

## Master Sciences de la Terre et des planètes, environnement (ST304) Remote sensing of Earth and Planetary Surfaces

### Informations

Composante : Observatoire des Sciences de l'Univers - Pythéas (OSU)

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### Responsables

Olivier CAVALIE  
Yoann QUESNEL

### Langue(s) d'enseignement

Anglais

### Contenu

Lectures :

1. Remote sensing : principles and systems : electromagnetic waves and their interactions, sensors, multispectral systems, orbitology
2. Aerial and satellite imagery, multispectral imagery
3. Thermal infrared imaging : thermal processes and properties, examples of thermal signatures, TIR satellite images
4. Basic knowledge of image processing : what is a digital image? Image processing, information extraction
5. An active system : synthetic image radar, application of radar for earth deformation: InSAR

Practical lab:

InSAR processing and interpretation

Optical pre-treatments : calibration, pan-sharpening, orthorectification

Classification (supervised and unsupervised)

Topographic data at various resolution

Remote sensing of planetary surfaces

Remote sensing of the cryosphere

### Compétences à acquérir

1 - Build and structure a cultural background in Earth sciences that enables to respond to cross-disciplinary Earth science issues, drawing on knowledge from fundamental disciplines.

2 - Develop a scientific approach to answer a question by methodically observing natural objects in the field or laboratory, and by processing and critically interpreting data

3 - Give a structured oral or written presentation of scientific knowledge or work, mastering and using (in French and English) an Earth science vocabulary suited to the target audience - scientists, the general public, industry and local authorities.

### Pré-requis obligatoires

GIS in Master 1, connaissance de base en Linux

### VOLUME HORAIRE

- Volume total: 30 heures
- Cours magistraux: 9 heures
- Travaux dirigés: 21 heures

### Codes Apogée

- LSTCU20 [ELP]
- LSTCU20A [ELP]

### Pour plus d'informations



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