Verification of JJA 2019 consensus forecast issued during sixteenth session of the North Eurasia Climate Outlook Forum (NEACOF-16) June 3-6, 2019, Moscow

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Sixteenth session of the North Eurasia Climate Outlook Forum (NEACOF-16)

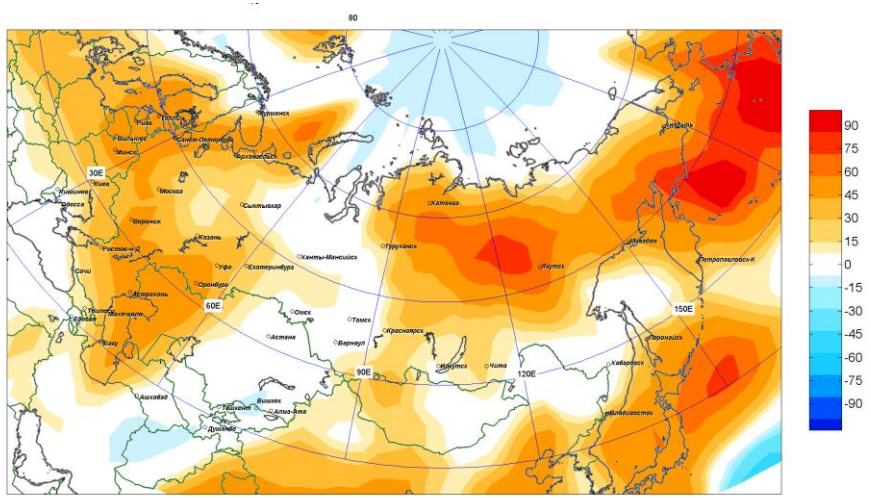
- The 16th NEACOF session was held as a parallel section of the CITES-2019 International Conference on Computing and Information Technologies for Environmental Sciences (June 3 - 6, 2019, Moscow, Russia) at the Institute of Computational Mathematics named after G.I. Marchuk RAS.

- In anticipation of the event, the International School of Young Scientists of the CIS Countries was held. The theme of the training event is weather and climate forecasting on time scales from in-season to decades. The aspects of modeling, data assimilation and practical applications were touched upon. Lectures were given by renowned experts in the field of climate research and forecasting.

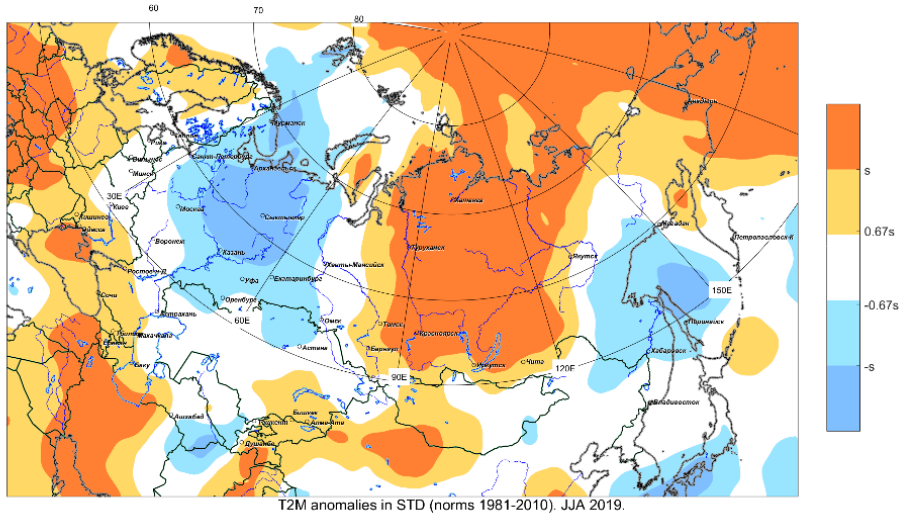
A New Objective Approach to Consensus Forecasting

- With the participation of representatives of the Hydrometeorological Center of Russia and the CIS countries, a new objective approach to drawing up a consensus forecast was experimentally introduced.
- Based on the results of hydrodynamic modeling according to the initial data for May 31 - June 1, based on 5 models (Canadian model, TSS, CPC NOAA models, the Russian Hydrometeorological Center / INM - PLAV and the Main Geophysical Observatory) with the weighting coefficients, maps of the consistency of forecasts of surface temperature anomalies were compiled air and rainfall in Russia.
- The weight of model coefficients was discussed during the discussions.

Verification of forecasts of air temperature for June-August 2019



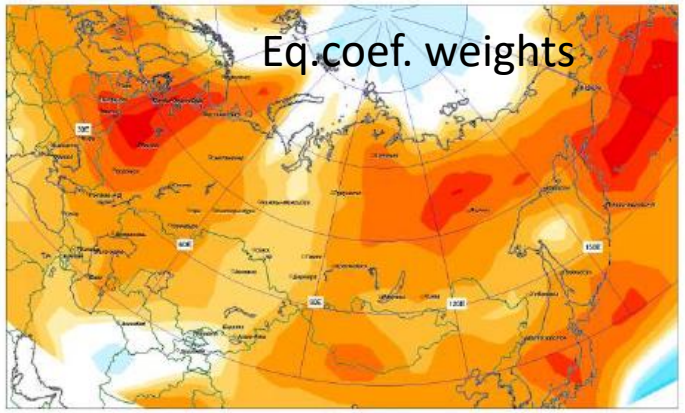
2M temperature forecast. JJA 2019 (Composite Probabilities)



T2M anomalies in STD (norms 1981-2010). JJA 2019.

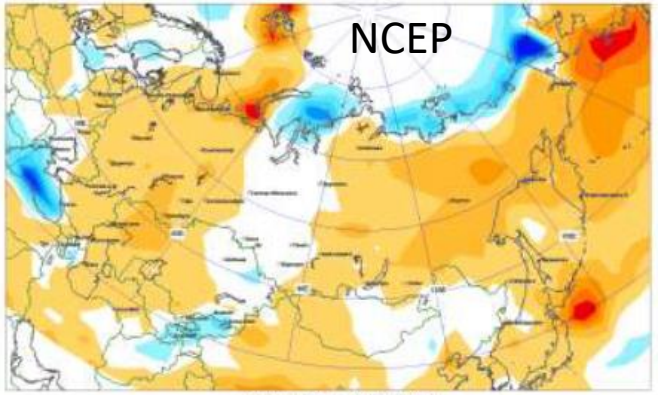
The consensus forecast realistically reproduced the prevalence of positive anomalies over the north-eastern part and the south of the European territory of the CIS, over western and eastern Siberia. The largest anomalies in the north of Siberia were reproduced correctly. The near norm air temperature was predicted over the Ural and Volga federal districts and over the Far East, however, according to NCEP/NCAR reanalysis data (Fig.3b), negative temperature anomalies were observed in these regions. The dominance of near norm temperature in Central Asia is correctly reproduced in the consensus forecast, except some regions in the north and west. In the southeastern regions of Central Asia, a positive anomaly of average temperature was observed, while temperature was predicted to be near normal.

Eq.coef. weights



T2M deg anomalies. JJA 2019 (Composite)

NCEP



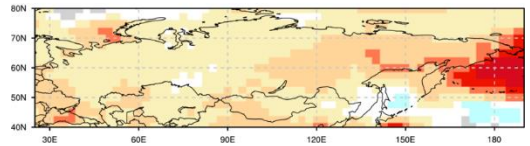
T2M deg anomalies. JJA 2019 (NCEP)

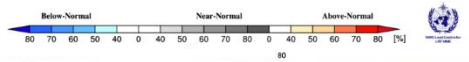
Probabilistic Multi-Model Ensemble Forecast

Beijing,CPTEC,ECMWF,Exeter,Melbourne,Montreal,Moscow,Offenbach,Pretoria,Seoul,Tokyo,Toulouse,Washington

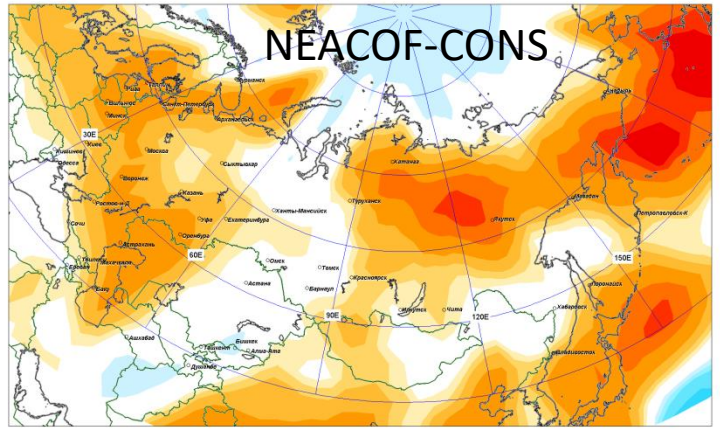
2m Temperature : JJA2019 (issued on May2019)

WMO-LCMME



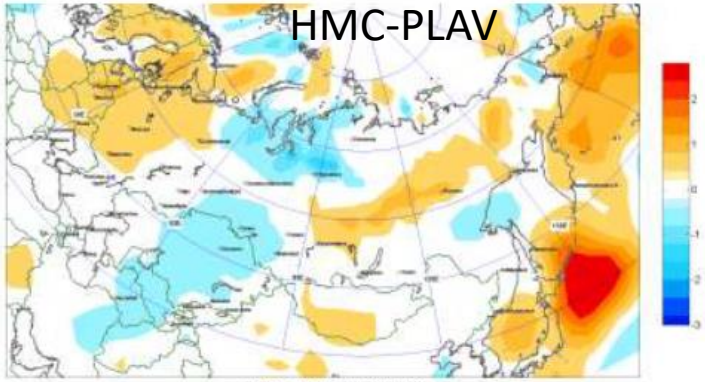


NEACOF-CONS



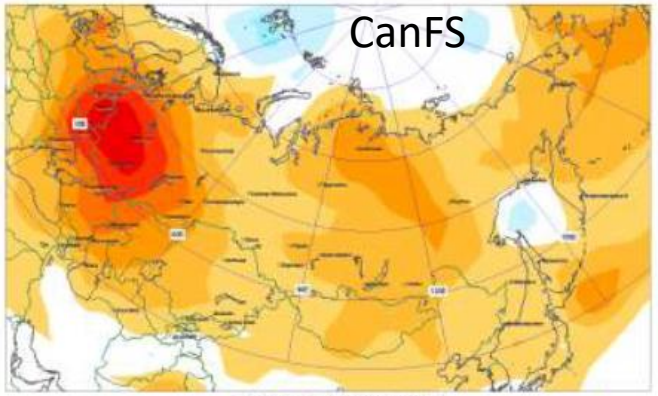
2M temperature forecast. JJA 2019 (Composite Probabilities)

HMC-PLAV



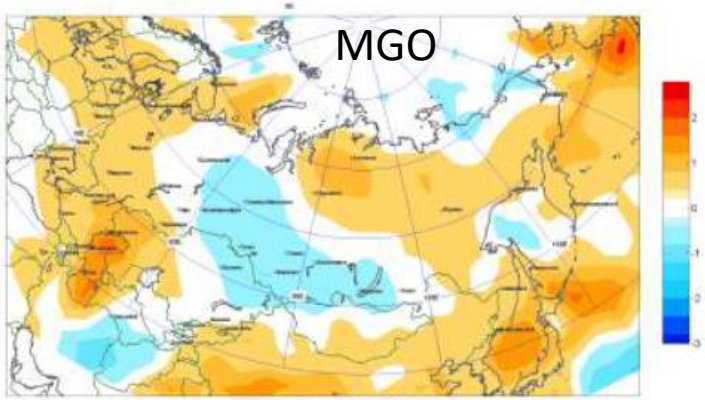
T2M deg anomalies. JJA 2019 (HMC)

CanFS



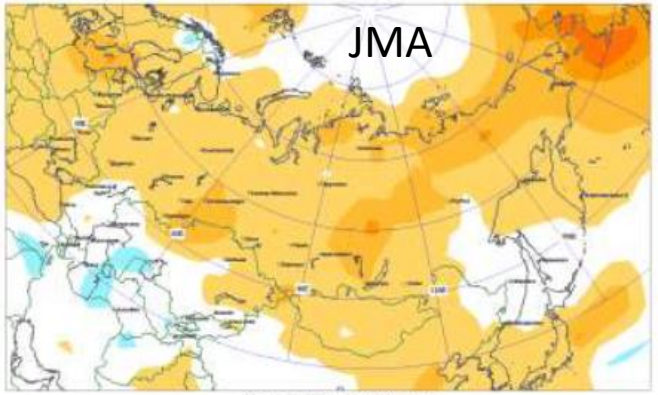
T2M deg anomalies. JJA 2019 (Canada)

MGO



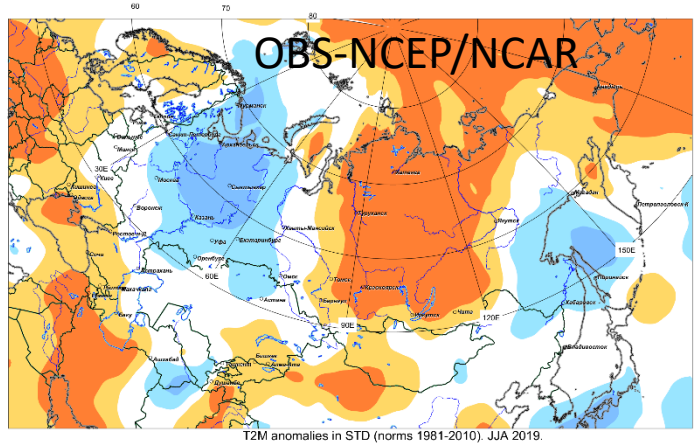
T2M deg anomalies. JJA 2019 (MGO)

JMA



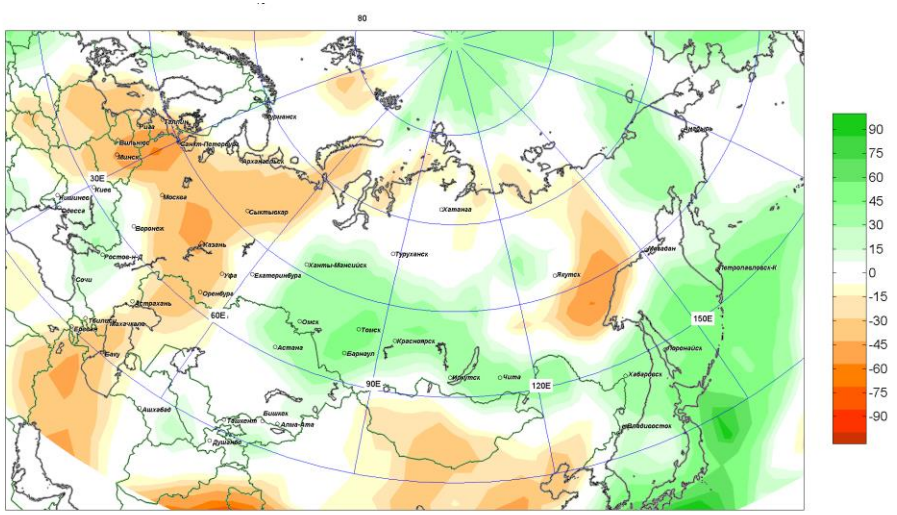
T2M deg anomalies. JJA 2019 (Japan)

OBS-NCEP/NCAR

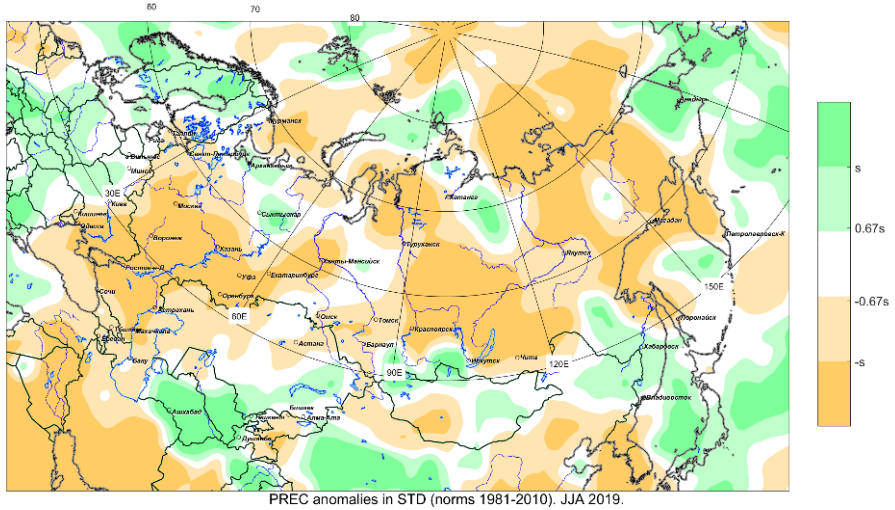


T2M anomalies in STD (norms 1981-2010). JJA 2019.

Verification of forecasts of precipitation for June-August 2019



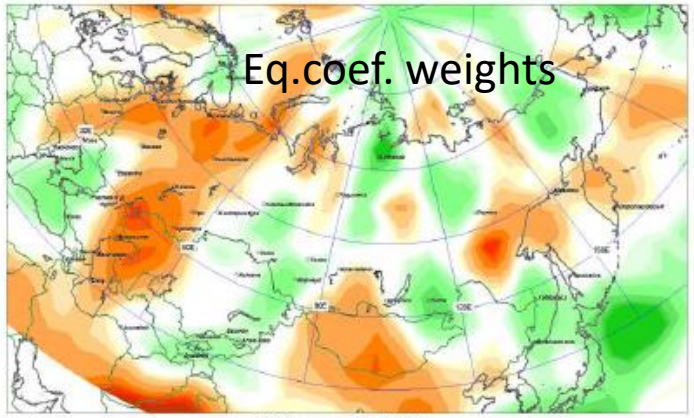
Precipitation forecast. JJA 2019 (Composite Probabilities)



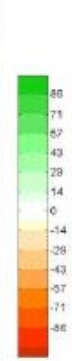
PREC anomalies in STD (norms 1981-2010). JJA 2019.

The consensus forecast correctly predicted a deficit of precipitation over the European territory of Russia (Fig. 4a), in the north of Western Siberia, over some regions of Eastern Siberia. The loactions of the largest precipitation anomalies over Chukotka and the Far East are reproduced correctly. An excess of precipitation was predicted over the vast regions of southern Siberia, but from NCEP/NCAR data precipitation was below normal (Fig. 4b). The precipitation field in Central Asia was reproduced well with the exception of the northeastern region.

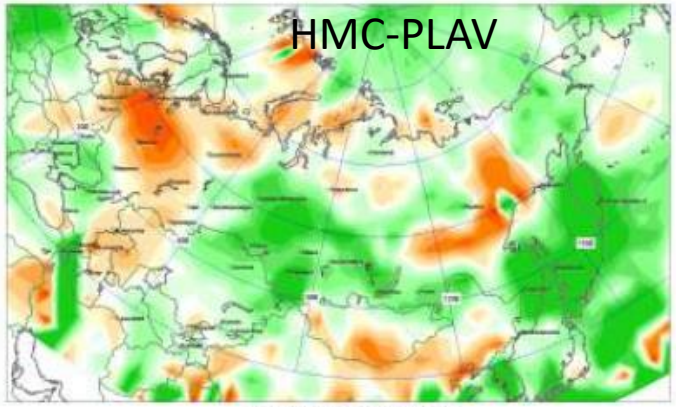
Eq.coef. weights



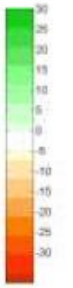
PREC mm anomalies. JJA 2019



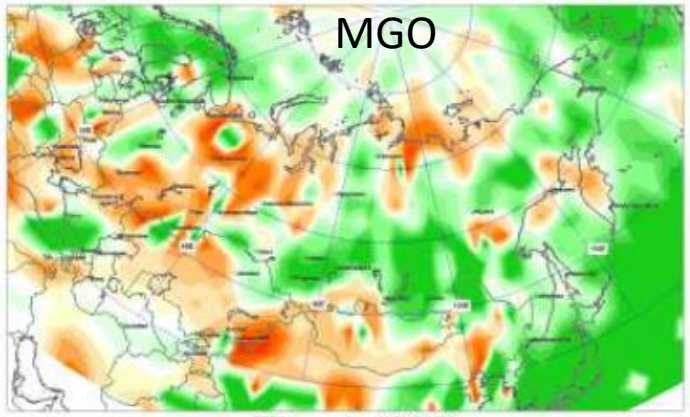
HMC-PLAV



PREC mm anomalies. JJA 2019 (HMC)

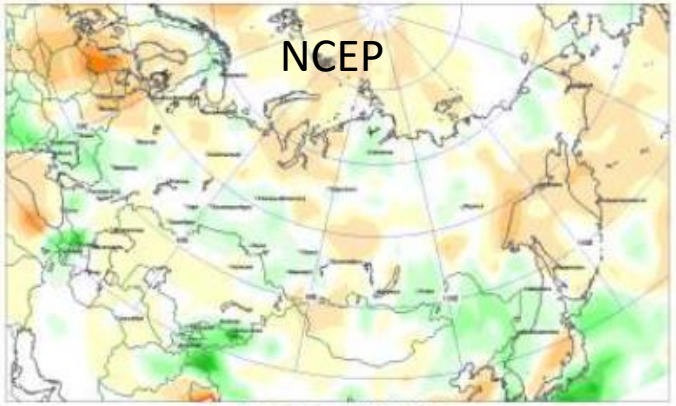


MGO

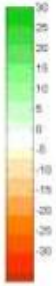


PREC mm anomalies. JJA 2019 (MGO)

NCEP



PREC mm anomalies. JJA 2019 (NCEP)



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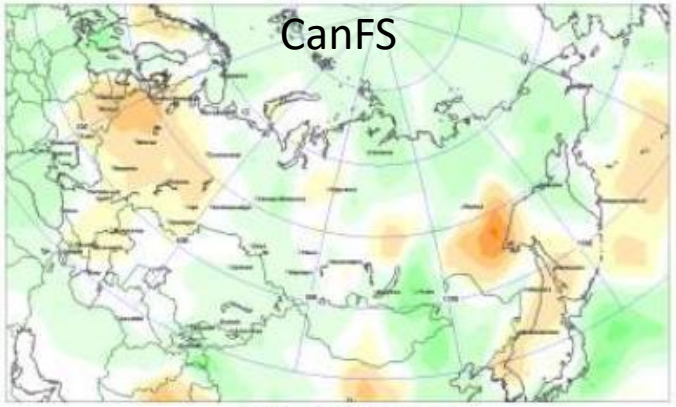
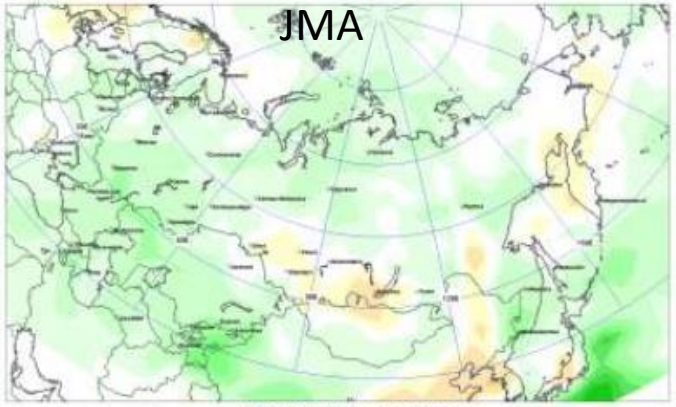


PREC mm anomalies. JJA 2019 (Canada)

JMA



PREC mm anomalies. JJA 2019 (Japan)

Probabilistic Multi-Model Ensemble Forecast

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Precipitation : JJA2019 (issued on May2019)

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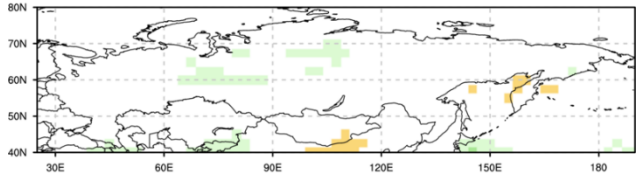
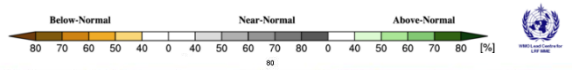
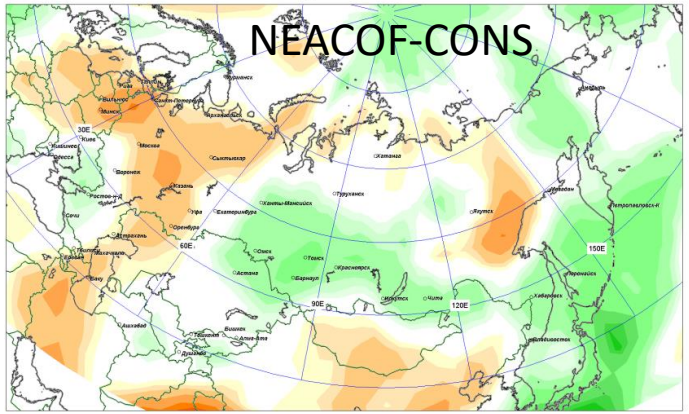




NEACOF-CONS



Precipitation forecast. JJA 2019 (Composite Probabilities)

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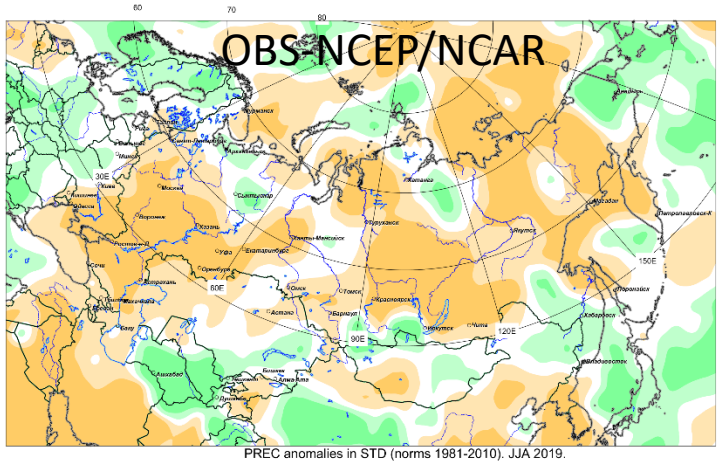

PREC anomalies in STD (norms 1981-2010). JJA 2019.

Table 1. Skill score of forecasts (%) for June-August 2019

	North Eurasia (NE)	European part of NE	Asia part of NE	Central Asia
T2m	76	70	81	73
Prec	72	73	70	72

The skill score of consensus forecast throughout the territory of North Eurasia for air temperature was 76%, for precipitation - 72%.

Ранг с 1949 года по Сев. Евразии

T2m – 5, Prec - 61