



**Domaine :** Sciences de la Terre, de l'environnement et du climat - **Thématique(s) :** Sciences de la Terre  
STAGES COURTS

## FROM OUTCROPS TO SEISMIC ACQUISITION AND INTERPRETATION

The training proposed below is a unique opportunity to gain practical experience of the whole process of acquiring, processing and interpreting marine geophysical data. Acquired data will subsequently be applied a simple and adapted seismic processing workflow presenting some of the fundamentals of seismic data processing, before being interpreted together with a set of pre-existing analogous seismic reflection profiles. The geological interpretation will finally be enriched with the integration of outcrop analyses. The exceptional geological context of the Alpes Maritimes area allows to study, compare and integrate observations coming from two comparable sedimentary architectures separated by only 40 km: at sea, the modern Var Turbidite System located in the Ligurian basin, and on the field, the fossil Contes/Peira Cava sandstone formation that is part of the well-known and studied Annot Formation.

 **Dates :** Voir le calendrier

 **Lieu :** Institut de la Mer de Villefranche (IMEV - Villefranche sur Mer)

 **Tarif :** Voir ci-dessous

**Modalité :** Présentiel

Quotation upon request

### GOALS

The aim of the training is:

- 1) to provide geologists –in particular those working on seismic interpretation– with an opportunity to get some better understanding of the whole chain of acquisition and processing of geophysical data.
- 2) to provide geophysicists working on acquisition, processing and/or interpretation of geophysical data with new skills in the field of geology, deep-sea terrigenous sedimentation, gravity processes and turbidite systems.

### PUBLIC AND PRE-REQUISITE

#### Public :

The training is for engineers and researchers involved at any stage of geological and/or geophysical interpretation.

#### Pre-requisite:

The training is dedicated to geologists interested in marine sciences, and more particularly wanting to acquire new skills in the field of marine geophysics and to geophysicists interested in marine sciences, and more particularly wanting to acquire new skills in the field of marine geology and sedimentology.

### PROGRAM

#### Data acquisition:

- Seismic acquisition at sea:
  - Acquisition of seismic profiles across the Ligurian margin and the modern Var turbidite system
  - Tests of acquisition parameters: effects on the quality of seismic profiles
- Field geology:

### INFORMATIONS

#### Competency Development Action

#### Category:

(Article L6313-1 of the Labour Code)

Training action

#### Location:

The training takes place on the IMEV campus (Villefranche/mer, French Riviera) of Sorbonne University. Marine acquisition will be made in the western Mediterranean, offshore Nice and field observations will take place in the Southern Alps, about an hour drive from Nice.

**Language:** The course can be provided in english or french upon request.

**Validation:** Statement of accomplishment

**Tailored sessions upon request**

### CONTACT

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- Observation and analysis of proximal-distal architectures along the fossil Contes-Peira Cava turbidite system belonging to the Annot Sandstone Formation (Eocene-Oligocene)
- Observation and analysis of mass-transport and gravity-flow deposits
- Acquisition of lithological logs.

**Courses:**

- Principle of seismic-reflection methods: Conference
  - Resolution, signal penetration, artifacts and signal analysis on a seismic profile: Conference and Workshop
  - Numerical processing of seismic data: Conference and Workshop
  - Seismic interpretation of profiles collected in the Ligurian basin: Workshop
  - Turbidite systems and gravity-driven processes: Conference
  - Integration of seismic-profiles and outcrop observations: assets and limits of the two approaches: Workshop
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**METHODS**

The theoretical concepts are introduced during conferences (lecture courses) enriched with many examples and case studies that should allow participants to appropriate them. These courses will deal with the principles of seismic data acquisition, geophysical analysis and processing of seismic-reflection data, seismic interpretation, marine gravity-driven processes and turbidite systems, among others. Some case studies will be discussed in order to facilitate free interactions between the teacher-trainer and trainees.

**MODALITÉS D'ÉVALUATION****Validation:**

Statement of accomplishment.

**Documents :**

Educational supports provided to each participant.

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**OUTLETS:**

This training allows individuals to secure their professional career by giving them the skills necessary to support companies in issues related to their sector of activity and to adapt to associated technological developments.

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**HIGHLIGHTS**

- A marine seismic acquisition training unique in Europe.
  - A unique geographical location allowing minimal transit times to formations of great geological interest and maximizing acquisition times,
  - Recently renewed buildings and accommodation and teaching facilities at IMEV; spacious and well-equipped course and computer rooms.
  - A combination of marine acquisition, seismic processing, seismic interpretation, and unique outcrops to understand architectures and evolution of turbidite systems, in the exceptional setting of the French Riviera.
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