Contribution ID: **42** Type: **Presentation**

EGI delves into the sea depths: the collaboration with EMSO begins

Tuesday, 18 September 2012 14:44 (22 minutes)

Description of the work

EMSO is going to exploit the power of EGI to create a data infrastructure to serve the wide communities of scientists studying marine mammals'acoustics, Oceanography, Geophysics, Astroparticle Physics, and Ecology. The capabilities offered by the EGI computing infrastructure will be explored through a pilot activity that has been recently agreed with the Italian Grid Initiative as part of the NGI_IT User Support strategy. This activity aims at deploying a Grid-based solution for the data repository and for the basic tools needed to manage data acquired at the Western Ionian Sea node near Catania. The computing model and data distribution infrastructure designed for EMSO will be based on layered structure similar to the one already adopted for the LHC community. Tier0s will be created as close as possible to the experimental sites and will host raw data, Tier1s will host replicas of the data needed for the analysis and will run analysis jobs. In the future the need for a Tier2 layer will be evaluated. Furthermore, when the infrastructure will be set up at the European scale, it will be considered the creation of an higher level service brokering and optimizing the usage of resources. . For the pilot activity, the scientific data will be generated by two offshore experimental sites, one is located offshore Catania, the other offshore in Porto Palo, about 45Km southwest of Syracuse. From these sites, data will reach harbors through fiber cables The biggest part of data will come from hydrophones at the rate of 6Mb/s. Data collected from the seafloor observatories are firstly saved on a server located in the harbors and then transferred to LNS (INFN South Laboratories) in Catania where a grid Storage Element will be configured to export the RAW data to the whole EMSO collaboration. The pilot activity includes also porting to Grid of some analysis software applications.

Link for further information

http://www.emso-eu.org/

Wider impact of this work

The successful gridification of the real time data and software applications, the development of a web-based interface will ease the data management and the usage of the ported applications. The outcome of the pilot will also be used to involve other partners and other NGIs in supporting EMSO Grid activities. If other NGIs are interested, the pilot activity could evolve towards an EGI Virtual Team and create a computing infrastructure serving scientists and other stakeholders in Europe and outside Europe for long-term deep water observation and investigation. Moreover, it will promote the catalytic process and synergic effort at EC and national levels, coordinating and harmonizing all available resources.

Printable Summary

Understanding processes in the marine environment are the key-enable to address complex present-day challenges, such as potential impacts of climate change, prevention of marine ecosystems and mitigation of natural hazards. EMSO, the European Multidisciplinary Seafloor Observatory, is a distributed network of platforms and several deep-seafloor observatories deployed on specific sites around European waters, reaching from the Arctic to the Black Sea passing through the Mediterranean Sea, with the scientific objective of long-term monitoring of environmental processes related to the interaction between the geosphere, biosphere, and hydrosphere, including natural hazards. The reliable and scientific-based information available through these seafloor observatories will help decision makers to study multiple, interrelated processes over time scales rang-

ing from seconds to decades and enable the long time-series collection of multiple variables at fixed locations.

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Session Classification: Research Infrastructures

Track Classification: Virtual Research Environments (Gergely Sipos: track leader)