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D6.4 / D17 Workshop 2 – Ploemeur, October, 16th to 20th 2017 - Report

Enigma ITN

Workshop 2: Multi-scale investigation of fractured media

The Enigma ITN workshop 2 took place in Ploemeur, France from Monday 16th to Friday 20th 2017.

Main organiser of the workshop: CNRS Rennes

Participants to the workshop:

13 ESRs participated to this workshop 2 in Ploemeur:

1	ESR 13	Veronika Rieckh
2	ESR 02	Guilherme Nogueira
3	ESR11	Richard Hoffmann
4	ESR15	Jorge Lopez Alvis
5	ESR04	Justine Molron
6	ESR07	Joel Tirado Conde
7	ESR08	Anne Karin Cooke
8	ESR05	Lara Blazevic
9	ESR03	Alvaro Pardo Alvarez
10	ESR12	Satoshi Izumoto
11	ESR14	Andrea Palacios
12	ESR9	Alejandro Fernandez Visentini
13	ESR10	Peleg Haruzi

ESR6 Behzad Pouladi could not attend this workshop due to some visa issues.

ESR1 Kevin de Vriedt could not attend this workshop because he was finishing his Master thesis.

There was also a PhD student from University of Rennes, Madeleine Nicolas, who participated to the workshop.

ITN Enigma

ENIGMA ITN - This project has received funding from European Union's Horizon 2020 research and innovation programme under the Marie Sklodowska-Curie Grant Agreement N°722028.

The logistics and communication were done through the website Enigma: https://enigma-itn.eu/training/workshop-2/ws2_practical-information/

Objective: to provide advanced knowledge and practice on state of the art field methods for quantifying heterogeneous subsurface storage compartments at different scales in fractured media and detecting limited-size active fractures, orientation, extent and connectivity by single and cross borehole tests. The workshop took advantage of the existing hydrogeophysical experimental infrastructures present at the H+ Ploemeur observatory to show the complementarity of different methods to investigate complex fractured media through field practice.

Program & Locations

The detailed program of the Enigma ITN workshop 2 is in the Table 1. The lectures and the accommodation were in the premises of the Residence Loisirs Kerguelen, Larmor-Plage, France.

Figure 1: lecture by Olivier Bour (University of Rennes)

The field stations took place in various locations in the Ploemeur and Guidel areas.

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Figure a: one Enigma ESR group with Madeleine Nicolas (PhD student in Rennes)

Figure b: Luc Burté from University of Rennes - Antea Group

Figure d: Tanguy Le Borgne, Dr, CNRS Rennes

Figure c: Julien Farasin, Dr, University of Rennes

Figure 2: several field stations: flow logs by Olivier Bour and Luc Burté, single packer hydraulic tests by Tanguy le Borgne and Nicolas Lavenant, Biofilms and samplings by Camille Vautier and Julien Farasin.

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ESR ENIGMA												
	Monday 16/10	**Tuesday 17/10**				**Wednesday 18/10**				**Thursday 19/10**		**Friday 20/10**
Group	***ALL***	***A***	***B***	***C***	***D***	***A***	***B***	***C***	***D***	***1***	***2***	***ALL***
Morning		database *A.Battais + MF.Gerard*	Logs *L.Burté/ O.Bour*	Biofilm *J.Farasin*	Sismique *L.Bodet & M.Dangeard*	Biofilm *J.Farasin / samplings C.Vautier*	Sismique *L.Bodet & M.Dangeard*	database *A.Battais + MF.Gerard*	Logs *L.Burté/ O.Bour*	Packer *N.Lavenant*	Labo mobile *T.Labasque*	Lectures Transports and geothermal energy + **Gravimetry + ITASCA** *O.Bour /P.Vermeulen/P.Davy &C.Darcel*
Site	Residence Kerguelen	Residence Kerguelen or public space	Stang er Brun	PZ26/PZ21	Kermadoye	PZ26/PZ21	Kermadoye	Residence Kerguelen or public space	Stang er Brun	Stang er Brun	PZ26/PZ21	Residence Kerguelen
Group	***ALL***	***A***	***B***	***C***	***D***	***A***	***B***	***C***	***D***	***1***	***2***	
Afternoon	Sites Presentation / context **O.Bour**	Logs *L.Burté/ O.Bour*	database *A.Battais + MF.Gerard*	Sismique *L.Bodet & M.Dangeard*	Biofilm *J.Farasin / samplings C.Vautier*	Sismique *L.Bodet & M.Dangeard*	Biofilm *J.Farasin / samplings C.Vautier*	Logs *L.Burté/ O.Bour*	database *A.Battais + MF.Gerard*	Labo mobile *T.Labasque*	Packer *N.Lavenant*	12h: lunch 14h: departure
Site	Residence Kerguelen	Stang er Brun	Residence Kerguelen or public space	Kermadoye	PZ26/PZ21	Kermadoye	PZ26/PZ21	Stang er Brun	Residence Kerguelen or public space	PZ26/PZ21	Stang er Brun	
		Group of 3/4								**Group of 7**		

Table 1. Detailed schedule of the Workshop 2 - Enigma ITN

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Lecturers and trainers of the workshop:

Several lectures were given in the lectures room (Residence Kerguelen) to prepare and complement field works. The list of lectures, field stations and chairs are provided in the following table:

Lectures or Field station	Chair
Sites Presentation /Geological and hydrogeological context	O.Bour (University of Rennes)
Database Training	A. Battais + M-Françoise Gerard (CNRS Rennes)
Flow and Fluid Logs	L.Burté/ O. Bour(University of Rennes)
Biofilm : microbiology experiments	J.Farasin (University of Rennes)
Biofilm/ samplings	J.Farasin /C.Vautier (University of Rennes)
Labo mobile = mobile laboratory for in situ gaz and water analysis – global presentation	C.Vautier (University of Rennes)
Guidel Project	L.Longuevergne (CNRS Rennes)
Seismics measurements for imaging water content	L.Bodet & M. Dangeard (UPMC Metis)
Tiltmeter measurements	L.Longuevergne (CNRS Rennes)
Single Packer Hydraulic Tests	T.L.Borgne (CNRS Rennes) & N.Lavenant (CNRS Rennes)
Labo mobile = mobile laboratory for in situ gaz and water analysis - experiments	T.Labasque (CNRS Rennes)
Lectures : Solute tracer tests in fractured media / Gravimetry / DFN model presentation	O. Bour (University of Rennes) / P.Vermeulen (Muquans)/ P.Davy (CNRS Rennes) & C.Darcel (ITASCA)

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