## Coordination and participation in major research projects and other initiatives

The Department is involved in several international research projects, often playing a coordination role:

- research on Earth system and environmental issues according to National (PNR) and European (H2020) programmes
- large-scale and national projects carried out in collaboration with universities, research institutions and industry
- coordination of the National Antarctic Research Programme (PNRA), management of the Italian Arctic Station "Dirigibile Italia" (SDI) in Ny-Ålesund, Svalbard Islands, which also includes the Climate Change Tower and the Gruvebadet Atmospheric Laboratory
- participation to the EU project "Strategic Environmental Impact Assessment of development of the Arctic", with integrated and interoperative management of polar data, in order to develop a digital web-based platform to store, share and manage polar data and metadata
- participation to the National Technologic Aerospace Cluster
- marine research activities like RITMARE Project, PESCA Project, Fishing Data Collection Programme (PNRDA); monitoring and research activity concerning the Regulation on Marine Strategy
- participation to "JPI-OCEANS" newtork, also in the context of FP7 action "CSA-OCEANS"
- EU programmes aimed at a standardization of research thematics (e.g. ERANET COFASP, GEOTHERMAL ERANET, ERANET Marine Biotech), as well as fostering transnational cooperation on research and innovation (ERACAN) and access to research infrastructures (eg. ACTRIS, EUFAR2 and JERICO), nonetheless to large research infrastructures included in the European ESFRI roadmap, (eg. SIOS-PP, LIFEWATCH, ICOS)
- participation to boards and consortia for European and international policies: EuroGOOS, Euromarine, European Marine Board, European Polar Board, Belmont Forum
- consulting at the European Parliament for the "Science and Technology Options Assessment", particularly in Lot 3 "Environment" - including "Climate Change"
- scientific and administrative coordination of "VIGOR" project, aimed at defining and exploiting the geo thermal potential in southern Italy
- coordination of Nextdata project like a national system for the retrieval, storage, access and diffusion of environmental data
- transfer of technology and innovation activity for the Industry
- coordination of activities in collaboration with the Italian Civil Protection Department (DPC)
- implementation of the national project "Climate Change and Hazards for the National Territory"
- collaboration with the Italian Ministry for Environ ment on environmental issues of national concern (waste management in Campania and Lazio, Taranto Project; Terra dei fuochi)
- interdepartmental coordination on space and Earth observation research
- participation and coordination of CNR framework programmes with Finmeccanica, ENI, ENEL, ASI, Telecom

IAMC - Institute for Coastal Marine Environment
IBAF - Institute of Agro-environmental and Forest Biology
IDPA - Institute for the Dynamics of Environmental Processes
IGAG - Institute of Environmental Geology and Geoengineering
IGG - Institute of Geosciences and Earth Resources
IIA - Institute of Atmospheric Pollution Research
IMAA - Institute of Methodologies for Environmental Analysis
IRPI - Research Institute for Geo-hydrological Protection
IRSA - Water Research Institute
ISAC - Institute of Atmospheric Sciences and Climate
ISE - Institute of Ecosystem Study
ISMAR - Marine Science Institute

DTA

www.dta.cnr.it

# DEPARTMENT OF EARTH SYSTEM SCIENCE AND ENVIRONMENTAL TECHNOLOGIES

# Department of Earth System Science and Environmental Technologies

**Institutes** | 12

**Permanent employees** | 1135, 713 of which are researchers and technologists

**Main research themes**

The Department manages and coordinates the scientific and technological research carried out by the network of its Institutes, with the aim of increasing the knowledge on the planet Earth.
These activities concern both Earth and environmental science, from atmospheric studies to aquatic and terrestrial systems. The observation of the Earth, the analysis of data and their implementation into mathematic models are among the activities aimed at a comprehension of chemical, physical and biological processes governing our Planet, used to forecast the environmental evolution of its different components. The primary objective of the Department is to carry out science able to provide solutions to the global environmental challenges.

*The scientific activities are grouped into the following research areas:*

Sustainable and efficient management of ecosystems resources
Natural hazards and anthropic risks
Earth observation
Environmental technologies and processes
Polar science
Energy
Health and environment
Marine science: oceanography, biology and deep-sea environments, fishing

**Patents** | The Department manages 19 patents

**Spin-offs** | The Departments participates in 7 spin-offs in the following areas:
- Research and studies on technology projects
- Sensor technics applied to marine and space environments
- Technologies for mitigation of high environmental impact activities
- Designing of electronic devices for climate monitoring instruments and alternative energy
- Designing of instruments for geophysics investigations

**Main technologies developed and services provided**

- Purification processes for reflux waters, remediation and disposal of industrial waste, treatment of gas emissions in atmosphere
- Contaminants monitoring and abatement techniques for remediation of contaminated sites and polluted soils, using also bioremediation and phytoremediation
- Development of new ecofriendly materials
- Sustainable management of urban waste and remediation of raw materials and production of energy from waste and biomasses
- Marine technologies
- Recovery of polluted sites and remediation technologies for industrial waste
- Development of Earth Observation (OT) and aerospace
- Sensor technology

**Editorial activity**

*Editorial activity of the Department includes:*
- the Water Research Institute monograph "Quaderni",
- the "Journal of Limnology" edited by the Institute of Ecosystem Study other publications available on the Issuu platform (http://issuu.com/cnr-dta),
- the report activity of the EUAIC "Strategic Environmental Impact Assessment of development of the Arctic" (www.arcticinfo.eu).