YAO YU

ADDRESS: Revelle 1105, Scripps Institution of Oceanography, La Jolla, CA 92037

CONTACT: yayu@ucsd.edu; yaoyu9404.github.io

**RESEARCH KEYWORDS**

small-scale ocean dynamics; marine tectonics; seafloor-ocean interaction; machine learning; satellite radar altimetry.

**POSITION**

Schmidt AI in Science Postdoc Fellow, University of California, San Diego 2023 – 2025

**EDUCATION**

University of California, San Diego, Doctor of Philosophy in Earth Sciences 2018 – 2023

Wuhan University, China, Master of Engineering in Geodesy and Geomatics 2015 – 2018

Wuhan University, China, Bachelor of Engineering in Geodesy and Geomatics 2011 – 2015

Academia Sinica, Taiwan, Visiting Student 2016, 2017

**PUBLICATIONS**

*Peer-reviewed papers*

11. **Yu, Y.**, Sandwell, D., & Dibarboure, G. (2024). Abyssal Marine Tectonics from the SWOT Mission, *Science*, DOI:10.1126/science.ads4472. [[pdf](https://www.science.org/stoken/author-tokens/ST-2316/full)]

10. **Yu, Y.**, Sandwell, D. T., Dibarboure, G., Chen, C., & Wang, J. (2024). Accuracy and resolution of SWOT altimetry: Foundation seamounts. *Earth and Space Science*, https://doi.org/10.1029/2024EA003581

9. Gevorgian, J., Sandwell, D. T., **Yu, Y.**, Kim, S. S., & Wessel, P. (2023). Global distribution and morphology of small seamounts. *Earth and Space Science*, https://doi.org/10.1029/2022EA002331. [[pdf](https://drive.google.com/file/d/12oVzyZzpfLn9Kum7SeFLfXA7QH40HwJw/view?usp=share_link)]

8. **Yu, Y.**, Sandwell, D. T., & Gille, S. T. (2023). Seasonality of the Sub‐mesoscale to Mesoscale Sea Surface Variability from Multi‐Year Satellite Altimetry. *Journal of Geophysical Research: Oceans*, https://doi.org/10.1029/2022JC019486 [[pdf](https://drive.google.com/file/d/10DZhWeiJ-yEUqpUYi36yYzJoF97cEscx/view?usp=share_link)]

7. **Yu, Y.**, Gille, S. T., & Sandwell, D. T. (2022). Global Mesoscale Ocean Variability from Multiyear Altimetry: An Analysis of the Influencing Factors, *Artificial Intelligence for the Earth Systems*, https://doi.org/10.1175/AIES-D-21-0008.1 [[pdf](https://drive.google.com/file/d/1HAcZIs9TPQKPr6MS1Uc7KEc0JJ-8Vk2H/view?usp=sharing)]

6. Sandwell, D. T., Goff, J. A., Gevorgian, J., Harper, H., Kim, S. S., **Yu, Y.**, Tozer, B., Wessel, P., & Smith, W. H. (2022). Improved Bathymetric Prediction Using Geological Information: SYNBATH. *Earth and Space Science*, https://doi.org/10.1029/2021EA002069 [[pdf](https://drive.google.com/file/d/1DD7wQy9SCVUDRjQ5m0w7exERNaYRlWZQ/view?usp=sharing)].

5. **Yu**, **Y.**, Sandwell, D., Gille, S.T., & Villas Bôas, A.B. (2021). Assessment of ICESat-2 for the recovery of ocean topography*, Geophysical Journal International*, https://doi.org/10.1093/gji/ggab084 [[pdf](https://drive.google.com/file/d/1lrtFZXjIfW2zDfr4WPMsqZa0ugJ2FecF/view?usp=sharing)]

4. Chao, B. F., & **Yu, Y.** (2020). Variation of the Equatorial Moments of Inertia Associated with a 6-year Westward Rotary Motion in the Earth, *Earth and Planetary Science Letters*, https://doi.org/10.1016/j.epsl.2020.116316 [[pdf](https://drive.google.com/file/d/13B4h61VkUbJ44FzXjgToXwC6q4Il_Enn/view?usp=sharing)]

3. Chao, B. F., **Yu, Y.**, & Chung, C.H. (2020). Variation of Earth's Oblateness J2 on Interannual-to-Decadal Timescales, *Journal of Geophysical Research: Solid Earth*, https://doi.org/10.1029/2020JB019421 [[pdf](https://drive.google.com/file/d/1vObWP_5Q7tHMz63CeELB1sEAxLmGBRTC/view?usp=sharing)]

2. Tanaka, Y., **Yu, Y.**, & Chao, B. F. (2019). Gravity and geoid changes by the 2004 and 2012 Sumatra earthquakes from satellite gravimetry and ocean altimetry. *Terr. Atmos. Ocean. Sci*, doi:10.3319/TAO.2018.10.24.02 [[pdf](https://drive.google.com/file/d/1bP2WB5WqPS8T9m6AeaOst8Uh4A2DEfjJ/view?usp=sharing)]

1. **Yu, Y.**, Chao, B. F., García-García, D., & Luo, Z. (2018). Variations of the Argentine gyre observed in the GRACE time-variable gravity measurements and Ocean Altimetry, *Journal of Geophysical Research: Oceans*, https://doi.org/10.1029/2018JC014189 [[pdf](https://drive.google.com/file/d/1ukT1FaWl0Ubqj_mJ44jeov4_-g94ooGP/view?usp=sharing)]

*In progress*

4. Sepulveda, I., Nilsson, B., **Yu, Y.**, Carvajal, M., Brandin, M., Gabriel, A. A., Sandwell, D.T. (*under review in Science*) SWOT reveals dispersive tsunami waves linked to near-trench tsunamigenesis in the 2025 Magnitude 8.8 Kamchatka earthquake

3. Nilsson, B., Phrampus, B. J., Salajegheh F., Lu, B., **Yu, Y.**, Sandwell, D. T., Harper, H., Andersen, O. B., Smith, W. H., Elmore, P., Kirby, K., Beale, J., Roberts, R., Altamirano, L. (*in prep*) Bathymetry Prediction with SWOT Gravity Anomaly using Machine Learning Methods: Paper 2 – Model Evaluation and Uncertainty Analysis

2. Sandwell, D. T., Phrampus, B. J., Salajegheh F., Nilsson, B., Lu, B., **Yu, Y.**, Harper, H., Andersen, O. B., Smith, W. H., Elmore, P., Kirby, K., Beale, J., Roberts, R., Altamirano, L. (*under review in JGR Solid Earth*) Bathymetry Prediction with SWOT Gravity Anomaly using Machine Learning Methods: Paper 1 - Model Development

1. **Yu, Y.**, Gille, S. T., Sandwell, D. T., Llewellyn Smith, S., & Li, Y. (*in prep*) Assessing Tidal Conversion over Abyssal Hills

**FELLOWSHIPS AND ACADEMIC HONORS**

Schmidt AI in Science Postdoc Fellowship, UCSD 2023-2025

H. William Menard Memorial Fellowship, UCSD 2023

Scripps Institution of Oceanography graduate fellowship, UCSD 2018

Frist Prize, Graduate Student Fellowship, Wuhan University 2016, 2017, 2018

National Scholarship, China 2014

Frist Prize, Undergraduate Student Fellowship, Wuhan University 2012, 2013, 2014, 2015

**FUNDING**

UCSD Earth Section Small Grants ($3290), recipient 2024

I used this grant to host a one-day workshop on SWOT science (July 29, 2024; 40+ participants); then hosted 5 meetings featuring first hand SWOT science research progress from early career scientists and discussions.

NASA SWOT Science Team Grant, Postdoc Participant

Title: Global Marine Gravity, Bathymetry, and Small-scale Ocean Interactions from SWOT 2024-2028

*Travel funds:*

MPOWIR Pattullo Conference 2023

Satellite Observations and Climate Models Summer School, JPL 2022

Spaceborne Earth Observations and Global Change Summer School, Shanghai Astronomical Observatory 2014

**TEACHING**

University Course Guest Lectures

* SIO 209 Ocean Turbulence from Space winter quarter, 2025
* SIO 90 Perspectives in Ocean Sciences (undergraduate level) winter quarter, 2025
* SIO 135/236 Satellite Remote Sensing (undergraduate/graduate level) spring quarter, 2024
* SIO 111 Ocean waves (undergraduate level) winter quarter, 2023

Teaching assistant

* SIO 111 Ocean waves (undergraduate level) winter quarter, 2022

**MENTORING**

Peer mentor for 2 graduate students 2020-2022

Research mentor for:

* Eitan Rapaport Bruck, PhD student in geophysics at UC San Diego

Project: in Searching Taylor Columns from SWOT data

* Josephine Joergensen, PhD student in geophysics at UC San Diego

Project: Global Abyssal Hill Characteristics from SWOT Vertical Gravity Gradient Data

* Martin Hawks, data-science undergraduate UC San Diego

Project: Seamount Identification in SWOT Data Using Support Vector Classification

**ACADEMIC SERVICE**

**Journal reviewer:**

GRL, IEEE TGRS, JGR ML, AGU Advances, EGUsphere

**Proposal reviewer:**

UC President Dissertation Fellowship reviewer 2025

NSF proposal external reviewer 2025

Google PhD Fellowship reviewer 2025

NASA early career FINESST panelist 2024

Schmidt AI in Science Postdoc Fellowship reviewer 2024

**Meeting convenor:**

AGU fall meeting session convener (AI in geodesy) 2023

AGU fall meeting session convener (SWOT gravity/oceanography) 2024, 2025

Scripps SWOT Workshop organizer 2024

**Committee member:**

AGU Geodesy Executive Committee early career representative 2023-*now*

AGU Geodesy Executive Committee student representative 2022-2023

**PRESENTATIONS**

NASA speaker series, JPL September 2025

AGU Geodesy Early Career webinar March 2025

Seminar at EEPS, Rice University February 2025

Seminar at Applied Ocean Sciences, Scripps Institution of Oceanography December 2024

Seminar at IGPP, Scripps Institution of Oceanography April 2024

Seminar at USTC March 2023

AGU fall meeting 2019, 2020, 2021, 2022, 2023, 2024

Ocean Sciences meeting 2020, 2022

SWOT Science Team Meeting 2022, 2024

Ocean Surface Topography Science Team Meeting 2021, 2023

Asia Ocean Geosciences Society 2017

**FIELD WORK**

GPS survey at Mexicali, Mexico March 8-9, 2020

R/V Sally Ride at Fieberling Seamount chains January 13-23, 2020

GPS survey at Ridgecrest, California July 12, November 10-11, 2019

GPS survey at Painted Canyon, California March 2-3, 2019

GPS survey at Palm desert, California November 12-13, 2018