Knowledge is the basis for recognizing situations that require decisions to be made. A huge amount of high-quality marine data provides a basis for estimating the likelihood of occurrence of various kinds of problems but also to make relevant decisions about potential uses of the ocean such as renewable energy development. Thus, it is important to gather and make available high-quality and interoperable ocean and marine observations in both local and global scale. Belonging to several decades that can indicate how ocean conditions have changed over the years.

SeaDataNet (SDN) is a digital ocean and marine data infrastructure to support ocean research and societal needs

The infrastructure provides online unified access to many harmonized marine and ocean datasets alongside data products and metadata services. Its purpose is to provide easy access to distributed nodes of heterogeneous marine data which are managed by the data providers in their data centres, geographically distributed in most of the coastal countries facing European seas. Data centres maintain the ownership of their data and can determine if their data is freely available for users or if arrangements are needed. Nevertheless by 85% of data is freely available under the SDN licence.

SDN started in 2006 and has been improved over the years. The task team identified technical challenges and their solutions have been produced de facto standards for data and metadata in the oceanographic field as well as the adoption of agreed vocabularies. Since the beginning, challenges included working with major oceanographic research institutions and with academic highly skilled users of the data. In order to produce an infrastructure that fits for end users needs, different EU projects sustained the infrastructure giving the resources for its implementation. The integration of data from observations into a coherent and standard managing system has been the challenge over the years.

The SDN portal constitutes a single point of access for marine data

The idea is to avoid the inefficiencies deriving from the use of different portals. In addition to the time needed to transform the data into a common format. In one place you can find data products, tools used by professionals to manipulate and analyze data, downloadable free of charge, as well as an overview of marine organizations, research and monitoring activities related to the sea.

SDN serves the ocean and marine communities as well as government agencies, Industry researchers, stakeholders, and the general public allowing to preserve over a long period. Visualize and analyze ocean data. SDN provides access to extremely heterogeneous marine and ocean data in an effective and easy way.

SDN developed de facto standard for data and metadata common vocabularies standard operating procedures for data quality that have been adopted and generalized in similar initiatives in Europe and beyond providing guidance to facilitate widespread adoption of an effective data sharing and interoperability solutions. The technical challenges are common across similar ocean data infrastructures. SDN collaborated in the framework of GDIV II/III projects with organizations in the U.S.A., Canada, and Australia to give common solutions. To re-use data requires developing sufficient understanding of the data to use it for purposes different from which it was collected and in a way scientifically appropriate. The vocabularies are rich metadata and the possibility to keep contacts with the data producers foster data reuse.

Further Advancements

Even if the infrastructure is nowadays mature standards are always evolving. SeaDataCloud gives the opportunity for SeaDataNet to stay up to date maintain and further expand the infrastructure with new kind of data. Converting PDB data and real-time sensor data. SeaDataCloud aims at considerably advancing SeaDataNet services and increasing their usage. adopting cloud and HPC technology for better performance. Thanks to the new partnership with a consortium of High Performance Computing: HPC...