Development of an Oceanographic Data Archiving and Service System for the Korean Researchers

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Oceanographic Data and Information Center of Korea Institute of Ocean Science and Technology (KIOST) started to develop an oceanographic data archiving and service system in 2010 to support the Korean ocean researchers by providing quality controlled data continuously. Many physical oceanographic data available in the public domain and Korean domestic data were collected periodically, quality controlled, manipulated and provided to ocean modelers who need ocean data continuously and marine biologists who don't know well physical data but need it. The northern limit and the southern limit of the spatial coverage are 20°N and 55°N, and the western limit and the eastern limit are 110°E and 150°E, respectively. To archive TS (Temperature and Salinity) profile data, ARGO data were gathered from ARGO GDACs (France and USA) and many historical TS profile data observed by CTD, OSD and BT were retrieved from World Ocean Database 2009. The quality control software for TS profile data, which meets QC criteria suggested by the ARGO program and the GTSPP (Global Temperature-Salinity Profile Program), was programmed and applied to the collected data. By the end of 2013, the total number of vertical profile data from the ARGO GDACs was 59,642 and total number of station data from WOD 2009 was 1,604,422. We also collected the global satellite SST data produced by NCDC and global SSH data from AVISO every day. An automatic program was coded to collect satellite data, extract sub data sets of the North West Pacific area and produce distribution maps. The total number of collected satellite data sets was 3,613 by the end of 2013. We use 3 different data services to provide archived data to the Korean experts. A FTP service was prepared to allow data users to download data in the original format. We developed TS database system using Oracle RDBMS to contain all collected temperature salinity data and support SQL data retrieval with various conditions. The KIOST ocean data portal was used as the data retrieving service of TS DB, which uses GIS interface made by open source GIS software. We also installed Live Access Service developed by US PMEL for service of the satellite netCDF data files, which support on-the-fly visualization and OPeNDAP (Open-source Project for a Network Data Access Protocol) service for remote connection and sub-setting of large data set