

Caroline Muller

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RESEARCH TOPICS	Hydrological cycle (mean and extreme precipitation), spatial organization of tropical clouds, cyclogenesis, ocean circulation, internal waves.	
RESEARCH EXPERIENCE	<p>2015 - present CNRS, Laboratoire de Météorologie Dynamique (LMD), École Normale Supérieure (ENS) Paris CNRS researcher <i>Chargée de Recherche CNRS</i> & joint appointment as ENS lecturer <i>Maître de Conférence attachée à l'ENS</i></p> <p>2012 - 2015 CNRS, Laboratoire d'Hydrodynamique de l'X (LadHyX), École Polytechnique CNRS researcher <i>Chargée de Recherche CNRS</i></p> <p>2010 - 2012 Princeton University/GFDL Atmosphere Ocean Science Dept. Associate Research Scholar, with Isaac Held</p> <p>2008 - 2010 Massachusetts Institute of Technology (MIT) Earth, Atmospheric and Planetary Sciences Dept. Postdoctoral Associate, with Paul O'Gorman</p> <p>2003 - 2008 New York University (NYU) Courant Institute of Mathematical Sciences Ph.D. research, with Oliver Bühler</p> <p>Summers of 2004, 2005 and 2006 NASA Goddard Institute for Space Studies Summer internships, with Vittorio Canuto and Armando Howard</p> <p>2001 - 2002 Georgia Institute of Technology, Aerospace Engineering Dept Masters research, with Panagiotis Tsiotras</p>	
EDUCATION	<p>Courant Institute of Mathematical Sciences, New York University (NYU) Ph.D. in Applied Mathematics, May 2008 M.S. in Mathematics, May 2005</p> <ul style="list-style-type: none">• Ph.D. title: Wave-induced mixing in the abyssal ocean• Advisor: Oliver Bühler <p>Georgia Institute of Technology M.S. in Aerospace Engineering, March 2003 - selective dual degree program with Supaéro</p> <ul style="list-style-type: none">• Master's thesis topic: A wavelet method for solving optimal control problems• Advisor: Panagiotis Tsiotras <p>Supaéro, École Nationale Supérieure de l'Aéronautique et de l'Espace, France Engineering degree, March 2003</p> <ul style="list-style-type: none">• Ranked first on the competitive entrance exam for Supaéro Mathematics major	

DISTINCTIONS	2019–2024	ERC Starting Grant <i>European Research Council (ERC)</i>	
	2019	Invited professor - Spring semester <i>New York University - Abu Dhabi campus</i>	
	2012–2017	Director of the graduate summer school “Fluid Dynamics of Sustainability and the Environment” (FDSE): annual summer school co-organized by École Polytechnique & the University of Cambridge <i>fdse.org</i>	
	2016	Invited professor - Spring semester <i>New York University - Shanghai campus</i>	
	2015	Joint appointment as ENS lecturer <i>École Normale Supérieure, Paris</i>	
	2009	Publication selected to be an “Editor’s Highlight” <i>Geophysical Research Letter</i>	
	2007	“Sandra Bleistein” Prize for notable achievement in applied math <i>Courant Institute of Mathematical Sciences</i>	
	2007	Nominated for Outstanding Teaching Award <i>New York University, College of Arts and Sciences</i>	
	2007	Best poster presentation award <i>AMS 16th Conference on Atmospheric and Oceanic Fluid Dynamics</i>	
	2003–2008	Henry MacCracken Fellowship <i>New York University Graduate School of Arts and Sciences</i>	
	1999	Ranked first on the entrance exam for Supaéro, Math major <i>Supaéro, École Nationale Supérieure de l’Aéronautique et de l’Espace</i>	
	OUTREACH	2017–present	Public seminars on tropical cyclones and on climate change <i>Les Houches City Hall; L’Institut des Hautes Études pour la Science et la Technologie (IHEST); La Direction Générale de l’Armement; Journées UPA - Union des Professeurs des classes préparatoires aux grandes écoles</i>
		2017–present	Appearances in the media on hurricanes and on climate change <i>Television (France Info - France télévision; BFMTV; LCI television; M6 including the scientific TV show E=M6; France O; France 5); Radio (AFP; France culture; France Inter; Radio Canada); Written press (Newspaper 20 minutes)</i>
2015–present		Scientific popularization participation and scientific presentations at numerous events <i>Open-door events at ENS; Alumni visits at ENS; High-school students days; science for kids events</i>	
ORGANIZATION OF SCIENTIFIC MEETINGS AND GRADUATE SCHOOLS			
	2019	Co-organizer of the ICTP graduate summer school on cloud organization and climate sensitivity, Trieste Italy (2 week school)	
	2012–present	Co-organizer of the graduate summer school FDSE (2 week school)	
	2018	Co-organizer of the graduate summer school “Cloud Modeling” at ENS Paris (1 week school)	
	2017	Co-organizer of the conference AMA - “Ateliers de Modélisation de l’Atmosphère” (1 week workshop)	
	2015	Co-organizer of the conference “NewWave” on internal waves (3 day workshop)	

PHD COMMITTEES	2019	Member of the PhD committee (reviewer) of Jiawei Bao <i>The University of New South Wales, Australia; advisor Steven Sherwood</i>	
	2018	Member of the PhD committee of Antoine Renaud <i>ENS Lyon, advisor Antoine Venaille</i>	
	2018	Member of the PhD committee of Maxence Lefevre <i>Sorbonne Université, advisor Sébastien Lebonnois</i>	
	2018	Member of the PhD committee of Grimaud Pillet <i>ENS Lyon, advisor Thierry Dauvois</i>	
	2018	Member of the PhD committee of Keshav Raja <i>LEGI, advisor Joël Sommeria</i>	
	2017	Member of the PhD committee of Jessica Loriaux <i>KNMI, De Bilt, The Netherlands, advisor Pier Siebesma</i>	
	2017	Member of the PhD committee of David Coppin <i>LMD, advisor Sandrine Bony</i>	
	2015	Member of the PhD committee of Tamara Beitzel-Barriquand <i>LOCEAN, advisor Pascale Bouruet-Aubertot</i>	
	ADMINISTRATION	2018–present	Editor for the journal <i>Current Climate Change Reports</i>
2016–present		Elected member of the laboratory committee of <i>LMD</i>	
2018		Vice-president of the search committee for an assistant professor position at <i>ENS Paris</i>	
2017		Member of the search committee for an assistant professor position, <i>Université de la Polynésie Française</i>	
2012–2017		Director of the FDSE graduate summer school	
2016–2017		Organizer of laboratory (LMD) seminars at <i>ENS</i>	
2014–2015		Organizer of laboratory (LadHyX) seminars at <i>École Polytechnique</i>	
2010–2012		Organizer of the climate dynamics seminar at <i>Princeton University</i>	
2008–2010		Created and ran a journal club to discuss papers on climate science at <i>MIT</i>	
2003–present	Reviewer for several journals , including <i>Nature</i> , <i>Nature Geoscience</i> , <i>Nature Climate Change</i> , <i>Proceedings of the National Academy of Sciences</i> , <i>Reviews of Geophysics</i> , <i>Geophysical Research Letters</i> , <i>J. of Geophysical Research - Atmospheres</i> , <i>J. of Geophysical Research - Oceans</i> , <i>J. of Climate</i> , <i>J. of the Atmospheric Sciences</i> , <i>J. of Physical Oceanography</i> , <i>Environmental Research Letters</i> , <i>J. of Advances in Modeling Earth Systems</i> , <i>J. of Fluid Mechanics</i> , <i>Quarterly Journal of the Royal Meteorological Society</i>		
TEACHING ACTIVITIES	2017-present	Lecturer	<i>Clouds and Atmospheric Convection</i> ENS Paris
	2015-present	Lecturer	<i>Linear Algebra for Geosciences</i> ENS Paris
	2015-present	Lecturer	<i>Meteorology</i> ENS Paris
	2014&16&18	Lecturer	<i>Clouds and Climate</i> FDSE graduate summer school, University of Cambridge UK
	2013&15&17	Lecturer	<i>Numerical methods for fluid dynamics and applications</i> FDSE graduate summer school, Ecole Polytechnique
	2016	Lecturer	<i>Calculus</i> NYU, Shanghai campus
	2013-2015	Teaching Assistant	<i>Fluid Dynamics</i> ENSTA
	2014	Teaching Assistant	<i>Turbulence</i> Ecole Polytechnique
	2013	Lecturer	<i>Physical Oceanography</i> ENSTA
	2005-2008	Lecturer	<i>PreCalculus, Calculus II and Calculus III</i> NYU
	2003-2005	Teaching Assistant	<i>Business Calculus and Quantitative Reasoning</i> NYU

MAIN FUNDINGS & PARTICIPATION IN NATIONAL AND INTERNATIONAL PROJECTS

2019–2024	PI , ERC Starting Grant, funded by ERC: <i>organisation of CLoUdS, and implications for Tropical cyclones and for the Energetics of the tropics, in current and in a waRming climate</i>
2018–2019	PI , PSL/NYU international collaborative project, funded by PSL (consortium of French universities and research institutions) and NYU (New York University): <i>New perspectives on tropical cyclone formation and intensification</i>
2018–2021	PI , LMD collaborative project, funded by LEFE (French national funding program from CNRS-INSU): <i>Robustness Of the Self-Aggregation of convection to Large-scale forcing, and implications for precipitation over tropical Islands</i>
2017–2018	co-PI , PI: B. Legras, PSL collaborative project, funded by PSL (consortium of French universities and research institutions): <i>Analyse de la croissance et morphologie des amas nuageux par méthodes variationnelles d'imagerie et de dynamique des fluides</i>
2017–2019	co-PI , PI: L.Oruba, collaborative project, funded by LEFE (French national funding program from CNRS-INSU): <i>Ocean-Atmosphere interactions: oceanic mesoscale eddies and tropical cyclones</i>
2016–2017	PI , ENS collaborative project, funded by ENS Actions Incitatives: <i>Role of small-scale Ocean dynamics in the large-scale Oceanic and atmospheric Circulation</i>
2016–2017	PI , LadHyX collaborative project, funded by Chaire DDX-EDF (Chair for Sustainable Development) at Ecole Polytechnique: <i>Role of ocean Internal waves in the ocean Circulation</i>
2016–2017	PI , France-Berkeley international collaborative project, funded by the France-Berkeley fund: <i>Impact of Self- Aggregation on Cyclogenesis</i>
2015–2016	PI , LadHyX/LMD collaborative project, funded by Chaire DDX-EDF: <i>Modeled Aggregation of Convection And Cyclogenesis</i>
2014–2015	PI , LadHyX/LMD collaborative project, funded by Chaire DDX-EDF: <i>Organization of Convection in the Tropical Atmosphere</i>
2013–2017	PI , PhD funding, funded by Direction Générale de l'Armement (DGA): <i>Dissipation Of Tidal Energy in the Deep Ocean</i>

SUPERVISIONS

POSTDOCS	2019 (ongoing)	Benjamin Fildier, main supervisor
	2019 (6 months)	Nicolas Da Silva, main supervisor <i>Now Postdoctoral Researcher UK</i>
	2017–2018 (1 year)	Jean-Baptiste Courbot, co-supervisor (main supervisor Bernard Legras LMD) <i>Now maître de conférences at the Université de Haute Alsace</i>
PHDS	2017–2020 (ongoing)	Sara Shamekh, co-supervisor (main supervisor Fabio D'Andrea LMD)
	2014–2017 (3 years)	Océane Richet, main supervisor (co-supervisor Jean-Marc Chomaz LadHyX) <i>Now postdoctoral researcher on a 3-year fellowship at the university of Tasmania</i>

MASTERS	2017 (2 months)	Phuong Nguyen, main supervisor Masters 1 internship
	2016 (6 months)	Marius Guerard, main supervisor Masters 2 internship (co-supervisors Sandrine Bony and Thomas Dubos LMD)
	2014 (2 months)	Bastien Alonzo, co-supervisor Masters 1 internship (main supervisor Philippe Drobinski LMD)
	2014 (4 months)	Nicolas Da Silva, co-supervisor Masters 1 internship (main supervisor Philippe Drobinski LMD)
	2014 (6 months)	Keshav Raja, main supervisor Masters 2 internship
	2014 (6 months)	Adrien Lefauve, main supervisor Masters 2 internship
	2013 (6 months)	Francois Lefeuvre, main supervisor Masters 2 internship (co-supervisor Jean-Marc Chomaz LadHyX)
	2013 (6 months)	Jonathan Morgan, main supervisor Masters 2 internship (co-supervisor Jean-Marc Chomaz LadHyX)
LICENCES (UNDERGRADUATES)	2018 (1 month)	Basile Poujol, main supervisor L3 internship
	2018 (1 month)	Victoria Etonno, main supervisor L3 internship
	2017 (1 month)	Octave Tessiot, main supervisor L3 internship
	2016 (4 months)	Hugo Cui, main supervisor L3 research project (one day per week, co-supervisor Bernard Legras LMD)
	2014 (3 months)	Tom Beucler, main supervisor L3 research project (one day per week)
	2013 (3 months)	Adrien Boch, main supervisor L3 research project (one day per week)