

Michaël Pons

Application for post-doctoral position

(29 years old, 18/09/1993) – ✉ ponsm@gfz-potsdam.de 📞 : +33650765845 (Fr)

ABOUT ME

I use numerical modelling to investigate challenging lithosphere dynamics and plate interaction problematics. I am interested by the link between surface and deep processes. Please visit my personal website www.sites.google.com/site/michaelponsprofil for more details.

EDUCATION

2018 – 2022	PhD thesis in Geophysics – (University of Potsdam - Germany)
2016 – 2017	Master 2/Postgraduate – Geodynamics - (University Rennes 1 - France)
2015 – 2016	Master 2/Postgraduate – Tectonics - Erasmus - (University Roma 3 - Italia)
2014 – 2015	Master 1/Graduate - Geodynamics - (University Orléans- France)
2013 – 2014	Licence /degree – Geology - Erasmus - (University College Cork - Ireland)
2011 – 2013	Licence /degree – Geology - (University Lille 1 - France)
2010 - 2011	Bac Scientific option Science of the Life and the Earth. - (France – Cannes)

YEAR	RESEARCH PROJECT
10/2018 to 05/2022 Universität Potsdam / GFZ , Germany (Section 2.5)	PhD thesis (submitted) : The nature of the North-South change of the magnitude of tectonic shortening in Central Andes at Altiplano-Puna latitude: a thermomechanical modeling approach Related skills : geodynamic numerical modeling, development of new plugins (C++/matlab) Advisor : Prof. Stephan Sobolev, Mentor : Dr. Sascha Brune @ref1 : stephan.sobolev@gfz-potsdam.de @ref2 : sascha.brune@gfz-potsdam.de
2017 Université de Rennes 1, France	Master thesis : Earthquakes impact on GRACE gravimetric signal at global scale (6 months) Related skills : developed a program to calculate the gravimetric contribution of coseismic displacements on a global scale (Matlab) Advisors : Dr. Maxime Mouyen, Prof. Philippe Steer, Prof. Laurent Longuevergne @ref : philippe.steer@univ-rennes1.fr
2016 Università Roma Tre, Italia	Master thesis : Topographic study of the Deccan region by geological and modelling approaches (6 months) Tutors : Prof. Claudio Faccenna, Dr. Andrea Sembroni @ref : claudio.faccenna@uniroma3.it
2015 Université d'Orléans, France	Internship : Paleomagnetic study of the Upper Jurassic granitic massif of Qiltianling (South China) and its tectonic implication on the age of closure of the Mongol-Okhotsk Ocean. (3 months) Tutors : Prof. Yan Chen, Hongsheng Liu @ref : yan.chen@univ-orleans.fr
2014 University College Cork, Ireland	Internship : Finite strain analysis using Meere and Mulchrone method (3 months) Tutor : Prof. Patrick A. Meere @ref : p.meere@ucc.ie

SOFTWARE AND LANGUAGE EXPERIENCE	LANGUAGES	CONTENT LINKS : Model examples	
Matlab (++++)	ASPECT	French (native)	⇒ Overriding plate deformation
C++ (++)	Linux / Git / HPC	English +++	⇒ Subduction dynamics
Python (++)	Paraview / GIS	Spanish++	⇒ Subduction zone with surface processes
Fortran (+)		Italian +	

ADDITIONAL FUNCTION, TEACHING AND MENTORING

- Editor of the EGU Geodynamics blog
- Neotectonics and Geodynamics (University Potsdam, master) “Deglaciation; dynamic topography, flexural isostasy and fault reactivation”
- Mentoring of PhD students (GFZ Potsdam, Section 2.5) starting with the ASPECT geodynamics code

FIELD WORK

- ⇒ [Greece](#)
- ⇒ [Corsica](#)
- ⇒ [Armorican Massif](#)
- ⇒ [Cevennes](#)
- ⇒ [Massif Central \(Puy-Gros\)](#)
- ⇒ [Isle of Mull](#)

GRANT AND AWARDS

- Outstanding Student Poster Awards at Ada Lovelace geodynamics Workshop (Hungary, Hévíz)
- Outstanding Student and PhD candidate Presentation (OSPP) Awards contest at the EGU General Assembly 2022. Presentation: “Variability of the shortening rate in Central Andes controlled by subduction dynamics and interaction between slab and overriding plate.”
- Erasmus + traineeships grant - Roma Tre (2016 - 6 months).
Project : “Topographic study of the Deccan region by geological and modelling approaches.”
- Erasmus traineeships grant - Cork (2014 - 3 months).
Project: “Finite strain analysis using Meere and Mulchrone method.”

PUBLICATIONS

- **Pons, M.**, (Thesis submitted, 16.11.2022), The nature of the tectonic shortening in Central Andes.
- **Pons, M.**, Rodriguez Picada, C., Sobolev, S.V., Scheck-Wenderoth, M., & Barrionuevo, M, (In preparation - Tectonics), The role of inherited structures and subduction geometry on the strain localization in Southern Central Andes.
- **Pons, M.**, Rodriguez Picada, C., Sobolev, S.V., & Scheck-Wenderoth, M, (In preparation - Nature Com), Flat slab migration induces large scale crustal rotation in Southern Central Andes.
- **Pons, M.**, Sobolev, S. V., Liu, S., & Neuharth, D. (2022). Hindered trench migration due to slab steepening controls the formation of the Central Andes. *Journal of Geophysical Research: Solid Earth*, e2022JB025229.
- Rodriguez Picada, C., Scheck-Wenderoth, M., Bott, J., Gomez Dacal, M. L., Cacace, **M.**, **Pons, M.**, ... & Strecker, M. R. (2022). Controls of the lithospheric thermal field of an ocean-continent subduction zone: the southern Central Andes. *Lithosphere*, 2022(1), 2237272.
- Liu, S., Sobolev, S. V., Babeyko, A. Y., & **Pons, M.** (2022). Controls of the Foreland Deformation Pattern in the Orogen-Foreland Shortening System: Constraints from High-Resolution Geodynamic Models. *Tectonics*, 41(2), e2021TC007121.

CONFERENCE CONTRIBUTIONS

- **Pons, M.**, Sobolev, S.V., Picada, C. R., Sibiao, L., Neuharth, D., Scheck-Wenderoth, M., & Strecker, M. (2022, August). Plate interaction, subduction dynamics the role of the flat-slab subduction in the Central Andes. Ada Lovelace workshop 2022.
- **Pons, M.**, Sobolev, S.V., Sibiao, L., & Neuharth, D, (2022, May). Variability of the shortening rate in Central Andes controlled by subduction dynamics and interaction between slab and overriding plate. EGU conference 2022.
- **Pons, M.**, & Sobolev, S.V., (2021, September). Control of subduction dynamics on shortening magnitude in the Central Andes: a thermomechanical modeling approach. GEOMOD conference 2021.
- **Pons, M.**, & Sobolev, S.V., (2021, August). Interplay between the shortening magnitude and subduction dynamics in the Central Andes. Geodynamics WS 2021.
- Picada, C. R., Scheck-Wenderoth, M., Bott, J., Dacal, M. L. G., **Pons, M.**, Prezzi, C., & Strecker, M. (2021). Unravelling the thermal state of the southern Central Andes and its controlling factors (No. EGU21-5214). Copernicus Meetings.
- **Pons, M.**, & Sobolev, S., (2020, May). The nature of the North-South change of the magnitude of tectonic shortening in Central Andes at Altiplano-Puna latitudes: a thermomechanical modeling approach. In EGU General Assembly Conference Abstracts (p. 8177).
- **Pons, M.**, & Sobolev, S.V., (2019). The nature of the North-South change of the magnitude of tectonic shortening in Central Andes at Altiplano-Puna latitudes: a thermomechanical modeling approach. 25th Latin-American Colloquium (LAC), Hamburg, Germany. Program and Abstracts (p. 61).
- **Pons, M.**, Sobolev, S.V., Liu, S., Glerum, A Rodriguez Picada, C., (2019). The nature of the North-South change of the magnitude of tectonic shortening in Central Andes at Altiplano-Puna latitudes: a thermomechanical modeling approach. 5th International Young Earth Scientists Congress (YES). Berlin. Book of abstracts (p.49).
- **Pons, M.**, Sobolev, S.V., Liu, S., Glerum, A Rodriguez Picada, C., (2019). The nature of the North-South change of the magnitude of tectonic shortening in Central Andes at Altiplano-Puna latitudes: a thermomechanical modeling approach. Topoeurope, Granada.