Summary: The use of satellite data in the French NWP models at global (ARPEGE) and regional (ALADIN) scales is described. In the last year, a lot of effort has been dedicated to the assimilation of data from the MetOp satellite (ATOVs, ASCAT and IASI). The operational assimilation of ATOVS and ASCAT has been performed. 50 IASI channels are taken into account in the current E-suite. Another major milestone has been the operational use of GPS radio-occultation data from the COSMIC, CHAMP and GRACE satellites mid-2007. METEOSAT CSR data are also being introduced in the global model (in the regional model ALADIN, a fine resolution radiance product provided by the CMS in Lannion is used instead).

In terms of algorithmic development, an improved parametrization of microwave emissivity allows a better use of these data over land, as investigated in particular over Africa during the ANIMA field experiment period. Another major development was the introduction of a variational bias correction algorithm for radiances based on the one developed at ECMWF.

Recent advances in the use of satellite data in the French NWP models

Météo-France/CRNRM-GAME/GMAP

GPS-RO, ATOVS on Metop (AMSU-A, MHS), ERS

2007

2008

June: IASI, HIRS on Metop, SSMI/F14

Variational Bias correction (VarBC)

- VarBC operational in ARPEGE 4DVAR since February 2008 for radiances
- ALADIN 3DVAR uses the coefficients computed for ARPEGE, except for SEVIRI radiances at high resolution for which specific computations have been performed

- T

- derived at each pixel using only one channel (or two) of each instrument

- on the 22

- channel #219 (699,50 cm

- 69 GHz

- AMSU-A, MHS)

- at each analysis time.

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- AMSU-A, MHS)

- at each analysis time.

### GPS-RO Occultation:

- Assimilation of bending angles from COSMIC/CHAMP/GRACE between 1 and 16 km
- Ad hoc quality control to discard data reporting abnormal propagation conditions (e.g. sasrefraction) (Paul et al, 2008)
- Observation operator from ECMWF

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- The GFS (Degrees of Freedom for Signal) has been computed for the next assimilation period, for January 2008

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