelau.
8. Mr Robert Bunge reported on the status of WIS implementation in the United States ([Doc 48](http://wis.wmo.int/doc=2571)). The meeting noted that GISC Washington successfully passed its CBS audit in April 2013 and had begun incorporation of its associated DCPCs as well as coordinating with its GISC backup partner – Brazil. Mr Bunge advised that development of both a WIS overview initiative for DCPC/NC Candidates and WIS Training Plan are being established in order to assist DCPCs/NCs in their preparations for incorporation into GISC Washington and develop awareness within Region IV for support WIS functions as the next phase. This assistance will include providing guidance in metadata creation and area of responsibility as DCPC/NC. GISC Washington will also be planning capacity building for neighbouring countries, and participate in coordinating WIS workshops for Region IV.
9. Mr Wang Fudi reported on the status of WIS at GISC Beijing ([Doc 53](mailto:walid.gomaa@ema.gov.eg)). His report included details on the current connectivity on its GTS circuits as well as data dissemination over CMACast. The meeting noted that GISC Beijing is synchronizing metadata operationally with six GISCs: Exeter; Melbourne; Offenbach; Seoul; Tokyo; and Toulouse, and that it is in testing stage with GISCs Jeddah, New Delhi and Washington. The meeting noted the usage statistics on GISC Beijing that showed that up until July 2013 GISC Beijing had 80,000 visits by72 users from 33 WMO registered Members, including 24 WIMMS users.
10. Mr Markus Heene reported on the status of WIS in Germany ([Doc 58](http://wis.wmo.int/doc=2479)). The meeting noted that GISC Offenbach had established direct circuits to each operational GISC. It also noted that GISC Offenbach has provided the operational gateway for the WIS metadata into GEOSS since July 2012. Mr Heene highlighted that GISC Offenbach is setting up direct circuits and performing peer reviews of metadata with all organizations that nominated GISC Offenbach as their Principal GISC. He also highlighted that in addition to its specific centre outreach, GISC Offenbach held a joint WIS Workshop with the Turkish State Meteorological Service in October 2012. The meeting noted the work of GISC Offenbach in developing the backup processes for GISC to GISC. It noted the work with GISC Moscow for intra-regional backup and GISC Tokyo for inter-regional backup utilising the Internet.
11. Mr Jacques Anquetil reported on the status of WIS in France. He presented three documents: “Toulouse WIS Centres’ Status” ([Doc 62](http://wis.wmo.int/doc=2551)); “GTS AMDCN Toulouse current status” ([Doc 60](http://wis.wmo.int/doc=2559)); and “Workshop on UK Met Office and Météo France on vGISC” ([Doc 61](http://wis.wmo.int/doc=2347)). The meeting noted that GISC Toulouse had been operational since June 2012 and had established connectivity with GISCs Beijing, Exeter, Melbourne, Moscow, Offenbach, Seoul and Tokyo as well as DCPCs EUMETSAT and ECMWF. It noted the presentation of data volumes associated with metadata, data collection and download by users. Similarly, it noted the current status of the GTS and AMDCN for Toulouse, link speeds and protocols across a range of technologies and the traffic reports. The meeting noted the report on the RA VI vGISC workshop held from 5-7 June 2013 which is discussed under Capacity Building ([agenda item 7.3](#_7.3._GISC_workshops)).
12. Mr Rabia Merrouchi reported on the status of GISC Casablanca ([Doc 71](mailto:%20k-kosuge@met.kishou.go.jp)). The meeting noted the progress of WIS implementation is expected to be completed in 2014 along two axes; one being the upgrade of the Advanced Message Switching System (AMSS), the other being an independent implementation of the GISC functionality compatible with the AMSS. It further noted that Casablanca is upgrading its RMDCN connection and back up with the implementation of the Next Generation RMDCN (RMDCN NG) and has two independent high-speed internet links. These are being used as a GTS backup connection with GISC Toulouse. Mr Merrouchi reported that GISC Casablanca expected to play an important role in RA I in leading the implementation of WIS in the region through outreach and training actions.
13. Mr José Mauro de Rezende reported on GISC Brasilia ([Doc 72](http://www-db.wmo.int/WIS/centres/guidance.doc)). The meeting noted that since initial installation of their IBL solution and training in June 201l, GISC Brasilia has undergone internal testing and run successfully in pre-operational mode. Having been successfully audited by CBS in April 2013, INMET plan to put in place the required staffing arrangements, documentation and a MOU in place for GISC back up then announce the GISC as operational by end of 2013. The meeting further noted the commitment of INMET to work with the Regional Association and the WMO Secretariat to towards Regional implementation of WIS, including national, regional and global aspects.
14. Mr Antonio Vocino reported on the status of WIS in Italy ([Doc 73](http://wis.wmo.int/doc=2519)). The meeting noted that RTH Rome operated in the National Air Force Meteorological and Climatological Centre (CNMCA) and had completed the upgrade of their systems to make them WIS compliant and successfully audited by CBS in May 2013. Mr Vocino explained that WIS functionality was provided by an IBL solution running on a high availability HP cluster with a three year 24 by 7 support contract. He reported that current activities included further updates to the WIS catalogue and portal ( [http://dcpc.meteoam.it](http://dcpc.meteoam.it/)), addition of new non-GTS data, integration with AMSS, and associated staff and user training. The meeting noted that the Marine DCPC was in its early stages of development and not expected to be ready for auditing before early 2015.
15. Dr Sunghoi Huh reported on the status of WIS in the Republic of Korea ([Doc 74](http://wis.wmo.int/doc=2329)). The meeting noted that GISC Seoul utilised an OpenWIS solution and went operational in March 2013, operating on 10 servers supported by a Storage Area Network. It noted that KMA was now working on improvements and added functionality to the GISC as well as enabling the WIS functionality for DCPCs of WAMIS and LC-LRFMME operational, with a target date of March 2014.The meeting also noted KMA’s commitment to capacity building for WIS in the region, including a workshop run by GISC Seoul in December 2012, which is discussed under Capacity Building ([agenda item 7.3](#_7.3._GISC_workshops)).
16. Mr Chris Little provided a status report on GISC Exeter ([Doc 75](http://wis.wmo.int/doc=2449)). The report included details on GTS links and traffic as well as identifying additional WIS links such as those to ECMWF and NESDIS. The meeting noted that the continued increase in GTS volume presently about 22GB per day in and 23GB per day out. It also noted that the report included several other performance characteristics that could be a part of the routine WIS monitoring that could be considered by the task teams developing monitoring practices. It noted that the vGISC (Toulouse and Exeter) have been operational since June 2012 but that the cache and metadata catalogues were still to be fully populated. The meeting noted the items of interest about OpenWIS and the general questions on metadata addressed in the report. These, such as alerting ET-WISC to the pending migration of ISO19115:2006 to ISO19115:2013 and subsequent change of WMO profile from version 1.3 to 2.0, should be considered under the relevant agenda items and if necessary escalated to the relevant ET-WISC task teams or OPAG ISS expert team.

### 3.2 Report on Identification of principal and associated GISCs

1. The meeting reviewed a report on the identification of principal and associated GISCs ([Doc 7](mailto:hkjin@kma.go.kr)). It noted the status of the WIS centres’ identification of Principal and Associated GISCs and that at the time of the meeting only 12 of the 345 NCs and DCPCs had still to determine a Principal GISC. It noted that the amendments in the Manual on WIS approved by EC-65 clarified that a centre may be associated with multiple GISCs for the purposes of accessing and uploading data but may only have one Principal GISC for the purposes of publishing and synchronizing discovery metadata. It noted that the initial identification of Principal GISCs based on the GTS topology did not align well with the needs of RA II and RA VI. It noted that the associations between GISCs was evolving and that ET-WISC should continue to monitor centres’ associations with GISCs, including Principal, Backup, Associated and use of WIMMS even though only the principal is recorded in the Manual on WIS. It agreed TT-GISC should follow up on gathering more complete data on GISC associations, especially those needed for backup of principal GISCs.

### 3.3. Report on Centre Identification process

1. Mr Raoult, Team Leader for TT-CAC reported on the WIS centre identification progress ([Doc 08](http://wis.wmo.int/doc=2365)). The meeting noted that of the fifteen GICS identified in the WIS Centre Data Base[[1]](#footnote-1), ten have been successfully audited by ET-GDDP/TT-CAC and endorsed by CBS. Two GISCs have been successfully audited by ET-GDDP/TT-CAC but await CBS approval and that three GISCs are still to be audited. Of the 122 DCPCs in the WIS centres database, fifty-four DCPCs have been successfully reviewed by ET-GDDP/TT-CAC and endorsed by CBS. Eleven DCPCs have submitted to TT-CAC but have still to be certified by TT-CAC. Four DCPCs have been certified by TT-CAC but have not yet been endorsed by CBS. Fifty-one DCPCs have still to submit to TT-CAC.
2. The meeting noted that the rate of auditing was hardly sustainable due to the candidates setting themselves deadlines linked to the WMO calendar of EC session, in some cases leading to other problems. It noted that in general, candidates did not know what to expect from the audit so standard letter was used ([see Annex 5](#_Annex_5_–)) to provide guidance to centres to alleviate this problem. Other problems identified were that:
   * Some of candidates did not have the level of readiness expected by the auditors, which generated a lot of extra work for the latter;
   * Several candidates were “endorsed with qualifications” but there is as yet no formal procedure to check if the candidates are going to implement the auditors’ recommendations.

These issues were address under [agenda item 8.3](#_8._ET-WISC_and) and incorporated into the work plan for TT-CAC .

### 3.4. Report on WIS core network , migration to NG-RMDCN

1. The secretariat presented the report from Mr Remy Giraud, chair of ET-CTS ([Doc 9](http://wis.wmo.int/doc=2367)). The meeting noted that the development and maintenance of WIS Core Network was in the ET-CTS action plan as item CTS/a/7 and included the migration to the RMDCN Next Generation (NG-RMDCN). It noted that in line with EC-65 request that “all operational GISCs to connect to the WIS core network and transmit information collected from their area to all other operational GISCs”, ECMWF has been liaising with all the GISCs for establishing their connection to the NG-RMDCN and that eleven or twelve GISCs will participate in the initial deployment.
2. Details of the migration between the RMDCN provider (OBS) and the NG-RMDCN provider (Interoute) are provided in the report ([Doc 9](mailto:hkaranja@meteo.go.ke%20;%20hkaranja2001@yahoo.com)). The meeting noted the important contribution ECMWF was making to the implementation and support of the WIS core network and their acting as a gateway between the current OBS network and the new Interoute network, thus enabling all RMDCN sites to continue to inter-communicate during the migration period scheduled from 6 January to 6 February 2014, whether they are on the OBS network or have already migrated to Interoute. However, in order to minimise the overhead of running parallel networks, ECMWF will cease its connection to OBS in early May 2014. Sites not part of the Initial Deployment will not be connected to the NG-RMDCN network until after the end of the one-month migration window (February 2014), on a business-as-usual basis. There is a possibility that of a site doesn’t order its connection on time, it could be isolated from the other sites after the end of the gateway period.

### 3.5. Report on GTS and AMDCN (current status and plan, by participants)

1. The meeting addressed issues related to the GTS and AMDCN activities under the section 3.1 on WIS centre status reports. This included noting the documents from Japan ([Doc 35](http://wis.wmo.int/doc=2383)), Russian Federation ([Doc 52](mailto:olpetrova2004@yandex.ru)) , France ([Doc 60](mailto:james.penman@metoffice.gov.uk)) and the UK ([Doc 75](http://wis.wmo.int/doc=2365)). The meeting noted the circuits, their protocols and bandwidths as well as details of types of traffic were described in some detail in the documents presented under items 3.1 and 3.5. These should be used to update the capacities in the WIS GTS database.

### 3.6. Status of WIS implementation plans (Regional and National)

1. The meeting undertook an around the table discussion on the status of regional WIS implementation plans. It noted that RA VI and RA II were well advanced. RA VI implementation plan has been approved by the president of RA VI and circulated to Members with a project officer based in DWD Germany monitoring and coordinating the progress of Members. RA II approved the framework of the plan at its association meeting (RA II – 15) in December 2012, and is now finalising the plan for approval and circulation. RA V has initiated the process for a regional WIS implementation plan having held a Regional Infrastructure Working Group meeting in May 2013 adjacent to the GISC Melbourne workshop. GISC Melbourne will take a leading role in facilitating the implementation of WIS in RA V. The secretariat advised that RA I is in the process of developing a WIGOS Implementation Plan and because of the importance of addressing their communications issues to enable the collection and sharing of observations the Region are now incorporating the WIS implementation plan into the WIGOS plan through a series of sub regional workshops. GISC Brasilia is planning to forward a regional implementation plan as a part of their initial operations strategy, similarly for GISC Washington in RA IV.

### 3.7. WIS implementation solutions and applications

1. The meeting the ET-WISC meeting discussed the evolving role of online media in disseminating public all-hazard warnings ([Doc 17r1](http://wis.wmo.int/doc=2415) presented by Mr Eliot Christian). For instance, both Google and ValueClick have begun disseminating certain warnings published in the Common Alerting Protocol (CAP), as described in the flyer at [http://www.wmo.int/pages/prog/amp/pwsp/documents/OnlineMediaCAP\_Final.pdf](mailto:jmauro.rezende@inmet.gov.br) . Although deployed now in only a few countries, the approach can be deployed by all online media and everywhere that Internet is used. It is only necessary that alerting authorities publish alerts in the CAP format and as Internet news feeds.
2. This discussion surfaced the need for ET-WISC to issue specific guidance for WIS Centres about their CAP support requirement as an aspect of fast, secure and reliable exchange of alert and warning information. Accordingly, ET-WISC adopted the guidance as presented in [Annex 6 – “ET-WISC Guidance on CAP Support”](#_Annex_6_-).
3. Mr Shigeharu Nishikawa reported on the RA-II/V WIS Application Pilot Project[[2]](#footnote-2) ([Doc 21](mailto:alfred.hofstadler@ecmwf.int)) and GISC Tokyo’s subscription software ([Doc 26](http://wis.wmo.int/doc=2251)). The meeting noted that the RA-II/V WIS Application Pilot Project is an extension of the RA II and V VPN pilot project being undertaken by CMA and JMA. The meeting noted the metadata creation tool developed by JMA and that it can be used by Members to create metadata for new GTS bulletins. Mr Shigeharu demonstrated GISC Tokyo’s subscription software. The meeting noted that operation of this software is very easy and useful for ordinary PC users. Mr Shigeharu highlighted that the applications suited users that do not have servers and that the subscription software is important tool for facilitating the expanded usage of data files available in the GISC cache.
4. Mr Markus Heene presented a paper on Open Source tools for the implementation of WIS centres ([Doc 42](http://wis.wmo.int/doc=2433)). The meeting noted that the document discussed four open source tools that can be used for the implementation of WIS. The WMO metadata updater[[3]](#footnote-3) is an online editor. JOAI (Java open source implementation of the Open Archives Initiative (OAI) Protocol for Metadata harvesting) can be used to aggregate various OAI enabled sources in the organization and expose them externally. Geonetwork[[4]](#footnote-4) is both a powerful and complex metadata editor, as well as a discovery portal that supports some of the standards required for WIS. SUR2JDBC is software that can be used to make a JDBC[[5]](#footnote-5) database SRU enabled. The meeting noted that there were some modifications needed for WIS compliance with some of these applications. Also, maintenance of the systems has to take into account the regular modifications/updates of ISO19115 standards.
5. The meeting noted the pilot work undertaken by the secretariat in creating a GTS Abbreviated Header generator ([Doc 44](mailto:zhuting@cma.gov.cn)). Some participants expressed concern at reinforcing the continued use of Abbreviated Header Lines (AHL), possibly extending its usage in the GTS. The meeting’s concern was centred on the aspect that many centres were not complying with the AHL tables so an emulator would not necessarily facilitate DAR users in discovering metadata records.
6. Mr Jacques Anquetil presented [Doc 63](http://wis.wmo.int/doc=2485) to the meeting describing the OpenWIS solution and its associated consortium. The meeting noted that OpenWIS is scalable to meet the needs of NCs, DCPCs or GISCs and that the consortium includes Australia, France, South Korea and the UK who have utilised OpenWIS to implement their GISC. It noted that GISCs Moscow and Washington were utilising OpenWIS. It further noted that the [presentation](http://wis.wmo.int/doc=2451) and document provide a useful reference for people wanting to know more about OpenWIS and its governance.
7. Mr Jacques Anquetil reported to the meeting on the vGISC solution ([Doc 66](http://wis.wmo.int/doc=2283)) being undertaken by GISCs Exeter and Toulouse. The meeting complemented the governance structure reflected in the vGISC project noting that the arrangements in place are effective in managing multiple projects across organizations. It noted the vGISC service management framework was based on ITIL and included a service desk with: escalation procedures; incident-, problem-, change-, configuration-, and release-management; along with metrics and reporting. It noted how the OpenWIS solution supported the backup operation of each centre by the other.

### 3.8. Partnership with industry

1. Mr Ján Osuský (representing HMEI) led discussions on partnership with industry ([Doc 46r2](http://wis.wmo.int/doc=2499), [Doc 80](http://wis.wmo.int/doc=2523) and [Doc 81](mailto:colin.mathison@metoffice.gov.uk)). The meeting agreed that partnership between meteorological organizations and industry that provides products and services for meteorology is a win-win relationship. Purchasing software from a specialized company in many cases is cheaper than in-house development which is never reused. It noted that the reusability of the solution can be achieved by use of standardized protocols and formats. Mr Osuský reported that HMEI has good experiences with WMO bodies in publishing proposal for formats, protocols and procedures early enough to allow smooth integration into existing products or development of new as appropriate. Unfortunately sometimes it happens that the requirements are too high-level and not easy to transform into “real life” detailed requirements and use-cases. He emphasised that HMEI is willing to contribute in future to this process to accelerate transformation of new ideas and visions into daily used tools.
2. The meeting noted several suggestions from industry that would facilitate their role in supporting WMO Members. These were:
3. The technical aspects of synchronization of globally distributed data (aka 24 hour cache) need to be discussed by appropriate task teams to be able to come with clearly defined procedure and protocols as soon as possible because the global data cache is essential functionality of WIS.
4. As the WIS grows and more product descriptions (metadata) are harvested into the DAR catalogue more conflicting entries (metadata records with the same ID) appear. Therefore it is recommended to develop procedure which either identifies such duplicate IDs in advance or procedure to automatically resolve such conflicts.
5. It is recommended to detail service level of GISCs and other WIS centres in quantitative terms (required availability of logical components) in order to allow effective planning of WIS centre infrastructure. For example if the regular dissemination of data has highest required availability the centre may consider having this functionality available in its disaster recovery centre unlike other functions.
6. It is proposed to discuss product granularity to avoid flooding of DAR catalogue with too fine-grained records as well as to promote description of services which offer parameterized products.
7. To achieve interoperability all essential communication protocols should be defined in WMO manuals with as many technical details (as low level) as possible to avoid misinterpretation and emerging of proprietary standards. Of course, if possible, existing (common) protocols are preferred - but yet again - high level "meta" protocols and formats must be detailed.
8. The meeting noted that several HMEI members offer WIS software solutions, based on free-ware as well as commercial components, together with services necessary to deploy and maintain a WIS centre. Mr Osuský highlighted the following three:
   * **IBL Software Engineering**

Product name: Discover Weather

Complete software solution for WIS centres (GISC, DCPC, NC) based on DWD GISC solution. It is composed of:

Custom DAR catalogue and Metadata harvester

Custom Public and Admin web interface

Store and delivery engine based on IBL Moving Weather

JOAI (UCAR, DLS)

SRU2JDBC (WMO)

More information: [http://wis.wmo.int/page=discover-weather\_info](mailto:vocino@meteoam.it)

* **Corobor Systèmes**

Product name: MESSIR-WISS

Complete software solution for WIS centres (GISC, DCPC, NC) based on Geonetwork. It is composed of:

Custom DAR catalogue and Metadata harvester

Public web interfaces based on Geonetwork

Integrates Corobor’s MESSIR-COMM

More information: [http://wis.wmo.int/page=corobor-messir-wis](http://wis.wmo.int/doc=2393)

* **Meteo France International (MFI)**

Product name: OpenWIS

Complete software solution for WIS centres (GISC, DCPC, NC).

More information: <http://wis.wmo.int/page=openwis_info>

## 4. Review of the technical and operational specifications for WIS centres

### 4.1 – 4.4. Technical regulations, manuals and guides

1. The meeting reviewed [Document 18](http://wis.wmo.int/doc=2363). It noted that EC-65 had approved the CBS recommendations for updates to the Technical Regulations: The Manual on the GTS (WMO No 386), The Manual on WIS (WMO No 1060) and the Manual on the Codes (WMO No. 306). It further noted that The Guide to WIS (WMO No 1061) had also been approved. The meeting was pleased to see the expansion of the information in the WIS Manual and Guide relating to Discovery Metadata and to WIS Monitoring. These will form a major foundation for the work of ET-WISC in helping Members understand and implement metadata management as well as clarifying the difference between monitoring of the World Weather Watch and monitoring of WIS systems.
2. The meeting noted the changes proposed by ET-CTS had been accepted with the review of guides on GTS and WIS related communications issues, along with the removal of the now redundant TCP/IP and VPN guides. It noted that the Secretariat has a lot of work to do to ensure all these updated Manuals and Guides are available online this year for Members to start using them effectively.
3. The meeting noted EC-65 agenda item 7.5 on the restructuring of the WMO Technical Regulations. It reviewed the EC information document (EC-65-INF07-5-GUIDE-AMENDMENTS-TO-THE-TECHNICAL-REGULATIONS\_en.doc[[6]](#footnote-6)) and emphasized that although this document is not yet the final formal process, understanding of this document is essential for those expert teams reviewing or creating regulatory material or guidelines.

### 4.5. Report from ET-CTS

1. The secretariat presented the report from Mr Remy Giraud, chair of ET-CTS ([Doc 9](http://wis.wmo.int/doc=2367)). In addition to the details on the NG-RMDCN and WIS core network referred to as Objective CTS/a/7 discussed under [section 3.4](#_3.4._Report_on) above, the meeting noted there were several other important activities that ET-WISC should monitor. Included in these are the WMO IPv6 initiative (CTS/a/1), design principles for the WIS data communication structure (CTS/a/3), the review of Part II of the Manual on GTS (CTS/a/4) and the development of a coordination mechanism for satellite data collections systems (CTS/a/8). The meeting was pleased to see that ET-CTS had captured the requirement to contribute to two ET-WISC development activities, in particular the WIS educational and capacity development requirements (STS/a/5) and WIS monitoring requirements (CTS/a6).

### 4.6. Report from IPET-MDRD

1. The meeting reviewed the report from IPET-MDRD ([Doc 36r2](http://wis.wmo.int/doc=2561)) presented by Weng Peng. The meeting agreed with the proposal from TT-ApMD to recommend that the data policy keywords are included in all metadata, including that for data that is not exchanged through the GTS. The meeting agreed that the wording of the “WMOOther” policy should be changed to remove its limitation to data for global exchange.
2. The meeting noted the offer from NOAA to validate metadata in the WIS catalogue and welcomed the opportunity to monitor the conformance of the WIS metadata records with the Metadata Standard. It recommended that a feedback loop be included in the process.
3. The meeting emphasized that the updating of metadata must follow the agreed metadata review process and must not lose updates that have been made by Members or the metadata custodians. Providing these rules are followed, it agreed with the proposal from TT-ApMD that Principal GISCs may regenerate the metadata records for standard WWW bulletins on behalf of their AMDCN and must confirm the station identifiers, bounding boxes, contact details and data policies with the members of their AMDCN.
4. The meeting agreed with the TT-ApMD recommendation that metadata records for new bulletins be provided at least two months in advance so that routing tables can be prepared and users adapt their systems to take advantage of the new data. Taking account of the practicalities of managing the WIS, the meeting further agreed that the metadata records for altered or deleted bulletins should be changed in the catalogue at the time of the change (or, in the case of deletions, when the Principal GISC removed the final bulletin from its cache).
5. ET-WISC asked GISCs using OpenWIS to investigate techniques that would allow metadata records to contain a URL that would display the metadata through the GISC interface and thereby allow downloading of or subscription to the data.
6. ET-WISC agreed to investigate the possibility of configuring GISC metadata editors to include code list items as both an attribute and text in the xml for the metadata record.

### 4.7. Report from IPET DRMM on data representation, GTS headers and GTS filenaming convention

1. Mr Lothar Wolf reported on issues relevant to ET-WISC discussed at the IPET-DRMM meeting in July 2013 ([Doc 37](http://wis.wmo.int/doc=2415)). The meeting noted that IPET-DRMM had proposed criteria for measuring the completion of the migration to TDCF. The criteria were as follows: (1) No more changes to TAC for World Weather Watch (noting ICAO will require TAC until at least 2020); (2) all centres could operate were only TDCF information to flow on the GTS; and (3) no national centre is required to distribute World Weather Watch information in Traditional Alphanumeric Codes on the GTS. The meeting agreed with IPET-DRMM that the absence of a standardized API for accessing the TDCF was hindering migration activities, and agreed that a standard set of APIs (with maintenance, documentation, help desk) was needed.
2. In relation to codes, the meeting appreciated that IPET-DRMM has taken on the responsibility for maintenance of the methodology for defining GTS Product Identifiers (including the WMO file naming convention) and the Data Designators in Abbreviated Headings. It also noted the issues identified by the IPET-DRMM associated with liaising with ICAO to manage the evolution of the aviation codes (METAR, SPECI, TAF …) and supported the proposed fast track arrangements for all ISS manuals as already in place for the Manual on Codes.
3. The meeting noted the feedback from IPET-DRMM supporting investigation into the ET-WISC proposed changes to the Manual on GTS to incorporate Internet media types for WMO data ([Doc 12](http://wis.wmo.int/doc=2483)) and to relax the three letter limitation on file extensions ([Doc 13](http://wis.wmo.int/doc=2461)). IPET-DRMM also recommended to ET-WISC that files containing TAC should be handled as standard text files and considered that data represented in WMO XML schemas do not need to be treated differently from any other XML file. IPET-DRC agreed that it would be useful to add a media type of “crex”. The meeting taking into consideration ET-WISC documents [12](mailto:bernd.richter@dwd.de), [13](mailto:bezrouk@mecom.ru) and [37](mailto:chris.little@metoffice.gov.uk), agreed that action is necessary and recommended that WMO initiates a discussion within its expert teams in order to define media types for all WMO data formats, and register them according to the procedure defined in RFC4288. Noting that implementing operational changes to move .bin files to .bufr or .grib, etc. could take several years, discussion should include updating the Manual on GTS to remove the implied three letter file extension limit and to include html, grib and bufr leaving .htm and .bin as acceptable but discouraged. Recommendations resulting from these discussions should be presented to CBS in 2014 along with other proposed changes to the Manual on GTS.
4. In relation to encryption of ships names and call signs within BUFR, the meeting considered that proposed AES-256 symmetric encryption algorithm ([IPET-DRMM/Doc 3.1(2)](http://wis.wmo.int/doc=2465)) was a little excessive. The meeting noting that the present implementations inhibited proper quality control and usage of the data and agreed with the intentions expressed in [IPET-DRMM/Doc 3.1(2)](http://www.wmo.int/pages/prog/www/ISS/Meetings/IPET-DRMM_Tokyo2013/Documents/IPETDRMM-I_Doc3-1_2_Ship-Encode.doc).

# 5. Further develop the technical and operational specifications for WIS centres

### 5.1. Metadata synchronization

1. Mr Markus Heene (DWD) presented the paper on metadata synchronization ([Doc 39](http://wis.wmo.int/doc=2439)). He highlighted that as of June 1013, the WIS Catalogue contained roughly 150,000 records where 60,000 records described products intended for global exchange while 90,000 records described other products. The meeting noted that roughly 5.300 changes per month took place in the catalogue.
2. The meeting reviewed the analysis presented in the document. It noted that such analysis is available via GISC Offenbach and GISC Tokyo which offer public available OAI Synchronization monitors. It noted that for a deeper analysis of the differences it is essential that each OAI Provider identifies in an OAI request the OAI Set to which a record belongs. This is a “must requirement” according to the OAI PMH Version 2.0 specification[[7]](#footnote-7). In paragraph “2.6 set” the specification states that:
   * *“A set is an optional construct for grouping items for the purpose of selective harvesting. Repositories may organize items into sets. Set organization may be flat, i.e. a simple list, or hierarchical. Multiple hierarchies with distinct, independent top-level nodes are allowed. Hierarchical organization of sets is expressed in the syntax of the setSpec parameter as described below. When a repository defines a set organization it* ***must*** *include set membership information in the headers of items returned in response to the ListIdentifiers , ListRecords and GetRecord requests”*.
3. ET-WISC noted that the adopted architecture of OAI-PMH differentiates metadata from different GISCs based Sets. It therefor encouraged the GISCs who have not implemented the “**must requirement**” of OAI PMH Spec 2.6 to implement the set membership in the header. Furthermore ET-WISC noted that it is beneficial for monitoring if all GISCs offer an OAI set “WIS-CATALOGUE” as specified in the OAI-PMH guidelines[[8]](#footnote-8) although only three of the seven operational GISCs have implemented. The meeting agreed that all GISCs to check their synchronization status of the catalogues and to work on the identified findings. The presented guideline for moving metadata records between GISCs were reviewed and approved by ET-WISC
4. In order to ensure the full compliance with WIS standards in the longer term, the meeting suggested that specific testing for compliance with OAI PMH version 2 specification and the implementation of WIS-CATALOGUE should be included in the re-audit of GISCs.
5. Mr Shigeharu Nishikawa presented a proposal of guidelines for GISCs handing over the metadata role of principal GISC to another GISC ([Doc 29](http://www.wmo.int/pages/prog/amp/pwsp/documents/OnlineMediaCAP_Final.pdf)). The meeting reviewed and accepted the guidelines attached as [Annex 7](#_Annex_7_-). GISC representatives at the meeting agreed to implement this practice and to advise CBS accordingly.

### 5.2. Metadata Management Services

1. Mr Peng Wang (CMA) briefed the meeting on the management of Discovery Metadata ([Doc 38](http://wis.wmo.int/doc=2487)). The meeting noted that the document included background on the functions of discovery metadata, its relevant standards and specifications for conformance and an introduction to the discovery metadata model under development in the OPAG ISS IPETs and Task Teams. The meeting noted that this document would be a useful reference in the establishment of WIS competencies and monitoring to be discussed under agenda item 7.

### 5.3. Discovery Access and Retrieval

1. Mr Shigeharu Nishikawa reported on GISC Tokyo’s subscription software ([Doc 26](http://wis.wmo.int/doc=2389)) under [agenda item 3.7](#_3.7._WIS_implementation) above.

### 5.4. Search (Internal and SRU)

1. The secretariat gave a presentation on SRU in WIS ([Doc 14](http://wis.wmo.int/doc=2555)) adapted from the WIS DAR [training page](mailto:lslee@hko.gov.hk)[[9]](#footnote-9). The meeting recalled some of the background and motivation for remote search. It noted that the WIS remote search standard SRU was mainly applicable to searching across different catalogues (eg WIS and GEOSS). However, SRU can also be a powerful way of enabling search of WIS from any NMHS’s own web, controlling the output to look like it comes from that NMHS. It agreed that ET-WISC should develop a standard style sheet on WMO server for Members to use in order to create a standard looking output, or copy to add their own logos and display preference when using SRU on their web page.
2. The meeting noted that internal search across GISCs was quite varied in its presentation and suggested that some harmonization is presentation would make it easier for users.
3. The meeting noted the work developed jointly by GISC Tokyo the Secretariat in creating a plugin feature (Doc 49) of WIS discovery catalogue search interface. It noted the motivation of the project was to support NC’s implementation of WIS catalogue search interface on their websites and to make the catalogue more relevant to all users and staff members of NCs who are responsible for maintaining the catalogue. The plugin resides in GISC Tokyo server and is accessed by adding scripts in HTML pages. It enables any WIS centre to have WIS catalogue search interface on their own websites very easily, by embedding a few lines to access java scripts. The meeting agreed that this kind of feature nurtures NCs’ sense of participating in WIS activities, which may encourage users to access more and to use of the catalogue and efficient updates of metadata records for their data/products.
4. The meeting reviewed “Search (Internal and SRU)” ([Doc 55](http://wis.wmo.int/doc=2603)) presented by Mr Markus Heene (DWD). The document outlined two methods for analysing the search behaviour of a GISC. Method 1 analyses the user input and groups the user input into categories. The users of GISC Offenbach are searching for geographical search terms (cities, countries, …), domain terms (meteorological keywords, station ids, …) and terms in German language. Method 2 defines four test cases with search terms which were issued against each operational GISC. Method 2 demonstrated that the GISCs produce different result sets from the same metadata. Furthermore method 2 showed that the result set varied between GUI and SRU search.
5. The document briefly discussed browsing and demonstrated in a next step the data availability on basis with a few control samples. As an appendix JMA and DWD prepared an overview about the message format found in the 24h caches.
6. Mr Shigeharu Nishikawa reported on the results of DWD and JMA investigation of differences of the file format of each GISC Cache ([Doc 56](mailto:ssdo@korea.kr)). The meeting noted that there are only minor differences, but these can result in serious inconvenience to the users, especially in case of active GISC backup procedures. The meeting further noted that in addition to supporting DAR, a principal role of the cache is to provide reruns to users so it is essential that not only the “text” contents of any message is preserved but the headers must be in place to allow the ingestion application of the rerun recipient to decode and process the information as if it was the original live feed. In particular, both authors noted that the file format “text part” option is not compatible for all MSSs
7. Noting the results of the study and the recommendations of the authors, the meeting encouraged all GISCs to use the full “Meteorological bulletin” as default representation of GTS-bulletin data instances. In addition, some participants suggested adding definition of what the “Meteorological bulletin” means.
8. Mr Shigeharu Nishikawa reported on the access analysis of GISC Tokyo’s search page ([Doc 57](http://wis.wmo.int/doc=2355)). The meeting noted that most access to the search page is by internet BOT and that regular access is relatively rare at only 26 percent. It also noted that 20 percent of access was via the Search.jsp and 80 percent by the SRU.jsp. Mr Nishikawa mentioned that analysis for “Search words” was interesting and suggested that it would be useful for all GISCs operation to undertake similar investigations and share the result.

### 5.5. User management

1. Mr Lothar Wolf presented a paper on the relevance of implementation of data access policies in WIS ([Doc 31](http://wis.wmo.int/doc=2595)). The meeting agreed that with regards to the relevance of data access policy implementation in WIS it is essential that:

* Data Providers are encouraged to express the data policy of their products consistently and complete;
* Data Providers are encouraged to always indicate the data policy in the Meta data records. If data is considered “free” then this should also be stated e.g. “No limitations”.
* DCPCs and GISCs have technical mechanisms to present data policies (WMO data policies and non WMO data policies, e.g. DCPCs) in the best possible way to users.
* To make use of the distribution information consistently;
* Methods for user registration, access control, authentication and distribution restrictions are the minimum and are not an exclusive list of aspects;
* The current WMO data policy key words are typically sufficient if applied consistently;
* ET-WISC together with IPET-MDRD should set the standards to clearly and consistently express the methods necessary within the Meta data to present data policies to the users. Governance rules and examples could be provided to typical data protection scenario (WMO policies, bilateral Exchange, creative commons, publicly available). If the need is recognized, the WMO\_DataLicenseCode could be expanded and new meaningful keywords created to allow expandability in recognition of the ever-growing number and types of data providers.
* The applicability of the WMO data policy definitions should be clearly defined or referenced in the Manual on WIS e.g. “Those categories are applicable to WIS data in general”.

### 5.6. Security and Management of data access policies

1. Mr Jacques Anquetil presented the OpenWIS philosophy on security service and authentication for GISCs, DCPCs and NCs ([Doc 69](http://wis.wmo.int/page=wistraining-102)). The meeting noted the user management issues addressed by the OpenWIS solution. It noted the need for WIS to decide on a standard for exchanging user roles to enable GISCs DAR functionality of to pass requests for data to other GISCs and data centres. It requested the TT-GISC to review the Single Sign On (SSO) and other standards as used in OpenWIS in consideration for recommendation as WIS standards to be presented to CBS 2014.

### 5.7. User interface

1. Mr Baudouin Raoult presented a document on user interfaces ([Doc 19](http://wis.wmo.int/doc=2367)). The meeting noted that given the modern experience of Google and other search engines, users expect simple search interfaces and very good ranking system, as well as a readable summary of the search results. The meeting noted that there is a non-negligible risk that the WIS portals, which are the display of the WIS to the outside world, are so complex and so geared towards World-Weather-Watch export users that the uptake by other programmes and other communities will not happen. The meeting agreed to the proposal for ET-WISC to initiate:

* a reflection of the issue of WIS portal usability, performance and consistency;
* liaise with other ET to provide some guidelines on how to improve the user experience;
* establish some metrics to measure how many non-WWW users are making use of the WIS;
* define some portal-specific tests to be performed during the recurring audits.

### 5.8. Interoperability with other systems, including GEOSS

1. Mr. Markus Heene (DWD) presented on WIS - GEOSS interoperability ([Doc 23](http://wis.wmo.int/doc=2415)). The meeting noted that the WIS metadata catalogue has been included in GEOSS (Global Earth Observation System of Systems) operationally since 13th July 2012. It noted that changes in any WIS metadata are automatically synchronized in the GEOSS portal. Technically this is realized via the “Euro-GEOSS Broker” which harvests the WIS catalogue fom GISC Offenbach via OAI-PMH; GISC Tokyo serves as backup gateway.
2. Dr Sunghoi Huh presented on metadata management services ([Doc 43](http://wis.wmo.int/page=corobor-messir-wis)) discussing the possible approaches to synchronize the metadata between WIS and GEOSS discovery metadata catalogues. (GISC and GEOSS Portal). He suggested that GISC Seoul can take on a role of WIS-GEOSS gateway as a possible way to ensure GEOSS Data is available in WIS if current remote search method is interrupted. In addition to mirroring the catalogue, GISC Seoul could also be a mirror SRU service for SRU users presently relying on the GEOSS portal SRU server. The meeting noted that by harvesting GEOSS metadata, GISC Seoul would make available GEOSS metadata to all GISCs via WMO’s standard OAI-PMH metadata synchronisation.
3. Mr Lothar Wolf presented “Interoperability Principles” ([Doc 32](http://wis.wmo.int/doc=2485)). The meeting noted that interoperability is the driving force in WIS and the key to success and making WIS useful to the community. Interoperability cannot be seen in isolation within one community and should adhere to a number of generic principles such as:

* focus on standardization; and
* clear abstraction; while
* being flexible enough; to
* adopt the metadata representation to the needs of the different communities.
* With regards to adherence to standardization it is most important to have clear defined and documented interfaces and implementation guidelines.
* Definition and adherence to a clear change process.

This will allow the interoperability of WIS centres within different projects, programmes or initiatives of different communities outside WIS and by such, in general, enhance the service provided to the users. The meeting recommended adding such principles and implementation elements into WIS Interoperability Guidelines.

### 5.9. Procedures for periodic assessment of the WIS centres, especially GISCs.

1. Mr Baudouin Raoult briefed the meeting on TT-CAC experiences from the audit and review process of WIS centres to date ([Doc 08](mailto:wangfd@cma.gov.cn)). The meeting, taking into consideration the experience and findings of the ET-GDDP/TT-CAC, recommend that GISC audits should be aligned with CBS/EC cycle of four years and that for centres that had a “qualified audit” that its next audit should be at a shorter time scale than GISCs that received an unqualified audit. 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. The meeting noted that future audits will be done remotely when possible. It agreed that GISCs that receive an “endorsed with qualifications” will be re-audited after a shorter period of 2 years, unless they can demonstrate that they have taken remedial action on the points of qualification within that period. It recommends that a GISC that does not address the points of qualifications will fail their next audit. The GISC will then have to go through the entire process
3. GISCs must also have demonstrated their commitment to their role in WIS. In particular, each GISC should name a representative to the TT-GISC. Attendance (physical or virtual) to the meetings of this task team will be taken into consideration by the TT-CAC during the rolling review when assessing the level of commitment of the GISC to the WIS
4. For DCPCs, the meeting recommended the cycle of at least eight years. Monitoring of NCs compliance will mainly be the responsibility of the Permanent Representative in liaison with Principal GISC and NC.
5. The meeting recommended that an audit or review of any centre’s compliance with WIS could be triggered by the president of CBS if sufficient concern or justification is identified by the CBS President or Management Committee.
6. The meeting requested TT-CAC to note the recommended frequency of audits and to continue to develop the procedures for review by CBS 2014

# 6. Review of WIS monitoring activities

1. Mr Lothar Wolf presented “End User Requirements on WIS monitoring and reporting” ([Doc 33](http://wis.wmo.int/doc=2343)). The meeting, noting the Manual on the WIS requirement that all WIS centres shall participate in monitoring the performance of WIS, agreed with taking the perspective of what information is useful for the end users. It agreed ET-WISC should:

* Define an information set per WIS Centre type to be commonly monitored and reported upon to the end-user;
* Decide on where this end-user monitoring information should be placed, eg. on the WIS function front page of each WIS Centre;
* Define what information should be monitored that requires joint WIS centres interaction;
* Identify relevant technical monitoring applications or solutions that any WIS Centre can adopt, adapt or create to meet the monitoring and reporting requirements;
* Update the Manual on WIS and Guidelines in the area of monitoring and reporting requirements to provide centres a basis to implement and evaluate their compliance;
* Include monitoring and reporting implementation into the WIS Centre compliance assessment process.

### 6.1. WWW – AGM, etc

1. The meeting noted Mr Yu Liu’s (CMA) report on the development and test progress of the Integrated Quantitative World Weather Watch Monitoring Analysis (IQWMA) software ([Doc 51](mailto:duncan.jeffery@metoffice.gov.uk)). It noted that the secretariat was already using this system for production of annual reports and was working closely with CMA to move the system into operations, including validation of the system against past years. It was pleased that CMA planned to pass all tests, including SMM analysis, SAM analysis, TDCF monitor, and provide a release version this year. The meeting expressed its appreciation to CMA for the development work already done and for its plan to integrate all the analysis results to GISC Beijing portal. It noted that users will be able to view IQWMA’s analysis charts and download analysis tables and KML files from GISC Beijing portal.
2. The meeting noted the results of the 2012 Annual Global Monitoring of the World Weather Watch ([Doc 10](http://wis.wmo.int/doc=2375)). It concluded that where most stations in a country were silent, this may be an indication that there are telecommunications problems either in that country or between that country and its RTH. The meeting decided to ask for assistance from RTH Dakar, RTH Nairobi and RTH Pretoria to investigate solutions to problems in Region I.

### 6.2. Migration to TDCF

1. No specific documents were submitted relating to migration to TDCF.

### 6.3. WIS system and performance monitoring

1. The meeting noted the Demonstration Test Cases ([Doc 15](http://www.wmo.int/pages/prog/www/ISS/Meetings/IPET-DRMM_Tokyo2013/Documents/IPETDRMM-I_Doc3-1_2_Ship-Encode.doc)) proposed for National Centres in the RA VI implementation plan included as [Annex 08](#_Annex_8_–) to this report. They agreed that GISCs should use these standard test cases to demonstrate NCs compliance with WIS. It recommended that all GISCs use these test cases in their area of responsibility and liaise with NCs to undertake the relevant tests. It requested the TT-DC and the TT-GISC to liaise and review the WIS Manual and Guide and to recommend how to incorporate this decision. The meeting further asked the TT-OM to take into consideration this recommendation on operational and monitoring activities.
2. The meeting noted Mr Shigeharu Nishikawa’s report on GISC Tokyo’s system and performance monitoring which included MUNIN, AWSTAT and self-developing tools. It noted that the External (internet) network status is monitored from the supplier website showing real-time traffic graph, logs, and periodical report s. It noted that internal networks and servers were monitored using an open source resource monitoring tool MUMIN. Open source log file analysis software AWSTATS is used to monitor ftp and http logs as well as the GISC Cache. Metadata synchronisation is monitored with an in-house developed tool called “OAI-PMH Sync Monitor” He mentioned that "Comparison on Actual data catalogue and WIS Metadata" and "Subscription Monitoring" is useful performance monitoring for GISC’s operation and also helps users.
3. Mr Leonid Bezruk (Roshydromet) presented a paper on WIS system and performance monitoring ([Doc 45](http://wis.wmo.int/doc=2463)). The meeting reviewed the proposals on arranging the core network monitoring and the GISCs connected to it. It requested TT-OM to review the documents presented on this topic and define specific parameters subject to be monitored at this level, a format for presentation of reports and the periodicity of their presentation

### 6.4. Test beds, reference installations and sites

1. Mr Markus Heene (DWD) presented the paper on test beds, reference installation and sites ([Doc 25](http://wis.wmo.int/doc=2425) and its [Appendix](http://wis.wmo.int/doc=2491)). The meeting noted the SRU test suite and OAI test server and requested that all GISCs run the presented test suites and work with TT-GISCs on addressing any issues identified.

### 6.5. Workshop on WIS monitoring requirements

1. No papers were submitted on this topic, however, the meeting agreed that before centres can commit fully to implementing WIS they must have a clear understanding of the monitoring requirements identified in the Manual on WIS. In order to develop the monitoring requirements for WIS for presentation to CBS 2014, it is essential to bring together as soon as possible appropriate experts to accelerate the preparation of relevant material for the WIS Manual and Guide taking into consideration the world weather watch monitoring. Experts should include representatives of all the OPAG ISS expert teams and ICT-ISS chair and co-chair.

# 7. Capacity building

### 7.1. Capacity building and education strategy

1. Mr Robert Bunge presented a document on capacity building ([Doc 67](http://wis.wmo.int/doc=2419)) reminding the meeting of ET-WISC previous decisions and background for developing a capacity building and education strategy for WIS. The meeting agreed to consider this document when updating the capacity building component of the ET-WISC action plan and to make appropriate recommendations to ICT-ISS and relevant expert teams.
2. The meeting noted the need to identify extra-budgetary funding opportunities and partnerships that could be used to further WIS implementation. Such opportunities could include advocating at institutional or national level for funding to host fellows or run courses, providing staff for jump start activities, identifying projects that have communications aspects and ensuring that WIS is embedded in those projects.
3. The meeting agreed to develop a guide Members on how to access and support training on and for WIS. The proposal could cover identification of institutions (GISCs, Regional Training Centres ..) that can provide training workshops (face-to-face or online), secondments and support over the 2014 to 2019 time frame and funding opportunities

### 7.2. Workshop on establishment of WIS curriculum and competencies

1. The secretariat briefed the meeting on progress in the development of a WIS competency framework ([Doc 20](http://wis.wmo.int/doc=2389)). The meeting noted EC-65 statement that “it is now essential to develop a structured training package for WIS and to investigate the feasibility of a competence framework for those with responsibilities for operating and managing WIS centres”. It agreed that the identification of WIS related tasks and the skills needed to benefit from WIS by centres should be undertaken as soon as possible in order to meet this request from EC-65 and for the benefit of Members hoping to benefit from WIS. It agreed to the need for a workshop for the purposes of development of WIS competencies and curriculum. Participants should include representatives of all the OPAG ISS expert teams and ICT-ISS chair and co-chair. It expects that the workshop will be in Geneva from 1 to 4 October 2013. Outputs of the workshop should be made available to ET-WISC for review by February 2014. Outputs should include an analysis of Job Tasks, Competencies, Training needs and a draft Curriculum for consideration of CBS OPAG-ISS Expert Teams under the leadership of ET-WISC; and, a draft workplan for consideration of ET-WISC and other OPAG-ISS groups for the implementation of the workshop findings with an aim for final consideration at CBS 2014.

### 7.3. GISC workshops and training activities

1. JMA’s reported on GISC Workshop and Training Activities ([Doc 24](http://wis.wmo.int/doc=2527)) under agenda item 3.1 “[Status report of WIS centres](#_3.1._Status_report)”. The meeting noted the training activities in which JMA has been involved. This included a workshop that was held at JMA Headquarters in Tokyo, from 22 to 24 October 2012. It was attended by sixteen participants from eight National Meteorological and Hydrological Services (NMHSs) in Bangladesh, Cambodia, Laos, Myanmar, Philippines, Sri Lanka, Thailand and Viet Nam. It also noted JMA’s involvement in WIS workshops in Qatar (26-30 Jan 2013) and Melbourne (29 April to 3 May 2013).
2. Mr Leonid Bezruk reported on Roshydromet’s GISC Workshop and Training Activities ([Doc 41](http://wis.wmo.int/doc=2585)) under agenda item 3.1 “[Status report of WIS centres](#_3.1._Status_report)”. The meeting noted that Roshydromet hosted its first national training courses for potential NCs from the Area of Responsibility. Training courses included: metadata basics; metadata management for national profiles; and use of the GISC as a virtual NC. Representatives from twelve national centres (like Belorussia, Armenia, etc.) received theoretical and practical lessons on WMO metadata and use of the GISC functionality.
3. Mr Jacques Anquetil reported on GISC Workshop and Training Activities ([Doc 61](http://wis.wmo.int/doc=2607)) under agenda item 3.1 “[Status report of WIS centres](#_3.1._Status_report)”. The meeting noted that Météo France and the Met Office hosted a workshop on the vGISC implementation in region VI. The workshop was held in Toulouse from 5 to 7 June 2013. The meeting noted that the workshop gave participants a better understanding of NC and DCPC functions, of GISC responsibilities towards NCs and DCPCs connected to them. It also helped sites connected to the vGISC to better understand the service level offered to producer and consumers of data. The main role of GSIC was reaffirmed in the support provided by GISCs to NCs and DCPCs in their area of responsibility to make their data more visible.
4. The meeting noted that the vGISC workshop helped participants to understand how to manage their metadata (metadata update, creation or modification) through a GISC portal or how to be harvested by their principal GISC. It noted that participants also learned that the OpenWIS open-source software is already used by a large number of NMHS to run WIS operation. The software can be used by NMHS for building their NC or DCPC. An organisation is in place to support the software and plan its future enhancements.
5. The report on the vGISC workshop noted that the participants stated that this face to face meeting was a very good opportunity to share view on WIS, to better understand the concept behind it and the interaction between GISC, DCPCs and NCs and to exchange plan and idea with other region VI members. The report also concluded that regular workshops should be organised to promote the use of WIS.
6. Dr Sunghoi Huh reported on GISC Seoul Workshop of December 2012 ([Doc 76](http://wis.wmo.int/doc=2583)). The meeting noted that the workshop included 34 participants from 14 countries plus the WMO Secretariat. Dr Huh highlighted that the participation from all operational and pre-operational GISCs made this workshop more meaningful. He further highlighted that the workshop included a joint session with CORDEX (Coordinated Regional Climate Downscaling Experiment) was a good opportunity to introduce climate people to WIS. The meeting noted that the workshop included participation of OGC and that the benefits engaging OGC standards into WIS were discussed, including presentations on OGC activities Météo France and the Met Office.

# 8. ET-WISC and Task Teams membership and action plans

1. Several side meetings of the ET-WISC task teams were conducted during the ET-WISC meeting. Although some task teams had already met by teleconference, this was the first opportunity for most of the task team members to meet with the team leaders. An interactive process was established between the task team meetings and plenary in order to refine task team terms of reference, membership and action plans.
2. The meeting agreed to the revision of the Terms of Reference ([Doc 78](http://wis.wmo.int/doc=2397)) for ET WISC Task Teams ([TT-GISC](#_ToR_for_ET), [TT-DC](#_ToR_for_ET_1), [TT-CAC](#_ToR_for_ET_2), [TT-OM](#_ToR_for_ET_3)) as defined in [Annex 9](#_Annex_9_–).
3. The meeting agreed on the proposed action plans for ET-WISC as listed in [Annex 10](#_Annex_10_-) and on membership. It also reviewed the ET-WISC membership and that of the task teams.
4. The meeting requested the secretariat to update the TORs, action plans and membership lists in the WIS Contacts Database for publication with other OPAG-ISS teams[[10]](#footnote-10).

# 9. Other business

1. No other business was raised.

# 10. Closing of the meeting

1. Mr Peiliang Shi summarised that this meeting had successfully reviewed the status of WIS implementation. He noted that he was pleased too that, in addition to the ET-WISC plenary covering such a wide range of topics made possible by the excellent preparation of so many contributions, the meeting managed to also hold four side meetings of the Task Teams. This enabled the task teams to review their terms of reference and work plans. It is exciting that WIS is so clearly transferred from its development and initial implementation stage to an operational phase.
2. Mr Shi noted that there are a lot of issues now to be addressed by CBS groups but we are now in a better position to serve our Members in the implementation of WIS. He noted the willingness of experts to participate in WIS activity. Their enthusiasm is very much visible to and appreciated by the secretariat and that we are very lucky to have this support. He promised in return to support the work of this team the best he can. He was also happy to see Moroccan and Iranian representation at the meeting and welcomed them to the group. He encouraged them to continue to work with other GISCs and the secretariat to further the implementation and success of WIS.
3. Mr Shi thanked CMA staff for their support and facilities during the meeting and complemented them on the successful development of their National Meteorological Computing Centre. He thanked all again for their participation and wish all a safe and pleasant journey home.
4. Ms Li Xiang thanked Mr Shi for his comments on behalf of her staff and of the meeting participants. She congratulated all on such a busy and successful meeting and reinforced Mr Shi’s good wishes for safe homeward travel and closed the meeting.

--------------------

# Annex 1 – Agenda

1. **Opening and working arrangements**
   1. Opening
   2. Adoption of agenda
   3. Working arrangements
   4. Background from Cg, EC and CBS
2. **Structure and Terms of Reference of ET-WISC and TTs**
3. **Review of WIS implementation**
   1. Status report of WIS centres
   2. Report on Identification of principal and associated GISCs
   3. Report on Centre Identification process
   4. Report on WIS core network , migration to NG-RMDCN
   5. Report on GTS and AMDCN (current status and plan, by participants)
   6. Status of WIS implementation plans (Regional and National)
   7. WIS implementation solutions and applications
   8. Partnership with industry
4. **Review of the technical and operational specifications for WIS centres**
   1. Overview of proposed changes to Tech Regs
   2. Manual on WIS
   3. Guide to WIS
   4. Manual on GTS
   5. Report from ET-CTS
   6. Report from IPET MDRD in metadata and related issues
   7. Report from IPET DRMM on data representation, GTS headers and GTS filenaming convention
5. **Further develop the technical and operational specifications for WIS centres**
   1. MD synchronization
   2. MD management services
   3. DAR
   4. Search (internal and SRU)
   5. User management
   6. Security and Management of data access policies
   7. User interface
   8. Interoperability with other systems, including GEOSS
   9. Procedures for periodic assessment of the WIS centres, especially GISCs.
   10. Other issues
6. **Review of WIS monitoring activities**
   1. WWW – AGM, etc
   2. Migration to TDCF
   3. WIS system and performance monitoring
   4. Test beds, reference installations and sites
   5. Workshop on WIS monitoring requirements
7. **Capacity building**
   1. Capacity building and education strategy
   2. Workshop on establishment of WIS curriculum and competencies
   3. GISC workshops and training activities
8. **ET-WISC and Task Teams membership and action plans**
   1. TT-CAC (Centre Audits and Certification)
   2. TT-DC (Data centres )
   3. TT-GISC
   4. TT-OM (WIS Operations and Monitoring)
   5. ET-WISC
9. **Other business**
10. **Close**

# Annex 2 - Document Plan

| **Agenda Item** | **Title** | **Document No. Presentation** | **Submitted by** |
| --- | --- | --- | --- |
| **INF** | **Logistical information for Participants** | Inf 01 | Chair |
| **INF** | **List of Participants** | Inf 02r2 | Secretariat |
| **INF** | **Document Plan** | Inf 03r12 | Secretariat |
| **INF** | **Work Plan** | Inf04r5 | Chair |
| **1.2** | **Agenda** | Doc 01r1 | Chair |
| **1.3** | **Working arrangements** | Inf 04 | Chair |
| **1.4** | **Background from Cg, EC and CBS** | Docs 02, 05, 06 | Secretariat |
| **2** | **Structure and Terms of Reference of ET-WISC and Task Teams** | [Online](http://wis.wmo.int/doc=2421) (Meeting Page) | Secretariat |
| (1) Review of Task Team TOR (2) ET-WISC TOR and Membership | Doc 59 Doc 68&Add | M.DellAqua Secretariat/Chairs |
| **3.1** | **Status reports of WIS Centres** | Allocated on receipt | Participants |
| (1) Hong Kong, China  (2) ECMWF  (3) RTH Nairobi, Kenya (4) EUMETSAT  (5) JMA (6) GISC Moscow (7) RTH Wellington (8) GISC Washington (9) GISC Beijing (10) DWD (11) GISC Toulouse (12) GISC Casablanca (13) GISC Exeter (14) GISC Seoul (15) RTH Rome (16) GISC Brasilia | Doc 11r1 Doc 09 Doc 28 Doc 30 Doc 34  Doc 40r1 Doc 47 Doc 48 Doc 53 Doc 58 Doc 62r1 Doc 71 Doc 75 Doc 74 Doc 73 Doc 72 | C.K. Pan B.Raoult H. Karanja L. Wolf  S.Nishikawa S.Belov K.Alder R.Bunge F.Wang M.Heene J. Anquetil R.Merrouchi C.Little S.Huh A.Vocini J. M.Rezende |
| **3.2** | **Report on Identification of principal and associated GISCs** | Doc 07 | Secretariat |
| **3.3** | **Report on Centre Identification process Report from ET-GDDP 4** | Doc 08 Doc 03 | B.Raoult Secretariate |
| **3.4** | **Report on WIS core network , migration to NG-RMDCN** | Doc 09 | Remy GIRAUD |
| **3.5** | **Report on GTS and AMDCN** |  |  |
| (1) JMA (2) Moscow (3) Toulouse  (4) Nairobi  (5) Offenbach | Doc 35 Doc 52 Doc 60 Doc 28 Doc 58 | S.Nishikawa L.Bezruk J. Anquetil  H. Karanja  M.Heene |
| **3.6** | **Status of WIS implementation plans (Regional and National)** | - | - |
| **3.7** | **WIS implementation solutions and applications** |  |  |
| (1) Common Alerting Protocol (CAP)  (2) RA-II/V WIS Application Pilot Project (JMA) (3) Open Source Tools for WIS (4) Practical experiences with WIS centres  implementations (5) OpenWIS  (6) vGISC solution (7) HMEI (8) Corobor MESSIR | Doc 17r1 Doc 21 Doc 42 Doc 46r2  Doc 63 Doc 66 Doc 80 Doc 81 | E.Christian S.Nishikawa  Secretariat J.Osuský  J. Anquetil J. Anquetil  J.Osuský  Corobor |
| **3.8** | **Partnership with industry** | Doc 46r2, Doc 80, Doc 81 | J.Osuský |
| **4.1** | **Overview of proposed changes to Tech Regs** | Doc 18 | Secretariat |
| **4.2** | **Manual on WIS** | Doc 18 | Secretariat |
| **4.3** | **Guide to WIS** | Doc 18 | Secretariat |
| **4.4** | **Manual on GTS** (2) Media Types (3) File naming | Doc 18 Doc 12 Doc 13 | Secretariat B.Raoult B.Raoult |
| **4.5** | **Report from ET-CTS** | Doc 09 | R.Giraud |
| **4.6** | **Report from IPET MDRD in metadata and related issues** | Doc 36r2 | J.Tandy |
| **4.7** | **Report from IPET DRMM on data representation, Abbreviated Header Line (AHL) and GTS filenaming convention**  (1) IPET DRMM Report (2) Media types (3) File naming | Doc 37 Doc 12 Doc 13 | S.Elliott B. Raoult B.Raoult |
| **5.1** | **MD synchronization** |  |  |
| (1) Metadata Synchronization Guideline (2) Metadata Synchronization monitoring findings | Doc 29 Doc 39 | J.Hasegawa Heene/ Hasegawa |
| **5.2** | **MD management services** |  |  |
| (1) Metadata Management Services (CMA) (2) Metadata Management Services (KMA) (3) Management of Metadata Sets (MF) | Doc 38 Doc 43r1 (64) withdrawn | P.Wang S.Huh J. Anquetil |
| **5.3** | **DAR** |  |  |
| (1) GISC Tokyo Subscription Manager | Doc 26 | S.Nishikawa |
| **5.4** | **Search (internal and SRU)** |  |  |
| (1) SRU in WIS (pptx) (2) Plugin feature of WIS discovery catalogue  search interface (3) Search – Internal and External (4) The Difference of file format of data files from   GISC cache (5) Access Analysis of GISC Tokyo’s search pages | Doc 14 Doc 49  Doc 55 Doc 56  Doc 57 | Secretariat Nishikawa & Hasegawa M.Heene Heene & Hasegawa S.Nishikawa |
| **5.5** | **User management** |  |  |
| **5.6** | **Security and Management of data access policies** |  |  |
| (1) Relevance of Implementation of Data Access Policies in WIS (2) Security Service, Authentication for GISC, DCPC and NC, OpenWIS Philosophy (3) Data Policy and authorizations for GISC, DCPC and NC, OpenWIS Philosophy | Doc 31r1  Doc 69  Doc 70 | L.Wolf  J. Anquetil   J. Anquetil |
| **5.7** | **User interface** |  |  |
| (1) User interface (2) Emulator for GTS AHL & Filenames | Doc 19r1 Doc 44 | B.Raoult Secretariat |
| **5.8** | **Interoperability with other systems, including GEOSS** |  |  |
| (1) GEOSS Interoperability (DWD) (2) Interoperability Principles (3) ) Metadata Management Services (KMA) | Doc 23r1 Doc 32r1 Doc43r1 | H. Asensio L. Wolf S.Huh |
| **5.9** | **Procedures for periodic assessment of the WIS centres, especially GISCs** | Doc 77 | In session |
| **6.0** | **WIS Monitoring Activities** |  |  |
| (1) End User Requirements on WIS monitoring and reporting (2) Report from ET-OM (2012) | Doc 33r1 Doc 04 | L.Wolf K.Wong |
| **6.1** | **WWW – AGM, etc** |  |  |
| (1) WWW Monitoring (2) integrated quantitative WWW monitoring  analysis (IQWMA) | Doc 10 Doc 51 | Secretariat Yu Liu |
| **6.2** | **Migration to TDCF** | Doc 50 | Lei Xue |
| **6.3** | **WIS system and performance monitoring**   (1) NC Demonstration Test Cases (2) GISC Tokyo System Performance & monitoring(3)GISC Moscow System Performance &   monitoring |  |  |
| Doc 15r1 Doc 27 Doc 45r1 | Secretariat S.Nishikawa L.Bezruk |
| **6.4** | **Test beds, reference installations and sites** |  |  |
| (1) WIS Test beds  (2) NC Demonstration Test Cases | Doc 25 & Appendix Doc 15r1 | Markus HEENE & Sunghoi Huh Secretariat |
| **6.5** | **Workshop on WIS monitoring requirements** |  |  |
| **7.1** | **Capacity building and education strategy** | Doc 67 | Bob BUNGE / Jose Mauro Rezende |
| **7.2** | **Workshop on establishment of WIS curriculum and competencies** | Doc 20 | Secretariat |
| **7.3** | **GISC workshops and training activities** |  |  |
| (1) GISC Workshop & Training Activities (JMA) (2) GISC Moscow capacity building activities (3) Workshop on UK Met Office and Meteo   France on vGISC (4) GISC Workshop Seoul (5) GISC Offenbach | Doc 24 Doc 41 Doc 61  Doc 76 Doc 58 | K.Kosuge S.Belov J.Anquetil  S.Huh M.Heene |
| **8.1** | **TT-CAC (Centre Audits and Certification)** | Doc 16r2 | Baudouin Raoult |
| **8.2** | **TT-DC (Data centres )** | Doc 79 | Lothar WOLF & Lap Shun LEE |
| **8.3** | **TT-GISC** | Doc 65r3 | Jacques ANQUETIL & Jose Mauro REZENDE |
| **8.4** | **TT-OM (WIS Operations and Monitoring)** | Doc 54r1 | L.BEZRUK |
| **8.5** | **ET-WISC** | Doc 78 | LI Xiang & Markus HEENE & Al KELLIE |
| **9** | **Other business** |  |  |

--------------------

# Annex 3 – ET-WISC Task Team Teams’ of Reference

Need to check Annex 3 once Timo has fixed db parsing problem

### Annex 3 - Table 1 (TT-CAC)

| TOR for ET WISC Task Team on Centre Audit-Certification (née ET-GDDP)  (ET-WISC-TT-CAC) | |
| --- | --- |
| (a) | Operate the procedures for technical endorsement of WIS Centres and advise CBS on centres’ level of technical compliance with standards and procedures; |
| (i) | Validate and monitor the conformance of WIS Centres’ interfaces to the agreed specifications and practices; |
| (ii) | Maintain guidance and management procedures for the CBS demonstration and assessment capabilities of candidate GISC and DCPC centres in the framework of the GISC/DCPC demonstration procedure described in the Manual on WIS; |
| (iii) | Organize demonstrations of capabilities of candidate WIS centres as required, including onsite audits of GISCs; |
| (b) | Review and develop the relevant aspects of the Manual on WIS (WMO-No 1060), the Guide on WIS and associated informal guidance to better meet the needs of Members; |
| (c) | Identify implementation and operational issues requiring the urgent consideration of the OPAG on ISS; |
| (d) | Propose procedures for periodic assessment of the WIS Centres, especially GISCs. |

### Annex 3 – Table 2 (TT-DC)

| Terms of Reference for ET WISC Task Team on Data Centres (ET-WISC-TT-DC) | |
| --- | --- |
| (a) | In coordination with GISCs, Review and further develop the technical and operational specifications for the components and interfaces of WIS Centres and criteria for interoperability, certification and Quality Management of WIS Centres; |
| (b) | Review and develop the relevant aspects of the Manual on WIS (WMO-No 1060), the Guide on WIS and associated informal guidance to better meet the needs of Members; |
| (c) | Review, further develop and oversee WIS monitoring activities, including those aspects of monitoring relating to the effectiveness of information exchange on behalf of the WWW and other Programmes, and take action to address issues that are identified by monitoring; |
| (i) | Assist WMO Members centres in implementing and maintaining compliant WIS interfaces and functions in NCs and DCPCs; |
| (d) | Review, develop and coordinate recommended practices and guidance on management of and access to operational information related to exchange of information through the WIS; |
| (e) | Provide coordination and collaboration mechanisms for supporting the implementation and operation of WIS Centres; |
| (f) | Advise the technical commissions and partner organizations on roles, responsibilities and implementation of WIS Centres; |
| (g) | Identify implementation and operational issues requiring the urgent consideration of the OPAG on ISS. |

### Annex 3 - Table 3 (TT-GISC)

| Terms of Reference for ET WISC Task Team on GISCs (ET-WISC-TT-GISC) | |
| --- | --- |
| (a) | Review and further develop the technical and operational specifications for the components and interfaces of WIS Centres and criteria for interoperability, certification and Quality Management of WIS Centres; |
| (i) | Coordinate the functions and interoperability of GISCs, including security, user management and metadata, collection and distribution catalogues to support GISC operations in backup mode and continue to develop the basic services of GISCs to take advantage of new information and communication technologies and practices; |
| (b) | Review and develop the relevant aspects of the Manual on WIS (WMO-No 1060), the Guide on WIS and associated informal guidance to better meet the needs of Members; |
| (c) | Review, further develop and oversee WIS monitoring activities, including those aspects of monitoring relating to the effectiveness of information exchange on behalf of the WWW and other Programmes, and take action to address issues that are identified by monitoring; |
| (i) | Develop the technical specifications for GISC monitoring; |
| (d) | Review, develop and coordinate recommended practices and guidance on management of and access to operational information related to exchange of information through the WIS; |
| (e) | Provide coordination and collaboration mechanisms for supporting the implementation and operation of WIS Centres; |
| (f) | Advise the technical commissions and partner organizations on roles, responsibilities and implementation of WIS Centres; |
| (i) | Assist WMO Members centres in implementing and maintaining compliant WIS interfaces and functions in NCs and DCPCs; |
| (g) | Identify implementation and operational issues requiring the urgent consideration of the OPAG on ISS. |

### Annex 3 - Table 4 (TT-OM)

| Terms of Reference for ET WISC Task Team on WIS Operations and Monitoring  (ET-WISC-TT-OM) | |
| --- | --- |
| (a) | Review and develop the relevant aspects of the Manual on WIS (WMO-No 1060), the Guide on WIS and associated informal guidance to better meet the needs of Members; |
| (b) | Oversee and perform WIS monitoring activities, including those aspects of monitoring relating to the effectiveness of information exchange on behalf of the WWW and other Programmes, and take action to address issues that are identified by monitoring; |
| (i) | Assist WMO Members centres in implementing and maintaining compliant WIS interfaces and functions in NCs and DCPCs. |
| (ii) | Coordinate monitoring the WIS-GTS operational information flow and coordinate management of operational information exchange procedures, routing and traffic, with a particular attention to the exchange of high priority data and products in support of a virtual all hazards network within the WIS-GTS. |
| (iii) | Analyse the monitoring results of WIS Centres. |
| (c) | Identify implementation and operational issues requiring the urgent consideration of the OPAG on ISS; |
| (d) | Advise the technical commissions and partner organizations on roles, responsibilities and implementation of WIS Centres; |
| (e) | Identify implementation and operational issues requiring the urgent consideration of the OPAG on ISS; |
| (f) | Coordinate the maintenance and development of technical and operational specifications supporting interoperability of WIS Centres. |

----------------------

# Annex 4 – Membership of ET-WISC

| **Name** | **Contact Details** |
| --- | --- |
| **LI, Xiang   (chair)** | China Meteorological Administration  46 Zhongguancun Nandajie BEIJING 100081  China Tel: +86 10 6840 6275 Fax: +86 10 6218 6241 Email: [lixiang@cma.gov.cn](http://wis.wmo.int/doc=2565) |
| **HEENE, Markus   (co-chair)** | Deutscher Wetterdienst  Frankfurter Strasse 135 D-63067 OFFENBACH AM MAIN  Germany Tel: +49 69 8062 2648 Fax: +49 69 8062 4162 Email: [markus.heene@dwd.de](mailto:markus.heene@dwd.de) |
| **KELLIE, Al   (co-chair)** | National Center for Atmospheric Research  1850 Table Mesa Drive P.O Box 3000 BOULDER 80307  CO  United States of America Tel: +1 - 303 497 1206 Fax: +1 - 303 497 1298 Email: [kellie@ucar.edu](http://wis.wmo.int/doc=2601) |
| **REZENDE, Jose Mauro   (core-member)  [Co-lead TT-GISC]** | Instituto Nacional de Meteorología (INMET)  Eixo Monumental - Via S1 70680-900 BRASILIA  D.F.  Brazil Tel: +55 61 2102 4650 Fax: +55 61 2102 4621 Email: [jmauro.rezende@inmet.gov.br](http://wis.wmo.int/doc=2577) |
| **RAOULT, Baudouin   (core-member)  [Lead TT-CAC]** | ECMWF  Shinfield Park READING, RG2 9AX  United Kingdom of Great Britain and Northern Ireland Tel: +44 118 949 9404 Fax: +44 118 986 9450 Email: [baudouin.raoult@ecmwf.int](http://wis.wmo.int/file=395) |
| **WOLF, Lothar   (core-member)  [Lead TT-DC]** | EUMETSAT  Eumetsat Allee 1 D-64295 DARMSTADT  Germany Tel: +49-6151-8074050 Email: [Lothar.Wolf@eumetsat.int; DCPC@eumetsat.int](http://wis.wmo.int/doc=2473) |
| **ANQUETIL, Jacques   (core-member)  [Lead TT-GISC]** | Météo-France  42, avenue Gaspard Coriolis F-31057 TOULOUSE CEDEX  France Tel: +33 5 6107 8572 Fax: +33 5 6107 8109 Email: [jacques.anquetil@meteo.fr](http://wis.wmo.int/doc=2343) |
| **LEE, Lap Shun   (core-member)  [Co-lead TT-DC]** | Hong Kong Observatory  134A Nathan Road KOWLOON  Hong Kong, China Tel: +852 2926 8416 Fax: +852 2311 9448 Email: [lslee@hko.gov.hk](http://wis.wmo.int/doc=2561) |
| **KARANJA, Henry N.   (core-member)** | Kenya Meteorological Department  P.O. Box 30259 NAIROBI  Kenya Tel: +254 20 3867880 Fax: +254 20 3876955 Mobile: +254 722 364465 Email: [hkaranja@meteo.go.ke ; hkaranja2001@yahoo.com](http://wis.wmo.int/doc=2429) |
| **HUH, Sunghoi   (core-member)** | Korea Meteorological Administration (KMA)  460-18, Shindaebang-dong Dongjak-gu SEOUL 156-720  Republic of Korea Tel: +82 2 2181 0416 Fax: +82 2 2181 0449 Mobile: +82-10-4559-7256 Email: [shhuh@korea.kr](http://wis.wmo.int/doc=2431) |
| **MERROUCHI, Rabia   (core-member)** | National Meteorological Service of Morocco, DSI/STTD  B.P. 8106 en face de la prefecture Hay Hassani CASABLANCA  Morocco Tel: +212 5 22 65 48 32 Fax: +212 5 22 91 32 55 Mobile: +212 661 473 172 Email: [rabia.merrouchi@gmail.com, merrouchi.rabia@marocmeteo.ma](http://wis.wmo.int/doc=2461) |
| **ALDER, Kevin   (core-member)** | Meteorological Service of New Zealand  30 Salamanca Road P.O. Box 722 WELLINGTON 6140  New Zealand Tel: +64 4 4700 720 Fax: +64 4 4735 231 Email: [kevin.alder@metservice.com](mailto:kevin.alder@metservice.com) |
| **BELOV, Sergey   (core-member)** | Russian Federal Service for Hydrometeorology and Environmental Monitoring (RIHMI-WDC) WORLD DATA CENTER  Korolov St. 6 249 035 OBNINSK  Russian Federation Tel: 7 (48439) 7 41 94 Fax: 7 (499) 795 22 25 Mobile: 7 910 912 39 69 Email: [belov@meteo.ru](mailto:belov@meteo.ru) |
| **MATHISON, Colin   (core-member)** | Met Office  FitzRoy Road EXETER EX1 3PB  Devon  United Kingdom of Great Britain and Northern Ireland Tel: +44 139 288 69 50 Fax: +44 139 288 56 81 Email: [colin.mathison@metoffice.gov.uk](http://wis.wmo.int/doc=2475) |
| **BUNGE, Robert   (core-member)** | NOAA - National Weather Service  1325 East-West Highway SILVER SPRING 20910-3292  MD  United States of America Tel: +1 (301) 713-0882 Ext 114 Fax: +1 (301) 608-1409 Email: [robert.bunge@noaa.gov](http://wis.wmo.int/doc=2387) |
| **QU, Weiqing   (associate-member)** | Bureau of Meteorology  G.P.O. Box 1289 MELBOURNE 3001  VIC  Australia Tel: +61 3 9669 4236 Fax: +61 3 9669 4128 Email: [w.qu@bom.gov.au](http://wis.wmo.int/doc=2323) |
| **STRAZHNIKOV, Siarhei   (associate-member)** | Republic Hydrometeorological Center  Nevavisimosti st., 110 220114 MINSK  Belarus Tel: 00375172672023 Fax: n/a Email: [chiefengineer@pogoda.by](http://wis.wmo.int/doc=2395) |
| **WANG, Fudi   (associate-member)** | China Meteorological Administration  46 Zhongguancun Nandajie BEIJING 100081  China Tel: 86 10-6840 6564 Fax: +86 10 5899 5853 Email: [wangfd@cma.gov.cn](http://wis.wmo.int/doc=2379) |
| **ZHU, Ting   (associate-member)** | China Meteorological Administration  46 Zhongguancun Nandajie BEIJING 100081  China Tel: 86 10 68406710 Fax: 86 10 62186241 Email: [zhuting@cma.gov.cn](http://wis.wmo.int/doc=2567) |
| **MAVAMBO MAKUTA, Marcel   (associate-member)** | Agence nationale de météorologie et de Télédétection par satellite METTELSAT)  B.P. 4715 KINSHASA II  République démocratique du Congo Email: [mavmarcel@yahoo.fr](http://wis.wmo.int/doc=2615) |
| **HOFSTADLER, Alfred   (associate-member)** | ECMWF  Shinfield Park READING, RG2 9AX  United Kingdom of Great Britain and Northern Ireland Tel: +44 118 949 9400 Fax: +44 118 986 9450 Email: [alfred.hofstadler@ecmwf.int](http://wis.wmo.int/doc=2383) |
| **GOMAA, Walid   (associate-member)** | The Egyptian Meteorological Authority  Koubry El-Quobba P.O. Box 11784 CAIRO  Egypt Tel: +20 2 8710420 Fax: +20 2 6849857 Email: [walid.gomaa@ema.gov.eg](http://wis.wmo.int/doc=2497) |
| **SACLIER, Benjamin   (associate-member)** | Météo-France  42, avenue Gaspard Coriolis F-31057 TOULOUSE CEDEX  France Tel: +33 5610 781 52 Fax: +33 5610 781 09 Email: [Benjamin.Saclier@meteo.fr](mailto:Benjamin.Saclier@meteo.fr) |
| **RICHTER, Bernd   (associate-member)** | Deutscher Wetterdienst  Frankfurter Strasse 135 D-63067 OFFENBACH AM MAIN  Germany Tel: +49 69 8062 2559 Fax: +49 69 8062 3559 Email: [bernd.richter@dwd.de](mailto:kellie@ucar.edu) |
| **OSUSKY, Jan   (associate-member)  [HMEI Representative]** | IBL Software Engineering  Galvaniho 17/C Bratislava 82104  Slovakia Tel: +421-2-32662155 Fax: +421-2-32662110 Email: [jan.osusky@iblsoft.com](http://wis.wmo.int/doc=2469) |
| **VOCINO, Antonio   (associate-member)** | Italian Air Force Meteorological Service (CNMCA) National Center of Aeronautical Meteorology and Climatology  Aeroporto De Bernard Via di Pratica di Mare - Km 7, I-00040 POMEZIA (Rome)  Italy Tel: +39 069129 3804 +39 069129 3414 Fax: +39 069129 3887 Email: [vocino@meteoam.it](mailto:baudouin.raoult@ecmwf.int) |
| **KOSUGE, Kenji   (associate-member)** | Japan Meteorological Agency  Otemachi 1-3-4, Chiyoda-ku TOKYO 100-8122  Japan Tel: +81-3 3212 8341 Fax: +81-3 3211 8404 Email: [k-kosuge@met.kishou.go.jp](http://wis.wmo.int/doc=2575) |
| **NISHIKAWA, Shigeharu   (associate-member)** | Japan Meteorological Agency  Otemachi 1-3-4, Chiyoda-ku TOKYO 100-8122  Japan Tel: +81-3 3212 8341 Fax: +81-3 3211 8404 Email: [s\_nishikawa@met.kishou.go.jp; gce00463@gmail.com](http://wis.wmo.int/doc=2597) |
| **ELRYALAT, Dafi   (associate-member)** | Meteorological Department  P.O. Box 341011, Marka AMMAN 11134  Jordan Tel: +962 6 4892408 Fax: +962 6 4892409 Email: [dafialryalat@yahoo.co.uk](http://wis.wmo.int/doc=2345) |
| **MACHUA, Samuel   (associate-member)** | Kenya Meteorological Department  P.O. Box 30259 NAIROBI  Kenya Tel: +254722589382 Fax: +254203876955 Email: [machua@meteo.go.ke ; smmachua@yahoo.com](http://wis.wmo.int/doc=2457) |
| **DO, Sung Soo   (associate-member)** | Korea Meteorological Administration (KMA)  460-18, Shindaebang-dong Dongjak-gu SEOUL 156-720  Republic of Korea Tel: +82-2-2181-0418 Fax: +82-2-835-0866 Email: [ssdo@korea.kr](mailto:shhuh@korea.kr) |
| **YUN, Hyuk Jin   (associate-member)** | Korea Meteorological Administration (KMA)  460-18, Shindaebang-dong Dongjak-gu SEOUL 156-720  Republic of Korea Tel: +82-2-2181-0414 Fax: +82-2-2181-0449 Email: [hkjin@kma.go.kr](http://wis.wmo.int/doc=2419) |
| **VAN DIJK, William Wim   (associate-member)** | Meteorological Service of New Zealand  30 Salamanca Road P.O. Box 722 WELLINGTON 6140  New Zealand Tel: +64 4 470 0752 Email: [wim.vandijk@metservice.com](mailto:wim.vandijk@metservice.com) |
| **KHAN, Azmat Hayat   (associate-member)** | Pakistan Meteorological Department Headquarters Office  Sector: H-8/2 P.O. Box 1214 ISLAMABAD  Pakistan Tel: +92-51-9250598 Fax: +92-51-9250368 Email: [dirndmc@gmail.com; pakmet\_islamabad@yahoo.com; director@pmd.gov.pk](mailto:dirndmc@gmail.com;%20pakmet_islamabad@yahoo.com;%20director@pmd.gov.pk) |
| **RANA, Arif Mahamood   (associate-member)** | Pakistan Meteorological Department  University Road KARACHI 75270  Pakistan Tel: +92 51 9250367 Fax: +92 51 9250368 Email: [dgpakmet@gmail.com](http://wis.wmo.int/doc=2599) |
| **BEZRUK, Leonid   (associate-member)  [Lead TT-OM]** | Aviamettelecom of Roshydromet  2/12 Prokudinsky Lane 123243 MOSCOW  Russian Federation Tel: +(7 499) 795 2260 ; +(7 499) 255 1477 Fax: +(7 499) 252 5504 Email: [bezrouk@mecom.ru](mailto:robert.bunge@noaa.gov) |
| **PATROVA, Olga (associate-member)** | Aviamettelecom of Roshydromet  2/12 Prokudinsky Lane 123243 MOSCOW  Russian Federation Tel: +(7 499) 795 5500  Fax: +(7 499) 252 5504 Email: [olpetrova2004@yandex.ru](http://wis.wmo.int/doc=2513) |
| **MYKANOV, Pael   (associate-member)** | ROSHYDROMET  12 Novovagankovsky Street 123242 MOSCOW  Russian Federation Tel: +7 499 795 24 60 Email: [tzu@mecom.ru](http://wis.wmo.int/doc=2429) |
| **GUÈYE, Chouaibou   (associate-member)** | Agence National de l'Aviation Civile et de la Meteorologie Data Processing Centre  Aeroport Leopold Sedar , Senghor DAKAR-YOFF BP 8257  Senegal Tel: +221 33 869 53 71 Fax: +221 33 820 13 27 Email: [shuahibu.gueye@orange.sn](http://wis.wmo.int/doc=2487) |
| **ALBAYRAK, Omer Hudai   (associate-member)** | Turkish State Meteorological Service (SMS)  P.O. Box 401 ANKARA  Turkey Tel: +90 312 302 2600 Fax: +90 312 359 3430 Email: [omerhudai@dmi.gov.tr](http://wis.wmo.int/doc=2385) |
| **JEFFERY, Duncan   (associate-member)** | Met Office  FitzRoy Road EXETER EX1 3PB  Devon  United Kingdom of Great Britain and Northern Ireland Tel: +44 1392 88 6052 Fax: +44 870 900 5050 Email: [duncan.jeffery@metoffice.gov.uk](mailto:mavmarcel@yahoo.fr) |
| **LITTLE, Chris   (associate-member)** | Met Office  FitzRoy Road EXETER EX1 3PB  Devon  United Kingdom of Great Britain and Northern Ireland Tel: +44 1392 88 6278 Fax: +44 1392 88 5681 Email: [chris.little@metoffice.gov.uk](http://wis.wmo.int/page=ET-WISC-2013) |
| **PENMAN, James   (associate-member)** | Met Office  FitzRoy Road EXETER EX1 3PB  Devon  United Kingdom of Great Britain and Northern Ireland Tel: +44 139 288 63 83 Fax: +44 139 288 56 81 Email: [james.penman@metoffice.gov.uk](mailto:chiefengineer@pogoda.by) |
| **SOLOVEYCHIK, Alexandre   (associate-member)** | The Centre of Hydrometeorological Service (UZHYDROMET)  72, K. Makhsumov Street TASHKENT 100052  Uzbekistan Tel: +998 711 508 630 Fax: +998 711 508 631 Email: [alex@meteo.uz](mailto:alex@meteo.uz) |
| **MIDDLETON, Don   (associate-expert)** | National Center for Atmospheric Research  1850 Table Mesa Drive P.O Box 3000 BOULDER 80307  CO  United States of America Tel: 1-303-718-2291 Email: [don@ucar.edu](http://wis.wmo.int/doc=2521) |

# Annex 5 – TT-CAC auditors’ standard letter for audit preparation.

Dear colleagues,

please find described below the points that will be addressed during the audit, in line with the WIS requirements applicable for GISCs:

a) Management Commitments

b) Infrastructure

c) Operations

d) Human resources

e) Documentation and procedure management

f) User support

g) Monitoring

h) WIS technical compliance (Test Cases, this will include ad-hoc testing of some - from the auditors selected - functionality)

i) Site visit

Furthermore there will be some interviews to management, engineers and also WIS operators.

You will need to allow two full days for those points to be captured.

You will need to provide evidence on compliance and fulfilment of all WIS requirements that are applicable to GISCs. (They can be found on WMO website on WIS (service specification)). This means essentially to reiterate through the WIS centre questionnaire and the answers that you had provided there and to provide real-life evidence on each of those points.

As you can note from above points a-i the technical functionality and compliance is mostly validated remotely before the audit in much the way a GISC user would experience. Therefore the assessment of the technical implementation is only a minor part of the onsite audit and not the main focus.

The evidence to be provided on technical elements can be ad-hoc demonstrations and written technical documentation and test reports. A test certificate is not considered to be sufficient as evidence.

The same applies regarding the necessity of providing evidence of commitment relating to the organisational requirements (e.g.: area of responsibility, call desk, staffing, training, etc.).

The third part is about the technical infrastructure...again evidence is to be provided that this meets the GISC requirements which can be done during the site visit.

It is acknowledge GISC candidate is only expected to have reached pre-operational status during the audit but there needs to be clear evidence that fully operational status will be reached very soon thereafter.

Will you please draft an agenda for the two audit days, based on the information above. When doing so, please consider that during the audit the auditors will need some time to discuss confidentially between themselves to prepare the report. This could be accommodated for instance 1.5 hours after lunch of the first day.

The auditors will give you a full audit debrief at the end of the second day including the provisional audit result. For this debrief please allow 1.5 hours in the agenda.

Finally, the meeting room for the audit needs to provide internet access as the auditors will need to access remotely your GISC portal but also other GISC portals from their machines.

Best regards,

…

# Annex 6 - ET-WISC Guidance on CAP Support

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 NC's they support. Each of the WIS GISCs shall track and report to ET-WISC on CAP implementation progress for all NC's 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. ET-WISC shall report to CBS on the progress on implementation of CAP across all WMO Members, with particular attention to the least-developed countries where improved public warning is most needed.
4. In addition to supporting the WIS aspects of CAP use, ET-WISC shall support CBS and especially 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.
5. ET-WISC shall 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.

# 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](mailto:jan.osusky@iblsoft.com)

# Annex 8 – NC Demonstration Test Cases

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Test Case Name: NC Demonstration Test Case 1** | | | | | |
| Uploading of Discovery Metadata for Data and Products into DAR catalogue | | | | | |
| **Test Case ID** | NC-TC1 | | | | |
| **Component** | Metadata Management | | | | |
| **Purpose of test** | | | | | |
| Validate the function of adding, updating and deleting metadata records from NC to the Principal GISC.  All metadata records must be checked against the relevant schemas. (e.g. The record should be rejected if not fitting the schema)  Note 1: The term “upload” refers to the movement of metadata records between a National Centre that provides the metadata and the WIS centre that manages the DAR catalogue hosted by the Principal GISC. It can actually be implemented as a “pull” initiated from the DAR catalogue site, or as a “push” initiated by the metadata provider.  Note 2: this functionalities can be implemented as:   * A web interface allowing registered users to manage their metadata interactively * A machine-to-machine interface allowing automated batch processing of metadata.   All GISCs support both methods. The NC may choose one or both methods | | | | | |
| **Relevant technical specifications** | | | | | |
| * Tech specs 1 (Uploading of metadata) * Tech specs 8 (DAR Catalogue Search and Retrieval) | | | | | |
| **Precondition** | | | | | |
| 1. Network connection (dedicated and/or public connection) exists between the NC and GISC 2. GISC has a file upload facility for collecting metadata from other WIS centre(s) 3. GISC has a fully functional DAR catalogue 4. GISC has a registered user/process that is authorised to manage metadata of a given WIS centre 5. GISC has a web interface to the DAR catalogue that allow searches (see WIS-TC6[[11]](#footnote-11)) | | | | | |
| **Test Steps** | | | | | |
| |  |  |  |  | | --- | --- | --- | --- | |  | **Description** | **Expected Results** | **Actual Results** | | **1** | A user/process adds a valid metadata record to the DAR catalogue | The metadata record must be found when browsing/searching the DAR catalogue |  | | **2** | A user/process modifies a record from the DAR catalogue, | The modification should be immediately visible when browsing/searching the DAR catalogue |  | | **3** | A user/process deletes a record from the DAR catalogue, | The deleted record should not be found when browsing/searching the DAR catalogue |  | | **…** | A authorized user/process attempts to upload an invalid metadata record | The user/process must be notified of the fact that the metadata record is invalid. The addition/update operation is aborted. The DAR catalogue is unchanged. |  | | **…** | A authorized user/process attempts to upload a record with a unique identifier that is already in the DAR catalogue | The DAR catalogue should not contain record with duplicate identifiers. Either:  1. The new metadata record replaces the old metadata record. The old metadata record should not be present in the catalogue. The new metadata record must be found when browsing/searching the catalogue  2. The user/process must be notified of the fact that the record is a duplicate. The addition/update operation is aborted. The DAR catalogue is unchanged.  Note: it is essential to ensure an update is an edit and not an accidental duplication |  | | **…** | Access control - No unauthorised addition 1 | A non-authorized user/process should not be able to add a metadata record to the DAR catalogue |  | | **…** | Access control - No unauthorised addition 2 | A user/process should not be able to add a metadata record to the DAR catalogue representing data from another WIS centre |  | | **…** | Access control - No unauthorised modification 1 | A non-authorized user/process should not be able to modify a metadata record from the DAR catalogue |  | | **…** | Access control - No unauthorised modification 2 | A user/process should not be able to modify a metadata record from the DAR catalogue that belongs to another WIS centre |  | | **…** | Access control - No unauthorised deletion 1 | A non-authorized user/process should not be able to delete a metadata record to the DAR catalogue |  | | **…** | Access control - No unauthorised deletion 2 | A user/process should not be able to delete a metadata record from the DAR catalogue that belongs to another WIS centre |  | | | | | | |
| **Centre** |  | **Organization** |  | **Country** |  |
| **Test Date** |  | | | | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Test Case Name: NC Demonstration Test Case 2** | | | | | |
| Uploading and downloading of data between WIS centres | | | | | |
| **Test Case ID** | NC-TC2 | | | | |
| **Component** |  | | | | |
| **Purpose of test** | | | | | |
| Validate the upload and download of data and products and association with metadata | | | | | |
| **Requirements Covered** | | | | | |
| * Tech specs 2 (Uploading of data and products) * Tech specs 10 (Downloading file via dedicated network) * Tech specs 11 (Downloading file via non-dedicated network) * Tech specs 12 (Downloading file via other methods) | | | | | |
| **Precondition** | | | | | |
| 1. Network connection (dedicated and/or public connection) between the NC and GISC (includes via RTH where relevant 2. Have file upload and download facilities (FTP, mail, HTTP, …) 3. Have data available for upload or download 4. Have DAR facilities available at GISC. | | | | | |
| **Test Steps** | | | | | |
| |  |  |  |  | | --- | --- | --- | --- | |  | **Description** | **Expected Results** | **Actual Results** | | **1** | a. upload a file which is associated with a metadata record in the DAR catalogue of the GISC to a GISC centre  b. use DAR facilities to search the metadata then retrieve the file | a. The uploaded file has been delivered to the GISC and match with the corresponding metadata  b. The file can be downloaded |  | | | | | | |
| **Centre** |  | **Organization** |  | **Country** |  |
| **Test Date** |  | | | | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Test Case Name: NC Demonstration Test Case 3** | | | | | |
| Maintenance of users, roles, authorization and authentication | | | | | |
| **Test Case ID** | NC-TC3 | | | | |
|  |  | | | | |
| **Component** | Management of users and access | | | | |
| **Purpose of test** | | | | | |
| Create and exercise a variety of user types.  Note: A centre may utilise GISC user control interface | | | | | |
| **Relevant Technical Specifications** | | | | | |
| * Tech specs 4 (Maintenance of User Identification and Role Information) * Tech specs 6 (Authentication of a User) * Tech specs 7 (Authorization of a User Role) * Tech specs 13 (Maintenance of Dissemination Metadata) | | | | | |
| **Precondition** | | | | | |
| 1. The Centre has authority to provide access to users (ie PR approval) 2. A process is in place between the NC and GISC for the Centre to authorize its users to use the GISC with appropriate access levels. 3. The user interface is via the internet (i.e. web page) | | | | | |
| **Test Steps** | | | | | |
| |  |  |  |  | | --- | --- | --- | --- | |  | **Description** | **Expected Results** | **Actual Results** | | **1** | Provide access for an external user to search metadata | Temporary user can search metadata, but not access data from the GISC or cache, or subscribe to data. |  | |  | 1. User goes to search web page 2. User makes metadata search 3. Tries to access data | 1. User has access to search page 2. User finds metadata 3. User tries to access data and is referred to authorisation page at data source. Cannot access data without validating in an authorised user role |  | | **2** | Create accounts with access to WIS metadata and data for a WMO centre authorised user | Two users are created. One with access to metadata only, the other with the ability to access the Centre subscription service or ad hoc request from the cache |  | |  | 1. User goes to registered user web page 2. User is required to login or create account 3. User registers account and selects role of valid WMO member with authority to access WIS data (eg is from WMO NC) 4. User enters login details 5. User makes metadata search 6. Tries to access WMO globally available data from the centre 7. User tries to access additional data at centre that he is not authorised to access 8. Tries to access data or product at another site 9. User subscribes to data for future delivery from centre 10. User returns on another session and reuses login to search or subscribe 11. User edits subscription details 12. User cancels a subscription 13. User logs out or leaves centre’s site and tries to return to a bookmarked page at a later date and access data | 1. User has access to login page 2. New user, so has to create an account 3. User account is validated as a WMO NC member and account is created. The user receives a user login (eg code via email or encrypted symbol) 4. User is logged in. As user us validated as WMO NC member, he is allocated access to search and access to download data from cache and to subscription services 5. User finds metadata 6. User successfully accesses data from centre 7. User receives advice that he is not authorised to access this data and referred to access page where he can request change in user role or re-login as another user 8. User is referred to authorisation page at other site. 9. User receives scheduled data via agreed method at agreed time 10. User maintains successful access with same access rights 11. Users subscription details are updated and reflected in subsequent deliveries 12. Users subscription details are updated and receives no further deliveries 13. Attempting to use a bookmarked page from earlier session to access data, directs the user to the registered user login page. |  | | **4** | User checks status of account and subscriptions | User can view his account and subscription details, including historic and future transactions, and the status of current transactions |  | | **…** |  |  |  | | | | | | |
| **Centre** |  | **Organization** |  | **Country** |  |
| **Test Date** |  | | | | |

# Annex 9 – Terms of reference for ET-WISC Task Teams

### **ToR for ET WISC Task Team on GISCs** (ET-WISC-TT-GISC)

|  |  |
| --- | --- |
| Based in ET-WISC meeting of July 2013, TT-GISC contributes to the following areas: | |
| (a) | Review and further develop the technical and operational specifications for the components and interfaces of WIS Centres and criteria for interoperability, certification and Quality Management of WIS Centres; |
| (i) | Coordinate the functions and interoperability of GISCs, including security, user management and metadata, collection and distribution catalogues to support GISC operations in backup mode and continue to develop the basic services of GISCs to take advantage of new information and communication technologies and practices; |
| (b) | Review and develop the relevant aspects of the Manual on WIS (WMO-No 1060), the Guide to WIS and associated informal guidance to better meet the needs of Members; |
| (c) | Review, further develop and oversee WIS monitoring activities, including those aspects of monitoring relating to the effectiveness of information exchange on behalf of the WWW and other Programmes, and take action to address issues that are identified by monitoring; |
| (i) | Develop the technical specifications for GISC monitoring; |
| (d) | Review, develop and coordinate recommended practices and guidance on management of and access to operational information related to exchange of information through the WIS; |
| (e) | Provide coordination and collaboration mechanisms for supporting the implementation and operation of WIS Centres; |
| (f) | Advise the technical commissions and partner organizations on roles, responsibilities and implementation of WIS Centres; |
| (i) | Assist WMO Members' centres in implementing and maintaining compliant WIS interfaces and functions in NCs and DCPCs; |
| (g) | Identify implementation and operational issues requiring the urgent consideration of the OPAG on ISS. |

### ToR for ET WISC Task Team on Data Centres (ET-WISC-TT-DC)

|  |  |
| --- | --- |
| Based in ET-WISC meeting of July 2013, TT-DC contributes to the following areas: | |
| (a) | In coordination with GISCs, review and further develop the technical and operational specifications for the components and interfaces of WIS Centres and criteria for interoperability, certification and Quality Management of WIS Centres; |
| (b) | Review and develop the relevant aspects of the Manual on WIS (WMO-No 1060), the Guide to WIS and associated informal guidance to better meet the needs of Members; |
| (c) | Review, further develop and oversee WIS monitoring activities, including those aspects of monitoring relating to the effectiveness of information exchange on behalf of the WWW and other Programmes, and take action to address issues that are identified by monitoring; |
| (i) | Develop the technical specifications for DCPC and NC monitoring; |
| (d) | Review, develop and coordinate recommended practices and guidance on management of and access to operational information related to exchange of information through the WIS; |
| (e) | Provide coordination and collaboration mechanisms for supporting the implementation and operation of WIS Centres; |
| (f) | Advise the technical commissions and partner organizations on roles, responsibilities and implementation of WIS Centres; |
| (i) | Assist WMO Members centres in implementing and maintaining compliant WIS interfaces and functions in NCs and DCPCs; |
| (g) | Identify implementation and operational issues requiring the urgent consideration of the OPAG on ISS. |

### ToR for ET WISC Task Team on Centre Audit-Certification (ET-WISC-TT-CAC) (née ET-GDDP)

|  |  |
| --- | --- |
| Based in ET-WISC meeting of July 2013, TT-CAC contributes to the following areas: | |
| (a) | Operate the procedures for technical endorsement of WIS Centres and advise CBS on centres’ level of technical compliance with standards and procedures; |
| (i) | Validate and monitor the conformance of WIS Centres’ interfaces to the agreed specifications and practices; |
| (ii) | Maintain guidance and management procedures for the CBS demonstration and assessment capabilities of candidate GISC and DCPC centres in the framework of the GISC/DCPC demonstration procedure described in the Manual on WIS; |
| (iii) | Organize demonstrations of capabilities of candidate WIS centres as required, including onsite audits of GISCs; |
| (b) | Review and develop the relevant aspects of the Manual on WIS (WMO-No 1060), the Guide to WIS and associated informal guidance to better meet the needs of Members; |
| (c) | Identify implementation and operational issues requiring the urgent consideration of the OPAG on ISS; |
| (d) | Propose procedures for periodic assessment of the WIS Centres, especially GISCs. |

### ToR for ET WISC Task Team on WIS Operations and Monitoring (ET-WISC-TT-OM)

|  |  |
| --- | --- |
| Based in ET-WISC meeting of July 2013, TT-OM contributes to the following areas: | |
| (a) | Review and develop the relevant aspects of the Manual on WIS (WMO-No 1060), the Guide to WIS and associated informal guidance to better meet the needs of Members; |
| (b) | Oversee and perform WIS monitoring activities, including those aspects of monitoring relating to the effectiveness of information exchange on behalf of the WWW and other Programmes, and take action to address issues that are identified by monitoring; |
| (i) | Develop the concept and determine the monitoring requirements for the WIS and develop WIS monitoring scheme. |
| (ii) | Coordinate monitoring the WIS-GTS operational information flow and coordinate management of operational information exchange procedures, routing and traffic, with a particular attention to the exchange of high priority data and products in support of a virtual all hazards network within the WIS-GTS. |
| (iii) | Analyze the monitoring results of WIS Centres. |
| (c) | Identify implementation and operational issues requiring the urgent consideration of the OPAG on ISS; |

# Annex 10 - Action Plans for ET-WISC and task teams

### ET-WISC Action Plan

As the WIS becomes more operational across the WIS centres the ET-WISC will begin to focus more on user related aspects.

|  |  |  |
| --- | --- | --- |
| **Reference** | **Action** | **Person or Team** |
| ET-WISC/01 | **Determine** the **operational criteria for GISCs and DCPCs**, and develop the procedures for periodic assessments to assess quality of services offered by WIS Centres, especially GISCs. Submit the first draft to CBS 2014 | TT-CAC |
| ET-WISC/02 | **Determine** the **monitoring requirements for the WIS** and develop WIS monitoring scheme to monitor the WIS-GTS operational information flow and the conformance of WIS centres' interfaces to the agreed specifications and practices. (TT-OM)   * 1. Submit the first draft to CBS 2014.   2. Pilot implementation of WIS monitoring in the operational WIS centres.   3. Analyse the implementation status and monitoring results.   4. Review the monitoring scheme. | TT-OM |
| ET-WISC/03 | **Propose amendments to the Manual on WIS.** Based on the outcome of TT-GISC, TT-DC, TT-OM, propose amendments to the Manual on WIS, the Guide on WIS and associated informal guidance for enhanced operational arrangements of WIS centres, especially GISCs, to CBS 2014. | TT-GISC,  TT-DC,  TT-OM |
| ET-WISC/04 | **Develop a management procedure** to deal with the future requests for possible **changes of the associations between** National **Centres** **and** their Principal **GISCs** and Associated GISCs | TT-GISC |
| ET-WISC/05 | **Development of a WIS Competence Framework**. Review the outputs of the workshop for the development of WIS competencies and curriculum, which planned in October, 2013, and submit an analysis of Job Tasks, Competencies, Training needs and a draft Curriculum to CBS 2014 together with other OPAG-ISS groups | Mr Robert Bunge,  Dr. Weiqing Qu and  Dr. Sunghoi Huh |

### TT-GISC Action Plan

|  |  |  |
| --- | --- | --- |
| **Reference** | **Action** | **Person (if identified)** |
| TT-GISC/01 | **Metadata harvesting.**  Today each operational GISC make the set of metadata of its area of responsibility available without following standard procedure, we have to harmonize the set of metadata structure |  |
| TT-GISC/02 | **Metadata catalogue consistency**  Define processes to ensure the consistency and completeness of Metadata catalogue at each GISC |  |
| TT-GISC/03 | **24h cache completeness**  In order to plan bandwidth need, the volume and data categories for global exchange data in the area of responsibility of GISC.  Define mechanism to ensure that GISC cache contain all global data exchanged during the past 24h. Discuss with TT-OM the way to monitor cache completeness and TT-CAC for auditing. |  |
| TT-GISC/04 | **User interface** (Base functions…)  Harmonization of user interface functionality in order to help user to find data from any GISCs |  |
| TT-GISC/05 | **GISC backup procedures**  Define recommendation for GISC backup procedures |  |
| TT-GISC/06 | **WIS monitoring**  Participate to the work of TT-OM in order to define axes for WIS monitoring |  |
| TT-GISC/07 | **Data policies management**  Propose recommendation for Data policies management |  |
| TT-GISC/08 | **User registration parameters**  Propose a recommendation procedure for more consistency between GISC for user registration |  |
| TT-GISC/09 | **Standard support provided by GISC** to their NCs and DCPCs  Define the basic support package that GISC should offer to NCs and DCPCs in their area of responsibility |  |
| TT-GISC/10 | **Harmonization of File format of 24h cache**  ET-WISC 2012 final report mention under item 4.11.4 that the GISCs should harmonize the Cache file format |  |
| TT-GISC/11 | **Operational GISCs communication**  Define procedures between GISCs to communicate in case of events such as : scheduled updates, maintenance work, changes in the set WIS-GISC-XXX if members/organization are added or removed |  |
| TT-GISC/12 | **Provide support to TT-CAC for GISC rolling review**  To be consolidated with TT-CAC |  |
| TT-GISC/13 | Propose a standard for WIS users authentication and authorization and potential solutions to implement it |  |
| TT-GISC/14 | Propose procedures for NC sand DCPCs wishing to change their principal GISC |  |
| TT-GISC/15 | Organize TT-GISC group meeting  GISC should meet on regular bases to discuss the operation of WIS. This should be through face2face meeting or virtual meeting. A first face2face meeting could be organized at the end of this year or at the beginning of next year. A virtual meeting should be organized before the face2face meeting to prepare it. | Chair, Secretariat |

### TT-DC Action Plan

|  |  |  |
| --- | --- | --- |
| **Reference** | **Action** | **Person (if identified)** |
| TT-DC/01 | **List of requirements** (to be included into the WIS manual) that address the interfaces and services between Data Centres and GISCs in more detail |  |
| TT-DC/02 | **Review Documentation.** Provide a gap analysis with respect to what aspects are missing or not sufficiently defined in the current set of documents and provide suggestions on such |  |
| Guidelines for TT-DC members | 1. Taking a “user view” for both: a Data Centre as a user of a GISC, 2. as well as users (including NCs and others) of Data Centres; 3. Change process definition; 4. Clarification and review of the operational interfaces between Data Centres and GISCs and potentially emerging new requirements    1. Service indicators for Data Centre;    2. Status of interfaces to GISCs;    3. Status of data delivery to GISC cache and GISC cache global synchronisation;    4. Status of Meta data ingestion into GISC.    5. Recognising that Data Centres might be associated with a variety of communities and out of this they have to comply to various potentially conflicting requirements in addition to WIS 5. Clarification of the presentation of the service interfaces to users by Data Centres; 6. Transition to WIS operationally with regards to data provision to end users and GTS data ingestion and non-GTS data provision; |  |

### TT-OM Action Plan

|  |  |  |
| --- | --- | --- |
| **Reference** | **Action** | **Person (if identified)** |
| TT-OM/01 | Develop the WIS monitoring general concepts and submit them to ET-WISC approval. |  |
| TT- OM/02 | Develop draft requirements for GISC and core network monitoring |  |
| TT- OM/03 | Prepare proposals on WIS monitoring in the area of responsibility of GISC. |  |
| TT-OM/04 | Prepare proposals on informing the users of the monitoring results by WIS centres. |  |
| TT- OM/05 | Prepare proposals on monitoring the time of transmission of emergency messages (Tsunami) through WIS |  |
| TT- OM/06 | Establish a team of dynamic response to negative events in WIS. |  |
| TT- OM/07 | Identify implementation and operational issues requiring the urgent consideration ET-WISC. |  |
| TT- OM/08 | Provide support to RTH in issues related to GTS operations. |  |
| TT- OM/09 | Coordinate monitoring of WIS-GTS and analyze the outcomes |  |

### TT-CAC Action Plan

|  |  |  |
| --- | --- | --- |
| **Reference** | **Action** | **Person (if identified)** |
| TT- CAC/01 | Complete audits and reviews of existing DCPCs and GISCs |  |
| TT- CAC/02 | Update the document WIS DEMONSTRATION PROCESS PROCEDURES AND GUIDELINES ([http://www-db.wmo.int/WIS/centres/guidance.doc](mailto:jacques.anquetil@meteo.fr)) based on past experience |  |
| TT- CAC/03 | Draft document on the procedure on rolling review of WIS centres |  |
| Guidance for TT members | See report to ET-WISC 2013 ([http://wis.wmo.int/doc=2587](mailto:dafialryalat@yahoo.co.uk) ) |  |

# Annex 11 – List of Participants

## China (Host)

Ms LI Xiang (Chair)

Ms ZHU Ting (Associate member)

Mr WANG Fudi (Associate member)

Mr WANG Peng

Mr LIU Yu

Ms XUE Lei

Mr XU Lei

## Brazil

Mr Jose Mauro REZENDE (Core member)

## France

Mr Matteo DELL'AQUA (Chair ICT-ISS)

Mr Jacques ANQUETIL (Core member)

## Germany

Mr Markus HEENE (Co-chair)

## Hong Kong, China

Dr PAN Chi in lieu of Mr Lap Shun LEE (Core member)

## Iran, Islamic Rep. of

Mr Abbas Niazalizadeh MOGHADAM

## Italy

Mr Antonio VOCINO (Associate member)

## Japan

Mr Shigeharu NISHIKAWA (Associate member)

## Kenya

Mr Henry N. KARANJA (Core member)

## Korea, Rep of

Dr Sunghoi HUH (Core member)

Mr Sung Soo DO (Associate member)

Mr Won-Chul CHOI

## Morocco

Mr Rabia MERROUCHI (Core member)

## Russian Federation

Mr Sergey BELOV (Core member)

Mr Leonid BEZRUK (Associate member)

Ms Olga PETROVA (Associate member)

## UK

Mr Chris LITTLE (Associate member)

## USA

Mr Al KELLIE (Co-chair)

Mr Robert BUNGE (Core member)

Mr Eliot CHRISTIAN (via Video conference)

## International Organizations

### ECMWF

Mr Baudouin RAOULT (Core member)

### EUMETSAT

Mr Lothar WOLF (Core member)

### HMEI

Mr Jan OSUSKY (Associate member)

## Secretariat

Mr Peiliang SHI (Director WIS)

Mr David THOMAS (Chief ITS)

1. WIS Centre Data Base <http://www.wmo.int/pages/prog/www/WIS/centres/index_en.php> [↑](#footnote-ref-1)
2. RA-II/V WIS Application Pilot Project web site <http://202.32.195.141/wisapp/> [↑](#footnote-ref-2)
3. WMO Metadata updater - <https://bitbucket.org/wmo/mdupdater> [↑](#footnote-ref-3)
4. Geonetwork - <http://geonetwork-opensource.org/> [↑](#footnote-ref-4)
5. JDBC – Java Database Connectivity - <http://en.wikipedia.org/wiki/Java_Database_Connectivity> [↑](#footnote-ref-5)
6. EC-65-INF07-5-GUIDE-AMENDMENTS-TO-THE-TECHNICAL-REGULATIONS\_en.doc - <https://docs.google.com/a/wmo.int/uc?id=0B8DhC1GSWSmxZGJIT1o0UzNrUE0&export=download> [↑](#footnote-ref-6)
7. The Open Archives Initiative Protocol for Metadata Harvesting Protocol Version 2.0 of 2002-06-14 <http://www.openarchives.org/OAI/openarchivesprotocol.html#Set> [↑](#footnote-ref-7)
8. OAI-PMH guidelines (approved by ET-WISC 2012) <http://wis.wmo.int/page=oai-pmh-guidelines> [↑](#footnote-ref-8)
9. WIS DAR Training Page: <http://wis.wmo.int/page=wistraining-102> [↑](#footnote-ref-9)
10. OPAG-ISS Teams TORs - <http://www.wmo.int/pages/prog/www/CBS/Lists_WorkGroups/CBS/opag%20iss> [↑](#footnote-ref-10)
11. WIS Demonstration Process - http://www-db.wmo.int/WIS/centres/guidance.doc [↑](#footnote-ref-11)