

INTEGRATION OF HISTORICAL AND OPERATIONAL  
 REMOTE SENSING DATA IN THEMATIC MARINE GIS  
 FOR THE EASTERN PART OF THE GULF OF FINLAND.  
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In this paper the filling for marine thematic GIS as well as its interconnection with remote sensing data is discussed. Now we are only on the way to develop a regional thematic GIS for the eastern part of the Gulf of Finland. The multiyear experience in processing and using the remote sensing data, accumulating different thematic data sets for the region in interest, storing the knowledge and passing on to intellectual expert analysis for solving water monitoring, management and other problems, has encouraged us to start to create a suitable GIS.

Since the end of 1970s a lot of data sets has been collected. They consist of about 300 aerospace charts of suspended matter distribution (quantitative estimations), more than 100 charts of sea surface temperature, the relevant series of hydrometeorological network data (including the information for several days before space monitoring), conventional in-situ data (hydrochemical, hydrobiological, hydrophysical). For a large part of remote sensed imagery the quasisynchronous ship measurements of water parameters, including the transparency depth and suspended matter concentrations are available. In other words, this materials form the database.

The second kind of the data used belongs to the a priori information and consists of maps of bottom topography, knowledge about typical current fields and other parameters, which characterize the hydrological regime, hydrooptical properties of the occurring water masses, the peculiarities of radiation transfer in water and atmosphere medium, known regression relations between water parameters, data about upwelling phenomena, antropogenic sources of water pollution etc. We attribute this kind of data to the knowledgebase. Only a part of the regional database and the knowledgebase do we have in the form of computer stored files.

We use the expert analysis to available multiyear different sources data sets for receiving a new knowledge about temporal and spatial distribution of hydrophysical fields under changeable nature and antropogenic condition.

The method of express thematic analysis of the operational multispectral satellite data within the frame of the regional GIS also has been discussed.

The results obtained in solving water monitoring and management problems for the eastern part of the Gulf of Finland will be presented.