

## **CV for Dr. Laura M. Wallace**

University of Texas Institute for Geophysics, Austin, Texas, USA and GNS Science, Lower Hutt, New Zealand

### **Employment:**

2012-present: Research Scientist (currently Senior Research Scientist level), University of Texas Institute for Geophysics, Austin, Texas, USA

2016-present: Principal Scientist, GNS Science, Lower Hutt, New Zealand

2007-2012: Senior Scientist, GNS Science, Lower Hutt, New Zealand

2002-2007: Research Scientist, GNS Science, Lower Hutt, New Zealand

### **Education:**

2002: PhD, Earth Sciences, University of California at Santa Cruz

1995: B.S., Geology, University of North Carolina-Chapel Hill

**Research Experience:** For the last 20 years, I have undertaken both land- and sea-based geodetic studies to understand plate boundary processes throughout the western Pacific region, including New Zealand, Papua New Guinea, Japan, and the Solomon Islands. I was involved in the early development of New Zealand's national GPS/GNSS and seismic monitoring network (GeoNet), and was responsible for the design of the continuous GNSS network configuration at the Hikurangi subduction zone. Since that time, much of my research has focused on earthquake cycle and slow slip event processes at plate boundary zones in New Zealand, and further afield. In the last several years, I have been making the foray into seafloor geodesy, and led the successful 2014 "HOBITSS" experiment to investigate cm-level seafloor deformation during slow slip events offshore New Zealand. Since that time, I have led several seafloor geodetic experiments to investigate offshore subduction deformation processes using a variety of seafloor geodetic techniques. I also co-led efforts in 2018 to undertake International Ocean Discovery Program (IODP) drilling and borehole observatory installation, to investigate shallow slow slip events offshore New Zealand.

### **Professional Service (Selected):**

2018-2021: Served on the UNAVCO Board of Directors

2019-2020: Served on writing team for framework document for the next 25 years of IODP scientific ocean drilling

2018: Co-chief scientist for IODP Expedition 375 (March-May 2018)

2014-2016: Associate Editor, Journal of Geophysical Research-Solid Earth

2009-present: Member of Tsunami Experts Panel that advises New Zealand Civil Defense in the event of a tsunami threat to New Zealand

2011: Convened and organized IODP workshop "Using IODP drilling to unlock the secrets of slow slip events", Gisborne, New Zealand, August 2011

2009-2010: President of the New Zealand Geophysical Society

### **Distinctions/Honours**

**2018-present:** Fellow of the Royal Society of New Zealand

**2018:** McKay Hammer Award, Geoscience Society of New Zealand

**2012:** Editor's citation for excellence in refereeing, *Geophysical Research Letters*  
**2007, 2012, 2020 :** Editor's citation for excellence in refereeing, *Journal of Geophysical Research-Solid Earth*  
**2005, 2016 2018 & 2019:** New Zealand Geophysics prize (for best paper on New Zealand Geophysics published in the last two years)  
**2015/2016:** Distinguished lecturer for the NSF GeoPrisms Distinguished Lecturer Program  
**2014 & 2015:** Kavli Foundation Frontiers of Science Fellow

**Selected recent publications:**

**Wallace, L.M.** (2020), Slow Slip Events in New Zealand, *Annual Review of Earth and Planetary Sciences* (invited review article), doi.org/10.1146/annurev-earth-0717190055104.

Haines, A. J., & **Wallace, L. M.** (2020). New Zealand-wide geodetic strain rates using a physics-based approach. *Geophysical Research Letters*, 47, <https://doi.org/10.1029/2019GL084606>.

Haines, J., **Wallace, L. M.**, & Dimitrova, L. (2019). Slow slip event detection in Cascadia using vertical derivatives of horizontal stress rates. *Journal of Geophysical Research: Solid Earth*, 124. <https://doi.org/10.1029/2018JB016898>

Warren Smith, E., B. Fry, **L. Wallace**, E. Chon, S. Henrys, A. Sheehan, K. Mochizuki, S. Schwartz, S. Webb, and S. Lebedev (2019), Episodic stress and fluid pressure cycling in subducting oceanic crust during slow slip, *Nature Geoscience*, doi.org/10.1038/s41561-019-0367-x

**Wallace, L. M.**, Hreinsdóttir, S., Ellis, S., Hamling, I., D'Anastasio, E., & Denys, P. (2018). Triggered slow slip and afterslip on the southern Hikurangi subduction zone following the Kaikōura earthquake. *Geophysical Research Letters*, 45. <https://doi.org/10.1002/2018GL077385>

**Wallace, L.M.**, Y. Kaneko, S. Hreinsdottir, I. Hamling, Z. Peng, N. Bartlow, E. D'Anastasio, and B. Fry, 2017, Large-scale dynamic triggering of shallow slow slip enhanced by overlying sedimentary wedge, *Nature Geoscience*, doi: 10.1038/ngeo3021.

**Wallace, L.M.**, S. C. Webb, Y. Ito, K. Mochizuki, R. Hino, S. Henrys, S. Schwartz, A. Sheehan, 2016, Slow slip near the trench at the Hikurangi subduction zone, *Science*, 352(6286), 701-704, doi: 10.1126/science.aaf2349.

**Wallace, L.M.**, E. Araki, D. Saffer, et al., 2016, Near-field observations of an offshore Mw 6.0 earthquake from an integrated seafloor and subseafloor monitoring network at the Nankai Trough, southwest Japan, *J. Geophys. Res.*, 121, doi: 10.1002/2016JB013417.

Beavan, J., **L. Wallace**, N. Palmer, P. Denys, S. Ellis, N. Fournier, S. Hreinsdottir, C. Pearson, M. Denham, 2016, New Zealand GPS velocity field: 1995-2013, *New Zealand J. Geol. Geophys.*, doi: 10.1080/00288306.2015.1112817

**Wallace, L. M.**, S. Ellis, T. Little, P. Tregoning, et al., 2014, Continental breakup and UHP rock exhumation in action: GPS results from the Woodlark Rift, Papua New Guinea, *Geochem. Geophys. Geosyst.*, 15, 4267–4290, 2014.