LMS | ACTIVITY REPORT 2016

Courses taught

BA, MA and Doctoral level at EPFL

The column "Credits / Coeff." indicates Coefficient for first-year students (BA1-2), Credits for the others

Spring semester 2016

Teacher(s)	Code	Course title	Section-Semester	Credits / Coeff.	Student number
Laloui, Lyesse (LMS); **Bernier-Latmani**, Rizlan (EML); **Ferrari**, Alessio (LMS); **Lucan**, Thaddée ; **Perrault**, Dominique (SUB); **Fernandez Andrino**, Juan (SUB); **Nguyen**, Richard (SUB)	PENS-211	Terra Epidermis	ENAC-BA4	4	28
Tacher, Laurent (SGC-ENS); **Vulliet**, Laurent (LMS)	CIVIL-203	Mécanique des sols et écoulements souterrains	GC-BA4	5	81
Laloui, Lyesse (LMS); **Ferrari**, Alessio (LMS)	CIVIL-530	Slope stability	GC-MA2, GC-MA4	3	35

Fall semester 2016

Teacher(s)	Code	Course title	Section-Semester	Credits / Coeff.	Student number
Vulliet, Laurent (LMS); **Defert**, Raphaël (SGC-ENS)	CIVIL-438	Analyse et gestion de risques	GC-MA1, GC-MA3	3	53
Laloui, Lyesse (LMS); **Koliji**, Azad (SGC-ENS)	CIVIL-402	Geomechanics	GC-MA1, GC-MA3	3	82
Gnansounou, Edgard (GR-GN); **Laloui**, Lyesse (LMS); **Nussbaumer**, Alain (RESSLAB); **Wienold**, Jan (LIPID)	CIVIL-474	UE génie civil: Construction durable	GC-MA1, GC-MA3	4	69

Additional teaching

Empty category

Advising

Postdoc works (completed in 2016 or ongoing)

Advisee	Research topic	Starting (month/year)	End, if known (month/year)	Supervisor(s)	Institution(s) involved (if not EPFL)
Arroyo Chávez, Hiram (LMS)	Modelling desiccation cracks on unsaturated soils	09/2016	08/2017	**Laloui**, Lyesse (LMS)	
Dieudonné, Anne-Catherine (LMS)	Numerical modelling of geological disposal for nuclear waste	12/2015		**Laloui**, Lyesse (LMS)	
Li, Chao (LMS)	THM coupled modelling of barriers for nuclear waste disposal	07/2016		**Laloui**, Lyesse (LMS)	
Madaschi, Aldo (LMS)	Induced anisotropy on stratified geomaterials	10/2016		**Laloui**, Lyesse (LMS); **Ferrari**, Alessio (LMS)	
Makhnenko, Roman (LMS)	Reservoir Modelling and Validation in Geo-Energies	07/2013		**Laloui**, Lyesse (LMS)	
Sutman, Melis (LMS)	Experimental and numerical investigation of thermo-active piles	10/2016		**Laloui**, Lyesse (LMS)	
Vilarrasa Riano, Victor (LMS)	Coupled THM analysis of CO2 storage in deep saline formations	11/2014	04/2016	**Laloui**, Lyesse (LMS)	

PhD thesis (completed in 2016 or ongoing)

Advisee	Thesis title	Doctoral Program	Completion year	Advisor(s)	Co-advisor(s)	Other(s)	Institution(s) involved (if not EPFL)
Bocco, Matteo (LMS)	THCM modeling of CO2 injection in deep geological formations	EDME	2020	**Laloui**, Lyesse (LMS)			
Cassini, Etienne André (LMS)	Coupled Thermo-Hydro-Chemo-Mechanical modeling of bentonite in the context of nuclear waste storage	EDME	2017	**Laloui**, Lyesse (LMS)			

Advisee	Thesis title	Doctoral Program	Completion year	Advisor(s)	Co-advisor(s)	Other(s)	Institution(s) involved (if not EPFL)
Crisci, Eleonora (LMS)	Advanced constitutive law for Opalinus Clay	EDME	2019	**Laloui**, Lyesse (LMS)	**Ferrari**, Alessio (LMS)		
Favero, Valentina (LMS)	Multiphysical behaviour of shales from Northern Switzerland	EDME	2017	**Laloui**, Lyesse (LMS)	**Ferrari**, Alessio (LMS)		
Garbellini, Cristiano (LMS)	Soil-structure interaction in the context of piled-raft foundations with groups of energy piles	EDME	2020	**Laloui**, Lyesse (LMS)			
Grangier, Samuel (LMS)	Effect of desiccation cracks on the stability of slopes	EDME	2019	**Laloui**, Lyesse (LMS)			
Li, Chao (LMS)	Multiphase Thermo-Hydro-Mechanical Processes induced by CO2 injection into deep saline aquifers	EDME	2016	**Laloui**, Lyesse (LMS)			
Minardi, Alberto (LMS)	Gas testings in shales	EDME	2017	**Laloui**, Lyesse (LMS)	**Ferrari**, Alessio (LMS)		
Mylnikov, Danila (LMS)	Experimental investigation of host and cap rock interaction with CO2	EDME	2018	**Laloui**, Lyesse (LMS)	**Makhnenko**, Roman (LMS)		
Parisio, Francesco (LMS)	Hydro-mechanical damage model for anisotropic shales (Opalinus Clay): Constitutive modelling and numerical	EDME	2016	**Laloui**, Lyesse (LMS)			
Qiao, Yafei (LMS)	Thermo-hydro-mechanical coupled analysis of the deep geological repository with a focus on mechanical constitutive models	EDME	2016	**Laloui**, Lyesse (LMS)	**Ding**, Wenqi		Tongji University, CN (World Universities and Research Centers)

Advisee	Thesis title	Doctoral Program	Completion year	Advisor(s)	Co-advisor(s)	Other(s)	Institution(s) involved (if not EPFL)
Rotta Loria, Alessandro (LMS)	On the geo-structural behaviour of thermo-active pile groups under mechanical and thermal cyclic actions	EDME	2017	**Laloui**, Lyesse (LMS)			
Schicchi, Giovanni (LMS)	Themomechanical characterization of energy geostructures with emphasis on energy tunnels	EDME	2019	**Laloui**, Lyesse (LMS)			
Speranza, Gianluca (LMS)	Methods for carbon footprint assessment of geostructures	EDME	2020	**Laloui**, Lyesse (LMS)	**Ferrari**, Alessio (LMS)		
Sutman, Melis (LMS)	Thermo-Mechanical Behavior of Energy Piles:Full-Scale Field Testing and Numerical Modeling	EDME	2016	**Laloui**, Lyesse (LMS)	**Olgun**, C. Guney		Virginia Tech University, USA (World Universities and Research Centers)
Tadlaoui, Houda (LMS)	Experimental caracterisation of mechanical properties and sealing capacity of shales for CO2 storage	EDME	2020	**Laloui**, Lyesse (LMS)	**Ferrari**, Alessio (LMS)		
Terzis, Dimitrios (LMS)	Geomechanical constitutive model for bio--improved soils	EDME	2017	**Laloui**, Lyesse (LMS)			
Tuttolomondo, Angelica (LMS)	Constitutive and numerical modeling of the coupled thermo-hydro-chemo-mechanical behaviour of shales	EDME	2019	**Laloui**, Lyesse (LMS)			

Advisee	Thesis title	Doctoral Program	Completion year	Advisor(s)	Co-advisor(s)	Other(s)	Institution(s) involved (if not EPFL)
Zannin, Jacopo (LMS)	Shallow geothermal energy for renovated civil engineering structures: a geomechanical and environmental approach	EDME	2019	**Laloui**, Lyesse (LMS)	**Ferrari**, Alessio (LMS)		
Zou, Yang (LMS)	Wave propagation across rock fractures in two dimensions	EDME	2016	**Laloui**, Lyesse (LMS)	**Laloui**, Lyesse (LMS); **Zhao**, Jian (SGC-ENS)		

Master diploma projects in Civil Engineering, Environmental Engineering and other programs (completed in spring 2016)

Advisee(s)	Project title	Section-Semester	Advisor(s)	Co-advisor(s)	Institution(s) involved (if not EPFL)
Gonzalez Dominguez, Etienne (GC-PME)	Geotechnical and structural design of energy piles	GC-PME	**Laloui**, Lyesse (LMS)		
Krayenbühl, Lionel Benoît Joël (GC-PMH)	Etude géotechnique d'un tunnel routier	GC-PMH	**Laloui**, Lyesse (LMS)		
Questi, Giorgia (GC-PME)	Étude géotechnique d'un ouvrage d'amenées d'un aménagement hydro-électrique	GC-PME	**Laloui**, Lyesse (LMS)		
Reverdin, Terence Len (GC-PME)	Etude géotechnique d'un tunnel ferroviaire	GC-PME	**Laloui**, Lyesse (LMS)		
Sautier, Cyrille Louis Etienne (GC-PME)	Glissement de La Frasse (VD) : Quantification de l'efficacité de la galerie de drainage de 2008	GC-PME	**Laloui**, Lyesse (LMS)		
Taha, Hani (GC-PME)	Thermo-mechanical behaviour of heat-exchanger piles	GC-PME	**Laloui**, Lyesse (LMS)		

Master diploma projects in Architecture (completed in spring 2016, direct link to Infoscience)

Empty category

Prestudies of master projects in Civil Engineering (completed in fall 2016)

Advisee(s)	Project title	Section-Semester	Tutors(s)	Supervisors(s)	Institution(s) involved (if not EPFL)
Denis Du Peage, Victoire Francoise Jacqueline Marie (GC-MA3)	A comparison of induced seismic events caused by hydraulic fratucturing in Engineered Geothermal Systems (EGS) and Hydrocarbon Extraction	GC-MA3	**Laloui**, Lyesse (LMS)		
Duparc, Thibaut (GC-MA3)	Etude géotechnique de l'extension d'une station de métro existante, avec ouvrages géothermiques	GC-MA3	**Laloui**, Lyesse (LMS)		
Hartmann, Pia Stephanie (GC-MA3)	Etude géotechnique des travaux spéciaux d'un complexe immobilier	GC-MA3	**Laloui**, Lyesse (LMS)		
Kaufmann, Lea Tabea (GC-MA3)	Etude de stabilité de fonds et enceintes de fouille	GC-MA3	**Laloui**, Lyesse (LMS)		
Moser, Etienne (GC-MA3)	Projet bâtiment sur pieux à Noville Villeneuve	GC-MA3	**Laloui**, Lyesse (LMS)		
Pagani, Paolo (GC-MA3)	Etude géotechnique des ouvrages souterrains d\'un aménagement hydroélectrique	GC-MA3	**Laloui**, Lyesse (LMS)		
Rezzonico, Mirko Giuseppe Gerolamo (GC-MA3)	Etude géotechnique d'un tunnel en terrain meuble	GC-MA3	**Laloui**, Lyesse (LMS)		

Theoretical statements of master projects in Architecture (completed in january 2016, direct link to Infoscience)

Empty category

Semester projects (completed in 2016)

Advisee(s)	Project title	Section-Semester	Tutor(s)	Supervisor(s)	Institution(s) involved (if not EPFL)
Achich, Aymen (GC-MA3)	Projet de systèmes civils: Glissements de terrains : revue des cas pratiques	GC-MA2	**Laloui**, Lyesse (LMS)		
Bidegain--Yeung, Mélissa Sarah (GC-MA4)	Projet interdisciplinaire à option: Application de la technologie BIM (Building Information Modeling) en construction souterraine	GC-MA4	**Laloui**, Lyesse (LMS)		
Billioud, Matthieu Marie Frédéric (GC-MA3)	Projet de construction: Etude géotechnique d'un tunnel piétonnier	GC-MA2	**Laloui**, Lyesse (LMS)		
Caldi, Simon (GC-MA1)	Projet de construction: Retroanalyse du comportement d'une fouille d'argiles molles à tendres	GC-MA1	**Laloui**, Lyesse (LMS)		
Carpaij, René (GC-PMH)	Modelling of coupled thermal-hydro-mechanical processes related to nuclear waste storage	GC-MA3	**Laloui**, Lyesse (LMS)		
Duparc, Thibaut (GC-MA3)	Projet de construction: Performances des géostructures énergétiques.	GC-MA2	**Laloui**, Lyesse (LMS)		
Grüter, Daniel (GC-MA3)	Projet de construction: Pont de la RC177 sous Vufflens-la-Ville sur pieux forés dans les alluvions et dépôts fins de la Venoge traversant les voies CFF et la Venoge	GC-MA3	**Laloui**, Lyesse (LMS)		
Hartmann, Pia Stephanie (GC-MA3)	Laboratoire GC: Performance of biopolymer-glued sand under one-dimensional consolidation and direct shear test	GC-MA4	**Laloui**, Lyesse (LMS)		
Kaufmann, Lea Tabea (GC-MA3)	Projet de systèmes civils: Glissement de terrains: revue de cas pratiques	GC-MA2	**Laloui**, Lyesse (LMS)		

Advisee(s)	Project title	Section-Semester	Tutor(s)	Supervisor(s)	Institution(s) involved (if not EPFL)
Krayenbühl, Lionel Benoît Joël (GC-PMH)	Projet de systèmes civils: ANALYSE DE LA PRISE EN COMPTE DES PRESSIONS DES TERRES EN GÉOTECHNIQUE	GC-MA4	**Laloui**, Lyesse (LMS)		
Moser, Etienne (GC-MA3)	Projet de systèmes civils: Glissement de terrain: revue de cas pratiques	GC-MA2	**Laloui**, Lyesse (LMS)		
Santer, Klara Maria (GC-E)	Projet GC: Evolution in Road Tunnel Safety with Application to the Mont Blanc Tunnel	GC-E	**Vulliet**, Laurent (LMS)		
Tijani, Hamza (GC-MA1)	Laboratoire GC: Elaboration et compréhension des résultats de l'essai CBRf (augmentation de la résistance après cycle gel-dégel	GC-MA1	**Laloui**, Lyesse (LMS)		
Ylla Arbos, Claudia (GC-MA3)	Projet de systèmes civils: L'effondrement en géotechnique	GC-MA2	**Laloui**, Lyesse (LMS)		
Ylla Arbos, Claudia (GC-MA3)	Laboratoire GC: Étude et élaboration d'un protocole d'essai de cisaillement direct	GC-MA3	**Laloui**, Lyesse (LMS)		

Other supervisions

Advisee	Type of supervision	Work topic	Starting (month/year)	End, if known (month/year)	Supervisor(s)	Institution(s) involved (if not EPFL)
Brede, Swann	Apprenticeship	3nd year apprentice, laborant en physique	08/2013	07/2017	**Laloui**, Lyesse (LMS); **Dubey**, Patrick (LMS)	
Lotrecchiano, Michela (LMS)	Apprenticeship	Apprenti employé de commerce	08/2014	08/2017	**Laloui**, Lyesse (LMS); **Turielle**, Rosa Ana (LMS)	
Romann, Erwan (LMS)	Apprenticeship	1st year apprentice, laborant en physique	08/2016	07/2020	**Laloui**, Lyesse (LMS); **Dubey**, Patrick (LMS)	

Research

Funded and submitted research projects

Project Title	Principal Investigator	Co-applicant	Funding Source	Amount (CHF)	Start Date	Duration (Months)	Status
Upn. Vennes - Chexbres + PUN	LALOUI Lyesse	Violay Marie	Divers Confédération	53,913 out of 53,913	01.11.2016	9	Granted
Large-scale implementation of soil bio-improvement for a series of engineering applications	LALOUI Lyesse	Terzis Dimitrios	Lombardi Engineering	20,000 out of 20,000	01.10.2016	7	Granted
Numerical improvement of EPFL-APD constitutive law	LALOUI Lyesse		Divers Confédération	32,400 out of 32,400	01.09.2016	6	Granted
Thermo-mechanical performance of energy pile groups	LALOUI Lyesse		Divers Confédération	180,000 out of 180,000	01.01.2016	36	Ongoing
TERRE - Training Engineers and Researchers to Rethink geotechnical Engineering for a low carbon future	Tarantino Alessandro		Excellent Science	371,318 out of 4,745,934	01.11.2015	48	Ongoing
Thermo-mechanical performance of energy piles group	LALOUI Lyesse		FNS-Project Funding	166,038 out of 166,038	01.04.2015	31	Ongoing
Coupled Thermo-Hydro-Mechanical Analysis of Carbon Dioxide (CO2) Storage in Deep Saline Formations	LALOUI Lyesse		People	60,681 out of 60,681	01.01.2015	15	Ongoing
CAPROCK_Evaluation expérimentale de la géomécanique de la séquestration profonde du dioxyde de carbone	LALOUI Lyesse	Makhnenko Roman	Divers Confédération	103,000 out of 103,000	01.12.2014	32	Ongoing
Geo-mechanical investigations of bio-improved soils	LALOUI Lyesse	BERNIER-LATMANI Rizlan	FNS-Project Funding	176,401 out of 181,401	01.09.2014	38	Ongoing

Project Title	Principal Investigator	Co-applicant	Funding Source	Amount (CHF)	Start Date	Duration (Months)	Status
GREAT - Geotechnical and geological responses to climate change: exchanging approaches and technologies on a worl-wide scale	Ferrari Alessio	LALOUI Lyesse	People	153,720 out of 1,078,560	01.01.2014	48	Ongoing
SoE - Supply of Electricity	Giardini Domenico	Lehning Michael; SCHLEISS ANTON; Perona Paolo; AVELLAN François; LALOUI Lyesse	CTI / KTI	206,250 out of 12,000,000	01.11.2013	38	Ongoing
Hydro-mechanical damage model for anisotropic shales (Opalinus Clay): Constitutive modelling and numerical implementation	LALOUI Lyesse		Divers Confédération	210,000 out of 210,000	01.02.2013	36	Ongoing
Geothermal Reservoir Processes: Towards the implementation of research into the crea-tion and sustainable use of Enhanced Geothermal Systems	Maréchal François	LALOUI Lyesse	ETH Domain	30,000 out of 1,000,000	01.02.2013	45	Ongoing

Funded equipment

Project Title	Principal Investigator	Funding Source	Amount (CHF)	Date
CIXE - ENAC Interdisciplinary centre for X-ray CT imaging, Tomographe	LALOUI Lyesse	EPFL	860,000 out of 860,000	10.02.2016

Awards

Awardee	Name of prize / Competition	Place / Organization	Award description / URL	Prize sum (CHF)
Laloui, Lyesse (LMS)	2016 RM Quigley Award Winner with Dr. Thomas Mimouni for the best paper published in the Canadian Geotechnical Journal in 2015	Canadian Geotechnical Society	http://actu.epfl.ch/news/lms-researchers-have-won-the-2016-rm-quigley-award/	

Awardee	Name of prize / Competition	Place / Organization	Award description / URL	Prize sum (CHF)
Tadlaoui, Houda (LMS)	Member of the winning team of the Exposure Hackathon 2016	BSNL, the Catalyst, l'UNIL and l'EPFL	http://actu.epfl.ch/news/cut-it-out-a-short-film-on-ccs-awarded-by-the-jury/	
Terzis, Dimitrios (LMS)	Winner of the Swiss-Indian branch of the Academia Industry Training 2016	The Academia Industry Training (AIT) Program	https://actu.epfl.ch/news/a-start-up-project-developed-at-lms-wins-the-swiss/	

Research facilities

Research facilities
A volume pressure controller to apply high water pressure values (16 MPA) and to have a precise control of the water flow has been acquired from GDS Instruments Company with the funding from "ENAC Special Call for Equipments 2016".

Publications & Presentations

Journal articles (direct link to InfoScience)

Data	Not produced at EPFL	Peer reviewed	Key
Makhnenko R. Y.., Labuz J. F.., ***Elastic and inelastic deformation of fluid-saturated rock***, in Philosophical Transactions Of The Royal Society A-Mathematical Physical And Engineering Sciences, vol. 374, num. 2078, p.20150422 , 2016, Status: published		✓	
Zeidouni M., Vilarrasa V., ***Identification of above-zone pressure perturbations caused by leakage from those induced by deformation***, in Environmental Earth Sciences, vol. 75, num. 18, p.1271 , 2016, Status: published		✓	
Li X., Wu Q., Tao M., Weng L., Dong L., Zou Y., ***Dynamic Brazilian Splitting Test of Ring-Shaped Specimens with Different Hole Diameters***, in Rock Mechanics And Rock Engineering, vol. 49, num. 10, p.4143-4151 , 2016, Status: published	✓	✓	
Rotta Loria A. F.., Laloui L., ***Thermally induced group effects among energy piles***, in Geotechnique -London- , 2016, Status: published		✓	
Vilarrasa V., Parisio F., Laloui L., ***Strength evolution of geomaterials in the octahedral plane under non-isothermal and unsaturated conditions***, in International Journal of Geomechanics , 2016, Status: published		✓	
Vilarrasa V., Parisio F., Laloui L., ***Strength evolution of geomaterials in the octahedral plane under non-isothermal and unsaturated conditions***, in International Journal of Geomechanics , 2016, Status: accepted		✓	
Favero V., Ferrari A., Laloui L., ***Thermo-mechanical volume change behaviour of Opalinus Clay***, in International Journal of Rock Mechanics and Mining Sciences, vol. 90, p.15-25 , 2016, Status: published		✓	
Ferrari A., Favero V., Laloui L., ***One-dimensional Compression and Consolidation of Shales***, in International Journal of Rock Mechanics and Mining Sciences, vol. 88, p.286–300 , 2016, Status: published		✓	
Rotta Loria A. F.., Laloui L., ***The interaction factor method for energy pile groups***, in Computers and Geotechnics, vol. 80, p.121-137 , 2016, Status: published		✓	
Li C., Laloui L., ***Coupled multiphase thermo-hydro-mechanical analysis of supercritical CO2 injection: benchmark for the In Salah surface uplift problem***, in International Journal of Greenhouse Gas Control, vol. 51, p.394-408 , 2016, Status: published		✓	
Seiphoori A., Laloui L., Ferrari A., Hassan M., Khushefati W..H.., ***Water retention and swelling behaviour of granular bentonites for application in Geosynthetic Clay Liner (GCL) systems***, in Soils and Foundations -Tokyo-, vol. 56, num. 3, p.449-459 , 2016, Status: published		✓	
Favero V., Ferrari A., Laloui L., ***On the Hydro-Mechanical Behaviour of Remoulded and Natural Opalinus Clay Shale***, in Engineering Geology, vol. 208, p.128–135 , 2016, Status: published		✓	

Data	Not produced at EPFL	Peer reviewed	Key
Terzis D., Bernier-Latmani R., Laloui L., ***Fabric characteristics and mechanical response to bio-improved sand to various treatment conditions***, in Geotechnique Letters, vol. 6, num. 1, p.50-57 , 2016, Status: published		✓	
Minardi A., Crisci E., Ferrari A., Laloui L., ***Anisotropic volumetric behaviour of Opalinus Clay shale upon suction variation***, in Geotechnique Letters, vol. 6, p.1-5 , 2016, Status: published		✓	
Laloui L.., Ferrari A.., Li C.., Eichenberger J.., ***Hydro-mechanical analysis of volcanic ash slopes during rainfall***, in Geotechnique, vol. 66, num. 3, p.220-231 , 2016, Status: published		✓	
Qiao Y., Ferrari A., Laloui L., Wenqi D., ***Nonstationary flow surface theory for modeling the viscoplastic behaviors of soils***, in Computers and Geotechnics, vol. 76, p.105 - 119 , 2016, Status: published		✓	
Rosone M., Farulla C. A., Ferrari A., ***Shear strength of a compacted scaly clay in variable saturation conditions***, in Acta Geotechnica, vol. 11, num. 1, p.37-50 , 2016, Status: published		✓	
Gatabin C., Talandier J., Collin F., Charlier R., Dieudonné A.-C., ***Competing effects of volume change and water uptake on the water retention behaviour of a compacted MX-80 bentonite/sand mixture***, in Applied Clay Science, vol. 121-122, p.57-62 , 2016, Status: published	✓	✓	
Vilarrasa Riano V., Laloui L., ***Impact of thermally induced stresses on fracture stability during geological storage of CO2***, in Energy Procedia, vol. 86, p.411-419 , 2016, Status: published		✓	
Bandara S., Ferrari A., Laloui L., ***Modelling landslides in unsaturated slopes subjected to rainfall infiltration using material point method***, in International Journal for Numerical and Analytical Methods in Geomechanics, vol. 40, p.1358–1380 , 2016, Status: published		✓	
Venuleo S., Laloui L., Terzis D., Hueckel T., Hassan M., ***Effect of Microbially Induced Calcite Precipitation on soil thermal conductivity***, in Geotechnique Letters, vol. 6, num. 1 , 2016, Status: published		✓	
Zou Y., Li J.., He L.., Laloui L., Zhao J., ***Wave propagation in the vicinities of rock fractures under obliquely incident wave***, in Rock Mechanics and Rock Engineering, vol. 49, num. 5, p.1789–1802 , 2016, Status: published		✓	
Di Donna A., Rotta Loria A. F.., Laloui L., ***Numerical study of the response of a group of energy piles under different combinations of thermo-mechanical loads***, in Computers and Geotechnics, vol. 72, p.126–142 , 2016, Status: published		✓	
Di Donna A., Ferrari A., Laloui L., ***Experimental investigations of the soil-concrete interface: physical mechanisms, cyclic mobilisation and behaviour at different temperatures***, in Canadian Geotechnical Journal, vol. 53, num. 4, p.659 - 672 , 2016, Status: published		✓	
Comodromosa E., Papadopouloua M., Laloui L., ***Contribution to the design methodologies of piled raft foundations under combined loadings***, in Canadian Geotechnical Journal, vol. 53, num. 4, p.559 - 577 , 2016, Status: published		✓	
Laloui L., Ferrari A., Li C., Eichenberger J., ***Hydro-mechanical analysis of volcanic ash slopes during rainfall***, in Geotechnique -London-, vol. 66, num. 3, p.220-231 , 2016, Status: published		✓	

Data	Not produced at EPFL	Peer reviewed	Key
Manca D., Ferrari A., Laloui L., ***Fabric evolution and the related swelling behaviour of a sand/bentonite mixture upon hydro-chemo-mechanical loadings***, in Geotechnique -London-, vol. 66, num. 1, p.41-57 , 2016, Status: published		✓	
Dupray F., Laloui L., ***Numerical analysis of canister movements in an engineered barrier system***, in Acta Geotechnica -Springer Verlag-, vol. 11, num. 1, p.145-160 , 2016, Status: published		✓	

Conference papers (direct link to InfoScience)

Data	Peer reviewed	Key
Laloui L., Ferrari A., Favero V., Parisio F., Minardi A., ***Geomechanical Behavior of Shales***, Workshop on Geotechnical Fundamentals in the Face of the New World Challenges, Arlington, Virginia, US, 19/07/2016, Status: published		
Rotta Loria A. F.., Laloui L., ***The role of thermally induced soil deformation on the serviceability of energy piles***, 17th French-Polish Colloquium of Soil and Rock Mechanics, Lodz, Poland, Status: published	✓	
Vilarrasa V., Carrera J., Olivella S., *Editor(s):Delage P.*, *Cui Y.*, *Ghabezloo S.*, *Pereira J.*, *Tang A.*, ***Two-phase flow effects on the CO2 injection pressure evolution and implications for the caprock geomechanical stability***, 3rd European Conference on Unsaturated Soils (E-UNSAT), Status: published	✓	
Dieudonne A.-C., Gatabin C., Talandier J., Collin F., Charlier R., *Editor(s):Delage P.*, *Cui Y.*, *Ghabezloo S.*, *Pereira J.*, *Tang A.*, ***Water retention behaviour of compacted bentonites: experimental observations and constitutive model***, 3rd European Conference on Unsaturated Soils (E-UNSAT), Status: published	✓	
Laloui L.., Ferrari A.., Favero V.., *Editor(s):Chen Z.*, *Wei C.*, *Sun D.*, *Xu Y.*, ***Testing of the hydro-mechanical behaviour of shales***, 6th Asia-Pacific Conference on Unsaturated Soils, Status: published	✓	
Laloui L., Rotta Loria A. F.., ***Geotechnical analysis of energy piles***, 4th International Conference on New Developments in Soil Mechanics and Geotechnical Engineering, Nicosia, North Cyprus, June 2-4, 2016, Status: published	✓	
Laloui L., Rotta Loria A. F.., ***Multiphysical phenomena and mechanisms involved with energy piles***, 1st International Conference on Energy Geotechnics, ICEGT, 2016, Kiel, Germany, August 29-31, 2016, Status: published	✓	
Rotta Loria A. F.., Laloui L., ***Analysis of thermally induced mechanical interactions in energy pile groups***, 1st International Conference on Energy Geotechnics, ICEGT, 2016, Kiel, Germany, August 29-31, 2016, Status: published	✓	
Minardi A., Crsci E., Ferrari A., Laloui L., ***Anisotropic Volumetric Response of Shales upon Suction Changes***, Fifth EAGE Shale Workshop, Catania, Italy, May 2-4, 2016, Status: published	✓	
Favero V., Ferrari A., Laloui L., ***An insight on the thermo-mechanical behaviour of a shale***, Fifth EAGE Shale Workshop: Quantifying Risk and Potential, Catania, Italy, May 2-4, 2016, Status: published	✓	

Presentations & Talks (direct link to InfoScience)

Data	Key
Li C., Robert G., Laloui L., ***Geomechanical modelling framework of CO2 injection with consideration of salt precipitation and dissolution***, 14th Swiss Geoscience Meeting, Geneva, Switzerland, November 18-19, 2016	
Li C., ***Les enjeux géomécaniques de la séquestration du CO2***, Atelier sur les enjeux de l'utilisation du CO2, University of Lausanne, Lausanne, Switzerland, April 19-20,2016	

Posters (direct link to InfoScience)

Data	Key
Li C., Laloui L., ***Coupled thermo-hydro-mechanical effects on caprock stability during carbon dioxide injection***, 13th International conference on Greenhouse Gas Control Technologies, Lausanne, Switzerland, November 14-18,2016	

Technical Reports (direct link to InfoScience)

Data	Key
Romero E., Gonzalez Blanco L., Dieudonné A.-C., Marschall P., ***Hydro-mechanical processes associated with gas transport in MX-80 bentonite***, 2016	
Dieudonné A.-C., Qiao Y., Ferrari A., Laloui L., ***3D Hydro-mechanical simulation of canister loads due to bentonite density gradients***, 2016	
Dieudonné A.-C., Rodriguez G., Ferrari A., Laloui L., ***GTS Phase VI – GAST-TP2 Mock-up saturation and gas test interpretation***, 2016	

Theses (direct link to InfoScience)

Data	Key
Zou Y., *Advisor(s): Laloui L., Zhao J.*, ***Seismic response of rock joints under obliquely incident wave***, Thèse EPFL, n° 7270, 2016, Status: published	
Parisio F., *Advisor(s): Laloui L.*, ***Constitutive and numerical modeling of anisotropic quasi-brittle shales***, Thèse EPFL, n° 7053, 2016, Status: published	
Li C., *Advisor(s): Laloui L.*, ***Geomechanical modelling of CO_2 injection in deep aquifers***, Thèse EPFL, n° 6979, 2016, Status: published	

Outreach

Current ongoing collaborations

People involved at ENAC & EPFL wide	Collaborating institution(s) (if not EPFL)	Additional information on cooperation partner(s)	Project topic/Description, Financial support (CHF) if any	Collaboration includes...
Laloui, Lyesse (LMS)		Swiss Federal Office of Energy SFOE	Geomechanical investigation of caprock for CO2 storage; Geotechnical Reliability of Thermo-piles-energy Investigation	
Laloui, Lyesse (LMS)		Federal Office for the Environment FOEN		joint publication(s)
Laloui, Lyesse (LMS)		Swiss Federal roads office FEDRO	Use of energy geostructures for thermal regulation and energy optimization of road network and structures	
Laloui, Lyesse (LMS)		Swissnuclear	Constitutive modelling of bentonite	
Laloui, Lyesse (LMS)		EOS Holding	Geosturcture In-situ Test	
Laloui, Lyesse (LMS)		Swiss Competence Center for Energy Research – Supply of Electricity (SCCER-SoE)	Geothermal energy and CO2 storage	
Laloui, Lyesse (LMS)		SWISSTOPO	Hydro-mechanical modelling of the Opalinus Clay in Mont Terri	
Laloui, Lyesse (LMS); **Ferrari**, Alessio (LMS)		CHEVRON	Geomechanical characterization of gas shales	
Laloui, Lyesse (LMS); **Ferrari**, Alessio (LMS)		NAGRA	Experimental and constitutive analysis of the Opalinus Clay shale	

People involved at ENAC & EPFL wide	Collaborating institution(s) (if not EPFL)	Additional information on cooperation partner(s)	Project topic/Description, Financial support (CHF) if any	Collaboration includes...
Laloui, Lyesse (LMS); **Tacher**, Laurent (LMS)		Competence Center Energy and Mobility	Geothermal reservoir behaviour	

Innovation

Empty category

Distinguished work

Author(s)	Article title	Journal & Pages	Publication date
Laloui, Lyesse (LMS)	Le Stockage du CO2: Une Solution Immediate pour le Climat	L'Extension pp:26-27	Spring 2016
Laloui, Lyesse (LMS)	Comment Changer le CO2 en Roche, une Recette pour Refroidir L'Atmosphère	Le Temps	10 June 2016
Laloui, Lyesse (LMS); **Terzis**, Dimitrios (LMS)	Sols Biorenforcés: vers un Changement de Paradigme	Tracés	31 August 2016

Appointments at other institutions

Name	Title	Institution
Ferrari, Alessio (LMS)	Associate professor	Università degli Studi di Palermo, IT (European Universities and Research Centers)
Laloui, Lyesse (LMS)	Adjunct professor	Duke University, USA (World Universities and Research Centers)

Visiting scholars

Visitor	Home Institution	Aim of visit, Duration
Adinolfi, Marianna	Universitá degli Studi di Napoli (European Universities and Research Centers)	Doctoral Student: Doctoral student visited LMS as a part of her PhD thesis titled "Thermo-hydro-mechanical behaviour of energy geostructures: experimental and numerical investigations" Duration: 01.08.2016-01.11.2016
Borja, Ronaldo I.	Stanford University, USA (World Universities and Research Centers)	Visit and lecture: Visit and lecture for the celebration of 80th anniversary of the geotechnical group at EPFL. Duration: 15 January 2016
Cardoso, Rafaela	Instituto Superior Técnico Lisboa, PT (European Universities and Research Centers)	Visit and Seminar: Electro-hydro-mechanical behaviour of natural and improved soils Duration: 1-2 March 2016

Visitor	Home Institution	Aim of visit, Duration
Cinicioglu, Feyza	Istanbul University (World Universities and Research Centers)	Visit and Seminar: Deformation and stress based approaches to the problems of embankment design on soft soils Duration: 10-11 November 2016
Comodromos, Emilios	University of Thessaly (World Universities and Research Centers)	Visit and Seminar: Numerical modelling in Mechanised Tunnelling Duration: 4 November 2016
Gens, Antonio	Technical University of Catalonia (European Universities and Research Centers)	Visit and lecture: Visit and lecture for the celebration of 80th anniversary of the geotechnical group at EPFL. Duration: 15 January 2016
Hueckel, Tomasz	Duke University, USA (World Universities and Research Centers)	Visit and Lecture: Visit and lecture for the celebration of 80th anniversary of the geotechnical group at EPFL. Duration: 15 January 2016
Katsikas, Christos	Université Grenoble Alpes, FR (European Universities and Research Centers)	Master Student: Master student visited LMS as a part of his master thesis "Numerical modelling of gas migration in a compacted sand/bentonite mixture" Duration: 01.02.2016-30.06.2016
Labuz, Joseph	University of Minnesota, USA (World Universities and Research Centers)	Visit and lecture: Visit and lecture for the celebration of 80th anniversary of the geotechnical group at EPFL. Duration: 15 January 2016
Puzrin, Alexander	ETH Zurich, CH (Swiss Universities and Research Centers)	Visit and Seminar: Evolution of submarine landslides: Unifying shear band propagation approach Duration: 19 May 2016
Ronda, Michela	University of Trento, IT (European Universities and Research Centers)	Master Student: Master student visited LMS as a part of her master thesis titled "Modelling the effects of the atmosphere on the stability of slopes". Duration: 01.05.2016-30.10.2016
Selvadurai, Patrick	McGill University, CA (World Universities and Research Centers)	Visit and lecture: Visit and lecture for the celebration of 80th anniversary of the geotechnical group at EPFL. Duration: 15 January 2016
Vadrot, Aurélien	Ecole normale supérieure de Cachan (European Universities and Research Centers)	Master Student: Master student visited LMS as a part of his Master thesis titled "Analyse du déplacement vertical des groupes de pieux énergétiques". Duration: 03.05.2016 -30.07.2016

Alumni

Empty category

Distinguished alumni

Empty category

Organisation of events

Date (month)	Location	Event title	Key people in lab involved	Description / URL

11/2016	Lausanne, Switzerland	13th Conference on Greenhouse Gas Control Technologies (GHGT-13)	**Laloui**, Lyesse (LMS)	http://memento.epfl.ch/event/13th-greenhouse-gas-control-technologies-conferenc/ http://www.ghgt.info/ghgt-13

Invitation to Events

Date (month)	Location	Event title	Key people in lab involved	Role / Talk title	Description / URL
02/2016	Webinar	International Society for Soil Mechanics and Geotechnical Engineering Webinar	**Laloui**, Lyesse (LMS)	Webinar: Multiphysical process and design of thermo-active foundations	http://memento.epfl.ch/event/issmge-webinar-given-by-prof-lyesse-laloui/
05/2016	Nagoya, Japan	International Mini Symposium CHUBU	**Laloui**, Lyesse (LMS)	Keynote Lecture: Analysis of canister movements in an engineered barrier system	http://memento.epfl.ch/event/keynote-lecture-at-ims-chubu-keynote-lecture-at-im/
06/2016	Nicosie, Greece	4th International Conference on the New Developments is Soil Mechanics and Geotechnical Engineering	**Laloui**, Lyesse (LMS)	Keynote Lecture: Geotechnical analysis of energy piles	http://memento.epfl.ch/event/keynote-lecture-at-the-icndsmge-2016/
11/2016	Łódź, Poland	XVII French-Polish Colloquium of Soil and Rock Mechanics	**Laloui**, Lyesse (LMS)	Keynote Lecture: Geomechanical solutions for Geo-Energy issues	http://memento.epfl.ch/event/xvii-french-polish-colloquium-of-soil-and-rock-mec/

Services

EPFL committees and services

Name	Service	Role	Role in funding allocation
Laloui, Lyesse (LMS)	Civil Engineering Section	Director	yes
Laloui, Lyesse (LMS)	Direction of the School of Architecture, Civil and Environmental Engineering (ENAC)	Member	yes
Laloui, Lyesse (LMS)	Committee of the Doctoral Program in Mechanics	Member	no
Laloui, Lyesse (LMS)	Faculty search committee for position of Professor in Rock Mechanics at EPFL	Chairman	no
Laloui, Lyesse (LMS)	Faculty search committee for position of Professor in Geo-Energy at EPFL	Chairman	no
Laloui, Lyesse (LMS)	Faculty search committee for position of Professor in Structures & Materials	Member	no
Laloui, Lyesse (LMS)	Faculty search committee Professor position in “Renewable Energy in Buildings”	Member	no
Laloui, Lyesse (LMS)	ENAC Academic Promotion Comittee CPA	Member	no
Laloui, Lyesse (LMS)	Faculty Search Committee for two positions of Professor in Transportation engineering and Transportation systems at EPFL	Member	no

Other committees and services (national including the EPF domain, international...)

Name	Service	Role	Role in funding allocation
Ferrari, Alessio (LMS)	International Society of Soil Mechanics and Geotechnical Engineering ISSMGE	Member of the technical committee TC 308 “Energy Geotechnics”	no

Name	Service	Role	Role in funding allocation
Ferrari, Alessio (LMS)	International Society of Soil Mechanics and Geotechnical Engineering ISSMGE	Member of the technical committee TC 101 “Unsaturated Soils”	no
Ferrari, Alessio (LMS)	Sixth EAGE shale workshop, Bordeaux, France	Member of the Scientific Committee	no
Ferrari, Alessio (LMS)	TC308/ISSMGE workshop in Rome, 8/4/2016	Organizer	no
Ferrari, Alessio (LMS)	Journal Geomechanics for Energy and the Environment	Member of the Editorial Board	no
Laloui, Lyesse (LMS)	Geomechanics and Geomaterials – Hermes Science Publishing Limited (WILEY-ISTE, London)	Book Series Editor	no
Laloui, Lyesse (LMS)	Acta Geotechnica	Member of Editorial Board	no
Laloui, Lyesse (LMS)	Chinese Journal of Geotechnical Engineering	Member of Editorial Board	no
Laloui, Lyesse (LMS)	European Journal of Environmental and Civil Engineering	Member of Editorial Board	no
Laloui, Lyesse (LMS)	Journal of Coupled Systems and Multiscale Dynamics	Member of Editorial Board	no
Laloui, Lyesse (LMS)	Environmental Geotechnics	Advisory Board Member	no
Laloui, Lyesse (LMS)	International Journal for Numerical and Analytical Methods in Geomechanics	Member of Editorial Board	no
Laloui, Lyesse (LMS)	Sixth International Symposium on Deformation Characteristics of Geomaterials Buenos-Aires, Argentina 2015	Member of the International Advisory Committee	no
Laloui, Lyesse (LMS)	VI International Conference on Computational Methods for Coupled Problems in Science and Engineering (COUPLED PROBLEMS 2015), 18 - 20 May 2015, Island of San Servolo, Venice, Italy	Member of the Scientific Committee	no
Laloui, Lyesse (LMS)	TC101 “Laboratory Stress Strain Strength - Testing of Geomaterials” of the International Society for Soil Mechanics and Geotechnical Engineering.	Vice-Chair	no

Name	Service	Role	Role in funding allocation
Laloui, Lyesse (LMS)	Faculty Search Committee for position of Full Professor in Geotechnical Engineering at EHT Zurich	Member	no
Laloui, Lyesse (LMS)	EU-ERC Consolidator Grants panel dealing with Products and Processes Engineering	Member	yes
Laloui, Lyesse (LMS)	International journal Geomechanics for Energy and the Environment	Editor-in-Chief	no
Laloui, Lyesse (LMS)	Scientific Committee of the International Conference on Computational Methods for Coupled Problems in Science and Engineering (COUPLED PROBLEMS 2017, Island of Rhodes (Greece), 2017.	Member	no
Laloui, Lyesse (LMS)	International technical committee of the PanAm-UNSAT 2017: The 2nd Pan American Conference on Unsaturated Soils, Dallas/Fort Worth, Texas, USA, 2017.	Member	no
Laloui, Lyesse (LMS)	Scientific committee of the 7th Clay Conference (Clays in Natural and Engineered Barriers for Radioactive Waste Confinement) Davos, 2017.	Member	no
Laloui, Lyesse (LMS)	International Advisory Committee of the Third European Conference on Unsaturated Soils (E-UNSAT2016) in Paris, France.	Member	no
Laloui, Lyesse (LMS)	Second EAGE Workshop on Geomechanics and Energy	Chairman	no

Vision

Highlights

Highlights
1- Laboratory of Soil Mechanics hosted the 13th Greenhouse Gas Control Technologies Conference (GHGT-13): Almost 1000 participants including scientists, researchers, professionals from 33 countries have attended the conference. During the conference, 7 parallel streams and 11 technical sessions were run with a total of 350 oral presentations and over 450 poster presentations from the 1100 abstracts received. http://lms.epfl.ch/page-139412-en.html 2- High level of scientific production with 30 publications in international peerreview journals in 2016. 3- In 2016, LMS has contributed to the outstanding educational and international activities of EPFL by publishing two new books: "Mécanique des Sols et des Roches", a new book on soil and rock mechanics http://actu.epfl.ch/news/publication-of-the-traite-de-genie-civil-n18/ "Energy Geostructures: Innovation in Underground Engineering", the Chineese translation of the book that was previously published in August 2013. http://actu.epfl.ch/news/is-energy-geostructure-in-chinese-2/

Goals

Goals
The LMS activities are designed to promote engineering solutions in the field of the alternative sources of energy, including nuclear waste disposal, geothermal energy and CO2 sequestration. The LMS activities will continue to cover education, research and technology transfer in the large field of Geomechanics. The vision aims at contributing to a sustainable development of our built and natural environment by addressing selected key questions with the highest possible academic standard, within transdisciplinary internal and international collaborations and through contacts with industry with long-term research focuses. The research activities will focus on problems involving a variable environment and new and advances in existing technologies of energy production. These two areas: environment and energy are expected to dominate technological agenda for forthcoming years. The reason for that is two-fold: first there is world-wide crisis of environment endangerment related to the geosphere: soil and groundwater pollution by accidental spills, CO2 emission driven reduction of fossil fuel usage and/or inadequate isolation of pollutants, and second there is a host of new sources of energy related to geosphere. In both cases, there is an emerging new fundamental research concerning the effects of chemical, thermal and biological variables on mechanical properties and mechanical variables of soils and shales, and vice versa the effects of mechanical variables as stress, strain, damage affecting chemical and biological, physical or thermal processes and properties that require a multi-disciplinary approach. The levels of these couplings are multiple and often poorly recognized. Especially with nascent technologies related to the energy production it is rational to include the environmental considerations early in the phase of development rather than seek remedies post factum, or after the damage has been induced. This clearly may refer to production of natural gas from shales, the techniques of hydraulic and chemical fracturing, CO2 sequestration technologies, nuclear waste isolation (long and short term), heat and fuel storage in the underground and under structures, geothermal fluid energy, energy from methane hydrates, oil production from high

temperature, high pressure deposits, and many others. Effects of chemical and biological pollution on isolation geo-

Goals

structures constitute a separate class of problems. Finally, technologies of chemical and biological improvement of mechanical and hydraulic quality of soils and shales involve knowledge and methods based on the same principles.

The intrinsic nature of coupling of chemical, biological, thermal and mechanical properties, variables and fields distinguishes the related problems from those in classical geomechanics. It is believed that continuing and establishing new research activities dedicated to these issues of Energy and Environmental Geomechanics is a great opportunity for LMS and ENAC.

Some examples of activities for the coming years would be in the following areas:

Geo-energy structure

Efforts are being devoted to better understand the physical mechanisms and phenomena characterising the operation of energy geostructures for ensuring an optimal geotechnical, structural and energy performance of such ground structures. The LMS has nowadays more than 10 years of experience on this scope and is internationally recognised by Universities and Companies as the leader research group in this field. The analyses that are being performed are focused on various aspects that characterise energy geostructures, including the non-isothermal behaviour of soils when subjected to cyclic temperature variations, the interaction (soil-structure) with the concrete composing these ground structures, the structural behaviour of the concrete itself subjected to temperature changes, the hydraulic aspects related to the fluid flow inside of the pipes embedded in the concrete that allow for the heat exchange between the soil and the ground structure, and the optimal practices for equipping the considered elements. It is considered that the exploitation of shallow geothermal energy for satisfying the energy needs of building environments in an environmentally-friendly way will increase and spread worldwide more and more in the foreseeable future. The LMS, through its expertise in this subject matter, aims at being the representative of this revolutionary approach.

Deep Geo-Energy

Advanced theoretical, experimental and computational knowledge was developed in the recent years at the LMS for assessing and predicting the behaviour of geomaterials subjected to changes in temperature and at different states of saturation. This state of the art expertise has been mainly applied in the fields of underground nuclear waste storage as well as the geothermal use of the building foundations. The research activities are now devoted to (i) the enhancement of the understanding of the thermo-hydro-chemical-mechanical behaviour of shales (including gas shales and host rock formations for waste disposal) and bentonites and the prediction of their long term behaviour, and (ii) the development of computational design tools for geo-energy structures.

Several highly sophisticated and unique experimental tools were developed at the lab in the recent three years with an investment of about 1000.- Kfrs (from FNS, EPFL and industry). It is planned to develop the knowledge and the understanding on the behaviour of soils and shales in the light of the extreme loading conditions that the equipment allows. There is a huge room for fundamental research on the running of coupled thermo (until 150°C) –hydro (until 400 MPa of suction)-mechanical (until 30 MPa) testing as well as on the behaviour of the materials in such conditions. I would like also to extend the laboratory facilities serving the research to micro scale observations (i.e. neutron tomography) for a better insight on the fundamental physical mechanism governing the thermo-hydro-mechanical behaviour of the involved materials.

Environmental Geomechanics

Efforts will be devoted to maintain the current research activities in the area of multi-physical coupling processes in soils at leading edge of technology with expertise in the fundamentals of soil mechanics.

LMS has a large tradition in the domain of landslides analysis. In the past years, early warning system methods have been developed. Climate change and its effects on earth equilibria, water budget are studied all around the world by

Goals

thousands of researchers. Following this trend, the current researches at LMS focus on the effects of climate variations on the stability of slopes. To do so, interactions between the soil and the atmosphere have to be studied to understand the exchanges between the two systems. Making use of the foreseen climate changes, the aims of these researches would be to take a step forward in the management of the natural hazards by predicting the situation in the next century. As dry Summers as the 2015 are more often anticipated in the 21st century, the focus will be set on the mechanism of desiccation cracking in soils. The room for research on this phenomenon is extremely important and its implications on landfill liners integrity, stability of foundations, agriculture and stability of slopes have to be assessed.

The project of bio-improved soils currently carried out at LMS has proven great potential in building a sustainable, environmental-friendly method for stabilizing soils and preventing failures in a vast range of engineering problems. The project has already offered the chance for interdisciplinary collaboration between LMS and EML and offers common ground for collaboration with other ENAC laboratories. As a foreseen step, a pilot, large-scale application of the technique is planned in order to better design and suggest an efficient method, adaptable to the needs of the geotechnical problem.

CO2 storage

The financial support of Petrosvibri to the Chair allows the development of a deep knowledge in the area of CO2 storage. Experimental facilities devoted to this topic are developed. Also computational tools at the basin scale will be introduced for the analysis of the various scenarios.

These objectives would help the ENAC to strengthen its research and teaching profile and to play an important national and an international role in the most advanced and strategically important areas of research in Energy and Environmental Geomechanics.

Others

Empty category

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