



Italian Polar Metadata System

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The Italian Antarctic Research Programme (PNRA) is a government initiative funding and coordinating scientific research activities in polar regions.

PNRA manages two scientific Stations in Antarctica - Concordia (Dome C), jointly operated with the French Polar Institute "Paul Emile Victor", and Mario Zucchelli (Terra Nova Bay, Southern Victoria Land). In addition National Research Council of Italy (CNR) manages one scientific Station in the Arctic Circle (Ny-Alesund-Svalbard Islands), named Dirigibile Italia.

PNRA started in 1985 with the first Italian Expedition in Antarctica. Since then each research group has collected data regarding biology and medicine, geodetic observatory, geophysics, geology, glaciology, physics and atmospheric chemistry, earth-sun relationships and astrophysics, oceanography and marine environment, chemistry contamination, law and geographic science, technology, multi and inter disciplinary researches, autonomously with different formats.

In 2010 the Italian Ministry of Research assigned the scientific coordination of the Programme to CNR, which is in charge of the management and sharing of the scientific results carried out in the framework of the PNRA. Therefore, CNR is establishing a new distributed cyber(e)-infrastructure to collect, manage, publish and share polar research results. This is a service-based infrastructure building on Web technologies to implement resources (i.e. data, services and documents) discovery, access and visualization; in addition, semantic-enabled functionalities will be provided.

The architecture applies the "System of Systems" principles to build incrementally on the existing systems by supplementing but not supplanting their mandates and governance arrangements. This allows to keep the existing capacities as autonomous as possible.

This cyber(e)-infrastructure implements multi-disciplinary interoperability following a Brokering approach and supporting the relevant international standards recognized by European and international standards, including: GEO/GEOSS, INSPIRE and SCAR.

The Brokering approach is empowered by a technology developed by CNR, advanced by the FP7 EuroGEOSS project, and recently adopted by the GEOSS Common Infrastructure (GCI).