

CANCELLED - Big Data access, management and analysis in Earth Sciences

Thursday, 11 April 2013 11:00 (1h 30m)

Summary

Services for open, flexible, scalable, and user-friendly access to, and processing of, Earth science data are becoming increasingly important. Such services are required to do ad-hoc and an important milestone in the domain has been the recent release of the OGC WCS 2.0 Standard which for the first time allows to provide a comprehensive portion of Earth science data categories through one powerful, coherent, implementation independent, and (last not least) concisely testable service interface. This standard allow implementing matching client and server technologies with unprecedented capabilities giving access, through strictly standards based service interfaces, to huge Earth Science repositories, be they file-based or database-oriented.

The proposed workshop wants to assess the status of activities in this domain within the Earth Science Virtual Research Community and see how the European Grid Infrastructure services can be of help for the community.

Impact

The workshop aims at discussing issues and sharing best practices in accessing, sharing and analyzing big data in Earth Sciences. In this respect, a good impact is foreseen both on the Earth Science Virtual Research Community and on EGI and its partner NGIs since it will be an occasion for the first one to provide requirements and pose problems and for the second ones to present available services and possible solutions.

URL

www.earthserver.eu

Description

The EarthServer project, funded by the European Commission under its Seventh Framework Program, aims at establishing open access and ad-hoc analytics on extreme-size Earth Science data, based on and extending leading-edge Array Database technology.

The core idea is to use database query languages as client/server interface to achieve barrier-free “mix & match” access to multi-source, any-size, multi-dimensional space-time data – in short: “Big Earth Data Analytics” - based on the open standards of the Open Geospatial Consortium Web Coverage Processing Service (OGC WCPS) and the W3C XQuery. EarthServer combines both, thereby achieving a tight data/metadata integration. Further, the rasdaman Array Database System (www.rasdaman.com) is extended with further space-time coverage data types. On server side, highly effective optimizations - such as parallel and distributed query processing - ensure scalability to Exabyte volumes.

Six Lighthouse Applications are being established in EarthServer, each of which poses distinct challenges on Earth Data Analytics: Cryospheric Science, Airborne Science, Atmospheric Science, Geology, Oceanography, and Planetary Science. Altogether, they cover all Earth Science domains; the Planetary Science use case has been added to challenge concepts and standards in non-standard environments. In addition, EarthLook (maintained by Jacobs University) showcases use of OGC standards in 1D through 5D use cases.

In this workshop we intend to present the EarthServer project and its applications and welcome contributions from other EGI Earth Sciences Virtual Organisations in order to share best practices and exploit synergies for future possible collaborations. Important topics such as standard-based access to data, adoption of the Science Gateway paradigm and use of federated identity services will be addressed and discussed in order to ease collaboration and data sharing.

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