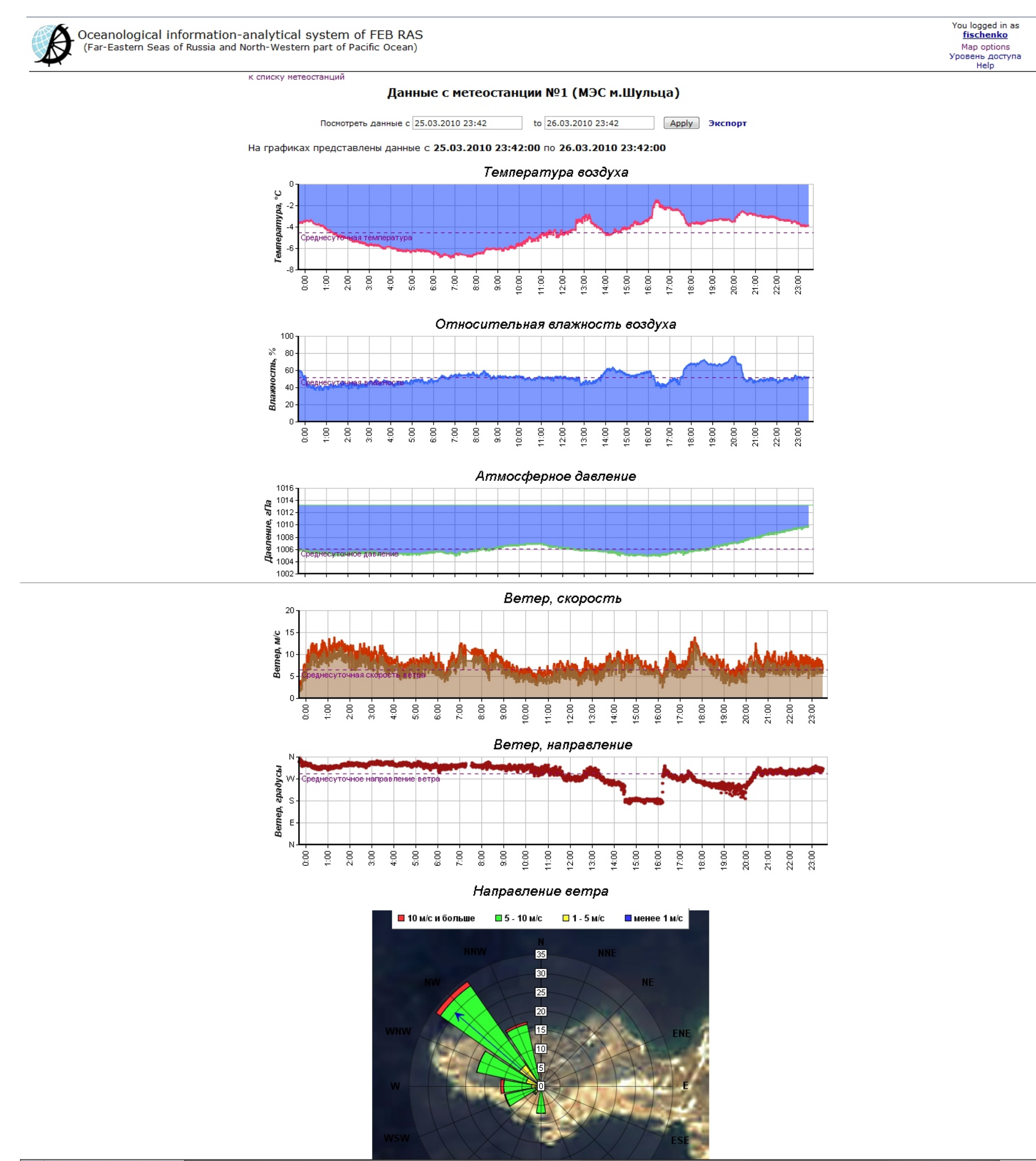
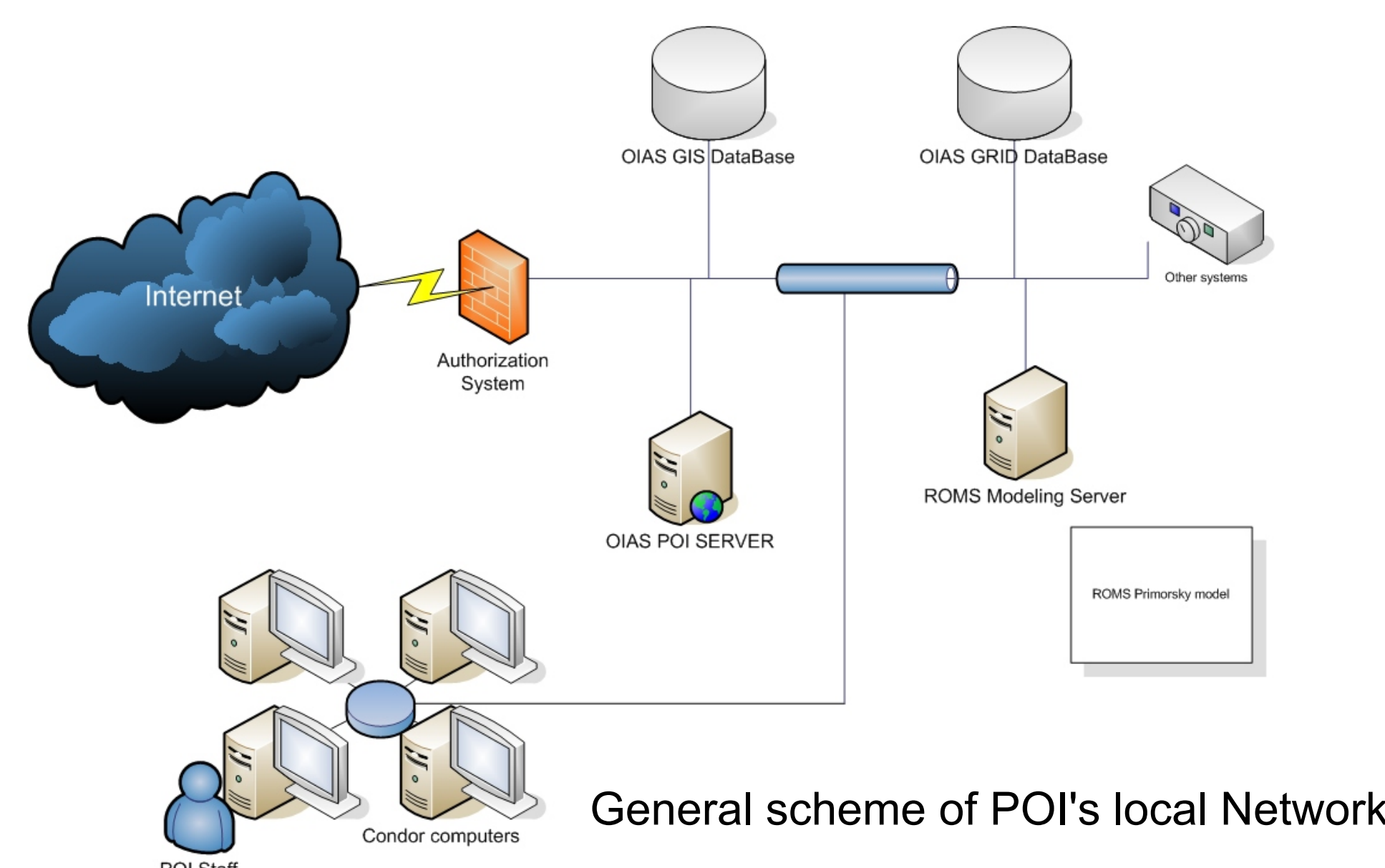
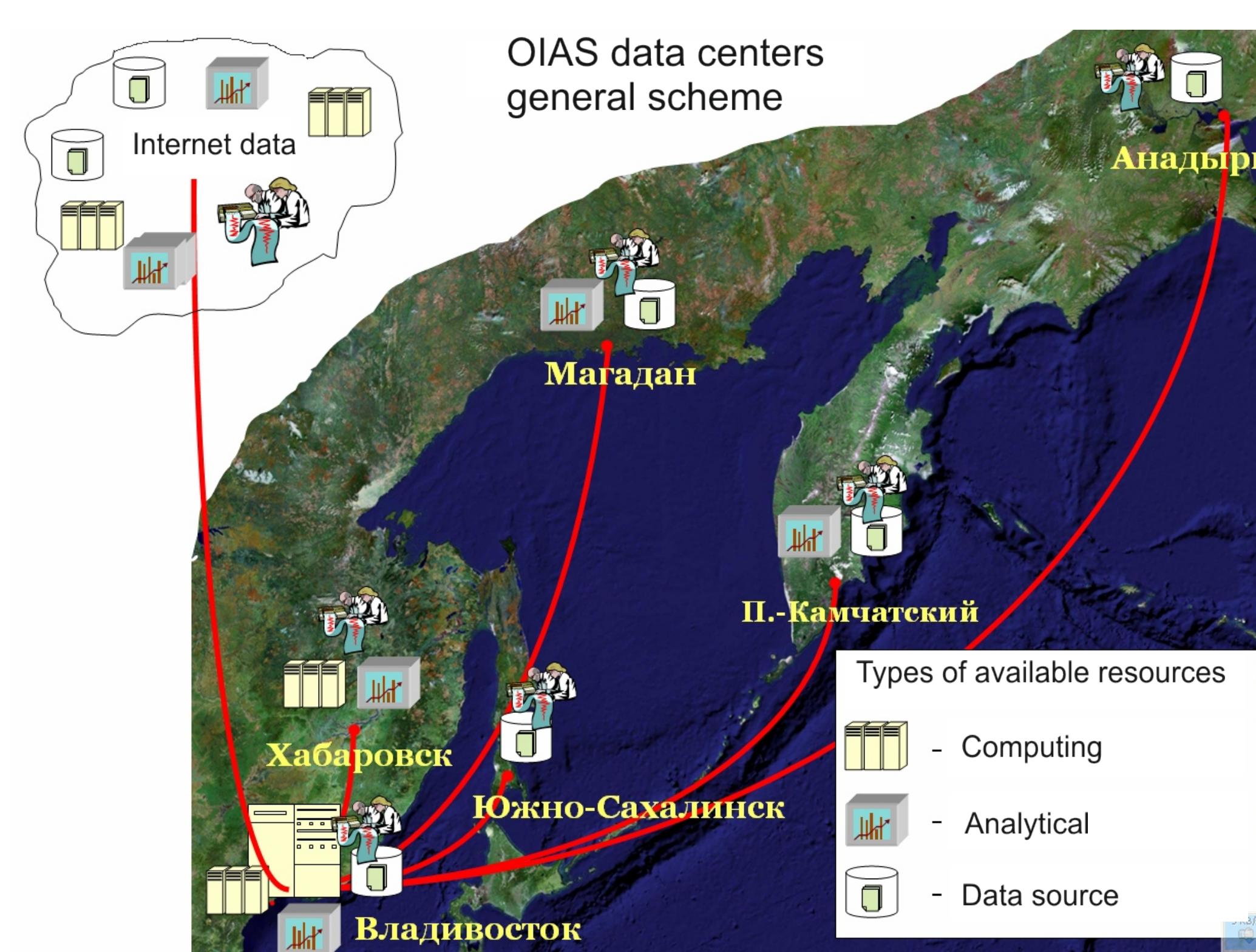
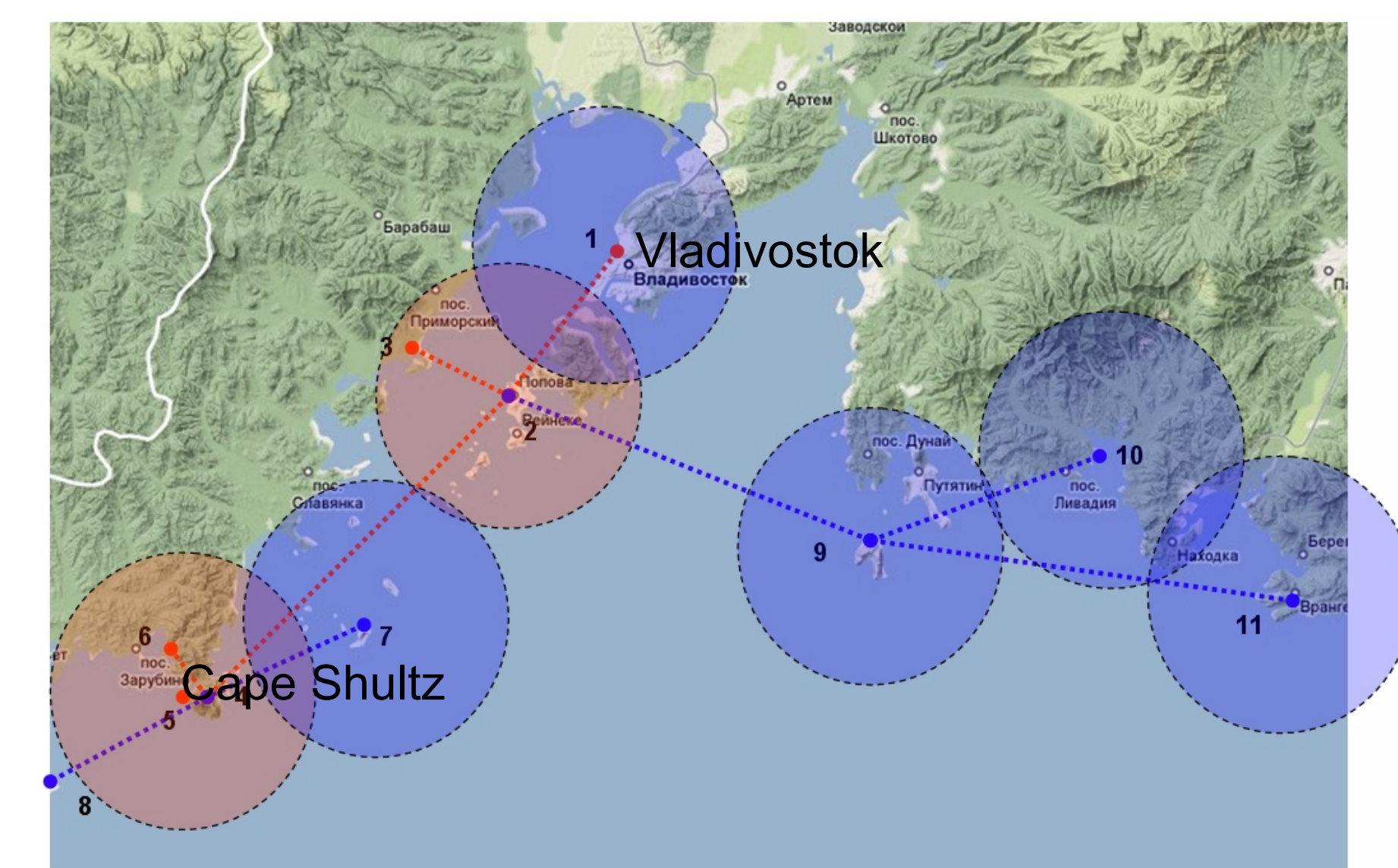




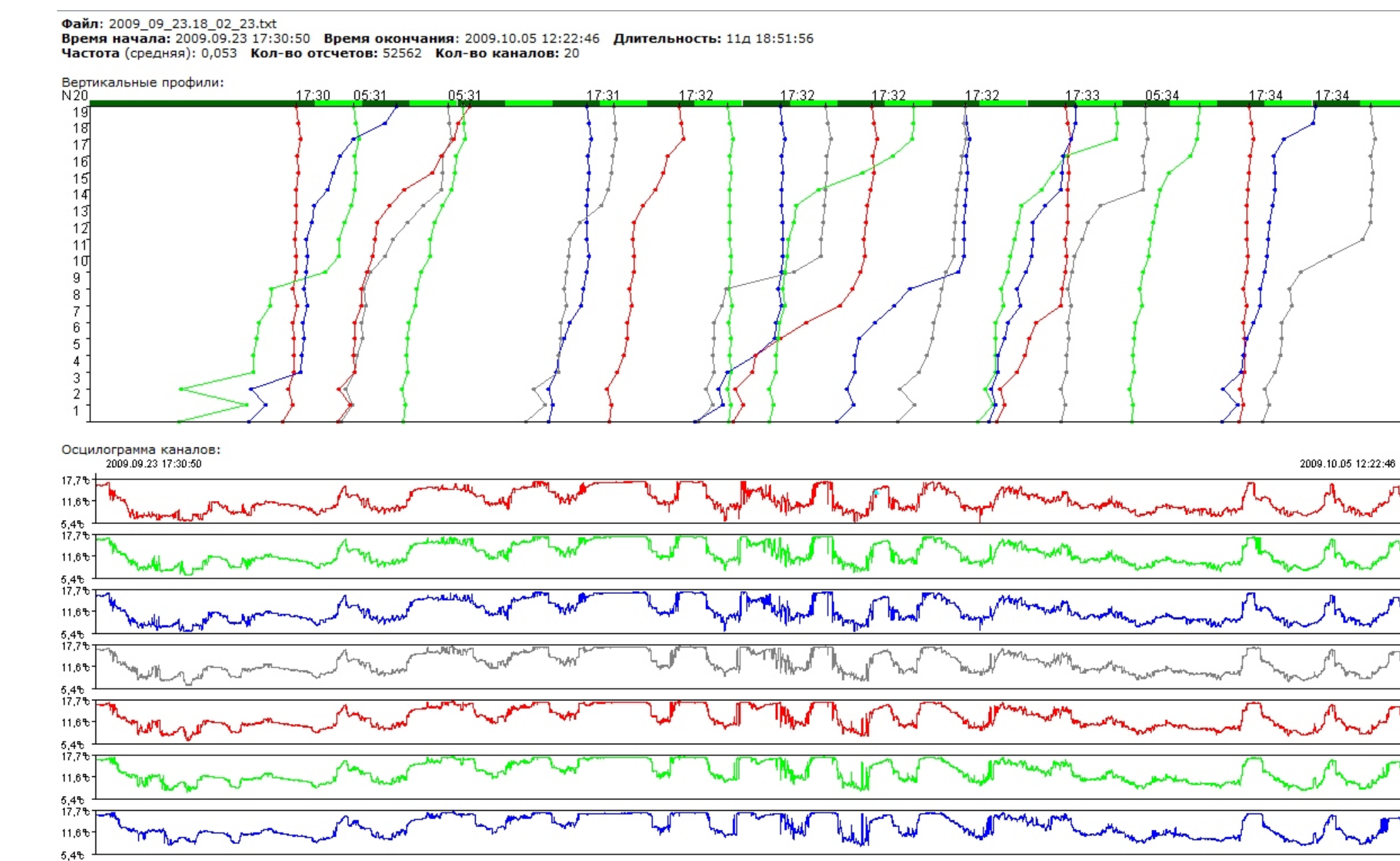
Integration ROMS in OIAS (Oceanological information-analytical system) of Pacific Oceanological Institute of FEBRAS
Igor S. Oleynikov, Vitaly K. Fischenko



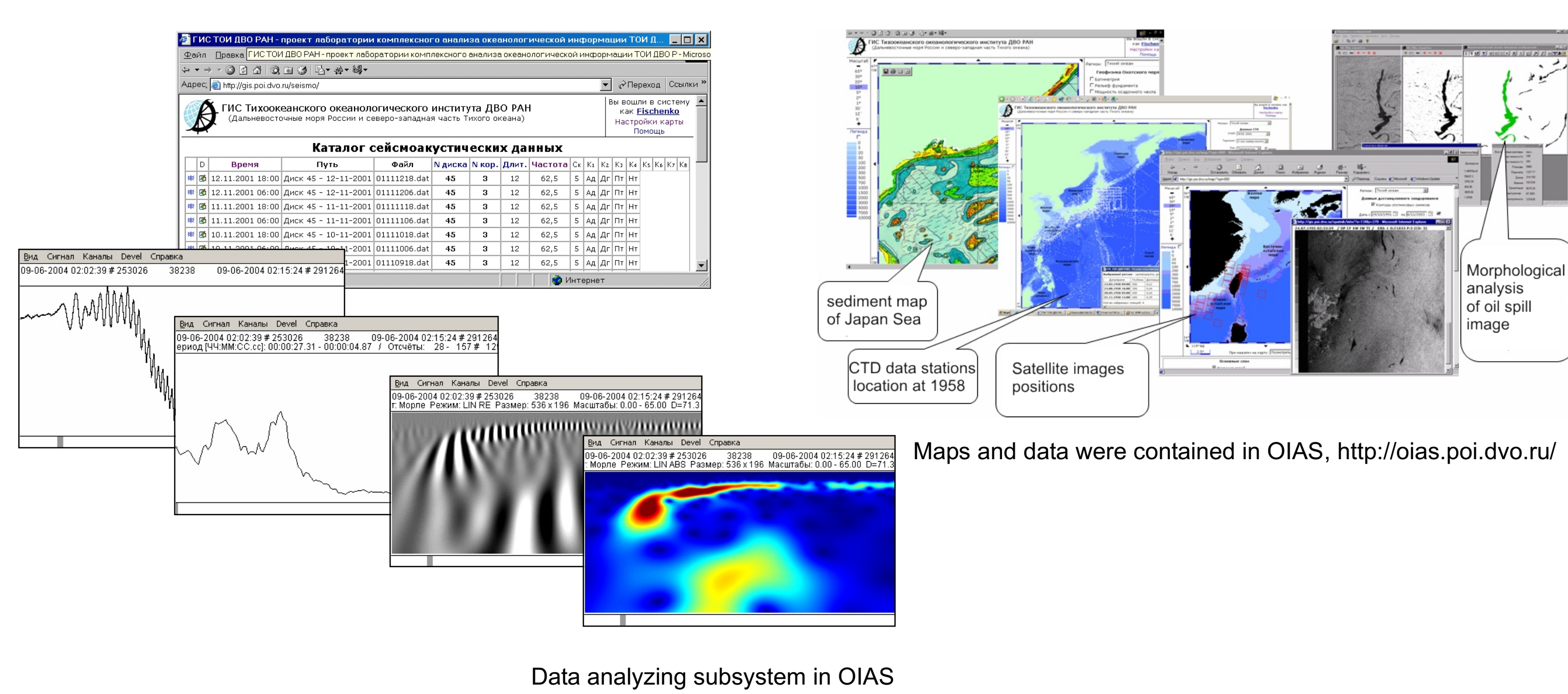
Sample of Meteo-Data from cape Shultz will be used as wind forcing



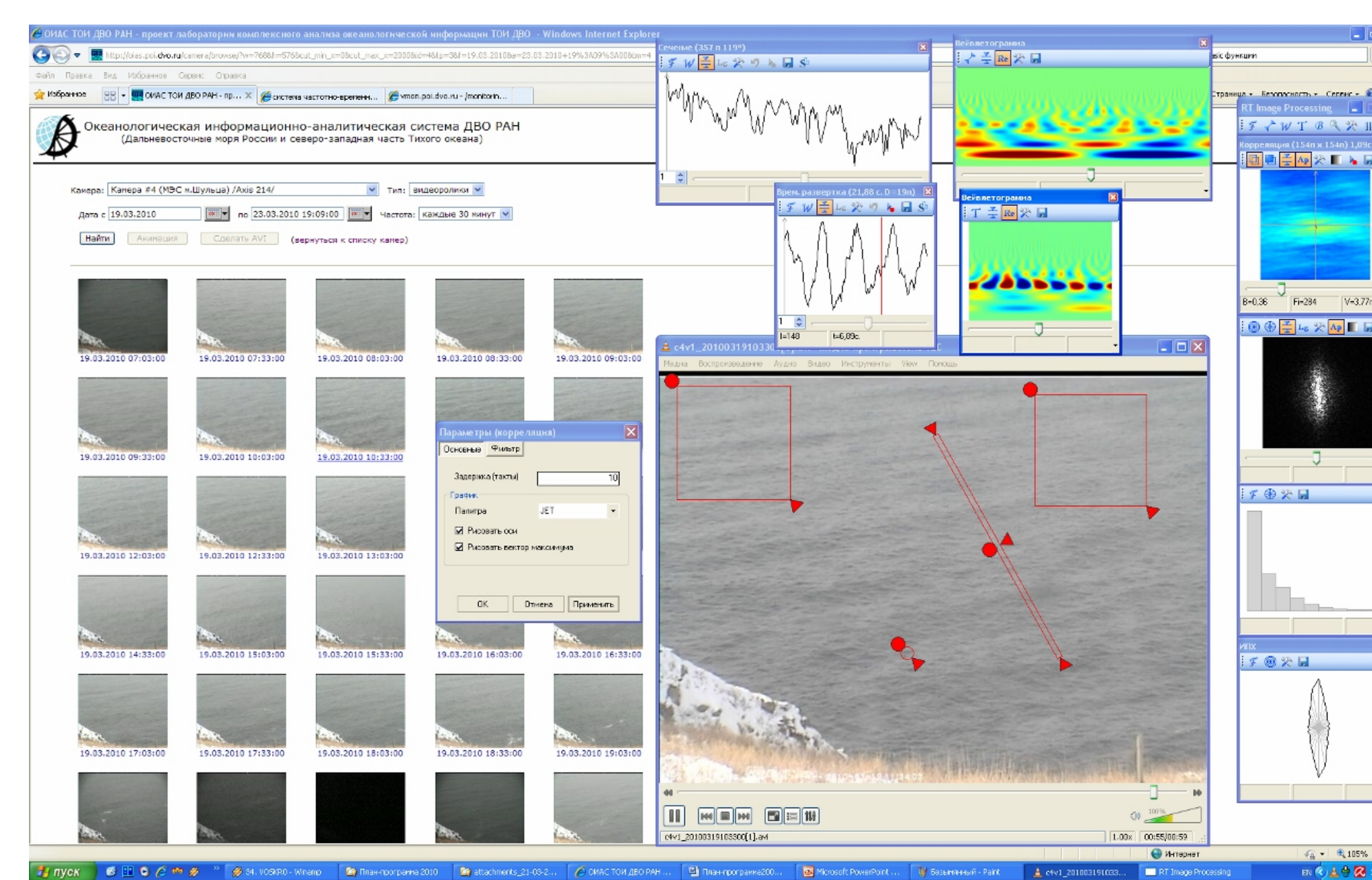
Map of stations getting data in the Peter the Great Bay, marked with red is used to model, blue - planned to use



Temperature-depth-time profiles since 09.23.2009 to 10.23.2009, cape Shultz



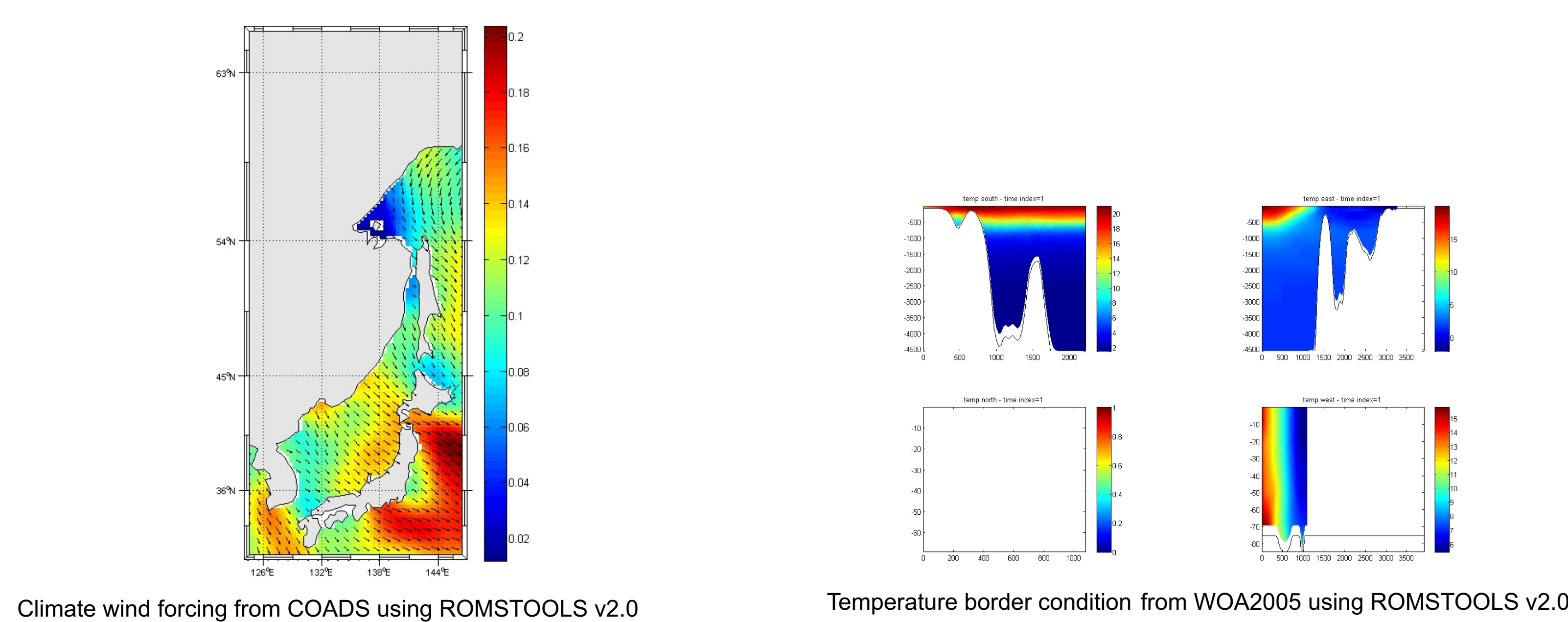
Data analyzing subsystem in OIAS



Analysis of the forces of wind waves on video, cape Shultz, 03.19.2010

- Japan Sea ROMS model characteristics
 - Resolution 32 km per pixel in East-West direction, 23-29 km per pixel in North-South direction. Except 3.29 km x 3.29 km on Peter the Great Bay tidal experiment
 - Etopo5 bathymetry
 - Climate wind forcing from our institute data (presented above) and from COADS data (presented below): experiment 1
 - Temperature and Salinity data interpolate from our local data and from World Ocean Atlas: experiment 2
 - Tides from OIAS Database : experiment 3

Initial conditions for experiment 1, and temperature also for experiment 2



Climate wind forcing from COADS using ROMSTOOLS v2.0

Temperature border condition from WOA2005 using ROMSTOOLS v2.0

Results of experiment 2

By now we have already done three experiments in ROMS. First one and second experiments are climate modeling in Japan Sea, including Nevelskoy strait, La Perouse strait, Korea and Tsushima straits.

Third experiment is tidal modeling, using our local data from stations (please see above on poster)

The results of our first experiment (leftward) are reflected in January surface wind current map. These currents are caused by monsoons blowing from the north-west to south-east in the winter time and fluxes in straits. Modeling process was carried out without the ice.

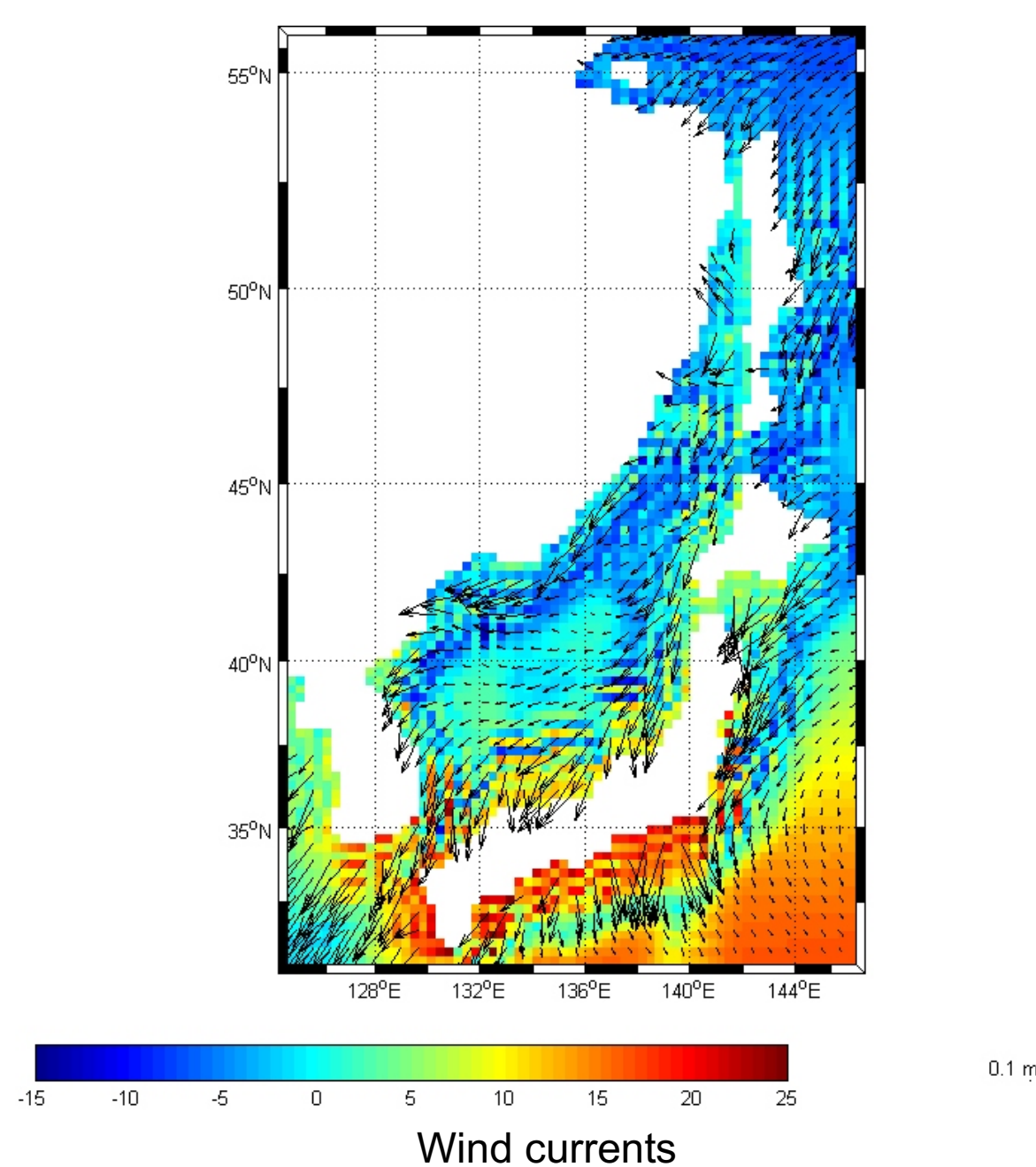
Second experiment was modeling of thermohaline currents in Japan Sea. The results are presented rightward and consistent with data on currents from Russian Hydrometeorology center.

Third experiment is the tidal modeling with higher resolution in Peter the Great Bay (results downward).

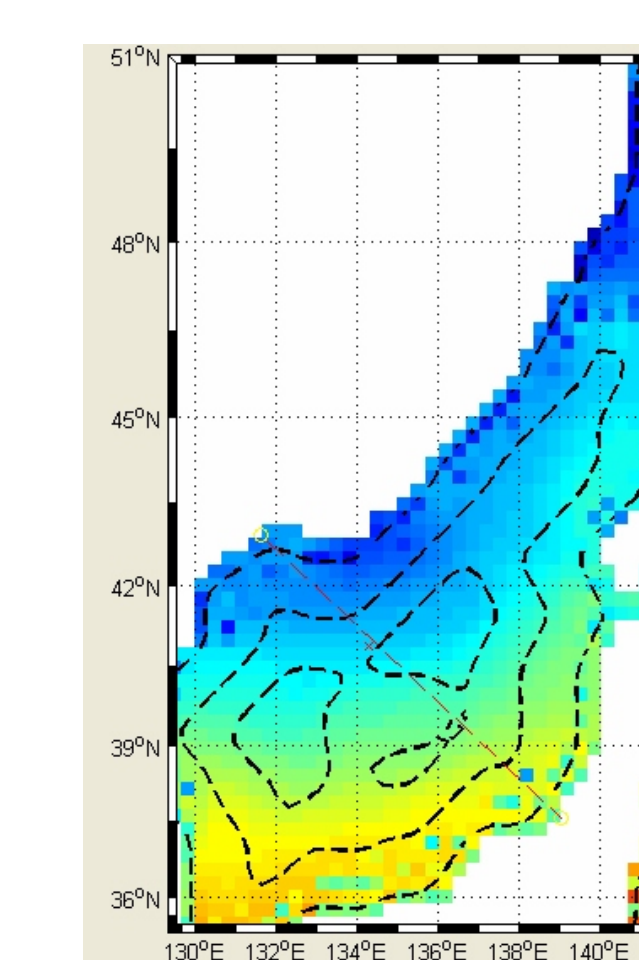
Questions to ROMS developers:

- 1) Is ROMS good solution for modeling in OIAS?
- 2) Is it possible to run ROMS in real time for Peter the Great Bay (80 x 80 km)?
- 3) Which Sea-Ice model should we use in conjunction with Roms to account ice-standing process in winter?
- 4) Can ROMS sediment model works on the long time intervals, such as centuries?
- 5) Can ROMS work correctly in Nevelskoy strait with the maximum depth of 10 meters?
- 6) How can we use satellite data in the ROMS?

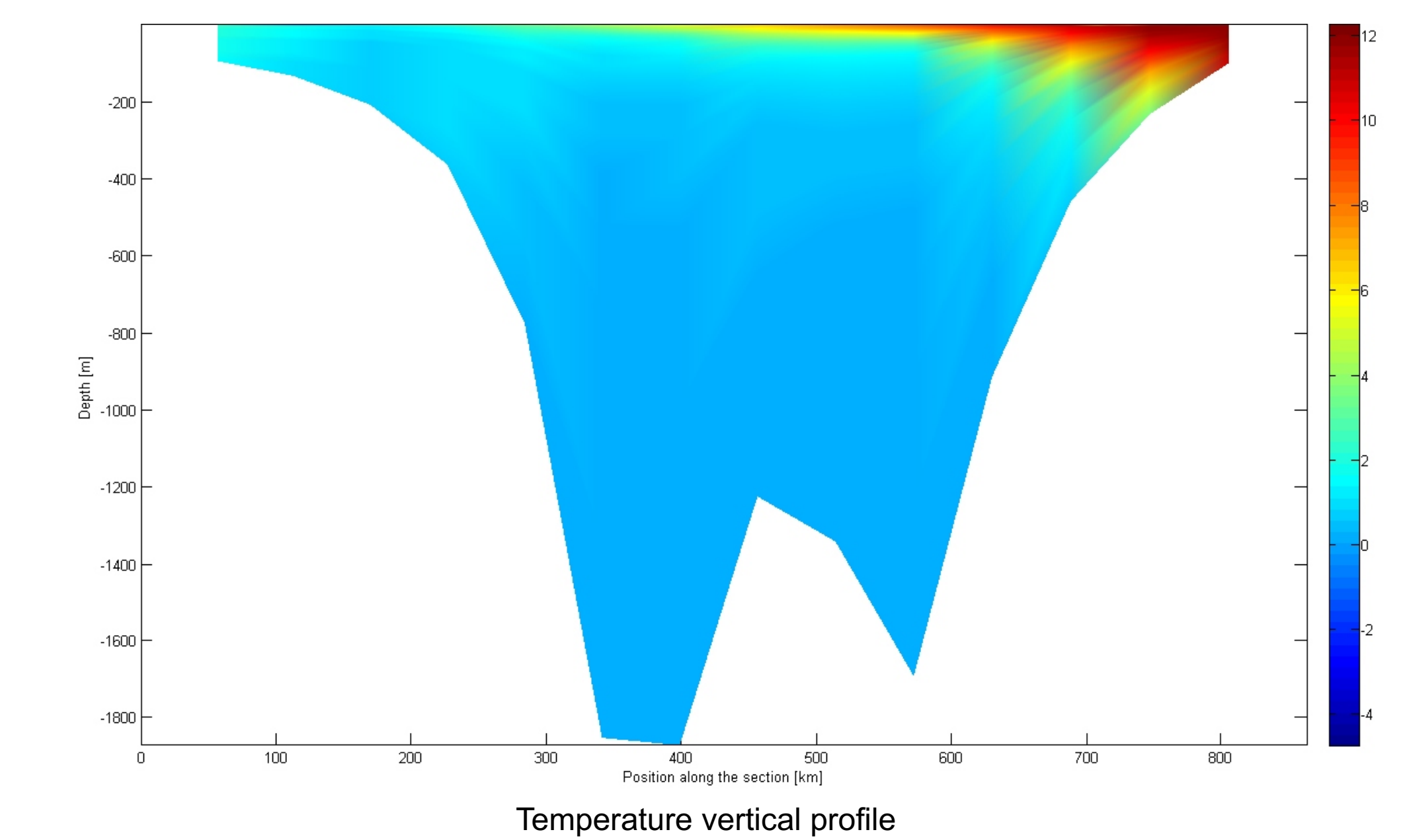
Result of experiment 1



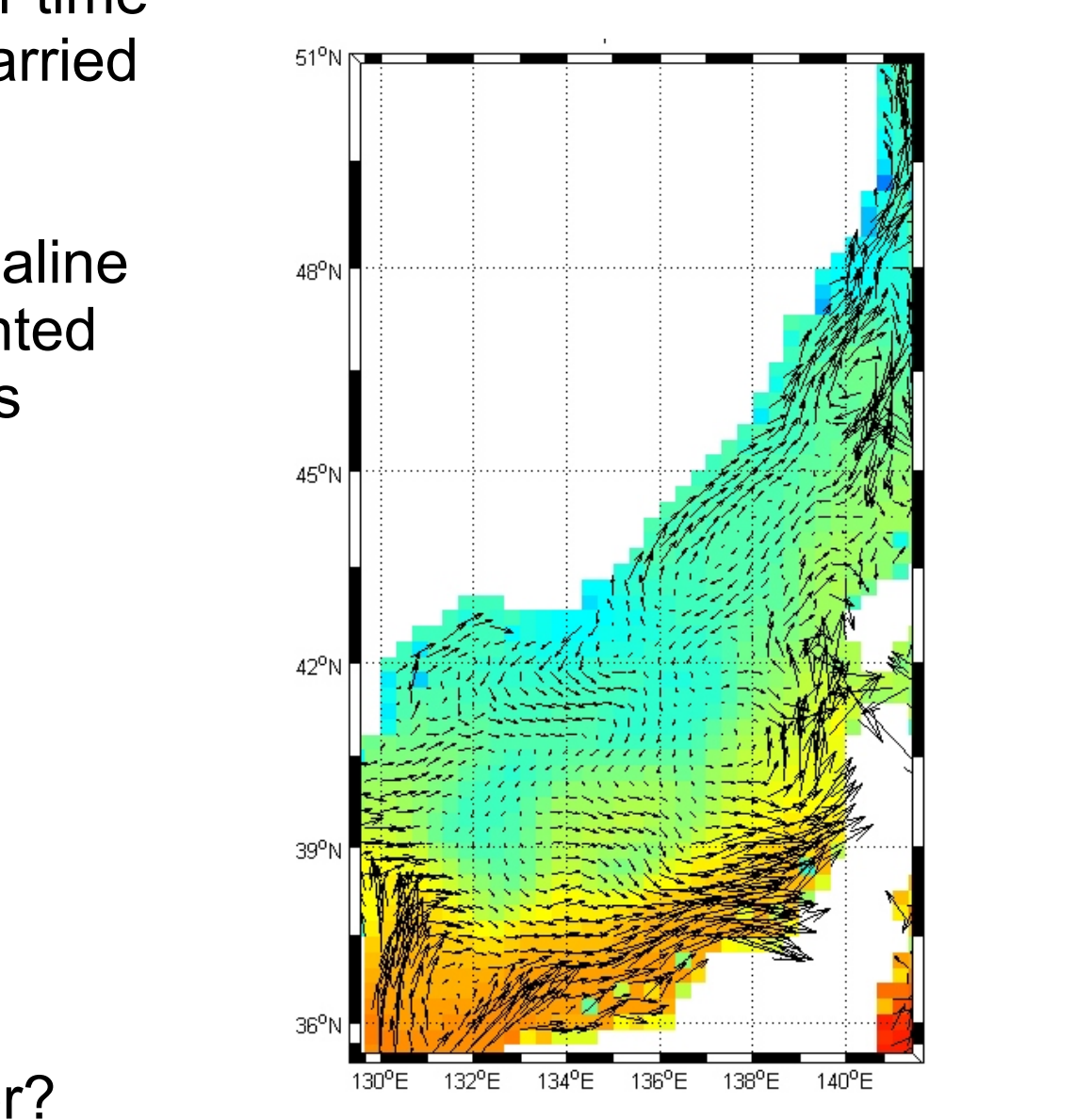
0.1 m s⁻¹



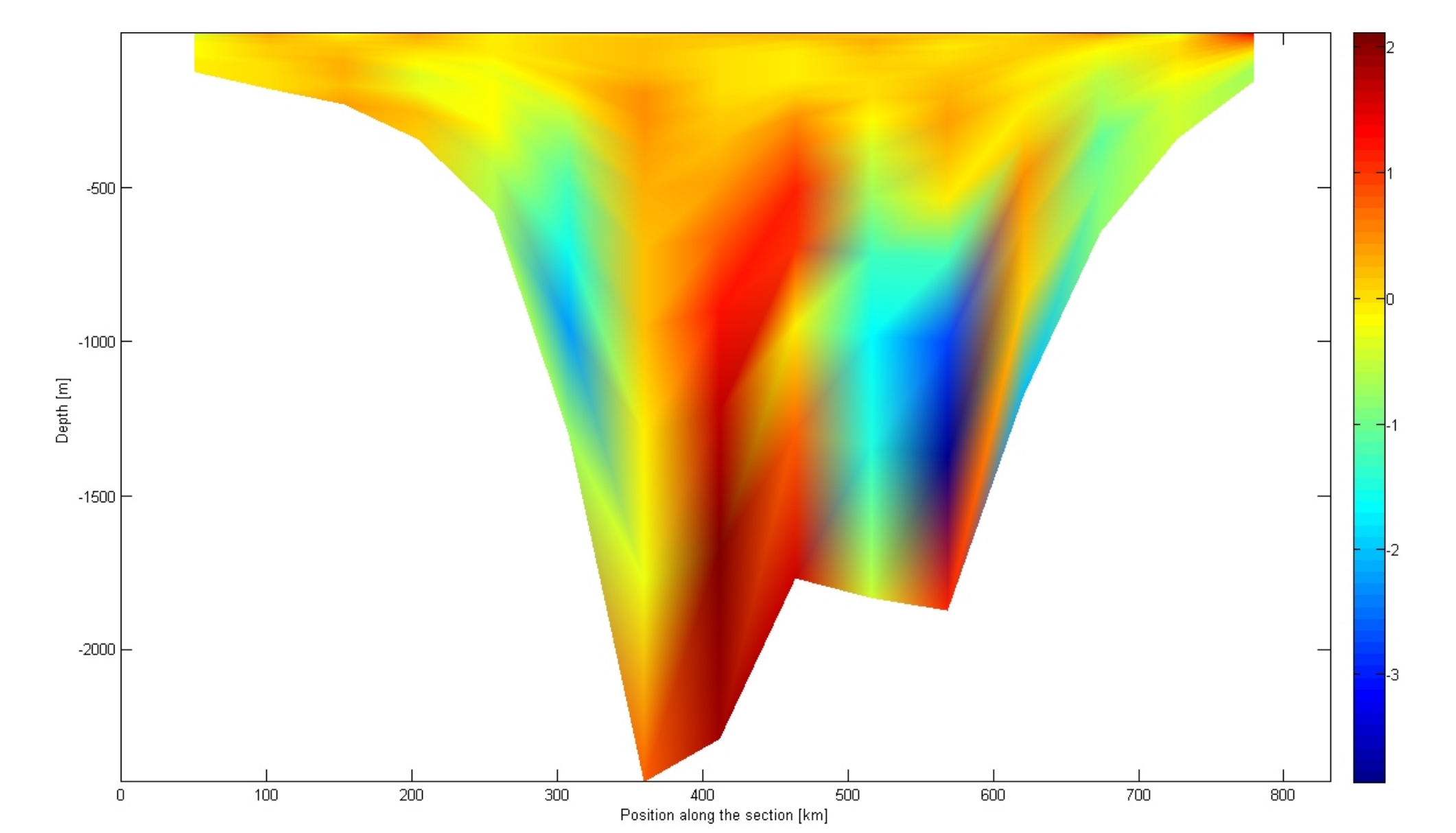
Cut position of vertical profiles



Temperature vertical profile



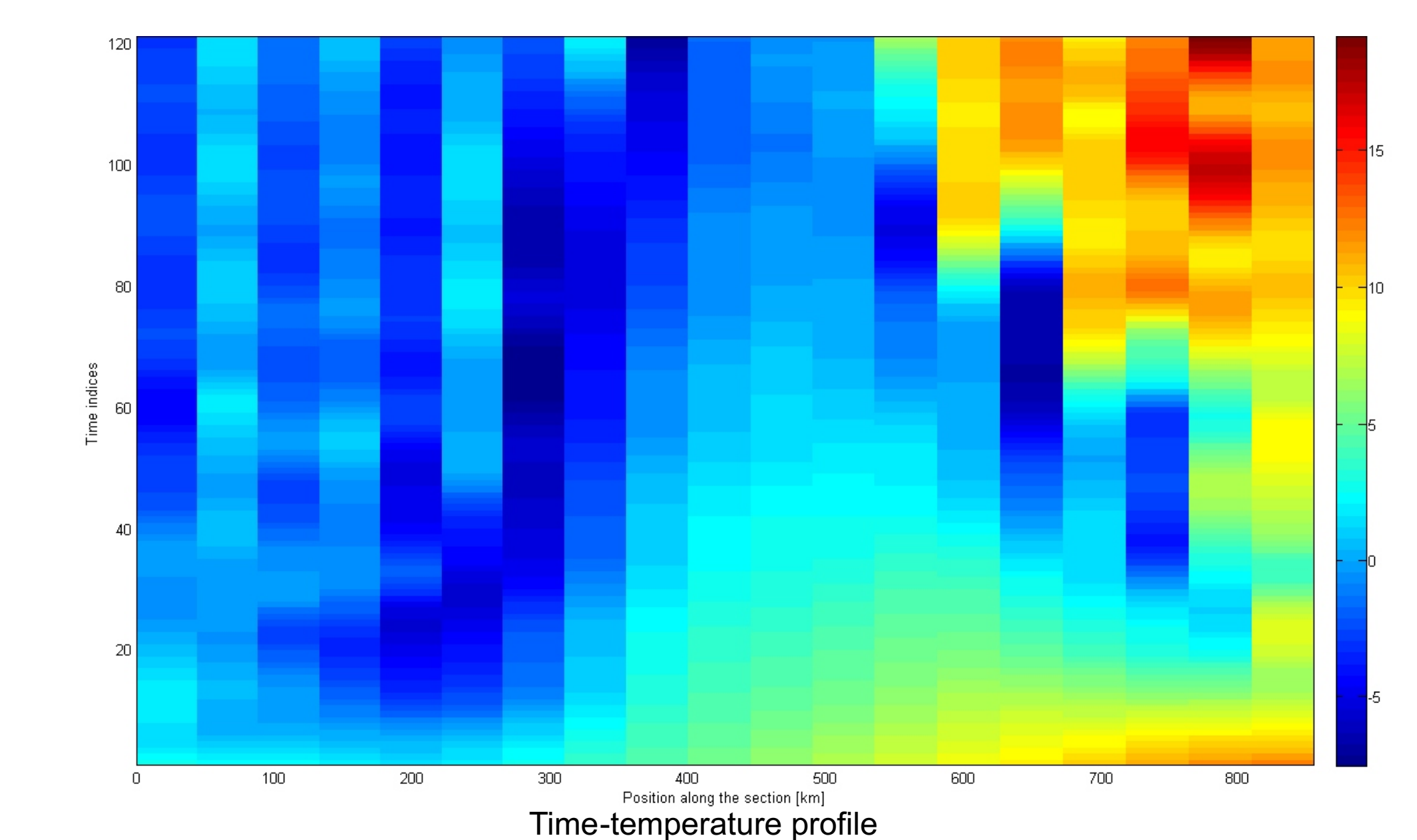
Thermohaline currents obtained using ROMS



Currents vertical velocity profile

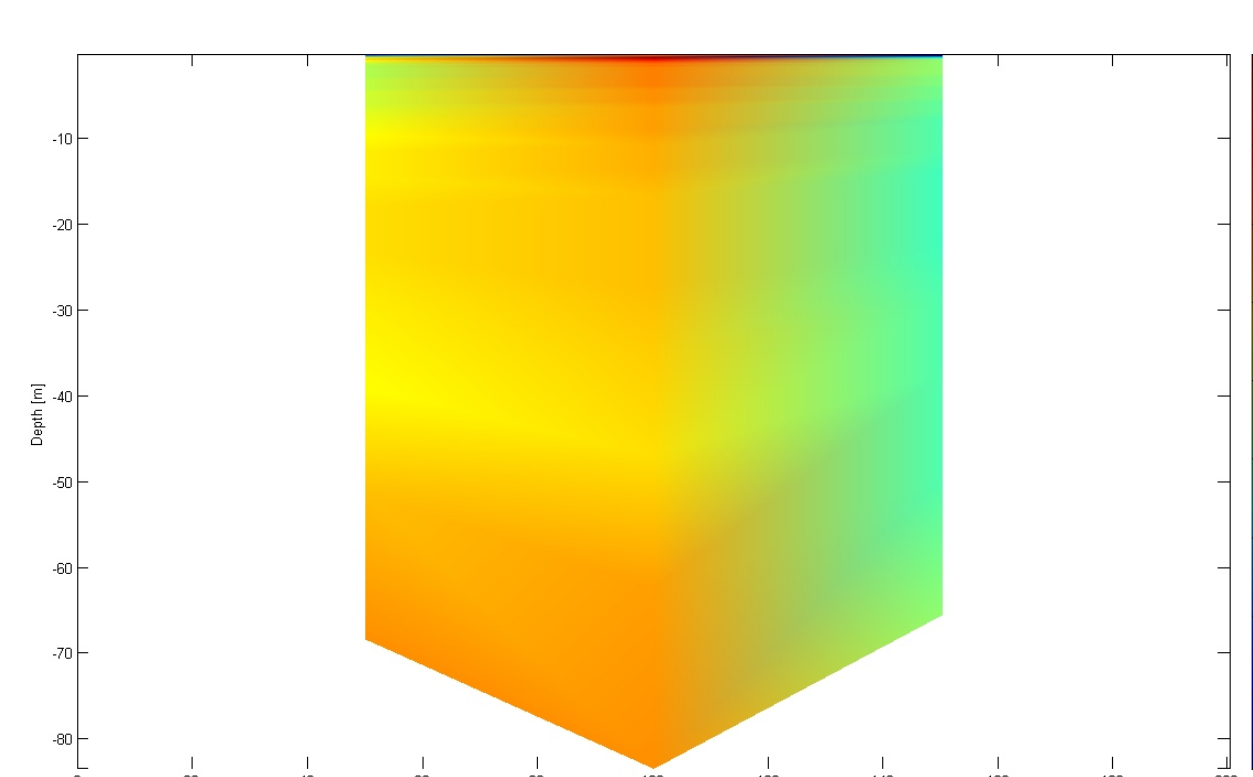
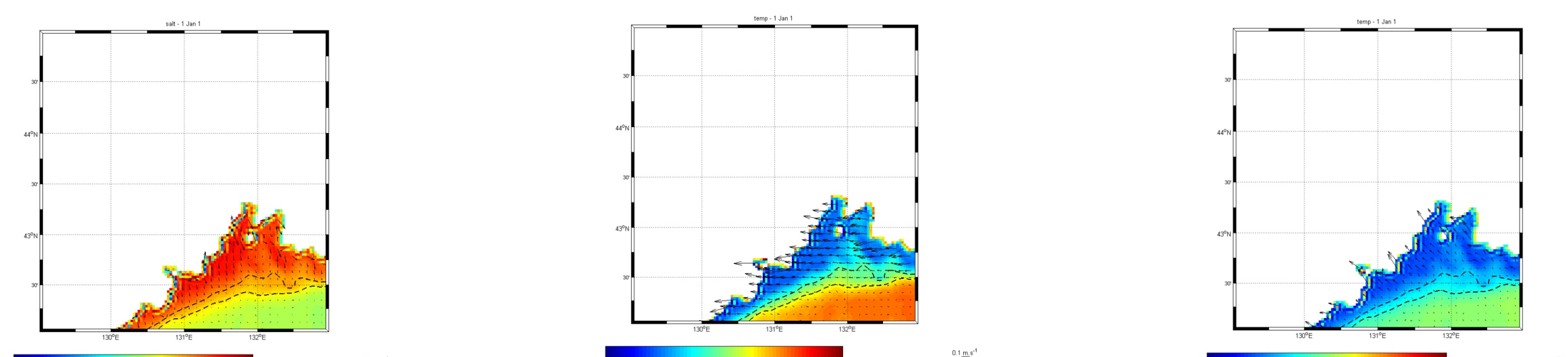


General scheme of currents in Japan Sea providing Russian Hydrometeorology center

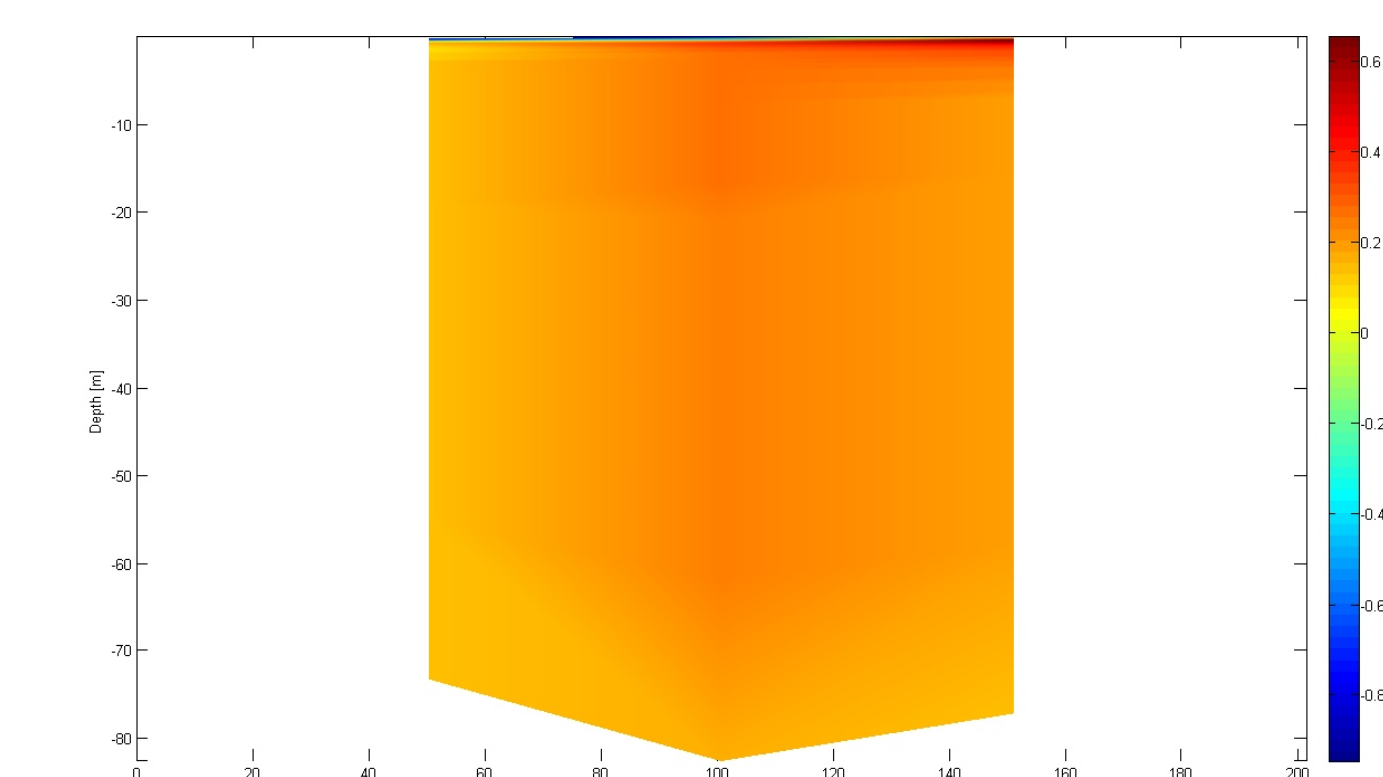


Time-temperature profile

Results of Tidal experiment in peter the Great Bay (Experiment 3)



Climate current velocity in Laperuza strait



Climate current velocity in Korea strait