Towards a new generation of BYTHOS system for data management in the Mediterranean and Black Sea

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With the rapid expansion of technology and continuous advances in information systems, the oceanographic and marine research community has been eager to find new ways for managing and visualizing oceanographic data and marine information. The Oceanography Center of the University of Cyprus has been constantly researching new possible ideas for developing an innovative system which will allow oceanographers to visualize their data online while meeting the needs of the operational oceanographic forecasts.

As a rich internet application, BYTHOS system combines the latest technologies and enables scientists to search, visualize and download in-situ oceanographic data. Latest developments on BYTHOS include the support of multiple repositories through a single user interface as a way to combine data from multiple data centers. The innovation of BYTHOS system is based on the fact that the data do not have to be located on a single server, instead this can be distributed across multiple data servers. As a result each location acts as a repository allowing data centers to provide and store their data in an appropriate format. BYTHOS provides a customizable user interface to meet the needs of each data center. Data centers may provide their data in Medatlas, ODV as well as NetCDF formats.

To achieve this, BYTHOS utilized three different data servers: an Application Server, a Database Server and a Web Server. All servers share a communication protocol for managing repositories, oceanographic data and user roles. Data visualization is achieved through Google Maps. Visualization tools include vertical profiling while ongoing developments include horizontal thematic maps and time series. Future developments of BYTHOS also include interactive features such as instant feedback, value and map filtering and animations.

The new generation of BYTHOS system is a complete data management and visualization tool which could be utilized and adopted by fellow data centers for the efficient and effective management of their oceanographic data and marine information.