

Séminaire ven 29 Oct 2010 11h / Seminar Fri Oct 29th 2010 11h

Conférencier/Lecturer: Abdessamad Qaddouri

Sujet/Subject: A validation of the Yin-Yang staggered meso-stratospheric forecast GEM model

Présentation/Presentation: Français / French

Lieu/Room: Salle des vents (Dorval)

web: <http://web-mrb.cmc.ec.gc.ca/mrb/rpn/SEM/>
web: <http://collaboration.cmc.ec.gc.ca/science/rpn/SEM/index.php>

Résumé/Abstract

We have just finished the development of a global forecasting Yin-Yang model. In the horizontal we use a spherical coordinates on the overset Yin-Yang grid and in the vertical we use the same Logarithm-hydrostatic-pressure like coordinate on Charney Phillips grid developed previously by Girard and Plante. The representation of physical process is kept unchanged. The global forecast is performed by considering a domain decomposition (a two-way coupling) method between two limited-area models (LAM) discretized on the two panels of Yin-Yang grid and using the same time step. Each panel of Yin-Yang grid system is extended by a static halo region and uses as local solver for dynamic core the same fully implicit semi-Lagrangian method as in the global Canadian GEM operational model. The spatial and time discretizations are implemented independently on each quasi-uniform Lat-Lon part grid. The static halo region plays the same role as a pilot region in limited-area modeling. Because the two sub-grids of the Yin-Yang grid do not match, the variables update in pilot region is done by fully cubic Lagrange interpolation. The parallelization is done by a hybrid MPI/OpenMP distributed memory implementation.

In this talk a full set of dynamic variables verifications scores will be shown. For our model validation we run 42 winter and 42 summer real cases and we compare the 5 days forecast results against observation. No noise is seen in the overlap regions during the simulations. Results that will be presented in this seminar are encouraging and show that the new Yin-Yang system agrees with observation as does the CMC stratospheric (operational) GEM model.