A National contribution to the GEO Science and Technology roadmap: GIIDA Project

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The GIIDA (Gestione Integrata e Interoperativa dei Dati Ambientali) project is an initiative of the Italian National Research Council (CNR) launched in 2008 as an inter-departmental project, aiming to design and develop a multidisciplinary e-infrastructure (cyber-infrastructure) for the management, processing, and evaluation of Earth and Environmental resources –i.e. data, services, models, sensors, best practices.

GIIDA has been contributing to the implementation of the GEO (Group of Earth Observation) Science and Technology (S&T) roadmap by: (a) linking relevant S&T communities to GEOSS (GEO System of Systems); (b) ensuring that GEOSS is built based on state-of-the-art science and technology. GIIDA co-ordinates the CNR's digital infrastructure development for Earth Observation resources sharing and cooperates with other national agencies and existing projects pursuing the same objective. For the CNR, GIIDA provides an interface to European and international interoperability programmes (e.g. INSPIRE, and GMES). It builds a national network for dialogue and resolution of issues at varying scientific and technical levels.

To achieve such goals, GIIDA introduced a set of guidance principles:
• To shift from a "traditional" data centric approach to a more advanced service-based solution for Earth System Science and Environmental information.
• To shift the focus from Data to Information Spatial Infrastructures in order to support decision-making.
• To be interoperable with analogous National (e.g. SINAnet, and the INSPIRE National Infrastructure) and international initiatives (e.g. INSPIRE, GMES, SEIS, and GEOSS).
• To reinforce the Italian presence in the European and international programmes concerning digital infrastructures, geospatial information, and the Mega-Science approach.
• To apply the National and International Information Technology (IT) standards for achieving multi-disciplinary interoperability in the Earth and Space Sciences (e.g. ISO, OGC, CEN, CNIPA)

In keeping with GEOSS, GIIDA infrastructure adopts a System of Systems architectural approach in order to federate the existing systems managed by a set of recognized Thematic Areas (i.e. Risks, Biodiversity, Climate Change, Air Quality, Land and Water Quality, Ocean and Marine resources, Joint Research and Public Administration infrastructures). GIIDA system of systems will contribute to develop multidisciplinary teams studying the global Earth systems in order to address the needs coming from the GEO Societal Benefit Areas (SBAs). GIIDA issued a Call For Pilots receiving more than 20 high-level projects which are contributing to the GIIDA system development.

A national-wide research environmental infrastructure must be interconnected with analogous digital infrastructures operated by other important stakeholders, such as public users and private companies. In fact, the long-term sustainability of a "System of Systems" requires synergies between all the involved stakeholders' domains: Users, Governance, Capacity provision, and Research. Therefore, in order to increase the effectiveness

of the GIIDA contribution process to a national environmental e-infrastructure, collaborations were activated with relevant actors of the other stakeholders' domains at the national level (e.g. ISPRA SINAnet).