

CURRICULUM VITAE CARLOTTA FERRANDO

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Nationality	Italian
Date of birth	04/01/1990

RESEARCH INTEREST

Oceanic lithosphere petrology, major and trace elements geochemistry, microstructural geology, structural geology, geological mapping

CURRENT PROFESSIONAL STATUS

2018 - Attaché Temporaire à l'Enseignement et à la Recherche (**ATER**) at the University of Lorraine, Nancy, France - Centre de Recherches Pétrographiques et Géochimiques (CRPG, CNRS-UMR 7358)

PREVIOUS WORK EXPERIENCE

1/4/2018 to 31/12/2018 - Post-Doc at Centre de Recherches Pétrographiques et Géochimiques (CRPG, CNRS-UMR7358), University of Lorraine, Nancy, France.

15/11/2014 to 6/12/2017 - PhD student in igneous petrology in the framework of the Marie-Curie Initial Training Network ABYSS at Geosciences Montpellier, CNRS, University of Montpellier.

"Melt transport and dissolution-precipitation processes through the heterogeneous lower oceanic crust: microstructural and petro-geochemical constraints from drill cores"

EDUCATION

23/10/2014 - Master's Degree in Geology and Geological Techniques (Earth Science, Genova)

University: Università degli Studi di Genova (Italia)

Thesis subject: Microstructural and petrological investigations on troctolites, olivine gabbros and peridotites in ophiolites outcrop Erro Tobbio (Piani di Praglia, Genova)

EXPERIENCE

Field work: **30/11/2015-30/01/2016** – Member of the Shipboard Scientific Party (structural geology team) of IODP Expedition 360 "SW Indian Ridge Lower Crust and Moho" *Preliminary research project:* Slow-spread lower crust accretion: insights on processes recorded by petro-structural and chemical variations in olivine-rich gabbroic rocks from Hole U1473A.

Teaching and mentoring: **01/08/2015-15/11/2016** - Master student monitoring (Monika Dolinska): Crystallographic Preferred Orientation and In-situ chemical analyses

Erasmus experience: **19/09/2011-14/07/2012** - Universidad de Zaragoza (España); 3rd year Bachelor's Degree in Geology Sciences

SKILLS

EBSD and microstructural analyses; EPMA analyses; ICP-MS and LA-ICP-MS analyses; field mapping; Microsoft office (Word, Excel, and PowerPoint); Adobe Illustrator; Corel Draw; MATLAB; ImageJ

TRAINING

ABYSS short courses

26/04-02/05/2015 - Formation and evolution of the Ocean Crust including everyday field trip and calculation exercises on "thermal aspects of mid-ocean ridges" and "magma chambers modelling", *ABYSS Short-Course 1* by D. Teagle and T. Henstock, Troodos ophiolite (Cyprus);

25-26-30/05/2015 - Experimental geology, *ABYSS Short-Course 4a* by J. Koepke and R. Almeev, University of Hannover (Germany);

5-9/10/2015 - Imaging and analytical techniques for (bio)petrology, *ABYSS Short-Course 3* by B. Ménez, IGP, Paris (France);

4-6/04/2016 - Course on experimental geology, *ABYSS Short-Course 4b* by P. Fumagalli, University of Milan, Milano (Italy);
7-9/09/2016 – Microstructures and modelling reaction driven fracturing, *ABYSS Short-Course 5* by H. Austrheim and B. Jamtveit, Oslo (Norway).

Other short courses

24-28/08/2015 - Application of diffusion studies to the determination of timescales in geochemistry and petrology, *DMG/MSA Short-Course*; S. Chakraborty and Dohmen R., Bochum (Germany);
31/08-11/09/2015 - Ocean crust processes: magma, faults, fluxes and life, *ECORD Summer School 2015* by W. Bach, G. Früh-Green, C. Garrido, F. Klein, B. Menez, A. Morris, U. Röhl, T. Schroeder, D. Teagle, R. Tribuzio et al., MARUM - IODP Bremen Core Repository, Bremen (Germany);
12-18/02/2017 - School on MELting and fluid/melt-rock REactions in the MANTle, *Winter School MEREMA* G. Ceuleneer, M. Ghiorso, K. Hidas, Y. Liang, A. Luguët, C. Marchesi, A. Montanini, O. Müntener, E. Rampone, A. Sanfilippo, A. Stracke et al., Pavia (Italy).

PARTICIPATION TO WORKSHOPS AND CONFERENCES

ABYSS workshops

23-27/11/2014- *ABYSS Workshop 1*, Montpellier (France);
27-29/05/2015 - *ABYSS Workshop 2* - invited speakers P. Kelemen and G. Früh-Green, Institut für Mineralogie, Hannover (Germany);
12-13/10/2015 - *ABYSS Mid-Term Meeting1* and *Outreach Workshop*, IPGP, Paris (France);
7-10/04/2016 - *ABYSS Mid-Term Meeting2* and *Outreach Workshop* - invited speakers M. Scambelluri & R. Tribuzio, Sestri Levante (Italy);
1-2/09/2016 - *ABYSS Workshop 3*, Oslo Science Park (Norway);
2-6/04/2017 - *ABYSS Mid-Term Meeting 3*, Centro Tecnológico IACT, CSIC, Granada (Spain);
27/09-30/10/2017 - *ABYSS Workshop 4 and Final ABYSS Meeting*, NOCS, Southampton (England).

International workshops, conferences and meetings

02-03/04/2015 - Introduction to MTEX open source and free texture analysis training, *MTEX Workshop at ESF-MicroDICE conference* by D. Mainprice, Montpellier (France);
13-16/05/2015 - Indian Ocean Crust and Mantle Drilling - IODP Expedition 360, *US-CHINA IODP Joint Drilling Workshop* by H. Dick, C. MacLeod et al., Woods Hole MA (USA);
11-15/09/2016 - 2nd European Mineralogical Conference (EMC2) - Rimini, Italy;
23-28/04/2017 - EGU General Assembly 2017, Vienna, Austria.
11-15/12/2017 - AGU Fall Meeting 2017, New Orleans, USA.

MISCELLANY

Outreach activity

9/10/2015 - “La Fête de la Science” and launch of the Searocks Blog, *ABYSS Outreach event*, IPGP, Paris (France).

Grants

- ECORD Scholarship to attend the ECORD Summer School 2015 in Bremen;
- Ecole Doctoral GAIA Scholarship to attend the AGU Fall Meeting 2017 in New Orleans.

Language: Italian (mother tongue), English (fluent, written); Spanish (fluent, written); French (fluent), Courses: French, A2B Immersion B2 (01/01-30/03/201

LIST OF PUBLICATIONS

Reports

MacLeod, C.J., Dick, H.J.B., Blum, P., and the Expedition 360 Scientists, **2017**. Southwest Indian Ridge Lower Crust and Moho. *Proceedings of the International Ocean Discovery Program, 360: College Station, TX (International Ocean Discovery Program)*. <http://dx.doi.org/10.14379/iodp.proc.360.101.2017>

Ciążela, J., Dick, H. J. B., MacLeod, C. J., Blum, P. and the Expedition 360 Scientists, **2016**. ARTYKUŁY INFORMACYJNE, Ekspedycja IODP 360: pierwszy etap odwiertu do płaszczka Ziemi. *Przegląd Geologiczny*, vol. 64, nr 1.

Peer Reviewed Journals

Ferrando, C., Godard, M., Ildefonse, B., Rampone, E., **2018**. Melt transport and mantle assimilation at Atlantis Massif (IODP Site U1309): constraints from geochemical modeling. *Lithos*, doi:10.1016/j.lithos.2018.01.012

Basch, V., Rampone, E., Crispini, L., **Ferrando, C.**, Ildefonse, B., Godard, M., **2018**. From mantle peridotites to hybrid troctolites: textural and chemical evolution during melt-rock interaction history (Mt. Maggiore, Corsica, France). *Lithos*, doi:10.1016/j.lithos.2018.02.025

Ferrando, C., Godard, M., Ildefonse, B., in prep. Ca and REE chemical profiles: a record of subsolidus re-equilibration in Olivine-rich troctolites from Hole U1309D? To be submitted to *Earth and Planetary Science Letters*.

Abstracts

Ferrando, C., Ildefonse, B., **2015**. Microstructural analysis of olivines in Erro-Tobbio troctolites: crystallographic preferred orientations and misorientation patterns, in MicroDICE Final conference - ESF research networking Programme on the Micro-Dynamics of Ice, 30 March - 1st April 2015, Montpellier, France. (poster)

Basch, V., Rampone, E., Ferrando, C., Ildefonse, B., Crispini, L. and Godard, M., **2015**, Microstructural variations in lower crustal oceanic troctolites: an indicator of melt-rock interactions (Erro Tobbio, Ligurian ophiolites, Italy), in A dynamic planet: developments and perspectives 100 years after Wegener, 02-04 September 2015, Florence, Italy. SIMP-SGI-AIV-SoGei Congress - Rendiconti Online Soc. Geol. It. Volume 35 Suppl. 2, p. 38. (poster)

Ferrando, C., Godard, M., Ildefonse, B., **2016**. New constraints on the formation of heterogeneous oceanic crust at slow spreading ridges: a detailed petro-geochemical study of the olivine-rich troctolites from Atlantis Massif (MAR, IODP Hole U1309D, 30°N), in EMC (European Mineralogical Conference), 10-17 September 2016, Rimini, Italy. EMC Book of abstract, p.42. (oral).

Deans, J.R., Cheadle, M.J., Ferrando, C., Plümper, O., Viegas, G., **2016**. Insights into oceanic core complex formation from structural studies of IODP Hole U1473A, Expedition 360 Atlantis Bank, Southwest Indian Ridge, in AGU Fall Meeting (American Geophysical Union), 12-16 December 2017, San Francisco, USA; AGU Abstract OS23F-03.

MacLeod, C.J., Deans, J.R., Morris, A., Evans, A., Cheadle, M.J., Ferrando, C., Dick, H.J.B., **2016**. Contrasting Modes of Detachment Faulting at Slower-Spreading Mid-Ocean Ridges, in AGU Fall Meeting (American Geophysical Union), 12-16 December 2017, San Francisco, USA; AGU Abstract T33A-2992.

Ferrando, C., Godard, M., Ildefonse, B., Rampone, E., **2017**. Chemical profiles along olivine crystallographic axes: a record of the melt-rock interaction sequence forming Hole U1309D Olivine-rich troctolites (Atlantis Massif, MAR, 30°N), in EGU General Assembly, 22-30 April 2017, Vienna, Austria. *Geophys. Res. Abs.*, Vol. 19, EGU2017-5127, 2017. (poster)

Ferrando, C., Godard, M., Ildefonse, B., Rampone, R., **2017**. Melt Transport and Mantle Assimilation at Atlantis Massif (IODP Site U1309): Evidence from Chemical Profiles along Olivine Crystallographic Axes, in AGU Fall Meeting (American Geophysical Union), 11-15 December 2017, New Orleans, USA; AGU Abstract n°226523. (oral)

Basch, V., Rampone, E., Crispini, L., Ferrando, C., Ildefonse, B. and Godard, M., **2017**, From mantle peridotites to hybrid troctolites: Textural and geochemical evolution during multi-stage melt-rock interaction history, in AGU Fall Meeting (American Geophysical Union), 11-15 December 2017, New Orleans, USA; AGU Abstract n°215571. (poster)