



Realization of European interoperability in Ocean Science via the CNR-ISAC informatic infrastructure, based upon open-source technology implemented on a Grid environment.

Cristina Tronconi and Vega Forneris

ISAC - CNR - ROMA, GOS, roma, Italy (c.tronconi@isac.cnr.it)

(C.Tronconi, V.Forneris, S.Colella, G.Volpe, R.Santoleri, E.Bohm, B.Buongiorno Nardelli.)

CNR-ISAC-GOS is responsible for the Mediterranean Sea satellite operational system in the framework of several Partnerships, first of all MyOcean and MOON. This Observing System acquires satellite data and produces Near Real Time, Delayed Time and Re-analysis of Ocean Colour and Sea Surface Temperature products covering the Mediterranean and the Black Seas.

In the last few years, the crucial importance of interoperability of different European Ocean Data Producers, that is the creation of an integrated system, has become clear. Several projects (MERSEA, SeaDataNet, MOON, GlobColor, MARCOAST, MyOcean) were started in order to realize interoperability that involved operating at two different levels:

- **SERVICES:**

- New interfaces have been / should be (or are still going to be) created between existing services;
- New common services have been / must be adopted

- **DATA:**

- Common Data Format have been / must be created and adopted
- Metadata standard (xml catalogues) have been / must be created and adopted

So, with this goal, by collaborating in several projects such as MyOcean, SeaDatanet, MERSEA, GIIDA, GOS (ISAC-CNR):

- Deployed a specific Grid Environment based on Globus Technologies (GT4) connecting more than one Institute; this approach lowered the processing time and offered a more robust and scalable infrastructure. In particular exploiting CNR and ESA clusters makes possible to reprocess 12 years of Chlorophyll data in less than one month (estimated processing time on a single core PC: 9months).

- Deployed an informatics infrastructure data repository and delivery based on THREDDS technology: it is a set of different open source tools, web services and protocols that allow the most important European Institutes and users to communicate, cooperate, connect and disseminate data. Monitoring tools have been already installed in order to control and verify the performance and availability.

- Converted products in NetCDF format, compliant with both the CF convention and the international satellite-oceanographic specification (INSPIRE, EN-ISO19119, EN ISO 19115, EN-ISO19139, etc...). In particular, in order to give users products in a standardized format, CNR and MyOcean partners developed a common NetCDF data format specification and naming rules.

- Published products via a set of open-source / standard web services such as: THREDDS server catalogue, WMS, Gi-Cat, MyOcean tools.

- Implemented several static and dynamic data visualization tools: GODIVA2, Google earth, quick images viewers, etc.

In the presentation we will give an overview of:

- the features of the interoperability realized in the framework of MyOcean project
- the features of the discover, download, viewing, comparing data service
- the features of CNR data (metadata) catalogues,
- Specification of the Common NetCDF data format (CF 1.4 compliant) adopted by all the Ocean Colour Partners in MyOcean Project, pointing out its importance for all the European data exchange and usage.;
- the Grid infrastructure deployed at ISAC and some processing examples.
- the performance and data quality statistics, monitored in real time

Finally we will present a brief introduction to the first CNR THREDDS catalogue for the in situ data, thanks to the work done in the SeaDataNet project that created a common metadata tool (MIKADO) and NetCDF data format.