+ PROJECTS

EOST is strongly involved in three major national projects:

The **Critex** project gathers more than 20 universities and research laboratories. It aims at developing shared innovative instruments and methods to explore and monitor the Critical Zone, this thin Earth's envelope lying between the lower atmosphere and the unweathered rocks, supporting ecosystems and human livelihood and welfare.

The **Miga** project intends to create a new infrastructure based on quantum mechanics. This infrastructure will allow a better comprehension of terrestrial gravity variations and its implications.

Resif aims at setting-up new seismic, geodesic and gravimetric instruments on whole French territory in order to be able to measure and study ground deformation on timescales from a fraction of a second to a decade. Resif allows progress on fundamental subjects such as crust and lithosphere dynamics and their outcomes for natural hazards.

These three french Equipex projects aim to build tools at the edge of scientific research.

EOST is also involved in the large European project **Epos** (European Plate Observing System). It is a long-term plan to facilitate integrated use of data, data products, and facilities from distributed research infrastructures for solid Earth science in Europe.

Photos:

[1] Shelter of seismological station at Dome C Concordia (Antarctica) © M. Bes de Berc

[2] Meteorological station OHGE © M.-C. Pierret

[3] Instrumental seismicity of metropolitan France 1962-2009 © CNRS-CEA 2014

[4] Variometer shelter of the magnetic observatory Dome C Concordia (Antarctica) © J.D. Bernard

[5] Supraconducting gravimeter iOSG#23, Strasbourg © N. Portier

[6] Transmission relay, Super-Sauze (Southern Alps) © P. Ulrich

[7] OHGE - hydrologic station of the Strengbach watershed (Vosges) © M.C. Pierret

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EOST OBSERVATORIES

1

École et observatoire des sciences de la Terre – Université de Strasbourg

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2

EOST OBSERVATORIES

+ MISSIONS

EOST (School and Observatory of Earth Sciences) is also an Earth Sciences Observatory (OSU) under the supervisory authority of CNRS (French national center for scientific research) and the University of Strasbourg. Its missions are to contribute to the monitoring of natural phenomena and to provide data to the scientific community.

Earthquakes, magnetic fields, gravitational force, hydro-chemical composition, landslides are some examples of the natural processes observed by EOST. Understanding their behavior at different temporal and spatial scales requires both human and instrumental resources.

Observations exploit measuring devices that relay data to computer systems for acquisition and processing. Maintaining and improving these tools are important parts of the mission of the observatories. Data analysis and model building are also parts of the mission, as is providing data to the the scientific community. The aim is to better understand and predict natural phenomena. Each year, a great amount of published scientific articles are based on data collected by the EOST observatories which are organized by theme.

EOST is the coordinator for some national observation networks (e.g. BCSF-RéNaSS, RLBP, Gravimetric observatory, OMIV, ISGI and OHGE) and an active participant in others (e.g. RAP, BCMT, RENAG and Geoscope). This network-based organization favors synergies of ressources and skills.

A joint service unit, UMS830, is the administrative structure that supports our observation services. It consists of 25 technicians and engineers.

+ SOLID EARTH

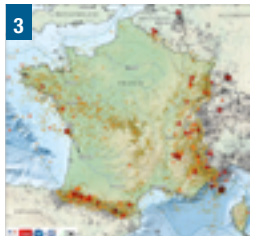
Seismology

- **Bureau central sismologique français - Réseau national de surveillance sismique (BCSF-RéNaSS)**
- **Réseau large bande permanent (RLBP)**
- **Réseau accélérométrique permanent (RAP)**
- **Geoscope (Terres australes, Antarctique, Sénégal, France)**
- **Observatoire sismologique du nord-est de la France (ObsNEF)**

The recording and analysis of seismic waves enables researchers to understand Earth's dynamics and to improve knowledge of seismic hazards.

EOST is in charge of permanent seismic stations located in northeastern France and abroad (Senegal, French Austral and Antarctic Territories). They are integrated into national (e.g. RLBP, RAP) and international (Geoscope) networks.

EOST is the national coordinator of the French Broadband Seismic Network (RLBP), the French Central Seismological Office (BCSF) and the National Network of Seismic Surveillance (RéNaSS). These last two produce the national bulletin of earthquakes occurring in France and collect and analyse the related macroseismic observations (earthquake effects).



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Magnetism

- **Bureau central de magnétisme terrestre (BCMT) Austral Territories, Antarctica, Madagascar**
- **International Service of Geomagnetic Indices (ISGI)**

EOST runs six permanent magnetic stations located in the French Austral, Antarctic Territories and Madagascar Island. They are part of two networks: French Magnetic Observatories network (BCMT) and INTERnational realtime MAGnetic observatory NETwork (Intermagnet).

4

EOST is also in charge of the International Service of Geomagnetic Indices.

Magnetic Observations aim at understanding the origins of magnetic field variations at different temporal and spacial scales.

Geodesy - Gravimetry

- **Réseau national GPS permanent (RENAG) Fossé rhénan**
- **Observatoire gravimétrique de Strasbourg**

Geodesy and gravimetry allow the analysis of earth structure and deformation. These methods are complementary to seismology.

The geodesic observational service of Strasbourg is part of the RENAG (National gedetic network). EOST is responsible for 8 GPS stations located in the Rhenan area, assigned to study the tectonic deformation of the North-East of France. EOST is also responsible for the Gravimetric observatory of Strasbourg. Through a supraconductive gravimeter, the observatory provides continuous relative gravity measurements. The observatory is part of the international project Global Geodynamics Project (GGP). It also hosts an absolute gravimeter for temporary deployments.

5

Landslides

Observatoire multidisciplinaire des instabilités de versants (OMIV)

The mission of the French Landslide Observatory (Omiv) is to monitor the long-term evolution of landslide controlling mechanisms.

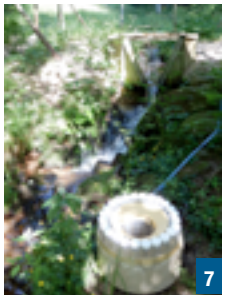
6

The service collects, disseminates and analyzes multi-source observations on unstable slopes, mainly in the French Alps. EOST has the responsibility of the service at the national level and coordinates the geodesy observation task.

+ CONTINENTAL SURFACES AND INTERFACES

Observatoire hydro-géochimique de l'environnement (OHGE)

The main study site of the OHGE is a granitic catchment basin: the Strengbach Watershed. This forested site is located in the Vosges Massif between 800 and 1100 meters high.



7

The ecosystem and its changes, linked to natural or anthropic disturbances, are monitored, explored and studied since 1986 throughout a multidisciplinary approach.