

YAO YU

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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., & Dibarbour, G. (2024). Abyssal Marine Tectonics from the SWOT Mission, *Science*, DOI:10.1126/science.ads4472. [[pdf](#)]
10. **Yu, Y.**, Sandwell, D. T., Dibarbour, 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: SYN BATH. *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. (*submitted*) 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. (*submitted*) 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 Uncharted Bathymetry

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

Recipient, UCSD Earth Section Small Grants	
Topic: Scripps SWOT Workshop and monthly meetings (\$3290)	2024
Postdoc Participant, NASA SWOT Science Team	
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

Guster lecturer of SIO 90 Perspectives in Ocean Sciences (undergraduate level)	winter quarter, 2025
Guest lecturer of SIO 135/236 Satellite Remote Sensing (undergraduate/graduate level)	spring quarter, 2024
Guest lecturer of SIO 111 Ocean waves (undergraduate level)	winter quarter, 2023
Teaching assistant of SIO 111 Ocean waves (undergraduate level)	winter quarter, 2022

MENTORING

Peer mentor for 2 graduate students 2020-2022

Research mentor for:

- Josephine Joergensen, geophysics graduate student 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

PROFESSIONAL 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 convenor:

AGU fall meeting session convener 2023, 2024

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

AGU Geodesy Early Career webinar March 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