

# ENVIRONMENTAL AND EARTH SCIENCES

2009

Recycling, ecological awareness, and environmental protection are now the everyday concerns of ordinary citizens, corporations, and political leaders. The burgeoning awareness of the threats to our environment has created a new sector of economic activity and many new professional specialities.

Many of today's environmental professionals are dedicated to achieving the goals of sustainable development and resource preservation. Their tasks, and ours, are to protect and preserve nature and natural habitats, and to cut pollution and other environmental risk factors, while developing lands in an environmentally sensitive and sustainable way. The success of all of these objectives will depend on our ability to change our behavior.

The earth and space sciences encompass the planet Earth (lithosphere, hydrosphere, and atmosphere), our solar system, and beyond.

Students wishing to work in an environmental field often obtain their scientific grounding in the earth and space sciences. They study the origins of the Earth and its development, examining the geological and fossil records. The Earth's crust (in both its "stable" and movable forms) is an object of study, as are glaciers, coral reefs, earthquakes, volcanic eruptions, mountains, and oceans.

#### Fields :

Environment, Earth sciences, Space sciences.  
See also the following subject profiles: Environment: ocean, atmosphere, land, waste management; Biology; Chemistry; Sustainable development; Humanities; Law; Tourism

#### Sectors of activity:

industry, public service, regional government, research, nongovernmental organizations, business

## ORGANIZATION OF STUDIES IN FRANCE

**University programs**, which follow the LMD (licence, master, doctorate) ladder, have focused historically on preparing future teachers and researchers. But professionally oriented programs at the licence level (licences professionnelles) now cater to students wishing to move directly into a career. Environmental studies per se begin after the licence—that is, at the master level. Students wishing to enter a master's program in environmental sciences should prepare by earning a licence in science and technology, majoring in life sciences or earth and space sciences. Master's programs may be oriented either toward research or toward professional work.

Most environmental **Engineering programs** focus on the treatment of pollution and other nuisances affecting the water, ground, and air, or on technological risks. Most schools of general engineering now offer second- and third-year options in environment. Certain specialized engineering schools—notably those devoted to chemical, civil, and agricultural engineering—offer more elaborate programs in environmental engineering.

France's engineering schools also offer degree programs in earth and space sciences.

Students are generally admitted to the 3-year programs following a 2-year preparatory program. Admission decisions are based on applicants' scores on an entrance examination. Most schools admit some students on the basis of their prior academic record and application file. This method of admission is also used for admissions into the second and third years of engineering programs

## RESEARCH THEMES

The earth sciences offer a vast range of research opportunities. Some sample areas include physical sedimentology, structural geology, tectonics, archean geodynamics, geomagnetism, isotope hydrology and paleoclimatology, igneous petrology, environmental geomicrobiology, geochemistry of mineral deposits, mineralogy of plutonic rock, and isotopic and environmental geochemistry.

The major research themes of the Centre National de la Recherche Scientifique (CNRS, national center for scientific research) include the following:

- formation of the solar system
- evolution and dynamics of the Earth's surface and that of the other planets
- internal dynamics of the Earth and other planets
- interactions between the living and mineral worlds.

## INTERNATIONAL STANDING

For the first time, a French researcher has garnered one of the top international environmental prizes. Claude Lorius, a scholar of glaciers and research director emeritus at CNRS, won the 2008 Blue Planet Prize. Through his work, Lorius raised awareness of the effect of human activity on the environment.

## Websites

### General informations

- Ministry of Agriculture <http://www.agriculture.gouv.fr>
- Ministry of Ecology and Sustainable Development <http://www.environment.gouv.fr>
- National Forestry Office <http://www.onf.fr>
- National Office of Aerospace Research and Studies <http://www.onera.fr>

### Professional associations and research organizations

- CNRS, national center for scientific research <http://www.cnrs.fr>
- CNAM, national conservatory of arts and professions <http://www.cnam.fr>
- Institut français de l'Environnement (French environmental institute), <http://www.ifen.fr/>
- Agence de l'Environnement et de la Maîtrise de l'Energie (agency for the environment and for energy development) <http://www.ademe.fr>
- Institut national de l'Environnement industriel et des risques (national institute on the industrial environment and related risks), <http://www.ineris.fr>
- Observatoire de Recherche en environnement (environmental research observatory), <http://www.ore.fr/>
- Centre National d'études spatiales (national center for space studies), <http://www.cnes.fr>
- Institut national des sciences de l'univers (national institute of sciences of the universe) <http://www.insu.cnrs.fr/>
- Société française d'astronomie et d'astrophysique (French society of astronomy and astrophysics), <http://www.sf2a.asso.fr>
- Société astronomique de France (French astronomical society) <http://www.saf-lastronomie.com>
- Association française d'astronomie (French association of astronomers), <http://www.afanet.fr>
- Fédération française de géologie (French geological federation), <http://e.geologie.free.fr>
- Union française des géologues (French geological union), <http://www.ufg.asso.fr>
- Bureau de recherches géologiques et minières (BRGM, bureau of geological and mineral research), <http://www.brgm.fr>
- Institut français de recherche pour l'exploitation de la mer (IFREMER, French institute of oceanographic research), <http://www.ifremer.fr>

## Keywords

agriculture – agronomy – anthropology – aquatics – archeosciences – astronomy – astrophysics – atmosphere – atomic chemistry and physics – biodiversity – biology – chemistry – climate – coastal studies – communication – conservation – consulting and expertise – culture – defense – development – Earth – ecology – economics – ecosystems – energy – engineering – environment – finance – forestry – geochemistry – geography – geology – geophysics – glaciology – green – habitat – health – human activity – hydrology – industry – landscape architecture and design – land-use planning – law – life sciences – maintenance – management – maritime – meteorology – metrology – microbiology – minerals and mineralogy – mitigation – modeling – mountains – nature – natural resources and natural resource management – nuclear – oceans and oceanography – paleontology – petrology – physics – planet – politics – policy – pollution – populations – prevention – production – protection – radioactivity – regional development – renewable – research – resource – risk – rural – science – sedimentology – sociology – space – sustainability – technology – tectonics – tourism – toxicology – transport – universe – urban – volcano – waste and waste management – water