Maurice F. Huguenin
[mɒɹɪs hjˈuːgənˌɪn]
Postdoctoral research associate, UNSW Sydney

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Homepage: https://mauricehuguenin.github.io
Date of Birth: 27. 09. 1991
Place of Origin: Le Locle and La-Chaux-du-Milieu, Neuchâtel, Switzerland

Research interests:

- Large-scale physical oceanography
- Ocean-sea ice modelling
- Internal climate variability and its atmospheric teleconnections
- Ocean heat content
- Central European atmospheric circulation

Work experience:

Since June 2023	Postdoctoral Research Associate at the Climate Change Research Centre, the University of New South Wales (UNSW), Sydney, Australia
June 2019 – May 2023	PhD candidate at the Climate Change Research Centre, the University of New South Wales (UNSW), Sydney, Australia
May 2021 – June 2021	Scientific Voyage Participant on *RV Investigator* from Hobart to Brisbane to recover/re-deploy ocean moorings across the shelf at 27°S
Sep. 2018 – Apr. 2019	Research Assistant at MeteoSwiss and the Swiss Federal Institute of Technology, Zurich (ETHZ), Switzerland
Sep. 2017 – Jul. 2018	Research internship at UNSW to write my Master's thesis

Education:

Since June 2019	PhD candidate in Climate Science at the Climate Change Research Centre, UNSW, Sydney, Australia - Thesis title: **Processes and Dynamics of Global to Regional Ocean Heat Uptake and Variability**. - Supervised by: Dr. Ryan M. Holmes & Prof. Dr. Matthew H. England - Thesis submitted: 23rd of May 2023.
Sep. 2016 – Apr. 2018	MSc in Atmospheric and Climate Science at ETHZ, Zurich, Switzerland - Thesis title: **Mechanisms Driving Ocean Heat Uptake and Warm Water Volume Variability During Idealized ENSO Events**. pdf. - Supervised by: Dr. Ryan M. Holmes, Prof. Matthew H. England, Dr. Iselin Medhaug & Prof. Reto Knutti - Grade 6. Grading scale: 6 is the highest, 1 is the lowest grade; passmark is 4.

Sep. 2013 – Sep. 2016	BSc in Earth Sciences at ETHZ, Zurich, Switzerland - Thesis title: **Ocean Heat Storage and Implications on Sea Level Rise Using CCSM4 Model Output for 1993-2016**. pdf. - Supervised by: Dr. Iselin Medhaug & Prof. Reto Knutti - Grade 5.5

Peer-reviewed and in-progress publications:

I have a profile on Google Scholar.

5. Huguenin, M. F., Holmes, R. M., Spence, P. & England, M. H. (2023). **Subsurface warming of the West Antarctic continental shelf linked to El Niño-Southern Oscillation**. In review at *Geophysical Research Letters*.

4. Huguenin, M. F., Holmes, R. M., & England, M. H. (2022**). Drivers and distribution of global ocean heat uptake over the last half century**. *Nature Communications*. 13, 4921. doi.org/10.1038/s41467-022-32540-5

3. Huguenin, M. F., Holmes, R. M., & England, M. H. (2020). **Key Role of Diabatic Processes in Regulating Warm Water Volume Variability Over ENSO Events**. *Journal of Climate*. 33, 9945–9964. doi.org/10.1175/JCLI-D-20-0198.1

2. Huguenin, M. F., Fischer, E. M., Kotlarski, S., Scherrer, S. C., Schwierz, C., & Knutti, R. (2020). **Lack of Change in the Projected Frequency and Persistence of Atmospheric Circulation Types Over Central Europe**. *Geophysical Research Letters*, 47. doi.org/10.1029/2019GL086132

1. Santoso, et al. (2019). **Dynamics and Predictability of El Niño-Southern Oscillation: An Australian Perspective on Progress and Challenges**. *Bulletin of the American Meteorological Society*, 100, 403-420. doi.org/10.1175/BAMS-D-18-0057.1.

Selected conference presentations and invited seminars:

I have presented my research at ten international conferences and various national/international workshops. A full list of my presentations can be seen on my homepage.

- 2023, June 26. Drivers and distribution of global ocean heat uptake over the last half century, Ocean Circulation and Climate Dynamics Colloquium, **GEOMAR Kiel**, online (oral presentation)

- 2022, December 12-16. Subsurface warming of West Antarctica during El Niño, **AGU Fall Meeting**, Chicago, Illinois, United States of America (poster presentations)

- 2022, December 6. Understanding the Drivers of Interannual to Multi-decadal Global and Regional Ocean Temperature Change. Invited speaker for the Climate, Atmospheric Sciences, and Physical Oceanography Seminar, **Scripps Institution of Oceanography**, La Jolla, California, United States of America (oral presentation)

- 2020, November 17. Key Role of Diabatic Processes in Changing Warm Water Volume Variability during ENSO Events, Invited speaker for the College of Oceanic and Atmospheric Sciences Seminar, **Oregon State University**, online (oral presentation)

- 2020, February 16-21. Diabatic Contribution to Ocean Heat Variability during ENSO Events, **Ocean Sciences Meeting**, San Diego, California, United States of America (poster presentation)

- 2019, June 11-14. Diabatic Contributions to Warm Water Volume Variability During ENSO Events, **Australian Meteorological and Oceanographic Society Annual Meeting**, Darwin, Northern Territory, Australia (poster + oral presentation)

- 2019, April 09-12. Changes in the Frequency and Persistence of Central European Circulation Types, **European Geophysical Union Annual Meeting**, Vienna, Austria (poster presentation)

Awards:

- ARC Centre of Excellence for Climate Extremes (CLEX) Best Student Paper published in the centre in 2022

- Climate Change Research Centre Best Student Presentation at the semi-annual Postgraduate Reviews

- University of New South Wales Scientia PhD Scholarship (living stipend + USD 6'480 per year) for career development activities. The additional funding opened opportunities to present my scientific results at nine international conferences and various national and international workshops, and to volunteer onboard the Australian government-funded research vessel *RV Investigator* on a voyage from Hobart to Brisbane to monitor East Australian Current properties.

Selected media and outreach:

A full list of my outreach activities can be found on my homepage.

- The Academic Minute: Southern Ocean Takes on the Heat of Climate Change

- UNSW Newsroom: Southern Ocean takes on the heat of climate change

- The Conversation: The Southern Ocean absorbs more heat than any other ocean on Earth, and the impacts will be felt for generations This article reached over 42,000 readers worldwide, and was featured in The Guardian and Science Alert

- CLEX Newsletter: Towards an increased understanding of the East Australian Current – My voyage abord RV Investigator

- CLEX research brief: Current climate models do not project a more persistent Central European weather

IT-Knowledge, climate models and data sets:

Linux, bash, emacs, git, github, python (3 years experience) > MATLAB (3 years) > R (1 year), CDO, LaTeX

ACCESS-OM2 & MOM-SIS: Global ocean-sea ice models
This global ocean-sea ice model has been extensively used in my PhD research. It is based on MOM5.1 and CICE5.1.2 and comes in three configurations (1°, 1/4° and 1/10° horizontal resolution). My experience includes spinning up the model using a novel approach developed in my research (Huguenin et al. 2022, *Nature Communication*), running perturbation

	simulations using idealised and realistic derived forcings (for example, using Principal Component analysis to isolate modes of ENSO variability, Huguenin et al. 2020, *J. Climate*) and analysing the output in all three configurations.
CMIP5 & CESM:	Coupled climate models I have analysed atmospheric simulation data from CMIP5 and a large ensemble-initial condition configuration of CESM for a MeteoSwiss/ETHZ research project
JRA55-do & CORE-NYF:	I have used these two atmospheric data sets to force the ACCESS-OM2 and MOM-SIS global ocean-sea ice models and to complement the analysis of the model output.
ERA-Interim:	This reanalysis data set has been used to derive the model input for my MOM-SIS simulations during my Master's thesis and I have also used this data set to analyse changes in the atmospheric circulation over Central Europe
Argo, SOSE:	I have used gridded Argo and Southern State Estimate (SOSE) products to validate model output against observational estimates

Other professional experience:

July 2022	Reviewer for *Geophysical Research Letters* (ISSN: 1944-8007)
May 2021 – June 2021:	Physical oceanography scientist onboard *RV Investigator* on a voyage from Hobart to Brisbane to monitor East Australian Current properties - Assistance with recovery and re-deployment of moorings from the continental slope to the abyssal waters - Operation, sampling and analysis of CTD - Deployment of Argo, BGC Argo and XBT instruments
Jan. 2020 – Jan. 2021	Climate Change Research Centre Student Representative - Finding buddies for new PhD students - Organising practise talks for centre-wide formal PhD reviews - Forwarding administrative information

Professional references:

Prof. Matthew H. England	My PhD supervisor, professor in physical oceanography at UNSW, and co-director of the Australian Research Council Australian Centre for Excellence in Antarctic Science (ACEAS) E-mail: m.england@unsw.edu.au
Dr. Ryan M. Holmes	My PhD supervisor, Climate Scientist at the Australian Bureau of Meteorology E-mail: Ryan.Holmes@bom.gov.au
Assoc. Prof. Paul Spence	Collaborator on my current project on West Antarctic continental shelf warming during El Niño events and Associate Professor at the University of Tasmania E-mail: paul.spence@utas.edu.au

Languages:

German: Native language, English: Full prof. proficiency, French & Spanish: Limited prof. proficiency