# Yu Gao, PhD

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**Physical oceanographer | Atmospheric Scientist | Data Scientist**

## *Education*

**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*

**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*

**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.
- Participate in production of 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.

## *Publications*

- Gao, Y., Gille, S., Cornuelle, B., Mazloff, M. (2023) SWOT Wide-swath Data Assimilation With Correlated Error Reduction, *Under preparation*
- Gao, Y., Kamenkovich, I., and Perlin, N. (2023) Origins of Mesoscale Mixed Layer Depth Variability in the Southern Ocean, EGUsphere [preprint], https://doi.org/10.5194/egusphere-2022-1516
- Gao, Y., Kamenkovich, I., Perlin, N., & Kirtman, B. (2022). 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

## *Conferences and Workshops*

- **US Clivar Mesoscale and Frontal-Scale Air-Sea Interactions workshop,** March 6 - 8 2023: Origins of Mesoscale Mixed Layer Variability in the Southern Ocean (Poster Presentation), Denver, CO

- **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
- **Ocean Sciences Meeting 2022**, Feb 27 - Mar 04, Online: Origins of Mesoscale Mixed Layer Variability in the Southern Ocean (Oral Presentation)
- **Surface Water and Ocean Topography (SWOT) Science Team Meeting**, June 27 - 30, 2022, Chapel Hill, NC, USA, Toulouse, France and Virtual
- **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)
- **Annual RSMAS writing workshop with Dallas Murphy**, Dec 2020 - Jan 2021, Virtual Event
- **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

## *Teaching and Work Experience*

**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

## *Technical Skills*

- **Data analysis, Statistical Modeling, Machine Learning, Ocean and atmospheric modeling**
- **Programming languages & Professional softwares:** Python, Fortran, MATLAB, Git, SQL, Latex, Microsoft office