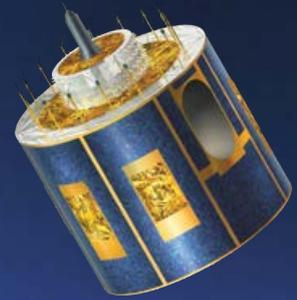


OSCAR

Observing Systems
Capability Analysis and
Review Tool



**World
Meteorological
Organization**

Weather • Climate • Water



Schweizerische Eidgenossenschaft
Confédération suisse
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Swiss Confederation

Federal Department of Foreign Affairs FDFA
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Federal Office of Meteorology and Climatology MeteoSwiss

MeteoSwiss

OSCAR

Observing Systems Capability Analysis and Review Tool

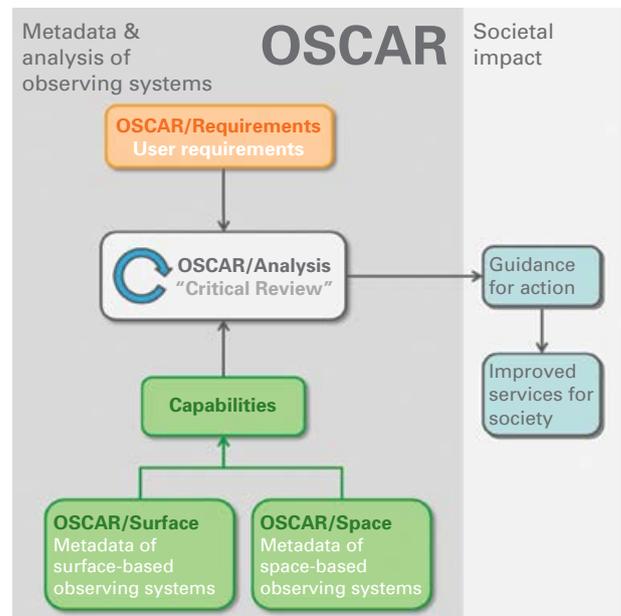
- Web-based inventories of all surface- and space-based stations/platforms under the WMO Integrated Global Observing System (WIGOS) umbrella, including station histories
- Web-based inventories of observational requirements for all Application Areas supporting WMO Programmes
- Analysis component supporting the Rolling Review of Requirements (RRR, "Critical Review")
- Metadata for operational weather and climate services, research applications, and observing network planning, suitable for national, regional and global purposes

WMO Application Areas

- Global Numerical Weather Prediction
- High-resolution Numerical Weather Prediction
- Nowcasting and very short-range forecasting
- Seasonal and interannual forecasts
- Aeronautical meteorology
- Operational air quality forecasting
- Atmospheric composition forecasting
- Atmospheric composition monitoring and analysis
- Ocean applications
- Agricultural meteorology
- Hydrology
- Climate monitoring (Global Climate Observing System)
- Climate applications
- Space weather

Overview

OSCAR is an important part of WIGOS. It has four components (see diagram below): **OSCAR/Surface** and **OSCAR/Space** contain information about surface- and space-based observing system capabilities; **OSCAR/Requirements** contains user requirements for all Application Areas supporting WMO Programmes, and **OSCAR/Analysis** is used to compare those requirements with the observing system capabilities (RRR, "Critical Review"). This allows experts and observing system operators to identify gaps and supports their planning efforts. **OSCAR/Space** has been available in pre-operational mode at the WMO Secretariat since 2012. In 2014, WMO and MeteoSwiss concluded an agreement to jointly develop the surface, requirements and analysis components.



The four components of OSCAR, including expected services

Metadata and the WIGOS Metadata Standard

Metadata are data about data. WIGOS Metadata are those pieces of information that allow the observations to be used correctly. According to the WIGOS regulatory material, WMO Members are obliged to record and exchange metadata as specified in the WIGOS Metadata Standard.

WIGOS Metadata elements are grouped into ten categories (see box, right). OSCAR/Surface is the implementation tool for the WIGOS Metadata Standard and provides a platform for maintaining and archiving the metadata of the surface-based observing segment of WIGOS.

WIGOS Metadata Categories

1. Observed variable – what?
2. Purpose of observation – why?
3. Station/platform – where?
4. Environment – where?
5. Instruments and methods of observation – how?
6. Sampling – how?
7. Data processing and reporting – how?
8. Data quality
9. Ownership and data policy – who?
10. Contact – who?

OSCAR/Surface and OSCAR/Space

OSCAR/Surface and OSCAR/Space are web-based systems used to collect and display metadata for all WIGOS stations and platforms. This information is a critical prerequisite for the optimal use of observations. OSCAR/Space has been available since 2012 and contains metadata for all satellite-based observing capabilities. It can be accessed at <http://oscar.wmo.int/space>. The newly developed OSCAR/Surface, at <http://oscar.wmo.int/surface>, covers the land- and ocean-based observing segment. Users can register and update their stations in OSCAR/Surface through the web. A machine-to-machine interface allows OSCAR/Surface to import information from existing databases in a semi-automated fashion.

OSCAR/Requirements

OSCAR/Requirements is used to store and display user requirements for all supported WMO Application Areas. The requirements are expressed in terms of geophysical variables independently of the observing system technology and are used in the Critical Review.

OSCAR/Analysis and the Critical Review process

The OSCAR/Analysis component will be used for quantitative comparison of existing observing system capabilities with the stated requirements in the WMO Rolling Review of Requirements (RRR) process. The purpose of the RRR process is to provide guidance to WMO Members and other observing system operators about performance and potential gaps in the observing systems under WIGOS. Results will be available in the form of maps and lists. This output can be used by network planners to optimize their investments in observational infrastructure.

Who should use OSCAR?

OSCAR is aimed at all users interested in the status and planning of WMO and co-sponsored observing systems, as well as at data users looking for metadata on observations and instrument specifications at platform level. These users include: National Meteorological and Hydrological Services (NMHSs), space agencies and other observing system operators, as well as academia and other interested parties.

A joint venture between WMO and MeteoSwiss with contributions from numerous WMO Members

OSCAR/Surface is being developed jointly by WMO and MeteoSwiss, with the intention of providing a long-term operational service for WMO hosted at MeteoSwiss. The development work is co-funded by the Swiss Federal Department of Foreign Affairs, the Federal Office of Meteorology and Climatology MeteoSwiss and WMO.

WMO is responsible for the information content of OSCAR/Surface, while MeteoSwiss is responsible for operations and maintenance of the platform. The contribution of individual WMO Members is crucial. They provide the metadata – the essential ingredient of OSCAR – by making available information about their national networks. Regional and global specialized metadata archives are also part of OSCAR.



*Global Atmosphere Watch site at
Assekrem, Algeria*

The World Meteorological Organization

Established in 1950, WMO is a specialized agency of the United Nations with headquarters in Geneva, Switzerland. It coordinates meteorological, climatological and hydrological services and related geophysical sciences for its 191 Members (States and territories). The Organization continues to play a unique and powerful role in contributing to the safety and well-being of humanity, including through disaster risk reduction and adaptation to climate change. It promotes cooperation in the establishment of networks for making observations, as well as in the processing, standardization, exchange and application of related data.

The WMO Integrated Global Observing System

The WMO Integrated Global Observing System provides the integrating framework for all WMO and co-sponsored observing systems. The main aim of WIGOS is to improve the quantity and quality of available observational data on weather, climate, water and the environment in support of WMO Members and WMO and co-sponsored programmes.

After the success of OSCAR/Space, now rolling out ... OSCAR/Surface

How can I use OSCAR/Surface?

OSCAR/Surface is open to the public as a comprehensive repository of information about all observing stations under WIGOS. In order to add and edit information in OSCAR/Surface, authorized users must be registered with the system. The web-based implementation makes it also possible to record metadata directly "in the field" with the information immediately available to the network manager back home. The system also provides batch processing for automated upload and download of metadata.

OSCAR/Surface needs your input!

Take a look at the web-based platform and review the station reports relevant for your country. If any information is missing or erroneous, your national focal point can edit it or may register you as a contact for stations/platforms in your country, so that you can edit the information yourself.

OSCAR/Surface and Volume A

Weather Reporting (WMO-No. 9), Volume A, contains a complete list of all the surface and upper-air stations in operation that are used for synoptic purposes. OSCAR/Surface is intended to replace Volume A, which will be phased out by the end of 2016. The WMO Secretariat is working with Members using Volume A for operational purposes to ensure a smooth transition.

Why OSCAR/Surface?

OSCAR/Surface facilitates the management of station metadata for national, regional and global needs. The main benefit to WMO Members is convenient, one-stop access to all metadata information regarding all WIGOS observational assets, which may eliminate the need for them to maintain their own national metadata management systems. Thanks to OSCAR/Surface, network planners optimize their investments by exploiting synergies with other observing networks. OSCAR/Surface also provides a tool for monitoring the status of the WMO observing systems over time. Members with limited resources can use OSCAR/Surface as a tool to maintain metadata for national observing stations.



*Weather radar at
La Plaine Morte, Switzerland*

Feedback

Please contact us at <http://oscar.wmo.int/contact> for feedback on the platform.

For more information, please contact:

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