Federal Service of Russian Federation for Hydrometeorology and Monitoring of Natural Environment (ROSHYDROMET)

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Federal Information Service

The Unified State System of Information on the World Ocean (ESIMO)

http://www.esimo.ru
http://www.esimo.net
What is ESI MO

- improvement of the information and communication platform enabling interaction between marine information systems of the Russian Federation available in different Federal Government Agencies and the Russian Academy of Sciences;
- integration of resources available in federal, regional and other information systems, formation of the common information space in the field of maritime activities and its maintenance in an actual state;
- information and service support to fulfill functional and regional tasks of the National Marine Policy;
- contribution to the development of information systems in the field of maritime activities by providing technological infrastructure and ready-made components;
- interaction with global and regional information systems of other countries.
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Inter-Agency Commission

Roshydromet

ESIMO centres – system operators
Inter-agency data exchange

In the field of inter-agency data exchange the ESIMO serves as an integrator providing:

- access to data sources of marine systems included into the ESIMO and data unification in terms of formats and codes;
- delivery of required information from a various data sources according to criteria and schedule (event) to a given system;
- monitoring of data exchange.

Furthermore on the recipient system side information can be presented in the form of:

- set of standardized format data files;
- DBMS data base;
- geoservice to access spatial data.

Information & communication tools are currently in place providing interactions the marine systems of the National Emergency Management Center of the RF, the Federal Marine and River Transport Agency, the Russian Federal Fisheries Agency. These services open up considerable prospects since the costs of data exchange arrangements are limited to those of installation and setting of the ESIMO ready-made components.
Information resources

The ESIMO centres form and maintain resources of the system by registering data bases and software services available in marine agency-level systems and providing a regulated access to them with the use of information interaction tools. Today the ESIMO integrates about 200 data bases on more than 350 parameters of the marine environment and maritime activity. 30% of resources are updated at intervals ranging from several minutes to several days. Metadata play an important role describing data bases, observation platforms, ships and ports, and other objects of the system.

The ESIMO makes use of a common electronic map base of a various scales – from 1: 50 000 000 for Earth and global ocean to 1:500 000 for Russian territory and seas. The ESIMO Marine Atlas consists of about 6000 thematic layers for a various marine disciplines and processing levels, including climate, forecast and other layers. The more 150 geoservices have been published by GIS-servers of the central and regional ESIMO nodes. The operational geoservices and layers are updated automatically.
ESIMO applied services –
Assessment of situations in oceans and coastal areas

The service represents specified information (operational, climate, forecast, etc.) on the common electronic map and has interactive tools for its analysis.

Users can reset or create new information profiles, load additional layers from other nodes, remark emergency situations by markers.

It is possible to display indications showing the level of hazard and initiate informers on emergency conditions.

For example, a user sees a storm forecast on the interactive map and comparing this forecast with the location of the ships and ports takes an adequate decision. Also, the navigator can choose the most convenient and safe route using the storm and ice forecast layers on this map.

This service is used to operationally assess the situations in the oceans and coastal areas.
ESIMO applied services – Interactive modeling

The GIS-analysis service makes it possible to initiate remote CMCs to modeling of various processes, represent the model output on the interactive map in real time and make an analysis.

For example, if there is information on a wreck of an oil-tanker or an accident at an oil rig it is possible to use “the express analysis of accidental oil spills” service. A user should just input information on the spill (point/area, oil type and volume, accident duration, etc.) and service will invoke Oil Spill CMC for computations for the specified conditions and displays oil spill layers on the interactive map.
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This module calculates the forecast of the oil spill on the remote server. The forecast is based on hydrometeorological data of RosHydroMet and ice conditions of the Arctic Institute. The user enters the calculation parameters (spill site, type and volume of spilled oil, etc.), after that all data is sent to the GOIN computation server. The computation server keep a forecast of hydrometeorological data and ice conditions in actual state. After the calculation ends, all results are sent to the main server, from where they are taken by web application for display to the user.

The API and standard formats of data exchange allow us to quickly connect the computation server with the web application.
Thanks for Your Attention