

Marine Lasbleis, Ph.D.

ELSI Research Scientist

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Research and teaching positions

2018 - now	Post doctoral researcher , Université de Nantes, Laboratoire de Planétologie et Géodynamique . Funded by the project Geoplanet
2017 - 2018	ELSI (Earth Life Science Institute) Research scientist. ELSI, Tokyo Institute of Technology. Tokyo, Japan. Research topics: chemical and thermal evolution of the early cores of planets, solid core dynamics. Febr. - March 2018: invited researcher at Australian National University, Australia. May - June 2018: Invited Professor at Université de Nantes, Laboratoire de Planétologie et Géodynamique. April 2018: visit to Freie Universität (Berlin, Germany), in Pr. Noack group.
2015 - 2017	JSPS Post-doctoral Fellow FY2015 – Melting and freezing in the deep Earth. Host researcher: Pr. Kei Hirose. 2 years, including a research grant (~17k EUR). ELSI, Tokyo Institute of Technology, Tokyo, Japan.
2011 - 2014	Teaching assistant at Département des Sciences de la Terre, Ecole Normale Supérieure de Lyon

Education

2014	Ph.D.: Dynamics and evolution of the Earth's inner core at Laboratoire de Géologie de Lyon, France . <i>Ph.D. Defense: 4th december 2014.</i> (First class honors)
2012	Summer School at the Cooperative Institute for Dynamic Earth Research (CIDER) "Deep Time: How did early Earth become our modern world?" 4 weeks, UC Santa Barbara.
2010	M.S. in Physics (Magna Cum Laude) ENS de Lyon, France.
2008	B.S. in Earth Science (Magna Cum Laude) ENS de Lyon, France.
2007	Competitive entrance at ENS de Lyon, France (ranking: 16, about 900 candidates).

Publications

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- M. Lasbleis**, L. Waszek, E. Day. *GrowYourIC: a step towards a coherent model of seismic structure*, Geochemistry, Geophysics, Geosystems, 2017, 18 (11), 4016-4026.
- E. Tasker, J. Tan, K. Heng, S. Kane, D. Spiegel, R. Brasser, A. Casey, S. Desch, C. Dorn, J. Hernlund, C. Houser, M. Laneuville, **M. Lasbleis**, A.-S. Libert, L. Noack, C. Unterborn & J. Wicks. *The language of exoplanet ranking metrics needs to change*. Nature Astronomy, 2017, 1 (2), 0042.
- M. Lasbleis**, R. Deguen, S. Labrosse, P. Cardin. *Earth's inner core dynamics induced by the Lorentz force*. Geophysical Journal International, 2015, 202 (1), 548-563.
- M. Lasbleis**, R. Deguen. *Building a regim diagram for the Earth's inner core*. Physics of the Earth and Planetary Interiors, 2015, 247, 80-93.
- Z. M. Geballe, **M. Lasbleis**, V. F. Cormier and E. A. Day. *Sharp hemisphere boundaries in a translating inner core* , Geophysical Research Letter, 2013, 40, 1719-1723
- J. Noir, M. A. Calkins, **M. Lasbleis** and J. M. Aurnou. *Experimental study of librational driven zonal flows in a straight cylinder* , Physics of the Earth and Planetary Interiors, 2010, 182, 98-106.

Work in progress

M. Lasbleis, J. Hernlund, S. Labrosse. *Snow in the Earth's core*, in prep.

M. Lasbleis, Q. Forquenot, R. Deguen. *Inner core topography with stochastic approach*, in prep.

- ★ **M. Lasbleis**, *Combining seismic observations and geodynamical models for exploring the Earth's inner core*, SEDI (Study of the Earth Deep Interior) meeting, July 2018 (Edmonton, Canada)
- ★ **M. Lasbleis**, R. Deguen, Q. Forquenot, *Topography at the inner core boundary*, PICO Presentation EGU (European Geophysical Union) meeting (Vienna, Austria), April 2018.
- ★ **M. Lasbleis**, R. Deguen, Q. Forquenot, *Topography at the inner core boundary*, AGU Fall Meeting (New Orleans, USA), December 2017.
- E. Day, **M. Lasbleis**, L. Waszek, *GrowYourIC: an open access Python code to facilitate comparison between kinematic models of inner core evolution and seismic observations*, AGU Fall Meeting (New Orleans, USA), December 2017.
- **M. Lasbleis**, L. Waszek, E. Day, *A first step to compare geodynamical models and seismic observations of the inner core*, IAG-IASPEI meeting (Kobe, Japan), August 2017.
- Q. Forquenot, **M. Lasbleis**, *Inner core topography*, Crust to Core Workshop (Ikoinoie, Japan), July 2017.
- **M. Lasbleis**, R. Brasser, *Can we estimate an upper bound for the magnetic field of rocky planets?* AC-CRETE Meeting (Nice, France), May 2017
- ★ **M. Lasbleis**, *Inner core dynamics: combining seismic studies and geodynamical models*, Gordon Research Conference on the Earth Interior (South Hadley, MA, USA), May 2017.
- **M. Lasbleis**, R. Brasser, *Can we estimate an upper bound for the magnetic field of rocky planets?* Astrobiology Science Conference (Mesa, AZ, USA), April 2017.
- **M. Lasbleis**, L. Waszek, E. Day, *A first step to compare geodynamical models and seismic observations of the inner core*, AGU (American Geophysical Union) Fall Meeting (San Francisco, CA, USA), December 2016.
- ★ **M. Lasbleis**, *Deep Earth from a laptop*, European Research Day (Tokyo, Japan), November 2016.
- **M. Lasbleis**, J. Hernlund, S. Labrosse, *Solid iron snow in the F-layer*, SEDI (Study of the Earth Deep Interior) meeting, July 2016.
- M. Laneuville, **M. Lasbleis**, G. Helffrich, *Evolution of an Initially Stratified Liquid Core on Mars and Dynamo activity*, SEDI (Study of the Earth Deep Interior) meeting, July 2016.
- ★ **M. Lasbleis**, J. Hernlund, S. Labrosse, *Snow in the Earth's core*, Goldschmidt Conference (Yokohama, Japan), June 2016.
- ★ **M. Lasbleis**, J. Hernlund, S. Labrosse, *Snow Model for the F-Layer*, AGU (American Geophysical Union) Fall Meeting (San Francisco, CA, USA), December 2015.
- L. Waszek, **M. Lasbleis**, E. Day, D. Al-Attar, Z.M. Geballe *Super-rotation, Translation and Growth of the Inner Core: A Step Towards a Coherent Model of Seismic Structures*, AGU (American Geophysical Union) Fall Meeting (San Francisco, CA, USA), December 2015.
- ★ **M. Lasbleis**, *Freezing and melting at the inner core boundary*, Workshop on the Earth's mantle and core (Matsuyama, Japan) November 2015.
- **M. Lasbleis**, S. Labrosse, R. Deguen, *Building a regime diagram for the Earth's inner core*, AGU (American Geophysical Union) Fall Meeting (San Francisco, CA, USA), December 2014.
- **M. Lasbleis**, R. Deguen, S. Labrosse, P. Cardin, *Dynamics induced by the Lorentz force in the growing inner core*, SEDI (Study of the Earth Deep Interior) Meeting (Kamakura, Japan) August 2014.
- ★ **M. Lasbleis**, R. Deguen, S. Labrosse, P. Cardin, *Dynamics induced by the Lorentz force in the growing inner core*, Workshop on transport properties in the Earth's core (Kawaguchiko, Japan), November 2013.

- ★ **M. Lasbleis**, R. Deguen, S. Labrosse, P. Cardin, *Dynamics induced by the Lorentz force in the growing inner core* Inner core anisotropy workshop (Grenoble, France), November 2013.
- **M. Lasbleis**, R. Deguen, S. Labrosse, P. Cardin, C. Juan, *Dynamics induced by the Lorentz force in the growing inner core*, Gordon Research Conference and Gordon Research Seminar on the Earth Interior (South Hadley, MA, USA) June 2013.
- **M. Lasbleis**, S. Labrosse, J. Hernlund, *Growth of the inner core by snowfall*, AGU (American Geophysical Union) Fall Meeting (San Francisco, CA, USA) December 2012.
- E. Day, V. Cormier, Z. Geballe, **M. Lasbleis**, M. Youssof, H. Yue, *Investigating the translation of Earth's inner core*, AGU (American Geophysical Union) Fall Meeting (San Francisco, CA, USA) December 2012.
- **M. Lasbleis**, B. Journaux, C. Perge, A. Marguerite, H. Dore, B. Bourget, *A planet in your garage : Simple and memorable experiments to explain complex fluid dynamic phenomenons to non-scientist* – Education session, AGU (American Geophysical Union) Fall Meeting (San Francisco, CA, USA) December 2012.
- **M. Lasbleis**, S. Labrosse, J. Hernlund, *Can the F-layer be explained by a slurry layer?*, SEDI (Study of the Earth Deep Interior) Meeting (Leeds, UK) July 2012.
- ★ **M. Lasbleis**, S. Labrosse, J. Hernlund, *Feedbacks Between Inner Core Freezing, Melting, and Evolution of the F-Layer*, AGU (American Geophysical Union) Fall Meeting (San Francisco, CA, USA), December 2011.

Invited seminars:

- Research School of Earth Sciences, Australian National University (February 2018)
- Laboratoire de Planétologie de Nantes, France (March 2015, May 2016).
- Institut des Sciences de la Terre, Grenoble, France (March 2015, April 2016).
- Institut de Recherches en Astrophysique et Planétologie, Toulouse, France (April 2016).

Fundings/scholarships/awards

2018	Marie Skłodowska-Curie actions (MSCA) Individual Fellowship (185k EUR for 2 years, starting March 2019)
2018	Grant-in-Aid for Scientific Research (Kakenhi – young researcher)~ 17k EUR for 2 years (PI)
2018	Short Term Stay Mission COST Action TD 1308 ORIGINS, 900 EUR.
2017	Earth-Life Science Institute Incentive Award.
2016	Earth-Life Science Institute Director's fund ~ 7k EUR.(PI)
2015	Grant-in-Aid for Scientific Research (Kakenhi – JSPS postdoctoral fellow). ~ 17k EUR for 2 years. (Fiscal years 2015 and 2016)
2015	Earth-Life Science Institute Director's fund ~ 6k EUR. (PI)
2015	Japan Society for the Promotion of Science Post Doctoral Fellowship (2 years). ~ 70kEUR
2012	CIDER funding for research group. 5k EUR. (co-I)
2011	École Normale Supérieure de Lyon grant for student research groups. 4.5k EUR. (PI)
2007	Scholarship: full study and living allowance grant for graduate studies at École Normale Supérieure de Lyon: ~ 60k EUR.

Teaching experience and teaching administration

2018 **Co-organization of the 2018 ELSI/EON Winter School for graduate and post doctoral students (34 students, from 4 different continents)** , with responsibilities for the curriculum and technical organisation of the lectures: initiation to UNIX and Python, planetary atmospheres, exoplanets, mantle convection. Lectures on initiation to UNIX and Python.

2015 **Highschool class** Chiba, Japan . 3 hours on Introduction to the Earth's core.

2011 - 2014 **Teaching assistant** at the Department of Earth Science, École Normale Supérieure (ENS) de Lyon, France. Total: 190 hours over 3 years. In bold are the lectures I was responsible for in term of curriculum and organisation.

B.S. 2nd y.	Introduction to geophysics	Spring 2012	20hours (tutorials)
B.S. 3rd y.	Computer Science for geosciences	Fall 2012, 2013	2x20h (lectures+tut.)
	Mathematics	Fall 2011, 2012, 2013	3x20h (lectures+tut.)
	Thermodynamics of natural systems	Fall 2011, 2012, 2013	3x14h (tutorials)
	Geophysics (elasticity and magnetism)	Spring 2012, 2013	2x25h (tutorials)
	Mentoring	Fall 2012, 2013	2x20h
M.S. 1st y.	Geophysics (heat budget of planets)	Fall 2012, 2013	2x6h (tutorials)

Mentoring activities

2018	Irene Bonati , graduate student at ELSI (principal advisor: John Hernlund). Project: magnetic field of exoplanets.
2017	Mathilde Kervazo , graduate (Master 1 and M2) student internship (3 months and 1 month) at ELSI: Inner core dynamics with CIG-ASPECT.
2017	Quiterie Forquenot , graduate (Master 2) student internship (5 months) at ELSI: Inner core topography. Research presented at the Crust-to-core workshop (July 30-Aug. 1, Ikoinoie, Japan)
2016	Maude Geissmann , graduate (Master 1) student internship, at ELSI, co-advised with John Hernlund. Research presented at the SEDI meeting 2016.
2013	Christie Juan , undergrad (Licence 3) student internship.

Scientific Outreach

2017	Talk at Nerd Nite Tokyo, October 20.
2017	Talk at the ELSIOrigins1, September 2017. Public outreach event at ELSI.
2016	Talk on "Research and life in Japan", at the Orientation for JSPS Post Doctoral Fellows.
2016	Organisation of the "Earth-Life Science Institute Youchien", classes held at the institute. Lecture on "fluid dynamics for deep Earth".
2016	ELSI's Ask me Anything: open discussion with the public at the Tokyo Tech Institute of Technology.
2012 - 2014	Participation to the annual science fair <i>Fête de la Science</i> (4 days, responsible for the organisation and presentation of an activity for the 4 days), ENS de Lyon.
2011 - 2013	Creation and management of a student group: First approach of planetary fluid dynamics ENS de Lyon. . Budget: 4.5k euros for two years.

Community service and other services

2018	Contact information between ELSI and the LPG for the consortium GeoPlanet.
2018	Primary convener and convener of AGU 2018 Fall Meeting SEDI session DI14.
2018	Co-organizer of the Earth Life Science Winter School, at ELSI, Jan-Feb 2018.
2017 -	Community ambassador for EarthArXiv (an open source community governed preprint system for the Earth sciences)
2017	Organizer of the Power Hour during Gordon Research Conference Interior of the Earth (South Hadley, MA, USA)
2016 - 2017	Member of the Scientific Organizing Committee for the 5th ELSI International Symposium (11-13 January 2017)
2016 - 2017	Organizer of the Young Researchers' Day during the 5th ELSI Symposium (10 January 2017. ~ 60 grad students and post docs).
2016	Convener of AGU 2016 Fall meeting SEDI session.
2014 - 2017	Outstanding student paper award judge, AGU fall meeting.
2012 - 2014	Grad student representative at the Laboratoire de Géologie de Lyon board of directors.
2011	Organization of the graduate student Day 2011: short scientific conferences held by the grad students, Laboratoire de Géologie de Lyon. Budget: 2.5k euros.
2008 - 2011	Organization of multidisciplinary scientific conferences (<i>Cédric Villani, Thomas Peacock, Eric Brun, Louis Schweitzer, etc.</i>) Budget: 2k euros per year.
2008 - 2010	Student representative at the Board of Directors of the ENS de Lyon.

Peer-review for journals: Icarus, Progress in Earth and Planetary Science

Academic membership: American Geophysical Union (2011 – today), European Geophysical Union (2017 – today)

ELSI Affiliated Researcher