Susan E Owen

EDUCATION:

1998: *Ph. D.*, Geophysics, Stanford University.
1992: *B.A.*, Physics, Harvard-Radcliffe University.

PROFESSIONAL EXPERIENCE:

2004–present: Research Scientist
Jet Propulsion Laboratory, Pasadena, CA

- Principal Investigator/Project Lead for Advanced Rapid Imaging and Analysis team (2010-present)
- Deputy Applications Lead for NISAR mission (2012-present)
- Discipline Program Manager for Solid Earth Science (2015-present)
- Group Supervisor, Earth Surface and Interior Group (2015-2016)
- Deputy Section Manager, Earth Sciences Section (2016-2017)
- Section Manager, Earth Sciences Science (2017-present)

2004-2006: Assistant Research Professor, Geophysics
Department of Earth Sciences, University of Southern California, LA
1999–2004: Assistant Professor of Geophysics
Department of Earth Sciences, University of Southern California, LA
1998-1999: Miller Post-Doctoral Research Fellow
Department of Geology and Geophysics, U.C. Berkeley
1992-1993: Research Geophysicist, U.S. Geological Survey, Menlo Park, CA

PROFESSIONAL MEMBERSHIP & SERVICE:

AGU Geodesy Section President-Elect (2015-6), President (2017-8)
Session Chair, UNAVCO Science Workshop, 2016
EarthScope Steering Committee, Cyberinfrastructure Committee Chair (2013-2015)
UNAVCO Nominations Committee (2011-12)
UNAVCO Board of Directors (2007-10): Vice-Chair (2007), Chair (2008-9)
Guest Lecturer, Caltech, Tectonic Geodesy Class (Prof. Mark Simons) (2011, 2013)
AGU Geodesy Section Secretary (2005-7)
Member, Plate Boundary Observatory (PBO) Standing Committee (2002-6)
Co-convener, UNAVCO Volcano Geodesy Workshop (1999)

SELECTED AWARDS

NASA Group Achievement Award, 2014, 2016
Research Poster Conference Award from JPL OCS and OCT (2011, 2013)
Zumberge Fellow, USC (1999-2000)
Lieberman Fellowship, Stanford University (1996-7)

RECENT INVITED PRESENTATIONS:

"*The Advanced Rapid Imaging and Analysis (ARIA) Project: Status of SAR products for Earthquakes, Floods, Volcanoes and Groundwater-related Subsidence*", Invited Talk, Fall AGU Meeting, December 2017, New Orleans
"*GNSS H2O: Expanding Reflection Research to the Global GNSS Network For*

Measuring the Water Cycle", Invited Talk, 2016 IGS Workshop, February 2016, Sydney, Australia

"*The Advanced Rapid Imaging and Analysis (ARIA) Project's Response to the April 25, 2015 M7.8 Nepal Earthquake: Rapid Measurements and Models for Science and Situational Awareness*", Invited Talk, Fall AGU Meeting, December 2015, San Francisco

"*Using SAR and GPS for Hazard Management and Response: Progress and Examples from the Advanced Rapid Imaging and Analysis (ARIA) Project*", Invited Talk, Fall AGU Meeting, December 2014, San Francisco

"*JPL Response to August 24, 2014 South Napa Earthquake*", California Seismic Safety Commission, October, 2014.

Keynote Speaker for "International Symposium on Geodesy for Earthquake and Natural Hazards", Miyagi, Japan, July 2014

Keynote Speaker for "Seismology from Space: Geodetic Observations and Early Warning of Earthquakes", Royal Astronomical Society, London, May 2014.

Speaker for Plenary Session "Mixing it up: Geodesy, seismology and real-time monitoring: seismic data; GPS & InSAR, High-rate GPS", UNAVCO Science Workshop, Broomfield, CO, March 2014.

Panel Speaker/Presentation for "Saving More Lives through Science and Technology", National Homeland Security Conference, Los Angeles, June 2013

"Geodetic Imaging Products for Earthquake Modeling and Response from the JPL/Caltech Advanced Rapid Imaging and Analysis (ARIA) Project, Invited Talk, Seismological Society of America Meeting, Salt Lake City, April 2013

REPORTS & COMMUNITY DOCUMENTS:

Jones, C., Owen, S., Stavros, NISAR Utilization Plan, May 2018

2015 NISAR Applications Workshop: Applications Community Suggestions for Developing an Applications Plan, Chair of Writing Committee, June 2016.

Kedar, S., Owen, S., "Select Technologies and Capabilities to Improve Earthquake Resiliency in California", Report Prepared by the Jet Propulsion Laboratory, California Institute of Technology, NASA, for California Seismic Safety Commission, May, 2016.

Davis, J. L., L. H. Kellogg, J. R. Arrowsmith, B. A. Buffett, C. G. Constable, A. Donnellan, E. R. Ivins, G. S. Mattioli, S. E. Owen, M. E. Pritchard, M. E. Purucker, D. T. Sandwell, and J. Sauber (2016), Challenges and Opportunities for Research in ESI (CORE): Report from the NASA Earth Surface and Interior (ESI) Focus Area Workshop, November 2–3, 2015, Arlington, Virginia, xx pp., doi: TBD.

2014 NISAR Applications Workshop: Linking Mission Goals to Societal Benefit. Workshop Report, Co-Chair of Writing Committee, May 2015.

Davis, J., Y. Fialko, W.E. Holt, M.M. Miller, S.E. Owen, M.E. Pritchard (Eds.), "A Foundation for Innovation: Grand Challenges in Geodesy, Report from the Long-Range Science Goals for Geodesy Community Workshop, UNAVCO, Boulder, Colorado, 2012, 79 pp.

Williams, M.L., K.M. Fischer, J.T. Freymueller, B.Tikoff, A.M.Tréhu, and others, "Unlocking the Secrets of the North American Continent: An EarthScope Science Plan for 2010-2020, February, 2010, 78 pp.

RECENT GRANTS (SINCE 2011):

ROSES17 ESI, “Geodetic Imaging of Large SAR Data Sets using NASA HEC Resources”, PI, Jan 2018, 3 years, $726K

ROSES16 GEO, “Global Rapid Flood Mapping System with Spaceborne SAR Data”, Co-I (PI Yun), Jan 2018, 3 years, $547K

ROSES16 GEO, “SAR-CBC: A Capacity Building Center for the Use of SAR in Decision Making”, Co-I (PI Meyer, UAF), Jan 2018, 3 years, $134K JPL Budget

Strategic Research & Technology Development, “Linkages in Earth Science: Solid-Earth-Hydrosphere”, Co-I, 2017, $750K

“Get Ready for NISAR: ARIA Prototype SDS for NISAR using Sentinel-1A/B”, NASA EOSDIS Unsolicited proposal, Co-I (PI Hua), Sept. 2016, 2 years, $2,187K

“Advanced Rapid Imaging and Analysis”, KACST/Caltech Center of Excellence, KACST, 2 years (June 2016-May 2018), $700K to JPL

ROSES16 ESI, “Unraveling earthquake cycle processes using geodetic observations”, Co-I (PI Bekaert), 3 years, $594K

ROSES15 ESI, “Subduction zone faulting processes constrained by space geodetic observations”, Co-I (PI Liu), 3 years, $583K
ROSES15 ESI, “Imaging Fault Slip Before, During and After Earthquakes”, Co-I, (PI Fielding), 3 years, $720K.
ROSES15 ESI, “Volcano transient source processes constrained by InSAR and in situ observations”, Co-I (PI Lundgren), 1 year, $200K.

CA Seismic Safety Commission: “JPL Earthquake Resiliency Project: Pilot Project/Phase 1”, submitted in September, 2014, voted on by the commission in October, 2014. PI/Task Manager, $50K**.**

ROSES14 AIST, “AMIGHO: Automated Metadata Ingest for GNSS Hydrology within OODT”, Institutional PI (PI K. Larson at CU Boulder), 2 years, $681K to JPL.
ROSES14 AIST, “Agile Big Data Analytics of High-Volume Geodetic Data Products for Improving Science and Hazard Response”, Co-I (PI Hua), 2 years, $1.3M.

President and Director’s Fund. "The Advanced Rapid Imaging and Analysis (ARIA) Co-Laboratory for Natural Hazards Research", JPL PI, 2014-2015, 2 years (2 proposals). $700K total to JPL.

ROSES13 ESI, "Advanced Rapid Imaging and Analysis of Natural Hazards", PI, 3 years, $506K.

ROSES12 MEASURES, “Solid Earth Science ESDR System”, Co-I (PI Bock, Scripps), 5 years, $3.0M

ROSES11 Earth Science Applications: Disasters, “Rapid Earthquake Products from Analysis & Imaging for Response (REPAIR)”, PI Owen, 1 year, $146K.

ROSES11 AIST, “Advanced Rapid Imaging and Analysis – Monitoring Hazards”, Co-I (PI Hua), 3 years, $1.5M

Research & Technology Development, “The Advanced Rapid Imaging and Analysis (ARIA) Co-laboratory for Natural Hazards Research”, PI, 2011-2013, 3 years (1 initial proposal, 2 renewal proposals, $1.7M

REFEREED PUBLICATIONS:

Marshall, S., Funning, G., Krueger, H., Owen, S., Loveless, J., “Mechanical models favor a ramp geometry for the Ventura-pitas point fault, California”, Geophysical Research Letters, February 2017.

Yue, H., Simons, M., Duputel, Z., Jiang, J., Fielding, E., Liang, C., Owen, S., Moore, A., Riel, B., Ampuero, J., and Samsonov, S., “Depth varying rupture properties during the 2015 Mw 7.8 Gorkha (Nepal) earthquake”, Tectonophysics, July 2016

Martens, H.R., M. Simons, S. Owen, L. Rivera, “Observations of Ocean Tidal Load Response in South America from Sub-daily GPS Positions”, Geophys. J. Intl., March 2016.

Duputel, Z., Jiang, J., Jolivet, R., Simons, M., Rivera, L., Ampuero, J.P., Riel, B., Owen, S.E., Moore, A.W., Samsonov, S.V. and Ortega Culaciati, F., 2015. The Iquique earthquake sequence of April 2014: Bayesian modeling accounting for prediction uncertainty. Geophysical Research Letters, 42(19), pp.7949-7957.

Yun, S.H., Hudnut, K., Owen, S., Webb, F., Simons, M., Sacco, P., Gurrola, E., Manipon, G., Liang, C., Fielding, E. and Milillo, P., 2015. Rapid Damage Mapping for the 2015 Mw 7.8 Gorkha Earthquake Using Synthetic Aperture Radar Data from COSMO–SkyMed and ALOS-2 Satellites. Seismological Research Letters, 86(6), pp.1549-1556.

Galetzka, J., D. Melgar, J. F. Genrich, J. Geng, S. Owen, E. O. Lindsey, X. Xu et al. "Slip pulse and resonance of the Kathmandu basin during the 2015 Gorkha earthquake, Nepal." Science 349, no. 6252 (2015): 1091-1095.

Liu, Z., A W. Moore, S. Owen, “Recurrent slow slip event reveals the interaction with seismic slow earthquakes and disruption from large earthquake” Geophysical Journal International 2015 202 (3): 1555-1565, doi: 10.1093/gji/ggv238.

Minson, Sarah E., Benjamin A. Brooks, Craig L. Glennie, Jessica R. Murray, John O. Langbein, Susan E. Owen, Thomas H. Heaton, Robert A. Iannucci, and Darren L. Hauser. "Crowdsourced earthquake early warning." Science Advances 1, no. 3 (2015): e1500036.

Fielding, E., M. Simons, S. Owen, P. Lundgren, H. Hua, P. Agram, Z. Liu et al., Rapid Imaging of Earthquake Ruptures with Combined Geodetic and Seismic Analysis. Procedia Technology 16 (2014): 876-885.

Liu, Z., Owen, S., & Moore, A., “Rapid Estimate and Modeling of Permanent Coseismic Displacements for Large Earthquakes Using High-Rate Global Positioning System Data”, Seism. Res. Lett., 85(2), 284-294, 2014.

Protti, Marino, Victor González, Andrew V. Newman, Timothy H. Dixon, Susan Y. Schwartz, Jeffrey S. Marshall, Lujia Feng, Jacob I. Walter, Rocco Malservisi, and Susan E. Owen.

"Nicoya earthquake rupture anticipated by geodetic measurement of the locked plate interface." Nature Geoscience 7, no. 2 (2014): 117-121.

Minson, S. E., M. Simons, J. L. Beck, F. Ortega, J. Jiang, S. E. Owen, A. W. Moore, A. Inbal, and A. Sladen. "Bayesian inversion for finite fault earthquake source models–II: the 2011 great Tohoku-oki, Japan earthquake." Geophysical Journal International 198, no. 2 (2014): 922-940.

Fielding, E. J., Lundgren, P. R., Taymaz, T., Yolsal- Çevikbilen, S., & Owen, S. E., Fault- Slip Source Models for the 2011 M 7.1 Van Earthquake in Turkey from SAR Interferometry, Pixel Offset Tracking, GPS, and Seismic Waveform Analysis. Seismological Research Letters, 84(4), 579-593, 2013.

Yue, H., Lay, T., Schwartz, S., Rivera, L., Protti, M., Dixon, T., Owen, S. The 5 September 2012 Costa Rica Mw 7.6 earthquake rupture process from joint inversion of high-rate GPS, strong-motion, and teleseismic P wave data and its relationship to adjacent plate boundary interface properties, Journal of Geophysical Research: Solid Earth, revisions submitted, 2013.

Marshall, S., Funning, G., Owen, S., Fault Slip Rates and Interseismic Deformation in the Western Transverse Ranges, California, *J. Geophys. Res.*, Vol. 118, doi:10.1002/jgrb.50312, 2013.

Wei, S., Helmberger, D., Owen, S., Graves, R. W., Hudnut, K. W., & Fielding, E. J., Complementary slip distributions of the largest earthquakes in the 2012 Brawley swarm, Imperial Valley, California, *Geophys. Res. Lett*., Vol. 40, 5, pp 847-852, 2013.

Lundgren, P., Poland, M., Miklius, A., Orr, T., Yun, S. H., Fielding, E., Liu, Z., Tanaka, A., Szeliga, W., Hensley, S., & Owen, S., Evolution of dike opening during the March 2011 Kamoamoa fissure eruption, Kīlauea Volcano, Hawai‘i. *J. Geophys. Res*, 118, 897–914, doi:10.1002/jgrb.50108, 2013.

Pritchard, M., Owen, S., Anandakrishnan, S., Holt, W., Bennett, R., La Femina, P., P. Jansma, I. MacGregor, C. Raymond, S. Schwartz, S. Stein, M. Miller. Open access to geophysical data sets requires community responsibility. Eos, Transactions American Geophysical Union, 93(26), 243-243, 2012.

Miklius, A., Cervelli, P., Sako, M., Lisowski, M., Owen, S., Segall, P., Foster, J., Kamibayashi, K., and Brooks, B, Global positioning system measurements on the island of Hawai'i: 1997 through 2004. BiblioGov, 2013.

Reuveni, Y., S. Kedar, S. E. Owen, A. W. Moore, and F. H. Webb, Improving sub-daily strain estimates using GPS measurements, *Geophys. Res. Lett*., 39, L11311, doi:10.1029/2012GL051927, 2012.

Simons, M., Minson, S. E., Sladen, A., Ortega, F., Jiang, J., Owen, S. E., Meng, L., Ampuero, J-P., Wei, S., Chu, R., Helmberger, D., Kanamori, H., Hetland, E., Moore, A., Webb, F. H. The 2011 magnitude 9.0 Tohoku-Oki earthquake: Mosaicking the megathrust from seconds to centuries. *Science*, *332* (6036), 1421-1425, 2011.

Baxter, S., S. Kedar, J. Parker, F. Webb, S. Owen, A. Sibthorpe, D. Dong, Limitations of strain estimation techniques from discrete deformation observations, *Geophys. Res. Letters*, vol. 38, L01305, 5PP., doi:10.1029/2010GL046028, 2011.

Liu, Z., S. Owen, D. Dong, P. Lundgren, F. Webb, E. Hetland and M. Simons, Estimation of interplate coupling in the Nankai trough, Japan using GPS data from 1996 to 2006, *Geophys. J. Int*., doi: 10.1111/j.1365-246X.2010.04600.x, 2010.

Liu, Z., S. Owen, D. Dong, P. Lundgren, F. Webb, E. Hetland and M. Simons, Integration of transient strain events with models of plate coupling andareas of great earthquakes in southwest Japan, *Geophys. J. Int*., doi: 10.1111/j.1365-246X.2010.04599.x0371-9, 2010.

Argus, D., Gordon, R., Heflin, M., Ma, C., Eanes, R., Willis, P., Peltier, R., Owen, S., The angular velocities of the plates and the velocity of Earth’s centre from space geodesy, *Geophys. J. Int*, 180(3):916-960. DOI: 10.1111/j.1365-246X.2009.04463.x, 2010.

Bertiger, W., Desai, S., Haines, B., Harvey, N., Moore, A., Owen, S., and Webb, F., Single Receiver Phase Ambiguity Resolution with GPS Data, *Journal of Geodesy*, Vol 84, 5, pp 327-337, 2010.

Wu, X., Heflin, M., Schotman, H., Vermeersen, B., Dong, D., Gross, R., Ivins, E., Moore, A., Owen, S., Global Estimation of present-day surface mass trend and glacial isostatic adjustment, *Nature Geoscience*, 3, 642-646, doi:10.1038/ ngeo938, 2010.

Marshall, S.T., Cooke, M.L., Owen, S.E., Interseismic deformation associated with three-dimensional faults in the greater Los Angeles region, California, *J. Geophys. Res*., 114, B12403, doi:10.1029/2009JB006439, 2009.

Marshall, S.T., Cooke, M.L., and Owen, S.E., "Effects of Non-Planar Fault Topology and Mechanical Interaction on Fault Slip Distributions in the Ventura Basin, CA", *BSSA*, Vol. 98, No. 3, pages 1113-1127, 2008.

Owen, S. and R. Bürgmann, An increment of volcano collapse: Kinematics of the 1975 Kalapana, Hawaii, earthquake, *Journal of Volcanology and Geothermal Research*, Vol 150, 1-3, p. 163, 2006.

Poland, M., R. Bürgmann, D. Dzurisin, M. Lisowski, T. Masterlark, S. Owen and J. Fink, Constraints on the mechanism of long-term, steady subsidence at Medicine Lake volcano, northern California, from GPS, leveling, and InSAR, *Journal of Volcanology and Geothermal Research*, Vol 150, 1-3, p. 55, 2006.

Owen, S., G. Anderson, D.C. Agnew, H. Johnson, K. Hurst, R. Reilinger, Z.-K. Shen, J. Svarc, and T. Baker, Early Postseismic Deformation from the Mw7.1 Hector Mine Earthquake as Measured by Survey Mode GPS, *BSSA*, Vol. 92, No. 4, pages 1423-1432, 2002.

Agnew, D. C., S. Owen, Z.K. Shen, G. Anderson, J. Svarc, H. Johnson, K. Austin, and R. Reilinger, Coseismic displacements from the Hector Mine, California, earthquake: Results from survey-mode Global Positioning System measurements. *BSSA*, Vol. 92, No. 4, pages 1355-1364, 2002.

Segall, P., P. Cervelli, S. Owen, M. Lisowski, A. Miklius, Constraints on Dike Propagation from Continuous GPS Measurements, *Journal of Geophysical Research*, 106, no. 9, 19,301-19,317, 2001.

Cannon, E., R. Bürgmann, S. Owen, Shallow Normal Faulting and Block Rotation Associated with the 1975 Kalapana Earthquake, Kilauea Volcano, Hawaii, *BSSA*, Vol. 91, No. 6, pages 1553-1562, 2001.

Larson, K., P. Cervelli, M. Lisowski, A. Miklius, P. Segall, S. Owen, Volcano Monitoring using Kinematic GPS, I: Filtering Strategies, *Journal of Geophysical Research*, 106, no. 9, pages 19,453-19,464, 2001.

Owen, S., P. Segall, M. Lisowski, A. Miklius, M. Murray, M. Bevis, J. Foster, The January 30th Eruptive Event on Kilauea as Monitored by Continuous GPS, *Geophysical Research Letters*, Vol. 27, No. 17, p. 2757-60, 2000.

Owen, S., P. Segall, M. Lisowski, A. Miklius, R. Denlinger, J. Freymueller, T. Arnadottir, M. Sako, Rapid deformation of Kilauea volcano: GPS measurements between 1990 and 1996, *Journal of Geophysical Research*, Vol., 105, No. B8, p. 18,983-98, 2000.

Owen, S., P. Segall, J. Freymueller, A. Miklius, R. Denlinger, T. Arnadottir, M. Sako, R. Bürgmann, Rapid Deformation of the South Flank of Kilauea Volcano, Hawaii, *Science*, Vol. 267, No 5205, p. 1328-32, 1995.