

## Caroline Muller

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CONTACT	Institute of Science and Technology Austria Am Campus 1, 3400 Klosterneuburg Austria	+33 6 50 13 56 40 carolinemuller123@gmail.com www.lmd.ens.fr/muller/
RESEARCH TOPICS	Hydrological cycle (mean and extreme precipitation), spatial organization of tropical clouds, cyclogenesis, ocean circulation, internal waves.	
RESEARCH EXPERIENCE	<p>2021 - present <b>Institute of Science and Technology Austria (ISTA)</b> Assistant Professor</p> <p>2015 - present <b>CNRS, Laboratoire de Météorologie Dynamique (LMD), École Normale Supérieure (ENS) Paris</b> CNRS researcher <i>Chargée de Recherche CNRS</i> &amp; joint appointment as ENS lecturer <i>Maître de Conférence attachée à l'ENS</i></p> <p>2012 - 2015 <b>CNRS, Laboratoire d'Hydrodynamique de l'X (LadHyX), École Polytechnique</b> CNRS researcher <i>Chargée de Recherche CNRS</i></p> <p>2010 - 2012 <b>Princeton University/GFDL</b> Atmosphere Ocean Science Dept. Associate Research Scholar, with Isaac Held</p> <p>2008 - 2010 <b>Massachusetts Institute of Technology (MIT)</b> Earth, Atmospheric and Planetary Sciences Dept. Postdoctoral Associate, with Paul O’Gorman</p> <p>2003 - 2008 <b>New York University (NYU)</b> Courant Institute of Mathematical Sciences Ph.D. research, with Oliver Bühler</p> <p>Summers of 2004, 2005 and 2006 <b>NASA</b> Goddard Institute for Space Studies Summer internships, with Vittorio Canuto and Armando Howard</p> <p>2001 - 2002 <b>Georgia Institute of Technology, Aerospace Engineering Dept</b> Masters research, with Panagiotis Tsiotras</p>	
EDUCATION	<p><b>Courant Institute of Mathematical Sciences, New York University (NYU)</b> Ph.D. in Applied Mathematics, May 2008 M.S. in Mathematics, May 2005</p> <ul style="list-style-type: none"><li>• Ph.D. title: Wave-induced mixing in the abyssal ocean</li><li>• Advisor: Oliver Bühler</li></ul> <p><b>Georgia Institute of Technology</b> M.S. in Aerospace Engineering, March 2003 - selective dual degree program with Supaéro</p> <ul style="list-style-type: none"><li>• Master’s thesis topic: A wavelet method for solving optimal control problems</li><li>• Advisor: Panagiotis Tsiotras</li></ul> <p><b>Supaéro, École Nationale Supérieure de l’Aéronautique et de l’Espace, France</b> Engineering degree, March 2003</p> <ul style="list-style-type: none"><li>• Ranked first on the competitive entrance exam for Supaéro Mathematics major</li></ul>	

DISTINCTIONS	2019–2024	<b>ERC Starting Grant</b> <i>European Research Council (ERC)</i>
	2019	<b>Invited professor - Spring semester</b> <i>New York University - Abu Dhabi campus</i>
	2012–2017	<b>Director of the graduate summer school</b> “Fluid Dynamics of Sustainability and the Environment” (FDSE): annual summer school co-organized by École Polytechnique & the University of Cambridge <a href="http://fdse.org">fdse.org</a>
	2016	<b>Invited professor - Spring semester</b> <i>New York University - Shanghai campus</i>
	2015	<b>Joint appointment as ENS lecturer</b> <i>École Normale Supérieure, Paris</i>
	2009	<b>Publication selected to be an “Editor’s Highlight”</b> <i>Geophysical Research Letter</i>
	2007	<b>“Sandra Bleistein” Prize</b> for notable achievement in applied math <i>Courant Institute of Mathematical Sciences</i>
	2007	<b>Nominated for Outstanding Teaching Award</b> <i>New York University, College of Arts and Sciences</i>
	2007	<b>Best poster presentation award</b> <i>AMS 16<sup>th</sup> Conference on Atmospheric and Oceanic Fluid Dynamics</i>
	2003–2008	<b>Henry MacCracken Fellowship</b> <i>New York University Graduate School of Arts and Sciences</i>
	1999	<b>Ranked first</b> on the entrance exam for Supaéro, Math major <i>Supaéro, École Nationale Supérieure de l’Aéronautique et de l’Espace</i>
OUTREACH	2017–present	<b>Appearances in the media</b> on hurricanes and on climate change <i>Television (e.g., France Info - France télévision; BFMTV; LCI television; M6 including the scientific TV show E=M6; France O; France 5...); Radio (e.g., AFP; France culture; France Inter; Radio Canada, TF1...); Written press (e.g., Newspaper 20 minutes, Wiener zeitung, Der Standard...)</i>
	2017–present	<b>Public seminars</b> 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>
	2015–present	<b>Scientific popularization</b> 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>
SUPERVISIONS	<b>Postdocs</b> Yi-Ling Hwong (2022-ongoing; Marie Curie Fellow); Bidyut Goswami (2022-ongoing); Lokahith Agasthya (2022-ongoing; Marie Curie Fellow); Benjamin Fildier (2019-ongoing); Nicolas Da Silva (2019); Jean-Baptiste Courbot (2017-2018)	
	<b>PhD students</b> Bowen Yang (2022-ongoing); Andrea Stollner (2022-ongoing); Sima Dogan (2022-ongoing); Julie Andre (2021-ongoing); Sophie Abramian (2020-ongoing); Sara Shamekh (2017-2020); Océane Richet (2014-2017)	
	<b>Masters students/interns</b> A. Polesello 2022 & 2023; P. Aglas 2022; R. Puri 2022; V. De Meyer 2022; T. Marino 2021 & 2022; S. Markovic 2020 & 2021; G. Vedeau 2020; R. Gaillard 2020; A. Asgari 2020; B. Poujol 2018; P. Nguyen 2017; O. Tessiot 2017; M. Guerard 2016; K. Raja 2014; A. Lefauve 2014; B. Alonso 2014; N. Da Silva 2014; J. Morgan 2013; F. Lefeuvre 2013.	
	<b>Awards and Distinctions of Group Members</b> 2021: Postdoctoral researcher Benjamin FILDIER received the CFMIP Early Career	

Scientist Award for his theoretical work on radiative cooling  
 2022: Postdoctoral research Bidyut GOSWAMI received the Prof Roddam Narasimha best research award for his work on the Indian monsoon  
 2022: PhD student Sophie ABRAMIAN received jury congratulations for the presentation of her work at the Pan GASS meeting  
 2022-2024: ISTA bridge postdoctoral Marie-Curie fellowship, for postdoctoral fellow Yi-Ling Hwong  
 2022-2024: ISTA bridge postdoctoral Marie-Curie fellowship, for postdoctoral fellow Lokahith Agasthya

PHD COMMITTEES	2023	Member of the PhD committee (opponent) of Alejandro Uribe <i>Stockholm University, advisor T. Mauritsen</i>	
	2022	Member of the PhD committee of Victorien De Meyer <i>LEGOS, advisor R. Roca</i>	
	2021	Member of the PhD committee (reviewer) of Roy Kumar <i>Indian Institute Of Tropical Meteorology, advisor P. Mukhopadhyay</i>	
	2021	Member of the PhD committee of Leo Vinour <i>UBO, advisor S. Jullien</i>	
	2020	Member of the PhD committee of Samuel Boury <i>ENS Lyon, advisor P. Odier</i>	
	2020	Member of the PhD committee (reviewer) of Cruz Garcia Molina <i>LEGI, advisor C. Staquet</i>	
	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	2021–ongoing	<b>Search Committee Member</b> <i>ISTA</i>
		2021–ongoing	<b>Mission Advisory Member</b> <i>ESA Harmony</i> satellite mission
		2018–2021	<b>Editor</b> for the journal <i>Current Climate Change Reports</i>
2016–2021		<b>Elected member of the laboratory committee</b> of <i>LMD</i>	
2018		<b>Vice-president of the search committee</b> <i>ENS Paris</i>	
2017		<b>Search Committee Member</b> <i>Université de la Polynésie Française</i>	
2012–2017		<b>Director of the FDSE graduate summer school</b>	
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	<b>Created and ran</b> a journal club to discuss papers at <i>MIT</i>		
2003–present	<b>Reviewer for several journals</b> , including <i>Nature</i> , <i>Proceedings of the National Academy of Sciences</i> , <i>Reviews of Geophysics</i> , <i>Geophysical Research Letters</i> , <i>J. of Advances in Modeling Earth Systems</i> , ...		

TEACHING ACTIVITIES	2022	Lecturer	<i>Dry and Moist Atmospheric Convection</i> ISTA
	2017-2021	Lecturer	<i>Clouds and Atmospheric Convection</i> ENS Paris
	2015-2021	Lecturer	<i>Linear Algebra for Geosciences</i> ENS Paris
	2015-2021	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	<b>PI</b> , 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>
2021–2022	<b>co-PI</b> , ESA supported project, funded by ESA: <i>Science Data Utilisation and impact study for the ocean</i>
2018–2019	<b>PI</b> , 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	<b>PI</b> , 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	<b>co-PI</b> , 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	<b>co-PI</b> , 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	<b>PI</b> , 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	<b>PI</b> , 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	<b>PI</b> , France-Berkeley international collaborative project, funded by the France-Berkeley fund: <i>Impact of Self- Aggregation on Cyclogenesis</i>
2015–2016	<b>PI</b> , LadHyX/LMD collaborative project, funded by Chaire DDX-EDF: <i>Modeled Aggregation of Convection And Cyclogenesis</i>
2014–2015	<b>PI</b> , LadHyX/LMD collaborative project, funded by Chaire DDX-EDF: <i>Organization of Convection in the Tropical Atmosphere</i>
2013–2017	<b>PI</b> , PhD funding, funded by Direction Générale de l'Armement (DGA): <i>Dissipation Of Tidal Energy in the Deep Ocean</i>