

## MERCIER Jonathan

Born on 13/01/1987 (27 years)

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### Education and training

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2011-current : **PhD student** at *ISTerre, Université de Grenoble, France*. Thesis : Structure and evolution of crustal duplexes and nappe stacking under Jean Braun and Peter Van der Beek supervision.

2010 : **Master 2 PCTP** (Physics and Chemistry of the Earth and Planets) at the *Ecole Normale supérieure de Lyon* done as Erasmus student at the *ETH Zürich, Switzerland*. **Summa cum laude, valedictorian**. Thesis : Time response of orogens : testing theoretical hypotheses in the Tien-Shan mountain belt, under Frederic Herman supervision.

2008-2009 : **Licence 3 and Master 1 PCTP** (Physics and Chemistry of the Earth and Planets) with honours at the *Ecole Normale supérieure de Lyon, France*.

2006-2007 : **Geology DEUG** (A level +2) with honours at the *Université de Rennes 1, France*, **valédictrorian**.

2005 : **"Baccalauréat scientifique"** with honours (scientific A levels).

### Area of expertise

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**Numerical modeling** : Good command of Fortran, Python, Matlab used for 2D and 3D Thermo-mechanical code (Sopale Nested and DOUAR), surface evolution models (Divide & Capture and Ice Cascade) and a new heat diffusion code I developed in order to test crustal heat conduction vs convection processes.

**Thermochronology** : Experience In Ar/Ar on Micas and Fission track dating. Sampling, sample preparation and picking, and data interpretation.

**Fieldwork, mapping and structural geology** : Numerous Fieldwork experiences for research (Central and Western Nepal (6 weeks), French Alps (10 weeks)), Teaching (French Alps (5 weeks)) and training (Svalbard (4 weeks), French Alps (5 weeks), Pyrenees (2 week), Massif central (1 week)). Good experiences in multi scale mapping (from 100km cross section to micro-structural analysis), structural data collection and sampling for thermochronological and petrological studies.

**Petrology** : Macroscopic and microscopic identification of minerals. Pressure-temperature conditions estimation by thermodynamic modeling (Perplex) and microprobe analysis for P-T estimate. Raman Spectroscopy on Carbonaceous Matter (RSCM) analysis.

## Scientific publications

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- **Mercier, J.**, Braun J., Van Der Beek P. Along-strike tectonic variations in Nepal Himalaya : A consequence of asynchronous ramp underthrusting ? In Prep, to be submit to Geology.
- **Mercier, J.**, Van Der Beek P., Braun J., Beyssac O. and Batt G.. Structure and evolution of the Western Nepal fold and thrust belt along the Karnali river cross-section. In Prep, to be submit to Tectonics.
- Riel, N., **Mercier, J.**, Weinberg J. Evidences of convection in a partially molten metasedimentary crust. Geology, submit.
- Riel, N. , Martelat J-E., Guillot S., Jaillard E., Monié P., Yuquilema J., Duclaux G., **Mercier, J.** (2014) Forearc tectono-thermal evolution of the El Oro metamorphic province (Ecuador) during the Mesozoic. Tectonics, accepted.

## Scientific communications

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- **Mercier J.**, Braun J., Van Der Beek P., Beyssac O., Batt G., Riel N. (2014) Structure and propagation sequence of the western Nepal fold-and-thrust belt : new insights from field mapping, thermochronology and numerical modelling. Vol. 16 EGU2014.
- Riel N. & **Mercier J.** (2014) Can a partially molten metasedimentary sequence convect? Insights from the El Oro Complex (Ecuador) and 1D thermal modelling. Vol. 16 EGU2014.
- Van Der Beek P., Robert X., **Mercier J.**, Braun J. (2012) Tectonic control on topographic and exhumational segmentation of the Himalaya. Vol. 14 EGU2012
- **Mercier J.**, Herman F., Charreau J. (2010) Sedimentary mass flux across the Tien-Shan (central Asia) since Miocene and tectonic setting : a numerical study. Vol. 12 EGU2010

## Teaching experience

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- Fieldwork : Geological mapping, Structural geology, fluvial sedimentology (French Alps) (138h).
- Geological mapping tutorial (33h).
- Geophysics (21h).

## Skills

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Languages : French (Mother thong), English.

Computing : Fortran, Python, Matlab, L<sup>A</sup>T<sub>E</sub>X, Mac OSX, Linux, Excel, IWork, Illustrator.

Driving licence.

Kayaking instructor.

First aid certification.

Sports : Mountaineering, rock climbing, randonee skiing, caving, paragliding.

## References :

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- Jean Braun (PhD director) : ISTerre BP 53, 38041 Grenoble CEDEX 9, France. E-mail : jean.braun@ujf-grenoble.fr, Tel : +33 (0)4 76 51 40 74
- Peter Van Der Beek (PhD director) : ISTerre BP 53, 38041 Grenoble CEDEX 9, France. E-mail : Peter.Van-der-Beek@ujf-grenoble.fr, Tel : +33 (0)4 76 51 40 62
- Frederic Herman (Master Thesis Director) : Quartier UNIL-Mouline, Bâtiment Géopolis, CH-1015, Lausanne, Switzerland. E-mail : Frederic.Herman@unil.ch, Tel : +41 (0)21 692 43 80