SCOTT THOMAS MARSHALL

Department of Geological and Environmental Sciences
Appalachian State University
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EDUCATION

Ph.D. Geosciences: University of Massachusetts Amherst 2008
Dissertation: "Deformation Associated with Faulting within Interseismic and Geologic Timescales"

M.S. Geology: University of Idaho 2004
Thesis: "Growth Mechanics and Morphologic Evolution of Cycloids on Europa"

B.S. Geological Sciences: Wright State University 2001
Thesis: "An Analysis of Heterogeneity in the Miami Valley Aquifer near the Confluence of the Mad and Miami Rivers; Dayton, Ohio"

PROFESSIONAL EXPERIENCE

Professor: Appalachian State University, Boone, NC 2019-Present
Associate Professor: Appalachian State University, Boone, NC 2014-2019
Assistant Professor: Appalachian State University, Boone, NC 2008-2014
Geophysics, satellite geodesy, fault mechanics, neotectonics, and near-surface geophysics

Postdoctoral Researcher: University of Massachusetts Amherst 2008
Development of 3D models of southern California with heterogeneous rock stiffness

Research Assistant: Geosciences Department, University of Massachusetts Amherst 2004-2008
Numerical modeling of faulting at geologic and interseismic timescales in California and Nevada

Research Assistant: Department of Geology, University of Idaho 2002-2004
Mechanics of curved fracture formation on Jupiter's icy moon, Europa, using satellite imagery

Computer Technician: CCB Computers, Dayton, Ohio 2001-2002
Design, construction, and repair of personal computers, workstations, and laptop computers

PEER-REVIEWED PUBLICATIONS*

*BOLD INDICATES A STUDENT AUTHOR

Johnson, K.M., Hammond, W.C., Burgette, R.J., Marshall, S.T., Sorlien, C.C. (2020). Present-day and long-term Uplift across the Western Transverse Ranges of southern California. Journal of Geophysical Research, Vol. 125, e2020JB019672. https://doi.org/10.1029/2020JB019672.

Hughes, A., Bell, R.E., Mildon, Z.K., Rood, D.H., Whittaker, A.C., Rockwell, T.K., Levy, Y., DeVecchio, D.E., Marshall, S.T., Nicholson, C. (2020). Three-dimensional structure, ground rupture hazards, and static stress models for complex non-planar thrust faults in the Ventura basin, southern California. Journal of Geophysical Research, Vol. 125, e2020JB019539. https://doi.org/10.1029/2020JB019539.

Dorsett, J.H., Madden, E.H., Marshall, S.T., Cooke, M.L., (2019). Mechanical models suggest fault linkage through the Imperial Valley, California, USA. Bulletin of the Seismological Society of America, Vol 109, No. 4, pp. 1217-1234, https://doi.org/10.1785/0120180303.

Beyer, J., Cooke, M.L., Marshall, S.T. (2018). Sensitivity of deformation to activity along the Mill Creek and Mission Creek strands of the southern San Andreas Fault. Geosphere, Vol. 14, No. 6, https://doi.org/10.1130/GES01666.1.

Hughes, A., Rood, D.H., Whittaker, A.C., Bell, R.E., Rockwell, T.K., **Levy, Y.**, Wilcken, K.M., Corbett, L.B., Bierman, P.R., DeVecchio, D.E., Marshall, S.T., Gurrola, L.D., Nicholson, C. (2018). Geomorphic evidence for the geometry and slip rate of a young, low-angle thrust: Implications for hazard assessment and fault interaction in complex tectonic environments. Earth and Planetary Science Letters, Vol. 504, pp. 198-210, https://doi.org/10.1016/j.epsl.2018.10.003.

Zimmer, B., Liutkus-Pierce, C., Marshall, S.T., Hatala, K.G., Metallo, A., Rossi, V. (2018). Using differential structure-from-motion photogrammetry to quantify erosion at the Engare Sero footprint site, Tanzania. Quaternary Science Reviews, Vol. 198, https://doi.org/10.1016/j.quascirev.2018.07.006.

Resor, P.G., Cooke, M.L., Marshall, S.T., Madden, E.H. (2018). Influence of fault geometry on the spatial distribution of long-term slip with implications for determining representative fault-slip rates. Bulletin of the Seismological Society of America, Vol. 108, No. 4, pp. 1837-1852, https://doi.org/10.1785/0120170332.

Marshall, S.T, Funning, G.J., **Krueger, H.E.**, Owen, S.E., Loveless, J.P. (2017). Mechanical models favor a ramp geometry for the Ventura-Pitas Point fault, California. Geophysical Research Letters, Vol. 44, pp. 1311-1319, https://doi.org/10.1002/2016GL072289.

Herbert, J.W., Cooke, M.L., Marshall, S.T. (2014). Influence of fault connectivity on slip rates in southern California: Potential impact on discrepancies between geodetic derived and geologic slip rates. Journal of Geophysical Research, Vol. 119, pp. 2342–2361, https://doi.org/10.1002/2013JB010472.

Marshall, S.T., Funning, G. J., Owen, S.E. (2013). Fault slip rates and interseismic deformation in the western Transverse Ranges, California. Journal of Geophysical Research, Vol. 118, p. 4511-4534, https://doi.org/10.1002/jgrb.50312.

Marshall, S.T., **Morris, A.C.** (2012). Mechanics, Slip Behavior, and Seismic Potential of Corrugated Dip-Slip Faults. Journal of Geophysical Research, Vol. 117, B03403, https://doi.org/10.1029/2011JB008642.

Marshall, S.T., Kattenhorn, S.A., and Cooke, M.L. (2010). Secondary normal faulting in the Lake Mead fault system and implications for regional fault mechanics. *in* Umhoefer, P.J., Beard, L.S., and Lamb, M.A., eds., Miocene Tectonics of the Lake Mead Region, Central Basin and Range: Geological Society of America Special Paper 463, pp. 289–310, https://doi.org/10.1130/2010.2463(13).

Marshall, S.T., Cooke, M.L., and Owen, S.E. (2009). Interseismic deformation associated with three-dimensional faults in the greater Los Angeles region, California. *Journal of Geophysical Research.* Vol. 114, B12403, https://doi.org/10.1029/2009JB006439.

Marshall, S.T., Cooke, M.L., and Owen, S.E. (2008). Effects of non-planar fault topology and mechanical interaction on fault slip distributions in the Ventura Basin, CA. *Bulletin of the Seismological Society of America.* Vol. 98, No. 3, pp. 1113-1127 https://doi.org/10.1785/0120070159.

Meigs, A., Cooke, M.L., and Marshall, S.T. (2008). Using vertical rock uplift patterns to constrain the three-dimensional fault configuration in the Los Angeles Basin. *Bulletin of the Seismological Society of America,* Vol. 98, No. 2, pp. 106-123 https://doi.org/10.1785/0120060254.

Cooke, M.L., and Marshall, S.T. (2006). Fault slip rates from three-dimensional models of the Los Angeles metropolitan area, California, *Geophysical Research Letters,* Vol. 33, L21212, https://doi.org/10.1029/2006GL027850.

Kattenhorn, S.A., and Marshall, S.T. (2006). Fault induced perturbed stress fields and associated tensile and compressive deformation at fault tips in the ice shell of Europa: implications for fault mechanics. *Journal of Structural Geology*, Vol. 28, pp. 2204-2221 https://doi.org/10.1016/j.jsg.2005.11.010.

Marshall, S.T., and Kattenhorn, S.A. (2005). A revised model for cycloid growth mechanics on Europa: evidence from surface morphologies and geometries. *Icarus*, Vol. 177, pp. 341-366 https://doi.org/10.1016/j.icarus.2005.02.022.

RESEARCH GRANTS

2021-2022 Southern California Earthquake Center $49,249
"Enhancements to the Community Fault Model (CFM) and its IT infrastructure to support SCEC science"
Co-PI's: John Shaw, Andreas Plesch (Harvard Univ), Philip Maechling (Univ Southern California)

2021-2022 Southern California Earthquake Center $34,658
"Using focal mechanisms within regions of off-fault deformation to constrain active fault configuration of the southern San Andreas fault"
Co-PI's: Michele Cooke (University of Massachusetts), Jack Loveless (Smith College)

2020-2021 Southern California Earthquake Center $47,828
"Enhancements to the Community Fault Model (CFM) and its IT infrastructure to support SCEC science"
Co-PI's: John Shaw, Andreas Plesch (Harvard Univ), Philip Maechling (Univ Southern California)

2020-2021 Southern California Earthquake Center $32,538
"Using focal mechanisms within regions of off-fault deformation to constrain active fault configuration of the southern San Andreas fault"
Co-PI's: Michele Cooke (University of Massachusetts), Jack Loveless (Smith College)

2019-2020 Southern California Earthquake Center $40,000
"Providing infrastructure for the Community Fault Model (CFM) to support SCEC science, community model development, and hazard assessment"
Co-PI's: John Shaw, Andreas Plesch (Harvard Univ), Philip Maechling (Univ Southern California)

2019-2020 Southern California Earthquake Center $24,000
"Sensitivity of regional interseismic deformation to variations in active fault configuration of the southern San Andreas fault and San Jacinto faults."
Co-PI: Michele Cooke (University of Massachusetts)

2019-2020 Southern California Earthquake Center $20,000
"Testing Structural Model Predictions Against Geodetic Data in the Western Transverse Ranges, Southern California."
Co-PI's: Thomas Rockwell (San Diego State University)

2018-2019 Southern California Earthquake Center $28,000
"Test of a new automated method for remeshing the CFM for use by earthquake simulators."
Co-PI's: Terry Tullis (Brown Univ), Michael Barall (Invisible Software), Christine Goulet (USC), John Shaw (Harvard), Keith Richards-Dinger (UCR)

2017-2018 Southern California Earthquake Center $12,000
"Workshop to Plan for Creating an Updatable Version of the CFM for use by Earthquake Simulators"
Co-PI's: Terry Tullis (Brown Univ) Michael Barall (Invisible Software), James Deiterich (UCR), Edward Field (USGS)

2016-2017 Southern California Earthquake Center $14,000
"Role of fault geometry on the spatial distribution of the slip budget"
Co-PI's: Phillip Resor (Wesleyan University), Michele Cooke & Elizabeth Madden (University of Massachusetts)

2016-2017 Southern California Earthquake Center $25,000
"High Resolution Geodetic Measurements of Deformation throughout the Ventura Special Fault Study Area"
Co-PI's: Gareth Funning (University of California Riverside), Susan Owen (Jet Propulsion Laboratory)

2016-2017 Southern California Earthquake Center $15,000
"Ventura Special Fault Study Area Workshop"
Co-PI's: James Dolan (USC), Thomas Rockwell (SDSU), John Shaw (Harvard)

2015-2016 Southern California Earthquake Center $25,000
"Role of fault geometry on the spatial distribution of the slip budget"
Co-PI's: Phillip Resor (Wesleyan University), Michele Cooke & Elizabeth Madden (University of Massachusetts)

2015-2016 Southern California Earthquake Center $24,000
"High Resolution Geodetic Measurements of Deformation throughout the Ventura Special Fault Study Area"
Co-PI's: Gareth Funning (University of California Riverside), Susan Owen (Jet Propulsion Laboratory)

2014-2015 Southern California Earthquake Center $20,000
"Using Mechanical Models to Test Ventura Special Fault Study Area Alternative Fault Models"
Co-PI's: Gareth Funning (University of California Riverside), Susan Owen (Jet Propulsion Laboratory)

2014 North Carolina Space Grant Consortium $6,000
"Using Interferometric Synthetic Aperture Radar (InSAR) to Quantify Surface Deformation Patterns in Southern California"
Funded summer graduate assistantship for a graduate student in the Department of Physics and Astronomy, ASU

2013-2015 Southern California Earthquake Center $18,000
"Using Mechanical Models to Test Community Fault Model Updates to the Western Transverse Ranges Region, CA: Application to the Ventura Special Fault Study Area"
Co-PI's: Gareth Funning (University of California Riverside), Susan Owen (Jet Propulsion Laboratory), John Shaw (Harvard University)

2011-2012 Southern California Earthquake Center $25,000

"Characterizing Non-tectonic and Interseismic Deformation in the Ventura Basin Region, CA"

Co-PI's: Gareth Funning (University of California Riverside), Susan Owen (Jet Propulsion Laboratory)

2010 North Carolina Space Grant Consortium $4,000

"Mechanics, Slip Behavior, and Seismic Potential of Corrugated Reverse Faults"

Funded summer graduate assistantship for a graduate student in the Department of Physics and Astronomy, ASU

2010-2011 Southern California Earthquake Center $20,000

"Geologic, Interseismic, and Non-tectonic Deformation in the Ventura Region, CA"

Co-PI's: Gareth Funning (University of California Riverside), Susan Owen (Jet Propulsion Laboratory)

COURSES REGULARLY TAUGHT

GLY3455/ENV3455: Quantitative Data Analysis for Earth and ENV Scientists ..... Lecture & Lab

An introduction to processing, visualizing, and interpreting quantitative Earth and environmental science data using the scientific computing language, MATLAB. Topics covered include: scripting, functions, loops, conditionals, data types, vector operations, applications of differentiation, interpolation, curve fitting, image processing, and 3D data visualization.

GLY3160/PHY3160: Introduction to Geophysics ..... Lecture & Lab

An introduction to the application of physics and mathematics to study geologic structures and processes including: data processing, seismology, earthquakes, tectonophysics, seismic reflection, seismic refraction, gravity, and electrical methods.

GLY1101: Introduction to Physical Geology ..... Lecture & Lab

An introduction to geology and geologic processes including: formation of the Earth, its inner structure, movement of tectonic plates, the materials that make up our planet, the various landscapes on the surface, and the way the planet has changed through time.

GLY5530/GLY3500: Geomechanics & Deformation Tensors ..... Lecture

An introduction to the assessment of rock strength and the mechanical criteria used to predict and analyze rock deformation and failure. The concept of tensor quantities (e.g. stress/strain) are mathematically described in detail.

GLY3530: Geospatial Visualization and Scripting..... Hybrid Lecture/Lab

An introduction to automating the visualization of geospatial data using Linux-based Bash scripting and the open-source Generic Mapping Tools software package. The course focuses on automating the processing of Digital Elevation Models (DEM), plotting spatial data, and visualizing three-dimensional data.

COMPUTATIONAL EXPERIENCE

Multi-Platform System Administrator

Building/Repairing/Maintaining custom Linux/Windows workstations and servers for research tasks

Installation and maintenance of Linux/UNIX, Windows, and Mac OS (including RAID arrays)

Multi-user system administration: including LAN/WAN ssh and sftp servers

bash/sh, tcsh/csh, and Perl scripting to automate system tasks

Programming Experience

Perl, MATLAB, bash/sh, tcsh/csh, Maple, C, Java, XHTML, CSS

Modeling Experience

Boundary Element Method - Poly3D, Fric2D

Finite Element Method - Comsol

Analytical Modeling - MATLAB, Maple, Perl

Visualization and Mapping Software Experience

Generic Mapping Tools (GMT), MATLAB, Midland Valley Move, Creation of interactive 3D pdf files, Adobe Illustrator, Adobe Photoshop, Google Earth (kml file generation and visualization)

FIELD EXPERIENCE

Land of Fire and Ice: The Geology of Iceland 2014-Present
A two-week field geology course (offered as GLY1103) taught in the second summer session that covers the geology of Iceland including glaciers, floods, volcanoes, earthquakes, and basic field geology. Co-led with Brian Zimmer (ASU).

Near-Surface Geophysical Surveying at the ASU Greenway Park 2009-Present
DC Resistivity, Ground-Penetrating Radar (GPR), Seismic Refraction of the New River flood plain in Boone, NC

Near-Surface Geophysical Surveying at Ingleside Plantation, NC 2017-2019
DC Resistivity and Ground-Penetrating Radar (GPR) surveying to identify buried infrastructure at the plantation site located in Ingleside, NC, in collaboration with Ellen Cowan (ASU)

Near-Surface Geophysical Surveying in Ashe County, NC 2010-2012
DC Resistivity and Ground-Penetrating Radar (GPR) of fluvial terraces in Ashe County, NC, in collaboration with Ellen Cowan (ASU)

Near-Surface Geophysical Surveying of Placerias Quarry, AZ 2012-2013
DC Resistivity and Seismic Refraction in NE Arizona, in collaboration with Andrew Heckert (ASU)

Field Trip Co-Leader / Outreach Experience: SOAR-High Collaboration 2005-2008
Teaching structural geology to deaf high school students using American Sign Language

Field Trip Leader: GEO-101 Field Trip: The Berkshire Mountain Belt 2007
A 1-day required field trip for all students in GEO-101 at UMass

Paleomagnetism Field Work (Spanish Pyrenees) 2006
Detrital paleomag sample collection. Competent in spoken and written Castilian Spanish

Field Trip Leader: UMass Amherst 2006
The Taconic Orogeny and Faults of NW Vermont: 1-Day Undergraduate-Level Trip

Lake Mead Fault System, Nevada Field Work 2003
Field-based study of secondary fracturing at multiple scales. Fracture, fault, and geologic mapping. Fault nucleation mechanics

Field Trip Co-Leader: University of Idaho 2003
Miocene Faults of the Lake Mead Fault System: 2-Day graduate-level field trip.

PROFESSIONAL AFFILIATIONS

Southern California Earthquake Center (institutional representative) 2004-Present
UNAVCO (institutional representative) 2008-Present
American Geophysical Union 2002-Present
Seismological Society of America 2008-Present

Geological Society of America 2000-Present

PROFESSIONAL SERVICE

SCEC Community Fault Model (CFM) Development Team 2019-Present

Primary duties include assembling and quality checking the CFM components, development of web-based tools, creating new CFM products, and organizing and performing community evaluation of the model.

SCEC Community Modeling Group (CXM) Co-Leader 2017-Present

Co-leader of the Community Modeling Group (CXM) and liaison for the Community Fault Model (CFM) group. The CXM group oversees the creation and dissemination of SCEC community models (including web development).

SCEC Science Planning Committee 2017-Present

The science planning committee is responsible for numerous disciplinary activities, planning the annual meeting, setting science priorities, and reviewing SCEC proposals.

Director: Visualization and Computation Laboratory (ASU) 2014-Present

Designed and directed a facility that provides several high-end workstations for use in faculty research. https://cvl.appstate.edu/.

ASU Environmental Science Advisory Board..... 2013-Present

The ENV advisory board is responsible for approving curriculum changes for the environmental science degree program

ASU Faculty Senate 2017-2020

Served as department representative for the Dept. of Geological and Environmental Sciences. Also served on numerous faculty senate subcommittees.

Co-Leader: SCEC Ventura Special Fault Study Area 2013-2017

Geodesy/Crustal deformation modeling leader of the Southern California Earthquake Center (SCEC) Ventura Special Fault Study Area (SFSA). http://www.scec.org/research/sfsa.html.

Appalachian Geology Lecture Series 2012-2015

Organized and scheduled the weekly scientific research lecture series for the department of geology at ASU.

Peer Review of Scholarly Manuscripts 2005-Present

Reviewed works for: Geophysical Journal International, GSA Bulletin, Icarus, Journal of Geophysical Research, Journal of Structural Geology, NSF Earthscope & Geophysics, Tectonics, and Pure and Applied Geophysics.

INVITED TALKS

SCEC: The SCEC Community Fault Model: Challenges, Progress, and the Future 2021
AppHack: Automated Data Visualization using the Generic Mapping Tools (GMT) Package 2021
SCEC: Using the Community Fault Model in Earthquake Simulators Workshop 2017
SCEC: Ventura SFSA Workshop 2016
University of California Riverside 2016
Appalachian State University Department of Physics and Astronomy 2015
West Virginia University 2014
James Madison University 2013
University of North Carolina at Chapel Hill 2012

Appalachian State University Department of Mathematical Sciences 2011
University of California Riverside 2008
USGS Earthquake Seminar Series, Menlo Park, CA 2007

CONFERENCE PRESENTATIONS*

*BOLD INDICATES A STUDENT AUTHOR

Su, M-H., Maechling, P., Pauk, E., Huynh, T. Marshall, S.T., Floyd, M., Hearn, E.A., Montesi, L. (2021). Improving web-based access tools for the SCEC Community Models. *Annual Meeting of the Southern California Earthquake Center (Virtual meeting due to COVID-19).*

Devine, S.C., Marshall, S.T., (2021). Mechanical Modeling Faulting in the Transverse and Peninsular Ranges of Southern California. *Annual Meeting of the Southern California Earthquake Center (Virtual meeting due to COVID-19).*

Elston, H., Cooke, M.L., Loveless, J.P., Marshall, S.T., (2021). Combining forward and inverse approaches to resolve interseismic deep slip and locking depths on closely spaced faults. *Annual Meeting of the Southern California Earthquake Center (Virtual meeting due to COVID-19).*

Maechling, P., Su, M-H., Marshall, S.T., Hearn, E.A., Montesi, L. The SCEC Unified Community Velocity Model (UCVM) Software Models and Tools (2021). *Annual Meeting of the Southern California Earthquake Center (Virtual meeting due to COVID-19).*

Philip Maechling, Mei-Hui Su, Scott Marshall, Elizabeth Hearn, Laurent Montesi

Plesch, A. Marshall, S.T., **Nicolae, A.L.**, Shaw, J.H., Maechling, P. Su, M-H. (2021). Updates to the SCEC Community Fault Model (CFM), and to web-based tools, and plans for its peer review and version 6.0. *Annual Meeting of the Southern California Earthquake Center (Virtual meeting due to COVID-19).*

Marshall, S.T., Plesch, A., Shaw, J.H. (2021). The SCEC community fault model: challenges, progress, and the future. *Annual Meeting of the Southern California Earthquake Center (Virtual meeting due to COVID-19).*

Elston, H., Cooke, M.L., Marshall, S.T., Loveless, J.P. (2021). Using focal mechanisms to distinguish between alternative active fault configurations of the southern San Andreas fault at the San Gorgonio Pass. *Annual Meeting of the Seismological Society of America (Virtual meeting due to COVID-19).*

Cooke, M.L., **Elston, H.**, Hatch, J.L., Marshall, S.T., Loveless, J.P. (2020). Using mechanical models, interseismic focal mechanisms, GPS velocities, and long-term slip rates to constrain the geometry of the southern Big Bend of San Andreas fault, California. *Fall Meeting of the American Geophysical Union, San Francisco, CA. (Virtual meeting due to COVID-19).*

Maechling, P. Su, M-H., Hearn, E., Marshall, S.T., Plesch, A., Shaw, J., Oskin, M., Montesi, L., Pauk, E., Huynh, T., Ben-Zion, Y. (2020). Developing Web-based Visualization and Query Tools for the SCEC CVM, CFM, GFM, and CTM Community Models. *Annual Meeting of the Southern California Earthquake Center (Virtual meeting due to COVID-19).*

Elston, H., Cooke, M., Loveless, J., Marshall, S.T. (2020). An innovative technique combining forward and inverse approaches to resolve interseismic deep slip and locking depths on closely spaced faults. Annual *Meeting of the Southern California Earthquake Center (Virtual meeting due to COVID-19).*

Plesch, A., Marshall, S.T., Nicholson, C., Shaw, J., Maechling, P., Su, M-H. (2020). The Community Fault Model version 5.3 and new web-based tools. Annual *Meeting of the Southern California Earthquake Center (Virtual meeting due to COVID-19).*

Cowan, E.A, Seramur, K.C., Marshall, S.T., Costa, J.W. (2020). Connecting an Antebellum Plantation to its Revolutionary War past through shallow Geophysical exploration. *Southeast Geological Society of America Meeting, Reston, VA.*

Su, M-H., Maechling, P., Marshall, S.T., Nicholson, C., Plesch, A., Shaw, J.H., Pauk, E., Huynh, T., Hearn, E.H. (2019). A Queryable Map-Based Web Interface to the SCEC Community Fault Model. *Annual Meeting of the Southern California Earthquake Center, Palm Springs, CA.*

Levy, Y., Marshall, S.T., Rockwell, T., Shaw, J.H. (2019). Testing Structural Model Predictions Against Geodetic Data in the Western Transverse Ranges, Southern California. *Annual Meeting of the Southern California Earthquake Center, Palm Springs, CA.*

Elston, H., Cooke, M.L., Marshall, S.T., Hatch, J. (2019). Sensitivity of regional interseismic deformation to variations in active fault configuration of the southern San Andreas fault and San Jacinto faults. *Annual Meeting of the Southern California Earthquake Center, Palm Springs, CA.*

Nicholson, C., Plesch, A. Sorlien, C., Shaw, J.H., Marshall, S.T., Hauksson, E. (2019). Continued Updates, Expansion and Improvements to the Community Fault Model (CFM version 5.3). *Annual Meeting of the Southern California Earthquake Center, Palm Springs, CA.*

Su, M-H., Maechling, P., Marshall, S.T., Hearn, E.H., Nicholson, C., Plesch, A., Shaw, J.H., Pauk, E. (2019). Developing a Web-based Interface to the SCEC Community Fault Model (CFM). *Annual Meeting of the Seismological Society of America, Seattle, WA.*

Arrowood, T.M., Marshall, S.T. (2019). Three-dimensional geophysical imaging of the New River floodplain, Boone, NC. *Southeast Geological Society of America Meeting, Charleston, SC.*

Marshall, S.T., Madden, E.H., **Dorsett, J.H.**, Cooke, M.L. (2018). Fault linkage through the Imperial Valley, California is required to match current slip rate estimates. *Annual Meeting of the Southern California Earthquake Center, Palm Springs, CA.*

Nicholson, C., Plesch, A., Shaw, J.H., Marshall, S.T. (2018). Enhancements, Updates, and Improved Access to the Community Fault Model. *Annual Meeting of the Southern California Earthquake Center, Palm Springs, CA.*

Hughes, A., Rood, D.H., Whittaker, A., Bell, R., Rockwell, T.K., Levy, Y., Wilcken, K., Corbett, L., Bierman, P., DeVecchio, D.E., Marshall, S.T., Gurrola, L.D., Nicholson, C. (2018). Geomorphic evidence for the geometry and slip rate of the Southern San Cayetano fault: Implications for hazard assessment and fault interaction in complex tectonic environments. *Annual Meeting of the Southern California Earthquake Center, Palm Springs, CA.*

Kedar, S., Bock, Y., Moore, A., Fang, P., Liu, Z., Sullivan, A., Argus, D., Jiang, S., Marshall, S.T. (2017). Production and Uses of Multi-Decade Geodetic Earth Science Data Records. *Fall Meeting of the American Geophysical Union, New Orleans, LA.*

Montieth, G.H., Zimmer, B.W., Marshall, S.T., **Richardson, L.J.**, Arlukowicz, P. (2017). Quantifying Change in Structure from Motion Models with Close Range Applications. *Fall Meeting of the Geological Society of America, Seattle, WA.*

Resor, P.G., Cooke, M.L., Marshall, S.T., Madden, E.H. (2017). Accounting for Fault Geometry's Impact on the Slip Budget. *Fall Meeting of the Geological Society of America, Seattle, WA.*

Kedar, S., Bock, Y., Moore, A., Fang, P., Liu, Z., Sullivan, A., Argus, D., Jiang, S., Marshall, S.T. (2017). Production and Uses of Multi-Decade Geodetic Earth Science Data Records. *Annual Meeting of the Southern California Earthquake Center, Palm Springs, CA.*

Dorsett, J.H., Marshall, S.T., Madden, E.H., Cooke, M.L. (2017). Mechanical Models of Fault Slip Rates in the Imperial Valley, CA. *Annual Meeting of the Southern California Earthquake Center, Palm Springs, CA.*

Beyer, J., Cooke, M.L., Marshall, S.T. (2017). Getting Pushy with the San Gorgonio Pass: Investigating Active Fault Geometries with Crustal Deformation Models. *Annual Meeting of the Southern California Earthquake Center, Palm Springs, CA.*

Marshall, S.T., Funning, G.J., **Krueger, H.E.**, Owen, S.E. Loveless, J.P. (2016). The Distribution of Fault Slip Rates in the Western Transverse Ranges, CA: Evidence from Mechanical Models and Geodesy. *Fall Meeting of the American Geophysical Union, San Francisco, CA.*

Nguyen, B.K., Waters, J.A., Marshall, S.T., **White, L.E.**, Sumrall, C.D. (2016). CFD Modeling of Thecal Shape in Blastoids (Echinodermata). *Fall Meeting of the Geological Society of America, Denver, CO.*

Krueger, H.E., Marshall, S.T., Funning, G.J., Owen, S.E., Loveless, J.P. (2016). Seasonal Motions and Interseismic Strain Measured by Continuous GPS throughout the Transverse Ranges, CA. *Annual Meeting of the Southern California Earthquake Center, Palm Springs, CA.*

Marshall, S.T., Funning, G.J., Owen, S.E. (2016). Is the CFM5.0 an Improvement? Evidence from Mechanical Models of the Western Transverse Ranges Region. *Annual Meeting of the Southern California Earthquake Center, Palm Springs, CA.*

Resor, P.G, Cooke, M.L., Marshall, S.T., Madden, E.H. (2016). Role of Fault Geometry on the Spatial Distribution of the Slip Budget. *Annual Meeting of the Southern California Earthquake Center, Palm Springs, CA.*

Esker, A.E., Marshall, S.T. (2015). Seasonal Variations in Subsurface Electrical Resistivity in a Floodplain Aquifer. *Fall Meeting of the American Geophysical Union, San Francisco, CA.*

Harper, H.A., **Krueger, H.E.**, Marshall, S.T. (2015). Spatial and Temporal Variations in Seasonal and Anthropogenic Ground Movements Recorded by Continuous GPS in Southern California. *Fall Meeting of the American Geophysical Union, San Francisco, CA.*

Marshall, S.T., Funning, G.J., Owen, S.E. (2015). High Resolution Geodetic Measurements of Interseismic Deformation across the Ventura Basin, CA. *Fall Meeting of the American Geophysical Union, San Francisco, CA.*

Resor, P.G., Cooke, M.L., Marshall, S.T., Madden E.H. (2015). Modeling Releasing Steps of Strike-Slip Fault Systems: Implications for Conflicting Estimates of Long-Term Slip Rates. *Fall Meeting of the American Geophysical Union, San Francisco, CA.*

Marshall, S.T., **Harper, H.A.**, Funning, G.J., Owen, S.E. (2015). Mechanical Models of Deformation throughout Ventura Special Fault Study Area. *Annual Meeting of the Southern California Earthquake Center, Palm Springs, CA.*

Resor, P.G., Cooke, M.L., Marshall, S.T., Madden E.H. (2015). Modeling Releasing Steps of Strike-Slip Fault Systems: Implications for Conflicting Estimates of Long-Term Slip Rates. *Annual Meeting of the Southern California Earthquake Center, Palm Springs, CA.*

Shaw, J.H., Barrall, M., Burgette R., Dolan J.F., Geist E., Grenader J., Gobel, T., Hammond W., Hauksson E., Hubbard, J.A., Johnson, K.M. Levy, Y., McAuliffe, L., Marshall, S.T., Nicholson, C., Oglesby, D. Plesch, A., Reynolds, L., Rockwell, T. Ryan, K., Simms, A., Sorlien, C., Tape, C., Thio, H.K. Ward, S. (2015). The Ventura Special Fault Study Area: Assessing the potential for large, multi-segment thrust fault earthquakes and their hazard implications. Invited talk: *Annual Meeting of the Southern California Earthquake Center, Palm Springs, CA.*

Cowan, E.A., Seramur, K.C., Marshall, S.T. (2015). Upstream Terraces on the New River in North Carolina: illusive landforms with a climate history? *Southeast Geological Society of America Meeting, Chattanooga, TN.*

Marshall, S.T., **Phillips, J.R.,** Funning, G.J., Owen, S.E. (2014). Fast Horizontal Contraction without Vertical Strain: Puzzling Interseismic Geodetic Measurements in the Ventura Basin, CA. *Fall Meeting of the American Geophysical Union, San Francisco, CA.*

Phillips, J.R., Marshall, S.T., Funning, G.J. (2014). InSAR Measurements of Non-Tectonic Deformation Patterns in the Western Transverse Ranges, CA. *Fall Meeting of the American Geophysical Union, San Francisco, CA.*

Harper, H.A., Marshall, S.T. (2014). The Distribution of Fault Slip Rates and Oblique Slip Patterns in the Greater Los Angeles, CA Region. *Fall Meeting of the American Geophysical Union, San Francisco, CA.*

Marshall, S.T., Funning, G.J., Owen, S.E. (2014). Mechanical Models of the Distribution of Fault Slip Rates in the Ventura Fault System, CA. *Annual Meeting of the Southern California Earthquake Center, Palm Springs, CA.*

Bagley, C.T., Heckert, A.B., Marshall, S.T. (2013). Using electrical resistivity surveys to determine the stratigraphic position of the upper Triassic *Placerias Quarry,* east-central Arizona. *Fall Meeting of the Geological Society of America, Denver, CO.*

Marshall, S.T., Funning, G.J., Owen, S.E. (2013). Fault Slip Rates and Interseismic Deformation in the Ventura Basin Region, CA. *Annual Meeting of the Southern California Earthquake Center, Palm Springs, CA.*

Marshall, S.T., Funning, G. J., Owen, S.E. (2012). Spatial and Temporal Variations in Strain Rates in the Western Transverse Ranges, California. *Fall Meeting of the American Geophysical Union, San Francisco, CA.*

Marshall, S.T., (2012). Earthquake Cycle Deformation and GPS: A Quantitative Computer-Based Activity for Undergraduate Students. *Fall Meeting of the American Geophysical Union, San Francisco, CA.*

Marshall, S.T., **Morris, A.C.** (2012). Seismic Potential and Slip Behavior of Corrugated Reverse Fault Surfaces. *Annual Meeting of the Southern California Earthquake Center, Palm Springs, CA.*

Herbert, J.W., Cooke, M.L., Marshall, S.T. (2012). The Role of Fault Geometry on Geologic and Interseismic Deformation along the Southern SAF and ECSZ. *Annual Meeting of the Southern California Earthquake Center, Palm Springs, CA.*

Marshall, S.T., Cooke, M.L. (2012). Boundary Element Method Models of Southern California. Invited oral presentation, *SCEC Community Stress Model Workshop, Menlo Park, CA.*

Marshall, S.T. (2012). Data Filtering and Noise Reduction. Invited oral presentation for "Great Strategies" sessions, *SERC: Teaching Structural Geology, Geophysics, and Tectonics in the 21st Century Workshop, Knoxville, TN.*

Cooke, M.L., Resor, P.G., Marshall, S.T. (2012). Are trenches and GPS stations observing representative fault slip rates? *Structural Geology and Tectonics Forum, Williamstown, MA.*

Cooke, M.L., **Herbert, J.M.**, Marshall, S.T. (2012). Mechanical models of the southern San Andreas Fault. *SCEC Workshop on San Gorgonio Pass: Structure, Stress, Slip, and the Likelihood of Through-Going Rupture, Rancho Mirage, CA.*

Herbert, J.M., Cooke, M.L., Marshall, S.T. (2012). Role of Geometric Complexity and Secondary Faults on Deformation in the San Gorgonio Pass. *SCEC Workshop on San Gorgonio Pass: Structure, Stress, Slip, and the Likelihood of Through-Going Rupture, Rancho Mirage, CA.*

Severson, C.M., Funning, G.J., Marshall, S.T. (2012). Surface Deformation and Slip Distribution of the 1994 Northridge Earthquake Determined from InSAR, GPS and the Community Fault Model. *Seismological Society of America Annual Meeting, San Diego, CA.*

Dean, J. R., Cowan, E.A., Seramur, K.C., Marshall, S.T. (2012). Shallow geophysical surveys of four terraces along the south fork of the new river in the Blue Ridge physiographic province. *Southeast Geological Society of America Meeting, Asheville, NC.*

Irizarry, J.T., Marshall, S.T., **Severson, C.M.**, Funning, G.J. (2011). Static Stress Changes due to the 1994 M6.7 Northridge Earthquake and the Potential for Triggered Slip on the San Andreas Fault, *Fall Meeting of the American Geophysical Union, San Francisco, CA.*

Marshall, S.T., Funning, G.J., Owen, S.E. (2011). Tectonic, Seasonal, and Anthropogenic Deformation Rates in the Western Transverse Ranges, California from the San Andreas to the Santa Barbara Channel, *Fall Meeting of the American Geophysical Union, San Francisco, CA.*

Severson, C.M., Funning, G.J., Marshall, S.T. (2011). Surface Deformation and Slip Distribution of the 1994 Northridge Earthquake Determined from InSAR, *Fall Meeting of the American Geophysical Union, San Francisco, CA.*

Marshall, S.T., Funning, G.J., Owen, S.E. (2011). Deformation Rates in the Western Transverse Ranges, California from the San Andreas to the Santa Barbara Channel measured with GPS and Persistent Scatterer InSAR. *Southern California Earthquake Center Annual Meeting, Palm Springs, CA.*

Bailey, B.L., Marshall, S.T., Anderson, W.P. (2010). Integrating ground penetrating radar, electrical resistivity, seismic refraction, and borehole data to image an alluvial aquifer in three dimensions. *Fall Meeting of the American Geophysical Union, San Francisco, CA.*

Morris, A.C., Marshall, S.T. (2010). Spatial Variations in Slip on Corrugated Reverse Fault Surfaces. *Fall Meeting of the American Geophysical Union, San Francisco, CA.*

Marshall, S.T., Owen, S.E., Funning, G.J. (2010). The Ups and Downs of Geodetically-Derived Deformation Rates in the Western Transverse Ranges Region, CA. *Fall Meeting of the American Geophysical Union, San Francisco, CA.*

Marshall, S.T., Owen, S.E., Funning, G.J. (2010). Separating Seasonal, Anthropogenic, and Tectonic Deformation in the Western Transverse Ranges Region, CA. *Southern California Earthquake Center Annual Meeting, Palm Springs, CA.*

Marshall, S.T., Cooke, M.L. (2010). Interseismic Deformation along Finite and Intersecting Faults: Application to the Los Angeles and Ventura Regions, CA. *Southern California Earthquake Center Workshop on Integrating Geodesy into the UCERF3, Pomona, CA*

Cooke, M.L., **Herbert, J.**, Marshall, S.T., (2010). Spatially Varying Slip Rates on the Southern San Andreas Faults Reflect Fault Geometry and Interaction. *Southern California Earthquake Center Workshop on Integrating Geodesy into the UCERF3, Pomona, CA*

Marshall, S.T., Cooke, M.L. (2009). Secular Stress Accumulation, Coulomb Stress Changes, and Clock Changes on Los Angeles Regional Faults: Preliminary Results. *Fall Meeting of the American Geophysical Union, San Francisco, CA.*

Marshall, S.T., Cooke, M.L. (2009). Secular Stress Accumulation on Los Angeles Regional Faults: Preliminary Results and Implications. *Southern California Earthquake Center Annual Meeting, Palm Springs, CA.*

Marshall, S.T., Cooke, M.L. Owen, S.E. (2008). Geologic Slip Rates and Interseismic Deformation in the Ventura Region, Southern California *Fall Meeting of the American Geophysical Union, San Francisco, CA.*

Kattenhorn, S.A., Marshall, S.T., Cooke, M.L. (2008). Kinematically Coupled Strike-Slip and Normal Faults in the Lake Mead Strike-Slip Fault System, Southeast Nevada *Fall Meeting of the American Geophysical Union, San Francisco, CA.*

Cooke, M.L., Marshall, S.T., Dair, L. (2008). Complex Fault Geometries May Account for Discrepancies Between Geologic and Geodetic Slip Rates. *Fall Meeting of the Geological Society of America, Houston, TX.*

Cooke, M.L., Marshall, S.T., Dair, L., Kendrick, K., Dolan, J., DeGroot, R. (2008). Students and teachers from high schools for the deaf around the country explore the geologic hazards of southern California. *Southern California Earthquake Center Annual Meeting, Palm Springs, CA.*

Marshall, S.T., Cooke, M.L., Owen, S.E. (2008). Simulating heterogeneous rock properties in crustal deformation models: preliminary results *Southern California Earthquake Center Annual Meeting, Palm Springs, CA.*

Cooke, M.L., Marshall, S.T. (2008). 3D earthquake and fault distribution in southern California. *NAGT Workshop: Teaching with new geoscience tools: Visualizations, models, and online data*, February 10-12, 2008, University of Massachusetts, Amherst.

Marshall, S.T., Cooke, M.L., Owen, S.E. (2007). Effects of Material Heterogeneity on Interseismic and Geologic Deformation in Southern California Sedimentary Basins. *Fall Meeting of the American Geophysical Union, San Francisco, CA.*

Marshall, S.T., Cooke, M.L., Owen, S.E. (2007). Interseismic Deformation along Intersecting Faults: Application to the Greater Los Angeles Region, CA. *Southern California Earthquake Center Annual Meeting, Palm Springs, CA.*

Kattenhorn, S.A., Groenleer, J.M., Marshall, S.T., Vetter, J.C. (2007). Shearing-induced tectonic deformation on icy satellites: Europa as a case study. *The Workshop on Ices, Oceans, and Fire: Satellites of the Outer Solar System Boulder, CO.*

Marshall, S.T., Cooke, M.L., Owen, S.E. (2006). A new technique for creating three-dimensional interseismic mechanical models in regions of interacting non-planar faults: Application to the Los Angeles and Ventura Basins. *Fall Meeting of the American Geophysical Union, San Francisco, CA.*

Marshall, S.T., Cooke, M.L. (2006). Fault Trace Slip Distributions in the Ventura and Los Angeles Basins, California: Implications for Past and Future Paleoseismic Sites. *Southern California Earthquake Center Annual Meeting, Palm Springs, CA.*

Marshall, S.T., Cooke, M.L., Owen, S.E. (2006). Three-dimensional fault topology in the Ventura Basin, California, and a new technique for creating three-dimensional interseismic mechanical models in complex regions. *Proceedings of the International Workshop on Comparative Studies of the North Anatolian Fault (Northwest Turkey) and the San Andreas Fault (Southern California), Istanbul Technical University Aug 14-18, 2006.*

Kattenhorn, S.A., Billings, S.E., Groenleer, J.M., Marshall, S.T., Vetter, J.C. (2005). Fracture access through the Europan ice shell: Geologic constraints for the selection of an optimal surface entry site. *Proceedings of the Europa Focus Group Workshop, NASA Ames Research Center, Moffett Field, California, Feb. 27-28, 2006.*

Marshall, S.T., Cooke, M.L., Owen, S.E. (2005). Comparison of GPS data from the Ventura Basin, California to interseismic three-dimensional mechanical models. *Fall Meeting of the American Geophysical Union, San Francisco, CA.*

Cooke, M.L., Marshall, S.T., Meigs, A. (2005). Seismic hazard assessment from validated CFM-based BEM models. *Fall Meeting of the American Geophysical Union, San Francisco, CA.*

Owen, S.E., Cooke, M.L., Marshall, S.T. (2005). Interseismic GPS time-series patterns in the Ventura Basin and preliminary comparisons to 3D mechanical models. *Southern California Earthquake Center Annual Meeting, Palm Springs, CA.*

Cooke, M.L., Marshall, S.T., Meigs, A. (2005). Seismic hazard assessment from validated CFM-based BEM models. *Southern California Earthquake Center Annual Meeting, Palm Springs, CA.*

Fawcett, D., Meigs, A., Cooke, M.L., Marshall, S.T. (2005). Validation of community fault model alternatives from subsurface maps of structural uplift. *Southern California Earthquake Center Annual Meeting, Palm Springs, CA.*

Cooke, M.L., Del Castello, M., Jepson, P., Marshall, S.T., Salamoff, S., Solum, J. (2005). Deaf high school students explore structural geology. *Geological Society of America Abstracts with Programs, Vol. 37, No. 7, p. 262.*

Marshall, S.T., and Kattenhorn, S.A. (2004). The importance of resolved shear stress and dilation at the instant of cycloid cusp formation on Europa. *Fall Meeting of the American Geophysical Union, San Francisco, CA.*

Cooke, M.L., Meigs, A.J., and Marshall, S.T. (2004). Testing 3D fault configuration in the northern Los Angeles basin, California via patterns of rock uplift since 2.9 Ma. *Fall Meeting of the American Geophysical Union, San Francisco, CA.*

Marshall, S.T., and Kattenhorn, S.A. (2004). Analysis of Europan cycloid morphology and implications for formation mechanisms. *Abstracts, Workshop on Europa's Icy Shell, Abstract # 7026, Lunar and Planetary Institute, Houston, Texas, February 2004.*

Marshall, S.T. and Kattenhorn, S.A. (2003). Secondary normal faulting near the terminus of a strike-slip fault segment in the Lake Mead fault system, SE Nevada. *Fall Meeting of the American Geophysical Union, San Francisco, CA.*

Kattenhorn, S.A. and Marshall, S.T. (2003). Secondary fracturing as a tool for unraveling strike-slip fault slip behavior on Europa. *Fall Meeting of the American Geophysical Union, San Francisco, CA.*