



EVEREST: a virtual research environment for the Earth Sciences

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Advances in technologies and measuring techniques in the Earth science and Earth observation domains have resulted in huge amounts of data about our Planet having been acquired. By making this data readily discoverable and accessible, and providing researchers with the necessary processing power, tools, and technologies to work collaboratively and share the results with their peers, will create new opportunities and innovative approaches for cross-disciplinary research.

The EVER-EST project aims to support these advancements in scientific research by developing a generic Virtual Research Environment (VRE) which is tailored to the needs of the Earth Science domain. It will provide scientists with the means to manage, share and preserve the data and methodologies applied in their research, and lead to results that are validated, attributable and can be shared within and beyond their often geographically dispersed communities e.g. in the form of scholarly communications.

The EVER-EST VRE is being implemented as a Service Oriented Architecture (SOA) that is based on loosely coupled services which can be differentiated as being either generic or specific to the requirements of the Earth Science domain. Central to the EVEREST approach is the concept of the Research Object (RO) which provides a semantically rich mechanism to aggregate related resources about a scientific investigation so that they can be shared together using a single unique identifier. Although the concept of Research Objects has previously been validated by other experimental disciplines this application in the Earth Sciences represents its first implementation in observational research.

The EVER-EST e-infrastructure will be validated by four virtual research communities (VRC) covering different multidisciplinary Earth Science domains: including ocean monitoring, selected natural hazards (flooding, ground instability and extreme weather events), land monitoring and risk management (volcanoes and seismicity). Each of the VRCs represents a different collaborative use case for the VRE according to its own specific requirements for data, software, best practice and community engagement. The diverse use cases will demonstrate how the VRE can be used for a range of activities from straight forward data/software sharing to investigating ways to improve cooperative working.

Development of the EVEREST VRE will leverage on the results of several previous projects which have produced state-of-the-art technologies for scientific data management and curation as well those initiatives which have developed models, techniques and tools for the preservation of scientific methods and their implementation in computational forms such as scientific workflows.

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