Jessica Vial

Laboratoire de Météorologie Dynamique
(LMD/CNRS, Sorbonne Université, Paris 5e)

Climate scientist and researcher in atmospheric physics

Strong expertise in tropical and mid-latitude meteorology: climate modeling, process understanding, data analysis and dissemination of scientific information

Contributing author for the 6th IPCC report (The Physical Science Basis) in the chapter on radiative forcing, feedbacks and climate sensitivity

Research Experience

Since 2019 **Post Doctoral Research Scientist** at ***LMD*** (Paris)
Centre National de la Recherche Scientifique (CNRS)

- *Combining cloud observations, machine learning and numerical modeling (global climate models and high resolution models) to better constrain global warming projections*
- *"EUREC4A" field campaign in the trade-wind region of the North Tropical Atlantic: preparation and participation, principal investigator of the diurnal cycle for sampling strategy*

2017 – 2018 **Post Doctoral Research Scientist** at ***Max-Planck-Institut für Meteorologie*** (MPI-M), Hamburg

- *First extended study of the diurnal cycle in oceanic trade-wind cumulus clouds and convection using modern investigation tools ➡ Highly relevant topic*
- *Pioneering work in quantifying the role of cloud radiative effects in the dynamics of extra-tropical cyclones (case study)*
- *5 week expedition on the German research vessel "Polarstern" for an Atlantic crossing: optical measurements of aerosols, water vapor and clouds*

2016 – 2017 **Post Doctoral Research Scientist** at ***Laboratoire d'Océanographie et du Climat : Experimentation et Approches Numériques*** (LOCEAN, Paris)
Collaboration with Centre National de Recherches Météorologiques (CNRM, Toulouse)

Quantifying and understanding the role of multi-decadal climate variability in the future evolution of tropical rainfall. Work based on multi-member ensemble experiments using a global climate model.

2014 – 2015 **Post Doctoral Research Fellow** at ***LMD*** **– funded by a postdoctoral research grant from CNES**
Collaboration with CNRM (Toulouse)

Formulation of a conceptual model to understand the role of air mass transport by shallow convection in the climate feedback of trade-wind cumulus clouds. Work based on physical parameter sensitivity experiments of an atmospheric model in a simplified uni-column configuration.

2012 – 2013 **Post Doctoral Research Scientist** at ***LMD***
1-year scientific visit at *Columbia University* (New York)

Quantification and attribution of uncertainties in the amplitude of global warming estimated by climate models ➡ Highly Cited Paper : Vial et al. Climate Dynamics (2013)

Teaching & student supervision

Since 2017	**Supervision of student research projects** (Bachelor, Master)
Sept. 2015	**Lecturer (on invitation)** - « Clouds and Climate Sensitivity » for master and PhD students Organised for the Leipzig Graduate School (LGS-CAR)
2010 – 2011	**Assistant professor** (2h/week) in mathematics to freshmen students During my PhD at the University of East Anglia (England)
2007 – 2008	**Private tutor** in mathematics to juniors and high school studentship Employee of Acadomia compagny

Education

2008 – 2011	**Fully funded PhD in Environmental Sciences** Climatic Research Unit (CRU) at the University of East Anglia (England) Supervision: Osborn T. and Goodess C. *Title: Climate Model Simulations of Winter Northern Hemisphere Atmospheric Blocking: Statistical Assessment, Dynamical Perspective, Regional Impacts and Future Change*
2006 – 2007	**BSc. (Hons) Mathematics & Geophysics, First Class Honors** Victoria University of Wellington (New Zealand) *Final year project title: Future Changes in Precipitation Extremes for New Zealand: Statistical Method of Extreme Values* *Supervision: Deen S. at the National Institute of Water and Atmospheric Research (NIWA)*
2004 – 2005	**Freshmen-sophomore in Environmental Science program, Meteorology option** EAI Tech Institute at Sophia Antipolis (France)
2003 – 2004	**Freshmen year, general applied Mathematics/Sciences program, Mathematics option** University of Nice-Sophia Antipolis at Nice (France)
2002	**High school diploma, advanced levels in Mathematics, Physics and Chemistry** Joseph Zobel secondary school in Martinique (France)

Outreach activities

Regularly	**Animations and conferences** on climate and climate change for the general public, school students, and for professional training
2021/22	**Scientific referent in physics** in the conception of training courses for teachers (collaboration with "*La maison pour la science*", Paris Île-de-France)
2020/22	**Pedagogical and scientific guidance** for teachers (collaboration with "*La main à la pâte*", Paris Île-de-France)
2015/16	**Press interviews** and contribution to **outreach articles**

Selected conferences & workshops

2013 – 2019	**Seminars** in various laboratories **in France and abroad** : Columbia University and New York University (USA, 2013), CNRM Toulouse (2014, 2015), MPI Hamburg (2018), LMD Paris (2015, 2019), LOCEAN Paris (2019), LOPS Brest (2019), IGE Grenoble (2019), LOA Lille (2019)
2019	Special workshops for the **preparation of the EUREC4A field campaign** : hosted by MPI (Ringberg, Germany) and LMD (Sorbonne University, Paris)
2010 – 2021	**European Geosciences Union (EGU) General Assembly** in Vienna (Austria) – oral presentations and visio-conferences

2012 – 2021	Annual workshops for the **Cloud Feedback Model Intercomparison Project** (CFMIP) – posters, oral presentations and visio-conferences
2016 – 2017	Workshop for the **International Space Science Institute** (ISSI) team at Bern (Switzerland) on "Shallow Clouds and Water Vapor, Circulation and Climate Sensitivity". **On invitation** ➡ work leading to a **book presenting a series of review articles** on the topic (Space Sciences Series of ISSI Book n°65)
2015	Annual workshop for the **World Climate Research Programme** (WCRP) at Ringberg (Germany) on « Clouds, Circulation and Climate Sensitivity » (oral). **On invitation**
2011	Workshop on atmospheric blocking at Reading (England). **On invitation**

Funding & Awards

- 2014: 2-year post-doctoral research grant from CNES
- 2011: Secured two months' extension to my PhD studentship funding
- 2010: Financial support for the EGU General Assembly
- 2009: Financial support for conferences-orientated travel expenses
- 2008: School of Environmental Sciences 3-year PhD studentship (England)
- 2007: Awarded a scholarship securing the final year's university fees of my Bsc. (New Zealand)