



## **Integrated brokering framework for multi-disciplinary research**

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EuroGEOSS is a research project supporting the development of the GEOSS Common Infrastructure and the multi-disciplinary research efforts needed to address global sustainability research. The framework it has developed to integrate data, services, and models from different disciplines is based on a brokering approach that advances the traditional Service Oriented Architecture of spatial data infrastructures. In this paper we demonstrate the added value of this approach. The scientific question we address in this example is to identify ecosystems similar to the ones found in the protected area of "Sierra De Queixa Montes De Invernadeiro Nature Park" in Galicia, Spain. To do this, the user would identify an analytical model suitable to address the question such as the eHabitat model developed by the European Commission Joint Research Centre. It would then use the EuroGEOSS broker to look for the data necessary to run the model such boundaries of the select park, mean drought index, %forest cover, temperature and rainfall, and elevation. The eHabitat model is used to compute the likelihood to find ecosystems in the selected window that are similar to the one found in the selected protected area. The end-user would therefore run the model directly on the web as a web processing service with the data identified in the broker (no need to download the data) and use this information to draw a new area to be protected that would have similar ecological conditions to the initial protected area and display the list of endangered species (to be defined) expected to be found in the new location. Finally, the user can also mine Web 2.0 social networks via the broker to identify pictures of the selected species in the area of interest. This integrated approach based on open standards and interfaces allows the user to find, access, and use the data and models in a transparent way focusing on the research questions to be addressed rather than the technology that delivers the inputs. It is therefore a true demonstration of a service underpinning multi-disciplinary research.