

ENIGMA Innovative Training Network

4th school on *Flow and Transport in Porous and Fractured Media, Development, Protection, Management and Sequestration of Subsurface Fluids*

Summer School

June 25 to July 6, 2018
Corsica, France



ITN Enigma



Terre, Écosystèmes et Sociétés

**Observatoire
des Sciences de l'Univers
de Rennes**

INSTITUT
D'ÉTUDES
SCIENTIFIQUES
DE CARGÈSE



Feet in the sun head in the shade, let science blossom

When ?



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Workshops Schedule

- 2017 9-20 october Liege/Ploemur (Advanced subsurface imaging « field oriented » with training on database), with Network meeting in between
- 2018 7-16 February Lausanne/Neufchatel (Advanced inverse modeling and stochastic representation of complex media, Predictive modelling and upscaling) with break event (TDD) (UT, CSIC, UNINE, UNIL)
- 2018 25 June- 6 July Summer school Corsica (Sensing and modelling of flow and transport processes) by CNRS
- 2019 Barcelona lifetime skill and midterm review of the ESR
- 2019 July Groundwater Quality with special session
- 2020 Final conference Copenhagen

June 25 to July 6, 2018

NETWORK wide events adjacent to the workshops

Already soon...

Where ?



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Who ?



You !

...and ~80 others

General idea (max capacity 105):

- ~60 PhD
- ~10 Post-Docs
- ~10 young researchers (<10 years experience)
- ~20 confirmed researchers (>10 years experience)
- ~5 industrial partners

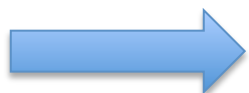
What ?



General objective (SPIC): Study **S**ubsurface **P**rocesses **I**n the **C**ritical zone by observation, experimentation, and modelling

Learning objectives (1 per day):

- Flow in Saturated Media
- Unsaturated and multiphase flow
- Geophysics
- Transport Phenomena
- Geochemistry and reactive transport
- Large scale Hydrology
- Modelling
- Energy transport and storage
- Hydromechanics
- Microbiology and Ecohydrology



trans-disciplinary approach to understand the CZ !

What ?

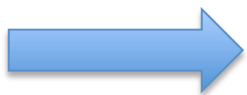


General objective (SPIC): Study **S**ubsurface **P**rocesses **I**n the **C**ritical zone by observation, experimentation, and modelling

Speakers from ENIGMA

External Speakers (confirmed)

- Kamini Singha
- Rien van Genuchten
- Auli Niemi
- Cyprien Soulaïne
- Rien van Genuchten
- Dani Or
- Robin Tecon
- Jérôme Gaillardet
- Bridget Scanlon
- Antonio Rinaldi
- Michel Quintard
- Jennifer Druhan
- Martin Blunt
- Patrick Tabeling
- Insa Neuweiler
- Michael Manga
- Beth Parker
- ... and probably more to come !



trans-disciplinary approach to understand the CZ !

What ?

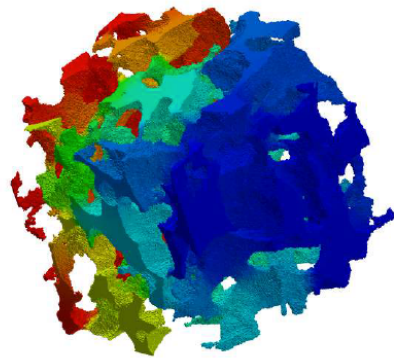


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Time	Typical day
09:00 - 11:00	Practical course/Projects (2h)
11:00 - 11:30	Coffee break
11:30 - 12:30	Fundamental lecture 1/2 (1h)
12:30 - 14:00	Lunch break
14:00 - 15:00	Fundamental lecture 2/2 (1h)
15:00 - 15:30	Coffee break
15:30 - 16:15	Short research course 1 (35 min + 10 min)
16:15 - 17:00	Short research course 2 (35 min + 10 min)
17:00 - 17:15	Coffee break
17:15 - 18:00	Short research course 3 (35 min + 10 min)
18:00-18:45	Poster session

We want to give the opportunity to the ESR to actively participate in the summer school organization

What ?



$$K_{ij} = \mu_{\beta} \langle v_{\beta,i} \rangle \left(\frac{\Delta P}{L} \right)^{-1}$$



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June 25-July 6, 2018

See you there !



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