



Marine PAQUET

Curriculum Vitae

Research interests

Igneous petrology, Geochemistry and Cosmochemistry.

- Formation and architecture of the oceanic lithosphere; Mid-Ocean Ridge Basalts petrogenesis and melt-rock interactions
- Ocean Island Basalts petrogenesis
- Origin and differentiation of Mars and the Moon

Education

- 2016 **Ph.D., Earth Sciences - Geochemistry**, *Institut de Physique du Globe de Paris*, France.
- 2012 **M.S., Geology and Geochemistry**, *Institut de Physique du Globe de Paris*, France.
- 2010 **B.S., Geology**, *Ecole Normale Supérieure de Lyon*, France.

Professional experience

- 2017 – **Postdoctoral researcher**, *Scripps Institute of Oceanography - University of California San Diego*, with James Day.
- present *California San Diego*, with James Day.
- Nov. – Dec. **ODEMAR cruise**, Mid-Atlantic Ridge.
- 2013 mapping and sampling an oceanic detachment fault
- 2012 – 2016 **Ph.D.**, *Institut de Physique du Globe de Paris*, with Mathilde Cannat & Manuel Moreira.
MORB petrogenesis at ultraslow spreading ridge: example of the Southwest Indian Ridge between 61°-67° E

Experimental skills

- Lab work
 - Elemental chemistry:
 - Major elements
 - Trace elements
 - Highly siderophile elements (Re, Pd, Pt, Ru, Ir, Os)
 - Isotope chemistry:
 - Lithophile and highly siderophile elements (Sr-Nd-Hf-Pb-Os)
 - Noble gases (He-Ne)
 - Inductively Coupled Plasma Mass Spectrometry (ICP-MS) and Thermal Ionization Mass Spectrometry (TIMS)

- Analyses in situ
 - Microprobe
 - Scanning Electron Microscope (SEM)
 - Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS)

- Field work
 - Cruise: dredging and sample description
 - Field: mapping and sampling

- Computer skills
 - Petrogenetic processes modeling
 - Petrolog
 - MELTS

Teaching

2013 – 2016 **Teaching assistant**, Université Paris Diderot, France - travaux dirigés (64h/year) tutorials in Earth Sciences, petrology class, field trip to Pic Saint-Loup (France)

Expertise

2018 Reviewer for *Geochemistry*, *Geophysics*, *Geosystems*

Publications

- [4] **Paquet, M**, Day, JMD, Castillo, PR, (under review at *EPSL*). Geochemical evidence for a zoned variable $^3\text{He}/^4\text{He}$ mantle plume beneath the Juan Fernandez Islands.
- [3] **Paquet, M**, Cannat, M, Brunelli, D, Hamelin, C, Humler, E (2016). Effect of melt/lithosphere interactions on MORB chemistry at the easternmost Southwest Indian Ridge (61° to 67°E). *Geochemistry, Geophysics, Geosystems*, 17(11), 4605-4640, doi: 10.1002/2016GC006385
- [2] Escartín, J, Mevel, C, Petersen, S, Bonnemains, D, Cannat, M, Andreani, M, Augustin, N, Bezos, A, Chavagnac, V, Choi, Y, Godard, M, Haaga, K, Hamelin, C, Ildefonse, B, Jamieson, JW, John, BE, Leleu, T, MacLeod, CJ, Massot-Campos, M, Nomikou, P, Olive, JA, **Paquet, M**, Rommevaux-Jestin, C, Rothenbeck, M, Steinfuhrer, A, Tominaga, M, Triebe, L, Campos, R, Gracias, N, Garcia, R (2017). Tectonic structure, evolution, and the nature of oceanic core complexes and their detachment fault zones (13°20'N and 13°30'N, Mid-Atlantic Ridge). *Geochemistry, Geophysics, Geosystems*, 18(4), 1451-1482. doi: 10.1002/2016GC006775
- [1] Escartín, J, Leclerc, F, Olive, J A, Mevel, C, Cannat, M, Petersen, S, Augustin, N, Feuillet, N, Deplus, C, Bezos, A, Bonnemains, D, Chavagnac, V, Choi, Y, Godard, M, Haaga, KA, Hamelin, C, Ildefonse, B, Jamieson, JW, John, BE, Leleu, T, MacLeod, CJ, Massot-Campos, M, Nomikou, P, **Paquet, M**, Rommevaux-Jestin, C, Rothenbeck, M, Steinführer, A, Tominaga, M, Triebe, L, Campos, R, Gracias, N, Garcia, R, Andreani, M, Vilaseca, G (2016). First direct observation of coseismic slip and seafloor rupture along a submarine normal fault and implications for fault slip history. *Earth and Planetary Science Letters*, 450, 96-107. doi: 10.1016/j.epsl.2016.06.024

Publications in preparation

Paquet, M, Day, JMD, Udry, A, Hattingh, R, Kumler, B, Rahib, RR, Tait, KT, Neal, CR (in prep). Fractionation of the highly siderophile elements in shergottite sulfides.

Paquet, M, Day, JMD, Brown, DB, Walters, CL (in prep). Highly siderophile element behaviour of the mantle at fast and intermediate spreading ridges.

Paquet, M, Hamelin, C, Moreira, M, Cannat, M (in prep). (He, Ne, Pb, Nd, Hf, Sr) isotopic characterization at the Southwest Indian Ridge (61°-67°E).

Paquet, M, Cannat, M, (in prep). Petrological and chemical characteristics of oxide gabbros from the easternmost Southwest Indian Ridge (61° to 67°E).

Communications

- [10] **Paquet, M**, Day, JMD, Udry, A, Hattingh, R, Kumler, B, Rahib, RR, Tait, KT, Neal, CR (2019). Fractionation of the highly siderophile elements in shergottite sulfides. Abstract, *Lunar and Planetary Sciences Conference*
- [9] Rahib, RR, Udry, A, Howarth, GH, Gross, J, **Paquet, M**, Combs, LM, Laczniak, DL, Day, JMD (2019). Petrogenesis of enriched and intermediate poikilitic shergottites: from magmatic source to emplacement. Abstract, *Lunar and Planetary Sciences Conference*
- [8] Rahib, RR, Udry, A, Howarth, GH, Gross, J, **Paquet, M**, Day, JMD (2018). Petrogenesis of enriched and intermediate poikilitic shergottites: from magmatic source to emplacement. Abstract, Lunar and Planetary Sciences Conference. Abstracts, 50, 6, *Geological Society of America Annual Meeting*
- [7] **Paquet, M, Day, JMD**, Brown, DB, Walters, CL (2017). Highly siderophile element behaviour of the mantle at fast and intermediate spreading ridges. Abstract 2434, *Goldschmidt Conference*
- [6] **Paquet, M**, Cannat, M, Brunelli, D, Hamelin, C, Humler, E (2017). Effect of melt/mantle interactions on MORB chemistry at the easternmost Southwest Indian Ridge (61° to 67°E). *MEREMA workshop*, Pavia, Italy
- [5] Brunelli, D, Cannat, M, **Paquet, M**, Sforza, MC, Seyler, M (2015). Sodium inverse relationships during melting in ultraslow spreading regions: insights from SWIR-Smoothseafloor peridotites. In *AGU Fall Meeting Abstracts*
- [4] **Paquet, M**, Cannat, M, Brunelli, D, Hamelin, C, Moreira, M (2015). The effect of melt/lithosphere interactions on MORB chemistry through the example of the Easternmost Southwest Indian Ridge. Abstract 3334, *Goldschmidt Conference*
- [3] **Paquet, M**, Cannat, M, Hamelin, C, Brunelli, D (2014). The easternmost Southwest Indian Ridge: a laboratory to study MORB and oceanic gabbro petrogenesis in a very low melt supply context. In *AGU Fall Meeting Abstracts* (Vol. 1, p. 4754).
- [2] **Paquet, M**, Cannat, M, Hamelin, C, Sauter, D (2013a). Major and trace elements composition of basalts from ultramafic and volcanic seafloor. Southwest Indian Ridge (61° to 6°E). Abstract 4521, *Goldschmidt Conference*
- [1] **Paquet, M**, Hamelin, C, Moreira, M (2013b). (He, Ne, Pb, Nd, Sr) isotopic characterization of MORB at the SWIR between 61° and 67°E. *DINGUE 3 workshop*, *Goldschmidt Conference*