New approach to improve the integration of earth observation data

One of the fundamental challenges in the 21st Century is to achieve a greater understanding of the complex interactions between environment and human society. To meet this challenge, the social and environmental sciences need to be better integrated, to move from disciplinary to multidisciplinary research and close the gap between citizens, scientists and policy makers.

The EU-funded EuroGEOSS project (‘European approach to GEOSS’), with EUR 6 million in European funding, asked: what kind of information systems do we need to facilitate this major multi-disciplinary research effort? And, how we can best support closer interaction among specialists from different fields, as well as non-specialist stakeholders?

The project worked specifically within the context of the Global Earth Observation System of Systems (GEOSS), which is supposed to provide a framework for
integrating the world's earth observation efforts. GEOSS is an initiative of the Group of Earth Observations (GEO), which includes 90 countries and over 60 international organisations.

Frédérique Mojon Lumier is EuroGEOSS project assistant at France's BRGM (Bureau de Recherches Géologiques et Minières). He explains, 'Since GEOSS is a 'system of systems' that deals with the environment, all its components must be interoperable and be able to communicate together seamlessly. The EuroGEOSS project was launched to enhance scientific exchange among the different GEOSS systems.'

The project addressed the issue by developing an interoperable infrastructure across three thematic areas: forestry, drought, and biodiversity.

'To achieve interoperability across multiple disciplines,' says Mojon, 'the traditional approach is to try and arrive at, and then enforce, common standards and protocols, so that systems can talk to each other and users have a shared understanding of the meaning and the context of the data they exchange. But this approach is very demanding for both data users and data providers and does not work when many disciplines are involved, each with its own approach, standards and protocols.'

EuroGEOSS has developed an innovative approach to this problem, introducing a middle-layer called the Brokering Framework.

'This is a revolutionary approach,' says Mojon. 'Instead of asking each discipline and system to make changes necessary to conform to a common standard, our Framework takes on all the work itself, thus building bridges across all of the different disciplinary infrastructures.'

As Mojon reports, the EuroGEOSS Brokering Framework has been so successful that it has now been formally adopted by the GEO. 'The amount of data resources thus available through GEOSS has increased by two orders of magnitude, from a few hundred to several million.'

Mojon says the project supports the global environmental research effort, and thus benefits European citizens directly. 'We need to work together to understand how environmental changes affect society and how society, in its turn, affects the environment. The environment does not stop at our national or EU boundaries but is a truly global phenomenon'

With support from EuroGEOSS, researchers believe GEOSS has now become a more powerful means in improving scientific understanding of the complex mechanisms driving global environmental change.
'Furthermore,' Mojon adds, 'the increased access to data and services made possible by EuroGEOSS is fully aligned with European initiatives aimed at providing major opportunities for growth and jobs, particularly for our small and medium enterprises SMEs.' For more information, please visit:

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http://www.eurogeoss.eu/default.aspx

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Last update: 21 May 2013
Record number: 35734


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