



INSU - National Institute for Earth Sciences and Astronomy

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OSUC - UMS3116

Orleans Institute for Earth Sciences and Astronomy

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OSUC, the Orleans Institute for Earth Sciences and Astronomy, is both an observatory (OSU) and a graduate school of the University of Orleans.

The OSUC multidisciplinary team includes geologists, astronomers and astrophysicists, soil scientists, atmospheric physico-chemists, mathematicians, and physicists, from a variety of professional backgrounds : fieldwork, observation, space missions, stratospheric balloons, experimentation, analysis, modeling, theory, and Instrumental R&T.

OSUC's observation mission focuses on astronomy, space plasmas, the atmosphere and continental surfaces. It supports the research of its three founding laboratories (ISTO, LPC2E, Nançay Radioastronomy Station) and associated teams (CBM Exobiology, ICARE Atmospheric reactivity, MAPMO, IRAuS PRISME, INRA Soil Sciences), and in particular research collaboration between the teams. OSUC also has a mission of fostering knowledge transfer through the organization of thematic courses, scientific workshops and conferences, and regional outreach events. It fulfils its role as a graduate school of the University of Orleans by offering B.Sc. and Master's programs. To accomplish these missions, OSUC has a Joint Service Unit (UMS 3116), which provides the Observatory with the necessary personnel and funding to handle its specific missions. The Service Unit enables the governing bodies (CNRS, University of Orleans, Paris Observatory) to allocate resources to the observatory.



Geosciences Campus, Orleans

Staff

- 45 Academic teachers-researchers
- 3 CNAP (Members of the National Council of Astronomers and Physicists)
- 5 ITA CNRS (engineers and technical staff)
- 5 BIATSS (university administrative and support staff)



Keywords

Sun, stars, galaxies, cosmology, pulsars, relativity, astrophysics, instrumentation, planetology, comets, solar system, magnetosphere, ionosphere, space plasmas, exobiology, physics, atmospheric chemistry, stratosphere, climatology, paleoclimatology, continental biosphere, environment, pollution, soil science, hydrogeology, pedology, sedimentology, geology, geophysics, geochemistry, petrology, mineralogy, economic geology, metallogeny, geomicrobiology, continental biogeochemistry, tectonics, volcanology, natural hazards.

Launch of the LPC2E's nacelle SPIRALE in Kiruna (Sweden)
© Stéphane CHEVRIER LPC2E



Degree Courses

- B.Sc. in Earth Sciences
- Master in Earth Sciences, Environmental Sciences and Astronomy

National COLLABORATIONS : BRGM, INRA, CNES.

Délégation Centre Limousin Poitou-Charentes



Research themes

OSUC is a federation of three founding research entities that report directly to the National Institute for Earth Sciences and Astronomy (INSU), CNRS.

The Institute of Earth Sciences of Orleans (ISTO), is a joint research unit (UMR 7327) that unites the entire Orleans academic community working in geosciences. Research covers the vast field of geology, ranging from magmas to mineral resources and sedimentary basins, up to present-day environments.

The Laboratory of Physics and Chemistry of the Environment and Space (LPC2E), also a joint research unit (UMR 7328), is one of the space laboratories of the INSU accredited by the National Centre for Space Studies (CNES). Its research activities concern the study of atmospheric and space media, using a variety of approaches : analysis, experimentation (balloons, satellites, aircraft, ground-based equipment) and modeling.

The Nançay Radioastronomy Station, is a research and service unit (USR 704), dedicated to developing and applying radio techniques to astronomy and astrophysics. It makes instrumental systems available to scientists to enable them to carry out research programs in the fields of radio observation of the universe and exploration of the Earth's environment and the solar system.



Nançay Radioastronomy Station



Teaching at OSUC

Observation facilities

Radioastronomy instruments, satellite instruments, aircraft and balloons for observation of space or stratospheric media, atmospheric simulation chamber HELIOS, instrumented wetlands (National Peatland Observatory and karst aquifer of the Val d'Orléans), electronic and microelectronic devices.

In the framework of the national Investments for the Future program, OSUC and its laboratories run the Laboratory of Excellence VOLTAIRE and the Equipment of Excellence PLANEX. The **LabEx VOLTAIRE** is a unique laboratory of researchers interested in the transfer of fluids and volatile compounds from the Earth's interior up to the stratosphere, and their role in the emplacement and exploitation of subsoil resources and their environmental impact, including climate change.

The **EquipEx PLANEX** has developed instrumentation that is unique in the world in order to study in situ the characteristics and properties of silicate liquids and molten salts at high temperature and pressure through spectroscopic measurements (IR, Raman, X, Brillouin) inside dedicated autoclaves. The applications of PLANEX concern both the understanding of magmatic mechanisms (volcanism) and the development of new materials (glasses, ceramics, fuel cells).

OSUC and its laboratories also take part in the **LabEx ESEP** and the **EquipEx NanolmagesX** and **Refimeve+**.

