

FACILITATED ACCESS TO SATELLITE DATA AND TOOLS

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Summary and Purpose of Document

This document presents the current status of the data access resources provided by WMO on the “Data Access and Tools” web page, on one hand, and in the Observing Systems Capability Analysis and Review Tool (OSCAR), on the other hand. It discusses future developments: a single maintenance mechanism and, ultimately, convergence of the two resources into a single data access information resource are recommended.

ACTION PROPOSED

The seventh session is invited to:

- (a) Provide guidance on the format and level of detail of information needed to inform users about accessing satellite data and tools;
- (b) Discuss possibilities to maintain such information.

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- Appendices:** A. Example Screenshots of OSCAR/Space showing data access information
B. Example Screenshot of the [WMO Satellite data access website](#)

DISCUSSION

Introduction

Satellite data users expressed interest for a centralized collection of information on satellite-level data access possibilities and corresponding pre-processing software tools. This collection is meant to complement the “Product Access Guide” currently under development (see ET-SUP-7/Doc. 10.1), which focuses on higher level products (Usually level 2 and above)¹.

Current status and other on-going developments

Following the ET-SUP actions 6.12, 6.13 and 6.14 and the work undertaken by the expert team members, WMO Secretariat published a webpage with a collection of links to currently available real-time and non-real time data by satellite, as well as software tools for pre-processing and analysis http://www.wmo.int/pages/prog/sat/accessandtools_en.php. This list has been available since early May 2012 and has since attracted around 280 visitors.

Meanwhile, the Observing Systems Analysis and Review Tool ([OSCAR](#)) has been made available to the public in October 2012. Inter alia, it contains detailed information on most past, current and future Earth observing satellites. While the data access webpage focuses on providing direct links to the respective agency websites, OSCAR currently contains explanations on the data circulation concept (at the programme level) and data availability of different instruments (at the individual satellite level), including information on communication frequencies of operational GEO or LEO satellites (See appendix B). Since October 2012, the OSCAR site has attracted around 10 500 visitors.

(Note: detailed data access information in OSCAR is currently kept invisible to the public pending guidance from ET-SUP and ET-SAT).

Discussion and proposals

The Data Access and Tools WMO webpage currently does not clearly distinguish between raw data/level 1 and higher-level products. This means overlap, and possible redundancy, with the planned Product Access Guide. Furthermore, experience shows that the direct links are particularly vulnerable to deprecation, implying that significant maintenance is required to keep the list relevant and useful.

With a view of integrating dispersed information, avoiding redundancy and reducing maintenance, it is considered that all data access information related to Direct Broadcast or level 0/1 rebroadcast, which is generally satellite specific, shall in the future be maintained in one location. Using a dynamic flexible database system, OSCAR can include links to data access information. This could help to increase outreach, as this information could not only be available through consultation of OSCAR (which currently attracts about 100 visits a day), but also displayed in various ways, including on a dedicated WMO “data access” webpage automatically generated from OSCAR.

To avoid duplication and limit the number of total entries to maintain, this near real time data access information could be attached to the **satellite programme level**, instead of satellite level, to the extent there is enough commonality between data access modes of different satellites within a programme².

Links to higher-level products, such as most non-real time data links currently listed on the webpage including many R&D programme resources, could be included in the Product Access Guide. Links to software tools which are not satellite specific could still be maintained in a static webpage.

ET-SUP members are invited to give feedback and guidance.

¹ For a definition of data processing levels, please refer to: http://www.wmo.int/pages/prog/sat/dataandproducts_en.php

² For information, OSCAR counts around 17 operational and 30 R&D satellite programmes of CGMS members

Example screenshots of the satellite data access webpage

Data Access & Tools

Programmes > Space > Data access and use > Data Access & Tools

Data Access and Software Tools

The following provides an overview of:

- [Geostationary Satellite Data Access \(Imagery, Near Real-Time L1.5, Non Real-Time\)](#)
- [Low-Earth Orbiting Satellite Data Access \(Direct Broadcast, Non Real-Time\)](#)
- [Pre-Processing Software Tools for Low-Earth Orbiting Satellite Instruments](#)
- [Processing and Analysis Software Tools \(open source, commercial off-the-shelf\)](#)

Multi-mission broadcast systems such as [EUMETCast](#), [CMACast](#), [GEONETCast-Americas](#), [MITRA](#) provide access to a multitude of satellite data and products, and other data (e.g., in-situ) for WMO applications.

GEO Satellite Data Access

| Satellite | NRT L1.5 Data Specification | NRT Imagery | Non-RT Data |
|-------------|---|--|--|
| COMS | HRIT/ LRIT | KMA KMA NSMC | KMA NSMC |
| Electro-L | HRIT/ LRIT | | (ftp upon request) |
| FY-2 | S-VISSR(NRT) CMACast | Link | S-VISSR CMACast |
| GOES | GVAR | RAMSDIS Online OSPO Imagery | NOAA/NESDIS OSPO NOAA CLASS |
| INSAT-3A | Link | Link | Link |
| Kalpana | Link | Link | Link |
| Meteosat 0° | EUMETCast LRIT | Link | EUMETSAT Data Centre |


Programme Overview


- [Space-based GOS](#)
- [Data access & use](#)
- Introduction
- Formats and Standards
- From data to products
- Dissemination
- Data Access & Tools
- Product Access Guide
- SCOPE-CM
- IGDDS
- RARS
- [Awareness & Training](#)
- [Space Weather](#)
- Regional Activities
- Information Resources
- Partners

- [CGMS](#)
- [GOS](#)
- [WIGOS](#)
- [WIS](#)
- [OSCAR Database](#)

Example screenshots of OSCAR

(Note: the “Data access information” field is currently invisible to the public)

| | | | |
|--|---|-----------------|---------|
| Acronym | GOES-13 | | |
| Full name | Geostationary Operational Environmental Satellite - 13 | | |
| Satellite Description | <ul style="list-style-type: none"> • 6th flight unit of the GOES 2nd generation programme. • Main mission: operational meteorology. • Substantial contribution to space weather. | | |
| Mass at launch | 3210 kg | Dry mass | 1540 kg |
| Power | 2300 W | | |
| Data circulation | <ul style="list-style-type: none"> • CDA (Command and Data Acquisition station) to receive all data transmitted in real-time. • PDR (Processed Data Relay) to broadcast pre-processed images and sounding data in near-real-time (NRT) by using a GOES Variable Data Format (GVAR). • MDL (Multiuse Data Link) to transmit diagnostic data including Space weather data. • WEFAX (Weather Facsimile) to broadcast a selection of images in analogue form. • LRIT (Low Rate Information Transmission), digital follow-on of WEFAX since 2005. • DCIS (Data Collection and Interrogation Service) to relay messages from DCP (Data Collection Platform) either at fixed time or upon interrogation. • GEOS&R (Geostationary Search & Rescue) to relay emergency signals to Local User Terminals (LUT). • EMWIN (Emergency Managers Weather Information Network) to disseminate processed data (updated to EMWIN-N in 2006). | | |
|  Data access information | <ul style="list-style-type: none"> • Real-time availability of the full information to the CDA. • Near-real time availability of pre-processed IMAGER and SOUNDER data in the GVAR format by the PDR and LRIT links to user stations. • Near-real time availability of SXI and SEM (MAG, EPS, HEPAD and XRS) and diagnostic data by MDL. • Near-real-time availability of EMWIN-N information. • DCP messages through ground lines from the CDA. • Alert messages of GEOS&R to LUT in real time. | | |

| | | | |
|--|---|-----------------|---------|
| Acronym | Metop-A | | |
| Full name | Meteorological operational satellite - A | | |
| Satellite Description | <ul style="list-style-type: none"> • 1st flight unit of the EPS programme. • Main mission: operational meteorology. • Substantial contribution to ocean and ice monitoring, climate monitoring, atmospheric chemistry, and space weather. | | |
| Mass at launch | 4085 kg | Dry mass | 3769 kg |
| Power | 1810 W | | |
| Data circulation | <ul style="list-style-type: none"> • CDA (Command & Data Acquisition station) to acquire the stored Global Data Stream (GDS) that collects all instrument data. • ADA (Antarctic Data Acquisition) additional station to acquire stored GDS at an opposite latitude to the CDA in order to reduce on-board data storage and improve timeliness. • AHRPT (Advanced High Resolution Picture Transmission) for real-time broadcasting of all instrument data in digital form. • LRPT (Low Resolution Picture Transmission) for real-time broadcasting of selected data. • A-DCS (Advanced Data Collection Service, also called Argos-3) to localise DCP (Data Collection Platform) and relay their messages, with possibility of sending commands to the DCP. • S&RSAT (Search & Rescue Satellite-Aided Tracking System) to relay emergency signals to Local User Terminals (LUT). • EUMETCast [not exclusively dedicated to EPS] multi-mission DVB retransmission service by telecommunication satellite. • EARS (EUMETSAT Advanced Retransmission Service) [not exclusively dedicated to EPS] acquisition of regional data by a network of direct read-out stations, for near-real time retransmission by various means. • EUMETSAT Data Centre in Darmstadt for differed-time data and products. | | |
|  Data access information | <ul style="list-style-type: none"> • Real-time availability of A-DCS reports, AMSU-A, ASCAT, AVHRR/3, GOME-2, GRAS, HIRS/4, IASI, MHS and SEM (MEDEP + TED) by AHRPT [used part-time because of partial failure] • Real-time availability of 3 JPEG-compressed AVHRR channels and ATOVS data by LRPT [actually not in use because of early failure]. • Differed-time availability of the Global Data Stream (GDS) from the EUMETSAT Data Centre in Darmstadt • Near-real-time availability of extended-area coverage data by EARS. • Near-real time availability of selected data by EUMETCast (Ku-Band service). • Alert messages of S&RSAT to LUT in real time. | | |