

# Flora BAJOLET

French national  
32 years old

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## RESEARCH TOPICS

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### **Structure and long-wavelength deformation of cratonic lithospheres**

Vertical motions, dynamic topography and long-term evolution of cratonic areas.  
*Key areas:* Africa, South America

### **Mantle-surface interactions: mantle dynamics expression in topography and deformation**

Links between deep processes (mantle flow, slab dynamics) and surface responses; subduction/collision, delamination, dynamic topography.  
*Key areas:* Andes, Sierra Nevada, Pyrenees

### **High plateaus dynamics**

Crustal flow of mature collision zones and high plateaus, extrusion and gravity spreading, syntaxes' formation.  
*Key areas:* Himalaya-Tibet, Andes

## WORK EXPERIENCE AND EDUCATION

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- 2016-2018     **Post-doc researcher: *Long wavelength deformation and paleogeography of the Guiana shield linked with the source-to-sink approach***  
Géosciences Environnement Toulouse (GET), Total (Pau), BRGM (Orléans), France  
Supervisors: Dominique CHARDON, Delphine ROUBY, Massimo DALL'ASTA, Jean-Yves Roig, Renaud Couëffe
- 2014-2015     **Teaching Assistant**  
Laboratory: Géosciences Montpellier, Université Montpellier 2, France
- 2013-2014     **Teaching Assistant**  
Laboratory: GET, University Paul Sabatier, Toulouse, France
- 2009-2013     **PhD.: *Coupled lithosphere-mantle dynamics and surface responses: insights from modeling***  
Laboratory: Laboratory of Experimental Tectonics, Rome, Italy, Marie-Curie project  
« Crystal2Plate »  
Supervisors: Claudio FACCENNA, Francesca FUNICIELLO
- 2008-2009     **Master Degree** Earth Sciences and Solid Planets, Paul Sabatier University, Toulouse  
2nd year Research Training Course: Flow of mature collision zones: Himalayan example and analog modeling  
1st year Research Training Course: Situation and emplacement of Lherzolites of Bestiac massif (Ariège, France)
- 2004-2007     **Bachelor** Earth and Universe Sciences, Paul Sabatier University, Toulouse France

## FIELD WORK AND SPECIAL SKILLS

- **Analog modeling**
  - Sand-box models at crustal and lithosphere-mantle scale, work with various materials such as silicone, glucose syrup, gelatins
  - Characterization of rheological behavior of the materials (densimeter, rheometer)
  - Monitoring of 3D topography, deformation, mantle flow record with feature tracking technique
- **Field work**
  - Structural analysis, sampling for paleomagnetism and metamorphism study, Santa Marta Massif, Columbia (3 weeks)
  - Geological mapping, sedimentology and structural analysis, sampling, North Pyrenean zone (2 weeks)
  - Geological mapping, structural, metamorphism and petrology analysis in crystalline basement areas, Agly Pyrenean massif, Groix island, Cap de Creus (3 weeks in total)
  - Geological mapping, tectonic, sedimentology and sequence stratigraphy in sedimentary cover, Quercy, Corbières napes, Tremp basin (3 weeks in total)
- **Computing:** inversion modeling; GMT and Matlab scripts, GIS (QGIS, ArcGIS, MapInfo, ENVI, Surfer), structural geology software (Stereonet, FaultKin), surface deformation (Cosi-Corr, SSPX), graphics (Illustrator, Photoshop), office automation software.
- **Geophysics:** exploration with seismic, electric resistivity and GPS devices on the archeological site of Montans.

## TEACHING EXPERIENCE

- 2014-2015      Teaching Assistant at University Montpellier 2, Licence and Master courses including: tectonics and sedimentology, metamorphism, geodynamics, field trips.
- 2013-2014      Teaching Assistant at University Paul Sabatier, Licence and Master courses including: structural geology and cartography, experimental approach in Earth Sciences, geodynamics of active margins, field trips.
- May-June 2011    Supervision of a MSc student for his degree training course at the laboratory.
- June 2010        Field work with students (5 days) at the Giglio Island (Italy).

## RESEARCH ADMINISTRATION AND INTERNATIONAL PROJECTS

- 2013-2015      BRIDGe Network (young researchers network), member of the organizing committee  
Organization of webinars, administration of online collaborative platform
- 2013-2014      Postdoctoral fellows/teaching assistants' representative at Géosciences Environnement  
Toulouse
- 2012            Topo-Europe Young Researchers Group (funding ESF/Topo-Europe)  
Member of the organizing committee, workshops and young researchers network
- 2009-2013      PhD as part of Marie-Curie project « Crystal2Plate »  
Project gathering 7 universities and 4 industry partners, participation at 6 workshops and  
3 short courses in the different countries involved.

## LANGUAGES

French: native language  
English: fluent

Italian: working knowledge  
Spanish: conversational

## OTHER SKILLS AND INTERESTS

First Aid Certification: training to basic life support.

Paleontological excavations and research at the "Pterosaur's Beach" (Crayssac, France).

Sports: historical European martial arts, aikido, archery, fencing.

## REFERENCES

Claudio FACCENNA (LET, University Roma TRE, Rome, Italy)

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## PUBLICATIONS

### In press, in preparation

**Bajolet F.**, Rouby D., Chardon D., Dall'Asta M., Couëffe R., Roig J-Y., Loparev A., Meso-Cenozoic paleogeographic maps of northern South-America and regional-scale source-to-sink analysis, in preparation.

**Bajolet F.**, Robert A., Rouby D., Chardon D.. Unraveling African plate structure from elevation, geoid and geology data, in preparation.

### Articles in peer reviewed journals

de Saint-Blanquat M., **Bajolet F.**, Clerc C., Grand'Homme A., Proietti A., Zanti, M., Boutin A., Lagabrielle Y., Labaume P. Cretaceous mantle exhumation in the central Pyrenees: New constraints from the peridotites in eastern Ariège (North Pyrenean Zone, France), *CR Geosciences*, 348(3-4), 268-278, doi: 10.1016/j.crte.2015.12.003.

**Bajolet F.**, Chardon D., Martinod J., Gapais D., Kermarrec J.J. Crustal flow at the margin of high plateaux: A lithospheric-scale experimental approach, *JGR-Solid Earth*, 120(9), 6634-6657, doi:10.1002/2015JB012110.

**Bajolet F.**, Replumaz A., Lainé R., 2013. Orocline and syntaxes formation during subduction and collision, *Tectonics*, 32(5), 1529-1546, doi: 10.1002/tect.20087.

**Bajolet F.**, Galeano J., Negredo A.M., Funiciello F., Moroni M., Faccenna C., 2012. Continental delamination: Insights from laboratory models. *Geochem. Geophys. Geosyst.*, 13, Q02009, doi:10.1029/2011GC003896.

## COMMUNICATIONS

### Oral communications

**Bajolet F.**, Chardon D., Rouby D. Dall'Asta M., Loparev A., Coueffe R., Roig J-Y. Paleogeographic constraints on continental-scale source-to-sink systems: Northern South America and its Atlantic margins. *International Meeting of Sedimentology*, Toulouse, France, 10-12 October 2017.

**Bajolet F.**, Robert, A., Chardon D., Rouby D. Unraveling African plate structure from elevation, geoid and geology data: implications for the impact of mantle flow and sediment transfers on lithospheric deformation. *EGU General Assembly 2017*, Vienna, Austria, 23-28 April 2017.

**Bajolet F.**, Robert, A., Chardon D., Rouby D. Lithospheric and crustal structure of the African continent constrained by elevation, geoid and geology data. *24th Earth Science Meeting*, Pau, France, 27-31 October 2014.

**Bajolet F.**, Faccenna C., Funiciello F., 2014. Topography in subduction zone constrained by laboratory models. *24th Earth Science Meeting*, Pau, France, 27-31 October 2014.

**Bajolet F.**, Replumaz A., Faccenna C., Lainé R. Coupled lithosphere-mantle dynamics and surface responses: oroclines and syntaxes. *4th Crystal2Plate Workshop*, Fréjus, France, 27-31 January 2013.

**Bajolet F.**, Replumaz A., Faccenna C., Lainé R. Formation of himalayan arc curvature: contribution of analog modeling. *Seminar*, Grenoble, France, 8 January 2013.

**Bajolet F.**, Replumaz A., Faccenna C., Lainé R. Curved orogen and syntaxes formation during subduction and collision. *EGU General Assembly 2012*, Vienna, Austria, 22-27 April 2012.

**Bajolet F.**, Galeano-Prieto J., Negredo A-M., Funiciello F., Moroni M., Faccenna C. Dynamic of continental delamination: A view from laboratory models. *AGU Fall Meeting 2011*, San Francisco, USA, 05-09 December 2011.

**Bajolet F.**, Magni V. Slab's late history: tear, break-off, detachment. *Meeting Continental collision and plate boundary evolution in the Africa/Arabia-Eurasia convergence zone*, Rome, Italy, 11 November 2010.

**Bajolet F.**, Chardon D., Gapais D., Martinod J., Kermarrec J.J. Crustal flow at the margin of high plateaux: A lithospheric-scale experimental approach. *EGU General Assembly 2010*, Vienna, Austria, 02-07 May 2010.

**Bajolet F.** Dynamic topography above subduction zones: What we (don't) know. Meeting *Dynamic Topography*, Rome, Italy, 1-3 December 2009.

Gapais D., Chardon D., Duretz T., **Bajolet F.**, Schulmann K., Martinod J. Deformation of hot orogenic crust: Three-dimensional flow modes and flow mode thresholds. *Granulites & Granulites 2009*, Hrubá skála, Czech Republic, 13-15 July 2009.

### **Poster communications**

Loparev A., Rouby D., Chardon D., Ye J., **Bajolet F.**, Dall'Asta M., Paquet F., Guillocheau F., Robin C., Huyghe D., Guérit L., Castellort S. Sediment routing systems of cratonic domains to their margins from accumulation histories and continental paleogeography at geological time-scales: the Equatorial Atlantic margins of the West African and Guyana Shields. *EGU General Assembly 2018*, Vienna, Austria, 8-13 April 2018.

**Bajolet F.**, Chardon D., Rouby D., Dall'Asta M., Loparev A., Coueffe R., Roig J-Y. Meso-Cenozoic source-to-sink systems in northern South America and its Atlantic margins deciphered from continental-scale paleogeographic maps. *EGU General Assembly 2018*, Vienna, Austria, 8-13 April 2018.

De Saint-Blanquat M., **Bajolet F.**, Boulvais P., Boutin A., Clerc C., Delacour A., Deschamp F., Ford M., Fourcade S., Gouache C., Grool A., Labaume P., Lagabrielle Y., Lahfid A., Lemirre B., Monié P., de Parseval P., Poujol M. Pyrenean hyper-extension: breaking, thinning, or stretching of the crust? A view from the central north-Pyrenean zone. *EGU General Assembly 2017*, Vienna, Austria, 23-28 April 2017.

**Bajolet F.**, Chardon d., Rouby D., Dall'Asta M., Loparev A., Coueffe R., Roig J-Y. Paleogeographic constraints on continental-scale source-to-sink systems: Northern South America and its Atlantic margins. *EGU General Assembly 2017*, Vienna, Austria, 23-28 April 2017.

**Bajolet F.**, Faccenna C., Funiciello F. Dynamic topography in subduction zone: insights from laboratory models. *EGU General Assembly 2014*, Vienna, Austria, 28 April-02 May 2014.

Chardon D., **Bajolet F.**, Robert A., Rouby D. Unraveling African plate structure from elevation, geoid and geology data. *EGU General Assembly 2014*, Vienna, Austria, 28 April-02 May 2014.

**Bajolet F.**, Replumaz A., Faccenna C., Lainé R. Oroclines and syntaxes formation during subduction and collision. *Workshop Structure and dynamics of the lithosphere-asthenosphere system*, Collège de France, Paris, 19-20 November 2013.

**Bajolet F.**, Replumaz A., Faccenna C., Lainé R. Orogenic curvature and syntaxes formation during subduction and collision. *3<sup>rd</sup> Crystal2Plate Workshop*, Bristol, Great Britain, 17-21 January 2012.

**Bajolet F.**, Galeano-Prieto J., Negredo A-M., Funiciello F., Moroni M., Faccenna C. Dynamic of continental delamination: A view from laboratory models. *7<sup>th</sup> Topo-Europe Workshop*, Davos, Swiss, 06-09 October 2011.

**Bajolet F.**, Galeano-Prieto J., Negredo A-M., Funiciello F., Moroni M., Faccenna C. Dynamic of continental delamination: coupling between mantle flow and surface response from laboratory models. *CIDER summer school*, Berkeley, CA, USA, 27 June – 23 July 2011.

**Bajolet F.**, Galeano-Prieto J., Negredo A-M., Funiciello F., Moroni M., Faccenna C. Dynamic of continental delamination: coupling between mantle flow and surface response from laboratory models. *Gordon Research Conference*, South Hadley, MA, USA, 05-10 June 2011.

**Bajolet F.**, Galeano-Prieto J., Negredo A-M., Funiciello F., Moroni M., Faccenna C. Continental delamination: Insights from laboratory models. *EGU General Assembly 2011*, Vienna, Austria, 04-08 April 2011.

**Bajolet F.**, Galeano-Prieto J., Negredo A-M., Funiciello F., Moroni M., Faccenna C. Dynamic of continental delamination: coupling between mantle flow and surface response from laboratory experiments. *2<sup>nd</sup> Crystal2Plate Workshop*, Estepona, Spain, 17-22 January 2011.