

**WORLD METEOROLOGICAL ORGANIZATION**

---

CBS/OPAG-IOS/IPET-OSDE1 / Doc. 7.1  
(26.02.2014)

---

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

ITEM: 7.1

**INTER PROGRAMME EXPERT TEAM ON  
OBSERVING SYSTEM DESIGN AND EVOLUTION  
(IPET-OSDE)  
*First Session***

Original: ENGLISH

GENEVA, SWITZERLAND, 31 MARCH – 3 APRIL 2014

**ROLLING REVIEW OF REQUIREMENTS AND STATEMENTS OF GUIDANCE  
REVIEW DATABASE OF USER REQUIREMENTS (OSCAR/REQUIREMENTS)**

*(Submitted by the Secretariat)*

---

**SUMMARY AND PURPOSE OF DOCUMENT**

The document summarizes the developments made on the database of User Requirements (OSCAR/Requirements) over the past year, in response to ET-EGOS actions and user feedback. It also describes the current status of requirements.

---

**ACTION PROPOSED**

The Meeting is invited:

- to note the information contained in this document when discussing how it organises its work and formulates its recommendations;
- to take steps in order to ensure a systematic review and update, by the Points of Contact, of the requirements pertaining to their application areas;
- to review the proposed addition to the OSCAR Maintenance and Updating Procedure contained in Appendix.

---

**Appendix:** OSCAR Updating/Maintenance Procedure (draft revision)

## DISCUSSION

### 1. INTRODUCTION

The repository of observation requirements of WMO and co-sponsored programmes is the “Requirements” module of the Observing System Capability Analysis and Review online tool (OSCAR), which is accessible through the OSCAR home page: [www.wmo.int/oscar](http://www.wmo.int/oscar) in selecting then the “Requirements” tab.

### 2. CHANGES TO APPLICATIONS AREAS AND POINTS OF CONTACT

As agreed by ET-EGOS-7, the application area “Synoptic Meteorology” was merged into “Nowcasting/VSRF”. A new Point of Contact was nominated : Paolo Ambrosetti (Switzerland) . He completed a thorough update of the requirements of this application area.

The application areas GOOS and Marine Biology and their requirements were removed from OSCAR in January 2014 after the GOOS project office indicated that they were not in a position to update these requirements in a foreseeable time frame.

A new point of contact for Ocean Applications, Ms Guimei Liu (China), was nominated in January 2014.

The point of contact for Hydrology has retired in January and no successor has yet been notified to the Secretariat.

### 3. STATUS OF REQUIREMENTS

The requirements of Nowcasting/VSRF, High Resolution NWP, Global NWP, Ocean applications and Space Weather were updated recently or in the past few years by the respective points of contacts.

Most of the WCRP and Atmospheric chemistry requirements have not been updated since more than 12 years.

The requirements of Aeronautical Meteorology, Agricultural Meteorology and Hydrology are still to be completed and updated.

### 4. MAIN CHANGES MADE TO THE OSCAR/REQUIREMENTS TOOL

A number of developments were implemented in 2013, in response to actions agreed at ET-EGOS-7 and user feedback.

#### 4.1 “Layer” and “Coverage”

The concept of “layer” has been clarified. The geographical domain of applicability of a requirement is now characterized by two attributes:

- “Layer”, which qualifies now a vertical range only,

- “Coverage”, which typically qualifies a horizontal domain. The “Coverage” can be global, regional, local (e.g. at airport locations), or limited to certain areas such as the oceans, land surface, equatorial or polar regions, ionosphere, etc.

It is recalled that indicating a “Layer” is relevant when both the variable and the requirement itself depend on the vertical coordinate. For instance, atmospheric temperature being a 3D variable and since the requirement on atmospheric temperature is more stringent in the troposphere than in the high stratosphere, there is a need to register two different requirements for these two layers. On the contrary, a requirement for “Cloud Top Height” has no “layer” because the variable “Cloud Top Height” is not a 3D variable (not a function of height) and a fortiori the requirement for this variable is not dependent on height.

#### **4.2 Regional requirements**

Regional requirements can now be recorded in OSCAR in specifying a particular WMO Region as the “Coverage”.

#### **4.3 Stability/decade**

Upon request of GCOS, an optional field has been created to record the stability over a decade. The unit can be specified for this stability. This new functionality has not been used yet by any application area.

#### **4.4 Domains, sub-domains and themes**

For easy reference and filtering, the Variables are classified into large Domains (Atmosphere, Ocean, Terrestrial, Outer space) and Sub-domains (e.g. Clouds and precipitations, Sea ice, Land surface, space energetic particles).

In addition, it is now possible to “tag” any variable with one or more cross-cutting Theme such as e.g. Cryosphere, Volcanoes, Tropical meteorology. This provides the means to filter the requirements along an additional criterion which is cross-cutting to the Domains or Sub-domains and cross-cutting to the Application Areas.

In particular, this addresses the ET-EGOS request to identify the “Cryosphere” requirements without identifying “Cryosphere” as a specific Application Area. When “Cryosphere” is selected in the list of “Themes”, OSCAR displays the requirements related to “Cryosphere” variables, from any Application Areas.

#### **4.5 Editor’s interface**

A requirement applicable to multiple layers (with the same numerical values) can now be entered only once, thus avoiding repetitive manipulations. It is then displayed in one row only, which provides a more synthetic view than with one row per layer.

Focal points can be directly contacted if they record an email address, the email address is encoded and protected against spammers.

The workflow for Points of Contacts in filling out the necessary fields was simplified, additional help and explanations were included. The User manuals have been updated accordingly.

## **5. UPDATING/MAINTENANCE PROCEDURE**

An updating and maintenance procedure was developed and endorsed by ET-SAT for the updating and maintenance of the OSCAR Space capabilities module.

A revision of this procedure is proposed in order to include the updating of the OSCAR Requirements module. It is contained in the Appendix. The new text is in **green font** in this Appendix.

## **6. FUTURE EVOLUTION**

The Space Programme Office was informed of a decision made to transfer the development and maintenance responsibilities of the OSCAR tool to Meteo-Swiss, who plans to redevelop this application. Furthermore, the OSCAR developer has resigned. In this context, no development is envisaged on OSCAR/Requirements and OSCAR/Space until the new application development is completed by Meteo-Swiss and validated by the WMO Secretariat, tentatively not earlier than 2015.

As concerns the OSCAR/Requirements administrator responsibility, which involves interacting with the Points of Contact and validating the requirements updates, it is envisaged to hand it over from the Space Programme office to the WIGOS Project Office.

## **7. CONCLUSION**

Members are invited :

- to take note of the developments made;
  - to review the procedure for OSCAR/Requirements updating procedure;
  - to take steps ensuring that the requirements of all applications areas are regularly updated by the respective Points of Contacts.
-

## APPENDIX

### DRAFT OSCAR UPDATING/MAINTENANCE PROCEDURE <sup>1</sup>

#### 1. INTRODUCTION

##### 1.1 Purpose and scope

This procedure defines the roles, responsibilities and steps to be followed to update content, functionality and interface of the **OSCAR/Requirements** and OSCAR/Space modules with the aim to ensure that OSCAR content is up-to date, correct, quality-controlled, accessible and fit for purpose.

Note: OSCAR/Space feeds another information resource, the CGMS Satellite Status list, which is thus indirectly covered by this procedure.

##### 1.2 Document plan

The document contains seven sections:

- Section 1: Introduction
- Section 2: Roles
- Section 3: OSCAR/Requirements updating process**
- Section 4: OSCAR/Space content updating process
- Section 5: Updating of functionality and interface
- Section 6: User feedback and evaluation
- Section 7: Resources for Oscar updating and maintenance
- Section 8: Evolution of the procedure

##### 1.3 Background documents

- OSCAR/Space Software Requirements Specification
- WIGOS Information Resource (WIR) functional requirements specification
- ISO/IEC 14764:2006 Software Maintenance
- [CIMO Guide Part 3 Chapter 1 Quality management](#)
- [Rolling Review of Requirements \(RRR\) process](#)

##### 1.4 Definitions

Acronym	Definition
OSCAR	Observing System Capability Analysis and Review Tool
WIGOS	WMO Integrated Global Observing system
WIR	WIGOS Information Resource
CEOS	Committee on Earth Observation Satellites
CGMS	Coordination Group for Meteorological Satellites

<sup>1</sup> Note: the OSCAR/Requirements parts added to the ET-SAT approved document are highlighted in green.

## 2. Roles

The updating and maintenance processes involve the following roles. In practice, one person can take multiple roles.

Role name	Description
SP Office	Space Programme Office (Including external contractors acting by delegation of the SP Office staff and in accordance with the present procedure)
PoC	Point of Contact in charge of reviewing and updating the requirements for a given Application Area identified in the RRR process
IPET-OSDE	CBS Inter-Programme Expert Team on Observing System Design and Evolution
ET-SAT	CBS Expert Team on Satellite Systems
Satellite Operators	Satellite operators with missions recorded in OSCAR
Science Groups	International Science Groups that partner with WMO, e.g. IPWG, IROWG, ICTSW
WIR Project Manager	Person responsible for coordinating the overall WIGOS Information Resource (WIR) developments including OSCAR developments
OSCAR Developer	Person(s) responsible for the technical developments of the OSCAR tool
OSCAR Technical Administrator	Person(s) responsible for the maintenance and operation of the OSCAR tool

## 3. OSCAR/REQUIREMENTS UPDATING PROCESS

**Scope:** This section applies to the updating of the contents of OSCAR/Requirements. For changes to the functionality of OSCAR, please refer to Section 5.

### 3.1 NEW VARIABLES OR CHANGES TO THE ATTRIBUTES OF A VARIABLE

Note: The variables registered in OSCAR are generally shared by several application areas. Each variable has the following attributes, which can only be updated by the administrator.

TABLE 1: Attributes of a variable in OSCAR

Attribute	Example
Name	<i>Sea surface temperature</i>
Applicable cross-cutting tags	<i>Cryosphere, Tropical Meteorology</i>

Domain or sub-domain	<i>Ocean</i>
Definition	<i>Temperature of the sea water at surface. The “bulk” temperature refers to the depth of typically 2 m, the “skin” refers to within the upper 1 mm.</i>
Comment	<i>Detailed SST definitions are available from GHRSSST: <a href="https://www.ghrsst.org/ghrsst-science/sst-definitions/">https://www.ghrsst.org/ghrsst-science/sst-definitions/</a></i>
Measuring unit	<i>K</i>
Uncertainty unit	<i>K</i>
Stability unit per decade	<i>K</i>
Unit for horizontal resolution	<i>km</i>
Unit for vertical resolution	
Applicable layers	<i>Sea surface, Bulk</i>

The following steps shall be followed to update any attribute of a variable, or to enter a new variable:

<b>Step</b>	<b>Description</b>	<b>Responsibility</b>	<b>Frequency</b>
1	When identifying the need to either register a new variable or amending the attributes of an existing variable, the Point of Contact or a relevant expert submits the proposed attributes (as listed in Table 1) to the administrator with a brief justification.	PoC or other expert	When needed
2	The administrator checks the formal consistency of the recommended change, seeking clarification from the initiator if necessary. If the change is minor (e.g. adding a layer, or editorial correction on the definition, etc.) the administrator jumps to step 5.	Administrator	When contacted by a PoC or other expert
3	If the recommended change is substantial and/or has a potential impact on the requirements of several applications, the administrator seeks confirmation from the IPET-OSDE Chair	Administrator	When appropriate
4	The IPET-OSDE Chair either confirms the proposed change, or contacts the expert for further discussion, or submits the proposal to discussion by IPET-OSDE	IPET-OSDE Chair	When appropriate
5	Upon confirmation by the IPET-OSDE Chair, or endorsement by the IPET-OSDE group, or if the recommended change is minor, the OSCAR/Requirements administrator implements the change.	Administrator	When a proposed change is confirmed

### 3.2 REQUIREMENTS APPLICABLE TO AN EXISTING VARIABLE

The provisions below are applicable when a requirement is updated, or a new requirement is entered, for a variable which is recorded in OSCAR, without changing the definition, unit, or applicable layers of this variable.

Step	Description	Responsibility	Frequency
1	The PoC reviews the requirements of his/her application area in consistency with the Statement of Guidance, taking into account the evolution occurred in the application area.	PoC	Yearly
2	If updates are necessary, the PoC logs in as Editor, and updates the requirements or enters new requirements as appropriate. If necessary he/she contacts the administrator for assistance.	PoC	Yearly
3	When the update is ready, the PoC informs the OSCAR/Requirements administrator that requirements are in draft status	PoC	When update is ready for validation
4	The administrator checks the formal consistency of the new or updated requirement. If the updates are purely editorial or a factual correction, the administrator jumps to step 7	Administrator	
5	If the updates are substantial, the administrator seeks confirmation from the IPET-OSDE Chair	Administrator	
6	The IPET-OSDE Chair either confirms the updated requirement, or contacts the PoC for further discussion, or submits the proposed update to IPET-OSDE for discussion.	IPET-OSDE Chair	
7	Upon confirmation by the IPET-OSDE Chair, or endorsement by IPET-OSDE, or if the draft update is minor, the OSCAR/Requirements administrator validates the update.	Administrator	

#### 4. OSCAR/SPACE Content updating Process

There are two levels of content updates:

- First level: updates based on non-controversial factual evidence,
- Second level: other updates, resulting of expert assessment.

**4.1 First level: updating of factual content**

**Scope:** Refers to update, insertion or deletion of factual content, based on non-controversial factual evidence (e.g. satellite launch dates, new satellite plans, start or end of operational service, orbit characteristics, instrument specifications, ground segment and programme description).

Step	Description	Responsibility	Frequency
1	SP Office keeps track of publicly available information from official satellite operator sources and updates OSCAR accordingly [If necessary, updates are confirmed with Satellite Operator focal points]	SP Office	Continuous, Delay of max 2 months
2	Satellite Operators inform SP Office of important changes or factual errors in OSCAR	Satellite operators	As necessary
3	CGMS satellite operators regularly validate factual information within their responsibility through annual reports to CGMS	Satellite operators	yearly
4	For non-CGMS members, updates are collected either via CEOS or, if relevant (e.g. non-CEOS Members), through direct call from the SP Office	SP Office in consultation with CEOS	yearly

**4.2 Second level: updating of assessments**

**Scope:** Refers to assessments of the suitability of certain instruments for fulfilling pre-defined capabilities or measuring specific variables. Since these assessments can be subject to discussion, effort is made to seek endorsement by representative or authoritative experts.

Step	Description	Responsibility	Frequency
1	Instruments are classified and assessed according to objective design features	SP Office	As new satellites/instruments are added
2.1	Thematic science groups are invited to review the instrument rating per product, in their respective fields of expertise	Science groups (e.g. IPWG, IROWG, ICTSW)	Typically 2-yearly, or when major updates are entered
2.2	ET-SAT validates the assessments and other details in their field of expertise	ET-SAT	yearly
3	SP Office implements changes requested by ET-SAT and/or science groups,	SP Office	yearly

**4.3 Traceability of updates**

All operations (insert, update, delete) are automatically recorded by the system. An administrator can access these logs and reverse changes if necessary.

A list of major content updates (e.g. structural changes, assessments) is maintained by the SP Office.

**5. Updating of functionality and interface of the tool**

Conceptual and/or technical changes to the structure, functionality and interface of the tool can be differentiated in “system maintenance”, “adaptive/corrective maintenance” and “feature updates”.

**5.1 System maintenance**

**Scope:** Maintenance tasks necessary to provide 24/7 accessibility and recovery services in case of failure. Includes the regular maintenance of hosted server environment.

	<b>Description</b>	<b>Responsibility</b>	<b>Frequency</b>
Process 1	Ensure maintenance of application backups and keep recovery versions. (Application and Content)	OSCAR Technical Administrator	Continuous
Process 2	Monitor and configure technical platform (web server, database systems etc) Inform OSCAR Developer of any significant changes in environment	OSCAR Technical Administrator	As needed, at least bi-annually, or if necessary

**5.2 Adaptive/corrective maintenance**

**Scope:** Refers to analysis and correction of discovered bugs or incompatibilities arising through the use of new devices and browsers, as well as minor changes to the presentation (wording, layout).

<b>Step</b>	<b>Description</b>	<b>Responsibility</b>	<b>Frequency</b>
1	Recording, prioritizing and validating requests	SP Office	continuous
2	Implementation and test of update, inform users (if applicable / relevant)	OSCAR Developer	as applicable, with delay of max 2 months

### 5.3 New features, new functionalities and presentation

**Scope:** This refers to adding new functionalities, or significantly changing current behaviour of the tool, including presentation and user interface.

Step	Description	Responsibility	Frequency
1	Recording of general feedback and feature requests from Expert Groups, Satellite operators, users, OSCAR development team	SP Office	Continuous
2	ET-SAT provides guidance on evolution of functionality and interface [WIR development team is consulted if requests have effects on other OSCAR modules]	ET-SAT [WIR project manager]	yearly
3	Approved features are recorded in the Software Requirements Specification for OSCAR/Space	SP Office	
4	Changes are implemented in accordance with overall OSCAR procedures and schedules	OSCAR Developer	
5	OSCAR manual(s) are updated as necessary	SP Office, OSCAR Developer	

### 5.4 Traceability

- A list of discovered bugs, incompatibilities and problems, along with their priority and status is maintained by the OSCAR Developer
- A list of all feature requests is maintained by the WMO SP
- Approved functionalities/ features or changes of such are recorded in the Oscar “Software Requirements Specification” (SRS) Document.

## 6. User feedback and evaluation

User feedback is collected through an email address indicated on the OSCAR homepage, which is checked on a regular basis by the administrator.

User emails are responded and appropriate actions are taken in accordance with the processes outlined in Section 3 and Section 4, for instance:

- an explanation is provided to the user, added in OSCAR views or in the user manual;
- a modification is brought to the interface or the functionality;
- contents are corrected, or a proposal for correction submitted to a satellite operator or a science group for validation.

Structured online surveys are used at regular intervals (every 1-2 years, as appropriate) to collect information on visitor characteristics and feedback on user satisfaction and possible areas for improvement.

Visitor statistics (number, origin, access characteristics) are collected. These statistics are reviewed on an annual basis within the SP Office.

## **7. Resources for Oscar updating and maintenance**

The CBS Recommendation 1 (CBS-15) on Implementation and Sustainability of the Database of Observation Requirements and Observing Capabilities states:

*(1) That resources be assigned with high priority within the Secretariat to complete the software development and, on a sustained basis, for technical maintenance, first-level contents updating and, through consultancy, for technical-level updating and quality control, as a key activity of the WMO Integrated Global Observing System;*

*(2) That Members, expert teams of the Open Programme Area Group on Integrated Observing Systems, satellite operators including the Expert Team on Satellite Systems and members of the Coordination Group for Meteorological Satellites, support the database updating process through submitting inputs and providing reviews and feedback.*

## **8. Evolution of the Procedure**

This procedure is maintained by the SP Office, in consultation with the WIR development team, **IPET-OSDE** and ET-SAT.

---