

## JOINT RESEARCH UNIT IN EARTH AND SPACE SCIENCE

UMR 7329 CNRS - UR 082 IRD

Recognized nationally and internationally for its research in the **Geosciences**, in particular in: lithosphere dynamics, geodynamics, seismology, fault and earthquake mechanics, marine geosciences, natural hazards, geochronology, geomechanics, space geodesy and metrology of the nearby universe.

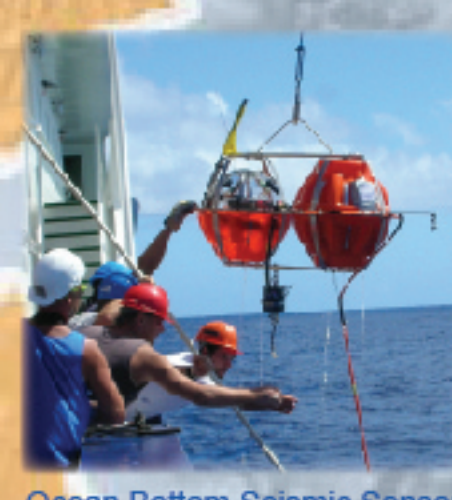
An integrated approach of multiple methods both on land and at sea (fieldwork, measurement, imaging, experimentation, modelling).

Know-how and expertise recognized in academia, industry, and society.

Observation missions for continuous data acquisition in geodesy, seismology, gravitational movement and laser telemetry.

Involvement in the **higher education programs** of the University of Nice and the University Pierre et Marie Curie in Paris, and in **outreach** through the "Sismos à l'Ecole" (seismology in schools) project.

Preferential **partnerships** with state institutions and local institutions.



### Astrogéo

Geodesy and Metrology of the Nearby Universe

- A team focusing on fundamental research and instrumental R&D.
- Research on space geodesy, geophysics and metrology of the nearby universe extended to time & frequency metrology.
- Experts in reference systems (GNSS technique and laser telemetry), tectonic deformation, optical and time & frequency metrology, and physics of the space environment.

### 4 Shared Services

- Administration
- Informatics
- Communications, Education and Information System
- Library and Resources

### Orogen Dynamics

Transfer and Coupling

- A multidisciplinary team focused on geology, petrology-geochemistry, geochronology, seismology and numerical modelling.
- Research on matter and fluid transfer processes, and coupling between several layers of the geosphere (lithosphere/asthenosphere/lower mantle).
- A 4D tomography approach for the dynamic modelling of the geosphere.

### Hazards and Vulnerability

Coupling, Processes and Consequences

- A team focusing on integrated studies on hazards, vulnerability and resilience of society, and interactions between natural environment changes and anthropization processes.
- Research on interactions between the phenomena on land and at sea, and their impacts on modern society.
- Theoretical approaches and human behaviour modelling in the face of disaster.

### Fault and Earthquake Dynamics

- A team of experts in mechanics-hydraulics, source and strong motion seismology, active tectonics, space geodesy.
- Research on formation, evolution and dynamics of faults and fractures, to contribute to a more reliable anticipation of seismic activity, determine the related hazards and understand fault and fracture roles in the formation of the medium and its properties.
- A multi-technique approach: from observation to mechanical and numerical modelling.

### Observatory

Leading observation surveys in seismology, geodesy, gravitational landslide, laser telemetry and mapping of bathymetry, at local and national scales.  
Ensure permanent availability of the collected data for the scientific community.

### Geochronology, Mineralogy and Geomechanics Centre

Supplying transversal skills in the technical fields of geochronology, mineralogy, sedimentology and geomaterials mechanics.

### R&D and Instrumentation Centre

Combine technical and scientific know-how for instrumentation development projects.

### Scientific Computing Centre

Modelling and Imaging  
Implement networking codes and calculations to make them available to the scientific community.

### Waves and Imaging

- A team gathering methodological proficiencies in the development of seismic imaging algorithms.
- Research on the development and application of imaging methods for natural media.
- Development of tools to better comprehend geodynamical processes at various spatio-temporal scales.

### Convergent Plate Margin Dynamics

- A team that studies the functioning and evolution of convergent continental margins.
- Research on tectonic structure and processes of sediment accumulation, quantification of material transfer, and anticipation of telluric hazard.
- Working on land and at sea, and in collaboration with industry.

170 Members

3 Focus Areas  
6 Research Teams

4 Technical & Engineering Centres  
4 Shared Services

TECTONICS OF THE CARIBBEAN

SEISMIC CYCLE OF THE NORTHERN ANDES

GEODYNAMICS OF THE MEDITERRANEAN AREA