

WORLD METEOROLOGICAL ORGANIZATION

INTER-COMMISSION COORDINATION GROUP
ON THE WMO INTEGRATED GLOBAL OBSERVING SYSTEM

TASK TEAM ON WIGOS STATION IDENTIFIERS
First Session

Oslo, Norway, 17-20 September 2018



FINAL REPORT



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EXECUTIVE SUMMARY

The First session of the Inter-Commission Coordination Group on the WMO Integrated Global Observing System (ICG-WIGOS) Task Team on WIGOS Station Identifiers (TT-WSI-1) was held at Oslo, Norway, from 17 to 20 September 2018. The session took place at the headquarters of Met Norway, at the kind invitation of the government of Norway, and was chaired by Mr José Mauro de Rezende (Brazil) TT-WSI member.

The session reviewed and provided suggestions to adjust the terms of reference of TT-WSI, it also reviewed the existing Regulatory and Guidance Material and other WMO procedures relevant to WSI. The session discussed some of the national schemas for the implementation of WSI that are under development and also reviewed and updated the WSI draft transition plan.

During TT-WSI-1 some joint discussions were held with the EUMETNET (network of European National Meteorological Services) Task Team on WIGOS Station Identifiers (E-TTWSI) who met at the same venue from 19 to 20 September 2018.

As a result of the TT-WSI-1 discussions and with the contribution and feedback from the E-TTWSI, the session agreed on a set of conclusions, recommendations and actions that are mostly related to a more constrained WSI structure, a process for trusted third party organizations to assign WSI, which nationally determined entries would take priority over, the procedures for operational transmission of WSI in BUFR messages, a minimal set of mandatory WIGOS Metadata fields to register a new station/WSI in OSCAR/Surface, the need to preserve the documentation describing the national schemas for WSI, and a test environment and experiment to be led by the European Centre for Medium-Range Weather Forecasts (ECMWF) in the short term. These conclusions and recommendations are described as a short summary in [Appendix IV](#) and in more detail in the General Summary of this report and in its [Appendix III](#) (updated draft transition plan).

GENERAL SUMMARY

1. ORGANIZATION OF THE SESSION

1.1 Opening of the Session

The first session of the Inter-Commission Coordination Group on the WMO Integrated Global Observing System (ICG-WIGOS) Task Team on WIGOS Station Identifiers (TT-WSI-1) was held at the headquarters of Met Norway, in Oslo, Norway, at the kind invitation of the government of Norway, from 17 to 20 September 2018. Mr José Mauro de Rezende (Brazil) chaired the session, which was opened at 09:30 hours on Monday, 17 September 2018; He welcomed the participants and wished a pleasant and efficient session.

Mr Eivind Martinsen assistant director of the forecasting department, Met Norway, on behalf of the PR of Norway welcomed the participants to Norway and to Met Norway headquarters. He highlighted the importance of data exchange for the various application areas and mentioned the possible impacts of the WSIs, so he expects that this task team would prepare the guidelines for supporting the WMO Members to address the changes that are coming as a result of the transition to the WSI. He expressed the wishes for fruitful discussions and that everyone will enjoy their stay in Oslo.

Mr Luis Nunes, from the WIGOS Project Office, WMO Secretariat, speaking on behalf of WMO Secretary-General, Dr Petteri Tallas, and of the Director of the Observing and Information Systems Department, Dr Fernando Belda, also welcomed the participants and thanked Met Norway for hosting and for co-organizing this session. He mentioned the good timing and opportunity to have the first session of TT-WSI during the same week and at the same venue of the Network of European National Meteorological Services (EUMETNET) Task Team on WSI (E-TTWSI) meeting, allowing both teams to meet together and to exchange concerns and suggestions. He underlined the importance of the topics to be discussed following the WMO related documents approved by Seventieth Session of the WMO Executive Council (EC-70, 20-29 June 2018), such as the draft transition plan for WSI and the procedure to allow the WMO Secretary-General to issue WSI. Finally, he reminded that the expected outcomes of this session are the review of the draft transition plan, and a work-plan for TT-WSI, as well as a set of conclusions and recommendations to be submitted to ICG-WIGOS.

The list of participants is given in [Appendix I-A](#).

1.2 Adoption of the Agenda

TT-WSI-1 reviewed the draft agenda and discussed the current large flexibility of the structure of WSIs, it was agreed that this issue is captured under various agenda items. Regarding item 5 (National schemas for assigning WSI) and given the fact that the representative from the USA was not able to participate, the session agreed to accept the offer from Mr Simon Gilbert (UK) to introduce their plans for a national schema, so the agenda item 5.2 (Example of USA) was changed to Example of UK; It was also agreed to hear from other participants about their national plans under agenda item 5.3 (Other examples).

The adopted [Agenda](#) for the meeting is reproduced at the beginning of this report.

1.3 Working Arrangements

TT-WSI-1 agreed on its working hours and adopted a tentative work plan, that included flexibility of the schedule for the joint discussions with the EUMETNET team, taking into account that their session was scheduled for only two days.

2. REVIEW OF TT-WSI TERMS OF REFERENCE AND MEMBERSHIP

The session reviewed the ToRs of TT-WSI as approved by ICG-WIGOS and they agreed that the priority focus of the TT-WSI is on the exchange of data in near real-time. The session proposed a few modifications to their ToRs (to c, d and f) for submission to ICG-WIGOS – the edits are reproduced in [Appendix II](#), in “track-changes” mode.

The session reviewed the current membership of TT-WSI and expressed concerns for the lack of representativeness from developing countries, which might have both distinct and more significant difficulties and challenges to transition to WSIs as compared to the most developed countries.

3. TERMS OF REFERENCE AND AGENDA OF THE EUMETNET TEAM ON WSI

Ms Nina Elisabeth Larsgård (Norway) introduced the ToRs, the membership and the provisional agenda of the EUMETNET Task Team on WIGOS Station Identifiers. This Task Team was established by EUMETNET's Scientific and Technical Advisory Committee (STAC) to discuss the open questions that resulted from a survey made to EUMETNET Members and to find a common consensus within EUMETNET regarding the definition of WSIs. Some of the open questions include how to assign WSI to stations that are owned by a country, but installed in another country, as well as the multi-purpose station concept, i.e. how/when to merge/split stations and also how to ensure the uniqueness of the WSIs – it was agreed that tools are needed to support Members in this respect, such as OSCAR/Surface.

The participants to the EUMETNET TT-WIGOSID meeting, and to the joint sessions WMO-TT-WSI/EUMETNET-TT-WIGOSID, are listed in [Appendix I-B](#).

4. REVIEW OF REGULATORY AND GUIDANCE MATERIAL RELEVANT TO WSI

4.1. Manual on the WIGOS (WMO-No. 1160)

Mr Nunes introduced the participants to the new draft of the Manual on WIGOS (WMO-No.1160) for approval by the Eighteenth World Meteorological Congress (Cg-18) (2019 edition) including the most relevant provisions related to WSI, both the existing and the new ones. The main questions raised at this point were: the number (more than 30) of mandatory elements of the WIGOS Metadata Standard (WMDS), which is too much just to register a new station, i.e. a new WSI (via OSCAR/Surface); and the issue of those National Focal Points (NFPs) for OSCAR/Surface who are not nominated/active/responsive, but who have a critical role in assisting with and in assigning WSIs.

4.2. Guide to WIGOS (WMO-No. 1165)

Mr Nunes also introduced the participants to the most relevant recommendations of the Guide to WIGOS (WMO-No.1165) related to WSI. He mentioned the several new chapters, approved by EC-70, to be included in the Guide but not directly addressing the WSIs but that are related to Members operations, such as the Regional WIGOS Centres (RWCs) - these will have a critical role to assist Members in relation to WIGOS metadata and to WSI, once they are established.

A question was raised which WSI should be used by an upper-air station that had been co-located with a surface station, so sharing the same WSI, but had to be moved to a different site with a new WSI (see agenda item 8). It was suggested to make available for everyone a list of Frequently Asked Questions (FAQs), e.g. on OSCAR/Surface, to assist users on what to do in cases such as station changes in location, changes in ownership, etc.

5. NATIONAL SCHEMAS FOR ASSIGNING WSI

5.1. Example of Brazil

Mr de Rezende introduced the participants to the Brazilian national schema for assigning WSI, which assigns characters to the local identifiers according to the type of station (RD = Radar, RS = Radiosonde, AS = Automatic Weather Station, etc) which is not in accordance with the guidance that recommends not to assign any meaning to the WSI.

The schema is not yet implemented, so they are open to change it, e.g. following to the recommendations from this session; One suggestion is to reserve ranges of numbers for various types of organizations, e.g. 0-9 for the meteorological and hydrological agencies, 10-19 for military forces, etc.

A discussion took place regarding the number of characters to be used for the "Local Identifier" (fourth block of WSI) which may have consequences for users if issuers of WSI have total freedom to use the number of characters they want. Examples given were the case of users/centres that don't have the capacity to correctly interpret variable length strings, and the case of WSI being truncated, e.g. at transmission/reception processes which leads to the potential for gross non-uniqueness in cases where multiple WSIs share common early 4th-block strings.

5.2. Example of UK

Mr Gilbert introduced the participants to the national schema of the UK for assigning WSI, which is still a draft, so they are also open to changes following on the recommendations from this session. During the transition phase they are using the WMO block numbers still available and currently unallocated for the local identifier.

5.3. Other examples

Mr Nunes introduced the participants to the national schema of Italy for assigning WSI, which follows very closely the recommendations from the Guide to WIGOS.

Mr Douglas Cheetham (Australia) introduced the participants to their plans for a national schema for assigning WSIs, for which they require the traceability of future changes, for example to the stations that existed before July 2016, which were assigned with the code "2000x" for the Issuer of Identifier.

It was agreed that the recommendations from this session should assist in harmonizing the structure of WSI in order to reduce its heterogeneity, particularly at regional level.

6. REVIEW OF WMO PROCEDURES RELATED TO WSI

6.1. WMO Circular Letter 37992/2017/OBS/WIS/DRMM/DRC/WIGOS/ID 30 October 2017 - Subject: Reporting of WIGOS Station identifier in BUFR/CREX messages

Mr Nunes introduced the participants to the contents of the WMO Circular Letter issued 30 October 2017, which provides guidance to the Members on how to report WSI in BUFR/CREX messages. Two concerns were raised, one is related to the length of the period for advanced notification that was suggested to be extended from 3 to 6 months, the second one is related to the procedure of the notification, the METNO seems not to be very efficient.

6.2. Procedure to allow WMO Secretary-General to issue a WSI

Mr Nunes introduced the participants to the contents of the Procedure to allow WMO Secretary-General to issue a WSI (Annex 1 to Decision 15 from EC-70) which is composed of two parts:

- "Part I. Procedure for a station operator to apply for a WIGOS Station Identifier" - For step 1.1 of this part, it is critical to know the exact location of the station to check if there are other stations in the surroundings – a complementary procedure to compare the data, e.g. from a candidate station with that of an existing station, was suggested as a logical extension to OSCAR Surface and the World Data Center for Meteorology, Asheville (WDC-A) / Copernicus Climate Change Service activities could help here. Step 2 of part I should be re-worded to expand the scope of the procedure not only to the operating stations but also to those already closed which are critically important for climate users; To facilitate users to follow step 3, the guidance on how to go through the procedure and the contacts of NFPs should be made available on OSCAR/Surface. The same should happen for different types of observing systems in relation to the networks affiliation, online help should be available on OSCAR/Surface, e.g. if the user wants to register a ship "click here", if it is a Lidar "click there", and so on. Clarification is needed for what the users should do in case there is no NFP nominated for OSCAR/Surface from a Member where a WSI is being requested. It should also be made clear to users that for stations owned by a Member but located in another Member's territory, the ultimate responsibility to assign the WSI rests with the latter.

- "Part II. Procedure for the Secretary General to issue a WIGOS Station Identifier" - Additional assistance in terms of standard templates to be followed, as well as other tools, should be provided to users, for example for step 1 and others in this part II. A list of the ISO Country codes assigned to each Member should be developed and also made available.

The session recommended WMO Secretariat to give each new Issuer of Identifier (2nd block of WSI) a block in the range 40000-65534 which would be less uniquely identified with the WMO Secretary-General and less likely to raise national objections.

6.3. Assignment of WSI by partner organizations – the case of C3S

Mr Peter Thorne (invited expert from Copernicus) briefly introduced the participants to the European Union's Copernicus Programme, which has a multimillion Euro budget, mostly allocated to earth observations by satellites. He focused on the Copernicus Climate Change Service (C3S), one of the six Copernicus thematic services, and particularly to the C3S 311a Lot 2 – Global Land and Marine Observations Database; This Lot 2 which is led by Mr Thorne has a budget of 2.5 million \$US for a 4 years contract. To date, they have secured access to 225 sources of climate data, containing more than 120.000 observing stations, nearly half of them are still operating, most of them are exchanging data internationally and many of these doing it over the GTS. C3S would like to use the WSIs for all those stations, being flexible towards assigning of WSI either to work directly with Members or to assign WSI by themselves.

The concerns expressed by the session were related to:

- the timeframe of the project - Mr Thorne explained Copernicus is a long-term programme and includes WDC-A,
- assigning WSI for closed stations versus operating stations located in WMO Member's territories (the latter being more challenging)
- data policy of the "C3S stations"

The session agreed to recommend that partner organizations/programmes, such as C3S should be allowed to assign WSI in the Issuer of Identifier block range 40000-65534 following a careful review by WMO Secretariat on a case-by-case basis for appropriateness of issuer authority with regard to WIGOS operating principles and regulations.

7. REVIEW OF THE DRAFT TRANSITION PLAN

7.1. Introduction to the WSI draft transition plan

Mr Nunes introduced the participants to the contents of the WSI draft Transition Plan that was endorsed by EC-70. The draft plan is composed of four themes, each one is captured under each of the following agenda items:

7.2. Identification of issues to be addressed by Members:

Following the discussions (under agenda item 5) on some constraints to be recommended for blocks 3 and 4 of WSI, the Secretariat was requested to investigate how many/which Members have already developed their national schemas, besides those mentioned at this session (Brazil, Israel, Italy, USA, Australia, Finland, UK).

Mr Ioannis Mallas (ECMWF) informed the session that ECMWF will not be ready to process WSI before implementation of a new Integrated Forecasting System (IFS) cycle scheduled for June 2019. The session then recognized that is very unlikely that other global Numerical Weather Prediction (NWP) centres would be ready for transition to WSI before ECMWF. The need to carefully manage the transition and avoid early transition before NWP centres are ready that then precludes use of data transmitted following the example of the radiosonde transition to BUFR and resulting issues was noted.

7.3. Advice and tools for members to address issues

The session agreed that the most critical aspect of using WSI operationally is the stations location. It was suggested that during the transition phase the Global Information System Centres (GISC) and RWCs should monitor the consistency of station's geographical coordinates. (see agenda item 8 and [Appendix III](#) for more details).

7.4. Testing environment

The session agreed to run an experiment and accepted the offer from ECMWF to organize such a trial to collect and process test data from a small set of voluntary countries over a period of a few months. Israel, although not represented at the session, should be one of the countries to be included in the experiment, since their stations are already disseminating reports with WSIs.

7.5. Resolving issues with exchange of information

Following discussions the draft transition plan was edited during the session, the results are available (track-changes) in [Appendix III](#) as an updated version.

8. INPUTS FROM THE EUMETNET TASK TEAM ON WSI (Joint session)

The TT-WSI met with the E-TTWSI, both on Wednesday 19 September after the afternoon coffee-break, as well as on Thursday 20 September in the morning and during the first portion of the afternoon; For the rest of the Thursday afternoon the teams split again for their wrap-up/closure sessions.

The preliminary outcomes from TT-WSI-1 session were presented to E-TTWSI by Mr Gilbert. The results of what was agreed by both teams are listed below:

8.1. Proposed "new structure"

- It is recommended that for each Issue number, the Local ID shall contain only uppercase or lowercase, not a mix, as it is to reinforce uniqueness, and having the benefits of reducing the risk of confusion; The recommendation could be adjusted towards just the use of UPPERCASE; It should be mentioned that numbers are still allowed together with letters;
- It is recommended to use the whole set of 16 characters for Local ID and it was recognized that detailed guidance is needed on which characters are allowed (for example it is propose that dash sign "-" is not allowed as it could be conflated with separators between the 4 fields in the WSI), and on how to fill in the whole set of 16 characters, e.g. which character should be used for padding and from which direction, left or right it should be padded;
- Because some Members have already defined their national schemas, Ms Tanja Kleinert (EUMETNET Observations Quality Monitoring and Operations Manager, Germany) offered to investigate which EUMETNET Members have done so and if they are open to the proposed changes;
- It is recommended that the "Issue number" has common slots reserved for different types of organizations, e.g. 0-9 for National Meteorological and Hydrological Services (NMHS), 10-19 for other public organizations, etc - these are just examples for illustration, not the final proposed slots. This would help users understand provenance of issuer which may aid decisions on appropriateness-to-application recognising that e.g. NMHS data streams are more likely to follow WMO standards and recommended practices, and hence be of a consistently higher quality.

8.2. Process for trusted third party organisations

- The WSI assigned by partners, for stations located at Members territories, should be reviewed by Members; The recommendations here are not to change the role of the PRs and of the NFPs when assigning WSI via OSCAR/Surface using the ISO country code;
- Proposal to change the EC-70 approved procedure to allow WMO Secretary-General to issue a WSI:
 - Establish clear conditions (such as responsibilities, timeframe, etc) and procedures;
 - Define a set of codes (for example from the reserved range 40000-...) for WMO recognized partners to use in the 2nd block of WSI (Issuer of Identifier);
 - Review and adjust the Procedure in order that all such requests are treated as third party organizations, noting that there is no specific code for the SG.

8.3. Dual inclusion of WMO and WSI in BUFR messages and advanced notification - WMO Circular Letter 37992/2017/OBS/WIS/DRMM/DRC/WIGOS/ID 30 October 2017:

- Members should notify WMO three to six months in advance of starting their operational transmission of BUFR messages with additional inclusion of WSI, clearly stating which stations they plan to start using WSI and from which exact date; WMO Secretariat is recommended to review the METNO procedure in order to find more efficient ways of disseminating information;
- The recommendation from the circular letter for dual inclusion of the traditional WMO number and the WSI is critical and should become mandatory for the years to come;
- When there are several WSIs for the same station, the ones that should be used in

BUFR are the traditional ones, i.e. the WSI of the Synoptic station for the Synop reports, the ICAO WSI for Metars, etc. There is the need to develop guidance on which WSI should be the primary one.

8.4. Minimal set of mandatory WIGOS metadata

- The recommended minimal set of metadata for registering a new station is the following: WSI, Station Name, Geographic coordinates (Latitude, Longitude, Height and barometer height) and Station contact;
- Recommendations for the ICG-WIGOS Task Team on OSCAR Development (TT-OD):
 - trusted organizations, such as ECMWF, should be able to provide supplementary metadata they might have, either by offering technical support to NFPs or directly inserting/updating/correcting metadata in OSCAR/Surface;
 - there should also be an appropriate mechanism for other users to provide any valuable metadata via NFPs;
- To take into account the large number of clicks to open fields and enter metadata in OSCAR/Surface; One possibility is that the number of levels/fields the user is requested to open/enter could be adjusted to the "type of observing system" being registered.

8.5. Documentation of WSI national schemas

- To ensure the preservation of the long term record, documentation shall be preserved in perpetuity at global data centres, such as the World Data Centre for Meteorology in Asheville, USA;
- OSCAR/Surface could be used as a repository of the documentation describing national schemas for WSIs, or at least there should be the links to the official repository.

8.6. Test environment (initially planned to run from mid October to mid December 2018)

- ECMWF offered to create, in early October 2018, a FTP site for Members to provide test data; Mr Mallas will create a group via Confluence software and circulate the details to TT-WSI and E-TTWSI, within a few weeks;
- Volunteer Members that will contribute to the experiment (TBC) starting with SYNOP reports: Switzerland, Iceland, Brazil, UK and Australia.

8.7. Other aspects

- A global forum for discussing the assigning and implementation of WSI is recommended; The OSCAR/Surface Resources Portal on the WMO Moodle platform might be used for this – Secretariat is requested to investigate and inform;
- Secretariat was also requested to investigate if OSCAR/Surface allows metadata elements written by the machine-to-machine API, such as Radar stations having the wrong WSI, e.g. in the range 20000-..., to be edited via the website interface;
- It was noted that the OSCAR/Surface API not being available is preventing update of stations with new WSI in some countries, e.g. Norway
- The question if there should be an active move from the "20000..." WSI approach into the country ISO code, was raised for later clarification; An action was agreed to map the current stations using the range "20000..." to the each country ISO codes;
- When the owner of the station and the owner of the metadata are different organizations, it is recommended that the Members decide on a case by case approach, as long as the main principle that the issue number is to be assigned to a national organization;
- The B/C1 Regulation (Manual on Codes, International Codes, Vol. I.2 Part C – Common Features to Binary and Alphanumeric Codes, d. Regulations for reporting traditional observation data in Table-Driven Code Forms) does not consider the sequence for WSI yet, so it is suggested that the Inter-Programme Expert Team on Codes Maintenance (IPET-CM) updates the templates.
- There should be a well-defined and resourced WIGOS Portal to easily assist everyone on all aspects of WIGOS, including online guidance on what should be done in each case, for example the forms, procedures, links and tools related to WSI should all be available from such a WIGOS Portal.

- There was a general agreement that there should be a transition of all WSI having 2000x as Issuer of Identifier, to using their ISO country code instead, in the long-term.

9. FUTURE WORK PROGRAMME AND ACTION PLAN OF TT-WSI

The session agreed on the following next steps:

- Secretariat to draft the TT-WSI-1 Final Report with conclusions and recommendations
- The major outcomes from TT-WSI-1 to be communicated to relevant communities:
 - WSI structure and Trusted Partners approach at coming events: CIMO TECO (8-11 October 2018, Amsterdam, the Netherlands), TT-OD/TT-WMD (26-30 November 2018, Geneva, Switzerland);
 - IPET-CM: special characters and the padding character
- Pilot/test aspects
 - Consolidate the plan of the experiment
 - Run the experiment (tentatively from mid Oct-Dec 2018)

10. ANY OTHER BUSINESS

The timeframe of TT-WSI mandate was questioned in the context of the WMO Constituent Bodies reform; The expectation is that ICG-WIGOS will extend the mandate of TT-WSI, at least until the end of 2019, or even later depending on Cg-18 decisions.

The session shortly discussed how to assign WSI to lightning detection networks, where the signals from individual detectors have to be processed together by a central system, in order to identify the location and intensity of lightning events. It was agreed that in principal each individual detector should have its own WSI. It was noted that lightning detectors may not constitute the only such case.

11. CLOSURE OF THE SESSION

The Chair of this session, Mr De Rezende, thanked all participants especially those travelling from a long distance, and also the local hosts for such friendly and efficient organization. Mr Nunes echoed the words of the Chair and also expressed his appreciation for the possibility of the good discussions and joint recommendations produced by TT-WSI and the EUMETNET team.

The session was closed on Thursday, 20 September 2018, at 16:00 hours.

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Draft Terms of Reference (Proposed changes)
for the ICG-WIGOS Task Team on WIGOS Station Identifiers (TT-WSI)

- a) To update the draft transition plan for the implementation of the WIGOS Station Identifiers (WSI);
 - b) To develop a detailed work plan of the TT-WSI for the implementation of the transition plan;
 - c) Identify and To collaborate with global and regional data providers and data users who depend on the use of WIGOS Station identifiers for their work, e.g. NWP centres and others, and with NMHSs, on the implementation of the transition plan;
 - d) To provide technical advice and develop guidance material related to the implementation of the WSIs, recognizing there are Members with less capability to address the issues;
 - e) To contribute to the development of tools to assist Members in implementing the WSIs;
 - f) To draft an update proposals to the Manual on WIGOS (WMO-No. 1160) and to Guide to WIGOS (WMO-No. 1165), sections related to WSIs, as appropriate;
 - g) To collaborate closely with all relevant Task/Expert Teams, such as the ICG-WIGOS Task Team on OSCAR Development (TT-OD), the Inter-Programme Expert Team on Data Representation Development (IPET-DD), the Expert Team Meeting on Operational Weather Forecasting Process and Support (ET-OWFPS), and the Inter-Programme Expert Team on Codes Maintenance (IPET-CM).
 - h) To report to ICG-WIGOS on the progress made.
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WIGOS Station Identifiers (WSI) draft transition plan

(Updated version 0.3, 20.Sep.2018)

A) Background

The concept and structure of the WIGOS Station Identifiers (WSI) were approved by Congress 17th (2015) as part of the WIGOS regulatory material (Technical Regulations, Volume I, Part I – WIGOS, WMO-No. 49 and Manual on WIGOS, WMO-No.1160). The initial Guide to WIGOS also contains WSI related material.

During 2017 the efforts to implement the WSIs, included training on the structure and on the procedures to assign WSIs, in the context of OSCAR/Surface training events for Members at regional level (Offenbach, Germany, May 2017; Lima, Peru, September 2017). Several concerns were raised by participants about the implementation and operational use of WSI, while additional guidance was requested.

At the same time, from the activities of the WIGOS Data Quality Monitoring System (WDQMS) involving several global NWP centres the issue of potential impact on the operational systems that collect and process observational data, of implementing WSIs, was also raised.

In the meantime, discussions started within various communities **and initiatives**, such as EUMETNET, GAW, JCOMM, **Copernicus**, trying to find the best approaches for the assignment and for the implementation of the WSIs, specially for the stations operated by non-Met Services organizations.

Finally, it should be mentioned that there is a strong relationship between the implementation of the WSIs and the BUFR migration process – the TAC reports are not compatible with the new WSIs. **A WMO circular letter 37992/2017/OBS/WIS/DRMM/DRC/WIGOS/ID was issued on 30 October 2017 with Subject: Reporting of WIGOS Station identifier in BUFR/CREX messages.**

B) Objectives

From the above mentioned concerns that emerged since last year, particularly those from the NWP centres, the complexity of the process to move from the traditional WMO identifiers to the WSIs and the need for careful planning and detailed guidance became clear. This was submitted to ICG-WIGOS-7 that agreed to establish a specific Task Team to take responsibility of a transition plan for WSIs (TT-WSI).

So, the objective of this (draft) plan is to identify the necessary steps to make sure that all the parties involved, NWP and World Data centres, as well as Members and partner organizations, are ready to move to WSIs before start using them in operations, to avoid/limit the impacts, e.g. data loss.

The key contents of a transition plan for introduction of WSI have been identified under the four following themes, and endorsed by ICG-WIGOS:

- 1- Identification of issues to be addressed by Members;
- 2- Advice and tools for members to address issues
- 3- Testing environment
- 4- Resolving issues with exchange of information

C) Timescale

Taking into account that the WIGOS Pre-operational Phase is planned to run until the end of 2019, ideally, the timescale for the transition plan of WSIs should be from “now” (i.e. to start immediately, or as soon as possible during the 1st quarter of 2018), until the end of 2019, i.e. approximately 2 years before the WIGOS operational phase begins in 2020.

The calendar of the transition plan should be aligned with the above mentioned four themes, according to the following generic schedule:

2nd quarter 2018:

- identify high priority issues (tranche 1) to be addressed
- Implement procedure for resolving issues with exchange of information (use the TT-UABUFR recommendations);

3rd quarter 2018:

- develop advice and tools for Members to address the high priority (tranche 1) issues
- identify next level of priority issues (tranche 2) to be addressed

4th quarter 2018:

- Implement testing environment for tranche 1 issues
- develop advice and tools for Members to address the tranche 2 issues
- identify next level of priority issues (tranche 3) to be addressed

1st quarter 2019

- Implement testing environment for tranche 2 issues
- develop advice and tools for Members to address the tranche 3 issues
- identify next level of priority issues (tranche 4) to be addressed
- Monitor implementation of solutions to tranche 1 issues and amend solutions if needed

2nd quarter 2019

Follow the above pattern

D) Approach

The topics and sub-topics under each theme are presented in detail here below:

It is recommended that the role of the Regional WIGOS Centres (RWC) would cover the following activities:

1 - Identification of issues to be addressed by Members

→ Management procedures

- Delegating authority to issue identifiers
- Ensuring OSCAR/surface maintained (platform and database content integrity)
- Internal procedures to decide on identifiers and to make sure that identifiers are unique
 - Length (#characters) of local identifier = to recommend a shall for the use of the 16 characters, to avoid confusion with other WSI, e.g. in case of truncation
 - Each Issuer of ID uniquely apply only uppercase or lowercase, not a mix
 - Issue number to have slots reserved for NMHS (e.g. 1-10), public organizations (11-20), etc – Benefits = more robustly process the data behind it as well as to allow easy filtering;
- Mapping of the ISO country codes to Members – ACTION for Secretariat (check property rights and see how that is achievable)
- Status of NFPs for OSCAR/Surface – ACTION for Secretariat (Timo)

→ Observing systems

- Update software in systems that generate observation reports for external delivery to use the WIGOS station identifier – involve HMEI – TT-WSI members participating at CIMO TECO and Secretariat
- Update software (including databases) that collects observation information in internal (proprietary) formats and distributes them to the external community – involve HMEI.
- Manage the transition, run parallel repositories, temporarily – test data exchange

~~• Decide on the WIGOS station identifier that will be used for each class of report from that station (for example, synoptic reports might use a different WIGOS identifier from GAW reports to assist other users with their migration)~~

→ Data repositories

- Ensure that the repository can store WIGOS station identifiers as (one of) the identifiers for the station – ~~engage WDC-A, need a workshop involving Secretariat from various Programmes~~
- Determine and implement methods of accepting reports ~~from existing stations~~ that include ~~any combination both~~ of WIGOS as primary ID and ~~also the~~ traditional station identifiers ~~during the transition phase (see circular letter)~~
- Determine and implement methods to extracting observations from the repository in a format that allows them to be used in downstream processing.
- Determine and implement methods to ensure that all reports from the same station are identified as such even if the reports themselves contain different WIGOS station identifiers.

→ Application software

- Determine and implement how observations that do not have traditional station identifiers will be handled in ~~the a given~~ application.
- ~~• Ensure that applications can process observations received by the organization in BUFR.~~
- ~~• Determine and implement methods to ensure that all reports from the same station are identified as such even if the reports themselves contain different WIGOS station identifiers.~~

2 - Advice and tools for members to address issues

→ Central repository for advice that can be referred to in all communications
Use OSCAR/Surface for FAQs and links to the WIGOS Webpage, where most of the advice, recommendations should be
Recommendation for WMO to find resources to build a new WIGOS Portal to accommodate and make visible all the critical/relevant WIGOS activities, tools, best practices, etc

→ Collect examples of how centres are handling WIGOS station identifiers with legacy systems (see bullet above)

- With links to offered software

→ Involve HMEI members

- Take advantage of CIMO-TECO to talk to manufacturers
- Briefing workshop for HMEI members on the issues – depending on level of awareness information will be provided on the WIGOS Portal

→ Public schedule of planned implementation releases to support WIGOS station identifiers

→ Members to provide their plans four times per year (fixed dates/windows, TBD) six-three months in advance regarding the operational introduction of their WSI, list of stations, dates

→ OSCAR/surface tool to allow all WIGOS station identifiers associated with a station to be downloaded (for a single station or a list of stations)

Recommendation for TT-OD: OSCAR/Surface tool to provide assistance in generating a WIGOS ID for a new station, ensuring uniqueness, both via the web interface and via the API, alerting the user for uniqueness errors

→ Central guidance on how to decide which WIGOS station identifier in which type of report, e.g.:

- For existing stations – the WIGOS station ID corresponding to the traditional station for that type of report;
- For new stations – only assign a single WIGOS station identifier (if not possible, assign the minimum number of identifiers that is possible):
 - If an external programme or body (such as ICAO) requires a traditional alphanumeric code to be used for reports, use the WIGOS station identifier associated with that code form (for example, an new airport would use a WIGOS identifier of the form 0-20006-0-abcd); **Use 22000... block instead of 20000... for new airports**
 - ~~If there are no external constraints, use a WIGOS station identifier in the range delegated to the operating country.~~
- ~~Any time table over which reports will converge to using a single identifier (this depends on migration of all systems to using reporting formats that are capable of recording the WIGOS station identifier explicitly).~~

3 - Testing environment

→ Sample reports in BUFR with different combinations of traditional and WIGOS station identifiers (including reports that will highlight incorrect assumptions in the processing)

End-to-end test to ensure reports reach the end users

Use an incident management system, e.g. based on ECMWF's confluence

4 - Resolving issues with exchange of information

→ Mechanisms for users to report and resolve problems with:

- WIGOS station identifiers recorded in observation reports;
- **Need to check/update the basic metadata in OSCAR/Surface before start using the WSI operationally (dates to be mentioned in the advanced METNOs): API is critical to be made available; OSCAR/Surface is the metadata reference**
- **The tools available online for free could be used to assess the location of stations; Independent assessments, such as academic projects could be used – these should be advertised on the (future) WIGOS Portal – Secretariat to check what can be done with the current Webpage**
- Inconsistencies between information in reports from a station and that in OSCAR/surface for that station, including:
 - Use of the wrong WIGOS station identifier;
 - Incorrect report contents **in terms of WSI**;
 - Incorrect OSCAR/surface contents;
 - WIGOS station identifier not in OSCAR/surface.
- **Recognizing the need to move from the current situation where in many cases the station location information in the report is more correct than what is described in OSCAR/Surface – Recommend Members to state what is the right information for the pre-loaded 20000-block stations using the OSCAR/Surface API**
- Inability to obtain a WIGOS station identifier to associate with an observation report.
- **Need to prioritize the use of resources to ensure data exchange from data sparse regions**

E) Tasks, Activities and Responsibilities

The TT-WSI will review the lists of themes and topics and will develop accordingly a detailed work-programme with the necessary tasks and activities to address each of the topics/subtopics of this transition plan; These may include surveys, workshops, visits and TT-WSI sessions.

The support from the Secretariat includes initially the following units of the Observing and Information Systems Department:

- WIS Branch
- WIGOS Project Office;
- Other departments/divisions to be identified as needed;

F) Communication & outreach

The communications and outreach activities will be developed by the Secretariat in collaboration with the Chair TT-WSI, using the available WIGOS and WIS tools, such as Webpages, WIKI pages, the WIGOS Newsletter and the WWW Operational Information Service (OIS) newsletter.

G) Project Management and Risks

The Web-based application "Trello"? (Alfresco?) will be used to manage and to keep track of the activities of this transition plan.

The risks are mostly related to non/inappropriate use of the "project management" tools, for example if not updating and sharing the progress and/or any unexpected issues/delays, and also to non-adherence to the plan, due to ad-hoc decision making.

Short summary of conclusions and recommendations

(edited slides, based on the presentation by Mr S. Gilbert to the joint session)

Summary

- A more constrained WSI structure
- Process for trusted third party organisations (e.g. Copernicus Climate Change Service) to interact with OSCAR/Surface
- Notice period for transition from traditional WMO to new WSI in BUFR (dual inclusion in header) to be 6-3 months in advance
- Only a minimal set of WIGOS Metadata shall be mandatory in OSCAR/Surface
- Documentation describing the national schema for WSI should be preserved in perpetuity at the World Meteorological Data Centre
- Test environment to be organized by ECMWF for voluntary Members to provide test data that includes WSI

Proposed new structure

- There is currently complete freedom for Members to define their own schema
- Propose that the following constraints are imposed:
 - Issue number (Part 3) to have common slots reserved for different types of organizations, e.g. 0-9 for NMHS, 10-19 for other public organizations,
 - Length (#characters) of local identifier (Part 4) = to use the whole set of 16 characters,
 - For each Issue number, the Local ID shall contain only uppercase or lowercase, not a mix
- Details of exactly which characters are allowed and what the common slots are to be agreed with subject matter experts (IPET-CM)

Third party organisations

- Third party organizations and Programmes, such as Copernicus Climate Change Service (C3S), should be officially recognized as WMO partners with the authority to issue WSI
 - Conditions (such as timeframe, etc), and procedures will be clearly established;
 - Recommendation is to define a set of codes (tentatively 40000...) for WMO recognized partners to use in Block 2 of the WSI;
- The case of the WMO Secretary General issuing a WSI where the National Focal Point is unwilling/unable to do so is a specific case of such a third party
 - Procedure for the WMO SG to assign WSI (EC-70, June 2018) will be reviewed and adjusted, in order that all such requests are treated as similar to that of a third party organization

Dual inclusion of WMO and WSI in BUFR message

- Notice period for transition from traditional WMO to new WSI in BUFR (dual inclusion in header) to be from 6-3 months in advance
- Due to the structure of the BUFR message, the old and the new identifier will continue to be transmitted together

Minimal set of mandatory WIGOS metadata

- Currently >20 or more WIGOS Metadata elements are required to register a site in OSCAR (Mandatory and Conditional)
- This is too much for many issuers, especially third parties
- It is recommended to have just a few mandatory WIGOS metadata elements (WSI, Name, Lat, Long, Altitude, Contact) as a minimum to register a new WSI
- This list must be enforced in OSCAR/Surface

Documentation of WSI schema

- To ensure the preservation of the long term record, documentation shall be preserved in perpetuity
- Global data centres are ideally placed to offer this, such as the GMDC in Asheville

Test environment

- To be organized by ECMWF for voluntary Members to provide test data that includes WSI, initially using an FTP site
- Brazil and Australia expressed their intention to contribute; Other possible Members are Iceland, UK, Switzerland (Israel already sending BUFR reports with WSI)
- Tentatively planned to run from mid October to mid December 2018