

Kay McMonigal

Contact information

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Current appointment

North Carolina State University

- Post doctoral researcher
Supervisor: Prof. Sarah Larson

Dec 2020-present

Education

Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL

- Ph.D. candidate in Meteorology and Physical Oceanography August 2015-present
Advisor: Prof. Lisa M. Beal
Committee members: Igor Kamenkovich, Rana Fine, Shane Elipot, Josh Willis (JPL)
Dissertation title: *Estimating the heat transport of the South Indian Ocean*

Northwestern University, Evanston, IL

- Bachelor of Arts with majors in Mathematics, Integrated Science Program, and Earth and Planetary Science, graduated with departmental honors June 2015

Publications

1. **McMonigal, K.**, K. Gunn, L.M. Beal, S. Elipot, J.K. Willis, Convergent Indian Ocean heat transport drives recent warming, *in prep.*
2. Gunn, K.L., **K. McMonigal**, L.M. Beal, S. Elipot, Continuous estimates of South Indian Ocean freshwater convergence, *in prep.*
3. **McMonigal, K.**, L.M. Beal, S. Elipot, K. Gunn, T. Morris, J. Hermes, A. Houk (2020), The impact of meanders, deepening and broadening, and seasonality on Agulhas Current temperature variability, *Journal of Physical Oceanography*, doi: 10.1175/JPO-D-20-0018.1.
4. Gunn, K.L., L.M. Beal, S. Elipot, **K. McMonigal**, A. Houk, Mixing of subtropical, central and intermediate waters driven by shifting and pulsing of the Agulhas Current, *Journal of Physical Oceanography*, doi: 10.1175/JPO-D-20-0093.1.
5. **McMonigal, K.**, L.M. Beal, J.K. Willis (2018), The seasonal cycle of the south Indian Ocean subtropical gyre circulation as revealed by Argo and satellite data, *Geophysical Research Letters*, doi: 10.1029/2018GL078420.

Research Presentations

- McMonigal, K., L.M. Beal, S.K. Elipot, J. Hermes, J. Willis, *Estimating a time series of meridional heat transport of the Indian Ocean at 34°S*, Ocean Sciences Meeting, San Diego, February 2020.
- McMonigal, K., L.M. Beal, S.K. Elipot, J. Hermes, T. Morris, *The time varying temperature transport of the Agulhas Current*, IUGG Assembly, Montreal, Canada, July 2019.
- McMonigal, K., L.M. Beal, J.K. Willis, *The seasonal cycle of the South Indian Ocean subtropical gyre as revealed by Argo and satellite data*, National Oceanography Centre, UK, July 2018.
- McMonigal, K., L.M. Beal, J.K. Willis, *The seasonal cycle of the South Indian Ocean subtropical gyre as revealed by Argo and satellite data*, University of Cape Town, June 2018.
- McMonigal, K. and L.M. Beal, *Meridional heat transport of the Indian Ocean across 34°S based on high resolution Agulhas Current hydrography, satellite, and Argo data*, IAPSO-IAMAS-IAGA Joint Assembly, Cape Town, South Africa, August 2017.

Sea Experience

- February 2020: Taught aboard two one-day undergraduate cruises (FLOTSUM), *RV Walton Smith*, Florida Straits, Chief Scientist: Dr. Jim Happell
- April - May 2019: CTD operations, water sampling, drifter and float deployment, *RV Thomas G. Thompson*, GO-SHIP I06S, Indian/Southern Ocean, 42 days, Chief Scientists: Prof. Alejandro Orsi, Dr. Isa Rosso.
- June 2018: Mooring recovery, CTD operations, salinity sampling and processing, drifter and float deployment, *SA Agulhas*, Agulhas System Climate Array cruise 2018, Indian Ocean, 14 days, Chief Scientists: Prof. Lisa Beal, Tamaryn Morris.
- April 2016: Mooring deployment, CTD operations, *RV Algoa*, Agulhas System Climate Array cruise 2016, Indian Ocean, 14 days, Chief Scientist: Prof. Lisa Beal

Teaching & Mentoring Experience

- Lecturer for face to face component of graduate course: *Introduction to Physical Oceanography* (led by Prof. Lisa Beal) Fall 2020
- Walton Smith 2020 Undergraduate cruises: Ran CTD deployments and taught students during two day long cruises (February 29, March 1)
- University of Miami Teaching Academy, coursework and guest lecturer for undergraduate/graduate course: *Climate Change*, Prof. Amy Clement, lecture topic: Oceans and Climate Fall 2019
- Instructor for honours course: *Basic Dynamical Oceanography*, University of Cape Town, 10 students May 2019
- Teaching assistant for undergraduate course: *Environmental Oceanography*, Prof. R. Pamela Reid, University of Miami, lecture topics: *Intro to Atmosphere and Ocean Circulation*, 20 students Fall 2018
- Teaching assistant for undergraduate course: *Climate and Global Change*, Prof. Igor Kamenkovich, University of Miami, lecture topics: *Methods of measuring the climate system, The future of clean energy*, 80 students Fall 2016
- > 250 hours of one-on-one tutoring, middle school to undergrad level math and science

Leadership

Reviewer for Ocean Sciences, IPCC AR6 report

Early Career Researchers Working Group, International Association for the Physical Sciences of the Ocean (IAPSO)

Committee member January 2019 - present

Student-Led Evaluations and Development, University of Miami August 2017 - May 2019

Committee member

- Developed surveys on professional development and mentoring for graduate students
- Presented results to students, staff, faculty with aim of improving graduate student support and mentoring

oSTEM, University of Miami 2015-2016

Founding member, vice president, advisor: Dr. Ryan Woosley

- Assisted in founding of undergraduate student group for LGBTQ+ students in science, technology, engineering, and math

Awards and Honors

- Mary Roche Fellowship (\$10000) April 2019
- UM Graduate Student Research Symposium awardee (Physical Sciences) April 2018
- Graduate Career Development fund awardee (\$2500) December 2017
- University of Miami Fellowship March 2015-present
- Seymour Schlanger Undergraduate Earth Science Award June 2015