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Poster

Topics: Remote Sensing of marginal Seas and coastal zone

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Monitoring of the Black Sea ecosystem evolution on the basis of remote sensing data assimilation in the model

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The work demonstrates some results of the Black Sea ecosystem dynamics, based on numerical simulations with assimilation of satellite data. The Black Sea ecosystem model is a coupled, eddy-resolving 3D basin-scale circulation and biogeochemical model with 5 km horizontal grid size. The circulation model includes 35 calculation levels, which thicken toward the sea surface. It assimilates satellite data on the sea-surface temperature and sea level anomalies. The circulation model provides the input to the biogeochemical model.

The biogeochemical model extends from the sea surface to 200m depth with non-uniformly spaced 18 z-levels. It includes 15 state variables. Nitrogen is considered to be the only limiting factor for phytoplankton growth. The model assimilates satellite measurements, which are the maps of chlorophyll concentration fields reconstructed based on remote sensing data from SeaWiFS (satellite OrbView) and MODIS (satellites Aqua and Terra) using the regional optical model of the Black Sea. Assimilation technique is based on optimal interpolation and nudging. The model and assimilated satellite data were used to fulfill reanalysis of the Black Sea ecosystem evolution during period from 1998 till 2012. Quality of the reanalysis was assessed using the Black Sea Oceanographic Database, which contains the direct measurements of chlorophyll, nitrates and dissolved oxygen concentrations in seawater. The assessment showed that the reanalysis fields satisfactorily reproduce seasonal variability and vertical distribution of chlorophyll, nitrate and dissolved oxygen concentrations in deep part of the Black Sea and on north-western shelf as well.

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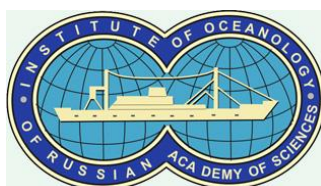


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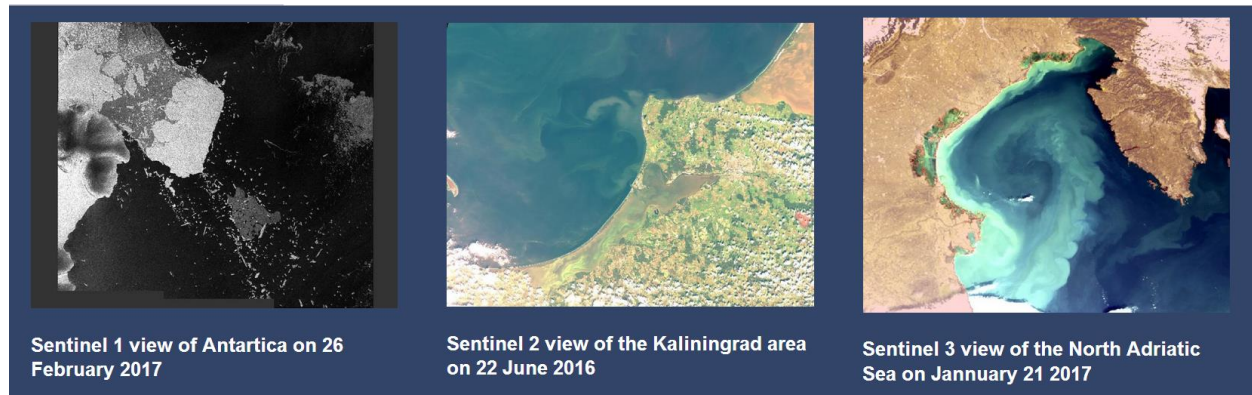
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Workshop information

The 8th workshop will focus on the contribution of the remote sensing to the monitoring of the terrestrial and marine ecosystem status and its variability in the coastal zone of the European Seas.

The program includes:

- Sentinels Data Exploitation to monitor the status of the coastal zone environment
- Remote Sensing of marginal Seas and coastal zone
- Remote Sensing of inland waters
- Land-Sea Interaction
- New technologies and *in situ* measurements
- Impact of varying physical forcing on morphodynamics and ecosystems
- Role of Coastal Zone Management in adapting to climate change
- Optical properties of CDOM and aquatic microorganisms



We thank our sponsor for supporting the workshop



8th EARSeL Workshop on Remote Sensing of the Coastal Zone will be held in the premises of the Museum of the World Ocean in Kaliningrad, Russia, on August 31st – September 2nd 2017.



The **Museum of the World Ocean** is a centre for scientific research and is devoted to the history of exploration and development of the World Ocean. It includes the legendary scientific ships, naval and fishing vessels. The museum complex in Kaliningrad consists of the Main Building, Water Cube Pavilion, Museum depository and Exhibition “Depth”, containing underwater vessels and scientific instruments, an exposition of amazing seawater aquariums, collections of seashells and corals, geological and paleontological exhibits, as well as the biggest skeleton of a sperm whale in Russia. The history of exploration and development of the World Ocean is presented as well onboard the museum ships.

Nowadays The Planet Ocean, a new Museum complex devoted to the Nature and the ecologic issues of the World ocean is under construction. The geosystem approach is used in the museology concept. The museum is opened for the up-to-days research and exploration topics the participants of the conference are ready to share, as well as for the geological or unique paleontological samples to be donated. To find more information on museum, please, follow: <http://www.world-ocean.ru>