



**Expert Team on WIS Centres / Task Team on
GISCs (TT-GISC)
Offenbach, Germany. 26-29 August 2019**

**TT-GISC/2019
Final Report
29 August 2019**

**TASK TEAM ON GISCS (TT-GISC)
OFFENBACH, GERMANY. 26-29 AUGUST 2019**



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FINAL REPORT OF THE MEETING OF TT-GISC 26-29 AUGUST 2019

1 OPENING

1.1 Adoption of Agenda

1. The meeting was opened by Chair TT-GISC, Mr Kenji Tsunoda. He thanked Deutscher Wetterdienst (DWD) for their support and hosting the meeting. He welcomed participants, a list of which is provided in [Annex 1](#). Documents and background material are available on the meeting page is <https://wis.wmo.int/page=TT-GISC2019>ⁱ.
2. Mr Hans-Joachim Koppert (Director Weather Forecasting Services) welcomed participants on behalf of the Board of Directors and President of DWD. He noted that WIS, including the GTS, have been a major element of the work of DWD and this is reflected in their commitment to WIS through the development and operation of Offenbach as one of the 15 GISCs. He highlighted their commitment to Members in their area of responsibility through support and training.
3. Mr Koppert informed that DWD's strategy for 2020-2030 released earlier this year included observations and WIS as core components of the new strategy.
4. DWD has been working on providing information freely to the public using OGC and cloud services. This has been made possible by a change in Government policy that supports free and open access to data.
5. Mr Koppert advised that DWD, and all World Meteorological Centres (WMC), agreed that a key issue was how WMCs can utilise WIS 2.0. For DWD, this is reflected in their participation in the development of WIS 2.0 to allow users (both WMO and the wider community) to look for and access a wide range of WMO products and services
6. He noted that TT-GISC was a key group that faced a lot of work. He wished all a successful meeting and a pleasant stay in Offenbach.
7. Mr David Thomas on behalf of the WMO secretariat thanked Mr Koppert and DWD for hosting the meeting and for their ongoing support to WIS. He noted that this is most likely the last meeting of TT-GISC under the structure of CBS, but that the coordination work of this group will continue as an essential element of WIS.

1.2 Working Arrangements

8. Mr Kai Thorsten Wirt briefed the meeting on local information and activities.
9. The chair introduced the meeting to his goals and expectations of the meeting emphasising that aim is to provide stable and relevant GISC services. He then presented the draft agendaⁱⁱ. A copy of the agreed agenda is in [Annex 2](#). The meeting also agreed to the draft working arrangementsⁱⁱⁱ.

1.3 Decisions/Background of Cg-18, EC-71, CBS consultation and relevant TCs, ETs

10. The secretariat informed the meeting that the recommendations from OPAG-ISS expert teams that had been presented to CBS Teco 2018, then reviewed by the CBS consultation process had been accepted by Congress. These can be found in the report on the Eighteenth World Meteorological Congress (WMO No1236)^{iv} under Resolutions 55 (emerging Data Issues), 56 (Data Policies and Practices) and 57 (Amendments to the Technical Regulations and WIS 2.0 Implementation Approach). He noted that most

of the content and updates were not available in the above report, but were linked as annexes that replicated the Consultation documents, although rearranged in structure. The most important for TT-GISC being Resolution 57, Annex 1: Cg-18-d06-2(2)^v, a copy of which is placed on the TT-GISC meeting page. WIS 2.0 related decisions were included in Annex 3: Cg-18-d06-2(2)^{vi}.

11. The contents of Annex 1 to Res57 (Cg-18) included the new standard audit processes that will be used to do the second round audit of GISCs. He pointed out that on the recommendation of ET-CAC, CBS had agreed to skipping the interim audit for GISCs as it is now well over the four years and that the next audit will be on site. The secretariat further emphasised that the TT-GISC needs to advise ICT-ISS and ET-CAC on what the criteria for the audits will be.

D1 TT-GISC supported the work of ET-WISC group looking at the review the audit criteria for GISCs and noted that Mr Francis will finalise the draft criteria by end of September.

A1 Mr Francis will circulate draft certification criteria to TT-GISC members

12. The secretariat highlighted another important decision of Congress for TT-GISC related to the Security Incident Response procedures. GISCs can now expect to receive a letter from WMO asking them to provide the name of a GISC IT Security Focal Point.
13. The meeting noted that all TT-GISC recommendations for updates to procedures had been approved by Cg-18 and will appear in the next WIS manual and guide.
14. The secretariat provided a briefing on the Constituent Body Reform^{vii}. TT-GISC noted that at this time, ICT-ISS and its component elements will most likely migrate to a Standing Committee on Information Management and Technology. The meeting agreed that the coordination role of TT-GISC should persist in the new structure, noting the modified TORs provided in [Annex 3](#) to this report. It noted the importance of GISC representation in the operation and development of WIS and supported representation of GISCs (probably through the chair) in WIS operations and development working groups.

2 REVIEW TT-GISC TOR AND ACTION PLAN

15. TT-GISC reviewed the current Terms of Reference^{viii}. It noted that these TOR will most likely need to continue as shown in [Annex 3](#) under the new Commission for Infrastructure proposed Standing Committee on Information Management and Technology (SC-IMT).

D2 TT-GISC agreed to recommend continuation of TT-GISC as a coordination group for GISCs with the TORs as in [Annex 3](#) to this report

A2 Requested Chair ET-WISC to report to ICT-ISS on the position of GISCs relating to constituent body reform structure and proposed TOR.

16. The chair briefed the meeting on the background and status of action items defined in the TT-GISC action plan as defined in TT-GISC2019-AI(02)-WorkPlan^{ix}. He highlighted action items 8 and 13 relating to user authentication and federation were important issues. He reminded TT-GISC of their previous work on that had agreed to investigate what user information should be mandatory among GISCs and, noting that GISCs had different requirements and authentication processes as well as national standards on personal information, what should be optional.

A3 The meeting agreed to holding a break out session to review User Federation, including investigating the work on use of EduGain and reviewing what user information should be mandatory and what should be optional.

17. The chair also introduced the action items described in Document TT-GISC2019-AI(11)-Action_Items^x. He clarified several of the issues behind the actions. Some of the key issues were as follows:

16/1-9 – TT-CAC to test GISC interfaces. The secretariat advise that this is no longer relevant in the sense that ET-CAC is moving to be a general audit certification team and it would be better to put this task on TT-GISC to work with Inter-Programme Expert Team on Data Representation Development (IPET-DD) Task team on WIS metadata search (TT-MDS) to identify tools to meet this need.

16/1-12 – related to a metadata issue as there are two ways to represent WMO data policy.

A4 Secretariat (Enrico Facile) to follow up with the metadata working group, advising them to avoid similar traps in future editions.

18/1-13 – associated with the issues of use of https, which should be standard practice for all GISCs. However, it was pointed out that some GISCs do not have the current version of web facing software/applications (ie java) to properly handle https.

D3 The implementation/migration to https highlighted the need for TT-GISC to add change and system/application lifecycle management to their TORs

3 GISC STATUS REPORTS

3.1.1 Beijing

18. Ms Li Xiang presented TT-GISC2019-AI(03)-StatusReportBeijing^{xi}. Discussion following her report clarified the issues associate with major outages at the GISC included problems with database server and internal networks.

3.1.2 Casablanca

19. Mr Youssef Darari presented TT-GISC2019-AI(03)-StatusReport_CASABLANCA^{xii}. The meeting noted that although the survey of their AoR had a low response, the key issues of WIS knowledge remain a problem. In particular, the inability of centres to establish and maintain connection with GISC Casablanca. It suggested that their might be a need to have a support team remotely configure and maintain connectivity. Similar to the RA V VPN pilot project many years ago.

3.1.3 Exeter

20. Mr Mark Francis presented TT-GISC2019-AI(03)-Exeter_status^{xiii}. Discussion on training following his report noted the need to include a focus between operations, which must be maintained, and forward looking to WIS 2.0.

3.1.4 Moscow

21. Mr Vladimir Tsukanov presented TT-GISC2019-AI(03)-StatusReportMoscow^{xiv}. GISC Moscow made a GISC status report in accordance with the structure and content accepted by 2016 ET-WISC/TT-GISC, aiming to continue WIS implementation at the centre and in its area of responsibility. GISC Moscow suggests that a procedure on the change of the backup GISC for NCs be developed and inserted in the Guide on WIS.

D4 The meeting agreed to review the proposed text for the WIS manual and guide to clarify the procedures and responsibilities in nominating and changing back up GISCs

3.1.5 Tehran

22. Mr Mohammad Iraji presented TT GISC2019 AI(03) Status Report GISC Tehran^{xv}. Discussion highlighted that the use of port 8080 for GISC Tehran was problematic for other systems. Mr Iraji agreed to update the port to HTTP port 80 or the HTTPS port 443. There was also some discussion on establishing a back up for Tehran, noting that GISC Offenbach was unable to be the backup for Tehran.

A5 TT-GISC to advise Tehran on steps that should be taken to request and establish a back up GISC.

3.1.6 New Delhi

23. Dr S.L Singh presented GISC New Delhi StatusAug2019^{xvi}. GISC New Delhi is harvesting Metadata sets of 13 GISCs and shall try to include harvesting the metadata sets from Washington. It has plans to establish IPVPN over internet / RMDCN link with other centres.

24. GISC Backup arrangement has been planned with GISC Seoul. GISC New Delhi has a plan to provide training to NCs under its Area of Responsibility.

25. GISC New Delhi has planned implementation of JSON file provisioning through its OEM (M/s COROBOR) for WMO Common Dashboard. IMD has joined OpenWIS Association as Strategic Partner for implementation of Open WIS at DRC of GISC New Delhi.

26. GISC New Delhi faced data supply discontinuity during July-August 2019 due to some local technical issue, which got rectified on 18th August 2019. During GISC watch programme, Ticket No. 0000059 Dt. 28.2.2019 was raised Regarding BUFR Upper Air issue at GISC New Delhi. India is generating GPS sonde based BUFR upper air messages. Users have been asked for its validation before routing on GTS.

27. There is plan for New Delhi – Tokyo and New Delhi – Osaka (DRC Tokyo) to change the link from Socket to FTP. GISC New Delhi is planning for software updates through its OEM.

28. Discussion following the presentation highlighted the need for WIS users such as tsunami warning services and tropical cyclone committees to identify a lead GISC in their areas of interest.

29. The chair noting Dr Singh would be retiring in April 2020 expressed his appreciation and that of the group for his long standing contribution to the GTS and WIS and wished him well for whatever activity he undertakes next.

3.1.7 Offenbach

30. Mr Kai Thorsten Wirt presented TT-GISC2019-AI(03)-StatusReportOffenbach^{xvii}.

31. The awareness of WIS in GISC Offenbach's Area of Responsibility is good. GISC Offenbach held Workshops to improve the usage of GISC Subscriptions over GTS message switching. Major issues in the past period have been synchronization of the WIS catalogue with different centres and problems with accessibility since the switch to https.

32. Currently ideas for replacing METNO GTS Messages and the completeness of the GISC cache are discussed in GISC Offenbach's AoR. In order to achieve this, main focus

should be put on the completeness of Metadata and getting the catalogue synchronization right.

3.1.8 Seoul

33. Mr Kwang-Jae presented TT GISC2019 AI(03) StatusReport Seoul^{xviii}.
34. GISC backup activity in GISC Seoul works in progress with having face to face meeting with 4 NCs of GISC New Delhi's AoR. GISC Seoul has performed WIS capacity building activity in annual ICT training course for WMO members in RTC-Korea.
35. As WIS and GCI interoperability activities, GISC Seoul provides GEOSS metadata sets and GEOSS SRU server for other GISCs to harvest WIS compliant discovery metadata from GEO-DAB.

3.1.9 Tokyo

36. Mr Shuichi Ikeda presented TT GISC2019 AI(03) StatusReportTokyo^{ix}. He reported on the current status of GISC Tokyo and the capacity building activity toward the WIS 2.0 implementation. GISC Tokyo provided training materials to the secretariat, which were handed in at the workshop, in line with the request from TT-GISC-2018. The materials are available from TT-GISC TrainingAids^{xx}.

3.1.10 Washington

37. Ms Kari Sheets presented TT GISC2019 AI31 WASHINGTON^{xxi}. The meeting noted that the status report was very useful in better understanding the issues behind the problems that were causing the recent outage of GISC Washington.

3.1.11 Toulouse

38. Mr Benjamin Saclier presented TT GISC2019 AI(03) GISC TOULOUSE Status^{xxii}. Discussion took place on the issues of WMO Metadata Profile 1.2 and 1.3, noting that centres such as Eumetsat had large data sets under version 1.2 marked for global distribution. This is problematic as version 1.2 does not allow for the key word cache indicator GlobalExchange or the alternatives for regional caching of get from centre.

D5 TT-GISC recommend that WIS centres to update their metadata to version 1.3 for those records still in older versions.

A6 GISCs to liaise with data centres in the AoR to facilitate updating of MD to 1.3

39. MD profile 1.2 and 1.3 issues were discussed further under agenda item 9.

3.1.13 Remaining GISCs

40. The chair noted that status report was received from Melbourne^{xxiii}, but reports were not received from GISCs Brasilia, Jeddah, or Pretoria.

A7 TT-GISC requested GISCs Brasilia, Jeddah and Pretoria to upload their reports as soon as possible in order to meet the reporting requirements laid out in the WIS Manual and Guide.

3.1.13 GISC report template

41. The chair summarised the key issues from the reports, noting that we need to better coordinate GISCs move to HTTPS. In particular, GISCs should indicate their plans to do so.

D6 Having evaluated the reports from GISCs, the meeting agreed update the report template to include (1) report on issues affecting that GISC i.e. Tickets put on the GISC to address; and (2) Report on metadata synchronisation data issues.

A8 Kai to update GISC Ops Page^{xxiv} to include the new items.

3.1.14 WIMMS (unassociated Metadata)

42. Mr Shuichi Ikeda presented TT GISC2019 AI(03) StatusReportWIS UNASSOCIATED^{xxv}. The meeting reviewed the status WIS-UNASSOCIATED dataset, and confirmed that it was necessary to move forward with metadata migration from WIS-UNASSOCIATED promptly.

A9 The meeting requested that listed GISCs migrate remaining metadata in WIS-UNASSOCIATED to principal GISCs.

43. GISC Tokyo will continue providing WIMMS for a while (until the migration be completed).

3.2 Update GISC Backup matrix

44. The chair presented TT GISC2019 AI(3.2) BackupMatrix^{xxvi}. Participants reviewed the content of the table and assisted the chair in updating the table and resolving some of the discrepancies.

3.3 Update GISC-GISC connectivity matrix

45. The chair presented TT GISC2019 AI(3.3) GISC ConnectivityMatrix^{xxvii}. The meeting reviewed the table which is presented in [Annex 5](#).

4. PROGRESS FROM WORK PACKAGES AND KEY ACTION ITEMS

46. The chair introduced TT GISC2019 AI(04) WPs^{xxviii}. The work pack list is reproduced in Annex 6. He noted that inclusion of the work packages was to assist him in understanding and coordinating the TT-GISC actions and tasks that he introduced in agenda item 2 above.

47. **Work Package 1** - WIS Part C - The meeting noted that little progress was evident on WP 1 which remains pending.

4.1 User Interface

48. **Work Package 2** –User Interface – Mr Jan Osuski (HMEI) reported that one GISC had installed the site maps and registered with search engines. The meeting noted that this had been successful in having WIS metadata discovered by search engines, although there was a lot of work in optimising the effectiveness in terms of ranking. Some participants were concerned that should all GISCs do as requested, then search would return 15 results of the same metadata record. One for each GISC.

D7 TT-GISC agreed that should all GISCs implement site maps solutions, they should only include metadata from their Area of Responsibility.

49. Mr Osuski reported that he would like someone else to take lead of this work package should it continue. TT-GISC noted that the implementing GISC had found this a very worthwhile experience, learning a lot about search optimisation and working with search engine tools. The chair thanks Mr Osuski for his work.

A10 The secretariat should advise the metadata working group on search (IPET-DD/TT-MDS) of the success and lessons learnt from use of site maps.

4.2 User Federation

50. **Work Package 3** – User Federation – Mark Francis led a break out group discussion on this work package. He reported that it was now much clearer how TT-GISC could benefit from use of EduGain for identification of Academics and that he would work with GEANT to better understand how GISCs could best interact with their system.
51. The members of the break out group were Mark (lead), Benjamin, Kai, Kari, Kwang-Jae, Shuichi.
52. Mr Francis further noted that the break out group had reviewed the list of attributes proposed by earlier meetings for that need to be mandatory and optional for recording of users profiles. He will produce a paper describing the findings of the breakout group with a strategy to be able to investigate these issues more fully and report back to TT-GISC in 2020. TT-GISC noted that the break out group saw user federation and authentication as a relevant activity to pursue in the development of WIS 2.0, including reaching agreement of standard protocols that will allow effective single sign on across GICS and data centres.

A11 Mr Francis to circulate a report of the break out group meeting to the group before November 2019.

D8 Mr Francis to take on the role of lead for WP 3.

53. **Work Package 4** – GISC Committee – The meeting noted that this is being covered by the annual reports under agenda item 3 above.

4.3 Metadata Consistency

54. **Work Package 5** – Metadata – Mr Benjamin Saclier presented TT GISC2019 AI(04) WP 5 MetadataSynchronization^{xxix}.
55. The meeting noted that although the work group found OAI PMH difficult they did not find a suitable alternative. It further noted that full harvesting occasionally works but questioned which GISCs are doing this. They proposed a solution with GISC Offenbach and GISC Seoul offering to be the authoritative catalogue holders, harvesting from each GISC the metadata from their Area of Responsibility. The remaining 13 GISCs should then harvest all metadata sets (other than their own) from these two GISCs.

D9 The meeting agreed that GISC Offenbach will provide OAI-PMH support to https, and GISC Seoul would offer http.

56. It noted that GISC Seoul will continue to offer metadata from the GEOSS common infrastructure.

D10 TT-GISC agreed to the requirement for GISCs to harvest all the WIS Catalogue sets from GISC Offenbach or GISC Seoul.

D11 GISCs Offenbach and Seoul will operate as a “WIS catalogue authority” until the next TT-GISC.

A12 TT-GISC will review the WIS catalogue synchronization on the next TT-GISC (i.e. 2020) to check if any improvement and if so will propose update of the WIS manual to clarify the role of “WIS catalogue authority”.

4.4 Next Step WIS Monitoring

57. **Work Package 6** – Monitoring – see Ken’s break out group report on GISC watch and monitoring.

D12 Agreed to Ken’s new status diagram

D13 Agreed to include a summary of key issues at top of GISC Watch handover report

D14 Agreed to report BUFR issues as normal status, but may be asked by WMC to rate as high if they indicate station is remote or high impact.

4.5 Capacity Development

58. **Work Package 7** – Capacity Development – Mr Sungsoo Do presented TT GISC2019 AI(4.5) Capacity Development^{xxx}. The meeting reviewed the progress of sharing training materials on TrainingAids in wis-wiki [<https://wis.wmo.int/page=TrainingAids>]. The meeting confirmed and evaluated the categories in the new menu created by Secretariat.

59. WP-7 team of TT-GISC will consider the amendment of the configurations of the new menu and request Secretariat to finalise the categories on wis-wiki. It is also requested that all GISCs provide their training materials to be available on wis-wiki page in accordance with each item in the new menu.

D15 TT-GISC agreed to the need to review the layout and content of the training aids page, but noted that any major redesign should wait for the completion of the CPDB/extranet that is replacing the wiki.

D16 TT-GISC agreed that it would be beneficial for the WP 7 Team to review the content of existing material and start to construct a set of material that can be put under the competencies based training aids.

A13 The meeting encouraged all GISCs to keep providing information to the training aids pages.

4.6 Tech Reg updating

60. **Work Package 8** – Technical Regulations – Li Xiang presented ET-WISC-DC2019-AI(6)-WIS Guide - PART VIII^{xxx}. This document included the draft updates to the WIS Guide and Manual for WIS monitoring. ET-WISC and TT-DC reviewed the recommended text on WIS monitoring and it is now ready for processing through ICT-ISS and CBS.

61. The secretariat advised that it will be difficult to process, but it should be possible to present to ICT-ISS this October, then have the President of INFCOM (CBS) approve its presentation to EC-72 in 2020. It is unlikely that the joint INFCOM/SVSCOM session in April will be able to process technical regulation changes.

D17 TT-GISC agreed to process the proposed guide to WIS Monitoring via ICT-ISS and president of CBS for consideration of EC-72.

62. **Change of back up GISC** – GISC Moscow reported on the challenges for NCs arising from their decisions to change a back GISC service provider. TT-GISC agreed to provide a principle in the Guide to WIS (WMO No 1061)^{xxxii} allowing NCs to choose freely their back up GISC in consultation with the Principal GISC.

63. The decision to change an earlier chosen backup GISC should be considered appropriate and justifiable in case the required services from the backup GISC had not been provided yet or in accordance with the established procedure.

D18 TT-GISC agreed to add the following to the WIS Guide, Appendix D, ANNEX TO PARAGRAPH 7.4.1: PROCEDURE FOR CHANGING PRINCIPAL GISC.

A14 Add the following note to Appendix D, ANNEX TO PARAGRAPH 7.4.1: PROCEDURE FOR CHANGING PRINCIPAL GISC.

64. Note. Selection of a back-up GISC is a multilateral agreement between the principle GISC, the centre and the back-up GISC. Changing of principal GISC should include coordination with new and old principal GISC as well as with new and old backup GISC.

4.7 New CPDB and annual survey

65. **Task 16/1-1 – CPDB** - The secretariat clarified that this related to the ability to do surveys and to share results between survey, lessening the load on WIS focal points. The new CPDB/Extranet project is addressing these and will be ready by end of this year.

4.8 Other action items

66. **Work Package 9** – Cache consistency – New work package was discussed under agenda 9.

5. WIS2.0

5.1 PROTOTYPE ACTIVITIES TOWARD WIS2.0

67. **GISC Tokyo Pilot Cloud Project.** Shuichi Ikeda presented TT-GISC2019-AI(05)-GISCTokyoCloudPilotProject^{xxxiii}. The aims of this project are to install cloud service on the internet for evaluating WIS 2.0 things, in particular Pub/Sub and data visualisation, while supporting users in GISC Tokyo AoR

68. JMA will be collecting Tokyo's AoR opinions and needs for capacity building through this project, and plan to ask GISCs to join this project it's when ready (if you are interested in this project).

69. TT-GISC noted that this exercise is using a broker based on AMQP/MQTT consistent with the WIS 2.0 plans, but it is not clear how other GISCs can feed into the metadata and cache components of the cloud. The meeting also noted that the GTS would continue playing a role for some time, both for collecting data from centres in their AoR, and for interacting with other GISCs.

70. **GISC Offenbach – Mesh Grids.** Ms Antje Schremmer presented TT GISC2019 AI(05) MessagingDWD^{xxxiv}. DWD introduced first experiences with a test system for messaging.

71. The test system is based on the Canadian WMO Mesh solution. Sarracenia messages are received via AMQP protocol and distributed via MQTT.

72. In the next step, the distribution of own messages via MQTT will be implemented.

73. First experiences and questions are exchanged in the TT-eWIS sub working group (Lead Remy Giraud) founded at the beginning of the year.

74. The meeting noted that the protocol for Pub/Sub of AMQP might have some problems with the aviation community through choosing different versions of the protocol. If choosing MQTT as protocol the protocols will differ.

6. WIS MONITORING

75. **ET-WISC guidance** - Ms Li Xiang presented TT-GISC2019-AI(6.2.1)-SummaryofBreakoutDiscussion(ET-WISC-2019)^{xxxv}. TT-GISC noted the feedback and recommendations from ET-WISC and TT-DC and will be used as guidance for future work on WIS monitoring. It also appreciated the review of the draft amendments of the WIS manual and guide reported under agenda item 4.6 above.
76. **GISC Ticket System** - In addition to the discussions on WIS monitoring under agenda item 4.4, the chair presented TT-GISC2019-AI(06)-TicketSystem^{xxxvi}. The chair also worked through key ticket items^{xxxvii} where he had identified issues with the practices of the various entries. The aim was to achieve a more uniform approach.
77. The breakout group 2 (WIS monitoring) noted the "status change diagram" is reasonable and used for both GISC and BUFR issues management. TT-GISC proposed adding a [Feedback] status in the status change diagram if need further clarification and/or re-assign. The diagram (MS-Power point: Mantis_ChangingStatus_update-1.pptx) was updated by the break out group 2.
78. The members of the break out group 2 were Ken (lead), Vladimir, Olga, Songsoo, Xiang, Singh, Andje.

D19 TT-GISC agreed to update the status according to the updated diagram as shown in [Annex 7](#)

79. The meeting reviewed the status of priority level for past year and draft criteria of the priority level on Mantis.

D20 TT-GISC agreed to use three levels of priority (Immediate, High, and Normal) and defined each criterion in the table as shown in Annex 8.

80. Request On-Duty GISC to include a new paragraph general summary (important issues) at the beginning of hand over report. It will used as an escalation report (ICT-ISS, P-CBS, etc.) as need. The items of hand over report (TT-GISC2018) will be updated and be available at GISC-Ops web page.
81. **GISC Watch BUFR issues** - The secretariat (Dr Enrico Fucile) joined the meeting remotely and presented TT GISC2019 AI(06) BUFRissues^{xxxviii}. He thanked TT-GISC for the excellent support to date with this work, and wished to share some suggestions to improve the process and make it easier to follow actions.
82. As reported under agenda item 4.4, TT-GISC agreed to treat BUFR message issue as a normal priority, unless relating to critical data. Similarly, it agreed to keeping the status as Confirmed once the responsible centre is addressing the problem until it is resolved. However, it remains important to record activities and changes as they occur during the process.
83. Mr Fucile also demonstrated how he would like items tagged in the tables.

D21 TT-GISC agreed to use the same status and priorities for BUFR as other GISC watch items, and to ensure case tracking is kept updated.

84. **Time Critical Data** – The chair presented TT-GISC2019-AI(06)-Time Critical Data^{xxxix} describing the performance of WIS (mainly the GTS) as measured by UNESCO/IOC tsunami warning communication tests for the Indian Ocean Tsunami Warning Services.
85. Participants reviewed the summary of the result of IOTWS communication test on 12 Dec. 2018. TT-GISC recognized there are different characteristics between their communication tools, GTS, email and SMS, and noted there are some rooms to improve GTS delivery.
86. TT-GISC agreed to continue supporting Tsunami warning message delivery and requested relevant GISCs to take actions, also all GISCs to re-check their routing table to deliver AATT=WEIO to right countries.
87. It was emphasised that the secretariat circulate advice to all GISCs for all Tsunami communication tests in all tsunami warning areas, not just the Indian Ocean. They also distribute results of such tests as well as information packages. It is important that GISCs act on such information like is proposed for the Indian Ocean.
88. It is also essential that GISCs provide feedback to the secretariat on issues identified in communication tests and real events so that the secretariat can liaise with the Tsunami and Ocean related warning systems that area supported by WIS (and GTS).
89. Secretariat informed, the next IOTWS communication test will be on 11th Dec 2019.

7. REVIEW OF THE TECHNICAL REGULATIONS AND OPERATIONAL SPECIFICATIONS

90. TT-GISC agreed to updates for the WIS manual and guide as per section 4.6 above providing WIS monitoring guidelines.
91. It also agreed to the proposed change to WIS guide relating to the notification and procedures for change of back up GISC. Under section 4.6 above.

8. TT-GISC OPERATIONS TOOLS

92. Kai Wirt presented TT GISC2019 AI(08) OperationalInformation^{xl}. ET-WISC 2019 discussed the need for regulations regarding Operational Information Exchange. The meeting noted, that there is the requirement to develop guidelines on what information to share and what exchange channels to use. TT-GISC developed these rules for GISC to GISC communication as a base to be extended to other centers and for inclusion in the Manual on WIS.

D22 TT-GISC decided to:

- (a) maintain two lists of generic email addresses for:
 - (i) contacting GISC Operators and Focal Points (office hours)
 - (ii) contacting GISC Operators / 24/7 Operators (24/7)
- (b) add 24/7 operators to gisc-ops@wmo.int
- (c) update the usage of gisc-ops@wmo.int and reflect to TT-GISC-Ops web page
- (d) add notification providers (i.e. senders) to gisc-ops@wmo.int
- (e) add notification recipients as agreed to gisc-ops@wmo.int

D23 TT-GISC further decided to send the following notifications to the mentioned channels:

- (a) NPXX// : GISC Ops Mailing List
- (b) NOXX// : Add to GISCs RSS-Feed

93. TT-GISC noted that each GISC should prepare communication channels available that are available in disaster mode

94. TT-GISC asks TT-eWIS and ET-CTS to include Operational Information Exchange guidelines into the planned Pub/Sub mechanism for WIS 2.0

95. Discussion led to the following decisions

D24 Data transfer is a part of WIS, so OPS email should go to 24*7 contact email

D25 WP group to draw up procedures for

- (1) Inform other GISCs of issues and maintenance
- (2) GISC to monitor RTH/NC creation of notams and associated metadata for new product changes, and to ensure notam messages are forwarded to all GISCs

9. REVIEW GLOBAL DATA AVAILABILITY

96. Kai Wirt presented TT GISC2019 AI(09) 24hourcache V3^{xi}. Many of the issues or requirements within WIS strongly depend on the quality, accuracy and consistency of the Metadata. Additionally the granularity of Metadata is important. WIS is all about Metadata thus special care has to be taken on this matter. TT GISC noted the importance of Metadata and Metadata Synchronization for the functioning of WIS

97. TT GISC proposes, that the requirement to maintain a list of data for Global Exchange is removed from the GISC-OPS Page and is instead replaced by a link to access this information via SRU.

98. Recalling the recommendations from TT-GISC 2016 all GISCs should encourage NCs and DCPCs to migrate to WMO Core Profile 1.3 and use the "globalexchange" keyword in order to clarify the data which shall be stored in the global cache.

D26 TT GISC agreed to add and follow-up on the following action items:

- (1) Each GISC has to add to its Core Cache all data flagged for GlobalExchange.
- (2) Each GISC has to implement procedures to monitor and update the GlobalExchange data to reflect changes in the Metadata. Procedures to receive all GlobalExchange data have to be taken by each GISC.
- (3) All Metadata has to be migrated to WMO Core Profile 1.3. GISC Toulouse can offer assistance on this. Each GISC has to make sure, that all Metadata contains the Distribution Key Word of GlobalExchange, RegionalExchange or OriginatingCentre.
- (4) Address the following issues (in order of priority)
 - (a) Synchronization Status
 - (b) Metadata Quality
 - (c) Metadata Granularity
- (5) TT-GISC implements procedures to monitor and follow-up issues on the Core Cache Completeness
- (6) Establish new Work Package 9

A15 TT-GISC requested the chair of ET-WISC to brief ICT-ISS on the above decisions and to seek permission to deprecate WMD profile 1.2, and have TT-GISC migrate existing 1.2 metadata to version 1.3

99. It noted that this will require some change for DCPCs and NCs that are still creating version 1.2 metadata.

100. World Weather Watch monitoring. The secretariat showed the current results online^{xiii}. He noted that this monitoring will continue for several years in order to have a statistical comparison with WIGOS Data Quality Management System monitoring that will eventually take over this role. The major improvement is that WDQMS is measured by the end user (ie World Met Centres) and better reflects data availability as centres use alternative transport mechanisms to publish data.

10. ANY OTHER BUSINESS

101. Community's principal GISC. Role and TOR. TT-GISC noted that like the IOC Tsunami warning services, and tropical cyclone committees such as under ESCAPE, have the need for a GISC to act as a focal point to other GISCs supporting WIS centres in the communities area of interest.

D27 TT-GISC agreed that to the following:

(a) The community should be responsible for identifying which GISC it wants to be their primary contact for the community's area.
(b) The role of that primary GISC should be to coordinate activities involving other GISCs in that area, and be proactive in ensuring that WIS performs effectively for the community. This will involve taking the lead in following up deficiencies in information reception and in ensuring GISCs have the correct distribution lists.

102. This will be led largely by the secretariat as they have the responsibility for liaising across other international organizations. The meeting noted that in many cases, WMOs role is only as an observer on these communities' management committees.

11. REVIEW & UPDATE TT-GISC ACTION ITEMS

TT-GISC reviewed actions and decisions from this meeting and updated TT-GISC2019-AI(11)-Action_Items^x accordingly. The following is a summary action items and decisions. There were no pending items.

ACTIONS

- A1** Mr Francis will circulate draft certification criteria to TT-GISC members
- A2** Requested Chair ET-WISC to report to ICT-ISS on the position of GISCs relating to constituent body reform structure and proposed TOR.
- A3** The meeting agreed to holding a break out session to review User Federation, including investigating the work on use of EduGain and reviewing what user information should be mandatory and what should be optional.
- A4** Secretariat (Enrico Facile) to follow up with the metadata working group, advising them to avoid similar traps in future editions.
- A5** TT-GISC to advise Tehran on steps that should be taken to request and establish a back up GISC.
- A6** GISCs to liaise with data centres in the AoR to facilitate updating of MD to 1.3
- A7** TT-GISC requested GISCs Brasilia, Jeddah and Pretoria to upload their reports as soon as possible in order to meet the reporting requirements laid out in the WIS Manual and Guide.
- A8** Kai to update GISC Ops Page to include the new items.
- A9** The meeting requested that listed GISCs migrate remaining metadata in WIS-UNASSOCIATED to principal GISCs.
- A10** The secretariat should advise the metadata working group on search (IPET-DD/TT-MDS) of the success and lessons learnt from use of site maps.
- A11** Mr Francis to circulate a report of the break out group meeting to the group before November 2019.
- A12** TT-GISC will review the WIS catalogue synchronization on the next TT-GISC (i.e. 2020) to check if any improvement and if so will propose update of the WIS manual to clarify the role of "WIS catalogue authority".
- A13** The meeting encouraged all GISCs to keep providing information to the training aids pages.
- A14** Add the following note to Appendix D, ANNEX TO PARAGRAPH 7.4.1: PROCEDURE FOR CHANGING PRINCIPAL GISC.
- A15** TT-GISC requested the chair of ET-WISC to brief ICT-ISS on the above decisions and to seek permission to deprecate WMD profile 1.2, and have TT-GISC migrate existing 1.2 metadata to version 1.3

DECISIONS

- D1** TT-GISC supported the work of ET-WISC group looking at the review the audit criteria for GISCs and noted that Mr Francis will finalise the draft criteria by end of September.
- D2** TT-GISC agreed to recommend continuation of TT-GISC as a coordination group for GISCs with the TORs as in Annex 3 to this report
- D3** The implementation/migration to https highlighted the need for TT-GISC to add change and system/application lifecycle management to their TORs
- D4** The meeting agreed to review the proposed text for the WIS manual and guide to clarify the procedures and responsibilities in nominating and changing back up GISCs
- D5** TT-GISC recommend that WIS centres to update their metadata to version 1.3 for those records still in older versions.
- D6** Having evaluated the reports from GISCs, the meeting agreed update the report template to include (1) report on issues affecting that GISC i.e. Tickets put on the GISC to address; and (2) Report on metadata synchronisation data issues.
- D7** TT-GISC agreed that should all GISCs implement site maps solutions, they should only include metadata from their Area of Responsibility.
- D8** Mr Francis to take on the role of lead for WP 3.
- D9** The meeting agreed that GISC Offenbach will provide OAI-PMH support to https, and GISC Seoul would offer http.
- D10** TT-GISC agreed to the requirement for GISCs to harvest all the WIS Catalogue sets from GISC Offenbach or GISC Seoul.
- D11** GISCs Offenbach and Seoul will operate as a "WIS catalogue authority" until the next TT-GISC.
- D12** Agreed to Ken's new status diagram
- D13** Agreed to include a summary of key issues at top of GISC Watch handover report
- D14** Agreed to report BUFR issues as normal status, but may be asked by WMC to rate as high if they indicate station is remote or high impact.
- D15** TT-GISC agreed to the need to review the layout and content of the training aids page, but noted that any major redesign should wait for the completion of the CPDB/extranet that is replacing the wiki.
- D16** TT-GISC agreed that it would be beneficial for the WP 7 Team to review the content of existing material and start to construct a set of material that can be put under the competencies based training aids.
- D17** TT-GISC agreed to process the proposed guide to WIS Monitoring via ICT-ISS and president of CBS for consideration of EC-72.
- D18** TT-GISC agreed to add the following to the WIS Guide, Appendix D, ANNEX TO PARAGRAPH 7.4.1: PROCEDURE FOR CHANGING PRINCIPAL GISC.
- D19** TT-GISC agreed to update the status according to the updated diagram as shown in Annex 7

D20 TT-GISC agreed to use three levels of priority (Immediate, High, and Normal) and defined each criterion in the table as shown in Annex 8.

D21 TT-GISC agreed to use the same status and priorities for BUFR as other GISC watch items, and to ensure case tracking is kept updated.

D22 TT-GISC decided to: (a) maintain two lists of generic email addresses for: (i) contacting GISC Operators and Focal Points (office hours) (ii) contacting GISC Operators / 24/7 Operators (24/7) (b) add 24/7 operators to gisc-ops@wmo.int (c) update the usage of gisc-ops@wmo.int and reflect to TT-GISC-Ops web page (d) add notification providers (i.e. senders) to gisc-ops@wmo.int (e) add notification recipients as agreed to gisc-ops@wmo.int

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D27 TT-GISC agreed that to the following: (a) The community should be responsible for identifying which GISC it wants to be their primary contact for the community's area. (b) The role of that primary GISC should be to coordinate activities involving other GISCs in that area, and be proactive in ensuring that WIS performs effectively for the community. This will involve taking the lead in following up deficiencies in information reception and in ensuring GISCs have the correct distribution lists.

PENDING

No table of contents entries found.

11 NEXT MEETING

103. To be determined

12. CLOSURE OF THE MEETING

104. The meeting closed at 1500 on Thursday 29 August 2019.

ANNEX 1. PARTICIPANTS

The following participants are tentative and will be updated on confirmation

GISC	Representative	Participation
GISC Beijing	LI, Xiang	Confirmed
GISC Brasilia	REZENDE, Jose Mauro	Unable to attend
GISC Casablanca	DARARI, Youssef	Remote
GISC Exeter	FRANCIS, Mark	Confirmed
GISC Jeddah	AL-OWAIBDI, Talal	Unable to attend
GISC Melbourne	QU, Weiqing	Unable to attend
GISC Moscow	NIKITOV, Artemiy	Confirmed
GISC Moscow	TSUKANOV, Vladimir	Confirmed
GISC Moscow	PETROVA, Olga	Confirmed
GISC New Delhi	SINGH, S.L	Confirmed
GISC Offenbach	WIRT, Kai-Thorsten (Host)	Confirmed
GISC Offenbach	Schremmer, Antje	Confirmed
GISC Pretoria	N/A	Unable to attend
GISC Seoul	DO, Sungsoo	Confirmed
GISC Seoul	LEE, Kwang-Jae	Confirmed
GISC Tehran	IRAJI, Mohammad Bagher	Remote
GISC Tokyo	TSUNODA, Kenji (Chair)	Confirmed
GISC Tokyo	IKEDA, Shuichi	Confirmed
GISC Toulouse	SACLIER, Benjamin	Confirmed
GISC Washington	SHEETS, Kari	Confirmed
HMEI	OSUSKY, Jan	Remote
Secretariat	Thomas, David	Confirmed

ANNEX 2. AGENDA

- 1 Opening**
 - 1.1 Adoption of agenda
 - 1.2 Working arrangement
 - 1.3 Decisions/Background of Cg-18, EC-71, CBS consultation and relevant TCs, ETs
- 2 Review TT-GISC ToR and Action Plan**
- 3 Status / progress report**
 - 3.1 Status report from all GISCs
 - 3.2 Update GISC Backup matrix (TT-GISC-16/1-5, TT-GISC-18/1-7 and 18/1-15)
 - 3.3 Update GISC-GISC connectivity matrix (TT-GISC-18/1-8)
- 4 Progress from Work Packages and key action items**
 - 4.1 User Interface (TT-GISC-18/1-9: WP2)
 - 4.2 User Federation (TT-GISC-14/1-17: WP3)
 - 4.3 Metadata Consistency (TT-GISC-18/1-11: WP5)
 - 4.4 Next Step WIS Monitoring (WP6)
 - 4.5 Capacity Development (TT-GISC-16/1-11 and 18/1-12: WP7)
 - 4.6 Tech Reg updating (TT-GISC-18/1-17: WP8)
 - 4.7 New CPDB and annual survey (TT-GISC-16/1-1)
 - 4.8 Other action items
- 5 WIS2.0**
 - 5.1 Prototype activities toward WIS2.0 (TT-GISC-18/1-3)
- 6 WIS Monitoring**
 - 6.1 GISC Watch
 - 6.1.1 *Review tickets once per year (ANNEX-8 final report TT-GISC2018)*
 - 6.1.2 *GISC Ticketing System (ET-WISC-19/5)*
 - 6.2 Review Interim Guide for WIS Monitoring (ET-WISC-19/3)
 - 6.2.1 *Summary of breakout discussion in ET-WISC-2019, Beijing*
 - 6.3 Upper-Air BUFR issue supporting
- 7 Review of the technical regulations and operational specifications**
 - 7.1 Manual on WIS, Guide to WIS and Manual on GTS
- 8 TT-GISC Operations tools**
 - 8.1 GISC-OPS (<https://wis.wmo.int/page=TT-GISC-ops>)
- 9 Review Global data availability (if WMO analyzed the result of monitoring)**
 - 9.1 WWW monitoring (AGM, SAM, IWM, SMM)
- 10 AOB**
- 11 Review & update TT-GISC action Items**
- 12 Next meeting**
- 13 Summary and Close**

ANNEX 3. EXPECTED TERMS OF REFERENCE FOR 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
(ii)	<u>Coordinate change and lifecycle management of GISC technologies and services and those of WIS centres</u>
(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)	<u>Review</u> , develop <u>and coordinate</u> 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 <u>Standing Committee on Information Management and Technology (SC-IMT)</u> .

ANNEX 4. GISC BACKUP MATRIX

	Backup	Status	Remarks
1	Beijing – Melbourne	Developing	
2	Beijing – Tokyo	Operational	<i>Same: both sides</i>
3	Brasilia – Pretoria	[?] Negotiating	<i>Info. from Brasilia, to be confirmed</i>
4	Brasilia – Washington	Developing	<i>confirmed</i>
5	Casablanca – Toulouse	Pre-operational	<i>confirmed</i>
6	Exeter – Pretoria	[?]	<i>No information (Aug, 2019)</i>
7	Exeter – Toulouse	Operational	<i>Same: both sides</i>
8	Jeddah – Seoul	[?]	<i>No information (Aug, 2019)</i>
9	Melbourne – Seoul	Developing	<i>confirmed</i>
10	Melbourne – Tokyo	Developing	<i>Same: both sides</i>
11	Moscow – Offenbach	Operational	<i>Same: both sides</i>
12	Moscow – Toulouse	Operational	<i>Same: both sides</i>
13	New Delhi – Seoul	Developing	<i>Same: both sides</i>
14	Offenbach – Tokyo	Operational	<i>Same: both sides</i>
15	Offenbach – Tehran	[?] Negotiating	<i>Info. from Tehran, nothing from Offenbach</i>
16	Tehran – Tokyo	[?] Negotiating	<i>Info. from Tehran, nothing from Tokyo</i>

ANNEX 5. GISC CONNECTIVITY MATRIX

	Beijing	Brasilia	Casablanca	Exeter	Jeddah	Melbourne	Moscow	New Delhi	Offenbach	Pretoria	Seoul	Teheran	Tokyo	Toulouse	Washington	the no. of links
Beijing (BABJ)	N/A					1GB, ftp all for WMO	16M, ftp	16M, ftp	16M, ftp		16M, ftp		16M, ftp	16M, ftp		7
Brasilia (SBBR)		N/A		1.4GB, ftp, shared					1.4GB, ftp, shared				1.4GB, https, shared	1.4GB, ftp, shared	1.4GB, ftp, shared	5
Casablanca (GMMC)			N/A						[?]2Mbps, ftp					2Mbps, ftp		2
Exeter (EGRR)		3GB, ftp, shared		N/A		100M, ftp	100M, ftp	100M, ftp	100M, ftp	100M, ftp	100M, ftp		100M, ftp	100M, ftp	3GB, ftp, shared	10
Jeddah (OEJD)					N/A		?	?	?			?				
Melbourne (AMMC)	500M, ftp, shared			4M, ftp		N/A	500M, ftp, shared	500M, Soc., shared	4M, ftp				4M, ftp	4M, ftp	500M, ftp, Soc, shared	8
Moscow (RUMS)	10M, ftp			10M, ftp	10M, ftp	1GB, ftp, shared	N/A	10M, ftp	10M, ftp		10M, ftp	1GB, ftp, shared		10M, ftp		9
New Delhi (DEMS)	6M, ftp			6M, ftp	150M, ftp all for WMO	150M, http, Soc all for WMO	6M, ftp	N/A	6M, ftp			150M, ftp all for WMO	6M, ftp & sock	6M, ftp		9
Offenbach (EDZW)	50M, ftp	18GB, ftp shared	[?]18GB, ftp shared	50M, ftp	18GB, ftp shared	50M, ftp	50M, ftp	50M, ftp	N/A	18GB, ftp shared	50M, ftp	18GB, ftp shared	50M, ftp	50M, ftp	18GB, ftp shared	14
Pretoria (FAPR)				?					?	N/A				?		
Seoul (RKSL)	6M, ftp			6M, ftp			6M, ftp		6M, ftp		N/A		6M, ftp	6M, ftp		6

	Beijing	Brasilia	Casablanca	Exeter	Jeddah	Melbourne	Moscow	New Delhi	Offenbach	Pretoria	Seoul	Teheran	Tokyo	Toulouse	Washington	the no. of links
Teheran (OIH)					200MB, ftp all for WMO		200MB, ftp all for WMO	200MB, ftp all for WMO	200MB, ftp all for WMO			N/A		200MB, ftp all for WMO		5
Tokyo (RJTD)	10M, ftp	100MB, https, all for WMO		10M, ftp		10M, ftp		10M, ftp & sock	10M, ftp		10M, ftp		N/A	10M, ftp	5MB, ftp, all for WMO	9
Toulouse (LFPW)	100M, ftp	1G, ftp shared	100M, ftp	100M, ftp		100M, ftp	100M, ftp	100M, ftp	100M, ftp	1G, ftp shared	100M, ftp	1G, ftp shared	100M, ftp	N/A		12
Washington (KWBC)		ftp, all for WMO		ftp, all for WMO		ftp, all for WMO			ftp, all for WMO				ftp, all for WMO		N/A	3
	7	5	2	9	4	7	8	8	12	3	6	4	9	11	5	

	managed network (e.g. RMDCN)															
	Internet				"Shared"				shared internet, No-bandwidth-allocation for WMO							
	no direct connection				[?]				discrepancy (to be confirmed)							

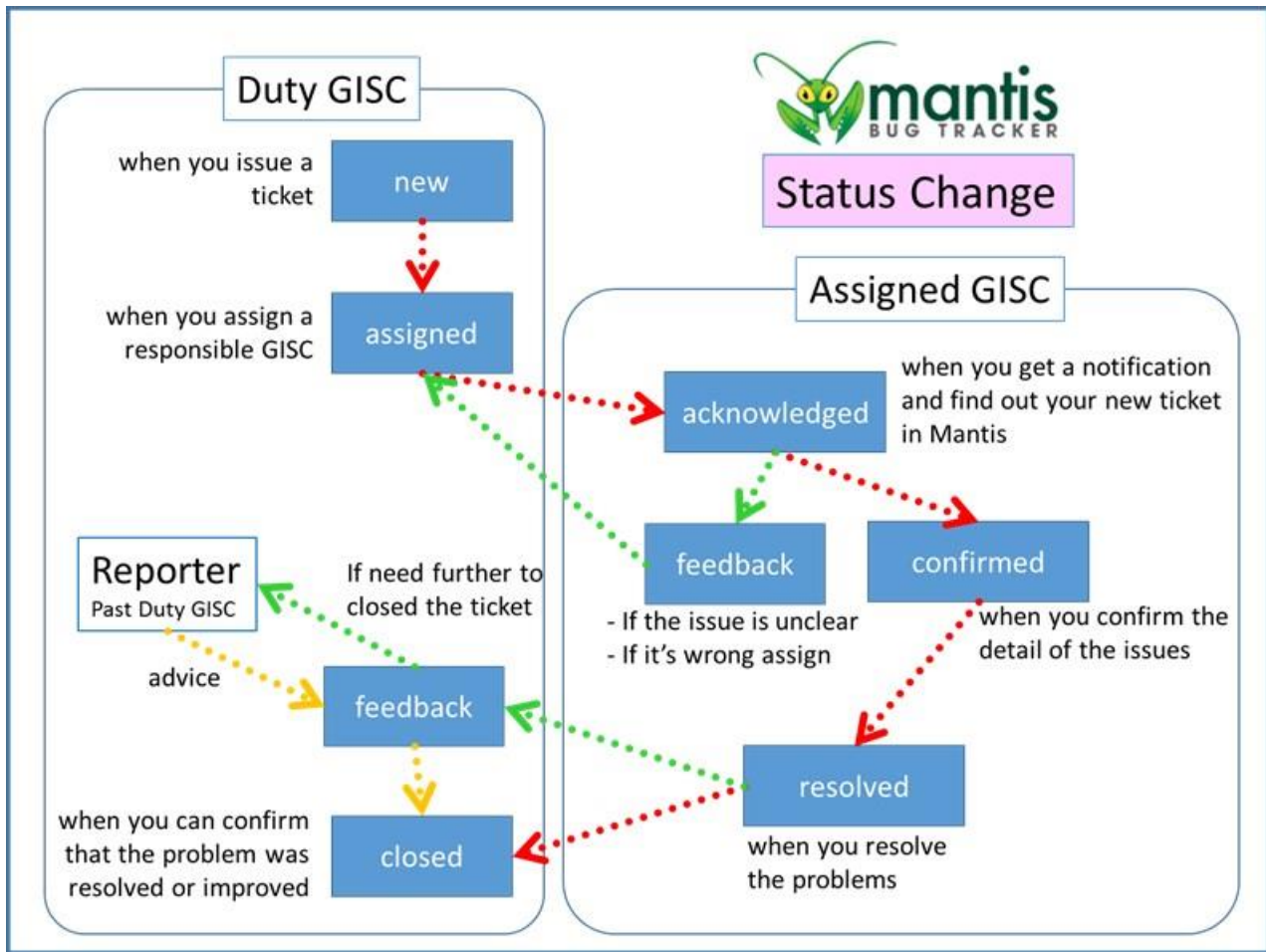
ANNEX 6. TT-GISC WORK PACKAGES

Updated by TT-GISC2019

Work Package		Members	Actions/Deliverables/Outcomes
WP-1	Part C (TT-GISC2015)	pending	Pending
WP-2	User Interface (TT-GISC2016)	Jan(lead, HMEI) Kai(de), JMauro(br), JiaSouglin(cn), Sergei(ru), Mark(uk), Darari(ma), CGMS, Benjamin(fr)	<ul style="list-style-type: none"> Develop mechanism to expose WIS-DAR metadata to commercial search engine [18/1-9] provide suitable sitemaps on Members' public web and GISC Portals DWD provide sample sitemap and CSS. status report to next TT-GISC 2019
WP-3	User Federation (TT-GISC2014)	<u>Mark(lead, uk)</u> <u>JoseMauro</u> Benjamin(fr), ZhuTing(cn), Kari(us)	<ul style="list-style-type: none"> [14/1-17] continue further investigation of EduGain develop a reference guideline [19/1-9] Circulate a report of break out session before Nov. 2019 status report to next TT-GISC 2020
WP-4	GISC Committee by ET- WISC2013	All GISCs	<ul style="list-style-type: none"> Share experience of GISC operation status report to next TT-GISC 2020
WP-5	Metadata Consistency (TT-GISC2017)	<u>Benjamin(lead, fr)</u> Kai(de), Abbas(ir), Shuichi(jp), WangPeng(cn), Darari(ma), Sungsoo(kr)	<ul style="list-style-type: none"> Find solutions/options and investigate feasible way to make consistency (e.g. centralization) [18/1-11] start a catalogue monitoring during GISC Watch duty. Evaluate efficiency of Full harvesting Evaluate effectiveness of new harvesting procedure via "Metadata Authority" status report to next TT-GISC 2020
WP-6	Next Step WIS Monitoring (TT-GISC2017)	<u>Weiqing(lead, au)</u> Mark(uk), WangPeng (cn) Takumu(jp), Benjamin(fr) Leonardo(br), Jan(HMEI) Talal(sa), Leonid(ru)	<ul style="list-style-type: none"> define DCPC/NCs' metrics and visualization method improve JSON files quality (including ISO country code) define standard procedure of GISC Watch including status change and priority level developed by TT-GISC 2019 status report to next TT-GISC 2020
WP-7	Capacity Development (TT-GISC2017)	<u>Sungsoo(lead, kr):</u> SL.Singh(in), LiXiang(cn), Mark(uk), Talal(sa)	<ul style="list-style-type: none"> [18/1-12] Develop a common training materials to know fundamentals of WIS collect training materials and establish a web page to review the content of existing material and start to construct a set of material Review the layout and content of the training aids page status report to next TT-GISC 2020
WP-8	Technical Regulation updating (TT-GISC2018)	<u>Weiqing(lead, au) :</u> Mark(uk), Benjamin(fr), Jan(HMEI), Kai(de), LiXiang(cn), Shuichi(jp)	<ul style="list-style-type: none"> Draft recommendations (amendments) of Technical Regulations submit draft recommendations to ET-WISC (March 2019) status report to next TT-GISC 2020

Work Package		Members	Actions/Deliverables/Outcomes
WP-9	24 cache consistency	Kai(lead, de) Benjamin(fr) , Shuichi(jp) , Antje(de) , Kwang-jae(kr)	<ul style="list-style-type: none"> • Find solutions/options and investigate the way to make consistency • status report to next TT-GISC 2020

ANNEX 7. STATUS CHANGE FLOW



ANNEX 8. CRITERIA OF PRIORITY

Level	Impact	Sample of problem	Time to respond by the assigned GISC	Time to resolve by the assigned GISC
Immediate	<ul style="list-style-type: none"> - the issue will bring a serious impact on one or more GISCs' operations - one or more GISCs need to take immediate action 	<ul style="list-style-type: none"> - total failure of Systems 	ASAP/one day	ASAP/one week
Urgent	Not to be used			
High	<ul style="list-style-type: none"> - one or more essential services are not provided - assigned GISC needs to take action in one week (ASAP) 	<ul style="list-style-type: none"> - essential services are offline - Web services are unable to up/download - Critical BUFR issue 	One week	One month
Normal	<ul style="list-style-type: none"> - essential services are not affected - Assigned GISC needs to respond 	<ul style="list-style-type: none"> - WCDs - Json.file file format error - BUFR upper Air issue 	One week	Update on the progress every three months
Low	Not to be used			
Non	Not to be used			

REFERENCES

- i TT-GISC 2019 web page <http://wis.wmo.int/page=TT-GISC2019> 26/08/2019
- ii TT-GISC 2019 Draft Agenda <http://wis.wmo.int/file=5493> 26/08/2019
- iii TT-GISC 2019 Draft Meeting Work Plan <http://wis.wmo.int/file=5530> 26/08/2019
- iv Report on Cg18 https://library.wmo.int/doc_num.php?explnum_id=9827 26/08/2019
- v Res 57 Annex 1 (Cg-18) <http://wis.wmo.int/file=5612> 26/08/2019
- vi Res 57 Annex 3 (Cg-18) <http://wis.wmo.int/file=5630> 26/08/2019
- vii WMO Constituent Body Reform <https://public.wmo.int/en/governance-reform> 26/08/2019
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