

Qualifications

- 1976 Civil Engineer, Ecole Nationale des Ponts et Chaussées (ENPC), Paris
- 1979 PhD (Eng. Geology), Ecole des Mines de Paris, Université Paris VI
- 1997 Habilitation à diriger les recherches (ENPC, Ecole Normale Sup. Cachan, Univ. MLV)

Appointments

- 2011 – Senior researcher, Laboratoire Navier/CERMES
- 2010 – 2011 Invited Professor, Nanyang Technological University, Singapore
- 2003 – 2010 Head, CERMES (the geotechnical research group of ENPC, 38 persons)
- 1997 – Professor, Ecole Nationale des Ponts et Chaussées, Paris
- 1985 – 2003 Deputy-director of CERMES
- 1983 – 1985 Research fellow at CERMES
- 1980 – 1982 Post-doc research fellow, Université de Sherbrooke (Canada)

Memberships

- 2017 – Member of the French Academy of Agriculture
- 2013 – Member, InSight Science Team, NASA (InSight is an on-going mission on Mars, landed 26 November 2018)
- 2019 13th Zeng Guoxi lecturer, Zhejiang University, Hangzhou, China.
- 2013 – Chair, Technical Oversight Presidential Board Level Committee, ISSMGE¹
- 2012 – Member of the Board of the French Geotechnical Association (CFMS)
- 2016 – 2018 Chair of the Organising Committee, JNCG2018 (9th French Conf. on Soil and Rock Mechanics), 13 – 15 June, Ecole des ponts ParisTech
- 2015 – 2016 Chair of the Organising Committee, 4th European Conf. on Unsaturated Soils, Paris
- 2013 – 2016 Chair and Honorary Editor, *Géotechnique Letters* (ICE, London)
- 2004 – 2014 Vice-Chair, TC 106 Committee on Unsaturated Soils (ISSMGE)
- 2011 – 2013 Vice-Chair, Scientific Committee, 18th ICSMGE², Paris 2013, Main editor of the Proc.
- 2009 – 2013 Member, Innovation and Development Committee (IDC), ISSMGE
- 2014 – Chair appointed member, TC106
- 2001 – 2010 Vice-Chairman of the French Geotechnical Association (CFMS)
Member, French Associations: i) Geotechnical Eng., ii) Dams and Reservoirs, iii) Rock Mechanics, iv) Engineering Geology, v) Clays

Editorial Panels

- ASTM Geotechnical Testing Journal (USA), Computers and Geotechnics (UK, up to 2016), Geomechanics and Geoengineering (UK), Rivista Geotecnica Italiana, Revista Escuelas de Minas (Brasil), International Journal of Geotechnical Engineering (UK).
- Ass. Guest Editor: *Physics and Chemistry of the Earth*, 3 Special Issues on “Clay in natural and engineered barriers for radioactive waste confinement” in 2007, 2008, 2011. Guest Ed. with Arroyo M, *Rivista Italiana di Geotecnica* 2010, Special Issue on “Advances in field and laboratory testing of geomaterials”. Ass. Guest Ed. “Clay in natural and engineered barriers for radioactive waste confinement”, 2014, The Geological Society, London.
- Chief editor, *Revue Française de Géotechnique*, 1999 – 2004
- Panel member, *Géotechnique* (ICE London), 2000 - 2003

Research Interests (23 PhDs directed)

Unsaturated soils mechanics (applications to earthdams, embankments, compacted bentonite for radioactive waste storage, effects of drought on buildings, collapsible loess, shales) / Thermo-mechanics of clays and shales (radioactive waste storage) / Microstructure and behaviour of soft soils (sensitive clays, deep marine soils) and shales / Mechanical behaviour of multiphase chalks (oil reservoirs, stability of chalk quarries) / Soil reinforcement (nailing, fibres) / Soil pollution by NAPL.

Research Publications

- 361 papers including 117 International Peer-reviewed Journal papers, one in Nature Geosciences (H index WoS 28, 3623 cit.)
- Invited Keynote/General reports, International Conferences: 20
- International Conference Papers: 150, Books, Proceedings (Ed.): 12, Book Chapters: 10

Research Contracts

¹ International Society for Soil Mechanics and Geotechnical Engineering

² International Conference on Soil Mechanics and Geotechnical Engineering

French, Belgian and Swiss Agencies for radioactive Waste Disposal, since 2007; French Petroleum Institute (Steam Assisted Gravity Drainage - 2009-11), behaviour of unsaturated loess (European fundings + French Railways, 2005-11), European Project TIMODAZ Thermal Impact On DAMaged Zone in radioactive waste disposal (2006-10), CLAROM (Petroleum Industry) on the behaviour of deep soft marine sediments (2005-10)

Recent papers

1. Lognonné, P., W.B. Banerdt, W.T. Pike, D. Giardini, U. Christensen, R.F. Garcia, T. Kawamura, ... **P. Delage** et al. 2020. Constraints on the shallow elastic and anelastic structure of Mars from InSight seismic data, *Nature Geoscience*, <http://doi.org/10.1038/s41561-020-0536-y>
2. **Delage P.**, Tessier D. 2020. Macroscopic effects of nano and microscopic phenomena in clayey soils and clay rocks. *Geomechanics for Energy and the Environment*, doi:10.1016/j.gete.2019.100177.
3. Stanić F., **Delage P.**, Cui Y.J., Versini P.A., Schertzer D., Tchiguirinskaia I. 2020 Two improvements to Gardner's method of measuring the hydraulic conductivity of non-saturated media: accounting for impedance effects and non-constant imposed suction increment. *Water Resources Research*, 56, <https://doi.org/10.1029/2019WR026098>
4. Molinero Guerra A., Mokni N., Cui Y.J., **Delage P.**, Tang A.M., Aïmedieu P., Bornert M. 2019. Impact of initial structural heterogeneity on long term swelling behavior of MX80 bentonite pellet/powder mixtures. *Canadian Geotechnical Journal*, <https://doi.org/10.1139/cgj-2018-0301>.
5. Braun P., **Delage P.**, Ghabezloo S., Sulem J., Conil N. 2019. Effect of transverse isotropy on the thermal volume changes of shales: insight from the Callovo-Oxfordian claystone. *Géotechnique Letters*, doi.org/10.1680/jgele.19.00045.
6. Braun P., Ghabezloo S., **Delage P.**, Sulem J. and Conil N. 2019. Determination of multiple thermo-hydro-mechanical rock properties in a single transient experiment: application to shales. *Rock Mechanics and Rock Engineering*, <https://doi.org/10.1007/s00603-018-1692-x>.
7. Molinero Guerra A., Cui Y.J., He Y., **Delage P.**, Mokni N., Tang A.M., Aïmedieu P., Bornert M., Bernier F. 2019. Characterization of water retention, compressibility and swelling properties of a pellet/powder bentonite mixture. *Engineering Geology* 248, 14-21 <https://doi.org/10.1016/j.enggeo.2018.11.005>.
8. Molinero Guerra A., **Delage P.**, Cui Y.J., Mokni N., Tang A.M., Aïmedieu P., Bernier F., Bornert M., 2019. Water retention properties and microstructure changes of a bentonite pellet upon wetting/drying; application to radioactive waste disposal. *Géotechnique*, doi: 10.1680/jgeot.17.P.291
9. Fayon L., Knapmeyer-Endrun B., Lognonné P., Bierwirth P., Kramer A., **Delage P.**, et al. 2018. A numerical model of the SEIS leveling system transfer matrix and resonances: application to SEIS rotational seismology and dynamic ground interaction. *Space Science Reviews*, 2nd InSight Special Issue, 214: 119. <https://doi.org/10.1007/s11214-018-0555-9>
10. Acosta-Martinez H., **Delage P.**, Nicks J. et Day P. 2018. Global survey on the state-of-the-art and the state-of-practice in geotechnical engineering. *Australian Geomechanics Journal* 53(1), 141-153.
11. Belmokhtar M., **Delage P.**, Ghabezloo S. and Conil N. 2018. Drained triaxial tests in low permeability shales. Application to the Callovo-Oxfordian claystone. *Rock Mechanics and Rock Engineering* 51(7), 1979-1993, doi: 10.1007/s00603-018-1442-0.
12. Braun P., Ghabezloo S., **Delage P.**, Sulem J. and Conil N. 2018. Theoretical analysis of pore pressure diffusion in some basic rock mechanics experiments. *Rock Mechanics and Rock Engineering*, 51(5), 1361 – 1378. doi: 10.1007/s00603-018-1410-8.
13. C. David, J. Wassermann, F. Amann, J. Klaver, C. Davy, J. Sarout, L. Esteban, E.H. Rutter, Q. Hu, L. Louis, **P. Delage** et al. 2018. KG2B: a collaborative benchmarking exercise for estimating the permeability of the Grimsel granodiorite – Part 2: modelling, microstructures and complementary data. 2018. *Geophysical Journal International* 215, 825 – 843.
14. Belmokhtar M., **Delage P.**, Ghabezloo S. and Conil N. 2018. Active porosity in shales: insight from the Callovo-Oxfordian claystone. *Géotechnique Letters* 8: 226-230 <https://doi.org/10.1680/jgele.18.00010>.
15. Molinero Guerra A., Aïmedieu P., Bornert M., Cui Y.J., Tang A.M., Zhao S., Mokni N., **Delage P.**, Bernier F. 2018. Analyses of the structural changes of a pellet/powder bentonite mixture upon wetting by X-ray computed microtomography. *Applied Clay Science* 165, 164 - 169, doi: 10.1016/j.clay.2018.07.043.
16. P. Morgan, Grott M., Knapmeyer-Endrun B., Golombek M., **Delage P.**, Lognonné P., Piqueux S., Daubar I. J., Murdoch N., Charalambous C., Pike T., Müller N., Hagermann A., Siegler M., Lichtenheldt R., Teanby N., Kedar S., 2018. A pre-landing assessment of regolith properties at the InSight landing site, *Space Science Reviews* 214:104, 2nd InSight Special Issue, <https://doi.org/10.1007/s11214-018-0537-y>.
17. Molinero Guerra A., Cui Y.J., Mokni N., **Delage P.**, Bornert M., Aïmedieu P., Tang A.M., Bernier F. 2018. Investigation of the hydro-mechanical behaviour of a pellet/powder MX80 bentonite mixture using an infiltration column. *Engineering Geology* 243, 18 – 25.

Pierre Delage, Champs sur Marne, 10 February 2020

