

YAO YU

ADDRESS: Revelle 1105, Scripps Institution of Oceanography, La Jolla, CA 92037
CONTACT: yayu@ucsd.edu; [yaoyu9404.github.io](https://github.com/yaoyu9404)

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
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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](#)]
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](#)]
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](#)]
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](#)]
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: SYNBAATH. *Earth and Space Science*, <https://doi.org/10.1029/2021EA002069> [[pdf](#)].
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](#)]
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](#)]
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](#)]
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](#)]
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](#)]

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
<i>Travel funds:</i>	
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, EGU sphere

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 convener:	
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- <i>now</i>
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