



WMO OMM

# World Meteorological Organization

Working together in weather, climate and water

## -OSCAR Database-

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ICTSW-4

Document 9.03



# Outline

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- Live demonstration of OSCAR features

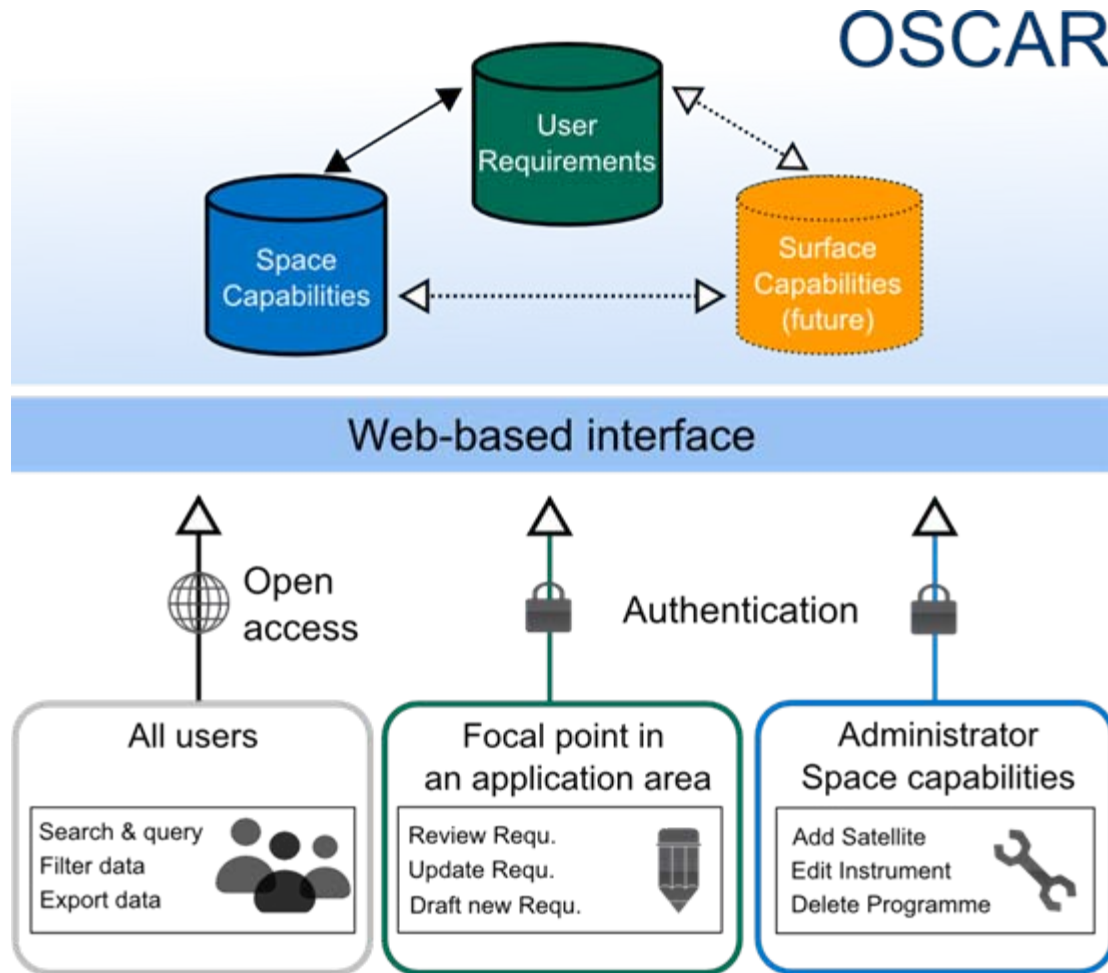


# Introducing OSCAR

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- Online tool to support lookup, planning, evaluation and gap analysis of observing capabilities
- Available to the public:  
[www.wmo.int/oscar](http://www.wmo.int/oscar)
- 3 modules
  - OSCAR/Requirements
  - OSCAR/Space
  - *OSCAR/Surface (future)*

# OSCAR | Components





# OSCAR | Objectives

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- Convenient access to satellite, instrument and network metadata for all users
  - Facilitate design, planning and global coordination of global observing systems
- Serve as a support tool for the “Rolling Requirement Review” Process
  - Ease collection and maintenance of user requirements and aide comparison with actual capabilities



# OSCAR/Requirements



- Official repository of requirements for observation of physical variables in support of WMO Programmes
- Requirements are defined in a “technology-free” manner
- Stores definitions and details of around 250 variables (94 Space Weather related) and more than 600 requirements



# OSCAR/Req. | Process

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- For each Application Areas, designated focal points have limited editing rights
- Requirements can be directly maintained on-line by the focal points (ICTSW: Terry Onsager)
- After review and endorsement, these changes become visible to the public
- Process overseen by CBS IPET-OSDE



# Definition of a Requirement

- Each requirement is defined
  - by one « owner » Application area
  - for one of the pre-defined Variables with units
  - in one or several vertical « Layers »
  - over part or whole of the horizontal « coverage »
- The requirement states
  - Uncertainty (G,BK,T and stability over a decade)
  - Horizontal resolution (G,BK,T)
  - Vertical resolution (G,BK,T)
  - Temporal resolution (G,BK,T)
  - Timeliness (G,BK,T)
  - Level of confidence of the requirement
  - Approval date/stamp and body
  - Comments

Space Weather  
Interplanetary magn. field  
Earth-Sun interspace  
L1

0.05, 0.1, 1, -- (nT)

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1, 10, 60 (s)

1, 5, 15 (min)

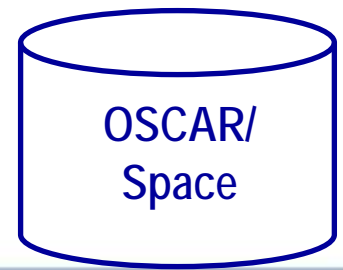
Tentative

2011/05/01, ICTSW-1





# OSCAR/Space



- Inventory of factual information
  - Satellites (600+)
  - Instruments (850+, incl. 250+ for Space Weather)
  - Agencies and other related info
- Expert assessments of space-based capabilities
  - Network review against pre-defined capabilities
  - Assessment of the relevance and limitations of instruments for particular measurements



# Factual information and Performance evaluation

◀ ▶ Instrument: EXIS

## Instrument details

<b>Acronym</b>	EXIS		
<b>Full name</b>	Extreme Ultraviolet Sensor / X-Ray Sensor Irradiance Sensors		
<b>Type of Instrument</b>	<a href="#">22. Solar processes monitor</a>		
<b>Purpose</b>	To monitor EUV and X-rays from the solar disk		
<b>Short description</b>	Two units: EUVS (EUV Sensor) and XRS (X-Ray Sensor). EUVS measures EUV flux in the 5-127 nm range. XRS measures soft-X-rays fluxes in two bands, 0.05-0.4 and 0.1-0.8 nm		
<b>Background</b>	Evolution of SXI on GOES 12 to 15		
<b>Scanning Technique</b>	Sun pointing, full disk		
<b>Resolution</b>	N/A		
<b>Coverage / Cycle</b>	N/A		
<b>Mass</b>	30 kg	<b>Power</b>	40 W
		<b>Data Rate</b>	0.9 kbps

<b>Providing Agency</b>	<a href="#">NOAA</a>
<b>Utilization Period:</b>	≥2015 to ≥2035
<b>Last update:</b>	2013-11-12

## Detailed characteristics

## Satellites this instrument is flying on

Note: a red tag indicates satellites no longer operational, a green tag indicates operational satellites, a blue tag indicates future satellites

- [Geostationary Operational Environmental Satellite - 3rd generation](#) (NOAA)
  - [GOES-R](#) (2015 - 2026)
  - [GOES-S](#) (2017 - 2028)
  - [GOES-T](#) (2019 - 2030)
  - [GOES-U](#) (2024 - 2035)

## Contribution to Space Capabilities

The instrument contributes to the following Capabilities, as identified in the "Vision for the GOS in 2025" and the Implementation Plan for the Evolution of Global Observing Systems:

→ [Space Weather: solar activity, solar wind and deep space monitoring](#)

## Tentative Evaluation of Measurements

The following list indicates which measurements can **typically** be retrieved from this category of instrument. To see a full Gap Analysis by Variable, click on the respective variable.

Note: table can be sorted by clicking on the column headers.

Variable	Relevance for measuring this Variable	Operational Limitations	Processing maturity
<a href="#">Solar EUV flux</a>	2-High	Referring to the Photosphere	Consolidated methodology
<a href="#">Solar X-ray flux</a>	2-High	Referring to the Photosphere	Consolidated methodology

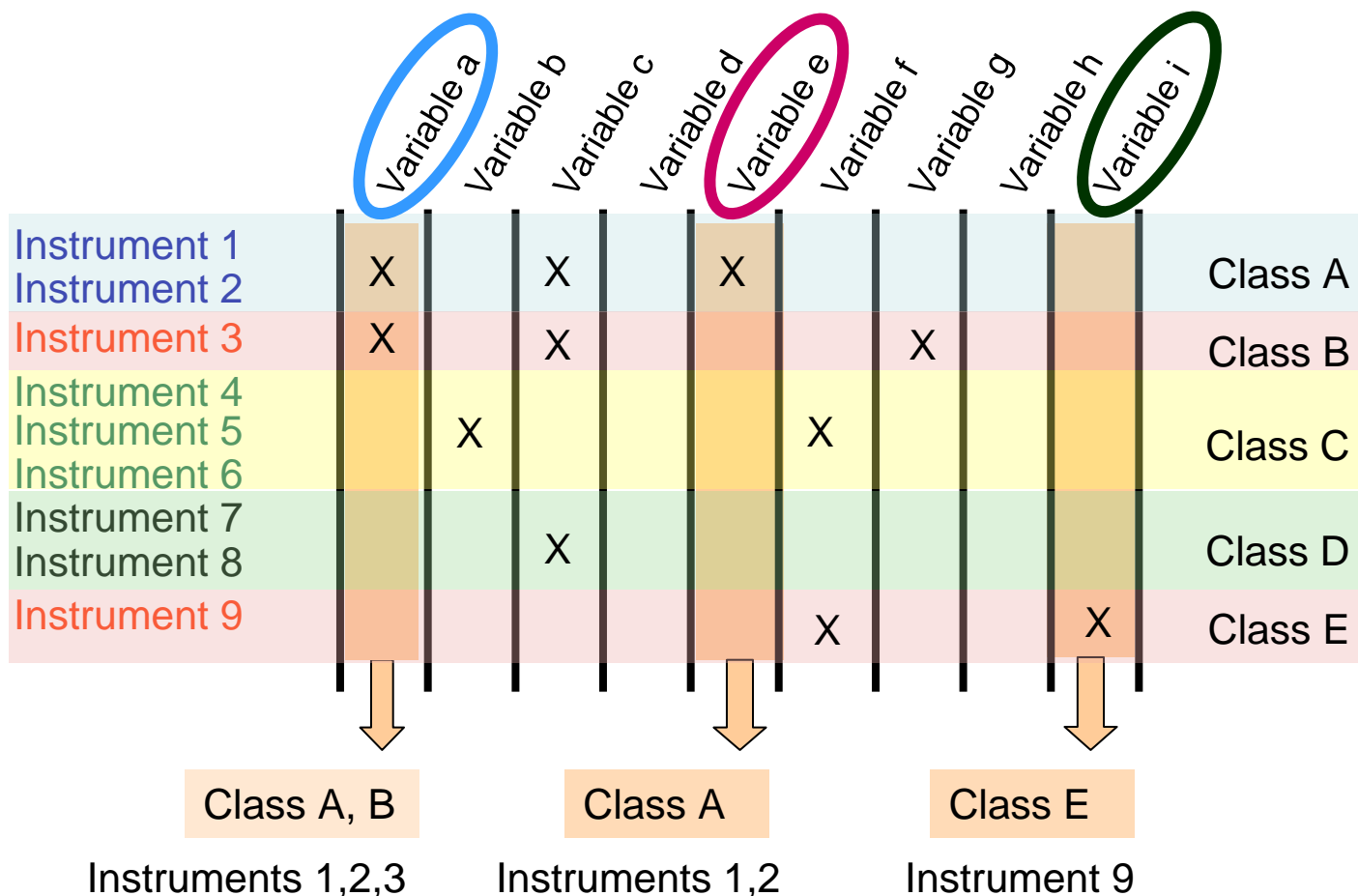


# Categorization principles

- Instrument **types** define broad groups of instrument functionalities (Space Weather: 5 types)
- Within one type, instrument **classes** group instruments with “similar” characteristics and performance
- Every instrument belongs to only one class

<b>Solar Processes Monitor</b>	Instrumentclass A	Instrument 1
	Instrumentclass B	Instrument 2
		Instrument 3
	Instrumentclass C	Instrument 4
		Instrument 5
		Instrument 6
<b>Solar Wind and cosmic radiation monitor</b>	Instrumentclass D	Instrument 7
	Instrumentclass E	Instrument 8
		Instrument 9

# From (*classes of*) instruments to variables and from variables to (*classes of*) instruments



# Demonstration of OSCAR


O.S.C.A.R.
Observing Systems Capability Analysis and Review Tool
nilshettich | My Dashboard | Manage Users | Logout

Home
Observation Requirements
Satellite Capabilities
Surface-based Capabilities

## Welcome to OSCAR

OSCAR is a resource developed by WMO in support of Earth Observation applications, studies and global coordination.

It contains quantitative user-defined requirements for observation of physical variables in application areas of WMO (i.e. related to weather, water and climate). OSCAR also provides detailed information on all earth observation satellites and instruments, and expert analyses of space-based capabilities.

The tool constitutes a building block of WIGOS and more specifically, the so-called [Rolling Requirements Review process](#). OSCAR targets all users interested in the status and the planning of global observing systems as well as data users looking for instrument specifications at platform level. To continue, please select one of the following modules:

- ➔ [Observation Requirements](#)
- ➔ [Satellite Capabilities](#)
- ➔ **Surface-based capabilities** (future module, not yet available)

Each of the modules can be consulted individually, however, the tool is also designed with the goal to integrate user requirements with actual capabilities. This facilitates the Rolling Requirements Review process, comparing "what is required" with "what is, or will be available", in order to identify gaps and support the planning of integrated global observing systems.



The tool is being further developed, and additional functionality and information will be added as appropriate. One future objective is to automatically generate first-level analyses of compliance between the quantitative requirements and the actual capabilities (space- or surface-based).

Last update: 31.08.2012

Please provide feedback to [nilshettich@wmo.int](mailto:nilshettich@wmo.int)



### General tips

- ➔ The Symbols  and  indicate help/explanation on a specific item or a form field.
- ➔ When you see **acronyms** with a dashed underline, e.g. "RRR", you can reveal the full name / explanation by hovering your mouse over the item.

More detailed explanations and a User Manual for Download can be found in the [Help Section](#)