

Master's program in Environmental Fluid Mechanics

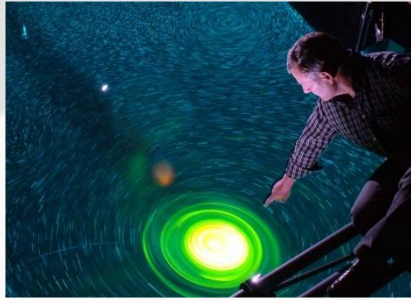
M1-M2

web site

master-efm.legi.grenoble-inp.fr

Contact

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Processes in fluid mechanics



Sediment transport



Air pollution



Coastal oceanography

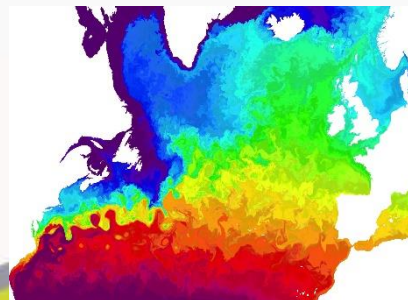
Environmental Fluid Mechanics?



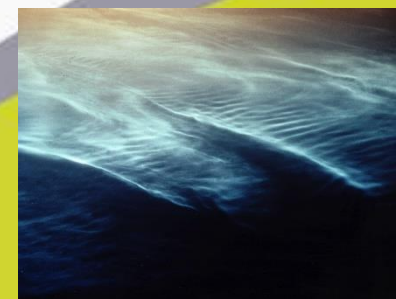
Renewable energies



Flow measurement



Oceanic currents



Waves in fluids

A two-year program

First year: M1 Applied Mechanics

Director : Dr Martin Obligado

First semester

- Mechanics of continuum media
- Fluid mechanics (I)
- Convection in industrial and geophysical flows
- English or French
- Image and signal processing
- Experimental techniques and methods (I)
- Numerical methods in fluid mechanics (I)
- *Research project*

Second semester

- Fluid mechanics (II)
- Waves in fluids
- Introduction to Geophysical fluid dynamics
- Environmental flows
- Experimental techniques and methods (II)
- Numerical methods in fluid mechanics (II)
- *Research project (cont'd)*

Second year: M2 Environmental fluid mechanics

Director: Prof. Chantal Staquet

First semester

- Turbulence in fluids (mandatory)
- Atmospheric boundary layer I: fundamentals and application to air quality
- Atmospheric boundary layer II: large-scale circulation and mountain meteorology
- Exchange across air-water interfaces
- Ocean dynamics
- Renewable wind and marine energy
- Sediment transport
- Wave dynamics
- Scientific computing (mandatory)
- Machine learning for environmental science
- Data assimilation
- Signal processing in fluid mechanics
- Flow measurement science and technology
- English or French

Second semester

- *Five-month research internship in a laboratory or in the R&D department of a company*

About the M2 research internship

French students should perform their internship abroad.

Examples of host laboratories (from the previous years):

•Europe

- UK (Cambridge, Imperial College, Saint Andrews, Univ. Coventry)
- Finland (Univ. Helsinki)
- Berlin (Freie Univ.)

•Canada (Univ. Alberta)

•USA

- MIT
- University of Hawaii
- Univ. Tallahassee (Floride)

•Australia

- Monash University

A few topics of the research internships:

- Processes in fluid mechanics
- Oceanography
- Atmospheric boundary layer
- Bio-reactors
- Propagation of forest fires ...

After you graduate ...

- PhD thesis
- Job in industry or in an environmental agency

What did the past students do?

PhD thesis :	67 %
Industry (engineer):	33 %