

MARGARET T. GLASSCOE

NASA Jet Propulsion Laboratory California Institute of Technology
M/S 300-233, 4800 Oak Grove Drive, Pasadena, CA 91109-8099
Email: Margaret.T.Glasscoe@jpl.nasa.gov

Office: 818.393.4834
Fax: 818.354.9476

Margaret Glasscoe is a Science Researcher in the Earth Surface and Interior Group at the Jet Propulsion Laboratory, California Institute of Technology. She is the Principal Investigator of the E-DECIDER (Emergency Data Enhanced Cyber Infrastructure for Disaster Evaluation and Response) project, a decision support platform providing rapid remote sensing and modeling results to disaster managers and responders following earthquakes and other disasters. She has experience working with a number of elastic and viscoelastic simulation software. Her research includes modeling deformation of the Earth's crust to study postseismic response to large earthquakes, numerical models of the rheological behavior of the crust, and simulations and analysis of interacting fault systems.

Education

Ph.D., Geology, University of California, Davis (2015)
M.S., Geology, University of California, Davis (2003)
B.S., Geological Sciences, University of Southern California, *Magna Cum Laude* (1997)
B.A., Print Journalism, University of Southern California, *Magna Cum Laude* (1997)

Professional Experience

Jet Propulsion Laboratory
Science Researcher (Geophysicist), Terrestrial Science/Solid Earth/Earth Surface and Interior Group, 2004-present
Member of the Technical Staff, Data Understanding Systems Group, 2000-2004
Research Assistant, Satellite Geodesy and Geodynamics Systems Group, 1996-2000

Awards

JPL Voyager Award, 2015
JPL SPOT Award, 2010
NASA Board Act Award: GeoFEST v. 4.8, 2008
JPL Outstanding Accomplishment Award: InSAR Workshop Report, 2006
JPL Team Bonus Award: QuakeSim Parallel GeoFEST Development Team, 2004
NASA Graduate Student Research Program Fellowship, 1999-2000, 2000-2001, 2001-2002
Southern California Earthquake Center Community Outreach Award (Education), 1998
JPL Notable Organizational Value Added (NOVA) Award, 1997, 1998

Other Relevant Activities

Coordinator of NASA May Capstone/National Level Exercise activities in partnership with the California Earthquake Clearinghouse, CA EPA, CA Department of Public Health, FEMA Region 9, CA National Guard, CA OES, various state partners, and NASA projects (E-DECIDER, ARIA, GeoGateway, UAVSAR, READI).
FEMA Emergency Management Institute Course Training: IS-100 Introduction to Incident Command System (ICS), IS-700 National Incident Management System (NIMS)

Selected Publications

Donnellan, A., Parker, J.W., **Glasscoe, M.**, De Jong, E., Pierce, M., Fox, J., McLeod, D., Rundle, J., Grant Ludwig, L. 2012, A Distributed Approach to Computational Earthquake Science: Opportunities and Challenges, *Computing in Science and Engineering*, 14, 31-42.
Donnellan, A., Rundle, J., Fox, G., McLeod, D., Grant, L., Tullis, T., Pierce, M., Parker, J., Lyzenga, G., Granat, R., and **Glasscoe, M.**, 2005, QuakeSim and the Solid Earth Research Virtual Observatory, *Pure and Applied Geophysics*, v. 163, pp. 2263-2279.
Glasscoe, M.T., Parker, J.W., Wang, J., Pierce, M.E., Yoder, M.R., Eguchi, R.T., Huyck, C.K., Hu, Z., Bevington, J., Ghosh, S., Gill, S., Chen, Z., Rosinski, A., E-DECIDER Decision Support Tools for Disaster Response, in *Applied Geology in California*, Anderson, B., Ferriz, H. and Hitchcock, C., eds., Star Publishing, Redwood City, CA, Association of Environmental and Engineering Geologists Special Publication no. 26, *in review*.
Glasscoe, M.T., 2015, Applications of Fault Modeling and Remote Sensing for Hazard Analysis, Decision Support and Disaster Response, Doctoral dissertation, University of California, Davis.
Glasscoe, M.T., Wang, J., Pierce, M.E., Yoder, M.R., Parker, J.W., Burl, M.C., Stough, T.M., Granat, R.A., Donnellan, A., Rundle, J.B., Ma, Y., Bawden, G.W. and Yuen, K., 2015, E-DECIDER: Using Earth Science Data and Modeling Tools to Develop Decision Support for Earthquake Disaster Response, *Pure and Applied Geophysics*, v. 172, pp. 2305-2324, doi: 10.1007/s00024-014-0824-9.
Glasscoe, M.T., Wang, J., Pierce, M.E., Yoder, M.R., Parker, J.W., Burl, M.C., Stough, T.M., Ma, Y., Rundle, J.B., Bawden, G.W., Donnellan, A., Rundle, and Blom, R., E-DECIDER: Decision Support Tools for Earthquake Disaster

- Response, in *New Trends in Earth Science Outreach and Engagement: The Nature of Communication*, AGU Monograph, *in review*.
- Glasscoe, M.T.**, Granat, R.A., Rundle, J.B., Rundle, P.B., Donnellan, A., and Kellogg, L.H., 2009, Analysis of emergent fault element behavior in Virtual California, *Concurrency and Computation: Practice and Experience*, DOI: 10.1002/cpe.1546.
- Glasscoe, M.T.**, Donnellan, A., Kellogg, L.H., and Lyzenga, G.A., 2004, Evidence of strain partitioning between the Sierra Madre fault and the Los Angeles Basin, southern California from numerical models, *Pure and Applied Geophysics*, v. 161, pp. 2343-2357.
- Glasscoe, M.T.**, 2003, Assessing upper crustal rheology using numerical and theoretical models, Master's thesis, University of California, Davis.
- Glasscoe, M.T.**, Kellogg, L.H., Lyzenga, G.A., and Donnellan, A., 2002, Fault interaction in the Los Angeles Basin and Transverse Ranges, southern California, from elastic half-space and viscoelastic finite element models, *Proceedings from 2002 International ACES Meeting, Maui, HI, 5-10 May* (<http://quakes.earth.uq.edu.au/ACES-2002-workshop/PDF/page273-278.pdf>)
- Parker, J., Donnellan, A., **Glasscoe, M.**, Fox, G., Wang, J., Pierce, M., and Ma, Y., 2015, Advantages to Geoscience and Disaster Response from QuakeSim Implementation of Interferometric Radar Maps in a GIS Database System, *Pure and Applied Geophysics*, v. 172, pp. 2295-2304, doi: 10.1007/s00024-014-0886-8.
- Parker, J., Lyzenga, G., Norton, C., Zuffada, C., **Glasscoe, M.**, Lou, J., and Donnellan, A., 2008, Geophysical Finite Element Simulation tool (GeoFEST): algorithms and validation for quasistatic regional faulted crust problems, *Pure and Applied Geophysics*, v. 165, pp. 497-521.
- Turcotte, D.L. and **Glasscoe, M.T.**, 2004, A damage model for the continuum rheology of the upper continental crust, *Tectonophysics*, 383, 71-80.
- Wang, J., Pierce, M.E., Ma, Y., Fox, G.C., Donnellan, A., Parker, J.W., and **Glasscoe, M.**, 2012, Using Service-Based Geographical Information System to Support Earthquake Research and Disaster Response, *Computing in Science and Engineering*, 14, 21-30.
- Yoder, M.R., Rundle, J.B. and **Glasscoe, M.T.**, 2015, Near-Field ETAS Constraints and Applications to Seismic Hazard Assessment, *Pure and Applied Geophysics*, v. 172, pp. 2277-2293, doi: 10.1007/s00024-014-0785-z.

Selected Conference Talks and Posters

- Glasscoe, M.**, Donnellan, A., Parker, J., Granat, R., Lyzenga, G., Pierce, M., Wang, J., Grant Ludwig, L., Yoder, M., Rundle, J., Eguchi, R., Huyck, C., Hu, Z., Chen, Z., and Rosinski, A., 2015, Disaster Response Tools for Data Discovery and Decision Support – GeoGateway and E-DECIDER, presented at the SCEC Annual Meeting, Palm Springs, CA, 13-16 September (poster).
- Glasscoe, M.**, Donnellan, A., Parker, J., Granat, R., Won, P., Lyzenga, G., Pierce, M., Wang, J., Grant Ludwig, L., Eguchi, R., Huyck, C., Hu, Z., Chen, Z., Yoder, M., Rundle, J., and Rosinski, A., 2015, Decision Support and Data Discovery Tools for Disaster Response – E-DECIDER & GeoGateway, presented at the SSA Annual Meeting, Pasadena, CA, 21-23 April (poster).
- Glasscoe, M.**, Donnellan, A., Parker, J., Granat, R., Won, P., Lyzenga, G., Pierce, M., Wang, J., Grant Ludwig, L., Eguchi, R., Huyck, C., Hu, Z., Chen, Z., Yoder, M., Rundle, J., and Rosinski, A., 2015, Tools for Disaster Response: E-DECIDER & GeoGateway, presented at the UNWCDRR Public forum: Science and practical DRR ~ role of universities/academia, Tohoku University, Sendai Japan, 17 March (invited talk).
- Glasscoe, M.**, Parker, J., Pierce, M., Wang, J., Eguchi, R., Huyck, C., Hu, Z., Chen, Z., Yoder, M., Rundle, J., and Rosinski, A., 2014, E-DECIDER Disaster Response and Decision Support Cyberinfrastructure: Technology and Challenges, Abstract NH14A-06, presented at 2014 Fall Meeting, AGU, San Francisco, CA, 15-19 Dec (invited talk).
- Rosinski, A., ***Glasscoe, M.**, Vaughan, D., and Morentz, J., 2014, Disaster Response and Decision Support in Partnership with the California Earthquake Clearinghouse, Abstract G52A-07, presented at 2014 Fall Meeting, AGU, San Francisco, CA, 15-19 Dec (talk, *presenter).
- Glasscoe, M.**, Parker, J., Pierce, M., Wang, J., Eguchi, R., Huyck, C., Hu, Z., Chen, Z., Yoder, M., Rundle, J., and Rosinski, A., 2014, E-DECIDER Rapid Response to the M 6.0 South Napa Earthquake, Abstract S33F-4946, presented at 2014 Fall Meeting, AGU, San Francisco, CA, 15-19 Dec (poster).
- Glasscoe, M.T.**, Owen, S., Donnellan, A., Yun, S.H., Jones, C., Parker, J., Fielding, E., Webb, F., and Blom, R., 2014, NASA Jet Propulsion Laboratory Data Products, presented at the CA Earthquake Clearinghouse ShakeOut Activities Meeting, Los Alamitos, CA, 22 October (invited).
- Glasscoe, M.**, Parker, J., Pierce, M., Wang, J., Eguchi, R., Huyck, C., Hu, Z., Chen, Z., Yoder, M., Rundle, J., and Rosinski, A., 2014, E-DECIDER Disaster Response and Decision Support Platform, presented at the SCEC Annual Meeting, Palm Springs, CA, 7-10 September (poster).
- Glasscoe, M.T.** and Yun, S.H., 2014, NASA Jet Propulsion Laboratory Data Products, presented at the Emergency Response Geospatial Tools Technical Interchange, Oakland City Center, 17 April (invited).
- Glasscoe, M.T.**, Stough, T.M., Parker, J.W., Burl, M.C., Donnellan, A., Blom, R.G., Pierce, M.E., Wang, J., Ma, Y., Rundle, J.B., and Yoder, M.R., E-DECIDER Decision Support Gateway for Earthquake Disaster Response, Abstract IN33B-1546, presented at 2013 Fall Meeting, AGU, San Francisco, CA, 9-13 Dec (poster).
- Glasscoe, M.T.**, Stough, T.M., Parker, J.W., Burl, M.C., Granat, R.A., Donnellan, A., Pierce, M.E., Wang, J., Ma, Y., Rundle, J.B., Yoder, M.R., and Bawden, G.B., 2013, E-DECIDER: Experiences Developing Earthquake Disaster Decision Support and Response Tools Using Remote Sensing and Geophysical Modeling Data, presented at the 19th Annual CalGIS Conference, Long Beach, CA, 17 April (keynote address).
- Glasscoe, M.T.**, Stough, T.M., Parker, J.W., Burl, M.C., Granat, R.A., Donnellan, A., Pierce, M.E., Wang, J., Ma, Y., Rundle, J.B., Yoder, M.R., and Bawden, G.B., 2013, E-DECIDER: Decision Support for Earthquake Disaster Response, presented at the InCOSE LA Mini Conference, Loyola Marymount University, Los Angeles, CA, 16 March (talk).
- Glasscoe, M.T.**, Donnellan, A., Stough, T.M., Parker, J.W., Burl, M.C., Granat, R.A., Pierce, M.E., Wang, J., Ma, Y., Rundle, J.B., Yoder, M.R., and Bawden, G.B., 2012, E-DECIDER: Using Earth Science Data and Modeling Tools to Develop Decision Support for Earthquake Disaster Response, Abstract PA51A-2070 presented at 2012 Fall Meeting, AGU, San Francisco, CA, 3-7 December (poster).
- Glasscoe, M.T.**, Donnellan, A., Stough, T.M., Parker, J.W., Burl, M.C., Granat, R.A., Pierce, M.E., Wang, J., Ma, Y., Rundle, J.B., Yoder, M.R., Bawden, G.B., and Gorelik, S., 2012, E-DECIDER: Using Earth Science Data and Modeling Tools to Develop Decision Support for Earthquake Disaster Response, presented at the ACES 8th International Symposium and Workshop, Maui, HI, 23-26 October (talk).
- Glasscoe, M.T.**, Stough, T.M., Parker, J.W., Burl, M.C., Granat, R.A., Donnellan, A., Pierce, M.E., Wang, J., Ma, Y., Rundle, J.B., Yoder, M.R., Bawden, G.B., and Gorelik, S., 2012, E-DECIDER: Experiences Developing Earthquake Disaster Decision Support and Response Tools, presented at the 9th US-Japan Natural Resources Meeting, Denver, CO, 9-12 October (talk).
- Glasscoe, M.T.**, 2012, Earthquake Disaster Decision Support and Response Tools, presented at The Great Japanese Earthquake & Tsunami: Lessons Learned for California One Year Later Workshop, Chapman University, Orange, CA, 21 March (talk).
- Glasscoe, M.T.**, 2011, Blom, R.G., Bawden, G.W., Fox, G., Pierce, M., Rundle, J.B., Wang, J., Ma, Y., Yoder, M.R., Sachs, M.K., and Parker, J.W., E-DECIDER: Earthquake Disaster Decision Support and Response Tools –

- Development and Experiences, Abstract IN11A-1269 presented at 2011 Fall Meeting, AGU, San Francisco, CA, 5-9 December (poster).
- Glasscoe, M.T.**, Blom, R., Bawden, G., Fox, G., Pierce, M., Rundle, J., Wang, J., Granat, R., Burl, M., Ma, Y., Yoder, M., Sachs, M., Fielding, E., Parker, J., Norton, C., Lyzenga, G., Bürgmann, R., 2011, E-DECIDER: Experiences Developing Earthquake Disaster Decision Support and Response Tools, presented at APEC Cooperation for Earthquake Simulation (ACES) Workshop on Advances in Simulation of Multihazards, Maui, Hawaii, 1-5 May (talk).
- Glasscoe, M.T.**, Heflin, M.B., Granat, R.A., Yikilmaz, M.B., Heien, E., Rundle, J., and Donnellan, A., 2010, Re-Evaluation of Event Correlations in Virtual California Using Statistical Analysis, Abstract NG51A-1188 presented at 2010 Fall Meeting, AGU, San Francisco, Calif., 13-17 December (poster).
- Glasscoe, M.T.**, Parker, J.W., Donnellan, A., Lyzenga, G.A., and Norton, C.D., 2009, Modeling of Natural Hazards Related to the Los Angeles Basin, Southern California, EOS Transactions AGU, v. 90, n. 52, Fall Meeting Supplement, Abstract NH43C-1333 (poster).
- Glasscoe, M.T.**, Granat, R.A., Rundle, J.B., Kellogg, L.H., and Donnellan, A., 2008, Statistical analysis of earthquake event correlations in Virtual California, EOS Transactions AGU, v. 89, n. 53, Fall Meeting Supplement, Abstract NG23A-1117 (poster).
- Glasscoe, M.T.**, Fox, G., McLeod, D., Brooks, W., Grant, L., Pierce, M., Tullis, T., Rundle, J., and Donnellan, A., 2008, QuakeSim: Simulating earthquakes in a web services environment, 2008 APRU (Asia-Pacific Rim Universities) Research Symposium, 21-22 August 2008, Davis, CA (talk).
- Glasscoe, M.T.**, Granat, R.A., Rundle, J.B., Kellogg, L.H., and Donnellan, A., 2008, Statistical analysis of earthquake event correlations in Virtual California, 6th International ACES Workshop, 11-16 May, Cairns, Australia (talk).
- Glasscoe, M.T.**, Lyzenga, G.A., Norton, C.D., Parker, J.W., and Donnellan, A., 2008, Stress evolution following the 1906 San Francisco earthquake from GeoFEST finite element simulation, Seismological Research Letters, v. 79, n. 2, SSA 2008 Annual Meeting Announcement, p. 292 (poster).
- Glasscoe, M.T.**, 2007, Postseismic deformation and stress evolution following the 1906 San Francisco earthquake, EOS Transactions AGU, v. 88, n. 52, Fall Meeting Supplement, Abstract G13A-0910 (talk).
- Glasscoe, M.**, Donnellan, A., Lyzenga, G., Norton, C., and Parker, J., 2007, Results from numerical simulations of crustal deformation: Driving requirements for DESDynl deformation measurements, NRC Decadal Study DESDynl Science Workshop, 17-19 July, Orlando, FL (poster).
- Glasscoe, M.T.** and Granat, R.A., 2007, Correlation of simulated earthquake events in Virtual California using statistical methods, Seismological Research Letters, v. 77, n. 2, SSA 2007 Annual Meeting Announcement, p. 244 (talk).
- Glasscoe, M.T.**, Donnellan, A., Lyzenga, G.A., Norton, C.D., and Parker, J.W., 2007, Relaxation of post-seismic deformation following the 1906 San Francisco earthquake from 3D finite element models, Seismological Research Letters, v. 77, n. 2, SSA 2007 Annual Meeting Announcement, p. 299 (talk).
- Glasscoe, M.T.**, Donnellan, A., Lyzenga, G.A., Norton, C.D., and Parker, J.W., 2006, Numerical models of post-seismic deformation following the 1906 San Francisco earthquake, EOS Transactions AGU, v. 87, n. 52, Fall Meeting Supplement, Abstract G31A-03 (poster).
- Glasscoe, M.**, Donnellan, A., Granat, R., Lyzenga, G., Norton, C., and Parker, J.W., 2006, Simulation- and statistics-based analysis of the 1906 earthquake and northern California faults, Seismological Society of America San Francisco, California 100th Anniversary Earthquake Conference 18-22 April, Seismological Research Letters, v. 77, n. 2, p. 247 (poster).
- Glasscoe, M.T.**, Donnellan, A., Lyzenga, G.A., Norton, C.D., Parker, J.W., and Baker, T.S., 2004, Numerical modeling of deformation in the Los Angeles Basin, southern California, EOS Transactions AGU, v. 85, n. 47, Fall Meeting Supplement, Abstract G11A-0774 (poster).
- Glasscoe, M.T.**, 2004, QuakeSim: Simulation and analysis tools for creating solid Earth framework for understanding and studying active tectonic and earthquake processes, US-Japan Natural Resources 5th Earthquake Research Panel Meeting, 12-16 October, Asilomar, CA (talk).
- Glasscoe, M.T.**, 2003, A damage mechanics model for the continuum rheology of the upper continental crust, EOS Transactions AGU, v. 84, n. 46, Fall Meeting Supplement, Abstract NG12C-01 (talk).
- Glasscoe, M.T.** and Kellogg, L.H., 2002, Deformation in the Los Angeles Basin and Transverse Ranges: Comparison of finite element model velocities with geodetic velocities observed by SCIGN, EOS Transactions AGU, v. 83, n. 47, Fall Meeting Supplement, Abstract NG62A-0936 (poster).
- Glasscoe, M.T.**, Donnellan, A., Parker, J.W., Blythe, A.E. and Kellogg, L.H., 2000, Two-dimensional finite element modeling of strain partitioning in northern metropolitan Los Angeles, EOS Transactions AGU, v. 81, n. 48, Fall Meeting Supplement, Abstract G11A-04 (poster).
- Glasscoe, M.T.**, Kellogg, L.H., Pollitz, F.F., and Donnellan, A., 1999, Numerical modeling of crust-mantle interaction in the Western Transverse Ranges, southern California, EOS Transactions AGU, v. 80, Fall Meeting Supplement, Abstract T12B-08 (poster).