

Estelle Couradeau, Ph.D.

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EDUCATION

- 2012 **Ph.D. Geomicrobiology**, Université Paris VI/Paris XI, France.
Advisors: K. Benzerara, P. Lopez-Garcia
- 2008 **M.S. Plant biology**, Agroparitech', Paris, France
Advisor: Claire Neema
- 2007 **National teaching certification in Life and Earth Sciences** (Agregation)-ranked in the top 3%, Ecole Normale Supérieure Lyon, France.
- 2006 **Bachelor's in Life and Earth Sciences**, Université Claude-Bernard, Lyon, France

PROFESSIONAL EXPERIENCE

- 2013- **Marie-Curie post-doctoral fellow**. Geomicrobiology, Arizona State University, USA
Advisors: F. Garcia-Pichel, C. Thomazo
- 2012-2013 **Post-Doctoral Associate**. Biological soil crusts, Arizona State University, USA
Advisor: F. Garcia-Pichel
- 2011-2012 **Researcher/Lecturer**, Geomicrobiology, Université Paris VII, Paris, France

PUBLICATIONS IN PREPARATION

- E. Couradeau**, D. Roush, B. S. Guida, F. Garcia-Pichel "Evidence of Substrate Specialization among Euendolithic Cyanobacteria from Mona Island, Puerto Rico", *submission 2015*
- E. Couradeau**, A. Giraldo-Silva, F. De Martini, T. Lafabrêgue, F. Garcia-Pichel "The cyanosphere: composition and role of the microbial community associated to the biocrust forming cyanobacterium *Microcoleus sp.*", *submission 2015*

PUBLICATION UNDER REVIEW

- E. Couradeau**, U. Karaoz, H.C. Lim, Nunes da Rocha U., Northen T., Brodie E., F. Garcia-Pichel, Bacteria increase arid land soil surface temperature through the production of sunscreens, 2015, **Nature Communications**, *under review*

PEER REVIEWED PUBLICATIONS

- K. Benzerara, F. Skouri-Panet, J. Li, C. Ferard, M. Gargaud, T. Laurent, **E. Couradeau**, M. Ragon, J. Cosmidis, I. Margaret-Olivier, P. López-García, D. Moreira "Intracellular Ca-carbonate biomineralization is widespread in cyanobacteria", 2014, **PNAS** 111 (30) 10933-10938
- E. Couradeau**, K. Benzerara, E. Gérard, I. Estève, D. Moreira and P. López-García "Cyanobacterial calcification in modern microbialites at the submicrometer-scale", 2013, **Biogeosciences**, 10, pp. 5255-5266
- E. Gérard, B. Ménez, **E. Couradeau**, D. Moreira, K. Benzerara and P. López-García "Specific carbonate-microbe interactions in the modern microbialites of Lake Alchichica (Mexico)", 2013, **The ISME Journal** Oct 7 (10)

E. Couradeau, K. Benzerara, E. Gérard, D. Moreira, S. Bernard, G.E. Brown Jr. and P. López-García “An early-branching microbialite cyanobacterium forms intracellular carbonates” 2012, *Science*, Vol. 336 no. 6080 pp. 459-462

E. Couradeau, K. Benzerara, D. Moreira, E. Gérard, J. Kazmierczak, R. Tavera and P. López-García. “Prokaryotic and Eukaryotic Community Structure in Field and Cultured Microbialites from the Alkaline Lake Alchichica (Mexico).” 2011, **PLoS ONE**, 6(12): e28767

BOOK CHAPTER & PROCEEDINGS

E. Couradeau, K. Benzerara, D. Moreira, P. López-García. “Protocols for the study of microbe-mineral interactions in modern microbialites. Hydrocarbon and Lipid Microbiology Protocols”, Springer, 2016, *In press*

K. Benzerara, **E. Couradeau**, E. Gérard, R. Tavera, A. I. López-Archilla, D. Moreira and P. López-García “Geomicrobiological study of modern microbialites from Mexico: towards a better understanding of the ancient fossil record”, 2014, *BIO Web of Conferences*, 2, 02002

SESSION ORGANIZATION

2015- Microbial carbonates: from environment to molecular mechanisms, AGU American Geophysical Union, **primary convener**

COMMUNICATIONS

2015-**EGU European Geophysical Union** Vienna (Austria) Bacteria increase arid land soil surface temperature through the production of sunscreens – Poster

2015- **Local ASM American Society for Microbiology** AZ-NV branch Flagstaff (USA) Bacteria increase arid land soil surface temperature through the production of sunscreens – Poster

2013- **12th Biennial Conference of Science and Management on the Colorado Plateau** Flagstaff (USA) Colonization Stages of Biological Soil Crusts and response through wet-up – Oral

2012 -**ISPP International symposium on Phototrophic Prokaryotes** Porto (Portugal) An early-branching microbialite cyanobacterium forms intracellular carbonates – Poster

2012 -**ISME 14 International symposium Microbial ecology** Copenhagen (Denmark) An early-branching microbialite cyanobacterium forms intracellular carbonates – Oral

2012 -**Goldschmidt conference Geosciences** Montreal (Canada) An early-branching microbialite cyanobacterium forms intracellular carbonates – Oral

2011 -**Goldschmidt conference Geosciences** Prague (Czech Republic) Early fossilization process of Cyanobacteria in modern microbialites – Poster

2011 -**Origins 2011 Montpellier** (France) Early fossilization process of Cyanobacteria associated with modern stromatolites of Alchichica alkaline lake (Mexico) – Poster

2010 -**ISME 13 International symposium Microbial ecology** Seattle (USA) Diversity and role of Cyanobacteria in the formation of Alchichica stromatolites (Mexico) – Oral

2010 -**Journées Association Francophone d'Ecologie Microbienne** Marseille (France) Diversité et rôle des Cyanobactéries dans la formation des stromatolites modernes du lac de Alchichica (Mexico) – Poster

2009 -**Goldschmidt conference Geosciences** Davos (Suisse) Geomicrobiology of microbialites from the Alchichica alkaline lake – Poster

INVITED TALKS

2015-**13th Biennial Conference of Science and Management on the Colorado Plateau** Flagstaff (USA) Bacteria increase arid land soil surface temperature through the production of sunscreens

2012-**Universite de Bourgogne, Laboratoire Biogesocences**, An early-branching microbialite cyanobacterium forms intracellular carbonates

AWARDS & HONORS

2015-**Poster award**, American Society of Microbiology AZ-NV branch, Flagstaff, USA

2013-**Cover picture**, Science vol 340, issue 6140

2010-**Poster award**, Journées Association Francophone d'Ecologie Microbienne Marseille (France)

GRANT & FUNDING

2013-European Marie-Curie International Outgoing Fellowship PI: E Couradeau

Participants: *F. Garcia-Pichel* (Arizona State University, USA), *C. Thomazo* (Univesite de Bourgogne, France)

Total: € 270k (3 years of funding including salary, benefits and more than € 50k for research)

2011-Travel grant from the French society of mineralogy to attend the International School on Minerals and Biosphere, Campliglia Marittima (Italy)

2008-National French Ph.D. fellowship

3 years of funding (salary and benefits)

TECHNICAL SKILLS

Microbiology: culture enrichment, isolation, optical and fluorescent microscopy, confocal laser scanning microscopy, use of various fluorescent dyes

Molecular biology: DNA extraction, PCR, real-time PCR, cloning, DGGE, 16S library preparation for Illumina sequencing

Sample characterization: sample preparation (dehydration, embedding, sectioning, polishing), X Ray-diffraction, Scanning and Transmission electron microscopy, Focused Ion Beam, Synchrotron based scanning transmission X-ray microscopy, Synchrotron based X-ray microtomography

Data processing: Treatment of 16S library data (Qiime pipeline), sequence management and molecular phylogeny, treatment of images and stacks

TEACHING

Fall 2015 **MIC461-MIC508-GLG508 Geomicrobiology** Arizona State University

2011-2012 **Lecturer in Geology (96h/year)** Université Paris VII, France

Mentoring of « introduction to research » projects grad. level

Preparation program to the competition of teachers recruitment for grad. students

2008-2011 **Teaching assistant in Biology (64h/year)** Université Paris VII, France

Plant biology undergraduate level

Geomicrobiology (past and present stromatolites) grad. level

Preparation program to the competition of teachers recruitment for grad. students

MENTORING

2013-2014 **Honor college undergraduate thesis** – Tara Lafabrêgue

SERVICE

Reviewer for NSF projects (Sedimentary Geology and Paleobiology Competition)

Reviewer for scientific journals: Scientific Reports, FEMS Microbiology Ecology, Environmental microbiology, Journal of soils and sediments, Sedimentary geology

Organizer of graduate students and postdocs seminars, Institut de Minéralogie et de Physique des milieux condensés (2010-2012)

Convener Arizona State University postdoc association (2015)

Lab website manager (<http://garcia-pichel.lab.asu.edu/>)