



## The GEOSS User Requirement Registry (URR): A Cross-Cutting Service-Oriented Infrastructure Linking Science, Society and GEOSS

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The Group on Earth Observations (GEO) is implementing the Global Earth Observation System of Systems (GEOSS) as a user-driven service infrastructure responding to the needs of users in nine interdependent Societal Benefit Areas (SBAs) of Earth observations (EOs). GEOSS applies an interdisciplinary scientific approach integrating observations, research, and knowledge in these SBAs in order to enable scientific interpretation of the collected observations and the extraction of actionable information. Using EOs to actually produce these societal benefits means getting the data and information to users, i.e. decision-makers. Thus, GEO needs to know what the users need and how they would use the information. The GEOSS User Requirements Registry (URR) is developed as a service-oriented infrastructure enabling a wide range of users, including science and technology (S&T) users, to express their needs in terms of EOs and to understand the benefits of GEOSS for their fields. S&T communities need to be involved in both the development and the use of GEOSS, and the development of the URR accounts for the special needs of these communities.

The GEOSS Common Infrastructure (GCI) at the core of GEOSS includes system-oriented registries enabling users to discover, access, and use EOs and derived products and services available through GEOSS. In addition, the user-oriented URR is a place for the collection, sharing, and analysis of user needs and EO requirements, and it provides means for an efficient dialog between users and providers. The URR is a community-based infrastructure for the publishing, viewing, and analyzing of user-need related information. The data model of the URR has a core of seven relations for User Types, Applications, Requirements, Research Needs, Infrastructure Needs, Technology Needs, and Capacity Building Needs. The URR also includes a Lexicon, a number of controlled vocabularies, and References to literature. The novel concept of the URR is in the information captured in the Links form. Links can be established between any pair of entries in two different or the same relation. Links entries capture the interconnectivity of the entries in the URR. Information on the societal relevance and value of a link and its implementation status supports the identification of EO priorities. Links are directional between a source and a target entry and thus capture dependencies. For example, a link between a requirement and an application indicates that the application depends on the requirement, while a link between an application and a requirement implies that the application produces the required data product.

We will use the examples of disaster risk reduction and integrated coastal zone management to illustrate the versatility of the URR for a dialog between the respective S&T user communities and the providers of GEOSS. Based on these examples, we will discuss how the URR data model supports the analysis and communication of information needs in science-related SBAs of EO.