

Update on seasonal forecast system based on SL-AV model

Mikhail Tolstykh,
Institute of Numerical Mathematics
RAS, Hydrometcentre of Russia
WGSIP19, 09/10/2017



Seasonal version of SL-AV model at Hydrometcentre of Russia

- Semi-implicit semi-Lagrangian vorticity-divergence dynamical core of own development (Tolstykh 2010), mostly ALADIN/LACE parameterizations.
- Current version: Resolution 1.4x1.125 degrees lon/lat, 28 levels.
- Contributes to APCC multimodel ensemble, S2S project
- *Changes since last session:*
 - *More accurate sea ice account*
 - *Some improvements in deep convection parameterization*
 - *Some (but not all!) bugfixes*

New version of the model

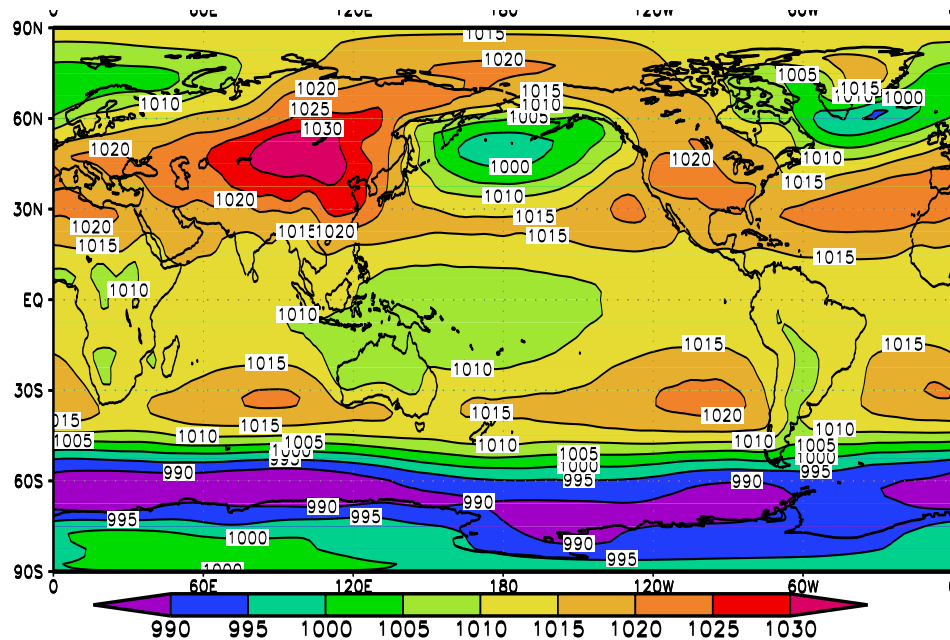
- More accurate SW and LW radiation parameterization (CLIRAD SW + RRTM LW).
- ALARO-0 microphysics
- Increased horizontal resolution ($0.72^\circ \times 0.9^\circ$ lat-lon)
- **In 2017 – 84 vertical levels, highest at 0.5 hPa**
- INM RAS multilayer soil model (from INMCM)
- Requires new computer (hopefully, at the end of 2017)

Successes and drawbacks of the model (January 2017 r)

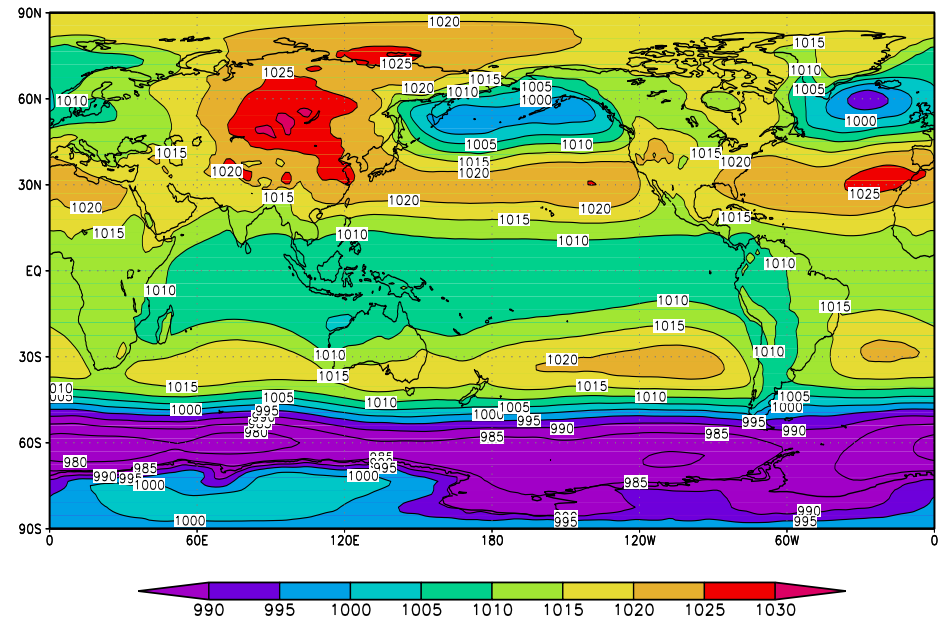
- ✓ Surface heat flux (balance and components)
- ✓ Vertical distribution of clouds (almost)
- ✓ Seasonal variations
- - High annual mean average precip (3.7 instead of 2.9), wide ITCZ
- - Low sea level pressure in tropics

Mean January 1979-1983 MSLP field after model improvements

ERA



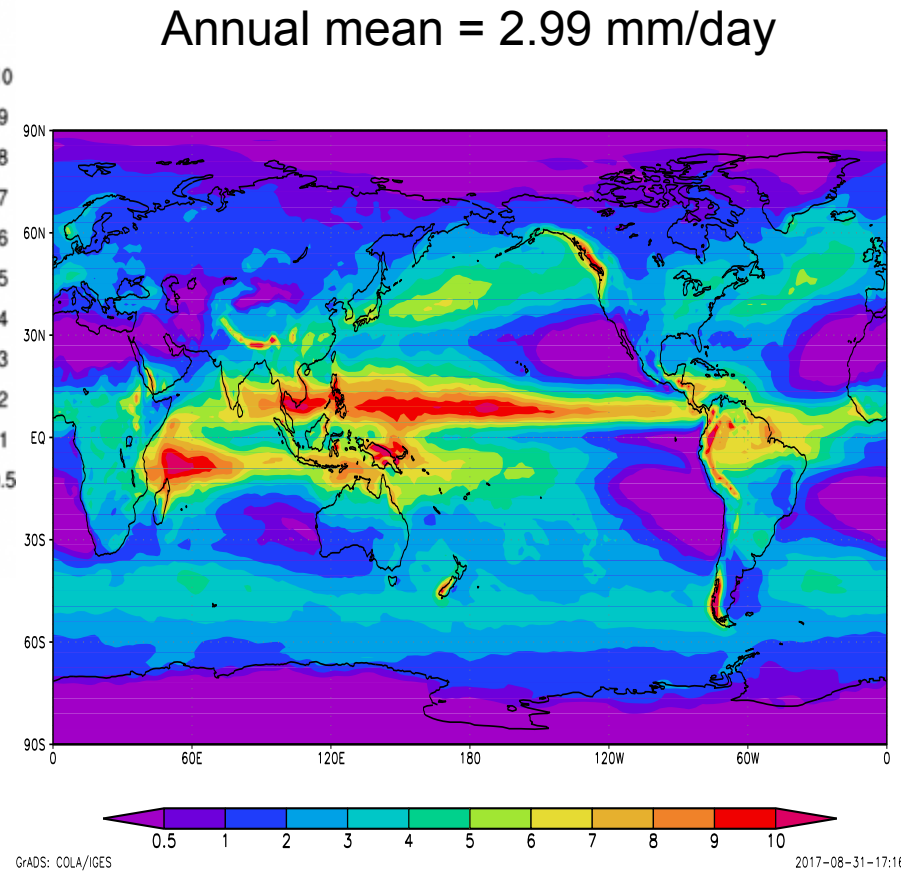
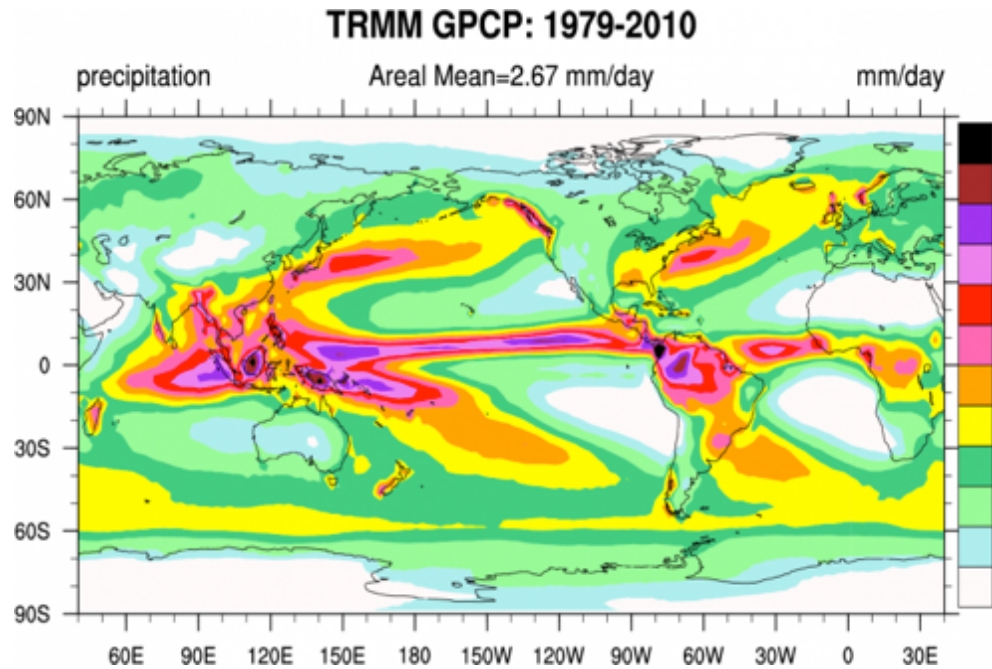
SL-AV , 28 levels



GrADS: COLA/IGES

2017-09-03-13:19

Mean annual precipitation after model improvements



Plans

SL-AV model:

- After tuning at AMIP2 for 84-level version, run seasonal hindcasts.
- Hindcasts for the coupled SL-AV - INMIO – CICE model.
- Switch to new version in operations
- Trying decadal prediction

INM RAS coupled model INMCM5:

- a set of decadal forecasts.

North Eurasian Climate Center



For RA-VI Region NEACC functions as one of Long-Range Forecast nodes of the RA-VI Regional Climate Network.

For RA-II Region NEACC functions as a Multifunctional Regional Climate Center.

The structure of NEACC:

NHMSs of CIS (Azerbaijan, Armenia, Belorussia, Kazakhstan, Kirgizstan, Moldova, Russian Federation, Tajikistan, Uzbekistan, *Ukraine*).

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Consortium of the Roshydromet organizations:

1. Hydrometeorological Research Centre of the Russian Federation
2. Institute of Global Climate and Ecology
3. Russian Research Institute for Hydrometeorological Information – World Data Centre
4. A.I. Voeikov Main Geophysical Observatory
5. Droughts Monitoring Centre, Russian Research Institute of Agricultural Meteorology

The North Eurasia Climate Centre (NEACC) is coordinated by the Russian Federation under the auspices of the Commonwealth of Independent States (CIS). NEACC was formally designated as a WMO RCC NEACC by WMO Executive Council in May 2013.

North Eurasia Climate Outlook Forum

Objectives of NEACOF

- Integration on a professional basis of national, regional and international experts on climate monitoring and prediction and assistance in capacity building of NMHS CIS to meet national (and regional) requirements for climate services

The scope of NHMS climate services in the area of NEACC differ from country to country. Some of NHMS monitor and assess regional climate variability, while some deal with operational climate forecasting. In some cases, climate services are not enough transparent. So, the use of information from consensus NEACOF outlook is in importance for the NHMS needs.

Participating countries: Azerbaijan, Armenia, Belorussia, Kazakhstan, Kirgizstan, Moldova, Russian Federation, Tajikistan, Uzbekistan.

13th session will be held in Moscow 14-16 November 2017.

Expected guests: A. Kumar, R. Graham, J.-P. Cerron (ET-OPSLs)

Thank you for attention!