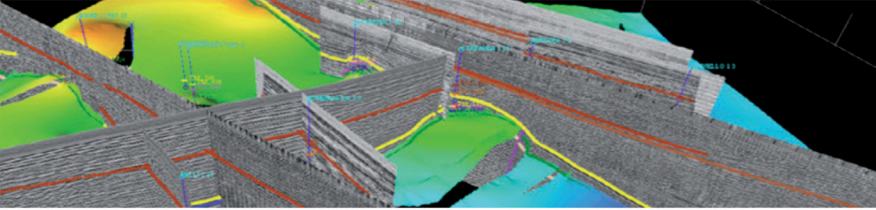




Istituto Nazionale di Oceanografia e di Geofisica Sperimentale

DEPARTMENT OF RESEARCH INFRASTRUCTURES



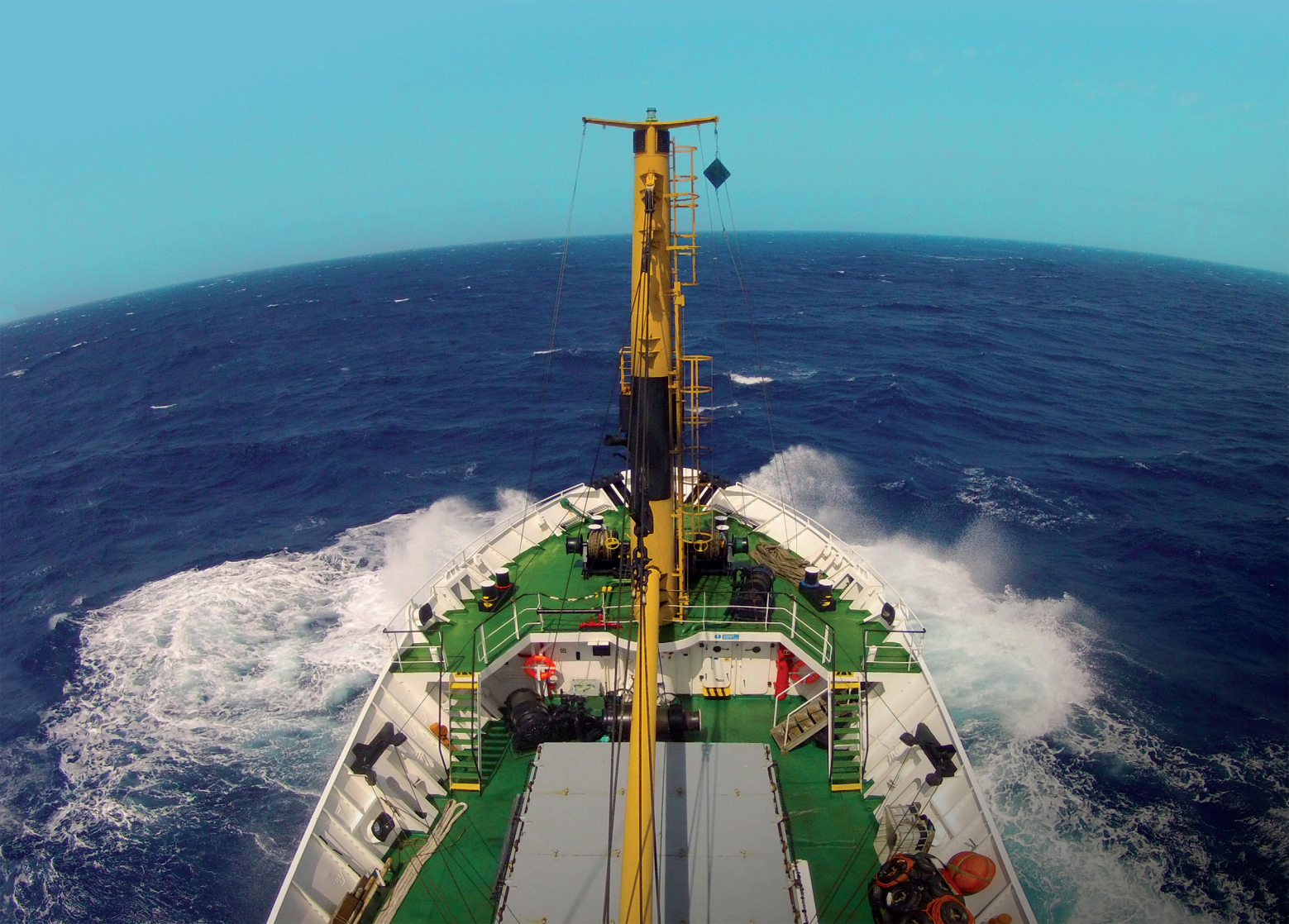


DEPARTMENT OF RESEARCH INFRASTRUCTURES - IRI

The management of big infrastructures constitutes the mandate of Department of Research Infrastructures IRI. In particular, the research vessel OGS Explora, geophysical instruments for on-shore and off-shore data acquisition and mobile systems for airborne remote sensing.

About 50 people among researchers, technologists, technicians and administrative staff compose the staff of IRI. Their excellence is the management, technological development and research of systems dedicated to acquisition, processing and storage of big scientific data (mainly geophysical and environmental). The Department is also in charge of the maintenance and efficiency of OGS infrastructures and promotes their use among the national and international scientific community, both in the public and in the private sectors.

Very important tasks carried out by the Department are technological transfer, industry-support and industry-driven research activities.



RESEARCH FIELDS

BIG DATA

IRI DIAM-PROS group (Data Integration And Management - Processing) is at the leading edge in the field of processing and management of geophysical data and in the development of integrated systems for their dissemination and exploitation. DIAM-PROS developed solutions for several national and international initiatives such as the SCAR - Antarctic Seismic Data Library System, EU FP7 - GeoSeas, EU EMODNET, SeaDataNet and many others, managing a large dataset of geophysical data in many geographical areas of the world.

The group undertakes all the activities that follow geophysical data acquisition, from QA/QC, to processing, georeferencing and integration with other data, and from metadata creation to dissemination, fostering and supporting collaboration with other research institutions.

The staff develops and maintains, a web based data systems named SNAP, through which end users can discover and access all resources and data made available by OGS (<http://snap.ogs.trieste.it>). Data can be plotted and processed on-the-fly. Every feature the end user identifies in the data is immediately geographically positioned and integrated with other kinds of data.

The group develops also web based collaborative tools, that through paradigms such as the semantic web and linked data, could effectively support researchers team work, both internally and outside OGS. In parallel with the activities on the web, all data are loaded into and made available to the other research groups through the main geophysical interpretation software.

OFF SHORE INVESTIGATIONS

IRI NAVE offshore acquisition unit is a scientific-technical team in charge of the operational management of the research vessel OGS Explora and its equipment.

The group participates at the realization of research projects, providing its expertise in the feasibility studies, the survey planning and the field operations, from data acquisition to quality control and the preliminary data processing.

The personnel are involved in not only research projects, but take part also at service activities commissioned by private companies, that rent the vessel for cable, pipe and site surveys aimed at the realization of offshore infrastructures. This allows a constant updating of competences and skills that bring benefits also to the research activities.

GEOPHYSICAL EXPLORATION

IRI LIAD team (Land and Inshore Acquisition and technology Development) performs onshore and inshore geophysical surveys worldwide and in different environments. It performs pre-survey planning, feasibility studies and acquires data in the field of physical geosciences, with the highest possible standards, to meet the future needs of the society. It investigates the uppermost part of the Earth`s crust which is accessible also for economic use, of primary importance for the supply of essential resources and vulnerable to man-made activities.

The LIAD team concentrates its work on subsoil exploration by means of seismic, geoelectric, electromagnetic and potential-field methods. Engineering geophysics, groundwater, natural hazard assessment, hydrocarbon research and geothermal energy are the key research themes.

This team considers methodological development as an integral and fundamental component, therefore, the implementation of new geophysical instruments, methods and subsurface exploration by means of integrated and not standard approaches are key issues. Most projects are carried out within international partnerships with scientific/research institutes, universities, state/federal geological services, private and industrial companies.

REMOTE SENSING

IRI CARS team (Cartography and Remote Sensing) groups the technological and scientific expertise for airborne and terrestrial remote sensing activities and for the management of a dedicated aircraft. It performs planning, acquisition, processing and interpretation of remote sensing data acquired by mobile systems, mainly mounted on flying platforms (aircrafts or drones).

It manages and develops airborne and terrestrial, active and passive, acquisition systems, with particular focus on environmental issues. A specific system to measure CO₂ concentration has been developed in the frame of the ECCSEL Nat-Lab Italy project (www.eccselnatlabitaly.it) and tested in the set up laboratory, which is connected to ECCSEL (www.eccsel.org), the pan-European Research infrastructure.

The main applications of the group's systems and methodologies are the analysis and control of environmental parameters and pollutants in the atmosphere, vegetation health studies, land use mapping, thermographic analysis, landslide monitoring, flood protection, spatial planning.

The team develops algorithms to post-process geophysical and remote sensing data, also dedicated to environmental applications.



NATIONAL INSTITUTE OF OCEANOGRAPHY AND APPLIED GEOPHYSICS



The National Institute of Oceanography and Applied Geophysics - OGS - is a public research Institute which acts internationally in the fields of Earth and Marine Sciences, Oceanography, Geophysics and Seismology. The Institute aims at safeguarding and enhancing the environmental and natural resources and focuses its efforts on evaluating and preventing geological, environmental and climatic risks, and spreading the scientific culture and knowledge.

OGS has four locations in the Friuli Venezia Giulia Region (North-Eastern Italy) and it is structured under four main Departments:

- Oceanography - OCE;
- Geophysics - GEO;
- Seismological Research - CRS;
- Research Infrastructures - IRI.

With its strategic infrastructures of excellence (such as the oceanographic research vessel OGS Explora), OGS makes its own expertise available for research related to environment and climate, biodiversity and ecosystem functionality and to the study of seismicity, hydrodynamic and geodynamic phenomena having an impact on both environment and population.



HEADQUARTER

The headquarter hosts the offices of the Presidency, the Administrative and Technical Departments and the four Scientific Departments. It is located in the municipality of Sgonico, 12 km from the center of Trieste.

Borgo Grotta Gigante 42/C - 34010 Sgonico (TS) - Italy
Tel.+39 040 21401 - Fax.+39 040 327307

SANTA CROCE

The biochemistry and biology labs of the Oceanography Department are adjacent to the sea.

Via Auguste Piccard, 54 - 34151 Trieste (TS) - Italy
Tel.+39 040 21401 - Fax.+39 040 327307

MIRAMARE

Here are hosted the modelling and High Performance Computing labs of the Oceanography Department.

Via Beirut 2/4 - 34014 Trieste (TS) - Italy
Tel.+39 040 21401 - Fax.+39 040 327307

UDINE

Here is located the Department of Seismological Research.

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