

David T. Sandwell

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Present Position: Professor of Geophysics, Scripps Institution of Oceanography

Education:

Ph.D. 1981 University of California at Los Angeles, Geophysics and Space Physics
M.S. 1978 University of California at Los Angeles, Geophysics
B.S. 1975 University of Connecticut, Major Physics, Minor Mathematics

Professional Experience:

1989 – 93 Scripps Institution of Oceanography, Associate Professor
1985 – 89 University of Texas at Austin, Research Scientist
1982 – 85 National Geodetic Survey, Research Geophysicist

Awards and Memberships:

2/21 Fellow of the AAAS
12/18 Charles A. Whitten Medal - AGU
4/12 Member of the US National Academy of Sciences
4/08 Fellow of the American Academy of Arts and Sciences
11/04 George P. Woollard Award and Fellow of the Geological Society of America
12/97 Fellow of the American Geophysical Union
12/95 Bowie Lecture American Geophysical Union

Other Experience:

1/23 - Member AGU Fellows selection committee
10/21-10/23 Member of Committee on Earth Science and Observations from Space
9/18 – 4/20 Chair of Committee on Evolving the Geodetic Infrastructure
6/16 – 4/18 Chair of the Solid Earth Panel of the NASA Decadal Planning Committee
1/14 – 2/18 Member of Temporary Nominating Group, National Academy of Sciences
1/13 – 8/16 Member of UNAVCO Board of Directors
1/13 – 1/17 Member of ALOS-2 Calibration and Validation Team, JAXA
1/12 – 9/18 Member of SCEC Planning Committee
9/11 – 9/16 Chair of Geophysics Curricular Group, SIO
1/11 - 12/14 Chair of NRC Committee on Seismology and Geodynamics
1/08 - 12/12 President Geodesy Section of the AGU
1/07 - 1/09 Chair of Western North America InSAR Consortium (WInSAR)
5/05 - 9/05 Member of committee to review ESA's Earth Observation Envelope Programme
6/03 - 7/04 Member of NASA Jupiter Orbiter Icy Moons Science Definition Team
6/01 - 4/04 Associate Editor of *Journal of Geophysical Research*
2/01 - 12/03 Member of NRC U.S. National Committee to the IUGG
10/99 - 7/02 Chair of Western North America InSAR Consortium (WInSAR)
9/98 - 6/01 Member of NRC Space Studies Board, Committee on Earth Studies
5/95 - 12/96 Member of NRC, US Committee on Geodynamics
2/92 - 12/95 Office of Technology Assessment Panel on Earth Observing Systems
6/90 - 1/95 Member of National Research Council, Committee on Geodesy
12/86 - 1/91 Science steering group member for NASA's satellite gravity program
1/87 - 12/90 Associate Editor, *Reviews of Geophysics and Space Physics*
2/85 - 1/89 Associate Editor, *Journal of Geophysical Research*

Recent Research Funding:

10/23 - NGS - NSRS Intra-Frame Deformation Model and New SIO Geodesy Program
10/21 - NSF - Harnessing the InSAR Data Revolution: GMTSAR
06/22 - NSF - Determining the origin of Haxby lineaments using MT and bathymetric data
04/23 - NASA – Estimating Seismic Hazard along the SAFs from InSAR and GPS
09/23 - ONR - Improved Global and Coastal Bathymetry
04/23 - NASA - Participation in the SWOT Science Team: Marine Geophysics

Cruise Participation:

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| 1/24 | Chief scientist on R/V Kilo Moana to explore Haxby gravity rolls |
| 10/17 | Co-chief on R/V Revelle to map Mendocino Fracture Zone |
| 9/03 | Co-chief on R/V Revelle to test feasibility of Synthetic Aperture Sonar |
| 2/97 | Participant in expedition to Foundation Seamounts, South Pacific |
| 1/94 | Co-chief scientist on R/V Melville to map Eltanin and Udintsev Fracture Zones |
| 1/93 | Chief scientist on R/V Melville to map Pukapuka En-Echelon Ridges |
| 2/89 | Assistant scientist on R/V Surveyor to map the Shackleton Fracture Zone |
| 3/87 | Assistant chief scientist on R/V Washington to explore Seasat gravity lineations |
| 5/83 | Participating scientist on Bermuda Swell heat flow experiment |

Publications:

2025

Sandwell DT, Xu X, Chen J, et al., 2025. *Satellite Radar Interferometry: Theory and Practice*. Cambridge University Press, 195 pp.

Laloue, A., Schaeffer, P., Pujol, M.I., Veillard, P., Andersen, O., **Sandwell**, D., Delepouille, A., Dibarboure, G. and Faugère, Y., 2025. Merging recent mean sea surface into a 2023 hybrid model (from Scripps, DTU, CLS, and CNES). *Earth and Space Science*, 12(2), p.e2024EA003836.

2024

Yu, Y., **Sandwell**, D.T. and Dibarboure, G., 2024. Abyssal marine tectonics from the SWOT mission. *Science*, 386(6727), pp.1251-1256.

Brandin, M.C., **Sandwell**, D.T., Johnson, C.L. and Russell, M.B., 2024. Mapping lava flows on Venus using SAR and InSAR: Hawai'i case study. *Earth and Space Science*, 11(6), p.e2024EA003510.

Yu, Y., **Sandwell**, D.T., Dibarboure, G., Chen, C. and Wang, J., 2024. Accuracy and resolution of SWOT altimetry: Foundation seamounts. *Earth and Space Science*, 11(6), p.e2024EA003581.

Guns, K., **Sandwell**, D., Xu, X., Bock, Y., Yong, L.W. and Smith-Konter, B., 2024. Seismic moment accumulation rate from geodesy: Constraining Kostrov thickness in southern California. *Journal of Geophysical Research: Solid Earth*, 129(5), p.e2023JB027939.

Harper, H. and **Sandwell**, D.T., 2024. Global predicted bathymetry using neural networks. *Earth and Space Science*, 11(3), p.e2023EA003199.

Weatherall, P., Ferreras, S.C., Cardigos, S.D., Cornish, N., Davidson, S.R., Dorschel, B., Drennon, H., Ferrini, V., Harper, H.A., Isler, T. and Jakobsson, M., 2024. The GEBCO_2024 Grid-a continuous terrain model of the global oceans and land.

2023

Harper, H., Luttrell, K. and **Sandwell**, D.T., 2023. Ridge Propagation and the Stability of Small Mid-Ocean Ridge Offsets. *Journal of Geophysical Research: Solid Earth*, 128(8), p.e2023JB027443.

Gevorgian, J., **Sandwell**, D.T., Yu, Y., Kim, S.S. and Wessel, P., 2023. Global distribution and morphology of small seamounts. *Earth and Space Science*, 10(4), p.e2022EA002331.

Yu, Y., **Sandwell**, D.T. and Gille, S.T., 2023. Seasonality of the Sub-Mesoscale to Mesoscale Sea Surface Variability From Multi-Year Satellite Altimetry. *Journal of Geophysical Research: Oceans*, 128(2), p.e2022JC019486.

Zoe Yin, H., Xu, X., Haase, J.S., Douilly, R., **Sandwell**, D.T. and Mercier de Lepinay, B., 2023. Surface Deformation Surrounding the 2021 Mw 7.2 Haiti Earthquake Illuminated by InSAR Observations. *Bulletin of the Seismological Society of America*, 113(1), pp.41-57.

2022

Coulson, S., Dangendorf, S., Mitrovica, J.X., Tamisiea, M.E., Pan, L. and **Sandwell**, D.T., 2022. A detection of the sea level fingerprint of Greenland Ice Sheet melt. *Science*, 377(6614), pp.1550-1554.

Wessel, P., Watts, A.B., Kim, S.S. and **Sandwell**, D.T., 2022. Models for the evolution of seamounts. *Geophysical Journal International*, 231(3), pp.1898-1916.

Guns, K., Xu, X., Bock, Y. and **Sandwell**, D., 2022. GNSS-corrected InSAR displacement time-series spanning the 2019 Ridgecrest, CA earthquakes. *Geophysical Journal International*, 230(2), pp.1358-1373.

Yu, Y., Gille, S.T., **Sandwell**, D.T. and McAuley, J., 2022. Global Mesoscale Ocean Variability from Multiyear Altimetry: An Analysis of the Influencing Factors. *Artificial Intelligence for the Earth Systems*, 1(3), p.e210008.

Sandwell, D.T., Goff, J.A., Gevorgian, J., Harper, H., Kim, S.S., Yu, Y., Tozer, B., Wessel, P. and Smith, W.H., 2022. Improved Bathymetric Prediction using Geological Information: SYN BATH. *Earth and Space Science*, 9(2), p.e2021EA002069.

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2021

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Yu, Y., **Sandwell**, D.T., Gille, S.T. and Villas Bôas, A.B., 2021. Assessment of ICESat-2 for the recovery of ocean topography. *Geophysical Journal International*, 226(1), pp.456-467.

Zhang, S., Abulaitijiang, A., Andersen, O.B., **Sandwell**, D.T. and Beale, J.R., 2021. Comparison and evaluation of high-resolution marine gravity recovery via sea surface heights or sea surface slopes. *Journal of Geodesy*, 95(6), pp.1-17.

Ward, L.A., Smith-Konter, B.R., Xu, X. and **Sandwell**, D.T., 2021. Seismic Moment Accumulation Response to Lateral Crustal Variations of the San Andreas Fault System. *Journal of Geophysical Research: Solid Earth*, 126(4), p.e2020JB021208.

Harper, H., Tozer, B., **Sandwell**, D.T. and Hey, R.N., 2021. Marine vertical gravity gradients reveal the global distribution and tectonic significance of “seesaw” ridge propagation. *Journal of Geophysical Research: Solid Earth*, 126(2), p.e2020JB020017.

Andersen, O.B., Zhang, S., **Sandwell**, D.T., Dibarboure, G., Smith, W.H. and Abulaitijiang, A., 2021. The unique role of the Jason geodetic missions for high resolution gravity field and mean sea surface modelling. *Remote Sensing*, 13(4), p.646.

Sandwell, D. T., Harper, H., Tozer, B., & Smith, W. H. (2021). Gravity Field Recovery from Geodetic Altimeter Missions. *Advances in Space Research*, 68(2), pp.1059-1072.

2020

Sepulveda, I., Haase, J.S., Liu, P.L.F., Grigoriu, M., Tozer, B. and **Sandwell**, D., 2020. Uncertainty of Bathymetry Models and Effect on Tsunami. *Coastal Engineering Proceedings*, (36v), pp.22-22.

Alafate, J., Freund, Y., **Sandwell**, D.T. and Tozer, B., 2020. Experimental Design for Bathymetry Editing. *arXiv preprint arXiv:2007.07495*.

Ponti, D.J., Blair, J.L., Rosa, C.M., Thomas, K., Pickering, A.J., Akciz, S., Angster, S., Avouac, J.P., Bachhuber, J., Bacon, S. et al., 2020. Documentation of Surface Fault Rupture and Ground-Deformation Features Produced by the 4 and 5 July 2019 M w 6.4 and M w 7.1 Ridgecrest Earthquake Sequence. *Seismological Society of America*, 91(5), pp.2942-2959.

Xu, X., **Sandwell**, D.T., Ward, L.A., Milliner, C.W., Smith-Konter, B.R., Fang, P. and Bock, Y., 2020. Surface deformation associated with fractures near the 2019 Ridgecrest earthquake sequence. *Science*, 370(6516), pp.605-608.

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2019

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Tymofyeyeva, E., Fialko, Y., Jiang, J., Xu, X., **Sandwell, D.,** Bilham, R., Rockwell, T.K., Blanton, C., Burkett, F., Gontz, A. and Moafipoor, S., 2019. Slow slip event on the southern San Andreas fault triggered by the 2017 M w 8.2 Chiapas (Mexico) earthquake. *Journal of Geophysical Research: Solid Earth*, 124(9), pp.9956-9975.

DeSanto, J.B. and **Sandwell, D.T.,** 2019. Meter-Scale Seafloor Geodetic Measurements Obtained from Repeated Multibeam Sidescan Surveys. *Marine Geodesy*, 42(6), pp.491-506.

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2018

National Academies of Sciences, Engineering, and Medicine, *Thriving on Our Changing Planet: A Decadal Strategy for Earth Observation from Space, Ch. 10 Earth Surface and Interior: Dynamics and Hazards*, The National Academies Press, Washington, DC, DOI: 10.17226/24938, <https://www.nap.edu/catalog/24938/thriving-on-our-changing-planet-a-decadal-strategy-for-earth> , 2018.

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Xu, X., Ward, L. A., Jiang, J., Smith-Konter, B., Tymofyeyeva, E., Lindsey, E. O., ... & **Sandwell, D. T.** (2018). Surface creep rate of the Southern San Andreas Fault modulated by stress perturbations from nearby large events. *Geophysical Research Letters*, 45(19), 10-259.

Sandwell, D., B. Smith-Konter, Maxwell: A Semi-analytic 4D Code for Earthquake Cycle Modeling of Transform Fault Systems, *Computers and Geosciences*, 10.1016/j.cageo.2018.01.009, 2018.

Tong, X., D. T. **Sandwell,** and D. A. Schmidt. Surface creep rate and moment accumulation rate along the Aceh segment of the Sumatran fault from L-band ALOS-1/PALSAR-1 observations. *Geophysical Research Letters*, doi.org/10.1002/2017GL076723, 2018.

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2017

Mueller, R. D., Matthews, K. J., & **Sandwell, D. T.,** Advances in imaging small-scale seafloor and sub-seafloor tectonic fabric using satellite altimetry. Stammer D and Cazenave A. *Satellite Altimetry over Ocean and Land Surfaces*. doi, 10, 9781315151779-16., 2017

Xu, X., **Sandwell, D. T.,** & Bassett, D., A spectral expansion approach for geodetic slip inversion: implications for the downdip rupture limits of oceanic and continental megathrust earthquakes. *Geophysical Journal International*, 212(1), 400-41, doi.org/10.1093/gji/ggx408, 2017

Zhang, S., D. T. **Sandwell,** T. Jin, and D. Li, Inversion of marine gravity anomalies over southeastern China seas from multi-satellite altimeter vertical deflections. *Journal of Applied Geophysics*, 137, 128-137, <http://dx.doi.org/10.1016/j.jappgeo.2016.12.014>, 2017.

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2016

Sandwell, D. T., and P. Wessel, Interpolation of 2-D vector data using constraints from elasticity, *Geophys. Res. Lett.*, 43, doi:10.1002/2016GL070340, 2016.

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Müller RD, Qin X, **Sandwell** DT, Dutkiewicz A, Williams SE, Flament N, et al., The GPlates Portal: Cloud-Based Interactive 3D Visualization of Global Geophysical and Geological Data in a Web Browser. *PLoS ONE* 11(3): e0150883. doi:10.1371/journal.pone.0150883, 2016.

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2015

Xu, X., X. Tong, D. T. **Sandwell**, C. Millner, J. F. Dolan, J. Hollingsworth, S. Leprince, F. Ayoub, Refining the shallow slip deficit, *Geophys. J. Int.*, 203, 48-62, doi: 10.1093/gji/ggv269, 2015.

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2010

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