

INSTITUT D'ETUDES SCIENTIFIQUES DE CARGÈSE

Cargèse International School 2017

Écoulements Gravitaires et Risques Naturels – École EGRIN

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Web site

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The objective of the **EGRIN** schools is to bring together applied mathematicians and physicists, geophysicists, to work on gravity driven flows.

Gravity driven flows are usually modeled by shallow flows in geophysics. But several approximations are performed when using Shallow Water equations such that complex flows are not well represented (varying densities in the fluid, stratification of the velocity in the vertical axis, ...). The rheology of complex fluids (granular aspects, multiple phases, large viscosities) are also modeled by very intricate systems.

When the preservation of the environment, the prevention of natural risks play an important role in the decisions, the obtention of good models that represent the physical phenomena involved in natural disasters, that are efficient and validated on test cases is a main challenge for applied mathematicians.

Each year, about 50 participants join the **EGRIN** school to attend to three or four lessons given by international experts. These lessons are complemented by about 15 talks of (eventually young) researchers on up-to-date numerical methods or models, that can be the starting point of specialized discussions which benefits from the experience of the wide audience.

Main topics will include

- Gravity driven flows
- Shallow water equations
- Models for complex fluids
- Numerical methods
- Waves propagation, dispersive effects
- Modeling of complex rheology flows
- Numerical methods for complex rheology flows

Eminent scientists in the field will animate the lectures and workshops:

Philippe Bonneton (EPOC Bordeaux 1, FR), François Bouchut (LAMA Marne la Vallée FR), Anne Mangeney (Inst. de physique du Globe de Paris FR)

Scientific director

Jacques Sainte-Marie (Ange INRIA Paris FR)

Scientific Committee

Bernard Di Martino (SPE Univ. de Corse Corte FR), Carine Lucas (MAPMO Orléans FR)

Application and registration

<http://gdr-egrin.math.cnrs.fr/Confs/EGRIN2017/>

Deadline Application : 21 april 2017

Laboratoire SPE - UMR6134
Sciences Pour l'Environnement