Yu Gao

Email: gaoyu@ucsd.edu   **Website**: https://yugaophd.github.io
Phone: (858) 305-1866   **GitHub**: https://github.com/yugaophd

Education

Ph.D. in Meteorology and Physical Oceanography   Aug 2016 – Jan 2022
University of Miami   Miami, FL
Bachelor's Degree in Marine Science   Aug 2012 – June 2016
Ocean University of China   Qingdao, China

Peer-reviewed Publications

SWOT Data Assimilation with Correlated Error Reduction: Fitting Model and Error Together
Yu Gao, Sarah T. Gille, Bruce D. Cornuelle, Matthew R. Mazloff, (In preparation)

Response of Mixed Layer Depth Variability to Ocean Eddies and Atmospheric Noise in the Southern Ocean
Yu Gao, Igor Kamenkovich, and Benjamin Kirtman,
Journal of Geophysical Research: Oceans (Under review)

Origins of mesoscale mixed-layer depth variability in the Southern Ocean
Yu Gao, Igor Kamenkovich, and Natalie Perlin
Ocean Science, 19, 615-627, 2023. DOI: 10.5194/os-19-615-2023

Oceanic Advection Controls Mesoscale Mixed Layer Heat Budget and Air–Sea Heat Exchange in the Southern Ocean
Yu Gao, Igor Kamenkovich, Natalie Perlin and Benjamin Kirtman
Journal of Physical Oceanography, 52(4), 537-555, 2022a. DOI: 10.1175/JPO-D-21-0063.1

A study of mesoscale air–sea interaction in the Southern Ocean with a regional coupled model
Natalie Perlin, Igor Kamenkovich, Yu Gao, and Benjamin Kirtman
Ocean Modelling 153, 101660, 2020. DOI: 10.1016/j.ocemod.2020.101660

Data Publications

Data for Origins of Mixed Layer Depth Variability in the Southern Ocean
Gao, Y., Kamenkovich, I., and Perlin, N.
University of Miami Libraries [data set], 2022b. DOI: 10.17604/0BKF-P943

Oceanic Advection Controls Mesoscale Mixed Layer Heat Budget and Air-sea Heat Exchange in the Southern Ocean
Gao, Y., Kamenkovich, I., Perlin, N., and Kirtman, B.
University of Miami Libraries [data set], 2021. DOI: 10.17604/94qh-6m66

Research Experience

Ocean State Estimation in the California Current System

Postdoctoral Scholar, UC San Diego   February 2022 – Present

Developed Python-based statistical models for SWOT Sea Surface Height satellite data, bridged observational gaps. Interpreted California Current state estimate that incorporates the SWOT data. Power spectra analysis of the California State Estimate and SWOT satellite data.

Mesoscale Air-Sea Interaction and Mixed Layer Variability in the Southern Ocean

Research Assistant, Univ. of Miami   August 2016 – January 2022

Modeled and analyzed mesoscale heat budget and air-sea interactions using regional air-sea coupled model. Interpreted data from Community Climate System Model (CCSM). Published three peer-reviewed papers.

Modeling the Annual Variation of Cold Water Masses in Bohai and Yellow Sea

Undergraduate Student, Ocean Univ. of China   September 2015 – June 2016

Modeled water masses using FVCOM and analyzed coastal processes. Quantified the impact of freshwater input on water mass distribution.

Teaching Experience

MSC 302 Physical Oceanography Laboratory

Undergraduate level class on Physical Oceanography lab experiments. I guided and supervised laboratory experiments, and assessed student lab reports and with a focus on enhancing understanding and application of physical oceanography concepts.

Teaching Assistant, University of Miami   Spring 2019

MSC/ATM 220 Climate and Global Change

Undergraduate level class on Earth's climate system and the role of natural and anthropogenic processes in shaping climate change. I gave lecture on global climate change, assisted with course materials, and graded assignments.

Teaching Assistant, University of Miami   Fall 2019

Seminar and Talks

Mesoscale air-sea Interaction and Mixed Layer Variability in the Southern Ocean,

JPL Center for Climate Sciences seminar, Pasadena, CA   October 2023

SWOT Data Assimilation With Correlated Error Reduction,

NASA-MPOWIR Speaker Series, JPL, Pasadena, CA   November 2022

Origins of Mesoscale Mixed Layer Variability in the Southern Ocean,

Ocean Sciences Meeting 2022, Online   Feb-Mar 2022

Role of Mesoscale Currents in Ocean Mixed Layer Heat Budget,

Ocean Sciences Meeting 2020, San Diego, CA, USA   Feb 2020

Poster Presentations	**SWOT Data Assimilation with Correlated Error Reduction: Fitting Model and Error Together**,
	SWOT Science Team Meeting, Toulouse, France Sept 2023
	Origins of Mesoscale Mixed Layer Variability in the Southern Ocean,
	US CLIVAR Workshop, Denver, CO, USA Mar 2023
	SWOT Data Assimilation With Correlated Error Reduction,
	AGU Fall Meeting, Chicago, IL, USA, Dec 2022
	Role of Mesoscale Currents in Ocean Mixed Layer Heat Budget and Air-Sea Coupling,
	AGU Fall Meeting, Online Dec 2020
Professional Development	**The Pattullo Conference by MPOWIR,** Warrenton, VA, USA Sept. 24 - 27, 2023
	NASA's Earth Observations Summer School, Using Satellite Observations to Advance Climate Models
	Pasadena, CA, USA Aug 16, 17 and 21 - 25, 2023
	Unifying Innovations in Forecasting Capabilities Workshop
	Boulder, CO, USA July 24, 2023 - July 28, 2023
	San Diego Supercomputer Center, Summer Institute 2022, Supercomputing and Data Science
	San Diego, CA, August 5 - 9, 2022
	SWOT Science Team Meeting, Chapel Hill, NC, USA Jun 2022
	RSMAS's Informatics Group: Member-led discussion on Aitificial Intelligence in Oceanograpy and Atmospheric Sciences 2021
	AMS Short Course: Machine Learning in Python for Environmental Science Apr 2021
	AMS Short Course: Python for Climate and Meteorology Mar 2021
	Annual RSMAS Writing Workshop with Dallas Murphy,
	Miami, FL, USA and Virtual Dec 2020 - Jan 2021
Skills	**Programming Languages**: Python, Fortran, SQL, LaTeX
	Softwares and computing: Git, High-performance Computing(HPC), Cloud Computing (JPL-CMDA, PO.DAAC)
	Models and Methos: ROMS, FVCOM and data assimilation
Professional Services	**Referee for:**
	National Science Foundation
	Ocean Science (eISSN: OS 1812-0792, OSD 1812-0822)