

## Seasonal forecasts with the atmospheric and coupled model at Hydrometcentre of Russia

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Russia is one of the WMO Global Producing Centers of long-range forecasts. Operational forecasts are based on the SL-AV global atmospheric model that consists of the semi-Lagrangian finite-difference dynamical core of own development and parameterizations of subgrid-scale processes developed by the European ALADIN/LACE consortium. Currently, the version of the model used for long-range forecasts has the horizontal resolution of 1.1x1.4 degrees lat-lon and 28 vertical levels. We present a brief description of the model and the technique to initialize soil variables including soil ice. Simple SST anomaly evolution model is used operationally. The results of 4-months historical forecasts for all seasons of 1981-2010 are described.

We have also developed the coupled atmosphere-ocean model. The ocean model is the Institute of Numerical Mathematics (INM) sigma ocean model which is also used in the INMCM climate model participating in CMIP project. The ocean model includes the ice model describing its thermodynamics and dynamics. The resolution of the model is 0.5x1 degrees lat-lon, 40 levels. After the experiments on estimating globally averaged heat flux to the ocean, the atmosphere and ocean models are coupled without flux correction. The method of initializing the ocean model is presented. We carried out historical seasonal forecasts with the coupled model for the period of 1989-2010 for all seasons. The coupled model provides some improvement in tropics with respect to the atmosphere model coupled with the simple model for SST anomaly evolution.

The plans of further development of this coupled model are presented.