The IEO/NODC relational database for metadata management: improving the operational efficiency and data accessibility.

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NODC-IEO databases context.

Since 1964, the Spanish Institute of Oceanography(IEO) has headed the National Oceanographic Data Center (CEDO/NODC) is responsible for the collection, storage and distribution of marine data. Recently, the NODC has implemented an infrastructure that reduces the time required to incorporate marine data and information from its acquisition to its the permanent databases. The development and implementation of a relational database (RDB)for metadata management allows to establish a logical structure which determines a set of relationships between the data and the associated metadata.

A relational database (RDB) for metadata management

The implementation of an RDB in the NODC-IEO databases presents important advantages from the point of view of metadata management. Problems of redundancy and data inconsistency are avoided favoring the standardization. In addition, allows a quicker access to the stored information and the regular updates.

The RDB has been implemented using PostGreSQL/PostGis (https://www.postgresql.org*),* a database management system developed as open source.The RDB is designed to contain the necessary information to generate the Common Data Index (CDI) files used by the Pan-European infrastructure for ocean and marine data management (https://www.seadatanet.org/).The database has been also designed to store information from the Cruise Summary Reports (CSR), Marine Organizations (EDMO) and Observing Systems (EDIOS) by inventary tables, as well as common vocabularies used for all the instrumentation, and meaasured variables.

Linking the RDB with the MIKADO software tool (https://www.seadatanet.org/Software/MIKADO) allows retrieving from the RDB the necessary information to generate the CDIfiles that supports the SeaDataNet system. Moreover, it supports Europeaninitiativeslike SeaDataCloud project[(1)] (SDC), EMODNET (set 4: Chemistry[(2)], set:bathymetry[(3)]) and EMODNET-Data-Ingestion[(4)], as well as national requeriments.

Conclusions

As a national oceanographic data center, a continuous increase in the volume of information stored in its databases is expected. Regular updates of the RDB will be the key to optimizing storage efficiency, administration and access to data, achieving the national and international commitments.

References

[(1)] Project SeaDataCloud (SDC). EU Contract Nº730960.

[(2)]European Marine Observation and Data Network. CONTRACT Nº EASME/EMFF/2016/1.3.1.2 - Lot 4/SI2.749773-

(3) European Marine Observation and Data Network. EMODnet Bathymetry Consortium (2016)

(4)European Marine Observation and Data Network Ingestion and safe-keeping of marine data. Nº EASME/EMFF/2015/1.3.1.3/SI2.727770