

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
9/98 Society for Exploration Geophysics
6/80 International Association of Geodesy
6/77 American Geophysical Union

Other Experience:

9/18 - 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:

06/19 - NASA – Estimating Seismic Hazard along the SAFs from InSAR and GPS
10/18 - NSF - Harnessing the InSAR Data Revolution: GMTSAR
09/17 - ONR - Improved Global and Coastal Bathymetry
04/16 - NASA - Participation in the SWOT Science Team: Marine Geophysics
01/15 - SCEC - Improving the Community Geodetic Model with GPS and InSAR
10/13 - Google - Global Predicted Bathymetry for Google Earth and Beyond

Cruise Participation:

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:

2021

Sandwell, D. T. *Advanced Geodynamics: Fourier Transform Methods*, Cambridge University Press, 281 pp., 2021.

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

2020

Andersen, O.B., Zhang, S., **Sandwell, D.T.**, Dibarboure, G., Smith, W.H. and Abulaitijiang, A., 2020. The Unique Role of Jason-2 Geodetic Mission for High Resolution Gravity Field Modelling. *Earth and Space Science Open Archive ESSOAr*.

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.

Verron, J., Bonnefond, P., Andersen, O., Arduin, F., Bergé-Nguyen, M., Bhowmick, S., Blumstein, D., Boy, F., Brodeau, L., Crétaux, J.F. and Dabat, M.L., 2020. The SARAL/AltiKa mission: A step forward to the future of altimetry. *Advances in Space Research*.

Xu, X., **Sandwell, D.T.** and Smith-Konter, B., 2020. Coseismic displacements and surface fractures from Sentinel-1 InSAR: 2019 Ridgecrest earthquakes. *Seismological Research Letters*, 91(4), pp.1979-1985.

Sandwell, D. T., et al., (2020). *Evolving the Geodetic Infrastructure to Meet New Scientific Needs*, The National Academies Press, DOI: 10.17226/25579, <https://www.nap.edu/catalog/25579/evolving-the-geodetic-infrastructure-to-meet-new-scientific-needs>

2019

Xu, X. and **Sandwell, D.T.**, 2019. Toward absolute phase change recovery with InSAR: Correcting for earth tides and phase unwrapping ambiguities. *IEEE Transactions on Geoscience and Remote Sensing*, 58(1), pp.726-733.

Sandwell, D. T., Harper, H., Tozer, B., & Smith, W. H. (2019). *Gravity Field Recovery from Geodetic Altimeter Missions*. *Advances in Space Research*.

Tymofeyeva, E., Fialko, Y., Jiang, J., Xu, X., **Sandwell, D.**, Bilham, R., Rockwell, T.K., Blanton, C., Burkett, F., Gontz, A. and Moatipoor, 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.

Abulaitijiang, A., Andersen, O. B., & **Sandwell, D.** (2019). Improved Arctic Ocean bathymetry derived from DTU17 gravity model. *Earth and Space Science*.

DeSanto, J. B., Chadwell, C. D., & **Sandwell, D. T.** (2019). Kinematic Post-processing of Ship Navigation Data Using Precise Point Positioning. *The Journal of Navigation*, 72(3), 795-804.

Garcia, E. S. M., **Sandwell, D. T.**, & Bassett, D. (2019). Outer trench slope flexure and faulting at Pacific basin subduction zones. *Geophysical Journal International*, 218(1), 708-728.

Tozer, B., **Sandwell, D.T.**, Smith, W.H., Olson, C., Beale, J.R. and Wessel, P., 2019. Global bathymetry and topography at 15 arc sec: SRTM15+. *Earth and Space Science*, 6(10), pp.1847-1864.

Klein, E., Bock, Y., Xu, X., **Sandwell, D.T.**, Golriz, D., Fang, P. and Su, L., 2019. Transient deformation in California from two decades of GPS displacements: Implications for a three-dimensional kinematic reference frame. *Journal of Geophysical Research: Solid Earth*, 124(11), pp.12189-12223.

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.

Wittich, Christine E.; Hutchinson, Tara C.; DeSanto, J.; and **Sandwell, D.**, "3-D Reconstructions and Numerical Simulations of Precarious Rocks in Southern California", *Civil Engineering Faculty Publications*. 154. <https://digitalcommons.unl.edu/civilengfacpub/154>, 2018.

Xu, X., Ward, L. A., Jiang, J., Smith-Konter, B., Tymofeyeva, 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.

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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.

Xu, X., **Sandwell**, D. T., Tymofeyeva, E., González-Ortega, A., & Tong, X., Tectonic and anthropogenic deformation at the Cerro Prieto geothermal step-over revealed by Sentinel-1A InSAR. *IEEE Transactions on Geoscience and Remote Sensing*, 55(9), 5284-5292, DOI: 10.1109/TGRS.2017.2704593, 2017.

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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2014

Garcia, E. S., D. T. **Sandwell**, and K. M. Luttrell, An Iterative Spectral Solution Method for Thin Elastic Plate Flexure with Variable Rigidity, *Geophys. J. Int.*, 200, 1012-1028, doi: 10.1093/gji/ggu449, 2014.

Trugman, D. T., A. A. Borsa, and D. T. **Sandwell**, Did Stresses From the Cerro Prieto Geothermal Field Influence the El Mayor-Cucapah Rupture Sequence?, *Geophys. Res. Lett.*, 41, doi:10.1002/2014GL061959, 2014.

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Sandwell, D. T., and W. H. F. Smith, Slope Correction for Ocean Radar Altimetry, *Journal of Geodesy*, DOI 10.1007/s00190-014-0720-1, 2013.

Sandwell, D. T., Book Review: Physical principles of remote sensing: third edition, *Geophysical J. Int.*, doi: 10.1093/gji/ggt314, 2013.

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Sandwell, D., E. Garcia, K. Soofi, P. Wessel, M. Chandler, and W. H. F. Smith, Toward 1-mGal accuracy in global marine gravity from CryoSat-2, Envisat, and Jason-1, *The Leading Edge*, 32(8), 892–899. doi: 10.1190/tle32080892.1, 2013.

Crowell, B. W., Y. Bock, D. T. **Sandwell**, and Y. Fialko, Geodetic investigation into the deformation of the Salton Trough, *J. Geophys. Res. Solid Earth*, 118, 5030–5039, doi:10.1002/jgrb.50347, 2013.

Kaneko, Y., Y. Fialko, D. T. **Sandwell**, X. Tong, and M. Furuya, Interseismic deformation and creep along the central section of the North Anatolian Fault (Turkey): InSAR observations and implications for rate-and-state friction properties, *J. Geophys. Res. Solid Earth*, 118, doi:10.1029/2012JB009661, 2013.

Tong, X., D. T. **Sandwell**, and B. Smith-Konter, High-resolution interseismic velocity data along the San Andreas Fault from GPS and InSAR, *J. Geophys. Res.; Solid Earth*, 118, doi:10.1029/2012JB009442, 2013.

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Meyer, F.J., **Sandwell**, D.T., SAR interferometry at Venus for topography and change detection. *Planetary and Space Science*, <http://dx.doi.org/10.1016/j.pss.2012.10.006>, 2012.

Luttrell, K., and D. **Sandwell**, Constraints on 3-D stress in the crust from support of mid-ocean ridge topography, *J. Geophys. Res.*, 117, B04402, doi:10.1029/2011JB008765, 2012.

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Luttrell, K. M., X. Tong, D. T. **Sandwell**, B. A. Brooks, and M. G. Bevis, Estimates of stress drop and crustal tectonic stress from the 27 February 2010 Maule, Chile, earthquake: Implications for fault strength, *J. Geophys. Res.*, 116, B11401, doi:10.1029/2011JB008509, 2011.

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Tong, X., D. **Sandwell**, K. Luttrell, B. Brooks, M. Bevis, M. Shimada, J. Foster, R. Smalley Jr., H. Parra, J. C. Báez Soto, M. Blanco, E. Kendrick, J. Genrich, and D. J. Caccamise II, The 2010 Maule, Chile earthquake: Downdip rupture limit revealed by space geodesy, *Geophys. Res. Lett.*, 37, L24311, doi:10.1029/2010GL045805, 2010.

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2008

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2006

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