CURRICULUM VITAE
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LOUIS RIVOIRE

Postdoctoral research fellow
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PROFESSIONAL EXPERIENCE

Harvard University — Cambridge, MA
Department of Earth and Planetary Sciences — 2020 - now
Postoctoral fellow, M. Linz research group
Dynamics of the global circulation in the stratosphere
Tropical cyclone track modeling in future climates

EDUCATION

Colorado State University — Fort Collins, CO
Ph.D., Atmospheric Science — 2020
Programs of Research and Scholarly Excellence
Interactions between tropical cyclones and their upper tropospheric and lower stratospheric environment

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* — 2010-2012
Mathematics, physics, chemistry, biology, geology, geography, philosophy, and English

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 wildfire chemistry campaign 2018
• Radiosonde launches for an inter-comparison project 2018
Haute Provence Observatory France
Atmospheric dynamics, boundary layer and stratospheric LIDAR meteorology 2015
METEO FRANCE Toulouse, France
Glaciology and remote sensing of the cryosphere, introduction to weather forecasting 2014
Ecole Normale Supérieure Alps, France
• GPS measurement campaign for a geodetic study 2013
• Mapping and structural geology 2013
Oceanography Laboratory of Villefranche-sur-Mer Villefranche-sur-Mer, France
Marine reflection seismology, in situ atmosphere-ocean flux measurements 2013
Ecole Polytechnique (LMD) Palaiseau, France
LIDAR meteorology, atmospheric pollutant transport and chemistry 2013
Paris Institute of Earth Physics Paris, France
Geomorphological and hydrological experiments 2013
Pierre and Marie Curie University (LOCEAN) Paris, France
Rotating tank fluid dynamics experiments 2013

COMMUNITY SERVICE

Peer reviews:

NASA review panel (2)	Nat. Commun. (1)	Harvard College (1)	J. of Geophys. Res. (6)
Atmos. Sci. Lett. (1)	Bull. Am. Met. Soc. (1)		Int. J. Climatol. (1)
Ann. Geophys-Italy (1)	QJRMS (2)	Atmos. Chem. Phys. (1)	Other (18)

International Presidential Fellow at Colorado State University 2015–2016

TEACHING/MENTORING EXPERIENCE

Colorado State University Fort Collins, CO
Teaching assistant, Atmospheric Dynamics II 2016
Graduate student mentor for undergraduate and graduate summer internships 2016, 2019, 2020
Harvard University Cambridge, MA
Graduate student mentor 2020-present
Undergraduate student intern advisor 2022

CONFERENCE ABSTRACTS AND INVITED LECTURES

- **Rivoire, L.**, M. Linz, J. Curbelo, C. Golja, An improved jet detection algorithm for climate studies, EGU General Assembly, Vienna, Austria, 2022.
- **Rivoire, L.**, M. Linz, J. Neu, P. Lin, A simple approach to the statistical significance of trends in stratospheric ozone, 102nd Annual Meeting of the AMS, virtual, 2022.
- **Rivoire, L.**, D. Chavas, J. A. Knaff, A multivariate approach to future tropical cyclone tracks, conference abstract, 34th AMS Conference on Hurricanes and Tropical Meteorology, virtual, 2021.

- **Rivoire, L.**, Ozone and hurricanes, outreach presentation for Earth Day, French Consulate in Boston, virtual, 2021.
- **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**, M. Linz, J. Curbelo, and co-authors, A dynamically-driven algorithm for the detection of atmospheric jets, *in preparation*.)
- (**L. Rivoire**, M. Linz, and co-authors, Detecting stratosphere-to-troposphere transport from total column ozone retrievals, *in preparation*.)
- (**L. Rivoire**, M. Linz, P. Lin, J.N. Neu, Towards understanding robust trend detection in stratospheric ozone, *in preparation for Atmospheric Chemistry and Physics*.)
- (**L. Rivoire**, T. Birner, J. A. Knaff and co-authors, Convectively-driven tropopause layer cooling 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.