UPDATE ON SELECTION/REJECTION CRITERIA
AT NWP CENTRES FOR SATELLITE TRACKED WINDS

This paper summarises the status of the rejection criteria for satellite winds used at the major NWP centres as reflected in the Web page maintained by EUMETSAT. It is proposed that the working group discusses whether other key criteria should be included in the information.

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1 INTRODUCTION

This paper presents a summary of the usage of satellite tracked winds at different NWP Centres. The paper is a one-to-one copy from the EUMETSAT Web server at http://www.eumetsat.de/en/area3/mpef/windsuse.html.

The information consists of three parts. Table 1 summarises key selection parameters for the different NWP Centres. Table 2 contains the observational errors assigned to the satellite winds by the NWP centres, with radiosonde errors given for comparison. After the tables details are given on the criteria for the selection/rejection of data from different satellites and for different geographical regions as performed at the individual NWP Centres.

The last complete update of the information was performed in the second half of 1998. A new update will be performed soon.

2 USAGE OF WIND PRODUCTS FROM GEOSTATIONARY SATELLITES AT MAJOR NWP CENTRES

The information in these tables has been collected as a joint effort by ECMWF (Graeme Kelly) and EUMETSAT. We would like to thank the NWP Centres for their contributions and co-operation.

Table 1: Key selection parameters for satellite tracked winds at different NWP Centres.

Centre	ECMWF	DWD (GER)	NCEP (US)	UKMO	Météo France	BoM (AUS)	CMC China	JMA (JP)	US-Navy (Nogaps)
SATOB monitored	x	x	x	x	x	x	x	x	x
SATOB assimilated	x	x	x	x	x	x	x	x	x
BUFR monitored	x			x	x			x	
BUFR assimilated	x			x	x			x	
Unified BUFR monitored	x			x					
Unified BUFR assimilated	x								
Assimilation Cycle (hrs)	6	6	6	6	6	6	6	6	6
Additional Selection Criteria	Note	Note	Note	Note	Note	Note		Note	Note

Table 2: Observation errors in m/s assigned to satellite tracked winds at various NWP Centres. Values pertain to u and v components. For comparison the first column gives the observation error of radiosonde winds as applied at ECMWF.

hPa	R/S	ECMWF	DWD (GER)	NCEP (US)			UKMO	Météo France			BoM (AUS)	CMC (China)	JMA (JP)	US-Navy (Nogaps)	
				Current All Sat.	New GOES	New OTHER		Meteosat/ GOES	GMS	INSAT				All	high.-dens. CIMSS
1000	2.3	2	3	3.9	1.8	1.8	1.3	2.75	3.25	3.5	3		3	2.8	1.7
850	2.3	2	3				1.7	2.86	3.38	3.64	3			2.8	1.7
700	2.5	2	3				2.0	3.08	3.64	3.92	3			3.8	2.3
500	3.0	3.5	3	3.9	2.1	2.1	2.5	3.85	4.55	4.9	3			4.8	2.5
450				6.1	3	5					3				
400	3.5	4.5	6		3		3.3	4.29	5.07	5.46	6			5.8	3.5
300	3.7	5	6		3	5	3.3	4.62	5.46	5.88	6			6.5	3.9
250	3.5	5	6		3	5	3.3	4.84	5.72	6.16	6			6.5	
200	3.5	5	6		3	5	3.3	5.06	5.98	6.44	6		3	6.5	
150	3.5	5	6		3	5	3.6	5.06	5.98	6.44	6		3	6.5	
100	3.3	5	6		3	5	5.5	5.06	5.98	6.44	6		4.5	6.5	

ECMWF

<u>All</u> data are monitored irrespective of passing or failing the data selection checks.

a) Check on longitude/latitude:

- Data are used only if within a circle of 55 degree from the sub-satellite point.

b) Checks on levels depending on the computational method or channel are as follows:

- The infrared CMW are used above 400 hPa and below 700hPa.
- The water vapour CMW are used only above 400 hPa.
- The visible CMW are used only below 700 hPa.

c) Check on land/sea:

- Data over sea are always used.
- If data is over land, then it is used only if south of 20N and above 500 hPa (Meteosat-7: instead of 20°N a threshold of 35°N is used in order to allow usage of these data over North Africa. Meteosat-5: Used everywhere over land above 500 hPa, except over Himalaya, (25 < LAT < 40) and (70 < LON < 105).)

d) Check on satellite:

At present the following satellites and channels used are:

- METEOSAT IR (not at medium level), VIS, WV and HRVIS (not at asynoptic time).
- GOES IR & WV.
- GMS IR & VIS.

e) Additional thinning:

Before final assimilation all satellite winds are thinned to the following:

- One wind per box 1.25° x 1.25°.
- One per nearest model pressure level.

German Weather Service (DWD)

a) Check on geographical area:

- Where available, except over land north of 20N and south of 20S.

b) Check on satellites:

- Winds from GOES, GMS and Meteosat are used.

c) Check on spectral band:

- IR, VIS and WV.

NCEP

At NCEP satellite winds from GOES 8 and GOES 9 and Meteosat are used everywhere south of 20°N, and only over ocean north of 20°N. Satellite winds from Japan GMS are used everywhere.

UK Meteorological Office

Wind sets currently used: Meteosat-7 and Meteosat-5 IR, WV, VIS; GOES IR; GMS IR, VIS.
Standard IR and VIS wind use: everywhere, except over land north of 20N
at low levels (less than 700 hPa).
Standard WV wind use: everywhere at high levels (above 400 hPa).
GOES high-density IR winds are thinned before use to one observation in

a box of 2 degrees latitude/longitude, 200 hPa.

Météo France
There is no a priori blacklisting except that winds are only used within a circle arc around the sub-satellite point.

Australian Bureau of Meteorology
All GTS wind products from GOES, GMS and Meteosat are used. A special local wind data set is produced for the Australian region from GMS.

Japan Meteorological Agency (JMA)
Winds from GOES, GMS and Meteosat are used, except if a radiosonde observation is available within 150 km.
Observational errors for levels other than those provided in Table 1 are interpolated and errors for levels higher than 200 hPa are reassigned to 200 hPa.
Normal cloud track winds and water vapour track winds are processed in exactly the same way, since the quality of both data sets is almost the same. For GMS the water vapour winds are even slightly better than the IR winds.

US Navy Global (FNMOC/NOGAPS)
All the satellite winds decoded from the bulletins for GOES, GMS and Meteosat are used. In addition high-density multispectral wind observations produced by the University of Wisconsin-CIMSS from the GMS-5 and GOES-8 imagery are used. These observations are being used only from 40°S-40°N and are combined into superobs at an approximate resolution of 200 km. The observation errors assigned to these superobs are given in Table 2 in column 'high-dens. CIMSS'.