Gap analysis of the European Earth Observation Networks

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Earth Observations (EO) are fundamental to enhance the scientific understanding of the current status of the Earth. Nowadays, there are a lot of EO services that provide large volume of data, and the number of datasets available for different geosciences areas is increasing by the day. Despite this coverage, a glance of the European EO networks reveals that there are still some issues that are not being met; some gaps in specific themes or some thematic overlaps between different networks. This situation requires a clarification process of the actual status of the EO European networks in order to set priorities and propose future actions that will improve the European EO networks. The aim of this work is to detect the existing gaps and overlapping problems among the European EO networks.

The analytical process has been done by studying the availability and the completeness of the Essential Variables (EV) data captured by the European EO networks. The concept of EVs considers that there are a number of parameters that are essential to characterize the state and trends of a system without losing significant information.

This work generated a database of the existing gaps in the European EO network based on the initial GAIA-CLIM project data structure. For each theme the missing or incomplete data about each EV was indentified. Then, if incomplete, the gap was described by adding its type (geographical extent, vertical extent, temporal extent, spatial resolution, etc), the cost, the remedy, the feasibility, the impact and the priority, among others.

Gaps in EO are identified following the ConnectinGEO methodology structured in 5 threads; identification of observation requirements, incorporation of international research programs material, consultation process within the current EO actors, GEOSS Discovery and Access Broker analysis, and industry-driven challenges implementation. Concretely, the presented work focuses on the second thread, which is based on International research programs screening, conclusions of research papers extraction, research in collective roadmaps that contain valuable information about problems due to lack of data, and EU research calls considering to move forward in known uncovered areas.

This provides a set of results that will be later validated by an iterative process that will enhance the database content until an agreement in the community is reached and a list of priorities is ready to be delivered.