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COMMISSION FOR BASIC SYSTEMS
OPEN PROGRAMME AREA GROUP ON
INTEGRATED OBSERVING SYSTEMS

ITEM: 3.5

**IMPLEMENTATION-COORDINATION TEAM
ON INTEGRATED OBSERVING SYSTEM
(ICT-IOS)**
Eighth Session

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GENEVA, SWITZERLAND, 7 – 10 APRIL 2014

PROPOSAL FOR WIGOS OBSERVING STATION IDENTIFIERS

(Submitted by the Secretariat)

SUMMARY AND PURPOSE OF DOCUMENT

This document proposes a systematic approach to allocating station identifiers that can be used for any observing station or platform that was previously reviewed by ICG-WIGOS. The proposal creates identifiers that, with suitable procedures in place, can be guaranteed to be allocated to only one station/platform and thus can be used as a universal index for WIGOS and GOS purposes. A key issue is how to take advantage of such a system to issue identifiers to any observing station or platform regardless of its quality, ownership or management regime.

ACTION PROPOSED

The meeting is invited to review the proposal.

Appendices: A. Proposed WIGOS station identifiers

DISCUSSION

1. The current five digit World Weather Watch (WWW) station identifiers for land stations do not provide a large enough range to allow all stations to be issued with an identifier. Limitations in the traditional alphanumeric code forms mean that the range cannot be increased unless the table driven code forms are used for reporting observations, and even then many application programs are written to assume the five digit identifiers.
2. Providing a single numbering system that would allow a globally unique identifier to be issued to a station/platform regardless of the observing system to which it contributed would assist with management of observation networks and the metadata associated with observations. A proposed structure for WIGOS station identifiers is described in the Appendix.
3. Although it would be advantageous that any station/platform should only be issued with only one WIGOS station identifier, enforcing this would be challenging.
4. In addition to the lack of WWW station identifiers, in some regions of the world it is difficult to exchange observations because WWW station identifiers are not being issued even when there are enough spare identifiers to accommodate the requirement.
5. It would be strongly desirable to use an allocation system for station identifiers that would allow any observing station/platform to be issued with an identifier (such as those being run by amateurs whose observations are being collected by the UK Met Office and the Australian Bureau of Meteorology through web-based tools), regardless of the quality of observations, ownership of the station or the management of the observing network. This would allow metadata about such stations to be recorded, and facilitate discussions about their suitability or otherwise for use by WMO Programmes. Information about quality, ownership etc would then be found in the metadata records rather than being implied by the station identifier.
6. The ICT-IOS is invited to encourage ICG-WIGOS to implement a system whereby any operator of an observing station or platform could be granted a WIGOS station identifier for that platform provided that they committed to supplying and maintaining WIGOS observation metadata associated with the observations from that station/platform.

APPENDIX A

PROPOSED WIGOS STATION IDENTIFIERS

WIGOS Identifiers

Version: 20140214

Principles

1. WIGOS would benefit from a single system for identifying stations (in this context, the word “station” refers to stations, platforms, satellites and related concepts) and instruments and other entities of relevance to WIGOS so that these can be referred to unambiguously for the purpose of linking observations with other information associated with them.
2. The following principles should apply to WIGOS identifiers:
 - There should be no implicit meaning in the WIGOS identifier (that is, the identifier should provide no information about the item it labels).
 - WIGOS identifiers should be unique (that is, a single WIGOS identifier cannot refer to more than one physical entity; for example, if a land station moves it should be issued with a new WIGOS identifier).
 - The system for identifying entities in WIGOS should be applicable to all observing systems.
 - The system for identifying entities in WIGOS should be extensible so that it is not necessary to issue new identifiers for existing stations if requirements change in the future.
 - The system used for WIGOS identifiers should be capable of incorporating existing identifiers in a way that allows the existing identifiers to continue to be used as a short-hand within the communities already using them (to avoid an extensive software replacement programme).
 - All stations that contribute observations to WIGOS must have a WIGOS identifier.

Proposed system for WIGOS identifiers

The proposed structure of a WIGOS identifier is shown Figure 2.

int.wmo.wigos	WIGOS unique identifier	WIGOS supplementary identifier
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Figure 1. Structure of a full WIGOS identifier

The first component of the WIGOS identifier (int.wmo.wigos) allows the identifier to be recognized as a WIGOS identifier when used in contexts where it may be ambiguous as to what type of identifier is being used.

The second component (WIGOS unique identifier) is the component of the WIGOS identifier that uniquely identifies an entity. Within a WIGOS context it is the only component of the WIGOS identifier that is always required.

The final component of the WIGOS identifier (WIGOS supplementary identifier) is optional and is used to associate identifiers issued using other systems to be associated with the WIGOS unique identifier. A single WIGOS unique identifier may be associated with many WIGOS supplementary identifiers (such as an observing site that is used for both synoptic and aviation reporting), and a WIGOS supplementary identifier may be associated with many WIGOS unique identifiers (such as a World Weather Watch drifting buoy identifier that has been issued to many drifting buoys).

The WIGOS Unique Identifier and WIGOS supplementary identifier are described in more detail in the following sections.

WIGOS Unique Identifier

WIGOS Identifier series	Issuer of Identifier	Issue Number	Local Identifier
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Figure 2. Structure of WIGOS identifier

Use of the components of the WIGOS identifier is given in Table 1.

Table 1. Allocating the component parts of a WIGOS station identifier.

Component	Description	Initial Range – series 0 (Stations) See Note 1	Initial Range – series 1 (Instruments) See Note 1
WIGOS Identifier Series	This is used to distinguish between different systems for allocating identifiers. It allows future expansion of the system so that entities do not have to be issued with new identifiers if the structure of the WIGOS identifiers proves unable to meet future requirements. Different values of the WIGOS Identifier Series may correspond to different structures of the WIGOS identifier. <i>Initial permitted range: 0-3</i>	0	1
Issuer of Identifier	A number that is used to distinguish between identifiers issued by different organizations	0-1023	0-1023 See note 2
Issue Number	An identifier that an organization responsible for issuing an identifier may use to ensure global uniqueness of its identifiers. For example, allocating one issue number for hydrological stations and another for voluntary climate observing stations would enable the managers of the two networks to issue Local Identifiers independently without needing to check with each other that they were not duplicating identifiers.	0-1023	0-1023 See Note 3

Component	Description	Initial Range – series 0 (Stations) See Note 1	Initial Range – series 1 (Instruments) See Note 1
Local Identifier	This is the individual identifier issued for each entity. An organization issuing identifiers must ensure that the combination of Issue Number and Local Identifier is unique; in that way global uniqueness is guaranteed.	0-999999	10 characters See Note 4

Note 1: although the table proposes initial ranges of permitted values of the components that make up a WIGOS identifier, future changes in requirements may result in these ranges being increased. IT systems must, therefore, be designed to process identifiers whose components are of arbitrary length. BUFR encodings will need to be prepared for WIGOS identifiers to allow efficient representation and these may use code lists to represent components of the WIGOS identifier that are shared by many entities.

Note 2: For instruments, the “Issuer of Identifier” corresponds to the manufacturer of the instrument.

Note 3: For instruments, the “Issue Number” corresponds to the manufacturer’s model identifier for the instrument.

Note 4: For instruments, the “Local Identifier” corresponds to the manufacturer’s serial number/identifier of the instrument.

Notation for the WIGOS identifier

The convention for writing the WIGOS identifier (in the context of WIGOS) is:

<WIGOS Identifier series>-<Issuer of Identifier>-<Issue Number>-< Local Identifier>

For example, the WIGOS Station Identifier

WIGOS Identifier series 0	Issuer of Identifier 513	Issue Number 215	Local Identifier 5678
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would be written as 0-513-215-5678.

When referring to a WIGOS identifier in a context where the type of identifier could be ambiguous, it should be prefixed with “int.wmo.wigos.”, so the above example would be *int.wmo.wigos. 0-513-215-5678*.

WIGOS supplementary identifier

The WIGOS unique identifier described above is sufficient to provide a globally unique identifier. In some contexts it is important to relate this to a more descriptive identifier, such as a station name or a station number associated with an observing system. Two

additional elements are required to achieve this to in an unambiguous way. These two components are known collectively as a WIGOS supplementary identifier.

Note that when these two components are included the WIGOS identifier is not unique. That is, an individual entity may have many WIGOS identifiers. In contexts where a unique reference is required, the WIGOS supplementary identifier must be omitted

Component	Use	Range
Supplement Type	Source of supplementary identifier	0-512
Supplementary Identifier	Supplementary identifier	Depends on supplement type

Notes:

1. *The “Issuer of Identifier” is responsible for ensuring that only one WIGOS unique identifier is issued for a particular entity and that WIGOS metadata are associated with that WIGOS identifier.*
2. *The “Supplement Type” used to identify the source of the “Supplementary Identifier” (for example World Weather Watch land station identifiers). Each “Supplement Type” may be associated with different formats for the associated “Supplementary Identifiers”.*
3. *The “Issuer of Identifier” is responsible for associating WIGOS supplementary identifiers with WIGOS unique identifiers.*
4. *Users will expect to be able to search the catalogue of WIGOS identifiers to determine which WIGOS supplementary identifiers are associated with a WIGOS unique identifier and which WIGOS unique identifiers are associated with a WIGOS supplementary identifier.*
5. *The combination of “int.wmo.wigos” and the WIGOS unique identifier is sufficient to uniquely identify an entity. The use of the WIGOS supplementary identifier is optional.*

Notation for the WIGOS identifier

The WIGOS identifier will be used mainly within IT systems to assist data management, but a standard human readable representation is also required.

Three forms of representing the WIGOS identifier are provided.

WIGOS unique identifier alone

Within a WIGOS context, it is adequate to use only the WIGOS unique identifier. This is the format that is expected to be used most often.

This is written as each of the components separated by a short dash:

<WIGOS Identifier series>-<Issuer of Identifier>-<Issue Number>-< Local Identifier>

For example, the WIGOS unique identifier

WIGOS Identifier series	Issuer of Identifier	Issue Number	Local Identifier
0	513	215	5678

would be written as 0-513-215-5678.

Globally unique WIGOS identifier

In contexts where it is not obvious that the identifier is a WIGOS identifier, the globally unique form of the identifier is used. This is created by prefixing the WIGOS unique identifier with the character string “int.wmo.wigos:”

Formally, the form is:

int.wmo.wigos: <WIGOS Identifier series>-<Issuer of Identifier>-<Issue Number>-< Local Identifier>

In this form, the previous example becomes: int.wmo.wigos:0-513-215-5687.

Fully qualified WIGOS identifier

This includes the WIGOS supplementary identifier. This format is provided for completeness. There will be few situations where it needs to be used.

The fully qualified WIGOS identifier is created by adding to the globally unique WIGOS identifier a colon, followed by the *WIGOS supplementary type*, a short dash, and the *WIGOS supplementary identifier*.

Formally, the format is

int.wmo.wigos: <WIGOS Identifier series>-<Issuer of Identifier>-<Issue Number>-<Local identifier>-<WIGOS supplementary type>-<WIGOS supplementary identifier>

Using the above example, and adding the information that the WIGOS supplementary type is “123” and the WIGOS supplementary identifier is “ABCD”, the fully qualified WIGOS identifier would be

int.wmo.wigos:0-513-215-5687:113-ABCD