ANNUAL REPORT, 2008

Russian State Hydrometeorological University

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North-West Administration for Hydrometeorology and Environmental Monitoring of Roshydromet, St.Petersburg

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Observations

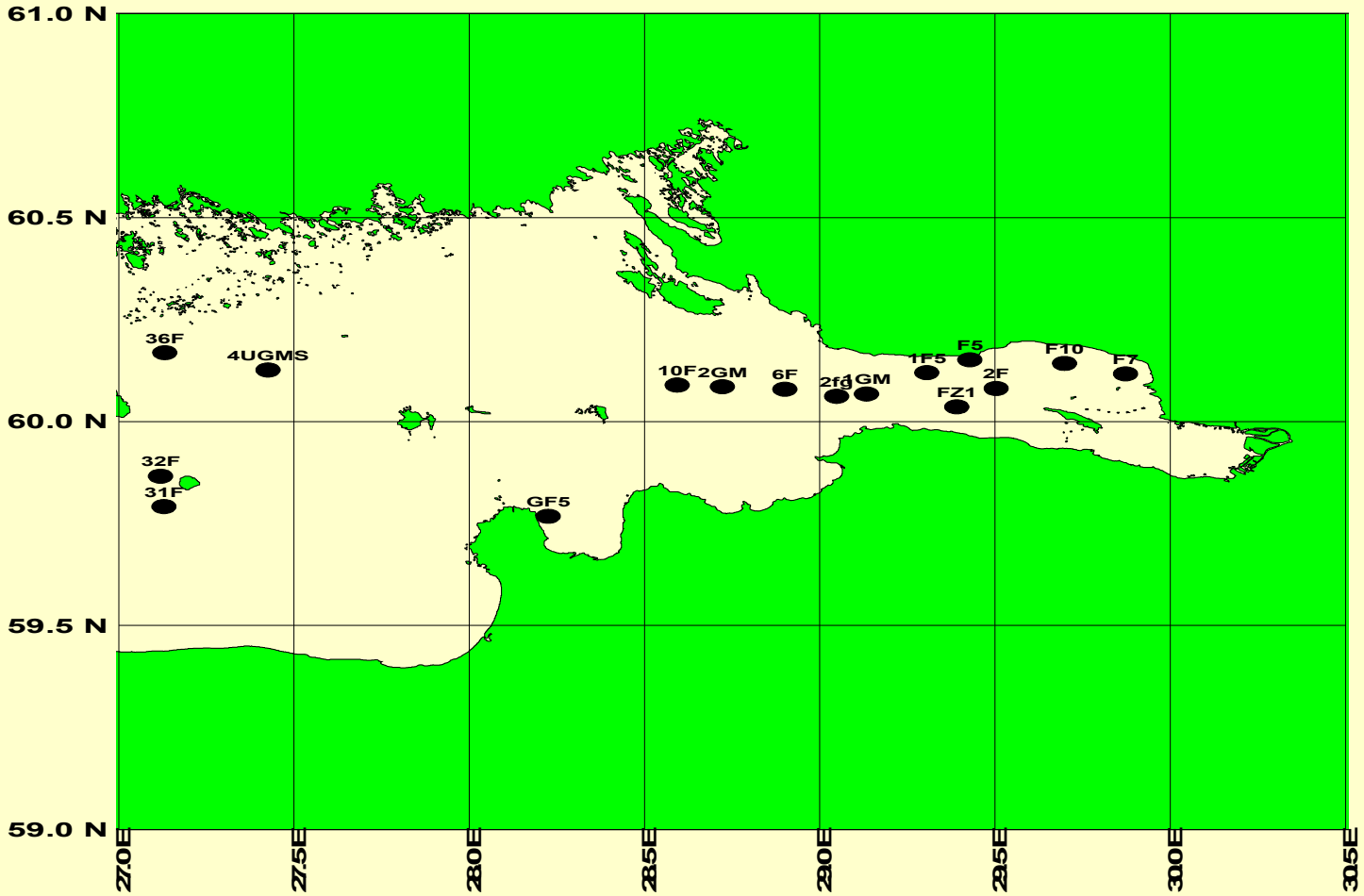
- Observations in August and October, 2008
- Number of stations**: 28**

Areas: Neva bay, Vyborg Bay, Eastern Gulf of Finland (pollution of the water and sediment, satellite monitoring)

Parameters measured:

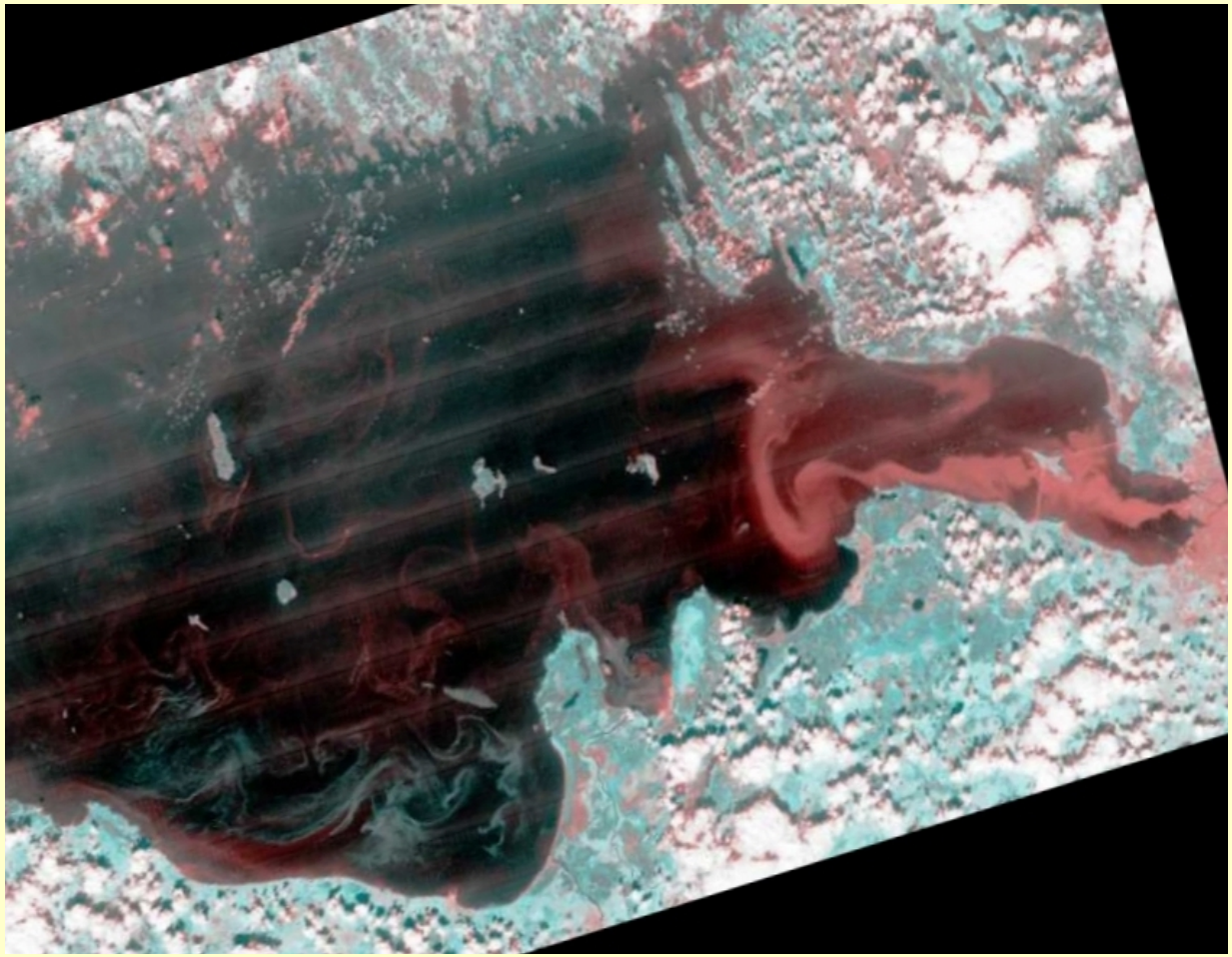
- Hydrophysical: temperature, salinity
- Hydrochemical: pH, alkalinity, dissolved oxygen content, nutrient concentrations (mineral and total phosphorus and nitrogen, silicates), BOD5.
- Hydrobiological: phytoplankton number and biomass, primary production, chlorophyll “a”, suspended organic matter, Secchi depth.

Monitoring stations in August, 2008 in the Eastern part of the Gulf of Finland



Two anchored buoys are planned to be installed in the Vyborg Bay and Luga Bay

Eastern part of the Gulf of Finland, MODIS/Terra image, 31.07.2008



Dissemination

- **US-EU-Baltic 2008 International Symposium , May 2008, Tallinn**

  T.E.Eremina, V.A.Ryabchenko, I.A.Neelov, A. Yu. Dvornikov, L.N. Karlin “Development of the Complex of Coordinated Models as a Basis for Operational Forecasting System for the Eastern Part of the Gulf of Finland”

- **ECOOP Workshop, Bologna, December, 2008**

  T.Eremina, R.Vankevich

Modelling

Present status

The complex of ensemble models is developed as a basis for operational hydrodynamic forecast of the state of the Gulf of Finland.

The complex includes the main models: the atmospheric model HIRLAM, HIROMB (boundary conditions), the Gulf of Finland model (GOFM).

Modelling

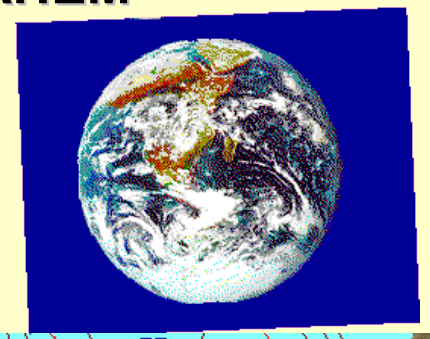
- Starting from June 2008 RSHU automatically downloads and archives BSHcmod data in operational mode (provided by DMI). For this purpose a Boundary Block (BB) of the operational system was developed
- Assimilation of sea level and vertical temperature and salinity profiles performed with 3-D variation assimilation scheme. 3-d VAR code is embedded in operational loop. Sea surface temperature originated from satellite data is assimilated by relaxation scheme (ECOOP)

Modelling

In parallel with the assimilation procedure development it is planned during 2009 to start publishing of operational model results on the Web in test mode.

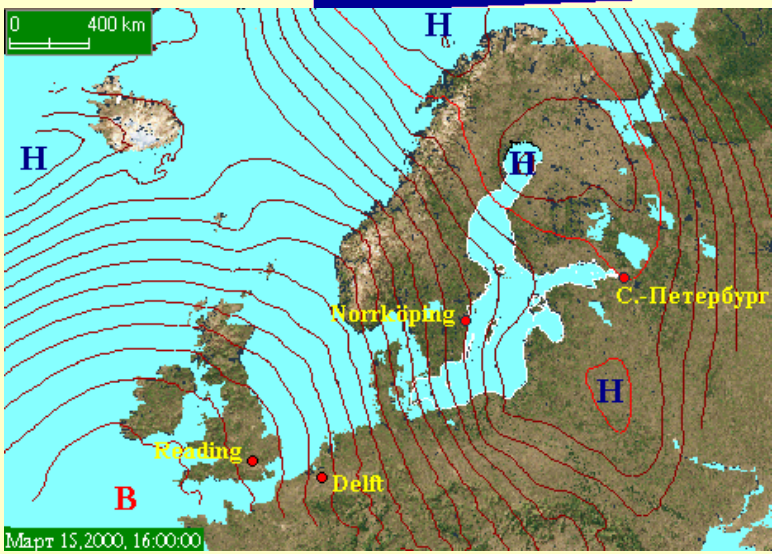
Fully automated Flood Forecasting System was developed in frames of Russian-Netherlands project. The system works at North-West Administration for Hydrometeorology and Environmental Monitoring of Roshydromet, St.Petersburg (NWAHEM) since December 1999

Data flows in the Flood Forecasting System at NWAHEM

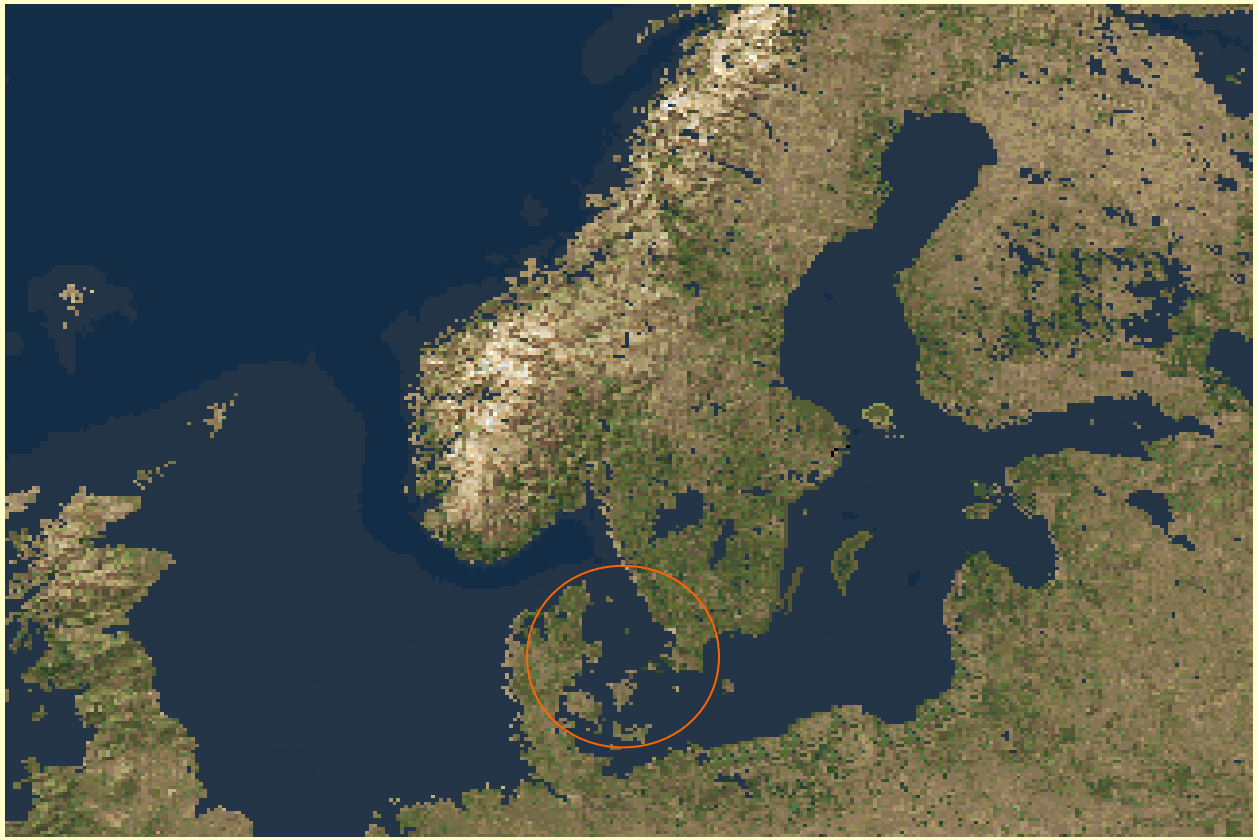


1.European Centre for Medium Range Weather Forecasting in Reading (UK) provides Global weather forecast

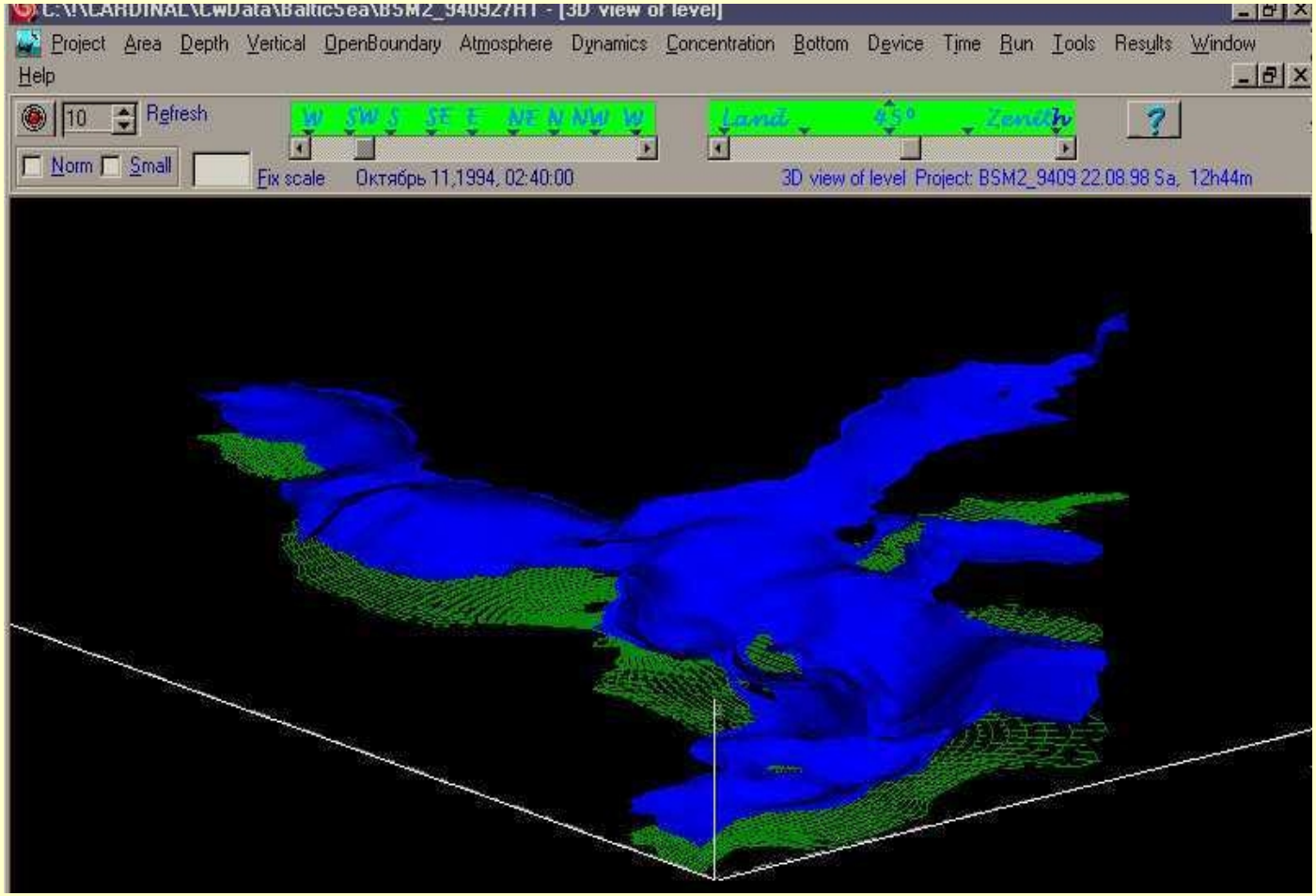
2. Swedish Meteorological and Hydrological Institute in Norrkoping provides HIRLAM-Regional weather forecast



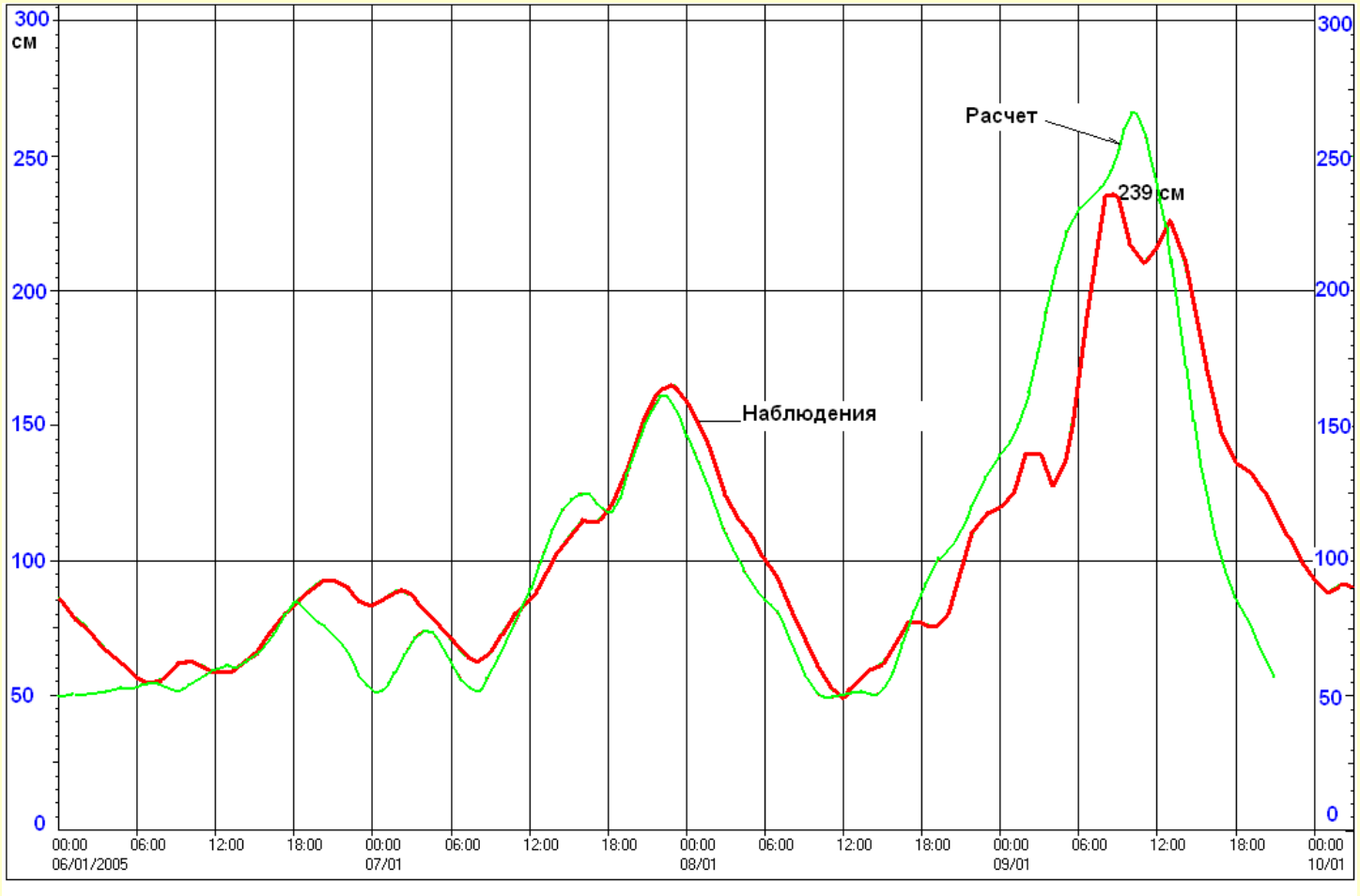
Federal Agency for Navigation and Hydrography (BSH) in Hamburg, Germany - BSHcmod gives forecasts of water exchange between the Baltic and the North Seas through the Danish Straits



North-West Administration for Hydrometeorology and Environmental Monitoring of Roshydromet, St.Petersburg works out forecasts of water levels in St.Petersburg with CARDINAL-BSM6 modelling system www.webcenter.ru/~klevanny



Forecast of water level time history in St.Petersburg during the flood in January, 9, 2005 (staring from 6 January). Green –simulations, red – observations



Relevant national projects

Russian State Hydrometeorological University

Grant of the Russian Foundation for Basic Research

"Development of the Complex of Coordinated Models as a Basis for Hydrodynamic Forecast for the Gulf of Finland of the Baltic Sea" (2007-2009)

Relevant International projects

Russian State Hydrometeorological University

European COastal-shelf sea OPerational observing and forecasting system **(ECOOP)**.

Participation in WP11 – Develop capacity in non EU countries to use the existing operational oceanographic products from both observing systems and forecasting models (2007-2010)

Relevant International projects

North-West Administration for Hydrometeorology and Environmental Monitoring of Roshydromet, St.Petersburg

Harmonization of methods for monitoring, modelling and assessment of nutrient loads from land to the Baltic sea and effects of counter measures – **HarmoBalt** (February 2008 – March 2009)

Joint project with the Swedish University of Agricultural Sciences


Thank you for your attention!