CGMS-WMO Task Force on Metadata Implementation

WIGOS Standard Assessment and Review Conclusions

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# Introduction

The following document presents the outcome conclusions and recommendations after a review of the WIGOS Metadata Standard edition 2017 by the CGMS Task Force on Metadata. The WIGOS Metadata standard has been reviewed to assess if the standard in its current version can be used to describe Satellite observations.

# References

WIGOS Standard edition 2017: <https://library.wmo.int/doc_num.php?explnum_id=3653>

OSCAR Space-based capabilities: <https://www.wmo-sat.info/oscar/spacecapabilities>

## Recommendations/Actions summary

This chapter summarizes and regroups all the recommendations/actions derived from the WIGOS assessment.

### Recommendations

1. Add the following extension to the definition: “In the case of a satellite observation, the station/platform model is the satellite used, ie Himawari-8, GEOS-17, Meteosat-11”.
2. Add Platform (ie, “Station/Platform”) in the 3-09 definition like the other 3-0x information definitions.
3. The CGMS TFMI recommends to add the orbit type (sun-synchronous, geo-synchronous, …) in the WIGOS standard to qualifying the Satellite platform and create a code-list as necessary.
4. The CGMS TFMI proposes to allow creating channels in the WIGOS standard for satellite observations. Provide guidance to create channels and qualify channels in WIGOS using a name and the central wave length and the spectral interval. Liaising with ICG WIGOS TT-WMD is necessary to define if it should be included in WIGOS or WMDR.
5. The CGMS TFMI recommends to make 7-06 conditional with the condition of becoming mandatory for satellite observations.
6. The CGMS TFMI proposes to make 7-09 aggregation period conditional (mandatory for surface observations) as it is not relevant for satellite observations.

### Actions

1. CGMS TFMI to liaise with the WMO ICG WIGOS TT-WMD to discuss the necessity of a WIGOS identifier for Satellite Platform (GOES17, METEOSAT11, …) and define which process should be applied to create satellite WIGOS identifiers.

## WIGOS Standard Review

The review follows the WIGOS Standard data model structure. All parts of the WIGOS Standards that are not discussed in the document contain enough information to describe satellite observations. The points below have been raised by the CGMS Task Force on Metadata and derived into recommendations that will be submitted to Inter-Commission Coordination Group on WIGOS Task Team in WIGOS Metadata (ICG WIGOS TT-WMD).

### 3. Station/Platform

#### WIGOS Identifier

The CGMS TFMI has some questions regarding the generation of the WIGOS identifiers for Satellite Platforms. It is not understood if it is necessary to define WIGOS identifiers for Satellite platforms. It is understood the WIGOS identifiers have to be defined for Surface station following a defined process and codification ([**https://wiswiki.wmo.int/tiki-index.php?page=WIGOS-Identifiers**](https://wiswiki.wmo.int/tiki-index.php?page=WIGOS-Identifiers)**)** should it be as well done for Satellite platforms and following which process. The Task Force therefore decided to bring that question to the WMO ICG WIGOS TT-WMD.

**Action: CGMS TFMI to liaise with the WMO ICG WIGOS TT-WMD to discuss the necessity of a WIGOS identifier for Satellite Platform (GOES17, METEOSAT11, …) and define which process should be applied to create satellite WIGOS identifiers.**

#### Station/platform (3.)

* 3-05 (Station/platform model)

The definition for 3-05 is not clear from the satellite community point of view and especially when applied to satellite. CGMS TFMI proposes to add satellite platform examples in the definition of 3-05 an to update the definition as follow: “In the case of a satellite observation, the station/platform model is the satellite used, ie Himawari-8, GEOS-17, Meteosat-11.

**Recommendation: Add the following extension to the definition: “**In the case of a satellite observation, the station/platform model is the satellite used, ie Himawari-8, GEOS-17, Meteosat-11”.

* 3-09 (Station operating status)

All 3-x definition are qualifying “Station/platform” except 3-09 that is only referring to Station. It is proposed to add platform in the definition to align it with the rest of the definition

**Recommendation: Add Platform (ie, “Station/Platform”) in the 3-09 definition like the other 3-0x information definitions.**

* Orbit information is missing and key for satellites.

There is no information for qualifying the orbit of the satellites in the WIGOS standard and it is a key information for satellite platforms. The CGMS TFMI recommends to add the Orbit information in the WIGOS Standard. Discussions with the ICG WIGOS TT-WMD will be organized to define if it should be included in the WIGOS Standard or the WIGOS Metadata Representation WMDR, the XML WIGOS encoding format. It should also be decided if a code list has to be created to control the different types of possible orbits.

**Recommendation**: **The CGMS TFMI recommends to add the orbit type (sun-synchronous, geo-synchronous, …) in the WIGOS standard to qualifying the Satellite platform and create a code-list as necessary.**

#### Instruments and methods of observation (5.)

* Define channels for satellite instruments

A lot of satellite instruments are measuring radiances (the flux of radiation emitted per unit solid angle in a given direction by a unit area of a source). When characterizing satellite observations, it is an accepted best practice to organize the radiance measurement in channels where one channel corresponds to a particular wavelength bandwidth. In that case the bandwidth is defined by the centre wavelength of the bandwidth covered by the channel and the channel designated using that information. For instance, Meteosat has IR10.8 (spectral interval 9.80 - 11.8 µm), VIS0.6 (spectral interval 0.56 - 0.71 µm) channels. That information is essential for the users when providing instrument information. The CGMS TFMI recommends to add that information for satellite observations in the WIGOS standard or the WMDR. It is proposed to study with ICG WIGOS TT-WMD how to implement that change.

**Recommendation: The CGMS TFMI proposes to allow creating channels in the WIGOS standard for satellite observations. Provide guidance to create channels and qualify channels in WIGOS using a name and the central wave length and the spectral interval. Liaising with ICG WIGOS TT-WMD is necessary to define if it should be included in WIGOS or WMDR.**

#### Data Processing and Reporting (7.)

* 7-06. Level of Data

Very often satellite observations are qualified with level which defines different characteristics of the corresponding observations data (processing, calibration, …). A code llist based on the CEOS levels definition has been created and can be applied to the satellite observations. This information is Optional and the CGMS TFMI recommends to make it Conditional under the condition that is becomes mandatory for satellite observations.

**Recommendation**: **The CGMS TFMI recommends to make 7-06 conditional with the condition of becoming mandatory for satellite observations.**

* 7-09. aggregation period

It is not applicable for the satellite observations but it is mandatory for all observation.

The CGMS TFMI proposes to make 7-09 aggregation period conditional with the condition of being mandatory only for surface observations.)

**Recommendation: The CGMS TFMI proposes to make 7-09 aggregation period conditional (mandatory for surface observations) as it is not relevant for satellite observations.**