



## The GIIDA project Initial Operating Capacity

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The GIIDA (Gestione Integrata e Interoperativa dei Dati Ambientali) project is an initiative of the National Research Council of Italy (CNR). It was 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– provided by CNR institutes and working groups. GIIDA also acts as an interface of CNR towards European and international interoperability programmes such as GEOSS, INSPIRE and GMES. GIIDA cooperates with other national agencies and on-going initiatives pursuing similar objectives in different contexts and domains, contributing to the establishment of a national network for dialogue and resolution of issues at different scientific and technical levels.

In keeping with GEOSS principles, the GIIDA infrastructure adopts a System of Systems (SoS) architectural approach in order to federate the existing systems managed by a set of recognized Thematic Areas (namely Risks, Biodiversity, Climate Change, Air Quality, Land and Water Quality, Ocean and Marine resources) and Transversal Areas (Joint Research and Public Administration Infrastructures, Thesaurus, Quality). The GIIDA System of Systems will contribute to develop multidisciplinary teams studying the global Earth system in order to address the needs coming from the GEO Societal Benefit Areas (SBAs). According to the SoS approach every thematic area may realize an autonomous system for thematic resource sharing. Each system is then integrated in the GIIDA SoS through the adoption of standards and special interoperability agreements.

In September 2010 GIIDA concluded the first phase of development with the release of its Initial Operating Capacity (IOC). Each thematic area populated and published a catalogue service based on OGC CSW 2.0.2 AP ISO specification. Each catalogue collects and queries metadata of the resources provided by CNR Institutes and other GIIDA partners and relevant to the thematic area. All the metadata relative to the published resources are compliant with the INSPIRE Metadata Profile. Where required, a brokered approach was adopted to federate catalogs and inventories services already available. This allowed to leverage on existing systems, developed and maintained in the context of on-going activities and projects, without any major change. Where possible, the resources (mainly thematic maps, digital imagery and scientific datasets) are made accessible on-line through standard access services such as OGC WCS, WFS, WMS and Unidata THREDDS. These services are published by the various thematic areas through diverse technologies such as GeoServer, GeoNetwork, Mapserver and THREDDS Data Server.

The thematic catalogues are federated through a central clearinghouse catalogue deployed on the CNR central site. It publishes a CSW/ISO interface and provides GIIDA global search capabilities through distributed query and/or metadata harvesting. The federated catalogue is available at the URL: <http://giida.cnr.it/gi-cat/>, and is currently federating about 3000 resources published by the various thematic catalogues.

Every thematic area has also developed a thematic portal as a point-of-access to domain-specific information (documents, news, datasets, etc.). The thematic portal content is under the control of the Thematic Area coordinator. The thematic portals are reachable from a GIIDA central geo-portal which acts as the single point-of-access to all GIIDA relevant information and provides data query and access capabilities through a Graphical User Interface.

The GIIDA current activities include enrichment of the existing capacity with new resources (e.g. datasets, access services, visualisation services). The GIIDA Working Group is also experimenting the broadening of the catalogue brokering capabilities to the Sensor Web Enablement (SWE) services, in particular with the SOS services already published the Thematic Areas. In the scope of the test and evaluation activities of the IOC infrastructure, GIIDA is conducting interoperability tests with other national infrastructures such as SINAnet (ISPRA) and COI/ENEA.

For the second phase, the project is planning the definition of a GIIDA Data Policy based on the GEOSS Data Sharing Principles, and the INSPIRE Data Sharing Implementing Rules. Advanced functionalities will be also implemented such as service chaining, quality control and multi-scale features. Moreover GIIDA will work for the development of selected cross-disciplinary Use Scenarios to test and evaluate the current and future infrastructure capabilities.