

CURRICULUM VITAE

November 23, 2020

LOUIS RIVOIRE

Postdoctoral research fellow
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PROFESSIONAL EXPERIENCE

Harvard University
Department of Earth and Planetary Sciences
Postdoctoral fellow, M. Linz research group
Dynamics of the global circulation in the stratosphere

Cambridge, MA
2020 - now

EDUCATION

Colorado State University
Ph.D., Atmospheric Science
Programs of Research and Scholarly Excellence

Fort Collins, CO
2020

Pierre and Marie Curie Univ. (Sorbonne Univ. affiliate)/Ecole Normale Supérieure Paris, France
M.S., Ocean, Atmosphere, Climate, and Remote Sensing 2015

Ecole Normale Supérieure Paris, France
Diploma of Ecole Normale Supérieure, in recognition of interdisciplinary curriculum
with a focus on environmental sciences (soil science, hydrology, land/ocean-atmosphere
interactions, paleoclimatology, biogeochemistry, ecology, geopolitics) 2015

Ecole Normale Supérieure Paris, France
B.S., Earth Sciences 2013

Higher School Preparatory Classes Lyon, France
2-year intensive training for highly competitive selection to enroll at the *Grandes Ecoles*
Mathematics, physics, chemistry, biology, geology, geography, philosophy, and English 2010-2012

RESEARCH EXPERIENCE

Internships:

Colorado State University Fort Collins, CO
Intern with Dr. Thomas Birner and Dr. Richard Johnson 2015
Modulation of tropical tropopause layer characteristics by the Madden-Julian Oscillation

National Center for Atmospheric Research - ACOM Boulder, CO
Intern with Dr. William J. Randel 2014
Global characterization of dry tongues in the tropical troposphere

University Pierre and Marie Curie Paris, France
Intern at the Institute of Mineralogy, Materials Physics and Cosmochemistry 2013
Synthesis and reactivity of carbonated green rusts for the denitrification of wastewater

Field and laboratory experience:

Colorado State University	Fort Collins, CO
• Participant in the WE-CAN aircraft chemistry campaign	2018
• Radiosonde launches for an inter-comparison project	2018
Haute Provence Observatory	France
Atmospheric dynamics, LIDAR meteorology	2015
METEO FRANCE	Toulouse, France
Glaciology, meteorology, and remote sensing	2014
Ecole Normale Supérieure	Alps, France
• GPS measurement campaign for geodetic study	2013
• Mapping and structural geology	2013
Oceanography Laboratory of Villefranche-sur-Mer	Villefranche-sur-Mer, France
Marine seismics and atmosphere-ocean flux measurements	2013
Ecole Polytechnique (LMD)	Palaiseau, France
Introduction to LIDAR, meteorology and atmospheric chemistry	2013
Paris Institute of Earth Physics	Paris, France
Geomorphological and hydrological experiments	2013
Pierre and Marie Curie University (LOCEAN)	Paris, France
Fluid dynamics experiments	2013

COMMUNITY SERVICE

Peer reviews:

NASA proposal review panel (1)	J. of Geophys. Res. (5)	Atmos. Sci. Lett. (1)
Int. J. Climatol. (1)	Ann. Geophys-Italy (1)	QJRMS (2)
		Other (18)

International Presidential Fellow at Colorado State University	2015–2016
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TEACHING/MENTORING EXPERIENCE

Colorado State University	Fort Collins, CO
Teaching assistant, Atmospheric Dynamics II	2016
Graduate student mentor for short-term internships	2016, 2019, 2020

CONFERENCE ABSTRACTS AND INVITED LECTURES

- **Rivoire, L.**, What is cooling the tropopause above tropical cyclones?, invited seminar, NCAR, ACOM, Boulder, CO, 2019.
- **Rivoire, L.**, What is cooling the tropopause above tropical cyclones?, oral presentation, 19th Cyclone Workshop with award travel grant, Seeon, Bavaria, Germany, 2019.
- **Rivoire, L.**, Temperature tendencies in the UTLS above tropical cyclones, oral presentation, Front Range Tropical Cyclone workshop, Fort Collins, CO, 2018.
- **Rivoire, L.**, J. A. Knaff, Climatology and structure of cut-off lows in the north Atlantic, oral presentation, NOAA Center for Satellite Applications and Research - COoperative Research Program workshop, Madison, WI, 2018.
- **Rivoire, L.**, T. Birner, J. A. Knaff, Evolution of the upper-level thermal structure in reanalyzed tropical cyclones, poster presentation, 33rd AMS Conference on Hurricanes and Tropical Meteorology, Ponte Vedra, FL, 2018.
- **Rivoire, L.**, T. Birner, J. A. Knaff, Evolution of the upper-level thermal structure in tropical cyclones, poster presentation, 49th Fall Meeting of the AGU, San Francisco, CA, 2016.

- **Rivoire, L.**, T. Birner, J. A. Knaff, Evolution of the fine-scale vertical structure in tropical cyclones inferred from GPS Radio Occultation measurements, oral presentation, 32nd AMS Conference on Hurricanes and Tropical Meteorology, San Juan, PR, 2016.
- **Rivoire, L.**, Dry layers in the tropical troposphere, invited lecture at Colorado State University, 2016.
- **Rivoire, L.**, T. Birner, R. H. Johnson, Sensitivity study of CAPE, poster presentation, Young Scientist Symposium on Atmospheric Research at Colorado State University, Fort Collins, CO, 2015.

PEER-REVIEWED PUBLICATIONS

- (**L. Rivoire**, T. Birner, J. A. Knaff and co-authors, Sensitivity of clouds to their thermodynamic environment in the UTLS, *in preparation, using a theoretical framework and idealized simulations.*)
- (**L. Rivoire**, T. Birner, J. A. Knaff and co-authors, Impacts of tropopause layer cooling on tropical cyclone structure and dynamics, *in preparation, using regional numerical simulations.*)
- (**L. Rivoire**, T. Birner, J. A. Knaff and co-authors, Thermal structure of tropical cyclones in reanalysis data sets, *in preparation.*)
- **L. Rivoire**, T. Birner, J. A. Knaff, N. Tourville, Quantifying the radiative impact of clouds on tropopause layer cooling in tropical cyclones, *J. Clim.*, 2020.
- W. J. Randel, **L. Rivoire**, L. L. Pan, S. Honomichl, Dry layers in the tropical troposphere observed during CONTRAST and global behavior from GFS analyses, *J. Geophys. Res.*, 2016.
- **L. Rivoire**, T. Birner, J. A. Knaff, Evolution of the upper-level thermal structure in tropical cyclones, *Geophys. Res. Lett.*, 2016.

TECHNICAL SKILLS AND INTERESTS

- Advanced knowledge of Matlab (10+ years), working knowledge of UNIX shell, Fortran, \LaTeX , MS Office.
- Linux environment and workload managers.
- Extensive experience with large data sets and data formats including GRIB, GRIB2, NetCDF, HDF, ASCII.
- Modify model code and run ensemble simulations to improve the reliability of model projection.
- Native French speaker, proficient in English.
- Certificate recipient for online courses offered by the University of Texas at Austin, Georgetown University, Delft University of Technology, Harvard University (water management, energy production and distribution, impacts of globalization, programming languages)
- Creative writing, concept art design, skydiving.