

Remote sensing of tectonic and volcanic deformation



Niveau d'étude
Master 2



ECTS
3 crédits



Volume horaire
26h



Période de
l'année
Semestre 3

Présentation

DESCRIPTION

1 General introduction to space geodesy (3h course) : shape of the Earth, gravity field, geoid, satellite orbits, geodetic techniques.

2 InSAR (3h course + 3h practical) : radar image formation, satellite acquisition modes, interferometry, atmospheric artifacts, applications to volcanic and tectonic deformation, processing of a real dataset.

3 GNSS (3h course + 3h practical) : basic principles, ionospheric and atmospheric corrections, reference frame, applications to seismic cycle, application to a real dataset.

4 Optical imagery (1h course + 2h practical) : optical image geometry, bundle adjustment, stereophotogrammetry, sub-pixel correlation, application to a real dataset.

5 Modeling (1h course + 2h practical) : basic principles of inverse problem theory, seismic slip inversion, volcano deformation, application to a real dataset.

6 Oral presentations (4h TD) : synthesis of (at least) 2 scientific articles per group.

OBJECTIFS

* Basic understanding of theoretical and practical aspects of modern satellite geodetic techniques.

* Ability to handle pre-processed satellite data, and to perform simple analytic procedures.

* Ability to synthesize results for a scientific audience (motivation of the study, context / state of the art, observations, models, conclusions, perspectives).

HEURES D'ENSEIGNEMENT

Remote sensing of tectonic and volcanic deformation	Cours Magistral	12h
Remote sensing of tectonic and volcanic deformation	Travaux Dirigés	4h
Remote sensing of tectonic and volcanic deformation	Travaux Pratiques	10h

PRÉ-REQUIS NÉCESSAIRES

None, but a basic knowledge of Mathematical and Computational tools for Earth Science is preferable.

Pour en savoir plus, rendez-vous sur > u-paris.fr/choisir-sa-formation