

WILLIAM C. HAMMOND
Professor of Geodesy and Geophysics

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EDUCATION

Ph.D. University of Oregon, Eugene, Department of Geological Sciences	1994–2000
B.A. Applied Mathematics, University of California, Berkeley	1985–1989

ACADEMIC WORK EXPERIENCE

Professor of Geodesy and Geophysics, Graduate Faculty, Univ. of Nevada, Reno	July 1, 2016–present
Visiting scientist for sabbatical leave, INGV, Rome Italy	February - June, 2019
Associate Professor in Geodesy and Geophysics, Univ. Nevada, Reno	July 1, 2010–June 30, 2016
Assistant Professor in Geodesy and Geophysics, Univ. Nevada, Reno	July 1, 2004–June 30, 2010
Postdoctoral Research Geophysicist, U.S.G.S, Earthquake Hazards Team, Menlo Park	Jan. 2001–June 2004

PROFESSIONAL VOLUNTEER HIGHLIGHTS AND AWARDS

- 2018-present National Academy of Science, member of Board on Earth Sciences and Resources
- 2016-2017 NSF EarthScope Series Speaker
- 2015-2016 Associate Editor Bulletin of the Seismological Society of America
- 2015-2016 AGU Geodesy Section Secretary
- 2013 Editors' Citation for Excellence in Refereeing *Journal of Geophysical Research-Solid Earth*
- 2008-2012 Chair, UNAVCO EarthScope Plate Boundary Observatory Advisory Committee
- 2002 USGS Earthquake Hazards Team STAR Performer Award

EXTERNALLY FUNDED GRANTS AND CONTRACTS

42 projects since 2004, 8 Currently Active. Including PI/Co-PI on projects for NASA, NSF, USGS, DOE.

FORMAL TEACHING EXPERIENCE

Taught UNR GPH 455/655 *Global Geophysics and Geodynamics*
Taught UNR GEOL 701(i), *InSAR Data Processing*
Initiated+Taught new 3 unit course GPH 411/611/701(i), *Geophysical Geodesy*
Initiated+Taught UNR GEOL 701(i), *Western US Tectonic Framework*
As Grad. Teaching Fellow, *Earth Surface Processes and Morph. + Intro. to Geology: Evolving Earth*
Graduate advising committees, 13 students towards Ph.D. and M.S. committees, 2 Ph.D. in progress.

PROFESSIONAL SOCIETIES

American Geophysical Union (since 1994), Seismological Society of America, Geological Society of America, European Geosciences Union, American Association for the Advancement of Science

NARRATIVE OF RESEARCH EXPERIENCE

In my recent research experience I have studied the active deformation of the solid earth, and associated dynamics and geohazards. Most of my research has focused on topics in the western United States, but some have focussed on other continents, or have had global reach. Geodesy allows us to examine currently active processes in the crust and mantle, and these processes connect to numerous other topics in other AGU sections, including tectonophysics, seismology, hydrological sciences, and volcanology. Thus geodesy is a highly interdisciplinary science that addresses society's need to understand natural hazards. With the Nevada Geodetic Laboratory at the University of Nevada, Reno, I currently operate a semi-continuous GPS network in the western Great Basin, whose data have been used to study, for example, active tectonics and earthquakes, uplift of the Sierra Nevada Mountains, geothermal resource potential, and the effects of drought on magmatic systems.

SELECTED PEER REVIEWED PUBLICATIONS

Hammond, W.C. and N. D'Agostino, 2020, GPS Imaging of mantle flow-driven uplift of the Apennines, Italy, in review at *J. Geophys. Res. - Solid Earth*, 2020JB019988.
Johnson, K., W.C. Hammond, R. Burgette, S.T. Marshall, and C.C. Sorlien, 2020, Present-day and long-term uplift across the Western Transverse Ranges of Southern California, *J. Geophys. Res. - Solid Earth*, <https://doi.org/10.1029/2020JB019672>.

- Hamlington, B., et al., 2019, Understanding of contemporary regional sea level change and the implications for the future, *Reviews of Geophysics*, <https://doi.org/10.1029/2019RG000672>.
- Hammond, W.C., C. Kreemer, I. Zaliapin, G. Blewitt, 2019, Drought-triggered magmatic inflation, crustal strain and seismicity near the Long Valley Caldera, Central Walker Lane, *J. Geophys. Res. - Solid Earth*, 124(6), 6072–6091, <https://doi.org/10.1029/2019JB017354>.
- Blewitt, G., W.C. Hammond, C. Kreemer, 2018, Harnessing the GPS data explosion for tomorrow's science applications, *Eos*, 99, <https://doi.org/10.1029/2018EO104623>. Print version *Eos* v. 100, n. 3, pp. 19-22.
- Kreemer, C. W.C. Hammond, G. Blewitt, 2018, A robust estimation of the 3D intraplate deformation of the North American plate from GPS, *J. Geophys. Res. - Solid Earth*, 123, doi: 10.1029/2017JB015257.
- Hammond, W.C., R. Burgette, K. Johnson, G. Blewitt, 2018, Uplift of the Western Transverse Ranges and Ventura area of Southern California: A four-technique geodetic study combining GPS, InSAR, leveling and tide gauges, *Journal of Geophysical Research - Solid Earth*, 122, doi: 10.1002/2017JB014499.
- Hammond, W.C., G. Blewitt, C. Kreemer, 2016, GPS Imaging of vertical land motion in California and Nevada: Implications for Sierra Nevada uplift, *J. Geophys. Res.*, 121, n. 10, p. 7681-7703, doi: 10.1002/2016JB013458.
- Hamlington, B.D., P. Thompson, W.C. Hammond, G. Blewitt, R. Ray, 2016, Assessing the impact of vertical land motion on 20th century global mean sea level estimates, *J. Geophys. Res.-Oceans*, 121, <https://doi.org/10.1002/2016JC011747>.
- Amos, C.B., P. Audet, W. C. Hammond, R. Bürgmann, I. A. Johanson, and G. Blewitt, 2014, Uplift and seismicity driven by groundwater depletion in central California, *Nature*, 509, p. 483-486, doi:10.1038/nature13275.
- Blewitt, G., C. Kreemer, W.C. Hammond, J. Gazeaux, 2016, MIDAS trend estimator for accurate GPS station velocities without step detection, *J. Geophys. Res. Solid Earth*, 121, 2054-2068, doi:10.1002/2015JB012552.
- Bormann, J., W.C. Hammond, C. Kreemer, G. Blewitt, 2016, Accommodation of missing shear strain in the Central Walker Lane, western North America: Constraints from dense GPS measurements, *Earth and Planetary Science Letters*, v. 440, p. 169-177, doi: 10.1016/j.epsl.2016.01.015.
- Melgar, D., J. Geng, B.W. Crowell, J.S. Haase, W.C. Hammond, Y. Bock, R.M. Allen, 2015, Seismogeodesy of the 2014 Mw6.1 Napa, California, Earthquake: Rapid response and modeling of fast rupture on a dipping strike-slip fault, *J. Geophys. Res.*, 120, doi:10.1029/2015JB011921.
- Hammond, W.C., G. Blewitt, C. Kreemer, 2014, Steady contemporary deformation of the central Basin and Range Province, western United States, *J. Geophys. Res.*, 119 p. 5235–5253, doi:10.1002/2014JB011145.
- Hammond, W.C., G. Blewitt, C. Kreemer, 2011, Block modeling of crustal deformation of the northern Walker Lane and Basin and Range from GPS velocities, *J. Geophys. Res.*, v. 116, B04402, doi:10.1029/2010JB007817.
- Hammond, W.C., B. A. Brooks, R. Bürgmann, T. Heaton, M. Jackson, A. R. Lowry, S. Anandakrishnan, 2011, The scientific value of high-rate, low-latency GPS data, *Eos* feature article, v. 92(15), doi:10.1029/2011EO150001, p. 125-132.
- Hammond, W.C., Kreemer, C., Blewitt, G., Plag H.-P., 2010, The effect of viscoelastic postseismic relaxation on estimates of interseismic crustal strain accumulation at Yucca Mountain, Nevada, *Geophys. Res. Lett.*, 37, L06307, doi:10.1029/2010GL042795.
- Hammond, W.C. and W. Thatcher, 2007, Crustal deformation across the Sierra Nevada, Northern Walker Lane, Basin and Range transition, western United States measured with GPS, 2000-2004, *J. Geophys. Res.*, 112, B05411, doi:10.1029/2006JB004625.
- Blewitt, G., C. Kreemer, W.C. Hammond, H.-P. Plag, S.A. Stein, and E. Okal, 2006, Rapid determination of Earthquake magnitude using GPS for Tsunami Warning Systems, *Geophys. Res. Lett.*, 33, L11309, doi:10.1029/2006GL026145.
- Hammond, W.C., 2005, The ghost of an earthquake, *Perspective for Science*, v. 310, p. 1440–1442.
- Hammond, W.C. and W. Thatcher, 2005, Northwest Basin and Range tectonic deformation observed with the Global Positioning System, 1999–2003, *J. Geophys. Res.*, v. 100, no. B10, B10104, doi:10.1029/2005JB003751.
- Hammond, W.C. and W. Thatcher, 2004, Contemporary tectonic deformation of the Basin and Range province, western United States: 10 years of observation with the Global Positioning System, *J. Geophys. Res.*, v. 109, no. B8, 8403, doi:10.1029/2003JB002746.
- Hammond, W.C., and D.R. Toomey, 2003, Seismic velocity anisotropy and heterogeneity beneath the Mantle Electromagnetic and Tomography Experiment (MELT) region of the East Pacific Rise from analysis of P and S body waves, *J. Geophys. Res.*, v. 108, no. B4, 2176, doi:10.1029/2002JB001789.
- Hammond, W.C., and E.D. Humphreys, 2000, Upper mantle seismic wave velocity: The effect of realistic partial melt geometries, *J. Geophys. Res.*, v. 105, p. 10,975–10,986.
- Hammond, W.C., and E.D. Humphreys, 2000, Upper mantle seismic wave attenuation: The effect of realistic partial melt distribution, *J. Geophys. Res.*, v. 105, p. 10,987–10,999.

ABSTRACTS

Over 250 abstracts for professional conferences since 1995, many for AGU Fall and Spring Meetings.