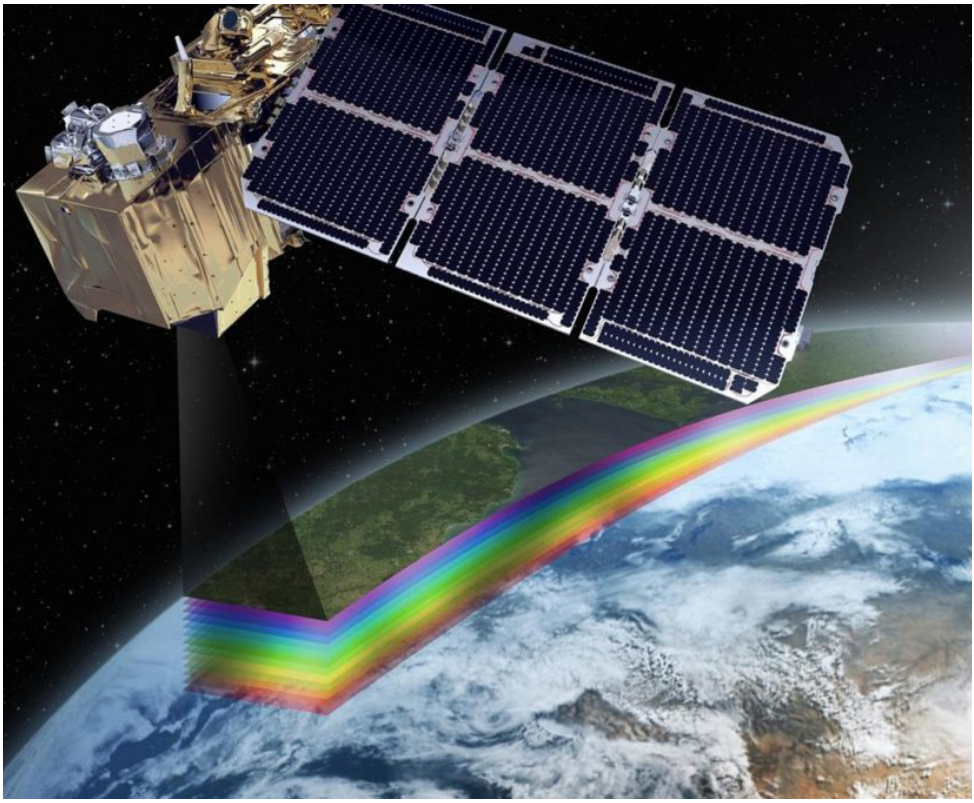
M1 M2

Curriculum Fundamentals of remote sensing

Master Sciences de la Terre et des Planètes, Environnement

Train high level specialists in Earth and planetary remote sensing from drone to satellite

This master Fundamentals of remote sensing, proposed in partnership with Sorbonne Université and several Grandes Ecoles of the Paris region in the second year, trains physicists specialized in remote sensing. It covers the entire data production chain (orbitography, wave propagation, radiative transfer, data and image processing, physical modeling and applications). It allows students to do a PhD thesis in Geophysics, Environmental Science, Planetary Science or Applied Science. It also gives them the opportunity to work directly in technology companies in the space and telecommunication sectors.



Requirements

M1: bachelor's degree in geosciences, physics, mathematics

M2: M1 in geosciences, physics, mathematics; 2nd year of engineering school; engineering degree

Training open to continuing education and "validation des acquis de l'expérience" (VAE)

Activity Sectors

Higher education

Public research

Space agencies

Space and telecommunications companies

Digital service companies

Administrations, local and regional authorities

Following career

PhD thesis in a public or a private research laboratory

Job in a startup, a SME or a large industrial group

Keywords

Electromagnetism, radiometry, radiative transfer, orbitography

Data and image processing, numerical modeling

Applications of remote sensing (geophysics, natural hazards, terrestrial ecosystems, natural resources, exploration of the solar system, etc.)

Space law

Application

http://www.ipgp.fr/admissions

Head of program

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Organization of the year

M1: 1st year taught in french and common with two other curriculum, entitled M1 Geophysics, Natural Hazards and Remote Sensing (GRNT). Common core and fundamental courses (electromagnetism; seismology; signal processing; data analysis in Earth sciences; digital analysis and modelling; tectonics; stress and deformation; satellite observation of the Earth; English), followed by specialized courses in remote sensing (potential fields; formation, structure and dynamics of planets; image processing for remote sensing; space observation project). Field work: cross-disciplinary field work in geosciences, field work in applied geophysics (or tectonics) and internship in a laboratory or company (minimum 2 months, possibility of long internship abroad).

M2: Core courses (possibly all in English depending on the intake): electromagnetic radiation theory, radiative transfer in the atmosphere, radiometry and remote sensing, orbitography and geodesy, fundamental and advanced data sciences, AI, signal and image processing, digital modelling in remote sensing. 2 options to choose among 6: energetics of the climate system; clouds and aerosols; atmospheric chemistry and air quality; remote sensing of tectonics and volcanic deformation; remote sensing of planetary surfaces; remote sensing of the hydrosphere and cryosphere. 5-month internship. Observation internship at the Observatoire de Haute Provence, week-long AI and satellite data analysis workshop at ESA (Italy), and a visit to the EUMETSAT and ESOC operational centres (Germany).