The EuroGEOSS Advanced Operating Capacity

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The concept of multidisciplinary interoperability for managing societal issues is a major challenge presently faced by the Earth and Space Science Informatics community. With this in mind, EuroGEOSS project was launched on May 1st 2009 for a three year period aiming to demonstrate the added value to the scientific community and society of providing existing earth observing systems and applications in an interoperable manner and used within the GEOSS and INSPIRE frameworks.

In the first period, the project built an Initial Operating Capability (IOC) in the three strategic areas of Drought, Forestry and Biodiversity; this was then enhanced into an Advanced Operating Capacity (AOC) for multidisciplinary interoperability. Finally, the project extended the infrastructure to other scientific domains (geology, hydrology, etc.).

The EuroGEOSS multidisciplinary AOC is based on the Brokering Approach. This approach aims to achieve multidisciplinary interoperability by developing an extended SOA (Service Oriented Architecture) where a new type of "expert" components is introduced: the Broker. These implement all mediation and distribution functionalities needed to interconnect the distributed and heterogeneous resources characterizing a System of Systems (SoS) environment.

The EuroGEOSS AOC is comprised of the following components:

• EuroGEOSS Discovery Broker: providing harmonized discovery functionalities by mediating and distributing user queries against tens of heterogeneous services;

• EuroGEOSS Access Broker: enabling users to seamlessly access and use heterogeneous remote resources via a unique and standard service;

• EuroGEOSS Web 2.0 Broker: enhancing the capabilities of the Discovery Broker with queries towards the new Web 2.0 services;

• EuroGEOSS Semantic Discovery Broker: enhancing the capabilities of the Discovery Broker with semantic query-expansion;

• EuroGEOSS Natural Language Search Component: providing users with the possibilities to search for resources using natural language queries;

• Service Composition Broker: allowing users to compose and execute complex Business Processes, based on the technology developed by the FP7 UncertWeb project.

Recently, the EuroGEOSS Brokering framework was presented at the GEO-VIII Plenary and Exhibition in Istanbul and introduced into the GEOSS Common Infrastructure.