

Adrien Guérin

*Postdoc at the MSC laboratory,
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Professional experiences

- Sept. 2017–present **Postdoctorate on erosion by dissolution** in the Matière et Systèmes Complexes (MSC) laboratory, Paris-Diderot University, France
- May–July 2017 **Teacher** in hydrogeology at Master’s level at Andrés Bello University, Viña del Mar, Chile
- Sept.–Dec. 2016 **Visiting postdoc** in Raymond Goldstein’s group, at the Department of Applied Mathematics and Theoretical Physics (DAMTP), University of Cambridge
- Jan. 2016–May 2017 **Postdoctorate on fog collection** in the Bioengineering Laboratory, Universidad Adolfo Ibañez, Viña del Mar, Chile
- 2012–2015 **Ph.D. on groundwater flow** in the Geological Fluid Dynamics Laboratory, Institut de Physique du Globe de Paris
- 2012–2015 **Teaching assistant** in physics in the Earth and Planetary Sciences Department, Denis Diderot University, Paris
- May–July 2010 **Research Internship on deltas formation** in the Department of Earth & Environmental Sciences, University of Pennsylvania, Philadelphia, PA
- June–July 2009 **Research Internship on submarine barchan dunes** at the Institut de Physique de Rennes

Education

- 2015 **Ph.D.** in Earth Sciences at the IPG Paris
- 2012 **Master’s degree** in Earth Sciences at the École Normale Supérieure, Lyon
- 2010 **Bachelor’s degree** in Physics at the École Normale Supérieure, Lyon
- 2005–2008 **Classe préparatoire** in Physics at the Lycée Châteaubriand, Rennes

Publications & Awards

Articles

- ▷ Streamwise Dissolution Patterns Created by a Flowing Water Film, A. Guérin, J. Derr, S. Courrech du Pont, and M. Berhanu, *Physical Review L.* 125, 194502 (2020)
- ▷ Optimal Design of Multilayer Fog Collectors, M. Azeem, A. Guérin, T. Dumais, L. Caminos, R. E. Goldstein, A. I. Pesci, J. de Dios Rivera, M. J. Torres, J. Wiener, J. L. Campos, and J. Dumais, *Applied Materials and Interfaces* 12, 6 (2020)

- ▷ Stream-Discharge Surges Generated by Groundwater Flow, A. Guérin, O. Devauchelle, V. Robert, T. Kitou, C. Dessert, A. Quiquerez, P. Allemand, E. Lajeunesse, *Geophysical Research Letters* 46, 13 (2019)
- ▷ Uplift of an elastic membrane by a viscous flow, M. Berhanu, A. Guérin, S. Courrech du Pont, F. Raoult, R. Perrier, C. Michaut, *Phys. Rev. E* 99, 043102 (2019)
- ▷ A. Guérin, S. Gravelle, J. Dumais, Forces behind plant cell division, *Proceedings of the National Academy of Sciences*, 113(2), 8891-8893 (2016)
- ▷ A. Guérin, O. Devauchelle, E. Lajeunesse, Response of a laboratory aquifer to rainfall, *J. Fluid Mech.*, 759, R1 doi:10.1017/jfm.2014.590 (2014)
- ▷ F. Falcini, A. Piliouras, R. Garra, A. Guerin, D. J. Jerolmack, J. Rowland & C. Paola, Hydrodynamic and suspended sediment controls on river mouth morphology, *J. Geophysical Research: Earth Surface*, 119, 1-11, (2014)

Invited communications (laboratory seminars)

- ▷ Erosion by dissolution: runoff over an inclined plane, A. Guérin, J. Derr, S. Courrech du Pont, M. Berhanu, *IPR, Université Rennes 1* (2019)
- ▷ Fast discharge increase and slow discharge decrease: dynamics of a groundwater flow, A. Guérin, O. Devauchelle, E. Lajeunesse, *LGLTPE, Université Claude Bernard Lyon 1* (2018)
- ▷ Formation de crues rapides par des écoulements en aquifère non confiné, A. Guérin, O. Devauchelle, E. Lajeunesse, *Ladhyx, Université Paris Saclay* (Laboratory seminar, 2016)
- ▷ Generation of quick flood events by a groundwater flow, A. Guérin, O. Devauchelle, E. Lajeunesse, *BP Institute, University of Cambridge* (Laboratory seminar, 2016)
- ▷ Dynamique de l'écoulement dans un aquifère non confiné, A. Guérin, O. Devauchelle, E. Lajeunesse, *Laboratoire de Physique de la Matière Condensée, Nice* (Laboratory seminar, 2015)
- ▷ Relation nappe-rivière et dynamique des écoulements souterrains, A. Guérin, O. Devauchelle, E. Lajeunesse, *Institut Jean le Rond D'alembert, UPMC, Paris* (Laboratory seminar, 2014)

Communications in conferences (selection)

- ▷ Érosion par dissolution : ruissellement sur plan incliné, A. Guérin, J. Derr, S. Courrech du Pont, M. Berhanu, *22^e Rencontre du Non-Linéaire* (Paris, 2019)
- ▷ Erosion by dissolution: runoff over an inclined plane, A. Guérin, J. Derr, S. Courrech du Pont, M. Berhanu, *Conférence Fluids and Complexity* (Nice, 2018)
- ▷ Erosion patterns created by a thin free-surface flow of water over a soluble rock, A. Guérin, J. Derr, S. Courrech du Pont, M. Berhanu, *European Geophysical Union* (Vienne, 2018)
- ▷ Motifs d'érosion créés par ruissellement sur substrat soluble, A. Guérin, J. Derr, S. Courrech du Pont, M. Berhanu, *21^e Rencontre du Non-Linéaire* (Paris, 2018)
- ▷ Generation of quick flood events by a groundwater flow, A. Guérin, O. Devauchelle, E. Lajeunesse, *Experimental Physics Workshop* (Chili, 2017)

- ▷ Dynamics of a groundwater flow in an unconfined aquifer, A. Guérin, O. Devauchelle, E. Lajeunesse, *FlowTrans* (Strasbourg, 2015)
- ▷ Response of a groundwater flow to rain, A. Guérin, O. Devauchelle, E. Lajeunesse, *European Geophysical Union* (poster, Vienne, 2014)
- ▷ Relation nappe-rivière et dynamique des écoulements souterrains, A. Guérin, O. Devauchelle, E. Lajeunesse, *Rencontres des Jeunes Physicienⁿes* (Paris, 2013)
- ▷ Groundwater flows and transit times, A. Guérin, O. Devauchelle, E. Lajeunesse, *Groundwater Dating Workshop* (GDAT, Rennes, 2012)

Awards and fellowships

- ▷ Invited for an oral communication to the *Rencontres des Jeunes Physicienⁿes* (2013).
- ▷ Best student presentation at the 2015 conference of FlowTrans, an international group meeting on flow in porous media.
- ▷ Award of a postdoctorate fellowship *Fondecyt Postdoctorado 2017* (Chile).
- ▷ Selected for a communication to the *22^e Rencontre du Non-Linéaire* (2019).

Collective responsibilities

- ▷ Supervision of three internships (at bachelor's level)
- ▷ Elected to the MSC-laboratory council (february 2018 and january 2019)
- ▷ Reviewing activity for *JFM* and *WRR* journals
- ▷ Organisation of the *Congrès des Doctorants* of the IPGP (2013)
- ▷ President of the organisation committee of the 1st MSC's *Journée Docs/Postdocs* (2019)
- ▷ Volunteer-teacher in prison with the students' association GENEPI (2009-2010)

Languages & Skills

- ▷ French: mother tongue
- ▷ English, Spanish, German: fluent
- ▷ Italian: beginner
- ▷ Programming: advanced Python, html, L^AT_EX, FreeCAD, LibreCAD, Arduino