The IEO Data Center Management System: Tools for quality control, analysis and access marine data

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Since 1994 the Data Centre of the Spanish Oceanographic Institute develops system for archiving and quality control of oceanographic data. The work started in the frame of the European Marine Science & Technology Programme (MAST) when a consortium of several Mediterranean Data Centres began to work on the MEDATLAS project.

Along the years, old software modules for MS DOS were rewritten, improved and migrated to Windows environment. Oceanographic data quality control includes now not only vertical profiles (mainly CTD and bottles observations) but also time series of currents and sea level observations. New powerful routines for analysis and for graphic visualization were added. Data presented originally in ASCII format were organized recently in an open source MySQL database.

Nowadays, the IEO, as part of SeaDataNet Infrastructure, has designed and developed a new information system, consistent with the ISO 19115 and SeaDataNet standards, in order to manage the large and diverse marine data and information originated in Spain by different sources, and to interoperate with SeaDataNet. The system works with data stored in ASCII files (MEDATLAS, ODV) as well as data stored within the relational database.

The components of the system are:

1.MEDATLAS Format and Quality Control

- QCDAMAR: Quality Control of Marine Data. Main set of tools for working with data presented as text files. Includes extended quality control (searching for duplicated cruises and profiles, checking date, position, ship velocity, constant profiles, spikes, density inversion, sounding, acceptable data, impossible regional values,...) and input/output filters.

- QCMareas: A set of procedures for the quality control of tide gauge data according to standard international Sea Level Observing System. These procedures include checking for unexpected anomalies in the time series, interpolation, filtering, computation of basic statistics and residuals.

2. DAMAR: A relational data base (MySql) designed to manage the wide variety of marine information as common vocabularies, Catalogues (CSR & EDIOS), Data and Metadata.

3.Other tools for analysis and data management

- Import_DB: Script to import data and metadata from the Medatlas ASCII files into the database.

- SelDamar/Selavi: interface with the database for local and web access. Allows selective retrievals applying the criteria introduced by the user, as geographical bounds, data responsible, cruises, platform, time periods,

etc. Includes also statistical reference values calculation, plotting of original and mean profiles together with vertical interpolation.

- ExtractDAMAR: Script to extract data when they are archived in ASCII files that meet the criteria upon an user request through SelDamar interface and export them in ODV format, making also a unit conversion.