



THE MESOSCALE SHORT-RANGE WEATHER FORECAST SYSTEM COSMO-RU



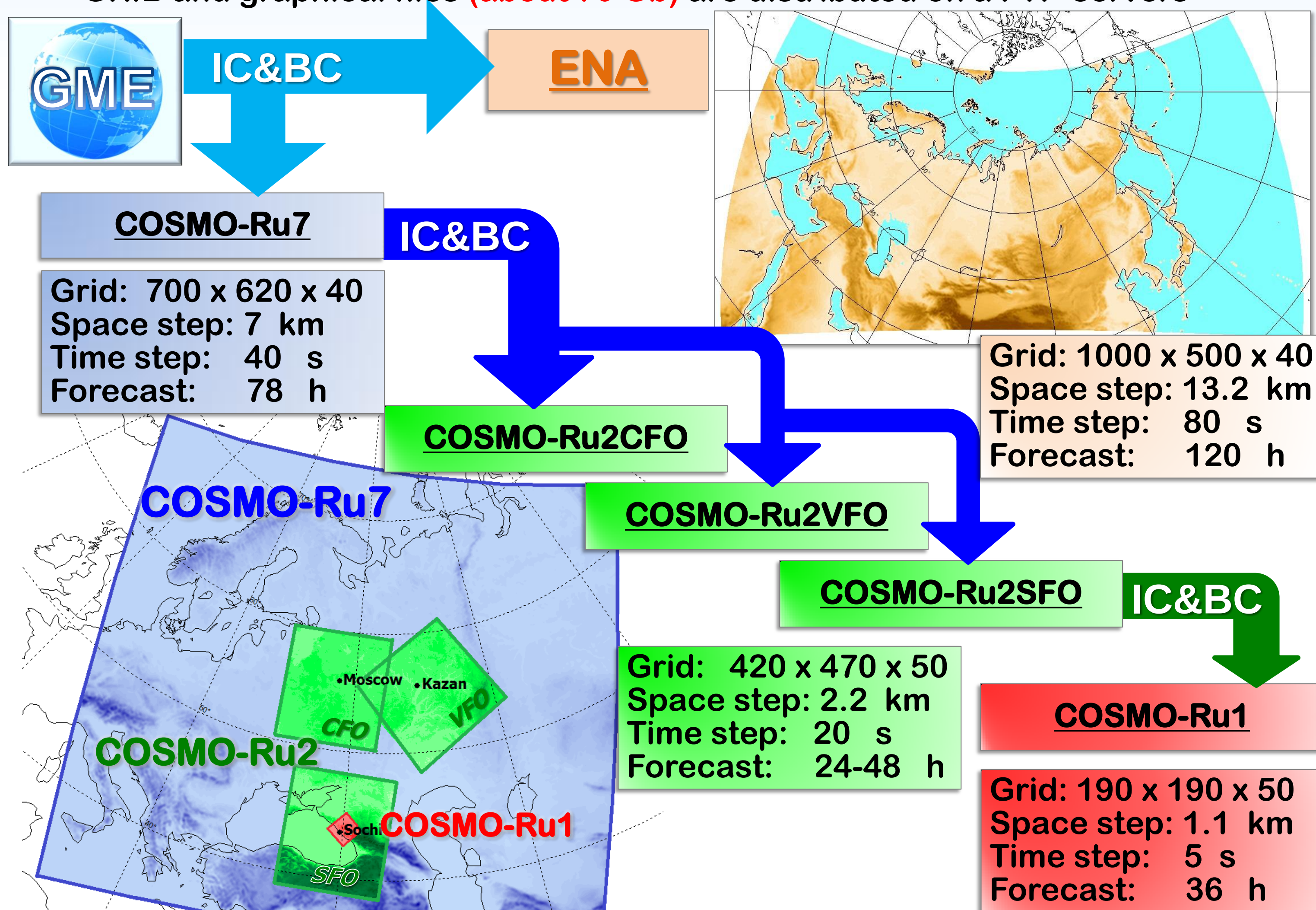
Roshydromet, Hydrometeorological Center of Russia

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OPERATIONAL WEATHER FORECAST SYSTEM COSMO-RU

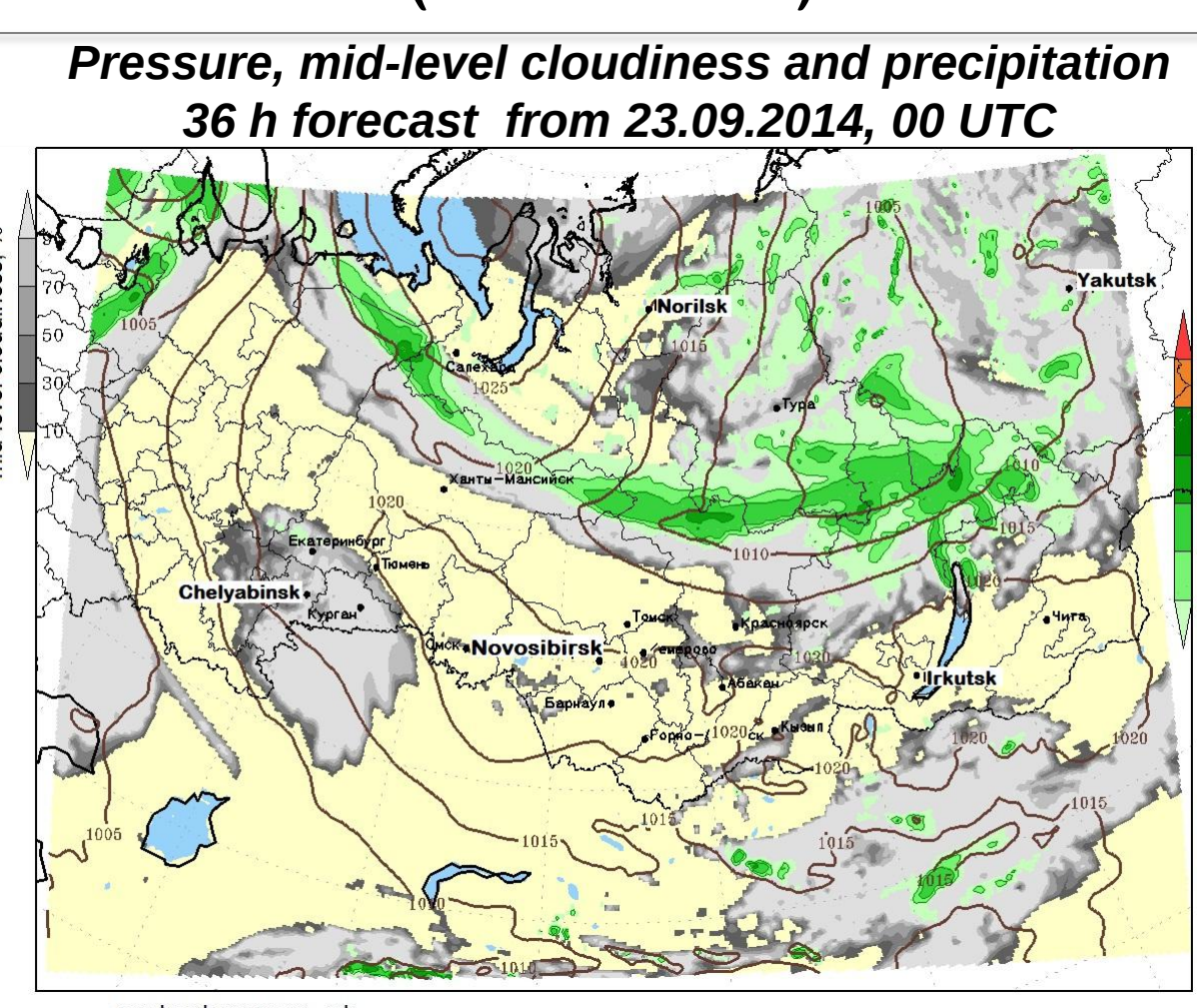
Daily 4 times (00, 06, 12, 18 h UTC):

- more than **8000** (total for 1 day) weather forecast maps and about **1000** (total for 1 day) meteograms (images) prepared
- maps and meteograms are sent to the weather forecasting offices of Roshydromet
- GRIB and graphical files (about 70 Gb) are distributed on a FTP-servers

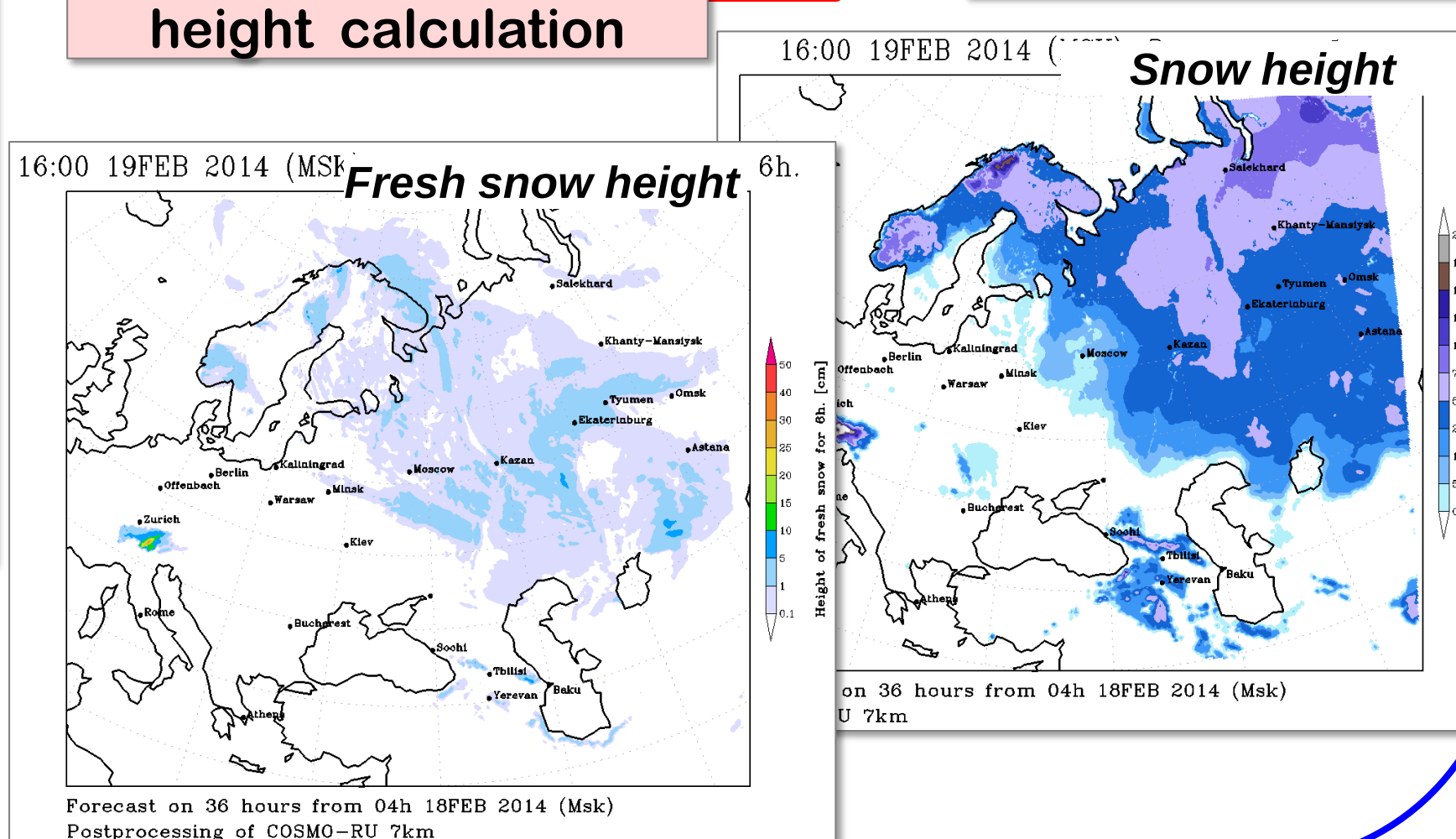
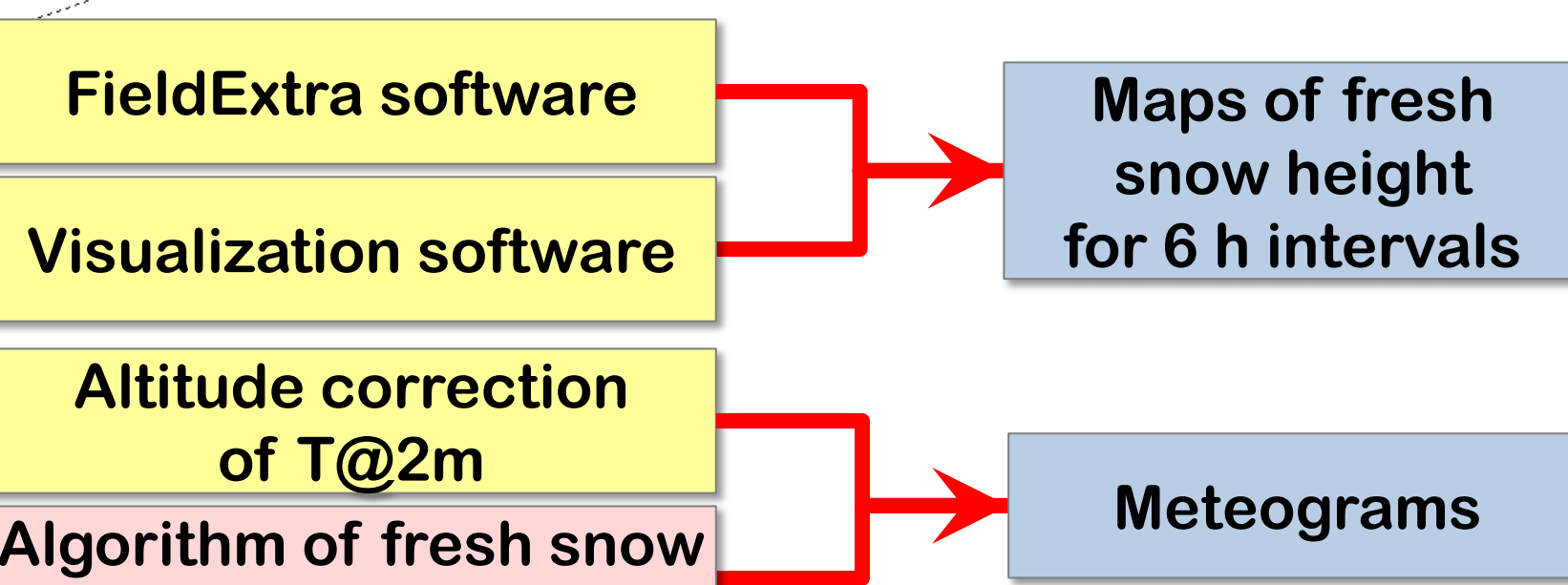


FRESH SNOW POSTPROCESSING SCHEME

COSMO-RuSib run operationally in the WMO Regional Meteorological Center (Novosibirsk)



Grid: 360 x 250 x 40
Step: 14 km
Time step: 80 sec
Forecast: 78 h

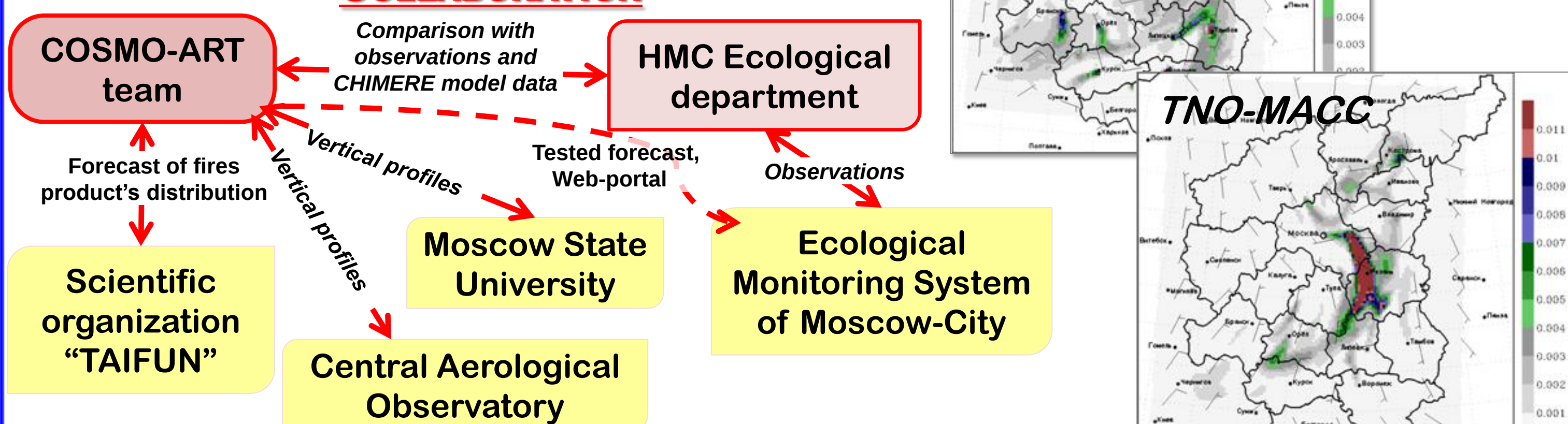


COSMO-RU-ART

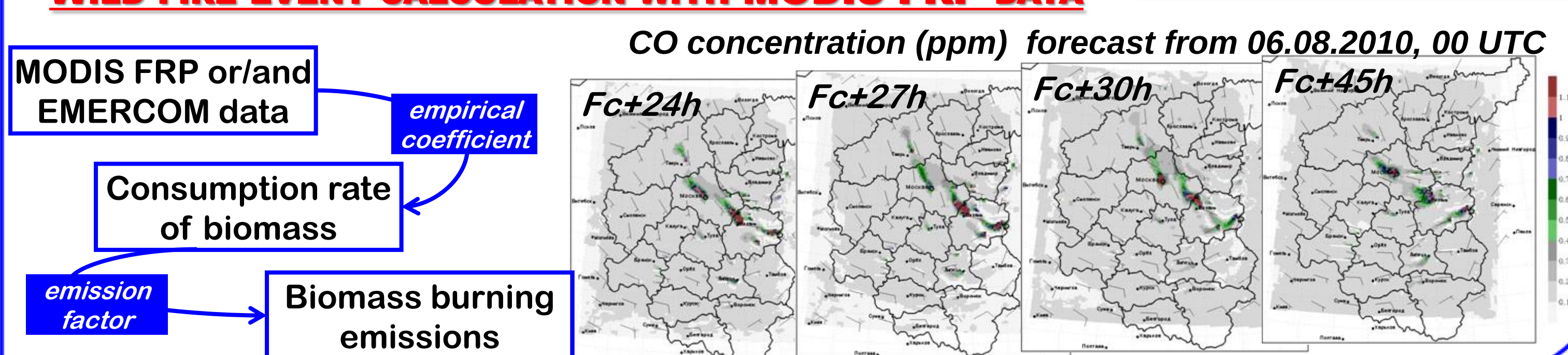
- New version** COSMO5.0-ART3.0 was installed and use as quai-si-operational model for 48-hours forecast of air pollutant's concentration over center of the European part of Russia
- Forecast for the following substance **CO, SO₂, NO, NO₂, PM10, O₃**
- Updated emissions (TNO ⇒ TNO-MACC)
- Calculation of the **meteorological potential** for atmospheric pollution
- Forecast of **fires pollution**
- Model **verification** in connection with meteorology, vertical profiles



COLLABORATION



WILD FIRE EVENT CALCULATION WITH MODIS FRP DATA



METEOSUPPORT OF SOCHI-2014 OLYMPICS AND PARALYMPICS

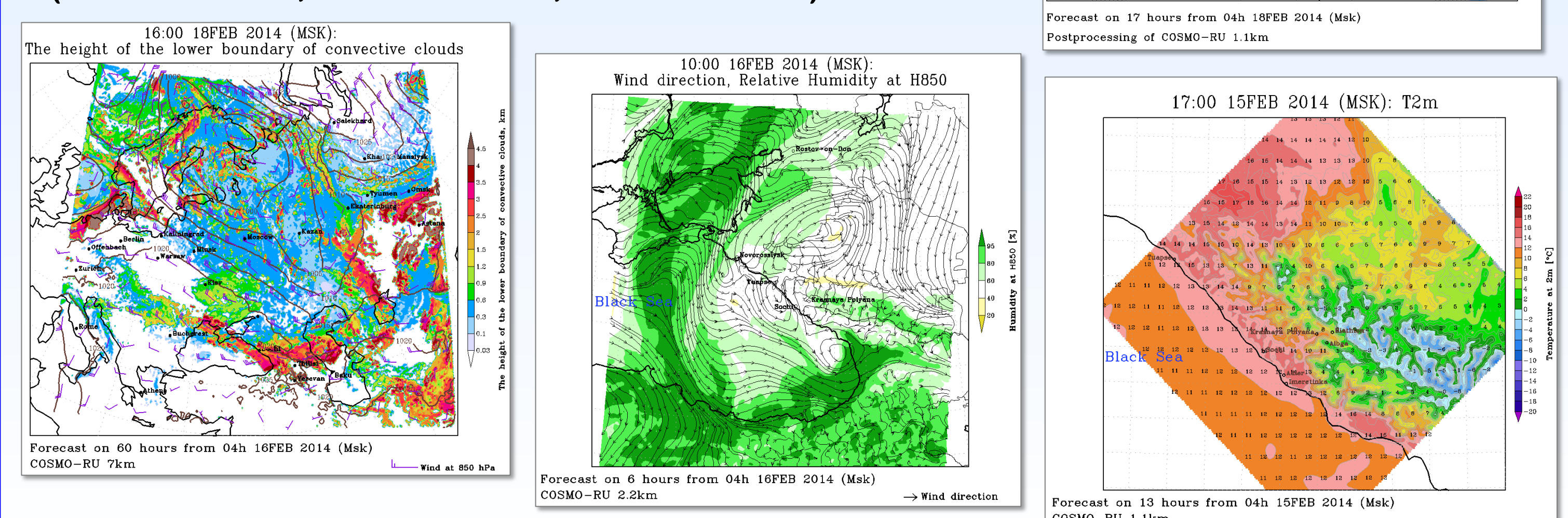
A special Priority Project was organized in 2011, called **CORSO** (Consolidation of Operation and Research results for the Sochi Olympic Games), which was completed in 2014. Scientists from **Russia, Germany, Italy, Switzerland and Greece** have participated.



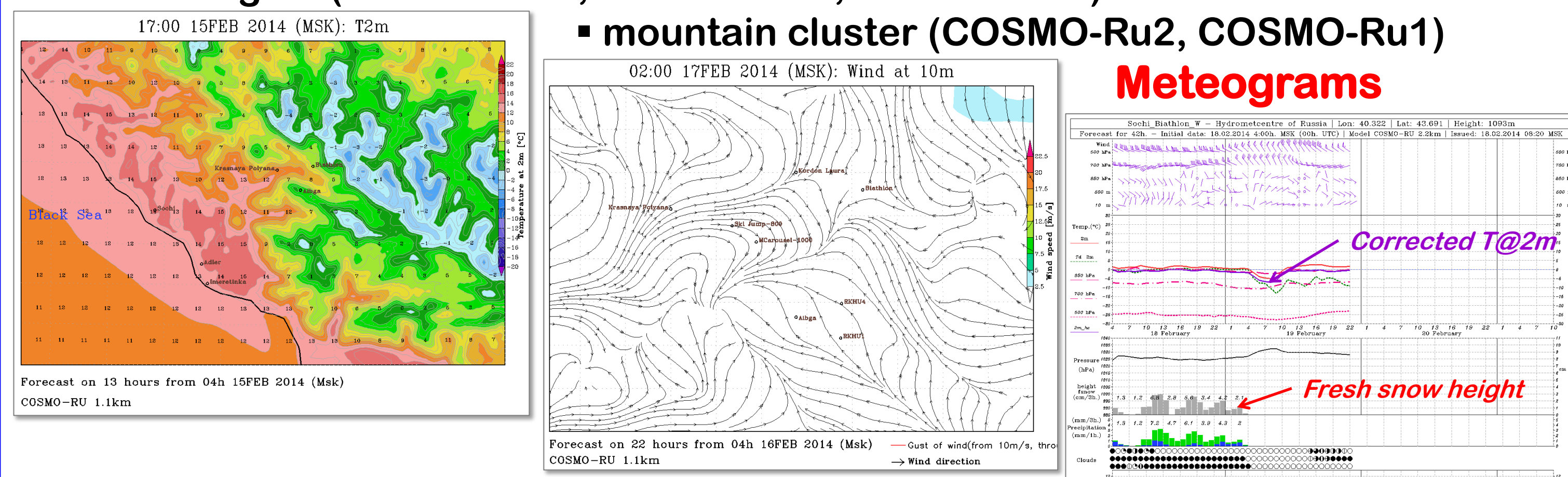
MODELS OPERATIONAL PRODUCTS

Forecast charts

- for the main meteorological parameters and their combinations, and **new product - Fresh Snow height**
- for several regions:
 - whole model domain (COSMO-Ru7, COSMO-Ru2, COSMO-Ru1)



- Sochi region (COSMO-Ru7, COSMO-Ru2, COSMO-Ru1)



Meteograms

ENSEMBLES OPERATIONAL PRODUCTS

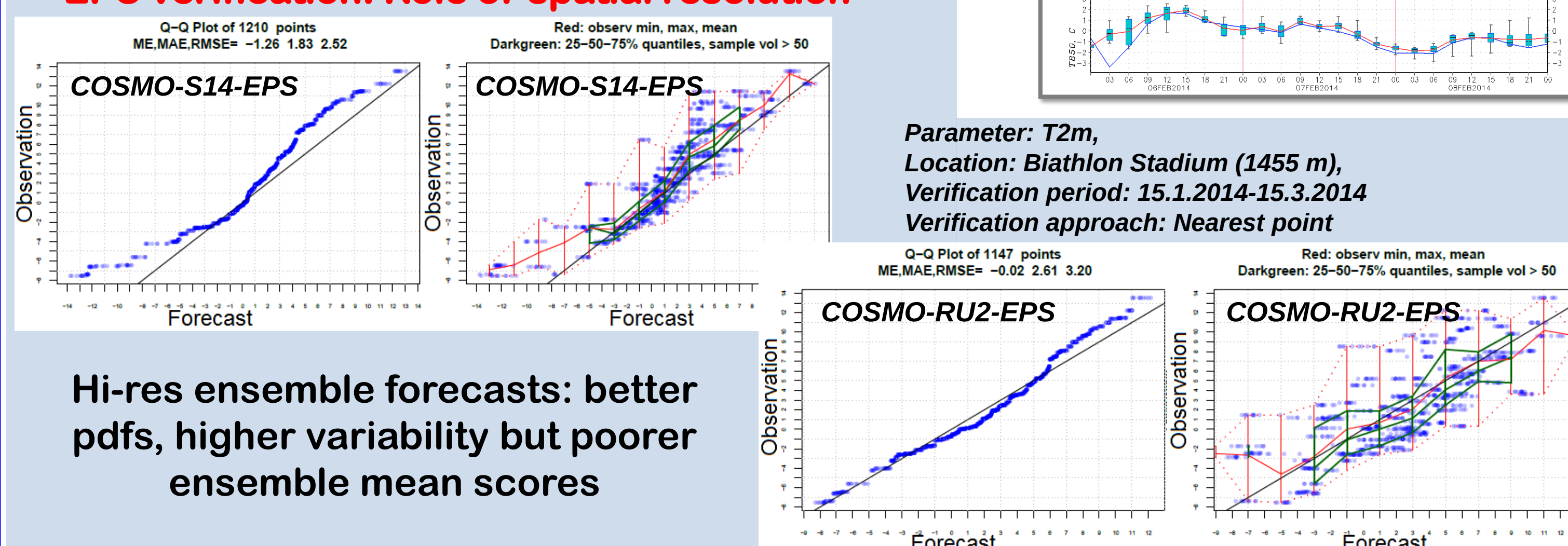
COSMO-S14-EPS (7 km):

- Probability fields (T@2m max&min, wind gusts @10m, precipitation, etc)
- Epsgrams (box-and-whiskers + plumes)
- Ensemble mean & spread (on Google maps)

COSMO-Ru2-EPS (2.2 km):

- Epsgrams (box-and-whiskers + plumes)
- with T corrected using prognostic lapse rate included

EPS verification: Role of spatial resolution



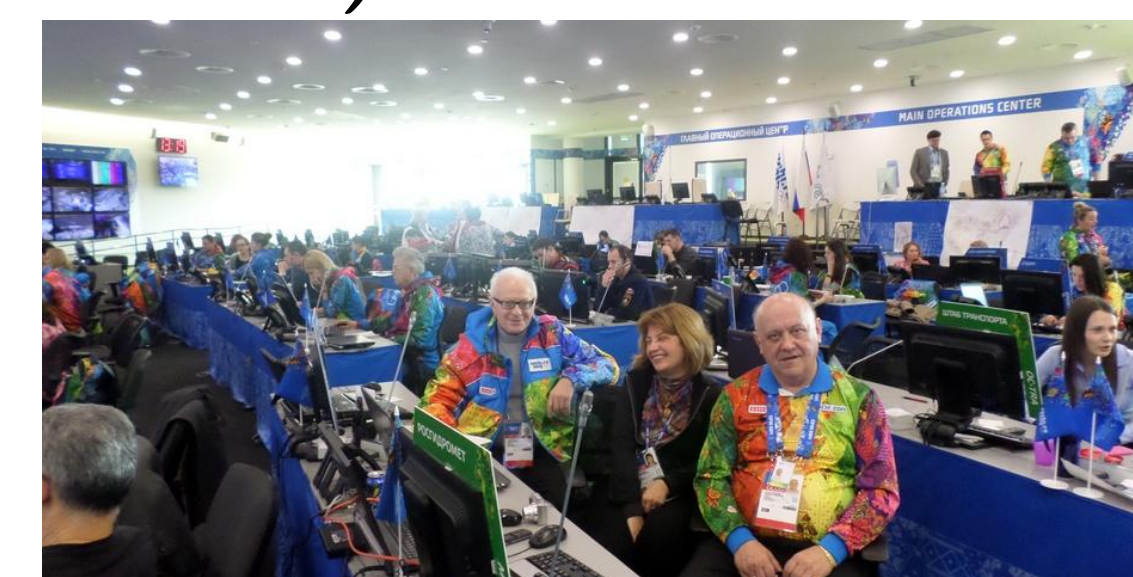
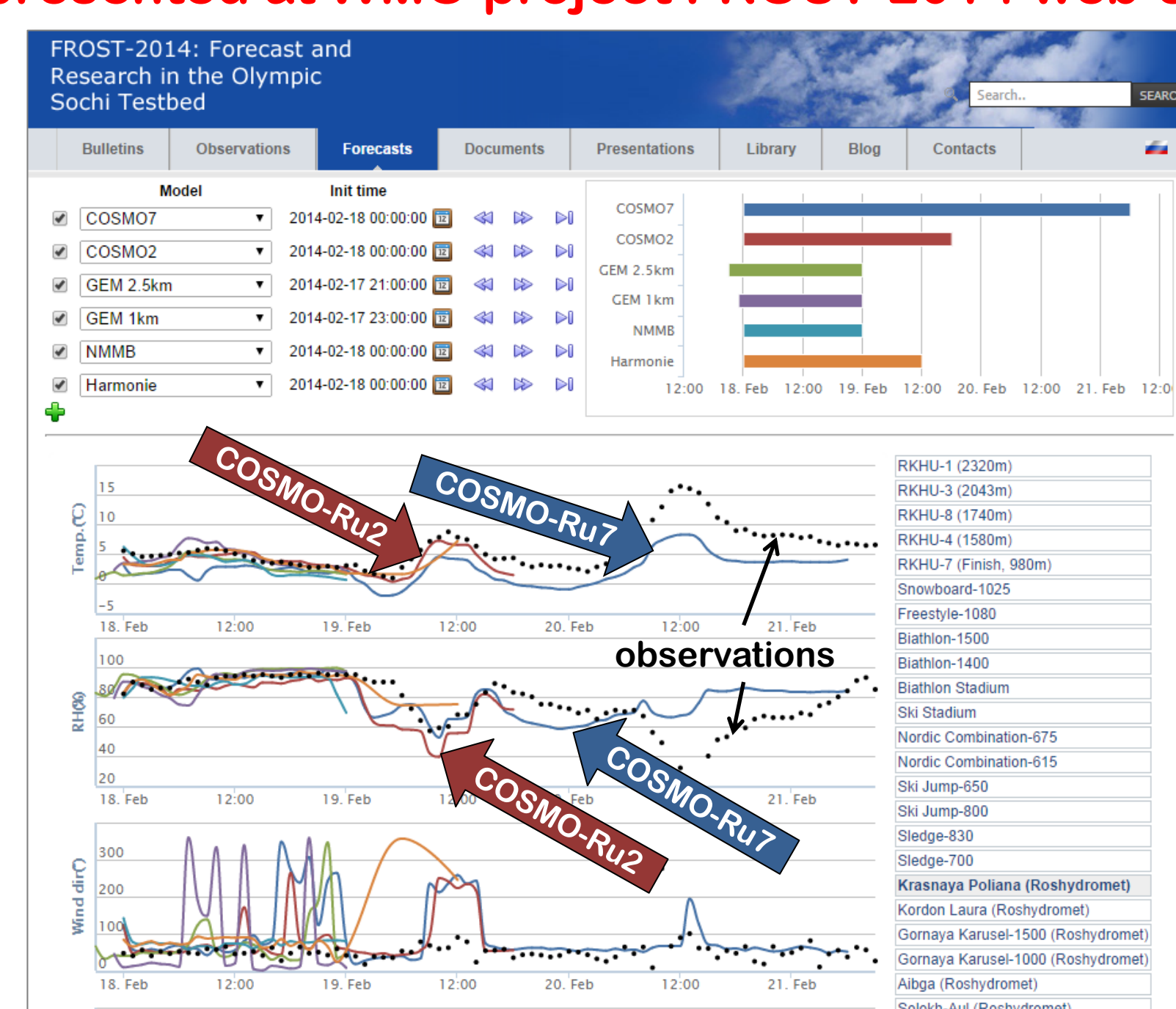
Hi-res ensemble forecasts: better pdfs, higher variability but poorer ensemble mean scores

All products (deterministic and ensemble forecasts) operationally delivered to Sochi forecasters in February-March 2014

by e-mails and submitted to the FROST web-site (frost2014.meteoinfo.ru).

During the Sochi Olympics / Paralympics COSMO model was the most popular (both deterministic and ensemble forecasts) !!!

Models forecasts for Sochi region were presented at WMO project FROST-2014 web-site



The results of the CORSO project are summarized in the presentation (<http://www.cosmo-model.org/content/tasks/achievements/default.htm>).