

**Kay McMonigal (he/him or they/them)**

Postdoctoral researcher  
 Department of Marine, Earth, and Atmospheric Sciences  
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**EDUCATION**

- 2020      **Ph.D.**, University of Miami (UM) Rosenstiel School of Marine and Atmospheric Sciences (RSMAS)  
 Meteorology and Physical Oceanography  
 Dissertation: *Estimating a time-series of South Indian Ocean heat transport*  
 Advisor: Lisa Beal
- 2015      B.A., Northwestern University  
 Earth and Planetary Sciences, Math, Integrated Sciences

**EMPLOYMENT**

- 2020 -      Postdoctoral Researcher  
 MEAS, North Carolina State University
- 2015 - 2020   Graduate Research Assistant  
 University of Miami RSMAS
- 2014 - 2015   Undergraduate Research Assistant  
 Northwestern University Earth and Planetary Sciences (EPS)

**PUBLICATIONS - PEER REVIEWED**

- [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*, **50** (12).
- [2] Gunn, K.L., L.M. Beal, S. Elipot, **K. McMonigal**, A. Houk (2020): Mixing of subtropical, central and intermediate waters driven by shifting and pulsing of the Agulhas Current, *Journal of Physical Oceanography*, **50** (12).
- [1] **McMonigal, K.**, L.M. Beal, and 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*, **45** (17).

## PUBLICATIONS - IN REVIEW

[1] **McMonigal, K.**, K. Gunn, L.M. Beal, S. Elipot, J.K. Willis, Convergent ocean heat transport drives recent Indian Ocean warming

## PUBLICATIONS - IN PREPARATION

[3] **McMonigal, K.**, L.M. Beal, Can we close the Indian Ocean heat budget with observations?

[2] Gunn, K.L., **K. McMonigal**, L.M. Beal, S. Elipot, Eddy heat fluxes within the Agulhas Current

[1] Gunn, K.L., **K. McMonigal**, L.M. Beal, S. Elipot, E. McDonagh, Variability of Indian Ocean freshwater convergence driven by salinity advection

## AWARDS & SCHOLARSHIPS

2019	Mary Roche Scholarship, University of Miami
2018	Best physical sciences presentation, Graduate Student Research Symposium, UM
2017	RSMAS Career Development Award, University of Miami
2015 - 2020	University of Miami Graduate School Fellowship
2015	Scymour Schlanger Undergraduate Earth Science Award, EPS
2012	Academic All-Big Ten Student Athlete

## GRANTS & FELLOWSHIPS

2019	<b>K. McMonigal</b> : Mary Roche Scholarship. University of Miami. \$10,000
2018	<b>K. McMonigal</b> : <i>Elevating diversity and inclusion at RSMAS</i> . University of Miami Career Development Fund. \$2,500.

## INVITED TALKS

2021	<i>Convergent Indian Ocean heat transport drives recent warming</i> CASPO seminar, Scripps Institute of Oceanography, San Diego, CA
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## SELECTED SCIENTIFIC PRESENTATIONS

2021	<i>Estimating a time series of South Indian Ocean heat transport</i> Physical Oceanography Dissertation Symposium, HI (postponed)
2020	<i>Estimating a time series of meridional heat transport of the Indian Ocean at 34°S</i> Ocean Sciences Meeting, San Diego, CA

- 2020 *Variability in Agulhas Current temperature and freshwater transports, with implications for Agulhas Leakage fluxes*  
Gateways to the Ocean Symposium, San Diego, CA
- 2019 *The time varying temperature transport of the Agulhas Current*  
IUGG Assembly, Montreal, Canada
- 2018 *The seasonal cycle of the South Indian Ocean subtropical gyre as revealed by Argo and satellite data*  
National Oceanography Centre, Southampton, UK
- 2018 *The seasonal cycle of the South Indian Ocean subtropical gyre as revealed by Argo and satellite data*  
University of Cape Town, South Africa
- 2018 *The seasonal cycle of the South Indian Ocean subtropical gyre (poster)*  
Statewide Graduate Research Symposium, Florida State University
- 2018 *The seasonal cycle of the South Indian Ocean subtropical gyre*  
University of Miami, Graduate Research Symposium
- 2017 *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
- 2014 *Calcite rafts-rapid deposition of transgressive infill cave sequences as a new paleo sea level proxy (poster)*  
Geological Society of America, Vancouver, CA

## TEACHING EXPERIENCE

### Instructor

- 2020 *Introduction to Physical Oceanography*, UM  
In person instructor for hybrid course. Lead instructor: Lisa Beal
- 2019 *Basic Dynamical Oceanography*, University of Cape Town

### Guest Lecturer

- 2021 *Introduction to Coastal Environments*, NCSU. Instructor: Christopher Osborne
- 2019 *Climate Change*, UM. Instructor: Amy Clement

### Teaching Assistant

- 2018            *Environmental Oceanography*, UM. Instructor: Pamela Reid
- 2016            *Climate and Global Change*, UM. Instructor: Igor Kamenkovich

### **Other Teaching Experience**

- 2019            University of Miami Teaching Academy
- 2016 - 2018    Tutor, Tutorial Resources. Math, sciences, English for grades 6-12

### **SEAGOING EXPERIENCE**

- 2020            FLOTSAM undergraduate cruises, RV Walton Smith, Florida Straits, Chief Scientist: Jim Happell. Two one day cruises. CTD operations and plankton tows.
- 2019            GO-SHIP I06S, RV Thomas G Thompson, Indian/Southern Ocean, Chief Scientist: Alex Orsi. 42 days. CTD operations, float and drifter deployment.
- 2018            Agulhas System Climate Array (ASCA), SA Agulhas, Indian Ocean, Chief Scientist: Lisa Beal. 14 days. Mooring recovery, CTD operations.
- 2016            ASCA, RV Algoa, Indian Ocean, Chief Scientist: Lisa Beal. 14 days. Mooring deployment, CTD operations, float and drifter deployment.

### **RESEARCH EXPERIENCE**

CTD operations and sampling  
 Mooring deployment and recovery  
 Set up, calibration, quality control, and analysis of hydrographic data from CTDs, microCATs, CPIES, ADCPs, Nortek current meters  
 Interpolation of disparate data sources including mooring, Argo, and satellite  
 HPC usage  
 Programing with Matlab, python, cdo, NCL, shell  
 Processing of CCSM and CESM ocean, atmosphere, and sea ice output

### **SERVICE**

Reviewer for *Geophysical Research Letters*, *Scientific Reports*, *Journal of Geophysical Research: Oceans*, *Atmosphere*, *Ocean Sciences*, IPCC AR6 report  
 Maintaining an Environment of Respect Aboard Ships (MERAS) committee member, 2021-  
 International Association for the Physical Sciences of the Ocean, Early Career Scientist working group, committee member  
 Unlearning Racism in Geosciences (URGE) Pod member, 2021

University of Miami RSMAS Student-Led Evaluations and Development, committee member,  
2017-2019

## **OUTREACH**

Ocean Sciences Bowl 2020 volunteer

Ocean Kids program 2019 volunteer

## **PROFESSIONAL MEMBERSHIPS**

American Meteorological Society, member

The Oceanography Society, member

American Geophysical Union, member

## **REFERENCES**

Lisa Beal, Professor

[lbeal@rsmas.miami.edu](mailto:lbeal@rsmas.miami.edu)

Sarah Larson, Assistant Professor

[slarson@ncsu.edu](mailto:slarson@ncsu.edu)

Josh Willis, Project Scientist

[joshua.k.willis@jpl.nasa.gov](mailto:joshua.k.willis@jpl.nasa.gov)

Shane Elipot, Research Assistant Professor

[selipot@rsmas.miami.edu](mailto:selipot@rsmas.miami.edu)