Curriculum Vitae

Dr. Véronique LE ROUX
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SPECIALTY

Geochemistry and Petrology of the Earth's Mantle

EDUCATION

2005 – 2008	Ph.D. Montpellier University (FR) and Macquarie University (AUS). 'Melt-rock reaction and melt-assisted deformation in the Lherz peridotite, with implications for the structural, chemical and isotopic evolution of the lithospheric mantle'. Supervisors: J.-L. Bodinier, A. Vauchez. and S. Y. O'Reilly. *Summa cum laude*
2004-2005	2nd year Master degree Earth Sciences, Montpellier University (FR). 'Refertilization process in the Lherz Massif' Supervisor: J.-L. Bodinier. *Best grade for research project*
2003-2004	1st year Master degree in Earth and Planetary Sciences, University of Nantes (FR). 'Spectrometry of the Mars surface' Supervisor: C. Sotin. *Ranked 1st*
2000-2003	Bachelor degree in Earth and Planetary Sciences, University of Nantes (FR) *Ranked 3rd*

APPOINTMENTS

Nov. 2012 – present	Post-doctoral Investigator, Woods Hole Oceanographic Institution (USA)
Apr. 2011 – Nov. 2012	Post-doctoral Scholar, Woods Hole Oceanographic Institution (USA)
Jan. 2011 – Jan 2012	Complementary Research investigator, Rice University (USA)
Jan. 2011 – March 2011	Guest investigator, Woods Hole Oceanographic Institution (USA)
Jan. 2009 – Jan. 2011	Post-doctoral Research Fellow, Rice University (USA)
Oct. 2005 – Oct. 2008	Teaching Assistant, University of Montpellier (France)

RESEARCH INTERESTS

Melt percolation and melt-rock reaction in the Earth's Mantle; Source composition of mantle-derived lavas; Distribution and scale of mantle heterogeneities; Fluid cycling during subduction; Partitioning during partial melting

PUBLICATIONS

[X] citations (source: Scopus and ISI web of knowledge)
Total citations: 148

In prep.:

9- **Le Roux V.**, Dick H, Shimizu N. Compositional variability of the mantle wedge: large-scale record from the Josephine Ophiolite (USA). *To be submitted to Journal of Petrology*

8- **Le Roux V.**, Dasgupta R., Lee C.-T.A. Tracking the composition of the Earth's mantle: insights from partitioning of Ga, Ge and Cu during partial melting of anhydrous peridotite. *To be submitted to Contributions to Mineralogy and Petrology*

Published:

7- Lee C.-T. A., Luffi P., Chin E. J., Bouchet R., Dasgupta R., Morton D.M., **Le Roux V.**, Yin Q.-Z., Jin D. Copper systematics in arc magmas and implications for crust-mantle differentiation Science 336 pp. 64-68 (2012) [1]*

6- **Le Roux V.**, Dasgupta R., Lee C.-T. A. Mineralogical heterogeneities in the Earth's mantle: constraints from Mn, Co, Ni and Zn partitioning during partial melting. Earth and Planetary Science Letters 307 pp. 395-408 (2011) [4]

5- Lee, C.-T. A., Luffi, P., **Le Roux, V.**, Dasgupta, R., Albarède F., Leeman W.P. Constraining the oxygen fugacity of arc mantle using Zn/Fe systematics. Nature 468 pp. 681-685 (2010) [20]

4- **Le Roux V.**, Lee C.-T. A., Turner S.J. Zn/Fe systematics in mafic and ultramafic systems: implications for detecting major element heterogeneities in the Earth's mantle Geochimica et Cosmochimica Acta 74 pp. 2776-2796 (2010) [12]

3- **Le Roux V.**, Bodinier J.-L., Alard O., O'Reilly S.Y., Griffin W.L. Isotopic decoupling during porous melt flow: A case-study in the Lherz peridotite. Earth and Planetary Science Letters 279 pp. 76-85 (2009) [13]

2- **Le Roux V.**, Tommasi A., Vauchez A. Feedback between melt percolation and deformation in an exhumed lithosphere-asthenosphere boundary. Earth and Planetary Science Letters 274 pp. 401-413 (2008) [25]

1- **Le Roux V.**, Bodinier J.-L., Tommasi A., Alard O., Dautria J.-M., Vauchez A., Riches A.J.V. The Lherz spinel lherzolite: refertilized rather than pristine mantle, Earth and Planetary Science Letters 259 pp. 599-612 (2007) [73]**

* Most accessed article for year 2012 (source: Geochemical Society)
**Most cited EPSL articles since 2007 http://www.journals.elsevier.com/earth-and-planetary-science-letters/most-cited-articles/

CONFERENCES - SEMINARS

*denotes the speaker

2013

Le Roux V.* Melting, erupting, recycling: where and how to probe the Earth's mantle. Bayerisches Geoinstitut (Germany). ***Invited talk***.

2012

Le Roux V.* Sulfides in orogenic peridotites, Internal workshop**.** Wood Hole Oceanographic Institution, USA.
Le Roux V.* Processus et traceurs des hétérogénéités du manteau terrestre. Domaines Océaniques, Brest, France.
Le Roux V.*, Dick H., Shimizu N. Scaling and nature of melting processes in the mantle wedge: a record from the Josephine peridotite. Goldschmidt Conference, Montreal, Canada.
Lee C.-T.A.*, Luffi P., **Le Roux V.**, Dasgupta R., Chin E., Erdman M., Bouchet R., Yin Q.Z., Yang W., Ingram L., DePaolo D. Copper, Sulfur and Redox. International Geological Congress, Brisbane, Australia.

2011

Dasgupta R.*, Mallik A., **Le Roux V.**, Lee C.-T.A. Constraining pyroxenite component in OIB source through melt-rock reaction experiments in pyroxenite-peridotite system and partitioning of first-row transition elements during mantle melting. Chapman Conference, Galapagos.
Le Roux V.* A broad reminder of what the Earth's mantle (might) be made of. Wood Hole Oceanographic Institution, USA.
Le Roux V.* , Dasgupta R., Lee C.-T.A. Mineralogical Heterogeneities in the Earth's Mantle: Constraints from Mn, Co, Ni and Zn Partitioning during Partial Melting. Goldschmidt, Prague, Czech Republic.
Lee C.-T.A., Chin E., Bouchet R., Luffi P.*, Dasgupta R., Morton D., **Le Roux V.**, Yin Q.-Z., Albarède F., Blichert-Toft J. Copper systematics in arc magmas and implications for the origin of continents, the Pb-paradox and copper porphyry deposits. Goldschmidt, Prague, Czech Republic.

2010

Le Roux V.* Major elements heterogeneities in the Earth's mantle: perspectives from mantle outcrops and transition metal systematic of basalts. Wood Hole Oceanographic Institution, USA. ***Invited talk***.
Le Roux V.*, Dasgupta R., Lee C.-T.A. First series transition metals as tracers of mineralogical heterogeneities in the Earth's mantle. Goldschmidt Conference, Knoxville, USA. ***Invited talk***.
Le Roux V.* Major elements heterogeneities in the Earth's mantle: perspectives from mantle outcrops and transition metal systematic of basalts. University of New Mexico, USA. ***Invited talk***.
Lee C.-T.A.*,Luffi P., **Le Roux V.**, Dasgupta R. Conservative tracers of oxygen fugacity in basalts and their mantle source regions. Goldschmidt Conference, Knoxville, USA.
Le Roux V.* Péridotites et basaltes, témoins des hétérogénéités en éléments majeurs dans le manteau terrestre. Ecole Normale Superieure de Lyon, France.
Le Roux V.* Péridotites et basaltes, témoins des hétérogénéités en éléments majeurs dans le manteau terrestre. Geosciences Montpellier, France.

2009
Le Roux V.*, Lee C.-T.A., Bodinier J.-L. Major elements heterogeneities in the Earth's mantle: perspectives from mantle outcrops and transition metal systematic of basalts. AGU, San Francisco, USA. ***Invited talk***.
Bodinier J.-L., Tommasi A.*, Soustelle V., **Le Roux V.**, Vauchez A.R., Garrido C.J. Moving (transient) lithosphere-asthenosphere boundaries: Coupling between partial melting, melt transport, and deformation. AGU, San Francisco, USA.
Le Roux V.*, Lee C.-T. A. Transitional elements as tracers for mantle heterogeneities; Zn, Fe, and Mn systematics in mafic and ultramafic systems. Goldschmidt Conference, Davos, Switzerland.
Le Roux V.*, Major and trace element heterogeneities in the Earth's mantle, Rice University, USA.

2008
Le Roux V.*, Bodinier J.-L., Vauchez A., Tommasi A., Alard O., O'Reilly S. Y. Melt-rock interactions in the Lherz peridotite; Implications for structural, chemical and isotopic evolution of the lithospheric mantle. Orogenic Lherzolite Conference, Mount Shasta, USA.
Bodinier J.-L.*, **Le Roux V.**, Soustelle V., Chanefo I., Tommasi A., Garrido C., Alard O. Chemical variations in tectonically-emplaced mantle rocks : superimposed effects of partial melting, melt redistribution and igneous refertilization. Orogenic Lherzolite Conference, Mount Shasta, USA.
Tommasi A.*, **Le Roux V.**, Soustelle V., Bodinier J.-L., Vauchez A., Garrido, C. Lithosphere-asthenosphere interactions: Coupling between partial melting, melt transport, and deformation. International geological congress, Oslo, Norway.

2007
Bodinier J.-L.*, **Le Roux V.**, Soustelle V., Tommasi A. and Garrido C. Chemical variations in tectonically-emplaced mantle rocks: superimposed effects of partial melting, melt redistribution and igneous refertilization. European Mantle Workshop, Ferrara, Italy.
Le Roux V., Bodinier J.-L., Alard O., Wieland P. and O'Reilly S.Y. Rejuvenation of the lithospheric mantle (Lherz Massif, France). European Mantle Workshop, Ferrara, Italy.
Le Roux V.*, Bodinier J.-L., Alard O., Wieland P. and O'Reilly S.Y. Insights into refertilization process in lithospheric mantle from structural and geochemical studies in the Lherz Massif (France). Goldschmidt Conference, Cologne, Germany.

2006
Alard O.*, Riches A.J.V., **Le Roux V.** and Bodinier J.-L. How primitive is the "primitive" upper mantle: Revisiting the lherzolite-harzburgite relationships of the Lherz massif. International Conference on Continental Volcanism, Guangzhou, China.
Le Roux V.*, Bodinier J.-L., Alard O., Tommasi A., Dautria J.-M., Vauchez A. and Lorand J.-P. The spinel lherzolite at Lherz: a result of mantle refertilization? EGU Meeting, Wien, Austria.

2005
Bodinier J.-L.*, **Le Roux V.**, Lenoir X., Alard O., Garrido C., Tommasi A., Dautria J.-M., Vauchez A., Lorand J.-P. and Gervilla F. Partial melting in Ronda versus refertilization in Lherz: two contrasting effects of lithospheric thermal erosion documented in orogenic peridotites, Peridotite Workshop, Lanzo, Italy.

ANALYTICAL SKILLS

Regular user:
Optical microscope; Petrology and microstructures
EBSD-SEM; JEOL JEM-5600 SEM. Maual and automatic indexing
EPMA; CAMECA SX 100. CAMECA SX 50, JEOL JXA-733 Superprobe
ICPMS and LA-ICPMS ; VG Plasmaquad II Turbo, Agilent 7500 ICPMS, ThermoFinnigan Element II Sector ICP-MS
PISTON CYLINDER (<3GPa, anhydrous and fluid-present)
Geochemical modeling: Plate Model (Vernières et al. 1997), 1-D model (Vasseur et al. 1991)

Occasional user:
TIMS; Thermo Finnigan TRITON
MC-ICPMS; Nu Plasma high resolution multi-collector ICPMS

FIELD EXPERIENCE

2003:	Introduction to field mapping in sedimentary terrains (France)
2004:	Volcanism and Metamorphism (Central Massif, France)
2004:	Alpine Ophiolite (Corse, France)
2004-2007:	Peridotite Massifs of the Pyrenees (France). Regular field trips over 3 years
2005-2008:	Regular field trips with undergraduate students (5-6 times/year) - Volcanism in the South of France
2008:	Conference field trip: Volcanism of Mount Shasta and Shear zones in Josephine Peridotite (USA)
2009:	Mantle xenoliths in cinder cones (Colorado Plateau, USA)
2012:	Peridotites in the Josephine Ophiolite (USA)
2012:	Pyroxenites in the Pyrenean Massifs (France)

SYNERGISTIC ACTIVITIES

Solicited reviewer for: *Journal of Petrology, Lithos, Earth and Planetary Science Letters, Geochimica et Cosmochimica Acta*
Solicited reviewer for *National Science Foundation (2009, 2011, 2012)*
Goldschmidt Conference co-Convenor (New and Old Paradigms on the Origin and Evolution of Continental Lithosphere; 2010)
Reading group organizer: Petrology/Geochemistry (Rice University); Subduction Zones (WHOI)

TEACHING

2005-2008: Teaching Assistant at Montpellier University for 3 years (64h per year). Igneous, metamorphic and sedimentary petrology.
2009-2010: Occasional lectures at Rice University for graduate students (geochemistry and thermodynamics)

AWARDS

French scholarship for highly ranked students, 2004
Bourse Lavoisier Cotutelle (Salary funds, European scholarship for international collaborations), 2007
International Macquarie University Research excellence Scholarship (MQRES), Macquarie University, 2007
Deep Ocean Exploration Institute Scholarship, WHOI, 2011

FUNDING

*1st author contribution
Sole contributor

Obtained

* 2006-2008: 'Aide à la mobilité internationale' (Research funds for international collaborations), Ministère délégué à l'enseignement supérieur et à la recherche, 5100€

* 2007-2008: International Macquarie University Research excellence Scholarship (MQRES), Macquarie University, AUD $19,231/year

2011-2012: Deep Ocean Exploration Institute Scholarship, WHOI, $62,000

* 2011-2013: Internal proposal award, Deep Ocean Exploration Institute, WHOI: a new experimental approach to constraining H2O cycling in subduction zones, (Le Roux & Gaetani) $67,590

2012-2014: National Science Foundation, Widespread pyroxenite layering in the mantle, (Le Roux & Tivey) $259,097