

# OSCAR/Surface Machine-to-Machine Interface

Jörg Klausen, MeteoSwiss  
Lucia Cappelletti, MeteoSwiss  
Timo Pröscholdt, WMO



**WMO OMM**

World Meteorological Organization  
Organisation météorologique mondiale

# Outline

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- Requirements
- Current Status
- Outlook

# INTRODUCTION



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# Metadata for climate applications

“The details and history of local conditions, instruments, operating procedures, data processing algorithms and other factors pertinent to interpreting data (i.e. metadata) should be documented and treated with the same care as the data themselves.”

GCOS Climate Monitoring Principle #3

# Members shall share metadata ...


- WIGOS Manual

## 2.5.3 Global compilation of observational metadata


2.5.3.1 Members shall make available to WMO for global compilation those components of the WIGOS metadata that are specified as mandatory or conditional (whenever the condition is met).

Note: Global compilations of WIGOS metadata are held in several databases. The database of the Observing Systems Capability Analysis and Review tool (OSCAR) of the WIGOS Information Resource (WIR) is the key source of information for WIGOS metadata. Other global compilations of specific components of WIGOS metadata include elements of the GAW Station Information System (GAWSIS), the database of the JCOMM In Situ Observations Programme Support Centre (JCOMMOPS) and others. Purpose and management of WIR and OSCAR are described in Attachment 2.2.

# OSCAR/Surface offers an elaborate management console ...



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OSCAR Observing Systems  
Capability Analysis  
and Review Tool

Home | Search | Critical review | Management

Search

Stations

Register new station

Pending approvals

My stations

View linked stations

Contacts

Register new contact

My contacts

Reference data

Instruments

Methods

Variables

Organizations

Programs

Administration

User management

Audit logs

Homepage > Management > Stations > Register new station

Save as draft | Submit | Cancel

### Register new station

If you would like to register a station with OSCAR please complete the following form. Alternatively, you can register a station by using an existing one as a template, by locating it in "My stations" and selecting the Copy action.

▼ Station characteristics

Name: \* ⓘ

Station alias: ⓘ

[+ Add station alias](#)

Date established: \* ⓘ

Station type: \* ⓘ

Land (fixed) (Observing facility on solid terrain, at fixed position) x ▼

Station class(es):

[+ Add class](#)

WMO index No: \* ⓘ

WMO region: \* ⓘ

Country / territory: \* ⓘ

[+ Add country / territory](#)

# Why an OSCAR/Surface API?

- WIGOS metadata model is fairly comprehensive, lots of elements to report
  - OSCAR/Surface management console is intended to support editing of single stations
  - If metadata are already maintained in a digital archive, it makes sense to automate WIGOS metadata production and delivery
- An API (Application Programming Interface) allows machine-to-machine interaction, intended to support bulk operations or repeated updates

# REQUIREMENTS



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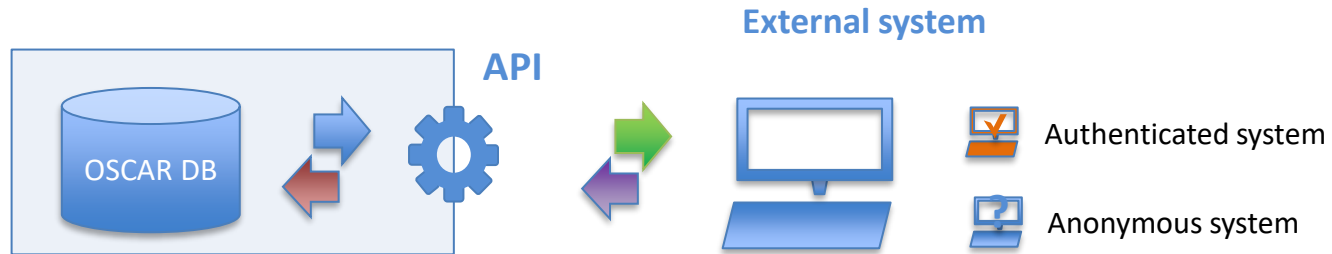


# OSCAR/Surface API (i)



- RESTful API
  - Upload/download of WMD records including
    - Stations characteristics
    - Observations
    - Schedules
    - Instruments
    - Contacts
  - Batch uploads of station contacts and code lists contents
  - Search for stations and contacts using filter expressions
  - Retrieval of audit logs [administrators only]
- Supports export in different formats (WMD XML, JSON, GEOJSON, CSV,..)
- Provides error messages detailed enough to allow corrective action

# OSCAR/Surface API (ii)



➡ An external system can extract:

- Station metadata (full or partial WMD metadata records)
- Stations list (search results)
- Contacts list (search results)
- Audit logs



⬅ An external system can update/insert:

- Stations metadata (full or partial WMD metadata records)
- Station contacts
- Instruments
- Organisations



⬅ Ingestion of current/historic metadata relies on business rules and best practices  
Metadata updated/inserted via the API is locked for UI changes



# OSCAR/Surface API «get»

GET	input	output	Output format	Comment
<div>get stations metadata by WIGOS ID</div>	Station	Full station metadata record	WMD XML, GEOJSON	Current (no date specified) or historic values
	Station(s)	Subset of station metadata record	CSV, XML, JSON	Required elements can be: WIGOS ID, coordinates, station type, station class, measured variables, coordinates of instruments, observing cycle (VoIA legacy file?)
<div>Search for stations metadata</div>	Station(s)	Full station metadata records	WMD XML, JSON	Filters: station class, station type, location (country/ies), open text, ....
<div>Search for stations</div>	Stations list	WIGOS ID, station name, ...	JSON, XML	Filters: station class, station type, location (country/ies), open text, ....



# OSCAR/Surface API «put»

	Update/insert	input	Input format	Output	Comment
Upload station metadata	Station(s)	Full or partial WMD record	WMD XML	Confirmation/error message	Can contain current or historic values
	Station(s) contact(s)	List of station contacts	CSV, XML	Confirmation/error message	Batch upload of station contacts
Upload code lists contents	Instrument	List of instruments	CSV, XML	Confirmation/error message	Batch upload of instruments
	Organisation	List of organisation	CSV, XML	Confirmation/error message	Batch upload of organisations

# CURRENT STATUS



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# OSCAR/Surface API

- Available end points (mainly for internal use)
  - <https://oscar.wmo.int/surface/rest/api? wadl>
- Example: List all approved stations
  - <https://oscar.wmo.int/surface/rest/api/stations/approvedStations/wmolds?pageSize=100&q=&page=1>



# OUTLOOK



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- Distribute schema 1.0RC5 to interested parties
- Align OSCAR/Surface
  - Update DB model,
  - migrate existing information,
  - Update OSCAR/Surface GUI
- Build and test API endpoints
  - «upload» of (complete or partial) WMD records
  - Other endpoints
- Timeline
  - Prototype by end of June based on 1.0RC5
  - Pre-operational API by end of July available for wider testing
  - Bug fixing, deployment by September





You & your organization!



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شكرا

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