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REPORT ON ENCODING OF SATELLITE TRACKED WINDS IN BUFR

This paper summarises the status of the encoding of EUMETSAT satellite tracked winds in BUFR.

REPORT ON ENCODING OF SATELLITE TRACKED WINDS IN BUFR

Since the start of operations in 1995, EUMETSAT has progressed steadily in its use of BUFR for encoding wind products and other data.

BUFR encoding, because of its flexibility, allows for much more information to be included with each observation than was previously possible using SATOB. By including information about the quality control of the data, e. g. % confidence and the type of quality control performed (manual or automatic), a much greater volume of data can be encoded, due to the inclusion of extra winds in addition to those accepted by the quality control scheme. The data, which are used for the SATOB products, can be identified within the BUFR data.

The differences between the SATOB CMW product and the BUFR product are summarised in the following table.

BUFR wind data	**SATOB wind data**
Quality control information included	No quality control information included
All winds exceeding a nominal quality threshold encoded	Winds accepted by automatic quality control encoded
All winds per segment included	One wind per segment included
Product every 90 minutes	4 quality controlled products per day

The full template contains entries for all the fields required to encode wind data from either EUMETSAT or NOAA/NESDIS, but because of the compression method used by BUFR, the 'missing' fields which may be present for each observation do not lead to significantly larger bulletins. There will be information describing the structure of the cumulative contribution function, as allowed for by the template, for clear sky water vapour winds, later this year. The template was also designed to be suitable for the Meteosat Second Generation (MSG) Atmospheric Motion Vector (AMV) product.

Because BUFR is a table driven data representation form, it can be updated and modified by changes to the tables themselves and without explicit software modifications. This flexibility means that updates to BUFR, like those to GRIB and CREX, can normally be introduced via a fast-track scheme, and can therefore be in force within a number of months of their initial suggestion.

The following wind products from the EUMETSAT Meteorological Products Extraction Facility MPEF are currently distributed regularly on the GTS in a BUFR template, using Global BUFR Table version 7.0: Expanded Low Resolution wind (ELW), Clear Sky Water Vapour Winds (WVW), High Resolution Visible Winds (HRV) and High Resolution Water

Vapour Winds (HWW), which should be available operationally from the end of 1999. Table 7.0 was enforced by WMO in November 1998 and implemented operationally at EUMETSAT in April 1999.

Furthermore, the MPEF 80km Clear Sky Radiance product (CSR) is also distributed regularly in BUFR via the GTS and it too should be available operationally from the end of 1999. The necessary Table B and Table D entries for CSR encoding will be discussed at the October meeting of the OPAG on ISS Expert Team on the Evolution of Data Formats. The MPEF is also able to generate Sea Surface Temperature (SST), the Climate Data Set (CDS), and Cloud Layer Analysis (CLA) in BUFR for archiving in the EUMETSAT Archive MARF.

Full descriptions of the BUFR formats used operationally at EUMETSAT are available from the MPEF WWW pages at http://www.eumetsat.de/en/area3/mpef/bufr.html.