

# Numerical modeling: earthquakes, gravitational flows and tsunamis



Niveau d'étude  
Master 2



ECTS  
3 crédits



Volume horaire  
26h



Période de  
l'année  
Semestre 3

## Présentation

### DESCRIPTION

We will learn how to solve numerically the equations describing earthquakes, gravitational flows, and tsunamis. The simple versions of these equations are similar in form and include advection and diffusion terms as well as source terms. We describe in detail the numerical schemes appropriate for these equations (finite difference, finite volume, finite elements) as well as their mathematical and numerical properties and limits. The course consists of lectures and exercises on the computer.

### OBJECTIFS

Numerically solve the general equations that describe gravitational flows, tsunamis, and wave propagation in their simple form.

### HEURES D'ENSEIGNEMENT

Numerical modeling: earthquakes, gravitational flows and tsunamis	Cours Magistral	21h
Numerical modeling: earthquakes, gravitational flows and tsunamis	Travaux Pratiques	5h

### PRÉ-REQUIS OBLIGATOIRES

A solid grounding in mathematics

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