

## **STATUS REPORT ON EUMETCAST**

This Working Paper reports on the status of the EUMETCast Dissemination Service operated by EUMETSAT and responds to Actions 31.45, 31.51 and 31.52.

CGMS Members are invited to take note.

## **STATUS REPORT ON EUMETCast**

### **1 INTRODUCTION**

It will be recalled that EUMETCast was established primarily to provide an MSG-1 Alternative Dissemination Service. There have since been several other enhancements to this Broadcast Service.

This Working Paper reports on the status of the EUMETCast Broadcast Service operated by EUMETSAT and responds to Actions 31.45, 31.51 and 31.52.

### **2 ACTIVITIES AND EVENTS**

- Acceptance of the C-band turn-around (Africa) service and subsequent start of the operational C-band service in November 2003
- Start of DWDSAT operational service in October 2003
- Addition of the IODC service to the EUMETCast (LRIT) schedule in November 2003
- Increase of the Ku-band LRIT channel bandwidth to 386 kbit/s in February 2004
- Preparation for a terrestrial link for the transfer of Meteosat-8 data to NOAA, and start of trial transmissions in March 2004
- Supply of H/W, S/W and training to C-band trial users (in Nairobi, South-Africa, Strasbourg) in January 2004
- CLM product added to the LRIT schedule, with a new format “binary file” (existing formats were not suitable for the new CLM structure), in January 2004
- Full (1/2 hourly) MET-5 (IODC) and MET-7 schedules started March 2004
- GII on the LRIT schedule started March 2004
- Change of some C-Band transmission parameters, i.e. introduction of a better forward-error-correction ratio.

### **3 SERVICE AVAILABILITY**

The following figures cover only the DVB elements of the EUMETCast service. For the Ku-Band service, the calculation is based on the ratio of the number of successfully (and timely) received files on a reference reception station versus the number of files transferred to the Ku-Band uplink station. For C-band, the ratio of the number of successfully (and also timely) received files on C-Band reference reception stations versus the number of successfully received files on the Ku-Band reception stations at the C-band uplink site is taken.

#### **3.1 Ku-Band Availability**

- October 2003      99.60%
- November 2003    99.69%
- December 2003    99.96%
- January 2004      99.93%
- February 2004     99.98%

### 3.2 C-Band Availability

- November 2003 99.97%
- December 2003 99.89%
- January 2004 99.79%
- February 2004 99.68%

### 3.3 Allocation of EUMETCast Channels

Each DVB channel has a fixed bandwidth:

- |             |                                 |            |
|-------------|---------------------------------|------------|
| • Channel 1 | EARS & RSS                      | 0.250 Mbps |
| • Channel 2 | MSG High Rate Channel           | 1.620 Mbps |
| • Channel 3 | Low Rate, Multi-Service Channel | 0.386 Mbps |
| • Channel 4 | DWDSAT                          | 0.256 Mbps |

Channel 2 and 3 are fed into the C-Band turn-around service. The C-Band bandwidth is 2.7 Mbps.

Additional bandwidth can be made available. A maximum bandwidth will be constrained by different elements (number of channels, uplink server performance, transponder bandwidth, performance of the reception stations (DVB card, decryption, PC H/W & S/W)). Hence a maximum figure cannot be given, but a duplication or tripling of the current bandwidth will be achievable with the appropriate tuning measures.

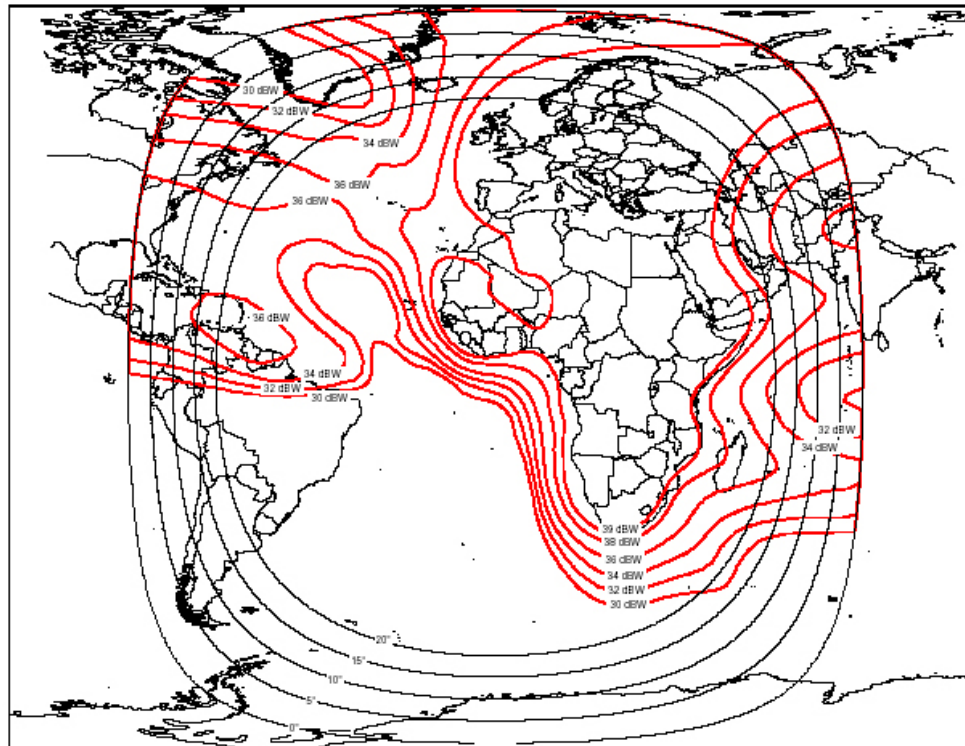
### 3.4 C-Band Performance Issues

The C-Band Service was established primarily for African Users in the framework of the PUMA project. Figure 1 shows the EIRP contours of transponder C02 of the S/C Atlantic Bird 3, which is supporting the EUMETCast C-Band service. It is clear that European users can also benefit from this service. Europe lies fully within the 39dBW contour. For 38 dBW, the C-Band service provider Telespazio has recommended the use of an antenna with a dish of 2.4 m diameter. With an EIRP of 39 dBW, a dish of 1.8 m together with a high quality LNB, will provide less margin than a 2.4 m antenna, but should generally be sufficient for European Users.

For performance monitoring of this service, the Secretariat has modified an existing LRUS antenna (1.8 m dish) for C-Band reception. This front-end is working satisfactorily, but suffers unfortunately from interference from a near-by construction plant, which currently renders the availability figures of this reception station unusable. Currently, a 2.4m antenna is installed at another location, in order to ensure a reliable/interference-freed monitoring capability.

Trial users, mainly in support of the PUMA project, have been supplied with C-band reception stations (H/W and S/W), in Nairobi, South-Africa and Strasbourg. Monitoring figures are regularly transmitted from these stations to the Secretariat. The stations in Nairobi and South-Africa achieve generally a very good availability (between 99% and 100%). The Nairobi station is temporarily affected by interference, whereas the station in Strasbourg (at its

current location) suffers from such a high interference level that no data reception is possible at all.



**Figure 1 EIRP Contours for Atlantic Bird 3 (Transponder C02)**

Interference is a non-negligible issue for C-band reception. The Secretariat has received information from other locations in Europe reporting serious impact through interference. As far as identifiable, radar seems to be its main source, quite often near to airports furnished with such equipment. If non-interfered locations cannot be found, other measures like band-pass filters might be necessary to eliminate or at least reduce these degradations. The Ku-Band service, whilst more susceptible to degradation by heavy rain or snow fall, is not impacted by this kind of interference, and has thus (in the absence of longer lasting heavy rain/snow conditions so far) achieved better availability figures than the C-Band service for most of the locations equipped with both types of reception stations.

#### **4 ENCRYPTION**

It was intended to start the operational application of encryption (with the compulsory use of EUMETCast Key Units (EKUs)) beginning of March. This would have required that all users requesting more than WMO Essential Data would have been supplied with EKUs by that date. This was not the case, mainly caused by delays in the licensing process in several member states. In order to avoid an unexpected and unwanted “black out” of a significant number of users, the start of the operational encryption phase has been delayed till the beginning of May 2004 to ensure the administrative and technical readiness of all licensed users.

## 5 EUMETCast SERVICE USE

The number of registrations for the services provided by EUMETCast is steadily growing. By the end of March 2004, there were around 440 users of the broadcast, with the majority taking the Meteosat-8 Service.

## 6 ENVISAGED SERVICE EXTENSIONS

Beyond the services and products actually supported by EUMETCast, proposals for further extension of services are being developed. The following list indicates the current status of ideas, proposals and initiatives.

- Evolution of Meteosat-8 meteorological products:
  - new products based on prototyping by EUMETSAT
  - updates of existing products based on operational experience
- Dissemination of Vegetation Products:
  - Vegetation products from SPOT
  - proposal by European Commission for an operational demonstration in the second half of 2004
- Dissemination of Basic Meteorological Data for WMO Regional Association (RA) VI:
  - RA VI is Europe and Middle East
  - EUMETCast used for the provision of observations and forecasts
  - An RA-VI ad hoc Working Group is establishing User Requirements
  - Formal proposal to EUMETSAT Delegate bodies to follow
- Dissemination of ENVISAT Data:
  - Interest in ENVISAT data in Africa (MERIS for fishery)
  - informal communication ongoing with ESA
- Dissemination of AEOLUS Data:
  - ESA Wind Lidar mission to be launched in 2007
  - informal communication ongoing with ESA
- Re-broadcast of Indian satellite data (INSAT, KALPANA):
  - Backup to Meteosat-5 data
  - To be provided via NOAA and Météo-France
- Dissemination of Meteosat-8 data to South America
  - South American Sub-Continent not covered by EUMETCast
  - Discussions ongoing with US