REPORT ON BUFR ENCODING OF
SATELLITE-TRACKED WIND PRODUCTS

This document reports on the BUFR encoding of satellite-tracked wind products and responds to CGMS Action 28.27.

CGMS Members are invited to take note of the BUFR encoding of EUMETSAT satellite-tracked wind products and other products derived from Meteosat and MSG imagery.

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SATELLITE-TRACKED WIND PRODUCTS

1   INTRODUCTION

EUMETSAT produces and disseminates four distinct satellite wind products on an operational basis. In each case the data are encoded in BUFR together with associated quality control information. All wind vectors whose quality control score exceeds a threshold value (currently 0.3, or 30%) are disseminated. The encoding uses the so-called unified template, which was designed and agreed specifically for this purpose (BUFR Table D, entry 3-10-014). The products are also archived in the MARF in the same BUFR format.

Since June 5 2001, each wind has two associated sets of quality control information, one calculated using first guess data and one without. For the time being, the high resolution visible winds (HRV) are disseminated in parallel in a simplified BUFR format.

2   PRODUCTS

The four wind products currently disseminated in BUFR can be summarised as follows:

- **WVW**   Clear sky water vapour winds, extracted with a nominal sub-satellite resolution of 160km. Disseminated and archived every 90 minutes.

- **HWW**   High resolution cloud tracked water vapour winds, extracted with a nominal sub-satellite resolution of 80 km. Disseminated and archived every 90 minutes.

- **ELW**   Composite cloud tracked wind product, extracted with a nominal sub-satellite resolution of 160 km. Disseminated and archived every 90 minutes.

- **HRV**   High resolution visible winds, extracted with a nominal sub-satellite resolution of 80 km. Disseminated and archived five times a day at three hourly intervals. HRV is only extracted over sea.

The following table summarises the above information:

	WVW	HWW	ELW			HRV
			IR	VIS	WV	
Nominal sub-satellite resolution	160 km	80 km	160 km	160 km	160 km	80 km
Distribution times	0030Z 0200Z 0330Z … 2300Z	0030Z 0200Z 0330Z … 2300Z	0030Z 0200Z 0330Z … 2300Z	0030Z 0200Z 0330Z … 2300Z	0030Z 0200Z 0330Z … 2300Z	0600Z 0900Z 1200Z 1500Z 1800Z

The HRV products from the Indian Ocean Data Coverage Service (Meteosat-5 at 63° East) are extracted at times offset by three hours to allow for the difference in local time, and the consequent illumination of the earth.

3 FUTURE PLANS

In the medium term it is planned:

- to stop the transmission of HRV in the simplified format,
- to align the extraction times of WVW, HWW and ELW with the synoptic times
- to cease transmission of the visible and water vapour vectors in ELW, these being made redundant by HRV and HWW respectively.

4 OTHER BUFR PRODUCTS FROM THE CURRENT METEOSAT SYSTEM

Although not strictly covered within the scope of the CGMS action, the following information is relevant:

4.1 Clear Sky Radiance (CSR)

EUMETSAT produces a Clear Sky Radiance (CSR) product, which is encoded into BUFR and disseminated hourly on an operational basis. The data are encoded using a template similar to that used for the winds, and again designed specifically for this purpose (BUFR Table D, entry 3-10-015). The flexibility of BUFR is used to include quality control information with each radiance value.

4.2   Other Meteosat Products

EUMETSAT also produces other products in BUFR for archiving, such as Meteosat Surface Albedo (MSA), Cloud Analysis (CLA), Climate Data Set (CDS), and Sea Surface Temperature (SST). By already archiving these products in BUFR during the time of current Meteosat operations, the transition to MSG archived products (see below) will be made easier for users.

5   MSG PRODUCTS

All products generated by the MSG Meteorological Product Extraction Facility (MPEF) and disseminated on the GTS will be encoded in BUFR. This includes Atmospheric Motion Vectors (AMV), Clear Sky Radiances (CSR), Cloud Analysis (CLA) data and Tropospheric Humidity (TH) values. The AMV and CSR products generated by MSG will use the same BUFR encoding templates as the corresponding wind and radiance products from the current Meteosat system, thereby minimising the impact on the users. The MSG Climate Data Set (CDS) will also be archived in BUFR.

6   CONCLUSION

CGMS Members are invited to take note of the BUFR encoding of EUMETSAT satellite-tracked wind products and other products derived from Meteosat and MSG imagery.