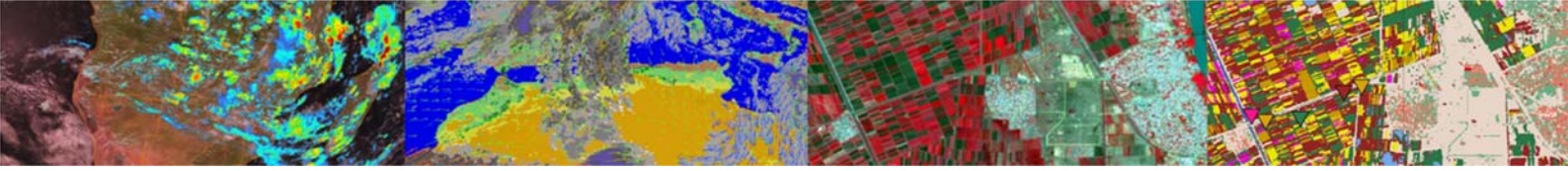

EUMETCAST AFRICA SERVICES AND DATA MONITORING

Ben Maathuis, 19-02-2021

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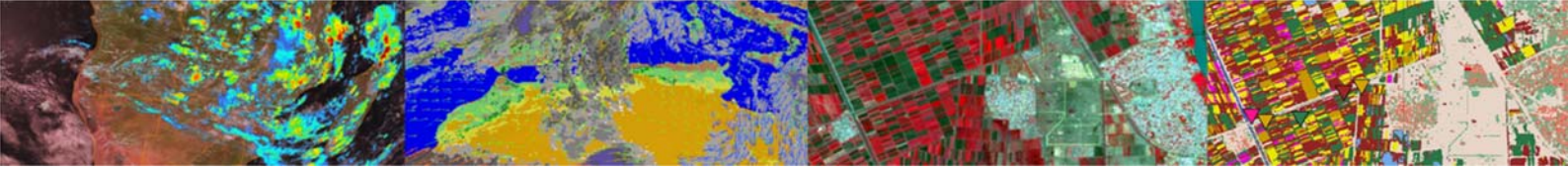
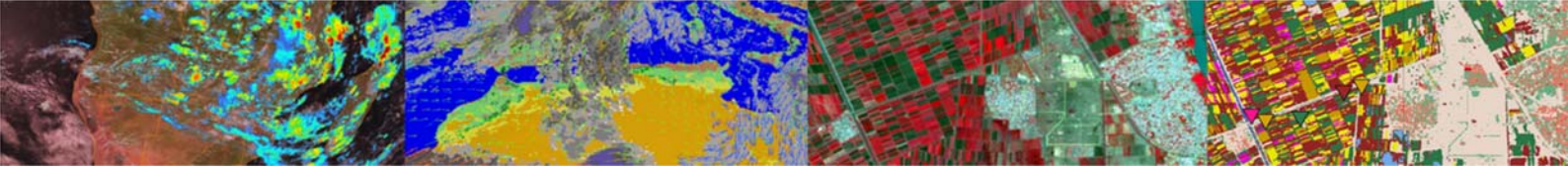
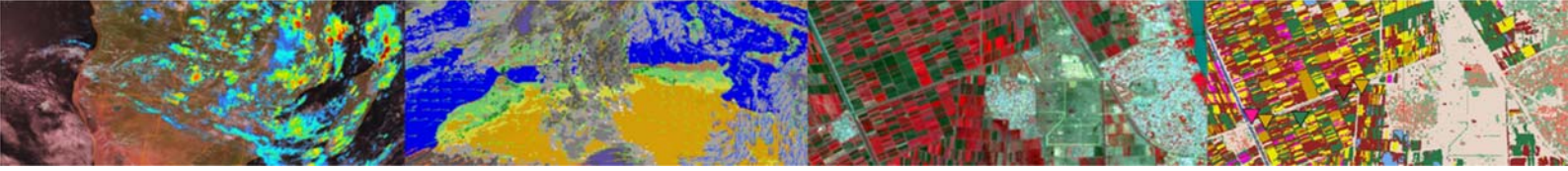




Contents



1 Introduction

This document provides an introduction to the EUMETCast C-Band Africa Services and the data disseminated. It shows how information from products in the Africa dissemination scheme can be obtained using online resources. As products are disseminated using certain channels, also attention is given to the data channels to be activated within the DVB software in order to receive the products. Some further information is provided on product metadata details, like how to obtain for a certain product the typical filename, data format, temporal resolution, etc. In a case new products arrive at the local reception station the administrator knows how to retrieve the metadata and can obtain further information with respect to the type product received and can eventually inform colleagues in case the product is relevant to the organization. Furthermore this document highlights the User Notification Service and how to monitor the day to day service status.

It is assumed that there is access to internet to consult some online resources and perform some online queries. There is no need for registration at the Earth Observation Portal or going through the EUMETCast service request. Relevant information required is provided in this document. For users already operating a EUMETCast reception station, also the locally available “Product Navigator” can be used. If Tellicast is installed using the EUMETSAT default installation settings, navigate to the folder \EUMETSAT\EUMETCast\www\eumetsat\product-navigator and click on the file “Indexer.html”, e.g. using ‘Chrome’ as default browser. The touch and feel of this navigator is slightly different from the online version.

2 EUMETCast Africa C-Band Data Service

In order to receive any of the services the EUMETCast user has to subscribe to the preferred services through the online Earth Observation Portal at: https://eoportal.eumetsat.int. The step by step registration is self-explanatory and easy to complete, but is not required to be conducted here.

Most important is the listing of current services from the EO Portal for C-Band Africa EUMETCast dissemination. A listing of services is provided below, updated as of December 2019. The services marked with ** require a license. Note that different data policies are applicable for the different types of licenses. Additional information on these licensed services and their conditions can also be obtained from: https://www.eumetsat.int/eumetsat-data-licensing (online) and if additional information is required, EUMETSAT can be contacted at: ops@eumetsat.int. The required services can be selected through activation of the check boxes. For those already registered there is the “Modify” option and new services can be selected. Once confirming the (new) selection of services the subscriber will receive an email from EUMETSAT providing additional information with respect to the (new) services requested and when these services will be activated for the respective account and can therefore be received.

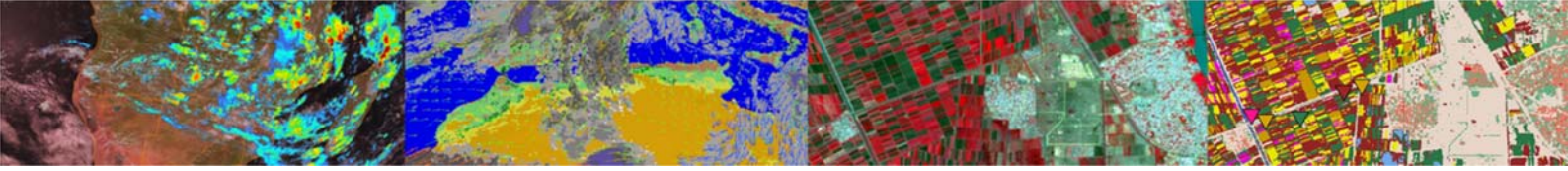
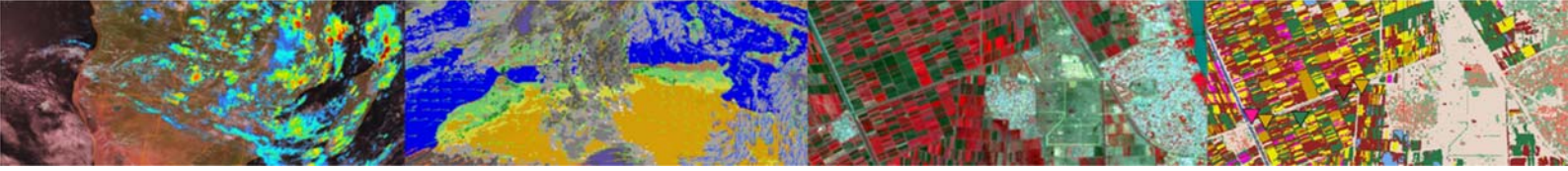


Table 1: listing of EUMETCast C-Band main and sub services (as of December 2019)

Meteosat Services	0° Service	0° SEVIRI Level 1.5 Image Data	1/4-hourly data transmissions ** 1/2-hourly data transmissions ** 1-hourly data transmissions
		0° Meteosat Meteorological Products	Volcanic Ash Detection - Restricted to Member State NMHSs and partner organizations All other Meteorological Products
	41.5° E Indian Ocean Data Coverage	IODC SEVIRI Level 1.5 Image Data	1/4-hourly data transmissions ** 1/2-hourly data transmissions ** 1-hourly data transmissions
		IODC Meteosat Meteorological Products	Volcanic Ash Detection - Restricted to Member State NMHSs and partner organizations All other Meteorological Products
Metop, SNPP and NOAA Global Data Services	GDS-Metop-A	ASCAT Soil Moisture	
	GDS-Metop-B	ATOVS Sounding Products IASI Sounding Products ASCAT Soil Moisture	
	GDS-Metop-C	IASI Sounding Products	
	GDS-NOAA-19	ATOVS Sounding Products	
Regional Data Services	RDS-EARS	EARS-ASCAT	
Data Collection Services	GEO Data Collection Service	Meteosat DCP	Data Collection and Retransmission (only for registered DCP operators)
Satellite Application Facility Services	OSI SAF Products LSA SAF Products AC SAF Products H-SAF Products CM SAF Products		
Copernicus	Copernicus Sentinel-3 Marine Products	SRAL Global Level 2	SRAL Sea Surface Height, Wind Speed Significant Wave Height NRT SRAL Sea Surface Height, Wind Speed Significant Wave Height STC
		OLCI Global Level 2	Ocean Colour Reduced Resolution NRT
		SLSTR Global Level 2	SLSTR Sea Surface Temperature NRT
	Copernicus Jason-3	Jason-3 OGDRs	
	Copernicus Third Party Data	Sentinel-3 Level 2 Land Products	
Third Party Data Services	Third Party Data Service - GEO	FY-2 / Electro-L N2 data /INSAT-3D Level 2	
	Third Party Data Service - LEO	MODIS Products	Global Ocean Colour Products
		VIIRS Fire Product	
		SARAL	
Third Party Data	NMS Data Distribution Service [1]	WMO RA I (MDD) WMO RA I (MDD) - ACMAD - Restricted to	



Distribution		ACMAD users	
	Other Data Distribution Services	FP7 - EAMNET	Real-Time Marine Products Refined and Composite Marine Products
		AMESD	AMESD - SADC
		AVISO	General
		AVISO	Restricted (require licensing by CNES - for non-commercial use only)
		CMEMS Products	
		Copernicus Global Land service	Africa
		CSIR Products	
		OSFAC Products	
		TAMSAT Products	
		NCEP Products	
		AEMET Products	
		Products from the Moroccan NMS	
		ECOWAS Products	
		JRC Products	
		Value Added Products from the Disaster Charter	
Training Channel			

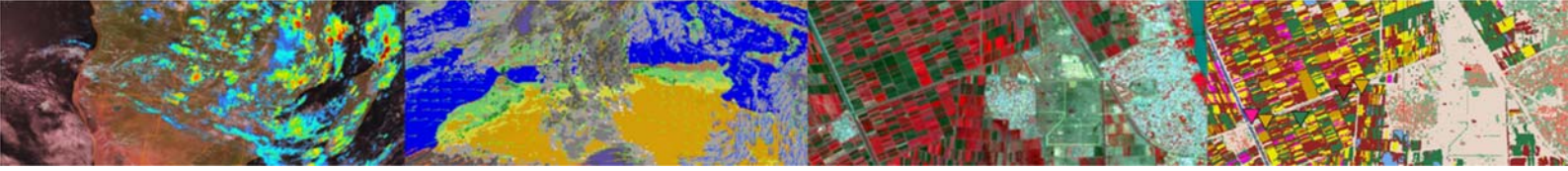
Services marked with ** require license.

[1] MDD service is the responsibility of the World Meteorological Organization (WMO) and is only available to National Meteorological Services (NMS).

Before data is disseminated each (3rd party) product provider has to submit some essential details or Metadata descriptions about the products which are going to be made available. All this information (for an example see also the table 2 below) is used to ensure that the "GEONETCast Product Navigator" contains the appropriate information so the users can find their way in the multitude of data sets provided an perform queries to find the data they might require.

Table 2: Metadata description for products provided through EUMETCast

Item	Short description
Request number	A product ID number
Name	Name of the product
Data type	Tabular, vector, raster
Data level	Level 1- raw data -> level 4 – derived products
Satellite	Name of satellite (used for product extraction)
Frequency	Temporal resolution, e.g. hourly, daily, dekadal
AVISO delivery delay	Time delay AVISO data provision
Data period	Start date - to - present
Data geographical coverage	Name of geographical region
File weight	File size (MB)
Format	File format and compression used
File name example	Typical file name string
Collection type	Dataset, Document, Climate or Software
Collection name	Short name of product
Acronym description	Abbreviation used
Online Resources (URL)	Link to online resources
North Bound Latitude (0.0 to 90.0)	North Bounding coordinate
South Bound Latitude (0.0 to - 90.0)	South Bounding coordinate



West Bound Latitude (0.0 to -180.0)	West Bounding coordinate
East Bound Latitude (0.0 to +180.0)	East Bounding coordinate

In order to receive any of the services as indicated in table 1 the following PIDs should be activated through the DVB-S2 data services software settings. PIDs required for all services is 100 and should be activated / inserted, see also table 3 below.

Table 3: EUMETCast Channels: Africa Service 8W: Current multicast channels and PIDs

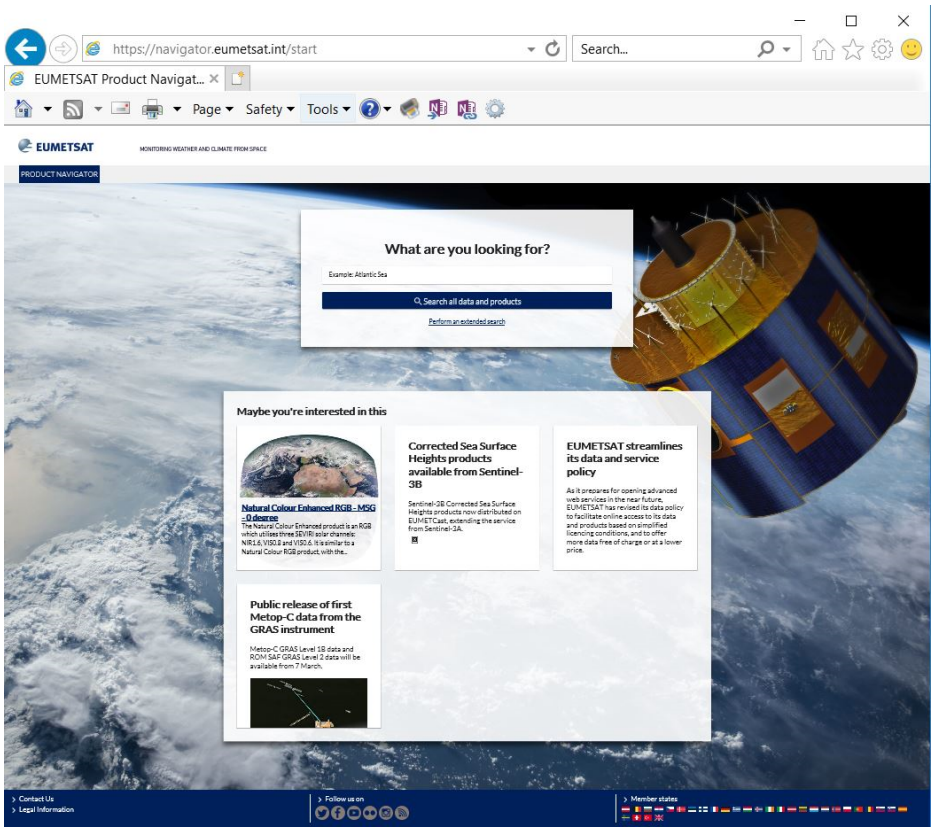
Channel Name	PID (Decimal)	Multicast Address	Max Multicast Data Rate (kbps)	Remark
TSL-AFR-1	100	224.223.225.223:4711	100	Announcement Channel
A1C-Alert-1	100	224.223.225.5	72	Alert Channel
A1C-DCP-1	100	224.223.225.1	46	DCP Data
A1C-GEO-1	100	224.223.225.1	2000	IODC High Rate Seviri
A1C-GEO-2	100	224.223.225.1	850	IODC Meteorological Products
A1C-GEO-3	100	224.223.225.1	1823	Primary (0°) High Rate Seviri
A1C-GEO-4	100	224.223.225.1	1273	Primary (0°) Meteorological Products
A1C-EPS-G	100	224.223.225.2	500	EPS Global Data
A1C-RDS-1	100	224.223.225.2	60	EARS Data
A1C-JAS-3	100	224.223.225.4	273	Jason-3 Data
A1C-Charter-1	100	224.223.225.5	3027	Disaster Charter Data
A1C-Info-Channel-1	100	224.223.225.5	1200	General info, updates
A1C-Info-Channel-2	100	224.223.225.5	900	Daily logs, training, demonstration data
A1C-Info-Channel-3	100	224.223.225.5	900	Special use
A1C-S3A-03	100	224.223.225.6	3850	S3A OLCI Level 2 Reduced Resolution
A1C-S3A-04	100	224.223.225.6	3850	S3A SLSTR Level 2 WST
A1C-S3A-06	100	224.223.225.6	3850	S3A SRAL Level 2 Marine NRT
A1C-S3A-08	100	224.223.225.6	600	S3A SRAL Level 2 Marine STC
A1C-S3B-03	100	224.223.225.6	3850	S3B OLCI Level 2 Reduced Resolution
A1C-S3B-04	100	224.223.225.6	3850	S3B SLSTR Level 2 WST
A1C-S3B-06	100	224.223.225.6	3850	S3B SRAL Level 2 Marine NRT
A1C-S3B-08	100	224.223.225.6	600	S3B SRAL Level 2 Marine STC
A1C-S3AL-01	100	224.223.225.6	2000	S3A Land for Africa
A1C-S3AL-02	100	224.223.225.6	2000	S3A Land for Africa
A1C-S3AL-03	100	224.223.225.6	1000	S3A Land for Africa
A1C-S3AL-04	100	224.223.225.6	2000	S3A Land for Africa
A1C-SAF-1	100	224.223.225.3	1000	OSI SAF Data
A1C-SAF-2	100	224.223.225.3	500	LSA SAF Data
A1C-SAF-3	100	224.223.225.3	50	AC SAF Data
A1C-SAF-4	100	224.223.225.3	50	CM SAF Data
A1C-SAF-5	100	224.223.225.3	150	H SAF Data
A1C-TPC-1	100	224.223.225.4	228	Third Party Ocean Data (AMESD)
A1C-TPC-5	100	224.223.225.4	250	Copernicus Global Land Data
A1C-TPC-6	100	224.223.225.4	2279	Third Party Data for Africa
A1C-TPG-1	100	224.223.225.4	650	Third Party GEO Data
A1C-TPL-1	100	224.223.225.4	650	Third Party LEO Data
A1C-TPL-2	100	224.223.225.4	273	Jason-2, Saral Data
A1C-TRN	100	224.223.225.5	200	Training Data
A1C-WMO-RA-I	100	224.223.225.5	1200	WMO RA-I Data (MDD)
WWW-Channel	100	224.223.225.5	72	WWW Content

To get an idea of the data contained within each of these channels the "GEONETCast Product Navigator" (http://navigator.eumetsat.int/) can be consulted.

3 GEONETCast Product Navigator

To get an overview of all current products for the Africa C-Band EUMETCast dissemination, open using your browser the "GEONETCast Product Navigator", available at http://navigator.eumetsat.int/. Select the option "*Perform an extended search*". From the left hand menu select the option "Access" and activate the item "*EUMETCast-Africa*" (see also figure 1 below).

Figure 1: The Online Product Navigator

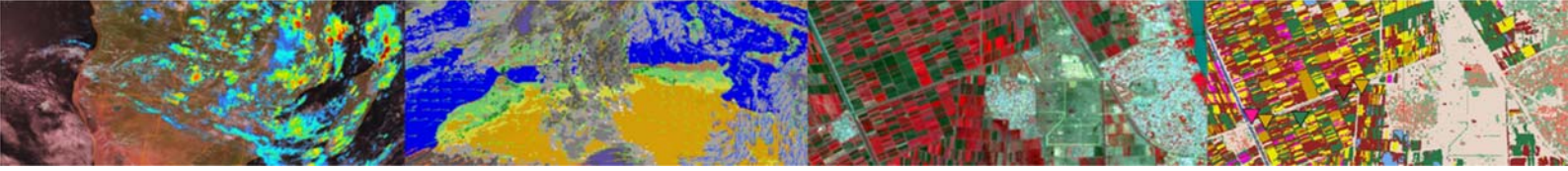


As from February 2021 a total of 231 products are retrieved and each of those is described in the product listing. Additional information on each of the products can be obtained when clicking on the product name. Metadata details are available under four headings: Descriptions, Access, Resources, Contact, Technical Details and Additional Information.

Check the metadata of a few of the products listed. It is important to note here that under "Access" additional information is given under "Details" for the EUMETCast-Africa dissemination, like the typical file name used, file size, the file format, typical file name convention, temporal resolution and documentation.

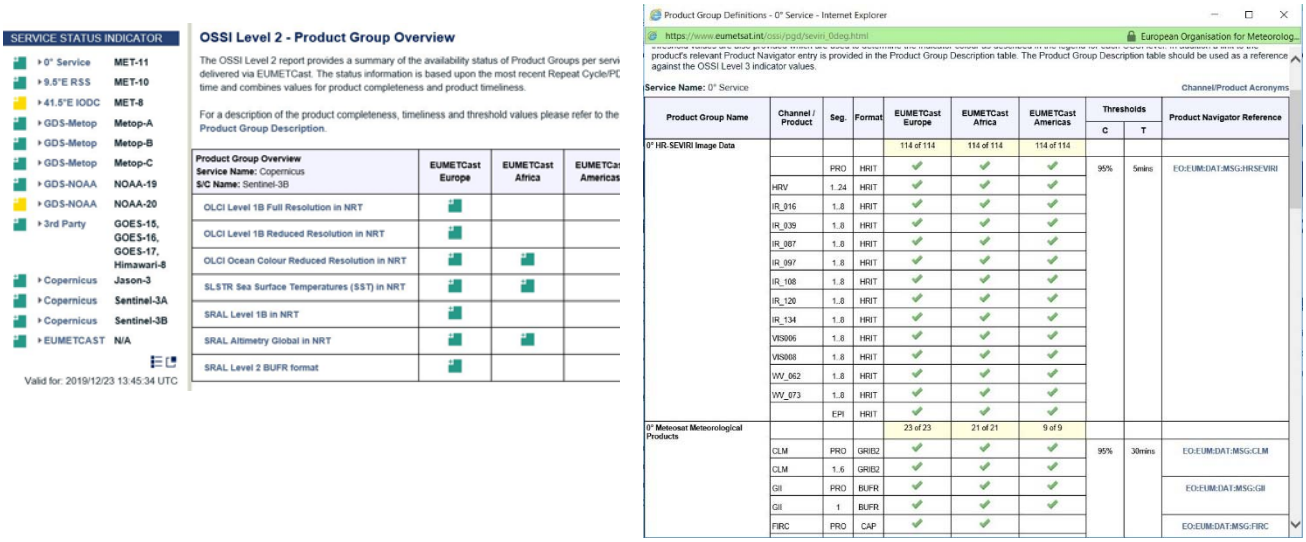
Now type under on the Product Navigator Home page "What are you looking for?": Met-11 and you will get a listing of the various MSG and MSG derived products from the '0 degree' MSG service. In the same way search for all Copernicus products by typing "Copernicus"

A large number of products are contained in the various (multi-service) EUMETSAT Data Channels. To obtain an overview of the products per Service is a challenge and the easiest way is to get an overview of the service product content as indicated in Table 1 is use your browser and navigate to the OSSI page: https://masif.eumetsat.int/ossi/webpages/about.html.



Check the OSSI Service Status Indicator provided, see also figure 2 (left). Now open the "0° Service" by clicking on the icon . Now within the new pop-up window open the link to the "Product Group Description" (figure 2, right).

Figure 2: Service Status and Product Group Description



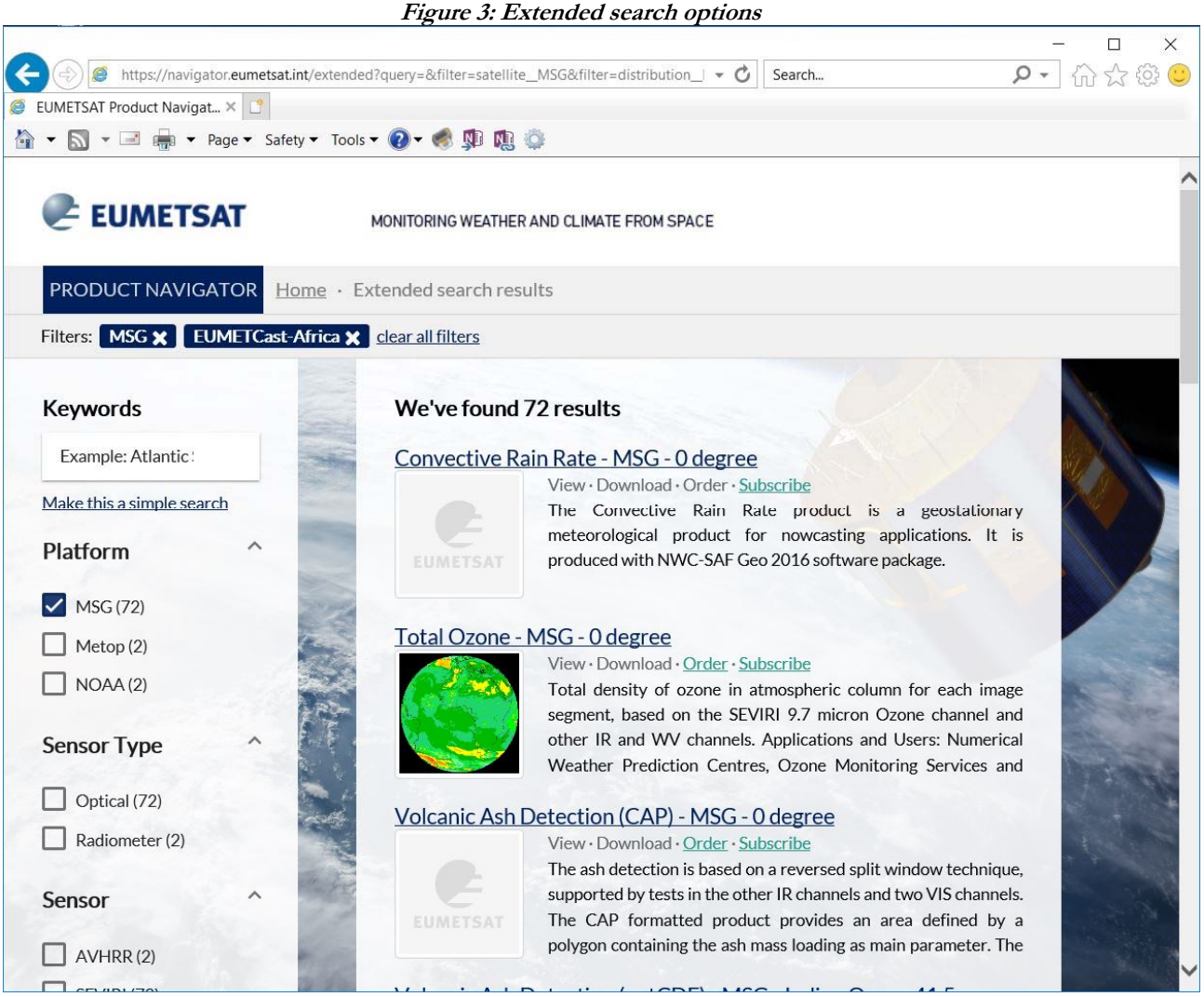
Note the listing of the "Channel/ Product Acronyms" as well as the reference to the Product Navigator. Carefully inspect Product Group Description and use the information provided through the linkage with the Product Navigator. Repeat the procedure also for the 41.5° E IODC and the Global Data Services (GDS for METOP A, B and C and NOAA).

Double click on the link "Channel/Product Acronyms" and inspect the listing provided. This listing of Channel/Product Acronyms is very useful. It provides abbreviations for typical filenames used that these very often contain next to these abbreviations for satellite and product type the time stamp information and these are all standardized for each product or product collection.

More on OSSI is described in the section below.

Now back to the Product Navigator. To obtain a better idea of the type of products disseminated for specific thematic domains an "Extended Search" can be conducted using the Product Navigator. For an example see figure 3 below, using as Platform "MSG" and as Access "EUMETCast-Africa". The number of records meeting the selection criteria are indicated at the top of the page and the Listing of Results is presented below.

Figure 3: Extended search options



Staff from an organization having an operational EUMETCast ground receiving system can use the "Product Navigator" to see if (new) relevant data is disseminated. If this is the case then the broadcast channel as well as the typical file name and temporal resolution should be noted. Together with the system administrator it should be checked if :

- the service is activated for the license operated in the EO portal (see table 1)
- the appropriate PIDs have been included in the DVB data services settings (see table 3)
- the data is available in the "*received\Afr-1\default\" folder of the system or in case a data management system is used in another directory. Note should be taken of the temporal resolution!

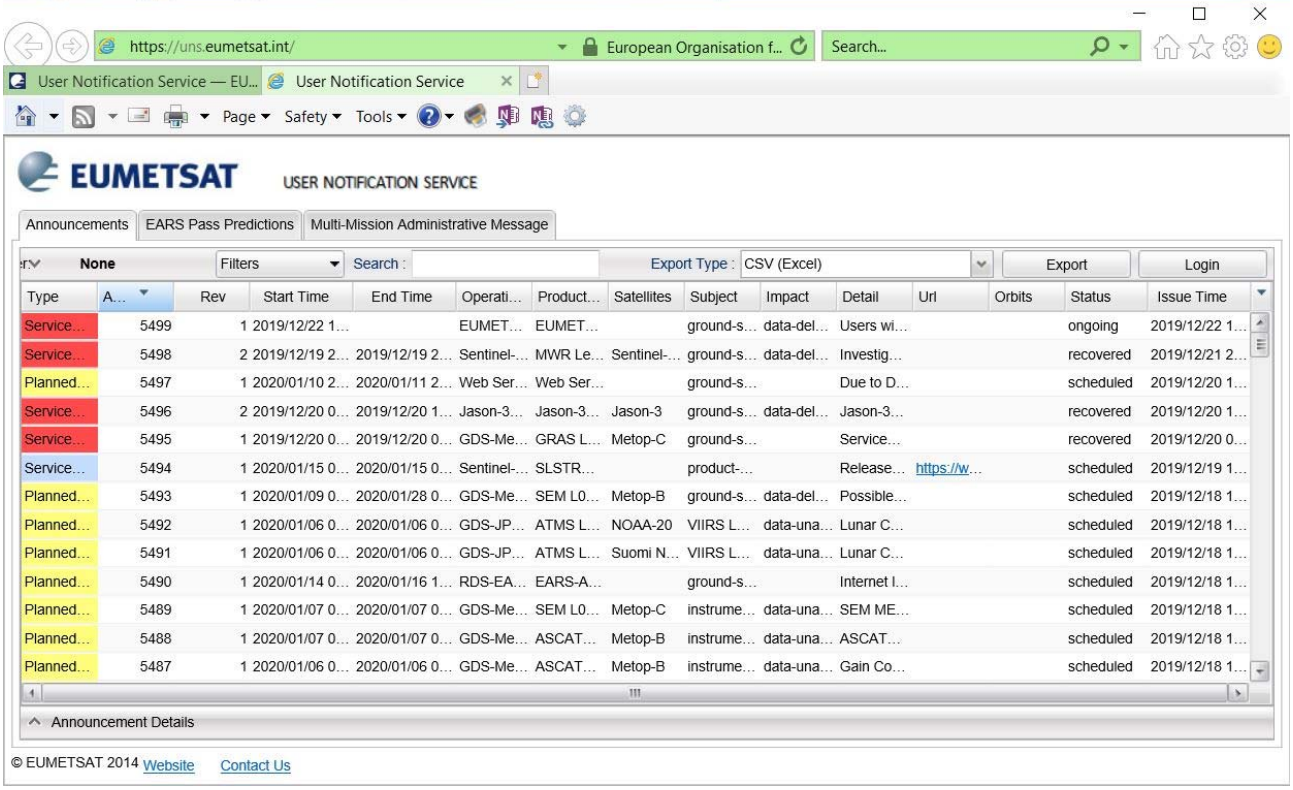
If the data is not received then update the license in the EO portal and the system administrator will receive a confirmation by EUMETSAT that the service has been activated and in due time the data will arrive at the local station.

4 User notification Service (UNS)

The User Notification Service provides service messages for services delivered via EUMETCast and can be reached online at https://uns.eumetsat.int/. Note that it is also possible to subscribe to the UNS through the EO portal.

At present (December 2019) when loading the UNS a latest Service News is provided for the various missions under "Message Types". Check the content of a few of the "Latest" messages. To get an idea of what is going to happen in the 'near future', it is good to check the Message Type "Weekly Operations Schedule". Open the Latest message, note the date of issue and inspect the content.

Figure 4: User Notification Service (UNS)

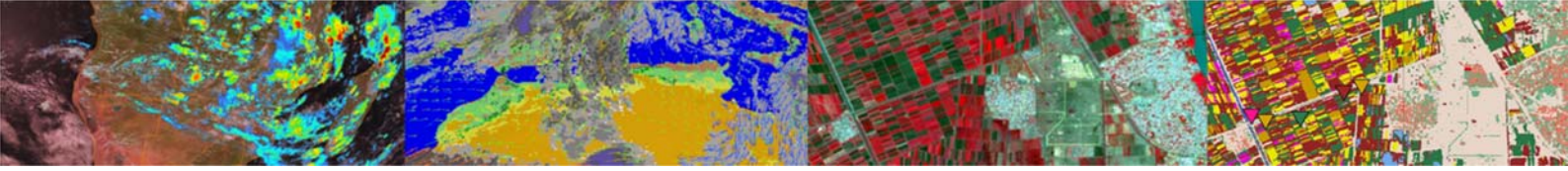


The User Notification Service is:

- having a web interface which will allow users to easily search/filter and display all types of announcements related to operational satellite services;
- allowing for registration for email alerts through the Earth Observation Portal (EOP)
- integrated into the 'Service Status' page of the EUMETSAT website

Main feature are:

- Categorised Announcements - colour code used to identify the announcement type:
  - Planned Maintenance
  - Service Alert
  - Service/Product Enhancement
- 'Operational Services' and 'Product Groups' follow the terminology of our Operational Service Specification
- Impact of event to the service is described as follows:
  - Data degraded (quality issue)



- Data interrupted (definitive outage, intermittent, not disseminated)
- Data delayed (delivery issue)

- Announcement details are displayed in a pop-up window for each announcement selected

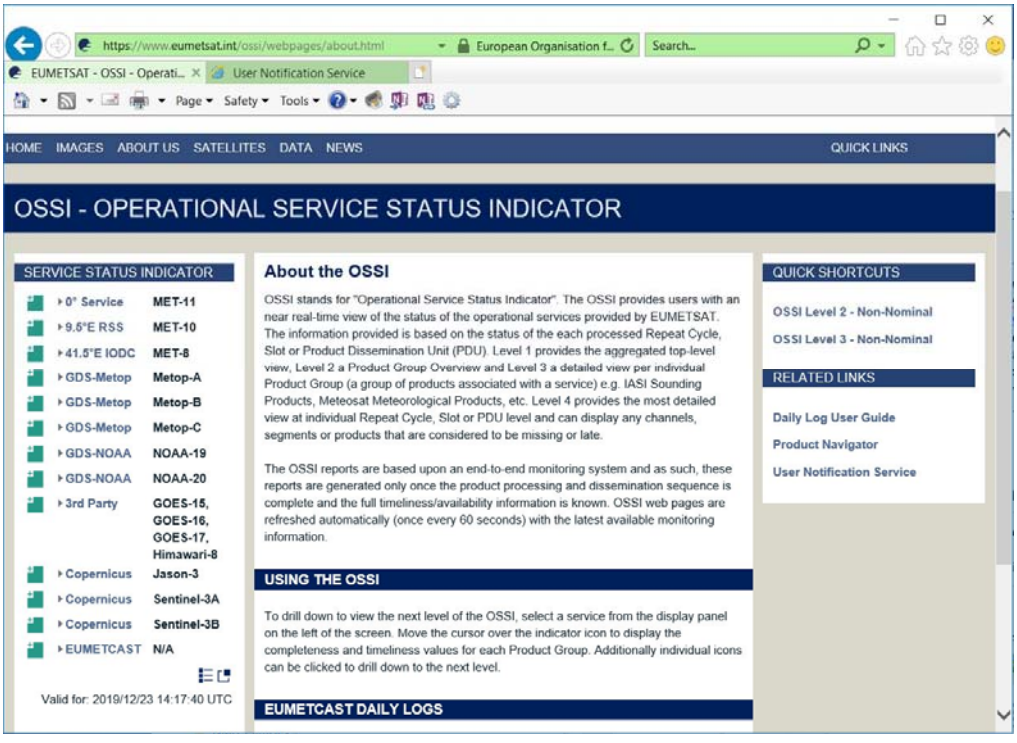
5 Operational Service Status Indicator (OSSI)

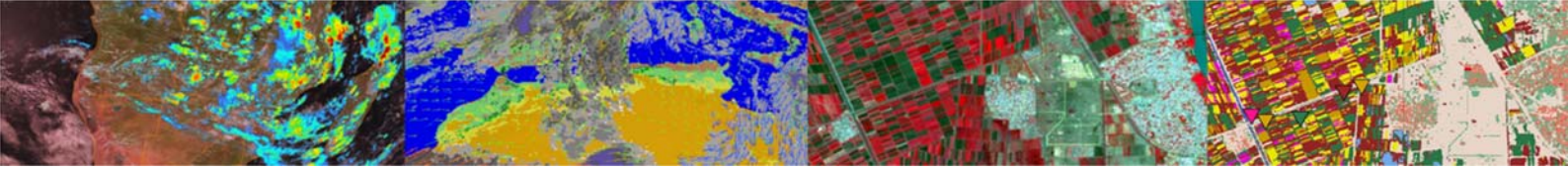
What is ongoing with respect to EUMETCast dissemination at this moment is especially import for near real-time applications. Even without bothering the local station system administrator a lot of information can be obtained online on the current status of EUMETCast dissemination using the "Operational Service Status Indicator (OSSI)", online available at http://www.eumetsat.int/ossi/webpages/about.html (see also figure 5). The OSSI provides users with a near real-time view of the status of the operational services provided by EUMETSAT. The information provided is based on the status of each processed Repeat Cycle, Slot or Product Dissemination Unit (PDU). Level 1 provides the aggregated top-level view, Level 2 a Product Group Overview and Level 3 shows a detailed view per individual Product Group (a group of products associated with a service) e.g. IASI Sounding Products, Meteosat Meteorological Products, etc. Level 4 provides the most detailed view at individual Repeat Cycle, Slot or PDU level and can display any channels, segments or products that are considered to be missing or late.

The OSSI reports are based upon an end-to-end monitoring system and as such, these reports are generated only once the product processing and dissemination sequence is complete and the full timeliness/availability information is known. OSSI web pages are refreshed automatically (once every 60 seconds) with the latest available monitoring information.

Open using a browser the OSSI using the link provided above and check the various OSSI levels for the different services applicable to EUMETCast-Africa. Eventually also note (if available) the non-nominal status and check the details of the missing data.

Figure 5: Operational Service Status Indicator (OSSI)





6 Conclusions

The document provides an overview of the data services provided through EUMETCast C-Band Africa. Tools used to find data contained within the various channels are the Product Navigator and also the Product Group Descriptions of the OSSI service and the subsequent link with the Product Navigator. The Africa C-Band EUMETCast Service is using 100 main PID.

It is recommended that a system administrator should check the EO Portal subscription and if new services are offered this information should be shared within the organization and if regarded relevant the subscription can be updated having activated the new services.

Also non system administrators can obtain a lot of information on the EUMETCast broadcast in conjunction with the online tools provided. Together with the system administrator further local data mining can be done through inspection of the data locally received.

7 References

EUM TD 15 (2021): TD15 - EUMETCast, EUMETSAT's Broadcast System for Environmental Data. Technical description, Issue v8F, 28 January, 2021. EUMETSAT, Darmstadt, Germany.
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Group on Earth Observation (GEO):
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http://www.earthobservations.org/geoss.php?smid=500

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http://www.eumetsat.int

EUMETSAT OSSI:
http://www.eumetsat.int/ossi/webpages/about.html

EUMETSAT UNS:
https://uns.eumetsat.int/

GEONETCast Product Navigator:
http://navigator.eumetsat.int/

Earth Observation Portal:
https://eoportal.eumetsat.int