

2. OPERATIONS

2.1. CYCLES

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CY36T2: this cycle has been prepared from early May through June. It has been declared on August 20, 2010.

Content:

- ◇ Assimilation:
 - o Cleaning of Neural Network routines for AIRS (V. Guidard)
 - o Adaptation of code to use the ECMWF bias correction for radiosonde and SYNOP at Météo-France (P. Moll)
 - o code cleaning including upgrade of the use of Atmospheric Motion Vectors and Scatterometer data with respect to ECMWF use, which should be easily extended to the use of other types of satellite data (information of ODB columns: gen-centre, gen_subcentre and datastream in sathdr table,...), one bug fix playing a role in a Scatterometer diagnostic and in the a-priori choice of the 2 solutions among 4 when these are available (C. Payan)
 - o aelous bufr decoding for ODB (C. Payan)
 - o Microwave radiances:
 - ◇ Addition of emissivity parameterization using a Lambertian approximation for refractivity (F. Karbou) and compare with the specular hypothesis,
 - o Infrared radiances:
 - ◇ Computation of cloud top pressures for cloudy IASI radiances (performed once during screening with a different formulation than in the IFS, V. Guidard and N. Fourri ). Same development already is operational for AIRS.
 - ◇ Introduction of an alternative cloud detection method for AIRS and IASI (MMR code from Thomas Aulign ), unless similar work planned at ECMWF (V. Guidard or N. Fourri ) – to be confirmed
 - o Snow analysis updated code in CANARI (F. Taillefer)
 - o Catch-up of code for radar reflectivity if not already in the “_bf” branch of CY36T1 (E. Wattrelot)
 - o Finalization of the Optimal Interpolation code within the SURFEX framework (so-called “OI_main” code); the core part of this code, which is to replace the old ISBA surface analysis code in CANARI, already is introduced in CY36T1 (F. Taillefer & J.-F. Mahfouf)
 - ◇ Arp ge/Aladin physics:
 - o Adaptations for using 3MT (modular multi-scale microphysics/turbulence) – J.-M. Piriou
 - ◇ Arp ge simplified physics schemes (O. Rivier ):
 - o Modified gravity wave drag scheme (by ignoring the perturbations of some terms)
 - o New large scale precipitation scheme: adjustment Smith scheme ($Q_v \Rightarrow Q_v^*, Q_l^*, Q_i^*$, cloud fraction) followed by auto-conversion and precipitation of all condensed excess (Q_r^*)
 - o Convection scheme based on a simplified Betts-Miller scheme
 - ◇ Arome:
 - o Implementation of DrHook in mpa/mse/surfex/xrd (excluding the mpl part of xrd)
 - ◇ Alaro:
 - o Minor portability aspects
 - ◇ Various optimization aspects:
 - o 4D-VAR for NEC/SX9, based on the work in early 2010 (E. Sevault, R. El Khatib, P. Moll)

- o Arpège/Arome overall optimisations (vectorization, overhead reductions) (R. El Khatib)
- o EDKF scheme on NEC/SX9 - if not already present in the “_bf” branch of CY36T1 (Y. Seity)
- o Corrected (the present code is hard-coded for IBM thus unusable for NEC) and upgraded automatic NPROMA optimization for LAM (considering minimization of memory conflicts, optimal distribution with respect to given Open-MP threads, optimization with respect to vector lengths/size of the scalar cache,...) by F. Vana.
 - ◇ Use of Ecoclimap-derived orography and land/sea mask in configuration 923 (via a PGD file written in FA format) (F. Taillefer, S. Riette, K. Essaouini)
 - ◇ Use of SST/OSTIA in Arpège, Aladin and Arome (F. Taillefer)

CY37: the decision is to build this cycle from end-August through mid-October; the pre-cycle has been sent back to Reading on October 26th.

- ◆ Catch-up of some late E-suite changes in Arpège and Arome
- ◆ Blending FA file optimization (J. Mašek)
- ◆ IFS contribution CY36R4 (August sending)

CY37T1: first quarter of 2011 ? provisional content:

- ◆ Arpège/Aladin upper-air physics:
 - o 3D aspects for the transport of dust (M. Mokhtari and Y. Bouteloup): dry sedimentation, wet deposition, coupling with convection and radiation
 - ◆ Arpège simplified physics (O. Rivière):
 - o Improvements for vertical diffusion and stratiform precipitations; TL/AD of convection
 - o Arome and Aladin surface scheme: version 7 of SURFEX (if ready in time, otherwise for a CY37T2 or CY38):
 - o Open-MP adaptations and other I/O optimizations
 - o Scientific content: improvements for the dust model (Mohamed Mokhtari)
 - ◆ Alaro physics:
 - o Alaro turbulence scheme (TOUCANS) - a major update (the one originally scheduled for CY36T2)
 - o Bugfix for 3MT convection downdraft
 - o 2D horizontal extension of a vertical turbulence scheme (for the moment complying only with TOUCANS-QNSE, but the same dataflow can be used by any other vertical diffusion scheme...)
 - o Updated NSPLITHOI=1 option to act like a horizontal smoother to physics
 - o NWLAG=4, NTLAG=4 and NSVDLAG=4 options with %LPHYLIN attribute of GFL arrays allowing different interpolation of physics from the one applied to advected model quantity.
 - ◆ Adaptation of configuration 901 (conversion IFS to Arpège historical files) to GRIB2 upper-air input fields (Mate Mile & Jean-Marc Audoin)