EUMETCast DATA DISSEMINATION

EUMETCast is a multi-service dissemination system based on multicast technology. It uses commercial telecommunication geostationary satellites using DVB standards and research networks to transmit files (data and products) to a wide user community. EUMETCast also delivers a range of third-party products.

EUMETCast Features

EUMETCast is available to users in Europe and Africa. The current system has an installed user base of more than 4000 user reception stations. The key system features are:

- Secure delivery of data, allowing file transmissions to be targeted to a specific user or group of users, thus supporting any required distribution/access data policy;
- Handling of any file format, allowing the dissemination of a broad range of products;
- No limitations to file sizes;
- One-stop-shop delivery mechanism allowing users to receive many data streams via one Reception Station
- Use of off-the-shelf, commercially-available DVB-S2 reception equipment
- Use of high-bandwidth managed global terrestrial networks
- Highly scalable system architecture

Contributing to the WMO IGDDS and the GEOSS

EUMETCast is the operational, near real-time data delivery service for the WMO user community in Regions IV (Europe), Region I (Africa). It is a component of the WMO Integrated Global Data Dissemination Strategy (IGDDS) and is integrated into the WMO Information System (WIS).

EUMETCast is the EUMETSAT contribution to GEONETCast, a milestone in the Global Earth Observation System of Systems (GEOSS).

Services Available via EUMETCast

Services from EUMETSAT include:

- **Level 1 satellite data:** space-based observations from the Meteosat, Metop, Jason and Sentinel-3 satellites. At their most frequent, these data are delivered to users within five minutes of processing;
- **Weather monitoring:** products to support nowcasting and short-range weather forecasting applications;
- **Ocean monitoring:** global and regional marine meteorological and ocean surface products;
- **Atmospheric composition:** specific observational products to support operational monitoring and forecasting of atmospheric composition including air quality;
- **Land applications:** vegetation, surface radiation, wild fire and snow cover products.

In addition, a wide range of third-party meteorological and environmental products are available on EUMETCast, including:

- Level 1 satellite data and derived products from a range of atmospheric, marine and land monitoring satellites (e.g. Sentinel, GOES, S-NPP, FY-2/-3, SARAL, Aqua/Terra, SMOS and GPM);
- European Commission Copernicus funded data and products;
- In-situ observational data;
- Numerical Weather Prediction.

The full list of all products available on EUMETCast can be found via EUMETSAT's Product Navigator, https://navigator.eumetsat.int/

Figure 1 Product Navigator

EUMETSAT

Easy service selection

One of the advantages of using channels is that these can be filtered at the DVB receiver or the client software, allowing the user to select only the services they wish to receive.

Registration

To gain access to EUMETCast, you need to first register in the Earth Observation (EO) Portal. Once an EO Portal account has been created, you can log in to view and modify your profile, subscribe to services and request data licensing arrangements. The client package (software and EKU) can also be ordered through the EO Portal.

High Volume Service (HVS)

EUMETCast Europe in Ku band allows access to a High Volume Service which provides high-volume data at high delivery speeds (up to 70 Mpbs per transponder). A larger antenna is recommended for the EUMETCast Europe HVS service, e.g. 1.2 to 1.8m in the core footprint.

User Reception Station

A typical EUMETCast reception station comprises a consumer grade PC with typical 2.8 GHz CPU, 8 Gb RAM, 500 Gb internal disk (or more, depending on storage required), fast disk interface, compatible DVB-S2 reception device and a satellite antenna with:

- universal V/H LNB in KU band;
- circular polarisation feedhorn, C-band LNB, bandpass filter recommended (in areas with radar interference) in C band;
- recommended antenna size, according to location.

In addition to the front-end equipment, EUMETCast Client Software and a USB device, the EUMETCast Key Unit (EKU), are required. Together, these items facilitate the decoding and decryption of the DVB signal. EUMETSAT recommends setting up a dedicated PC as a receiving station and ftp or file server only and not to install, and run, other application software on this PC.

For detailed information, please refer to the EUMETCast Technical Description, EUM TD 15, available from the EUMETSAT web site.

System Overview

Within the current EUMETCast configuration, the multicast system for file distribution is based on the client/server software package TelliCast. The server side is implemented at the EUMETSAT HQ in Darmstadt, and the client side installed on the individual EUMETCast Reception Stations.

Files are encoded into an IP multicast stream at the EUMETCast Platform. The multicast stream is then transported to the user via two main networks: EUMETCast Satellite and EUMETCast Terrestrial.

On EUMETCast Satellite the multicast is transferred via a dedicated communications line from EUMETSAT to the uplink facility. There the multicast is encoded into a DVB signal and transmitted to a geostationary communications satellite for broadcast to user receiving stations. Each receiving station decodes the signal and recreates the original multicast stream.

On EUMETCast Terrestrial the multicast is transferred via a multicast-enabled dedicated network, currently using research networks, to the user. Users must be eligible to connect to the national research networks. Apart from using Terrestrial networks as transport layer, EUMETCast Terrestrial follows the same principles as the Satellite service.

The EUMETCast Client stations decode the multicast back into files according to the subscription of the user.

EUMETCast Terrestrial is currently a demonstration service.

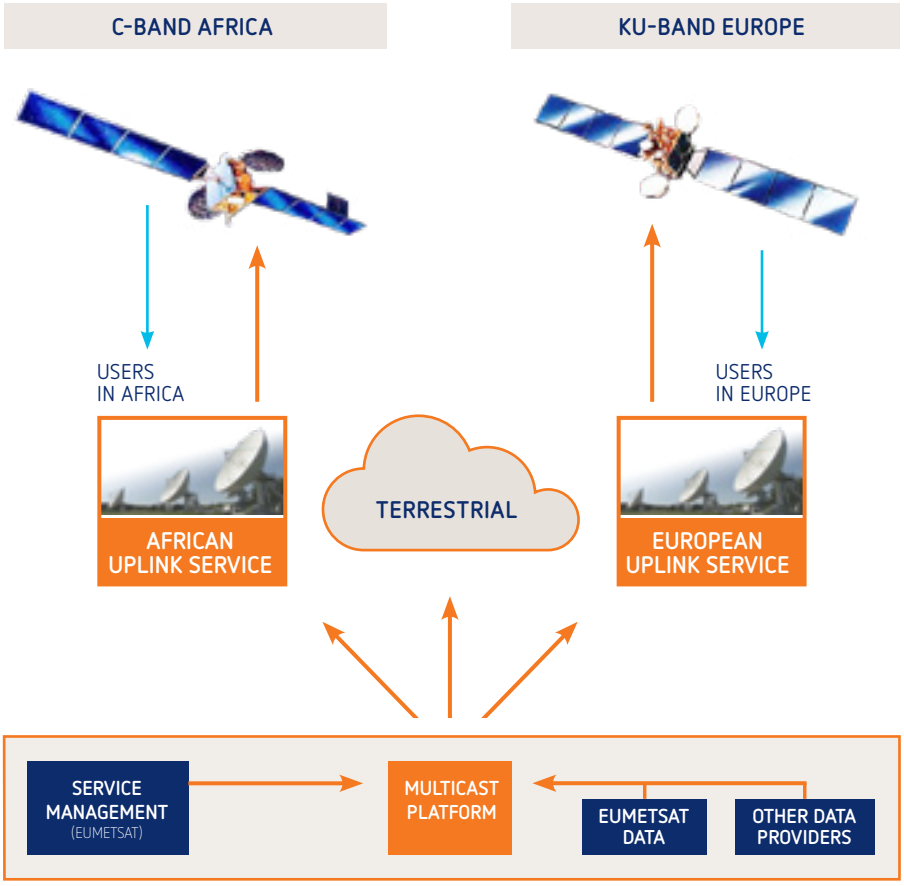

Figure 2 EUMETCast System Overview

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