

Claudie Beaulieu

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EMPLOYMENT HISTORY

Associate Professor <i>Ocean Sciences Department</i>	Jul 2022 – Present <i>University of California Santa Cruz</i>
Assistant Professor <i>Ocean Sciences Department</i>	Jul 2018 – Jun 2022 <i>University of California Santa Cruz</i>
Lecturer <i>Ocean and Earth Science</i>	May 2013 – Jun 2018 <i>University of Southampton</i>
Associate Research Scholar <i>Atmospheric and Oceanic Sciences</i>	May 2012 – May 2013 <i>Princeton University</i>
Postdoctoral Research Associate <i>Atmospheric and Oceanic Sciences</i>	May 2011 – May 2012 <i>Princeton University</i>
Postdoctoral Research Fellow <i>Atmospheric and Oceanic Sciences</i>	May 2009 – Apr 2011 <i>Princeton University</i>

VISITING APPOINTMENTS

Visiting Research Scholar <i>Program in Atmospheric and Oceanic Sciences</i>	Sep 2024 – Jun 2025 <i>Princeton University</i>
Harry H. Hess Visiting Faculty <i>Department of Geosciences</i>	Sep 2024 – Jun 2025 <i>Princeton University</i>
Visiting Academic <i>Ocean and Earth Science</i>	Jul 2018 – Jun 2020 <i>University of Southampton</i>

EDUCATION

Ph.D. in Water Sciences <i>Institut National de La Recherche Scientifique (INRS-ETE)</i>	2009 <i>Quebec, Canada</i>
Recipient of PhD Exceptional Mention and ADESAQ Excellence Prize	
B.S. in Statistics <i>Université Laval</i>	2003 <i>Quebec, Canada</i>
Honor Mention, Department of Mathematics and Statistics	

HONORS & AWARDS

CIMES Visiting Research Scholar Fellowship <i>Sabbatical Funding</i>	2024 <i>Princeton University & GFDL</i>
Harry Hess Fellowship <i>Sabbatical Funding</i>	2024 <i>Princeton University</i>
Sciences Award <i>Women's Gala Award</i>	2024 <i>UCSC</i>
Prix Lumières (Leading Lights Award) <i>Early Career Award</i>	2020 <i>Institut National de la Recherche Scientifique</i>
Visiting Fellow <i>Isaac Newton Institute for Mathematical Science</i>	2014 <i>University of Cambridge</i>
Best Paper Award for Postdoctoral Fellows	2012

<i>Carbon Mitigation Initiative</i>	<i>Princeton University</i>
Visiting Fellow	2010
<i>Isaac Newton Institute for Mathematical Science</i>	<i>University of Cambridge</i>
PhD Thesis Excellence Prize	2010
<i>ADESAQ</i>	
PhD Exceptional Mention	2009
	<i>Institut National de la Recherche Scientifique</i>
Excellence in Publication	2009
<i>Centre d'Études Nordiques</i>	<i>Université Laval, Canada</i>
PhD Scholarship	2005
<i>Caisse Populaire Desjardins</i>	
Undergraduate Research Scholarship	2003
<i>NSERC</i>	
Honor Mention	2003
<i>Dept. of Mathematics & Statistics</i>	<i>Université Laval</i>
Undergraduate Research Scholarship	2002
<i>NSERC</i>	
Canada Exchange Scholars Award	2001
	<i>University of Waterloo</i>

GRANTS

NSF CAREER	2022–2027
<i>Space-time variations in the pace of surface temperature change (PI)</i>	
UCSC Center for Coastal Resilience	2023–2025
<i>Assessing Coastal Wetlands Restoration Potential as a Nature-Based Climate Mitigation Solution (Co-PI)</i>	
UCLabs	2022–2025
<i>Coastal Wetland Restoration a Nature Based Decarbonization Multi-Benefit Climate Mitigation Solution (Co-PI)</i>	
Committee on Research Grant	2021–2022
<i>Shifts in the pace of climate change: when and where (PI)</i>	
NASA Grant	2021
<i>Augmentation of Galactic Winds ATP Grant (Co-PI)</i>	
California Sea Grant Development Award	2020–2021
<i>Monitoring marine heat waves with random forests (PI)</i>	
UCSC OR Seed Funding for “Center-Scales” Research Initiatives	2020–2021
<i>The Applied Artificial Intelligence Initiative (Co-PI)</i>	
Marie Curie Career Integration Grant (European Commission)	2015–2019
<i>Drivers of trends and regime shifts in ocean phytoplankton and zooplankton (PI)</i>	
SECURE Feasibility Funding (EPSRC)	2015–2016
<i>Detection of abrupt changes in land and ocean ecosystems (PI)</i>	
ReCoVER Feasibility Funding (EPSRC)	2015–2016
<i>Emerging changes in intra annual climate variability (PI)</i>	
National Physical Laboratory Studentship	2015–2018
<i>Abrupt climate change – potential collapse of the Atlantic Meridional Overturning Circulation (Co-PI)</i>	
Vice Chancellor Studentship	2014–2017
<i>Space-time modelling of ocean productivity (PI)</i>	
iMarNet Sub-Award (NERC)	2014
<i>Investigating the mechanisms causing marine regime shifts in iMarNet models (PI)</i>	
NASA Carbon Cycle Science	2011–2013
<i>Detection and attribution of rapid large-scale shifts in the terrestrial carbon cycle (Collaborator)</i>	

Princeton Environmental Institute / Grand Challenge Summer Internship Program <i>Early warning signals before abrupt climate change (PI)</i>	2011, 2012
Cooperative Institute for Climate Science <i>Detection and attribution of abrupt and gradual changes in the carbon system (PI)</i>	2010–2013
FQRNT Postdoctoral Fellowship <i>Mechanisms explaining temporal shifts and trends in the carbon system (PI)</i>	2009–2011
FQRNT PhD Scholarship (PI) <i>Homogenization of precipitation time series</i>	2006–2008

PUBLICATIONS

Peer-Reviewed Journal Articles

- [43] Claudie Beaulieu, Adelia Johnson, Rebecca Killick, John Lanzante, and Thomas Knutson. “Space-time signatures of surface warming accelerations since 1970”. *Nature Communications* 17(1) (2026). DOI: 10.1038/s41467-026-77514-z.
- [42] Yiluan Song, Daniel S.W. Katz, Zhe Zhu, Claudie Beaulieu, and Kai Zhu. “Predicting reproductive phenology of wind-pollinated trees via PlanetScope time series”. *Science of Remote Sensing* 11 (2025), 100205. DOI: <https://doi.org/10.1016/j.srs.2025.100205>.
- [41] Claudie Beaulieu, Colin Gallagher, Rebecca Killick, Robert Lund, and Xueheng Shi. “A recent surge in global warming is not detectable yet”. *Communications Earth & Environment* 5(1) (2024), 576. DOI: <https://doi.org/10.1038/s43247-024-01711-1>.
- [40] Zachary Kaufman, Nicole Feldl, and Claudie Beaulieu. “Warm Arctic–Cold Eurasia pattern driven by atmospheric blocking in models and observations”. *Environmental Research: Climate* 3(1) (2024), 015006. DOI: <https://doi.org/10.1088/2752-5295/ad1f40>.
- [39] Dongran Zhai, Claudie Beaulieu, and Raphael M Kudela. “Long-term trends in the distribution of ocean chlorophyll”. *Geophysical Research Letters* 51(7) (2024), e2023GL106577. DOI: <https://doi.org/10.1029/2023GL106577>.
- [38] Robert B Lund, Claudie Beaulieu, Rebecca Killick, QiQi Lu, and Xueheng Shi. “Good practices and common pitfalls in climate time series changepoint techniques: A review”. *Journal of Climate* 36(23) (2023), 8041–8057. DOI: <https://doi.org/10.1175/JCLI-D-22-0954.1>.
- [37] J Xavier Prochaska, Claudie Beaulieu, and Katerina Giamalaki. “The rapid rise of severe marine heat wave systems”. *Environmental Research: Climate* 2(2) (2023), 021002. DOI: <https://doi.org/10.1088/2752-5295/accd0e>.
- [36] Katerina Giamalaki, Claudie Beaulieu, and J. Xavier Prochaska. “Assessing Predictability of Marine Heatwaves With Random Forests”. *Geophysical Research Letters* 49(23) (2022). DOI: <https://doi.org/10.1029/2022GL099069>.
- [35] Xueheng Shi, Claudie Beaulieu, Rebecca Killick, and Robert Lund. “Changepoint detection: An analysis of the Central England temperature series”. *Journal of Climate* 35(19) (2022), 6329–6342. DOI: <https://doi.org/10.1175/JCLI-D-21-0489.1>.
- [34] Katerina Giamalaki, Claudie Beaulieu, SA Henson, AP Martin, Hachem Kassem, and Davide Faranda. “Future intensification of extreme Aleutian low events and their climate impacts”. *Scientific reports* 11(1) (2021), 18395. DOI: <https://doi.org/10.1038/s41598-021-97615-7>.
- [33] Stephanie Allen, Stephanie Henson, Anna Hickman, Claudie Beaulieu, Patrick C Doncaster, and David G Johns. “Interannual stability of phytoplankton community composition in the North-East Atlantic”. *Marine Ecology Progress Series* 655 (2020), 43–57. DOI: <https://doi.org/10.3354/meps13515>.
- [32] Claudie Beaulieu, Rebecca Killick, David Ireland, and Ben Norwood. “Considering long-memory when testing for changepoints in surface temperature: A classification approach based on the time-varying spectrum”. *Environmetrics* 31(1) (2020), e2568. DOI: <https://doi.org/10.1002/env.2568>.
- [31] Matthew L Hammond, Claudie Beaulieu, Stephanie A Henson, and Sujit K Sahu. “Regional surface chlorophyll trends and uncertainties in the global ocean”. *Scientific Reports* 10(1) (2020), 15273. DOI: <https://doi.org/10.1038/s41598-020-72073-9>.

- [30] D Lobelle, Claudie Beaulieu, Valerie Livina, Florian Sevellec, and Eleanor Frajka-Williams. “Detectability of an AMOC decline in current and projected climate changes”. *Geophysical Research Letters* 47(20) (2020), e2020GL089974. DOI: <https://doi.org/10.1029/2020GL089974>.
- [29] Ben I Moat, David A Smeed, Eleanor Frajka-Williams, Damien G Desbruyères, Claudie Beaulieu, William E Johns, Darren Rayner, Alejandra Sanchez-Franks, Molly O Baringer, Denis Volkov, et al. “Pending recovery in the strength of the meridional overturning circulation at 26 N”. *Ocean Science* 2020 (2020), 1–22. DOI: <https://doi.org/10.5194/os-16-863-2020>.
- [28] Stephanie Dutkiewicz, Anna E Hickman, Oliver Jahn, Stephanie Henson, Claudie Beaulieu, and Erwan Monier. “Ocean colour signature of climate change”. *Nature communications* 10(1) (2019), 578. DOI: <https://doi.org/10.1038/s41467-019-08457-x>.
- [27] Claudie Beaulieu and Rebecca Killick. “Distinguishing trends and shifts from memory in climate data”. *Journal of Climate* 31(23) (2018), 9519–9543. DOI: <https://doi.org/10.1175/JCLI-D-17-0863.1>.
- [26] K Giamalaki, Claudie Beaulieu, Davide Faranda, SA Henson, SA Josey, and AP Martin. “Signatures of the 1976–1977 regime shift in the north pacific revealed by statistical analysis”. *Journal of Geophysical Research: Oceans* 123(6) (2018), 4388–4397. DOI: <https://doi.org/10.1029/2017JC013718>.
- [25] Matthew L Hammond, Claudie Beaulieu, Stephanie A Henson, and Sujit K Sahu. “Assessing the presence of discontinuities in the ocean color satellite record and their effects on chlorophyll trends and their uncertainties”. *Geophysical Research Letters* 45(15) (2018), 7654–7662. DOI: <https://doi.org/10.1029/2017GL076928>.
- [24] David A Smeed, SA Josey, Claudie Beaulieu, WE Johns, Ben I Moat, Eleanor Frajka-Williams, Darren Rayner, Christopher S Meinen, Molly O Baringer, Harry L Bryden, et al. “The North Atlantic Ocean is in a state of reduced overturning”. *Geophysical Research Letters* 45(3) (2018), 1527–1533. DOI: <https://doi.org/10.1002/2017GL076350>.
- [23] Eleanor Frajka-Williams, Claudie Beaulieu, and Aurelie Duchez. “Emerging negative Atlantic Multidecadal Oscillation index in spite of warm subtropics”. *Scientific Reports* 7(1) (2017), 11224. DOI: <https://doi.org/10.1038/s41598-017-11046-x>.
- [22] Matthew L Hammond, Claudie Beaulieu, Sujit K Sahu, and Stephanie A Henson. “Assessing trends and uncertainties in satellite-era ocean chlorophyll using space-time modeling”. *Global Biogeochemical Cycles* 31(7) (2017), 1103–1117. DOI: <https://doi.org/10.1002/2016GB005600>.
- [21] Stephanie A Henson, Claudie Beaulieu, Tatiana Ilyina, Jasmin G John, Matthew Long, Roland Séférian, Jerry Tjiputra, and Jorge L Sarmiento. “Rapid emergence of climate change in environmental drivers of marine ecosystems”. *Nature Communications* 8(1) (2017), 14682. DOI: <https://doi.org/10.1038/ncomms14682>.
- [20] Claudie Beaulieu, Harriet Cole, Stephanie Henson, Andrew Yool, Thomas R Anderson, Lee De Mora, Erik T Buitenhuis, Momme Butenschön, Ian J Totterdell, and J Allen. “Marine regime shifts in ocean biogeochemical models: a case study in the Gulf of Alaska”. *Biogeosciences* 13(15) (2016), 4533–4553. DOI: <https://doi.org/10.5194/bg-13-4533-2016>.
- [19] Wolfgang Buermann, Claudie Beaulieu, Bikash Parida, David Medvigy, George J Collatz, Justin Sheffield, and Jorge L Sarmiento. “Climate-driven shifts in continental net primary production implicated as a driver of a recent abrupt increase in the land carbon sink”. *Biogeosciences* 13(5) (2016), 1597–1607. DOI: <https://doi.org/10.5194/bg-13-1597-2016>.
- [18] Stephanie A Henson, Claudie Beaulieu, and Richard Lampitt. “Observing climate change trends in ocean biogeochemistry: when and where”. *Global Change Biology* 22(4) (2016), 1561–1571. DOI: <https://doi.org/10.1111/gcb.13152>.
- [17] William RL Anderegg, Ashley P Ballantyne, W Kolby Smith, Joseph Majkut, Sam Rabin, Claudie Beaulieu, Richard Birdsey, John P Dunne, Richard A Houghton, Ranga B Myneni, et al. “Tropical nighttime warming as a dominant driver of variability in the terrestrial carbon sink”. *Proceedings of the National Academy of Sciences* 112(51) (2015), 15591–15596. DOI: www.pnas.org/cgi/doi/10.1073/pnas.1521479112.
- [16] Sybren Drijfhout, Sebastian Bathiany, Claudie Beaulieu, Victor Brovkin, Martin Claussen, Chris Huntingford, Marten Scheffer, Giovanni Sgubin, and Didier Swingedouw. “Catalogue of abrupt shifts in Intergovernmental Panel on Climate Change climate models”. *Proceedings of the National Academy of Sciences* 112(43) (2015), E5777–E5786. DOI: <https://doi.org/10.1073/pnas.1511451112>.

- [15] Claudie Beaulieu, Stephanie A Henson, Jorge L Sarmiento, John P Dunne, Scott C Doney, RR Rykaczewski, and Laurent Bopp. “Factors challenging our ability to detect long-term trends in ocean chlorophyll”. *Biogeosciences* 10(4) (2013), 2711–2724. DOI: <https://doi.org/10.5194/bg-10-2711-2013>.
- [14] S Henson, H Cole, C Beaulieu, and A Yool. “The impact of global warming on seasonality of ocean primary production”. *Biogeosciences* 10(6) (2013), 4357–4369. DOI: <https://doi.org/10.5194/bg-10-4357-2013>.
- [13] Claudie Beaulieu, Jie Chen, and Jorge L Sarmiento. “Change-point analysis as a tool to detect abrupt climate variations”. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences* 370(1962) (2012), 1228–1249. DOI: <https://doi.org/10.1098/rsta.2011.0383>.
- [12] Claudie Beaulieu, Samir Gharbi, Taha BMJ Ouarda, Christian Charron, and Mohamed Aymen Ben Aissia. “Improved model of deep-draft ship squat in shallow waterways using stepwise regression trees”. *Journal of Waterway, Port, Coastal, and Ocean Engineering* 138(2) (2012), 115–121. DOI: [https://doi.org/10.1061/\(ASCE\)WW.1943-5460.0000112](https://doi.org/10.1061/(ASCE)WW.1943-5460.0000112).
- [11] Claudie Beaulieu, Jorge L Sarmiento, Sara E Mikaloff Fletcher, Jie Chen, and David Medvigy. “Identification and characterization of abrupt changes in the land uptake of carbon”. *Global Biogeochemical Cycles* 26(1) (2012). DOI: <https://doi.org/10.1029/2010GB004024>.
- [10] David Medvigy and Claudie Beaulieu. “Trends in daily solar radiation and precipitation coefficients of variation since 1984”. *Journal of Climate* 25(4) (2012), 1330–1339. DOI: <https://doi.org/10.1175/2011JCLI4115.1>.
- [9] Keith B Rodgers, Sarah E Mikaloff-Fletcher, Daniele Bianchi, Claudie Beaulieu, Eric D Galbraith, Anand Gnanadesikan, Alan G Hogg, Daniele Iudicone, Benjamin R Lintner, Tobias Naegler, et al. “Interhemispheric gradient of atmospheric radiocarbon reveals natural variability of Southern Ocean winds”. *Climate of the Past* 7(4) (2011), 1123–1138. DOI: <https://doi.org/10.5194/cp-7-1123-2011>.
- [8] Claudie Beaulieu, TBMJ Ouarda, and Ousmane Seidou. “A Bayesian normal homogeneity test for the detection of artificial discontinuities in climatic series”. *International Journal of Climatology* 30(15) (2010), 2342–2357. DOI: <https://doi.org/10.1002/joc.2056>.
- [7] Stephanie A Henson, Jorge Louis Sarmiento, John P Dunne, Laurent Bopp, I Lima, Scott C Doney, J John, and C Beaulieu. “Detection of anthropogenic climate change in satellite records of ocean chlorophyll and productivity”. *Biogeosciences* 7(2) (2010), 621–640. DOI: <https://doi.org/10.5194/bg-7-621-2010>.
- [6] Jorge L Sarmiento, Manuel Gloor, Nicolas Gruber, Claudie Beaulieu, Andrew R Jacobson, Sara E Mikaloff Fletcher, S Pacala, and K Rodgers. “Trends and regional distributions of land and ocean carbon sinks”. *Biogeosciences* 7(8) (2010), 2351–2367. DOI: <https://doi.org/10.5194/bg-7-2351-2010>.
- [5] Claudie Beaulieu, Samir Gharbi, Taha B Ouarda, and Ousmane Seidou. “Statistical approach to model the deep draft ships’ squat in the St. Lawrence waterway”. *Journal of Waterway, Port, Coastal, and Ocean Engineering* 135(3) (2009), 80–90. DOI: [https://doi.org/10.1061/\(ASCE\)WW.1943-5460.0000003](https://doi.org/10.1061/(ASCE)WW.1943-5460.0000003).
- [4] Claudie Beaulieu, Ousmane Seidou, Taha BMJ Ouarda, and Xuebin Zhang. “Intercomparison of homogenization techniques for precipitation data continued: Comparison of two recent Bayesian change point models”. *Water Resources Research* 45(8) (2009). DOI: <https://doi.org/10.1029/2008WR007501>.
- [3] Claudie Beaulieu, Ousmane Seidou, Taha BMJ Ouarda, Xuebin Zhang, Gilles Boulet, and Abderrahmane Yagouti. “Intercomparison of homogenization techniques for precipitation data”. *Water Resources Research* 44(2) (2008). DOI: <https://doi.org/10.1029/2006WR005615>.
- [2] Claudie Beaulieu, Taha BMJ Ouarda, and Ousmane Seidou. “Synthèse des techniques d’homogénéisation des séries climatiques et analyse d’applicabilité aux séries de précipitations”. *Hydrological sciences journal* 52(1) (2007), 18–37. DOI: <https://doi.org/10.1623/hysj.52.1.18>.
- [1] Salaheddine El Adlouni, Claudie Beaulieu, Taha BMJ Ouarda, Pierre L Gosselin, and André Saint-Hilaire. “Effects of climate on West Nile Virus transmission risk used for public health decision-making in Quebec”. *International Journal of Health Geographics* 6(1) (2007), 40. DOI: [10.1186/1476-072X-6-40](https://doi.org/10.1186/1476-072X-6-40).

PRESENTATIONS

Public Lecture or Forum Participation

National Institute of Statistical Sciences / CANSSI

Apr 2025

<i>Collaborative Data Science Webinar, “Changing Climate. Changing Data: A journey of statisticians and climate scientists” (Invited)</i>	<i>Virtual</i>
Journée des Sciences, Cégep de St-Félicien	Oct 2024
<i>Public Lecture: “La détection des changements climatiques à l’ère des données massives”(Invited)</i>	<i>Canada</i>
Invited public lecture at alma mater college in Northeast Quebec to inspire students to pursue STEM education (majority first-generation college students).	
Canadian Statistical Sciences Institute (CANSSI)	May 2021
<i>Panelist, “Picture a Scientist” Forum Discussion (Invited)</i>	<i>Virtual</i>
Seminars	
Geography Department, Université de Montréal	Apr 2026
<i>“Océan, données et climat en évolution”(Invited)</i>	<i>Virtual</i>
Computer Sciences, Dalhousie University, Dalhousie, Canada	Nov 2025
<i>“Ocean change in a warming world: a frontier in data science”(Invited)</i>	
Atmospheric and Oceanic Sciences, Princeton University, Princeton, USA	Jun 2025
<i>“Is global warming speeding up? A data science perspective”(Invited)</i>	
Geosciences Department, Princeton University, Princeton, USA	Feb 2025
<i>“Is global warming speeding up? A data science perspective”(Invited)</i>	
Marine Science, University of California Santa Barbara	May 2024
<i>“The data science challenge of ongoing climate change: from detection to monitoring”(Invited)</i>	<i>Virtual</i>
Atmospheric and Oceanic Sciences, McGill University, Montreal, Canada	Oct 2023
<i>“The data science challenge of ongoing climate change: from detection to monitoring”(Invited)</i>	
Department of Earth and Environmental Sciences, San Diego State University, San Diego, USA	Aug 2023
<i>“Changing ocean, changing climate, changing data”(Invited)</i>	
College Scholars Program, UCSC, Santa Cruz, USA	May 2022
<i>“Changing ocean, changing climate, changing data”(Invited)</i>	
Ocean Sciences Department, UCSC	Nov 2021
<i>“Changing ocean, changing climate, changing data”(Invited)</i>	<i>Virtual</i>
Department of Earth, Atmospheric and Planetary Sciences, MIT	Mar 2021
<i>“Detecting trends in space-time environmental data: lessons learned from ocean chlorophyll”(Invited)</i>	<i>Virtual</i>
Atmospheric and Oceanic Sciences, UCLA	Apr 2020
<i>“Detection of long-term trends in ocean chlorophyll”(Invited)</i>	<i>Virtual</i>
Moss Landing Marine Laboratories, Moss Landing, USA	Feb 2019
<i>“Climate change detection: characterizing signal and memory”(Invited)</i>	
Department of Statistics, University of California Santa Cruz, Santa Cruz, USA	Nov 2018
<i>“Detection of climate change: separating signal and memory”(Invited)</i>	
Department of Ocean Sciences, University of California Santa Cruz, Santa Cruz, USA	Apr 2017
<i>“Detection of climate and oceanographic change in the big data era”(Invited)</i>	
National Physical Laboratory, Teddington, UK	Feb 2017
<i>“Data-driven identification and characterization of abrupt change in climate time-series”(Invited)</i>	
British Antarctic Survey, Cambridge, UK	Nov 2016
<i>“Detection of climate and environmental change in the era of big data”(Invited)</i>	
Department of Geosciences, Princeton University, Princeton, USA	Oct 2016
<i>“Detection of climate and environmental change in the era of big data”(Invited)</i>	
Graduate School at National Oceanography Centre Southampton, Southampton, UK	Sep 2016
<i>“Big data challenges in the environmental sciences”(Invited)</i>	
National Oceanography Centre Southampton, Southampton, UK	Jun 2016
<i>“Data-driven identification and characterization of abrupt change in the Earth system”(Invited)</i>	

INRS-ETE, Quebec City, Canada “Détection de tendances dans la concentration de chlorophylle océanique”(Invited)	Apr 2016
Department of Mathematics, University of Exeter, Exeter, UK “Abrupt changes in climate and ecosystems: data-driven approach for identification and characterization”(Invited)	Nov 2015
National Oceanography Centre Liverpool, Liverpool, UK “Abrupt changes in climate and ecosystems: data-driven approach for identification and characterization”(Invited)	Dec 2014
Department of Mathematics and Statistics, University of Sheffield, Sheffield, UK “Detecting abrupt changes in the Earth’s climate system”(Invited)	Oct 2014
Max Planck Institute for Meteorology, Hamburg, Germany “Analysis of abrupt change in land carbon cycle”(Invited)	Oct 2014
Department of Mathematics and Statistics, Lancaster University, Lancaster, UK “Identifying abrupt changes in the Earth’s climate system using change-point detection”(Invited)	Mar 2014
Atmospheric and Oceanic Sciences, Princeton University, Princeton, USA “Abrupt increase in land carbon uptake in the late 1980’s”	Mar 2013 USA
National Oceanography Centre Southampton, Southampton, UK “Distinguishing signals, artifacts and noise in climate data”(Invited)	Feb 2012
Department of Meteorology, University of Reading, Reading, UK “Distinguishing signals, artifacts and noise in climate data” (Invited)	Jan 2012
Atmospheric and Oceanic Sciences, Princeton University, Princeton, USA “Factors affecting our ability to detect trends in ocean chlorophyll”	Nov 2011
Department of Meteorology, University of Reading, Reading, UK “Detecting abrupt changes in the climate system” (Invited)	May 2011 UK
Department of Statistics, Université Laval, Quebec City, Canada “Change point detection in the climate system (in French)” (Invited)	May 2011
National Oceanography Centre Southampton, Southampton, UK “Likely temporal abrupt shifts in the carbon cycle” (Invited)	Oct 2010 UK
Atmospheric and Oceanic Sciences, Princeton University, Princeton, USA “Possible shift in the growth rate of atmospheric CO ₂ occurring in 1988/1989”	May 2010 USA
School of Marine and Atmospheric Sciences, Stony Brook University, Stony Brook, USA “Homogenization techniques for precipitation data” (Invited)	Nov 2009
Atmospheric and Oceanic Sciences, Princeton University, Princeton, USA “Change point detection in presence of autocorrelation with applications in atmospheric sciences”	Oct 2009
Atmospheric and Oceanic Sciences, Princeton University, Princeton, USA “A Bayesian approach to detect artificial discontinuities in climatic series” (Invited)	Sep 2008
INRS-ETE, Quebec City, Canada “Modélisation du squat des navires marchands qui transitent par le fleuve Saint-Laurent”	May 2008
Consortium OURANOS, Montreal, Canada “Homogénéisation des séries de précipitations”	Jan 2007
INRS-ETE, Quebec City, Canada “Étude comparative des méthodes d’homogénéisation des précipitations”	May 2005

Conferences and Meetings

Canadian Meteorological and Oceanographic Society 60th Congress Plenary Address: “Is the rate of warming accelerating? A statistical assessment from global to regional scales” (Invited talk)	Jun 2026 Virtual
American Geophysical Union Annual Meeting, Washington D.C., USA “Has there been an acceleration in global warming?”(Talk)	Dec 2024
Workshop on Ecological and Environmental Statistics, Lancaster University, Lancaster, UK “Detection of trends in space-time environmental data: the case of ocean chlorophyll”(Invited talk)	Jul 2024

International Meeting on Statistical Climatology, Toulouse, France <i>“Has there been an acceleration in global warming?” (Talk)</i>	Jun 2024
Joint Statistical Meeting, Denver, USA <i>“Distinguishing short and long-memory when testing for changepoints in climate time-series: application to surface temperature records” (Talk)</i>	Jul–Aug 2019
Workshop on Detection and Attribution of Climate Engineering, Hamburg, Germany <i>“Climate change detection: characterizing signal and memory”(Invited talk)</i>	Dec 2018
Annual Conference of The International Environmetrics Society, Edinburgh, UK <i>“Abrupt changes in climate and ecosystems: opportunities and challenges for change-point detection” (Invited talk)</i>	Jul 2016
Climate Tipping Points Workshop, Totnes, UK <i>“Identification and characterization of marine regime shifts – a case study in the Gulf of Alaska” (Poster)</i>	Apr 2016
Ocean Sciences, New Orleans, USA <i>“Regime shift in the Gulf of Alaska simulated by ocean biogeochemical models” (Talk)</i>	Feb 2016
Effects of Climate Change on the World’s Oceans, Santos City, Brazil <i>“Marine regime shift detection and attribution” (Talk)</i>	Mar 2015
Isaac Newton Institute for Mathematical Sciences, Univ. of Cambridge, Cambridge, UK <i>Inference for Change-Point and Related Processes Programme, “Abrupt changes in the Earth’s climate system: opportunities and challenges for change-point detection”(Invited talk)</i>	Jan 2014
Workshop on World Carbon Trends, Princeton University, Princeton, USA <i>“Abrupt change in the land uptake of carbon”(Invited talk)</i>	Nov 2013
International Centre for Mathematical Sciences, Tipping Points: Fundamentals and Applications, Edinburgh, UK <i>“Early warning signals for critical transitions: sense, sensitivity and specificity”(Invited talk)</i>	Sep 2013
Fourth North American Carbon Program Meeting, Albuquerque, USA <i>“Investigating an abrupt change in the land uptake of carbon in 1989” (Poster)</i>	Feb 2013
Ocean Carbon and Biogeochemistry Workshop, Woods Hole, USA <i>“Detection of long-term trends in satellite ocean chlorophyll data” (Poster)</i>	Jul 2012
CMOS and AMS Joint Congress, Montreal, Canada <i>“Possible abrupt shift in the land uptake of carbon in 1989” (Talk)</i>	May–Jun 2012
NASA Ecosystems Meeting, Alexandria, USA <i>“A possible abrupt shift in the land uptake of carbon in 1989” (Poster)</i>	Oct 2011
World Statistics Congress, Dublin, Ireland <i>“Change point detection in the Earth’s climate system” (Invited talk)</i>	Aug 2011
2nd International Navigation and Maritime Risk Conference, Montreal, Canada <i>“Accurate prediction of the deep-draft ship squat in a shallow waterway: a statistical approach”(Invited talk)</i>	Mar 2011
Complexity and Statistics: Tipping Points and Crashes Meeting, Royal Statistical Society, London, UK <i>“Change point detection using the informational approach with applications in atmospheric sciences” (Invited talk)</i>	Oct 2010
Isaac Newton Institute for Mathematical Sciences, Univ. of Cambridge, Cambridge, UK <i>Mathematical and Statistical Approaches to Climate Modelling and Prediction Programme, “Likely temporal abrupt shifts in the carbon cycle” (Invited talk)</i>	Oct 2010
11th International Meeting on Statistical Climatology, Edinburgh, UK <i>“A change point approach for applications to atmospheric carbon dioxide time series” (Talk)</i>	Jul 2010
Water 2010 Conference, Quebec City, Canada <i>“A Bayesian approach to detect artificial discontinuities in precipitation series” (Talk)</i>	Jul 2010
8th International Carbon Dioxide Conference, Jena, Germany <i>“A possible shift in the mean land carbon uptake occurring in 1989” (Poster)</i>	Sep 2009
The International Environmetrics Society Conference, Bologna, Italy <i>“Bayesian detection of inhomogeneities in precipitation series” (Talk)</i>	Jul 2009
Stochastic Probabilistic Methods Workshop, University of Victoria, Victoria, Canada	Jul 2008

“A Bayesian approach to detect artificial discontinuities in climatic series” (Talk)

PROFESSIONAL SERVICE

Editorial

Advances in Statistical Climatology, Meteorology and Oceanography 2026–Present
Associate Editor

Journal of Geophysical Research: Machine Learning and Computation 2024–Present
Associate Editor

Peer Reviewing

Grant Proposal Reviewing

NOAA Proposal Review Panel 2024
National Oceanic and Atmospheric Administration (Invited)

Funding Agency Proposal Reviewer 2018–Present
Various Agencies:

- National Oceanic and Atmospheric Administration (NOAA, USA)
- National Science Foundation (NSF, USA)
- Natural Sciences and Engineering Research Council (NSERC, Canada)
- Natural Environment Research Council (NERC, UK)
- Federal Ministry of Education and Research, Bundesministerium für Bildung und Forschung (BMBF, Germany)

Journal Peer Reviewing

Journal Peer Reviewer 2009–Present
20+ Scientific Journals:

Science, Science Advances, Nature, Nature Climate Change, Nature Communications Journal of Climate, Journal of Advances in Modeling Earth Systems, Geoscientific Model Development Geophysical Research Letters, Global Biogeochemical Cycles, Climatic Change, Environmetrics, Remote Sensing of the Environment, PLOS ONE, Journal of Applied Meteorology and Climatology, International Journal of Climatology, Water Resources Research, Journal of Hydrology, Journal of Hydroinformatics, Methods in Ecology and Evolution, Ocean Engineering

Peer Advising

Grant Advisory Committee

Federal Ministry of Education and Research for Germany 2014
Bundesministerium für Bildung und Forschung (BMBF), Bonn, Germany (Invited) Feb 19–20, 2014

- Panel member for the scoping meeting of the “Tipping Points, Dynamics and Interactions Between Social and Ecological Systems” (BioTIP) funding programme.
- Reviewed 5 proposals for the BioTIP funding programme in 2016.

Organizing Sessions at Workshops & Conferences

Ocean Sciences Meeting 2022 Mar 2022
Primary Organizer & Chair of the Session “Advances in the analysis and representation of spatio-temporal data”

Machine Learning on Monterey Bay Workshop Nov 2021
Local and scientific organizing committee member; Session Chair

Water 2010 Conference Jul 2010
Primary Organizer & Chair of the Session “Changepoint detection in hydrometeorological time series”

UNIVERSITY SERVICE

Service to the Division

Division Graduate Honors Committee, Member <i>Physical and Biological Sciences, UCSC</i>	2023–2024
Student Climate Committee, member <i>Physical and Biological Sciences, UCSC</i>	2020–2021

Service to the Department

CORE workshop: How to make a website with Github pages <i>Ocean Sciences Department, UCSC</i>	May 2026
Seminar Series Director <i>Ocean Sciences Department, UCSC</i>	Winter 2026, Winter 2018
Presenter of Environmental Science Major graduates at EART/ESCI Graduation Ceremony (selected by student vote) <i>Ocean Sciences & EPS Departments</i>	June 2022; June 2024
Led UCAR application and site visit <i>Ocean Sciences Department, UCSC</i>	May 22, 2023
Curriculum & Program Committee Chair <i>Ocean Sciences Department, UCSC</i>	2026–Present
DEI Committee Chair <i>Ocean Sciences Department, UCSC</i>	2022–2023
Lecturer Selection Committee Chair <i>Ocean Sciences Department, UCSC</i>	2021–2023
Advising Committee Member <i>Ocean Sciences Department, UCSC</i>	2025–Present
Honors Committee Member <i>Ocean Sciences Department, UCSC</i>	2019–2021, 2023–2024, 2025–2026
Search Committee Member (two faculty positions) <i>Ocean Sciences Department, UCSC</i>	2022–2023
Curriculum & Program Committee Member <i>Ocean Sciences Department, UCSC</i>	2019–2024
Environmental Sciences Major Faculty Advisor <i>Ocean Sciences Department, UCSC</i>	2020–2022
DEI Committee Member <i>Ocean Sciences Department, UCSC</i>	2019–2022
Lecturer Selection Committee Member <i>Ocean Sciences Department, UCSC</i>	2018–2021, 2025–2026
Exam Officer <i>Ocean and Earth Science, University of Southampton, UK</i>	2014–2018

Service to the University

Member Representative, University Corporation for Atmospheric Research (UCAR) <i>UCSC</i>	2023–Present
Designated Emphasis in Data Science Program Faculty <i>UCSC</i>	2019–Present
NSF CAREER Panel Discussion <i>UCSC</i>	Jan 2024

Strategic Planning Committee on Climate Change, Sustainability and Resilience (Research Workgroup; invited by Chancellor) <i>UCSC</i>	2022–2023
Leadership for Equity Faculty Fellow <i>Center for Innovations in Teaching and Learning, UCSC</i>	2021–2022