

# Yu Gao, PhD

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## Education

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- 08/2016 - 01/2022**    **PhD in Meteorology and Physical Oceanography**  
Rosenstiel School of Marine and Atmospheric Sciences (RSMAS), University of Miami, Miami, FL, USA
- 08/2012 – 06/2016**    **Bachelor's Degree in Marine Science**  
College of Physical and Environmental Oceanography, Ocean University of China (OUC), Qingdao, China

## Work Experience

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- 02/2022 - Present**    **Postdoctoral Researcher**  
Scripps Institution of Oceanography, University of California San Diego, La Jolla, CA, USA
- 08/2016 - 01/2022**    **Research Assistant & Teaching Assistant**  
Rosenstiel School of Marine and Atmospheric Sciences (RSMAS), University of Miami, Miami, FL, USA

## Research Experience

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- 02/2022 - Present: Ocean State Estimate in the California Current System with Bayesian estimation, Focusing on Surface Water and Ocean Topography (SWOT) Satellite Data**
- Analyze SWOT Sea Surface Height data and other constraints to fill the spatio-temporal gaps between satellite observations.
  - Produce California Current state estimate using 4dVar Observing System Simulation Experiment (OSSE).
- 08/2016 - 01/2022: Doctoral Dissertation: Mesoscale air-sea interaction and mixed layer variability in the Southern Ocean**
- Modeled and analyzed mesoscale heat budget and air-sea interaction in the Regional Modeling System (ROMS).
  - Interpreted data output from the global climate model - Community Climate System Model (CCSM).
  - Produced three peer-reviewed paper and Presented findings at multiple international conferences and workshops.
- 09/2015 - 06/2016: Bachelor's Thesis: Modeling the Annual Variation of Cold Water Masses in Bohai and Yellow Sea**
- Modeled the water masses in Finite Volume Community Ocean Model (FVCOM) and analyzing the relevant coastal processes
  - Quantified the impact of freshwater input on the formation and distribution of water masses.

## Peer-reviewed Publications

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- Gao, Y., Gille, S., Cornuelle, B., Mazloff, M. (In preparation): Correlated Error Reduction in Data Assimilation: A Strategy Utilizing AVISO Proxy for Future SWOT Observations
- Gao, Y., Kamenkovich, I., and Kirtman B. (In preparation): Response of Mixed Layer Depth Variability to Ocean Eddies and Atmospheric Noise in the Southern Ocean
- Gao, Y., Kamenkovich, I., and Perlin, N. (2023): Origins of mesoscale mixed-layer depth variability in the Southern Ocean." *Ocean Science*, 19, 615-627. <http://doi.org/10.5194/os-19-615-2023>
- Gao, Y., Kamenkovich, I., Perlin, N., & Kirtman, B. (2022a). Oceanic Advection Controls Mesoscale Mixed Layer Heat Budget and Air–Sea Heat Exchange in the Southern Ocean, *Journal of Physical Oceanography*, 52(4), 537-555. <https://doi.org/10.1175/JPO-D-21-0063.1>
- Perlin, N., Kamenkovich, I., Gao, Y., Kirtman, B.P., (2020). A study of mesoscale air–sea interaction in the Southern Ocean with a regional coupled model. *Ocean Modelling* 153, 101660. <https://doi.org/10.1016/j.ocemod.2020.101660>

## *Data Publications*

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- Gao, Y., Kamenkovich, I., and Perlin, N.: Data for Origins of Mixed Layer Depth Variability in the Southern Ocean, University of Miami Libraries [data set], <https://doi.org/10.17604/0BKF-P943>, 2022b.
- Gao, Y., Kamenkovich, I., Perlin, N., and Kirtman, B: Oceanic Advection Controls Mesoscale Mixed Layer Heat Budget and Air-sea Heat Exchange in the Southern Ocean, University of Miami Libraries [data set], <https://doi.org/10.17604/94qh-6m66>, 2021

## *Conferences and Workshops*

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- **US CLIVAR Mesoscale and Frontal-Scale Air-Sea Interactions workshop**, March 6-8 2023: Origins of Mesoscale Mixed Layer Variability in the Southern Ocean, Denver, CO (Poster Presentation)
- **American Geophysical Union (AGU) 2022 Fall Meeting**, Dec 12 – 16, 2022: SWOT Data Assimilation With Correlated Error Reduction (Poster Presentation)
- **MPOWIR (Mentoring Physical Oceanography Women to Increase Retention) Speaker Series**: SWOT Data Assimilation With Correlated Error Reduction, Nov. 14, 2022, JPL, Pasadena, CA (Invited Talk)
- **Ocean Sciences Meeting 2022**: Origins of Mesoscale Mixed Layer Variability in the Southern Ocean, Feb 27 - Mar 04, Online (Oral Presentation)
- **Surface Water and Ocean Topography (SWOT) Science Team Meeting**, June 27 - 30, 2022, Chapel Hill, NC, USA, Toulouse, France and Virtual
- **American Meteorology Society Short Course: Machine Learning in Python for Environmental Science Problems**, April 8-9, 2021, Virtual Event
- **American Meteorology Society Short Course: Python for Climate and Meteorology**, March 2-11, 2021, Virtual Event
- **Annual RSMAS writing workshop with Dallas Murphy**, Dec 2020 - Jan 2021, Virtual Event
- **American Geophysical Union (AGU) 2020 Fall Meeting**, Dec 1 – 17, Virtual Event: Role of mesoscale currents in ocean mixed layer heat budget and air-sea coupling (Poster Presentation)
- **Ocean Sciences Meeting 2020**, Feb 16 - 21, San Diego, CA: The role of mesoscale currents in ocean mixed layer heat budget (Oral Presentation)

## *Professional Services*

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- Ad hoc reviewer for National Science Foundation Grant

## *Teaching and Work Experience*

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**2019. 1 - 2019. 5 Teaching Assistant** MSC 302 Physical Oceanography Laboratory, University of Miami

**2019. 8 - 2019. 12 Teaching Assistant** MSC/ATM 220 Climate and Global change, University of Miami

**2022.6** Scripps Mentoring Skills Development Workshop, UCSD