# GLENN R. SHARMAN

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## EDUCATION

2009-2014 **Ph.D.** – Sedimentary Geology, Stanford University, Department of Geological and Environmental Sciences
Grade point average: 4.0/4.0

Dissertation title: *Provenance, Paleogeography, and Mass-Movement of Deep-Water Depositional Systems in Arc-Adjacent Basins: The Cretaceous-Paleogene California Forearc and Upper Miocene Mohakatino Formation, New Zealand*

2004-2008 **B.S.** – Geology, Wheaton College, Illinois
Grade point average: 3.95/4.0 (overall); 4.0/4.0 (geology)

## AWARDS and HONORS

2016 **Exceptional Reviewer**, *Geosphere*

2016 **Postdoctoral Fellowship**, Quantitative Clastics Laboratory

2015 **John C. Crowell Award for Best Ph.D. Dissertation, First-Place,** Pacific Section-Society for Sedimentary Geology

2014 **Outstanding Graduate Student Award**, Stanford School of Earth Sciences

2013 **Martin Van Couvering Award**, Pacific Section – American Association of Petroleum Geologists

2011 **Research Grant and Outstanding Mention**, Geological Society of America

2010-2011 **Chevron Fund research grant**, Stanford School of Earth Sciences

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| 2010 | **Graduate Research Fellowship Program – Honorable Mention**, National Science Foundation |
| 2008 | **Scholastic Honors Society**, Wheaton College, Illinois |
| 2006 | **Scholarship for Field Study**, National Association of Geoscience Teachers |
| 2004 | **Class Valedictorian**, Epworth Christian School, Laurel, Delaware |

## INVITED SEMINARS

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| 2017 | **Geological Society of America, Annual Meeting** (two invited presentations) |
| 2017 | **The University of Delaware** |
| 2017 | **Geological Society of America South-Central Section** |
| 2017 | **American Association of Petroleum Geologists - "Deepwater and Shelf Reservoirs: Big Data, New Knowledge and Analytics for Enhanced Results" Workshop – Houston, Texas** |
| 2016 | **Bureau of Economic Geology – the University of Texas at Austin** |
| 2016 | **Society for Independent Professional Earth Scientists, Austin Chapter** |
| 2016 | **Institute for Geophysics – the University of Texas at Austin** |
| 2014 | **Los Angeles Basin Geological Society** |
| 2013 | **United States Geological Survey, Menlo Park** |
| 2013 | **San Joaquin Basin Geological Society** |

## PROFESSIONAL EXPERIENCE

2017-Present **Assistant Professor**, Department of Geosciences, University of Arkansas

2016-2017 **Postdoctoral Fellow**, Quantitative Clastics Laboratory, Bureau of Economic Geology, University of Texas at Austin

2014-2016 **Geologist**, ConocoPhillips, Houston, TX. L48 New Ventures Exploration. Explored for new oil and gas resources across multiple basins within the continental U.S. Integrated a variety of subsurface datasets and approaches (e.g., well data, basin modeling) to characterize the exploration potential of a variety of unconventional play types.

2010 & 2011 **Summer Geoscience Intern,** Occidental Petroleum, Bakersfield, CA. Evaluated key exploration targets in the San Joaquin basin as part of the California Exploration group. Used a wide range of data types (well log, seismic, core, etc.) to develop stratigraphic models and identify future exploration targets.

2008-2009 **Associate Geologist**, ENVIRON International Corporation, Chicago, IL. Contributed to environmental characterization and remediation of clients' properties in accordance with state and federal regulations. Conducted extensive field work including sample collection (soil, groundwater, and air), supervision of drilling operations, remediation oversight, and soil logging and classification. Assisted with data analysis and report preparation.

## RESEARCH EXPERIENCE

2016-2017 **Postdoctoral Research**, Quantitative Clastics Laboratory, Bureau of Economic Geology, The University of Texas at Austin
(research adviser: Dr. Jacob Covault)

- Tectonic and climatic controls on landscape evolution and sedimentation within the early Cenozoic Gulf of Mexico sediment routing system
- Source-to-sink stratigraphic response to Paleocene-Eocene global warming in western North America and the Gulf of Mexico

2009-2014 **Doctoral Research**, Department of Geological and Environmental Sciences, Stanford-Project on Deep-water Depositional Systems, Stanford University (research adviser: Dr. Stephan Graham)

- The role of subduction-related tectonism in shaping landscape evolution and sediment dispersal pathways along the California continental margin during Late Cretaceous-Eocene time.
- Paleogeography of central California during Paleogene time and implications for the development and early history of the central San Andreas fault system.
- Processes and productions related to submarine mass-movement and patterns of soft-sediment deformation within deep-water sedimentary successions.

2007-2008 **Undergraduate Research**, Department of Geology, Wheaton College (research advisers: Dr. James Clark and Dr. Stephen Moshier)

- The influence of glacial isostatic tilting on surface hydrologic features, including rivers and lakes. Modeling of how groundwater is influenced by continental glaciation using ArcGIS and MODFLOW.
- Petrography, geochemistry, and paleontology of fossiliferous concretions from the Pierre Shale, South Dakota.

## RESEARCH INTERESTS

- How geologic processes (e.g., tectonism and climate) interact to influence the stratigraphic development and evolution of sedimentary basins

- Reconstructing ancient sediment routing systems
- Application of radiogenic isotopic dating of detrital minerals in elucidating the provenance and thermal history of sedimentary basins via a 'source-to-sink' approach
- The sedimentary response to extreme events (e.g., abrupt climate change) and how these events are manifested in the geologic record
- Tectonic and landscape evolution of western North America
- Clastic sedimentology and stratigraphic evolution of deep-water depositional systems of both modern and ancient systems

## TEACHING/MENTORING EXPERIENCE

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| 2018 | **Petroleum Geology** (GEOS 4253/5743) |
| 2016-Current | **External Ph.D. Committee Member**, *Southern Illinois University*. |
| 2016-2017 | **Mentor**, *Undergraduate Intern*. Advising an undergraduate student (University of Texas at Austin) on a research project involving stable carbon isotope geochemistry. |
| 2016 | **Mentor**, *Undergraduate Intern*. Advised a summer research project for an undergraduate student intern from Puerto Rico. |
| 2015 | **Mentor**, *ConocoPhillips Summer Internship Program*. Co-advised a petrophysics intern in developing an exploration prospect. |
| 2014 | **Guest lecturer,** *Tectonics of the Western U.S.,* Stanford University |
| 2013 | **Guest lecturer**, *Field Methods,* University of California Santa Cruz |
| 2012 | **Mentor**, *Stanford Earth Sciences High School Internship Program*. Designed summer internship projects for two high school students. Supervised and assisted the students with compiling more than three hundred 1:24,000-scale geologic maps into a digital database using ArcGIS and Google Earth. |
| 2010-2012 | **Teaching Assistant**, *Reservoir Characterization*, Stanford University, Energy Resources Engineering and Geological and Environmental |

Sciences Departments. Planned class field trip, assisted students with geologic report, and graded class assignments and presentations.

2005-2007 **Teaching Assistant**, *Hydrogeology* and *Physical Geology*, Wheaton College, Department of Geology. Assisted the lab instructor in lecturing and answering questions. Graded lab assignments.

## PEER-REVIEWED PUBLICATIONS

***Submitted Manuscripts in Progress***

**Sharman, G.R.**, Sharman, J.P., and Sylvester, Z., *submitted*, detritalPy: A Python-based toolset for visualizing and analyzing detrital geo-thermochronologic data: The Depositional Record.

Hessler, A.M., and **Sharman, G.R.**, *submitted*, Subduction zones and their hydrocarbon systems: Geosphere.

Covault, J.A., and **Sharman, G.R.**, *submitted*, Tectono-Stratigraphic Evolution of the Inner California Borderland: Template for Fill-and-Spill Sedimentation: The Sedimentary Basins of the United States and Canada, 2nd edition, Elsevier.

**Sharman, G.R.**, Stockli, D.F., Flaig, P., Raynolds, R.G., and Covault, J.A., *in revision*, Local-to-distant sediment source area cyclicity of the southern Front Range, central Colorado: Insights from detrital zircon geochronology: Geological Society of America Special Paper.

Shumaker, L.E., **Sharman, G.R.**, King, P.R., and Graham, S.A., *in revision*, The source is in the sink: Deep-water deposition by a submarine volcanic arc, Taranaki Basin, New Zealand: Sedimentology.

***Accepted Manuscripts***

Malkowski, M.A., Jobe, Z.R., **Sharman, G.R.**, and Graham, S.A., *accepted*, Down-dip facies variations within deep-water channel

systems: insights from the Cretaceous Cerro Toro Formation, southern Patagonia: Sedimentology.

Zhang, J., Covault, J., Pyrcz, M., **Sharman, G.R.**, Carvajal, C., and Milliken, K., *accepted*, Quantifying sediment supply to continental margins: Application to the Paleogene Wilcox Group, Gulf of Mexico: AAPG Bulletin.

**Sharman, G.R.,** and Johnstone, S.A., 2017, Sediment unmixing using detrital geochronology: Earth and Planetary Science Letters, v. 477, p. 183-194, doi: 10.1016/j.epsl.2017.07.044.

**Sharman, G.R.,** Hubbard, S.M., Covault, J.A., Hinsch, R., Linzer, H.-G., and Graham, S.A., 2017, Sediment routing evolution in the North Alpine Foreland Basin, Austria: Interplay of transverse and longitudinal sediment dispersal: Basin Research, doi: 10.1111/bre.12259.

**Sharman, G.R.,** Schwartz, T.M., Shumaker, L.E., Trigg, C.R., Nieminski, N.M., Sickman, Z.T., Malkowski, M.A., Hourigan, J.K., Schulein, B.J., and Graham, S.A., 2017, Submarine mass failure within the deltaic Domengine Formation (Eocene), California (USA): Geosphere, v. 13, p. 1-24, doi:10.1130/GES01442.1.

**Sharman, G.R.,** Covault, J.A., Stockli, D.F., Wroblewski, A., F.-J., and Bush, M.A., 2017, Early Cenozoic drainage reorganization of the U.S. Western Interior-Gulf of Mexico Sediment Routing System: Geology, v. 45, p. 187-190.

Malkowski, M.A., Schwartz, T.M., **Sharman, G.R.**, Sickmann, Z.T., and Graham, S.A., 2016, Stratigraphic and provenance variations in the early evolution of the Magallanes-Austral foreland basin: implications for the role of longitudinal vs. transverse sediment dispersal during oblique arc-continent collision: Geological Society of America Bulletin, v. 129, p. 349-371, doi:10.1130/B31549.1.

Masalimova, L.U., Lowe, D.R., **Sharman, G.R.**, King, P.R., and Arnot, M.J., 2016, Outcrop characterization of a submarine channel-

lobe complex: the Lower Mount Messenger Formation, Taranaki Basin, New Zealand: Marine and Petroleum Geology, v. 71, p. 360-390, doi:10.1016/j.marpetgeo.2016.01.004.

Malkowski, M.A., **Sharman, G.R.**, Graham, S.A., and Fildani, A., 2015, Characterization and diachronous initiation of coarse clastic deposition in the Magallanes-Austral foreland basin, Patagonian Andes: Basin Research, p. 1-29, doi:10.1111/bre.12150.

**Sharman, G.R.,** Graham, S.A., Masalimova, L.U., Shumaker, L.E., and King, P.R., 2015, Spatial patterns of deformation and paleoslope estimation within the marginal and central portion of a basin-floor mass-transport deposit, Taranaki Basin, New Zealand: Geosphere, v. 11, p. 266-306, doi:10.1130/GES01126.1.

**Sharman, G.R.**, Graham, S.A., Grove, M., Kimbrough, D.L., and Wright, J.E., 2015, Detrital zircon provenance of the Late Cretaceous-Eocene California forearc: Influence of Laramide low-angle subduction on sediment dispersal and paleogeography: Geological Society of America Bulletin, v. 127, p. 38-60, doi:10.1130/B31065.1.

**Sharman, G.R.**, Graham, S.A., Grove, M., and Hourigan, J.K., 2013, A reappraisal of the early slip history of the San Andreas fault, central California, USA: Geology, v. 41, p. 727-730, doi: 10.1130/G34214.1.

Clark, J.A., Befus, K.M., and **Sharman, G.R.**, 2012, A model of surface water hydrology of the Great lakes, North America during the past 16,000 years: Physics and Chemistry of the Earth, v. 53-54, p. 61-71, doi:10.1016/j.pce.2010.12.005.

## FIELD GUIDE CONTRIBUTIONS

**Sharman, G.R.,** Graham, S.A., and Sine, C., 2014, A new paleogeographic model for the Point of Rocks Sandstone, San Joaquin Basin, California, *in* Clark, M., and **Sharman, G.R.**, eds.,

Westside Turbidite Field Trip San Joaquin Valley – California, AAPG Pacific Section Convention Field Trip Guidebook, p. 45-59.

## INVITED PRESENTATIONS

**Sharman, G.R.**, Graham, S.A., Grove, M.J., Hourigan, J.K., Colgan, J.P., and Stanley, R.G., 2017, Long-term offset history of the central San Andreas fault system: New insights into old questions using sedimentary systems analysis: Geological Society of America annual meeting, invited lecture, Seattle, Washington.

**Sharman, G.R.**, Covault, J.A., Stockli, D.F., Sickmann, Z., Malkowski, M.A., and Johnstone, S.A., 2017, Unmixing eustatic and tectonic signals in sedimentary systems from detrital geochronology: Geological Society of America annual meeting, invited lecture, Seattle, Washington.

**Sharman, G.R.,** Covault, J.A., Stockli, D.F., Flaig, P.P., and Miranda, V., 2017, Tectonic stratigraphy of the Laramide Denver Basin foreland: Insights from detrital zircon U-Pb geochronology: Geological Society of America South-Central Section invited lecture, San Antonio, Texas.

**Sharman, G.R.**, 2017, Big data in the context of geo- and thermochronology for frontier oil and gas exploration: American Association of Petroleum Geologists - "Deepwater and Shelf Reservoirs: Big Data, New Knowledge and Analytics for Enhanced Results" Workshop invited lecture, Houston, Texas.

**Sharman, G.R.**, 2016, Submarine mass failure within the shelfal-deltaic Domengine Formation (Eocene), central California: Bureau of Economic Geology invited lecture, Austin, Texas.

**Sharman, G.R.**, Covault, J.A., Stockli, D.F., Wroblewski, A., F.-J., and Bush, M.A., 2016, Drainage reorganization of the Early Cenozoic Rockies-Gulf of Mexico Sediment Routing System:

Society for Independent Professional Earth Scientists, Austin Chapter invited lecture, Austin, Texas.

**Sharman, G.R.,** Covault, J.A., Stockli, D.F., Wroblewski, A., F.-J., and Bush, M.A., 2016, Drainage reorganization of the Early Cenozoic Rockies-Gulf of Mexico Sediment Routing System: Institute for Geophysics invited lecture, Austin, Texas.

**Sharman, G.R.**, Graham, S.A., Grove, M., and Hourigan, J.K., 2014, A reappraisal of the early slip history of the San Andreas fault, central California: Los Angeles Basin Geological Society invited lecture, Long Beach, California.

**Sharman, G.R.**, Graham, S.A., Masalimova, L., and King, P., 2013, An Outcrop Example of a Seismic-Scale Mass-Transport Deposit, Taranaki Basin, New Zealand: Spatial Variability in Stratigraphy, Structural Architecture, and Kinematics: San Joaquin Geological Society invited lecture, Bakersfield, California.

**Sharman, G.R.**, Graham, S.A., Grove, M., and Hourigan, J.K., 2013, Detrital zircon geochronology of Eocene forearc strata in central California: A reappraisal of paleogeography and early slip on the San Andreas fault: US Geological Survey invited lecture, Menlo Park, California.

## CONFERENCE PRESENTATIONS

**Sharman, G.R.**, 2017, 3D outcrop characterization using photogrammetry: Application to structural, stratigraphic, and reservoir modeling: European Association of Geoscientists and Engineers, Annual Meeting, Paris, France.

Covault, J.A., **Sharman, G.R.**, Stockli, D.F., Sickmann, Z.T., Malkowski, M.A., and Johnstone, S.A., 2017, Sediment dispersal and provenance signal variations in small, tectonically active sediment routing systems, southern California: Society for Sedimentary Geology Research Conference, Propagation of

Environmental Signals within Source-to-Sink Stratigraphy, Ainsa, Spain.

**Sharman, G.**R., Stockli, D.F., Miranda, V., and Covault, J.A., 2017, Sediment dispersal patterns in the Denver Basin foreland: Insights from detrital zircon U-Pb geochronology: American Association of Petroleum Geologists, Annual Meeting, Houston, Texas.

**Sharman, G.R.**, Covault, J.A., Stockli, D.F., Wroblewski, A., and Bush, M.A., 2017, Early Cenozoic drainage reorganization of the western U.S. Interior-Gulf of Mexico sediment routing system: American Association of Petroleum Geologists, Annual Meeting, Houston, Texas.

Malkowski, M.A., **Sharman, G.R.**, Grove, M.J., Kimbrough, D.L., and Graham, S.A., 2016, The modern detrital record of northern and central California: Assessing the propagation of geochronological and geochemical provenance signals: Annual Meeting – American Geophysical Union.

**Sharman, G.R.,** Covault, J.A., Stockli, D.F., Wroblewski, A., F.-J., and Bush, M.A., 2016, Early Cenozoic drainage reorganization of the Western U.S. Interior – Gulf of Mexico sediment routing system: Annual Meeting – Geological Society of America.

**Sharman, G.R.,** Schwartz, T.M., Shumaker, L.E., Trigg, C., Nieminski, N., Sickman, Z., Malkowski, M.A., Johnstone, S., Hourigan, J.K., and Graham, S.A., 2016, Submarine mass failure within the deltaic-marginal marine Domengine Formattion (Eocene), San Joaquin Basin, California: Annual Meeting – Geological Society of America.

Miranda Berrocales, V.M., **Sharman, G.R.,** Covault, J.A., and Stockli, D.J., 2016, Detrital zircon provenance of the Denver Basin: evolving sediment dispersal patterns during the Laramide orogeny: Annual Meeting – Geological Society of America.

Shulaker, D.Z., Buer, N.V., **Sharman, G.R.**, Lovera, O., and Grove, M.J., 2016, Detrital thermochronometry reveals temporal changes in Eocene to Miocene erosion throughout the southern Sierra Nevada Batholith and northwest Mojave Desert region: Cordilleran Section meeting - Geological Society of America.

Malkowski, M., Jobe, Z., **Sharman, G.R.**, and Graham, S.A., 2015, Facies variations along an ancient deep-water axial channel belt: insights from the Upper Cretaceous Cerro Toro Formation, Magallanes-Austral Basin, Patagonia: Annual Meeting – American Geophysical Union.

Hubbard, S.M., **Sharman, G.R.**, and Covault, J.A., 2014, Oligo-Miocene Alpine sediment routing from integrated analysis of seismic-reflection data and detrital zircon U-Pb geochronology: Annual Meeting – American Geophysical Union.

**Sharman, G.R.**, Graham, S.A., Grove, M., and Wright, J.E., 2013, Spatial provenance trends in the Late Cretaceous-Eocene California forearc: Implications for margin tectonism and paleogeography: Annual Meeting – Geological Society of America.

**Sharman, G.R.**, and Graham, S.A., 2012, Stratigraphy, architecture, and kinematics of a seismic-scale mass-transport deposit, north Taranaki coast, New Zealand: Annual Meeting – American Association of Petroleum Geologists.

**Sharman, G.R.**, King, P., and Graham, S.A., 2012, An Outcrop Example of a Seismic-Scale Mass-Transport Deposit, Taranaki Basin, New Zealand: Spatial Variability in Stratigraphy, Structural Architecture, and Kinematics: Annual Meeting – International Association of Sedimentologists.

**Sharman, G.R.**, and Graham, S.A., 2011, Reevaluation of the Butano-Point of Rocks cross-fault tie using detrital zircon geochronology; implications for Eocene paleogeography and early

displacement on the San Andreas Fault: Annual Meeting – Geological Society of America.

Clark, J.A., Befus, K.M., and **Sharman, G.R.**, 2011, Geophysical predictions of the hydrologic history of the Great Lakes: Annual Meeting – Geological Society of America.

**Sharman, G.R.**, and Graham, S.A., 2011, Preliminary detrital zircon provenance analysis of middle Eocene through lower Miocene sandstones of the Salinian Block and western San Joaquin Basin, Central California: Cordilleran-Rocky Mountain Sectional Meeting – Geological Society of America.

Clark, J.A., Befus, K.M., **Sharman, G.R.**, and Hooyer, T.S., 2009, Numerical models of Wisconsin hydrology since the last glacial maximum; lakes, floods, groundwater and river channels. Annual Meeting – Geological Society of America.

Parker, D.R., **Sharman, G.R.**, Befus, K.M., Gregory, C.T., and Clark, J.A., 2008, Predicted late glacial and post glacial river systems and groundwater flow regime in the Great Lakes region: North-Central Sectional Meeting – Geological Society of America.

**Sharman, G.R.**, 2008, Petrology, geochemistry, and paleontology of fossiliferous concretions from the Cretaceous Pierre Shale, South Dakota: North-Central Sectional Meeting – Geological Society of America.

## PROFESSIONAL SKILLS

**Field Experience:** ~6 months field work in New Zealand, ~2 months in Patagonia Argentina, ~2 months in California, ~1 month in the central and northern Rocky Mountains, and ~2 months in the Black Hills, South Dakota for undergraduate field studies

**Analytical:** Zircon U-Pb geochronology, stable carbon isotopes

**Petroleum Software:** Petra, Geographix, Petrel, DecisionSpace

**GIS:** Experienced with ArcGIS software

## PEER-REVIEWING SERVICE

Basin Research (1)
Earth and Planetary Science Letters (1)
Geological Society of America Bulletin (2)
Geosphere (4)
Gulf Coast Section – SEPM (1)
Journal of Sedimentary Research (2)
Lithosphere (1)
National Science Foundation Research Proposal (1)