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# EUMETSAT OPERATIONAL STATUS REPORT ON DCPS

This paper describes the current status of DCP operations at EUMETSAT, the status of the DCP bulletin conversion to BUFR for GTS dissemination and the upcoming High Rate DCP implementation.

# EUMETSAT operational status report on DCPs

## 1 INTRODUCTION

This paper presents the current status and future plans for the EUMETSAT Data Collection System.

## 2 Current Status and Planning

### 2.1 Current Status

The EUMETSAT Data Collection System is supported by Meteosat-9 located at 0° and Meteosat 6, located at 67.5°E, supporting the Indian Ocean Tsunami Warning System (IOTWS).

At the end of August, the EUMETSAT Data Collection System supported 570 actively transmitting DCPs from a total of 1051 allocated DCPs. Three channels suffer from interference and are unusable.

Following the agreement at CGMS-36, I01 – I11 are now allocated to NOAA for regional use, I23 – I33 are allocated to EUMETSAT for regional use. I12 – I22 remain as International channels.

EUMETSAT is progressively reallocating IOTWS DCPs from I01 – I11 to the International channels I12 – I22. Once reallocated, 6 out of 11 International channels will be used to support IOTWS DCPs – in line with previous CGMS agreements. Currently two DCP operators with 20 'true' international DCPs are allocated to the International channels. I22 is still allocated to CMA, it is proposed to move this reservation to the unused ex-International channel I29.

### 2.2 DCP Bulletin Conversion to BUFR

EUMETSAT, together with RTH Offenbach, is on schedule to implement the conversion of all GTS DCP bulletins originating from EUMETSAT to BUFR by November 2010. This is in line with the WMO EC directive and the timetable laid out for the transition to table driven code forms at the fourteenth session of CBS.

For further information concerning the migration plan and schedule please refer to:
http://www.wmo.int/pages/prog/www/WMOCodes/MigrationTDCF/Plan/MigrationPlan.pdf

### 2.3 Future Developments

A new system of high-rate DCPs (HRDCPs) is planned for operations in 2011. Extensive testing has been performed during 2010. The introduction of HRDCPs will greatly enhance the potential for the use of the DCS, for example by allowing tsunami warning systems to react more quickly to a seismic event, thereby giving more timely warnings to affected populaces.

HRDCPs transmit at 1200 bauds and can transmit 653 bytes of data in 10 seconds. The timing accuracy is also improved to +/- 0.5 seconds. The minimum transmission length will be 7.1 seconds (2 seconds of unmodulated carrier, preamble and ASM with 5.1 seconds) although the minimum assignment will be 10 second slots.

The two types of DCP are compared in table 1.

| **Characteristic** | | **Standard DCP** | **High-Rate DCP** |
|---|---|---|---|
| **Baud rate** | | **100** | **1,200** |
| **Current slot allocation** | | **1 minute, 30 seconds** | **10 seconds minimum** |
| **Timing accuracy** | | **+/- 15 seconds** | **+/- 0.5 seconds** |
| **Data per DCP message** | | **649 bytes minimum** | **653 bytes for 10 second time slot** |
| **Channel bandwidth** | **MTP** | **3 KHz** | **2.25 KHz** |
| | **MSG** | **1.5 KHz** | |
| **Maximum number of messages per channel per day** | | **960** | **8,640** |
| **Maximum message size of single message** | | **649 bytes** | **65535 bytes** |

**Table 1. Comparison of characteristics of current standard DCPs with high-rate DCPs**

In addition to the changes mentioned above, several other design improvements provide significant advantages over the standard rate DCP:

The use of Offset QPSK modulation scheme allows reasonable bandwidth efficiency and phase noise tolerance.

Concatenated Forward Error Correction (FEC) using CCSDS (CCSDS, 2006) recommended convolution coding & Reed-Solomon codes provide robustness against pulsed interference.

The binary message system with error checking using a 32 bit Cyclic Redundancy Check, is suited to compressed or uncompressed data of any type.

## 3 CONCLUSION

CGMS is invited to take note of the status and planning of DCP operations at EUMETSAT.