

Maurice F. Huguenin

PhD Candidate, UNSW Sydney

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Date of Birth: 27. 09. 1991
Place of Origin: Le Locle and La-Chaux-du-Milieu, Neuchâtel, Switzerland



Work Experience:

Since June 2019	PhD candidate at the Climate Change Research Centre, the University of New South Wales (UNSW), Sydney, Australia
May 2021 – Jun. 2021	Scientific Voyage Participant on <i>RV Investigator</i> 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	Self-organised research practicum 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: Understanding the drivers of interannual to multi-decadal global and regional ocean temperature change. - Supervised by: Dr. Ryan M. Holmes & Prof. Dr. Matthew H. England - Thesis submission date: <u>28th of May 2023.</u>
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
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

Peer-Reviewed and in-progress publications:

- Huguenin, M. F., Holmes, R. M., Spence, P. & England, M. H. (2023). **Subsurface warming of West Antarctic coastal waters linked to El Niño events**. Experiments and figures completed, text being written up, submitting to *Geophysical Research Letters* within next 10 weeks.
- 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
- 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
- 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
- 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

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
- Scientia PhD Scholarship (living stipend + USD 6'480 per year) for career development activities. The additional funding opened the opportunity to present my scientific results at nine international conferences and various national and international workshops; a privilege that not many PhD students have. In 2021, parts of the career development funds were also used 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:

- ABC Illawarra: I was on the radio discussing key results and implications of our Southern Ocean warming study
- 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 aboard RV Investigator](#)
- Dorfzeitung Binde-Strich: A short German article in the village newsletter where I grew up in Switzerland about my experience on board the *RV Investigator*: [Ein Pfungemer auf hoher See](#)
- 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, python (3 years experience) > MATLAB (3 years) > R (1 year), CDO, LaTeX, MS Office

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 my novel approach, running perturbation simulations and analysing the output in all three configurations. During my Master's thesis, I have simulated El Niño and La Niña events in MOM-SIS, a predecessor of the ACCESS-OM2 model.

CMIP5 & CESM:

Coupled climate models

I have analysed atmospheric simulation data from CMIP5 and a large ensemble-initial condition configuration of CESM for the 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*

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

Aug. 2005 & 2007

Voluntary alpine agricultural summer work (two weeks each)

- herding cows
- haying
- cheese making

Languages:

German: Native language; English: Full professional proficiency; French & Spanish: Limited professional proficiency