Approaches and implementation of marine data harmonization in Russian Federation

Nikolay Mihaylov, All-Russian Research Institute of Hydrometeorological Information - World Data Center RIHMI-WDC (Russian Federation), nodc@meteo.ru
Evgenii Vjazilov, RIHMI-WDC (Russian Federation), vjaz@meteo.ru
Sergey Belov, RIHMI-WDC (Russian Federation), belov@meteo.ru
Alexander Voronsov RIHMI-WDC (Russian Federation), vorv@meteo.ru

The marine data standardization and their integration and availability play a significant role for ocean research and practical marine activities. The data need to numerous scientific and design organizations, authorities and other maritime activities stakeholders. The data have a different levels of the processing (observations, forecasts, climatic summaries, analysis) and is haracterized by the large number of marine parameters (at least 800), essentially distributed geographically. It is required to provide the exchange and access to vast amounts of data that are placed in the distributed sources and have diverse types (databases, data files, GIS layers, geo-services and others), methods and formats of data presentation.

The data harmonization is a powerful mechanism for increasing the data accessibility taking into account the marked specificity and issues. Moreover, the concept of "data harmonization" rather complex and its precise (conventional) definition does not exist. But most often, a data harmonization means the possibility to combine data from heterogeneous sources into integrated and consistent information products, in a way that is of no concern to the end-user. When data are not harmonized, users have to spend a lot of time and other resources to search and conversion of data,

In Russia targeted data harmonization held in unified system of information on the world ocean (hereinafter, ESIMO). The system provides the information - communication infrastructure for integration of distributed and heterogeneous data supplied by multy-discipline marine systems, and acccess to the integrated data basing on "single window" principal.

Data harmonization solution is based on a series of components, such as a common parameters dictionary, a metadata and data model, exchange standards for data and services. These components are implemented in a Web-based environment.

Creation and support of the uniform dictionary of parameters of system allow leading all attributes used in information resources to uniform system of names.