**Brady S. Ferster**

**Postdoctoral Researcher**

**CONTACT INFORMATION**

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**PROFESSIONAL EXPERIENCE & EDUCATION**

**Yale University (2023 – Current)**

Postdoctoral researcher with Alexey Fedorov funded through *Make Our Planet Great Again*

* Research focus: Air-Sea-Ice Interactions, Climate Models, Sensitivity of Climate Change
* Research topic: Climate Variability and Atlantic meridional overturning circulation Stabilization
* Visiting scientist at LOCEAN / Sorbonne Université in Paris, Fr

**Laboratoire de l'Océanographie et du Climat, LOCEAN (2019 – 2022)**

Postdoctoral researcher funded through *Make Our Planet Great Again (MOPGA)*

* Project: ARCHANGE - Changement climatique en Arctique et circulation océanique globale
* Group Supervisors: Juliette Mignot, Eric Guilyardi, Alexey Fedorov
* Research focus: AMOC, Air-Sea-Ice Interactions, Climate Models
* Research topic: Climate Variability and Global Teleconnections
* Centre national de la recherche scientifique, CNRS

**University of South Carolina (2016 – 2019)**

PhD in Marine Science at the School of Earth, Ocean and Environment

* Satellite Oceanography Lab, advisor Prof. Subrahmanyam (Subra) Bulusu
* Research focus: Physical Oceanography, Satellite Oceanography, Ocean Models
* PhD topic: The Role of the Southern Ocean on Global Ocean Circulation and Climate

**Pennsylvania State University (2012 – 2016)**

B.S. in Meteorology, Marine Science minor

* Research project on the surface energy budget within the mangrove system (Prof. Jose Fuentes)

**University of Southampton, England (Spring 2015)**

Oceanography at National Oceanographic Centre (NOC)

* Southampton and Falmouth Courses and Fieldwork
* Program exchange through Pennsylvania State University

**PROFESSIONAL DEVELOPMENT AS A POSTDOCTORAL RESEARCHER**

* Participation in an M2 research project on Arctic sea ice in CMIP6 models with Claude Frankignoul
* Representative to the Conseil de Laboratoire at LOCEAN (2021-2022)
* International collaboration and modeled experiments between CNRS (FR) and Yale University and University of California Riverside, using the IPSL model and publications in preparation.
* CMIP7 Strategic Ensemble Design Task Team Stakeholder member
* Participation in an international, coordinated CLIVAR experiment on tropical basin interactions (TBI)

**RESEARCH INTERESTS**

My research focuses on the use of model simulations to understand ocean circulation, variability, and air-sea interaction processes within the polar regions. The current research project is concentrated on Arctic and North Atlantic circulation variability, investigating atmospheric teleconnections to the subpolar North Atlantic region and the tropics through launching a controlled experiment of nudging the tropical Indian Ocean sea surface temperature. Additional experiments include investigating the impact of sea ice reduction (changing sea ice albedo) on climate variability, analyzing the multi-decadal-to-centennial variability in the IPSL coupled models, and understanding the dynamics of ENSO under a warming climate. More recent projects include experiments on a machine-assisted tuning of the atmospheric model for the coupled climate model IPSL-CM6, the sensitivity of the North Atlantic ocean to cooling of the upper-stratosphere, and the sensitivity and stability of Atlantic meridional overturning circulation under anthropogenic warming. Additional contributions are made in the IPSL CMIP6 development and extending the pre-Industrial control experiment.

**AWARDS, HONORS, AND CERTIFICATIONS**

* 2019 - Breakthrough Graduate Scholar at the University of South Carolina
* 2018 - NASA / South Carolina Space Grant Consortium Graduate Assistantship 2018-19
* $12,000 grant with cost-share ($12,000) from the University of South Carolina
* 2017 - NASA / South Carolina Space Grant Consortium Graduate Assistantship 2017-18
* $12,000 grant with cost-share ($12,000) from the University of South Carolina
* 2015 - Robert O. Cole Scholarship in Meteorology 2015-16
* 2015 - Sea survival techniques, maritime safety and social responsibilities
* 2014 - Donald L. and Ellen Eberly Endowed Scholarship in Meteorology 2014-15
* 2014 - Robert A. Case Memorial Scholarship in Meteorology 2014-15
* 2013 - Chi Epsilon Pi, Meteorology Honors Society

**REFEREED PUBLICATIONS**

**Ferster, B. S.,** A.V. Fedorov, E. Guilyardi, J. Mignot (2023). Multi-decadal and centennial modes of AMOC variability and their dependence on mean state in a climate model, (in prep.).

**Ferster, B. S.,** A.V. Fedorov, E. Guilyardi, J. Mignot (2023). The effect of Indian Ocean temperature on the Pacific trade winds and ENSO, Climate Dynamics (Submitted).

Povea Perez, Y, A.V. Fedorov, E. Guilyardi, **B. S.** **Ferster** (2022). The central role of the Atlantic meridional overturning circulation in Bjerknes compensation in the IPSL-CM6A-LR model. Climate Dynamics. (Submitted)

Hourdin, F, **B. S. Ferster,** J. Mignot, J. Deshayes, I. Musat (2022). Towards a machine-assisted tuning that avoids underestimating the uncertainty of climate change projections, Science Advances (In review).

Studholme, J.,A.V. Fedorov, **B. S.** **Ferster** (2022). Stratospheric control of the ocean’s role in Atlantic Multidecadal Variability. Nature (In revision).

**Ferster, B. S.,** L. Borchert, J. Mignot, M. Menary, C. Cassou, A.V. Fedorov (2022). Internal AMOC modulations driven by Tropical Indian Ocean SST, NPJ Climate and Atmospheric Science (In revision).

**Ferster, B. S.,** A. Simon,A.V. Fedorov, J. Mignot, and E. Guilyardi (2022). The transient climate response of the Atlantic meridional overturning circulation to Arctic sea ice decline and the North Atlantic warming hole, *Geophys. Res. Lett.* 49. https://doi.org/10.1029/2022GL097967

**Ferster, B. S.,** A.V. Fedorov, J. Mignot, and E. Guilyardi (2021). Sensitivity of the Atlantic meridional overturning circulation and climate to tropical Indian Ocean warming. *Climate Dynamics*, 1-19, http://doi.org/10.1007/s00382-021-05813-w.

**Ferster, B. S.**, B. Subrahmanyam, and A. Arguez (2019). Recent changes in Southern Ocean Circulation and Climate, *IEEE GRSL*, pp. 1-5, http://doi.org/10.1109/LGRS.2018.2880589.

**Ferster, B. S.**, B. Subrahmanyam, I. Fukumori, and E. S. Nyadjro (2018). Variability of Transports in the Southern Ocean, *Journal of Physical Oceanography*, 48(11), http://doi.org/10.1175/JPO-D-18-0055.1.

**Ferster, B. S.** and B. Subrahmanyam (2018). A Comparison of Satellite-derived Sea Surface Salinity and Salt Fluxes in the Southern Ocean, *J. Remote Sensing in Earth Systems Sciences*; http://doi.org/10.1007/s41976-018-0001-5.

**Ferster, B.S.**, B. Subrahmanyam, and A.M. Macdonald (2018). Confirmation of ENSO-Southern Ocean Teleconnections using Satellite Derived SST, *Remote Sens*., **10**, 331; http://doi.org/10.3390/rs10020331.

Subrahmanyam, B. and **B. S. Ferster** (2017). Investigating the Role of the Southern Ocean on Global Climate Change, *IEEE Xplore, Oceans 2017, Anchorage, Pages 1-4.*

**PUBLISHED DATASETS**

**Ferster, B.**, Borchert, L., & Mignot, J. (2022). *Observed Indian Ocean Warming Trend Applied to the IPSL-CM6A-LR model* (Version v0). Zenodo. https://zenodo.org/record/7092228#.Yyg11exByi4

**Ferster, B.**, Simon, A., Fedorov, A., Mignot, J., & Guilyardi, E. (2022). *Climate Response to ~23% Albedo Reduction in IPSL-CM5A-LR* (Version v1). Zenodo. https://zenodo.org/record/6572208#.Yo\_BEOxBzFo

**PRESENTATIONS**

* **Ferster, B. S.**, A. Fedorov, J. Mignot, E. Guilyardi(2022). *Multidecadal and centennial modes of AMOC variability and their dependence on mean state in a climate model,* American Geophysical Union, General Assembly 2022. ([*Presentation*](https://agu2022fallmeeting-agu.ipostersessions.com/default.aspx?s=7E-52-0C-49-62-34-1A-AC-52-A0-09-C1-57-F3-B9-4D&guestview=true))
* **Ferster, B. S.**, L. Borchert., A. Fedorov, J. Mignot, (2022). *AMOC modulations driven by tropical Indian Ocean SST,* US AMOC Science Team Meeting 2022, US CLIVAR.
* **Ferster, B. S.**, L. Borchert, J. Mignot, (2022). *Unforced AMOC variations modulated by Tropical Indian Ocean SST,* European Geophysical Union, General Assembly 2022. ([*Presentation*](https://meetingorganizer.copernicus.org/EGU22/EGU22-4380.html))
* **Ferster, B. S.**, A. Fedorov, J. Mignot, E. Guilyardi(2022). *Impacts of tropical Indian Ocean on the Pacific trade wind and development of ENSO,* Ocean Sciences Meeting 2022.
* **Ferster, B. S.**, A. Fedorov, J. Mignot, E. Guilyardi(2021). *The response of the tropical Atlantic to Indian Ocean warming,* American Geophysical Union, General Assembly 2021. ([*Presentation*](https://agu2021fallmeeting-agu.ipostersessions.com/default.aspx?s=00-E9-DE-23-F1-33-D6-B9-E6-59-61-6F-D2-B3-45-75&guestview=true))
* **Ferster, B. S.** (2021). *AMOC and North Atlantic responses to Sea Ice decline and tropical teleconnections,* The University of Natural Resources and Applied Life Sciences (BOKU), Vienna. Invited seminar.
* **Ferster, B. S.** (2021). *AMOC and North Atlantic responses to Sea Ice decline and tropical teleconnections,* University of Hamburg and the Max-Planck-Institut für Meteorologie, Germany. Invited seminar.
* **Ferster, B. S.**, A. Simon, A. Fedorov, J. Mignot, E. Guilyardi(2021). *The Transient and Equilibrium Response of the AMOC to Arctic sea decline in a coupled model,* Blue-Action/BjerknesCPU/RoadMap/CLIVAR Multi-annual to Decadal Climate Predictability in the North Atlantic-Arctic.
* **Ferster, B. S.**, A. Fedorov, J. Mignot, E. Guilyardi(2021). *Sensitivity of the Atlantic meridional overturning circulation (AMOC) to the tropical Indian Ocean warming,* WCRP (EPESC) workshop on attribution of multi-annual to decadal changes in the climate system.
* **Ferster, B. S.** & J. Mignot (2021). Lessons learned in the atmospheric auto-tuning and sea ice sensitivity. LOCEAN-IPSL, Paris, France.
* **Ferster, B. S.**, A. Fedorov, J. Mignot, E. Guilyardi (2021). *ENSO response to changes in the tropical Indian ocean temperature,* European Geophysical Union, General Assembly 2021. ([*Presentation*](https://meetingorganizer.copernicus.org/EGU21/EGU21-2881.html))
* Simon, A., **B. S.** **Ferster**, A. Fedorov, J. Mignot, E. Guilyardi(2021). *The Transient and Equilibrium Response of the AMOC to Arctic sea decline in a coupled model,* European Geophysical Union, General Assembly 2021. ([*Presentation*](https://meetingorganizer.copernicus.org/EGU21/EGU21-7416.html))
* **Ferster, B. S.**, A. Fedorov, J. Mignot, E. Guilyardi(2020). *Sensitivity of the Atlantic meridional overturning circulation (AMOC) and variability to Indian ocean temperature,* American Geophysical Union, General Assembly 2020. ([*Presentation*](http://agu2020fallmeeting-agu.ipostersessions.com/Default.aspx?s=9F-E1-A8-D7-76-CF-9A-B1-18-EB-C4-A1-A8-2A-64-8A))
* **Ferster, B. S.**, A. Fedorov, J. Mignot, E. Guilyardi(2020). *Sensitivity of the Atlantic meridional overturning circulation (AMOC) to the tropical Indian Ocean warming,* European Geophysical Union, General Assembly 2020. ([*Presentation*](https://meetingorganizer.copernicus.org/EGU2020/EGU2020-10881.html))
* **Ferster, B. S.**, A. Fedorov, J. Mignot, E. Guilyardi(2020). *The response of the Atlantic Basin to Indian Ocean warming,* Climate Variability Group, LOCEAN
* **Ferster, B. S.**(2019). *The Role of Teleconnections in Southern Ocean SST*, US CLIVAR Webinar, ([*Webinar Presentation*](https://www.youtube.com/watch?v=fjEUZvzlVR0))(*Invited Webinar Speaker*)
* **Ferster, B. S.**(2019). *Diagnosing biases in estimates of the Antarctic Circumpolar Polar Front location and variability*, 6th Annual Southeastern Biogeochemistry Symposium, University of South Carolina (*Oral Presentation*)
* **Ferster, B. S.**(2019). *Recent Variability in Southern Ocean Transports*, Discovery Grad Day, University of South Carolina (*Oral Presentation*)
* **Ferster, B. S.**and B. Subrahmanyam (2018). *The Role of Southern Ocean Transports on the Global Ocean Circulation,* Fall 2018 AGU meeting, Washington, D.C. (*Poster Presentation*)
* **Ferster, B. S.**(2018). *Teleconnections in the Southern Ocean*, Discovery Grad Day, University of South Carolina (*Oral Presentation*)
* **Ferster, B. S.** and B. Subrahmanyam(2018). *Variability of Volume and Salt Transports in the Southern Ocean*, 2018 Ocean Sciences Meeting, Portland, OR (*Poster Presentation*)
* **Ferster, B. S.**(2018). *Estimation of Salt Flux and Transport in the Southern Ocean* (2017), Marine Sciences Grad Day Competition, University of South Carolina (*Oral Presentation*)
* Subrahmanyam, B., and **B. S. Ferster** (2017). *Southern Ocean Circulation and Climate* Variability, Ocean Surface Topography Science Team, Miami (*Invited Oral Presentation*).
* **Ferster, B. S.**(2017). *Validation of Satellite-derived Salinity in the Southern Ocean*, Global Ocean Salinity and the Water Cycle Workshop, Woods Hole Oceanographic Institution (*Oral Presentation*)
* **Ferster, B. S.**(2016). *Estimation of Salt Flux and Transport in the Southern Ocean*, Fall 2016 AGU meeting, San Francisco (*Poster Presentation*)

**PROFESSIONAL EXPERIENCE**

* National Centre for Atmospheric Sciences Climate Modelling Summer School | September 2021
* Institut Pierre Simon Laplace Modelling Tools Training Workshop | January 2020
* NASA/JPL ECCO Summer School, Friday Harbor, Washington | May 2019
* Teaching Assistant | Ocean and Society (MSCI 210) | January 2017 – April 2019
* Graduate Research Assistant | Satellite Oceanography Lab | May 2016 – December 2018
* Undergraduate Research Assistant | Fuentes Lab | August 2015 – April 2016
  + Mangrove surface energy budget and evapotranspiration
* University of Southampton Field Courses | January 2015 – July 2015
  + Bathymetry, biological and chemical analysis, offshore/estuarine sampling

**SOCIETIES AND ORGANIZATIONS**

* CMIP7 Strategic Ensemble Design Task Team: Stakeholder Group (2023-2024)
* Representative to the Conseil de Laboratoire at LOCEAN (2021-2022)
* Member (2020 - Present), European Geophysical Union (EGU)
* Postdoctoral Committee (2020-present) at LOCEAN-IPSL
* Seminar Committee Member (2017-present), School of Earth, Ocean and Environment
* Member (2016 - Present), American Geophysical Union (AGU)
* Member (2015), Southampton University Road Cycling
* Member (2012-2016), Penn State Campus Weather Service club
* Member (2012-2016), Penn State Weather Risk club
* Member (2012-2016), Penn State University Branch of American Meteorological Society
* Member (2012-2016), President 2013-2014, Penn State Cycling Club

**REFERENCES**

## Prof. Alexey Fedorov (Postdoc Supervisor)

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## Dr. Eric Guilyardi, Director of Research at CNRS

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