

**CURRICULUM VITAE: ANTHONY R. LOWRY**  
 Department of Geosciences, Utah State University  
<http://aconcagua.geol.usu.edu/%7Earlowry/>

**Professional Preparation & Past Positions:**

<u>Undergraduate Institution:</u>	<u>Major:</u>	<u>Degree &amp; Year:</u>
University of Wyoming	Geophysics	B.S. Hons., 1986
<u>Graduate Institutions:</u>	<u>Major:</u>	<u>Degree &amp; Year</u>
University of Wyoming	Geophysics	M.S., 1988
University of Utah	Geophysics	Ph.D., 1994
<u>Postdoctoral Institutions:</u>	<u>Department:</u>	<u>Inclusive Dates</u>
University of Utah	Geology/Geophysics	04/1994–11/1995
Victoria University of Wellington	Geology	12/1995–03/1997
Indiana University	Geological Sciences	04/1997–06/1999
<u>Positions Held:</u>	<u>Department</u>	<u>Inclusive Dates</u>
Visiting Scientist, UCAR, Boulder CO	GPS Sci. & Tech.	06/1999–06/2000
Research Associate, Univ of Colorado	Physics	06/2000–07/2006
Assistant Professor, Utah State Univ	Geology	08/2006–06/2012
Associate Professor, Utah State Univ	Geology	07/2012–present

**44 Peer-Reviewed Publications: h-index = 29**

	Cites*	IF**
• Berry, M.A., A.R. Lowry, X. Ma, R.V.S. Kanda, & D.L. Schutt (2022) Wet roots of high elevation in the western United States, <i>Earth Planet. Sci. Lett.</i> , 584, #117483.	–	5.30
• Zhang, Z.H., X.L. Liao, Z.Y. Shi, A.R. Lowry, Y. Yu, R.Q. Lu, X.T. Fan, P.F. Liu, & S.W. Xiao (2021) High-precision downward continuation of potential fields algorithm utilizing adaptive damping coefficient of generalized minimal residuals, <i>Appl. Geophys.</i> , 1-15.	2	0.99
• Zhang, H.L., D. Ravat, and A.R. Lowry (2020) Crustal composition and Moho variations of the central and eastern United States: Improving resolution and geologic interpretation of EarthScope USArray seismic images using gravity, <i>J. Geophys. Res.</i> , 125(B3), e2019JB018537.	9	3.59
• Schutt, D.S., A.R. Lowry, and J.S. Buehler (2018) Moho temperature and mobility of lower crust in the western United States, <i>Geology</i> , 46(3), 219-222.	51	4.64
• Ma, X., and A.R. Lowry (2017) USArray imaging of continental crust in the conterminous United States, <i>Tectonics</i> , 36(12), 2882-2902.	26	3.78
• Ravat, D., P. Morgan, and A.R. Lowry (2016) Geotherms from the temperature-depth constrained solutions of 1-D steady-state heat flow equation, <i>Geosphere</i> , 12(4), 1-11.	24	2.26
• Crossey, L.J., K.E. Karlstrom, B. Schmandt, R.R. Crow, D. Colman, B. Cron, C.D. Takacs-Vesbach, C.N. Dahm, D.E. Northrup, D.R. Hilton, J. Ricketts, and A.R. Lowry (2016) Continental smokers couple mantle	37	4.33

- degassing and unique microbiology within continents, *Earth Planet. Sci. Lett.*, 435(1), 22-30.
- Becker, T.W., A.R. Lowry, C. Faccenna, B. Schmandt, A. Borsa, and C. Yu (2015) Western U.S. intermountain seismicity is a lithospheric response to mantle flow stress, *Nature*, 524(7566), 458-461. 47 38.14
  - Chamoli, A., A.R. Lowry, and T.N. Jeppson (2014) Implications of transient deformation in the northern Basin and Range, western United States, *J. Geophys. Res.*, 119(5), 4393-4413. 11 3.43
  - Becker, T.W., C. Faccenna, E.D. Humphreys, A.R. Lowry, and M.S. Miller (2014) Static and dynamic support of western United States topography, *Earth Planet. Sci. Lett.*, 402, 234-246. 65 4.73
  - Foster, J.H., B. Brooks, and A.R. Lowry (2013) Fault plane segmentation and material properties revealed by slow slip events at Kilauea volcano, Hawai'i, *Geophys. Res. Lett.*, 40(23), 6059-6063. 18 4.46
  - Paul, J., C.P. Rajendran, A.R. Lowry, V. Andrade, and K. Rajendran (2012) Andaman postseismic deformation observations: Still slipping after all these years? *Bull. Seismol. Soc. Am.*, 102(1), 343-351. 36 1.94
  - Berglund, H.T., A.F. Sheehan, M.H. Murray, M. Roy, A.R. Lowry, R.S. Nerem, and F. Blume (2012) Distributed deformation across the Rio Grande Rift, Great Plains and Colorado Plateau, *Geology*, 40(1), 23-26. 63 4.09
  - Hammond, W.C., B.A. Brooks, R. Bürgmann, T. Heaton, M. Jackson, A.R. Lowry, and S. Anandkrishnan (2011) The scientific value of high-rate, low-latency GPS data, *Eos, Trans. Am. Geophys. Union*, 92(15), 125-126. 28 —
  - Lowry, A.R., and M. Pérez-Gussinyé (2011) The role of crustal quartz in controlling Cordilleran deformation, *Nature*, 471(7338), doi:10.1038/nature09912, 353-357. 146 36.28
  - DeNosaquo, K.R., R.B. Smith, and A.R. Lowry (2009) Density and lithospheric strength models of the Yellowstone-Snake River Plain volcanic system from gravity and heat flow data, *J. Volc. Geotherm. Res.*, 188, 108-127. 74 1.92
  - Pérez-Gussinyé, M., M. Metois, M. Fernández, J. Vergés, J. Fulla, and A.R. Lowry (2009) Effective elastic thickness of Africa and its relationship to other proxies for lithospheric structure and surface tectonics, *Earth Planet. Sci. Lett.*, 287(1-2), 152-167. 147 4.06
  - Pérez-Gussinyé, M., C.J. Swain, J.F. Kirby, and A.R. Lowry (2009) Resolution of the spatial variations of the effective elastic thickness,  $T_e$ , using multitaper spectral estimation and wavelet methods: Examples from synthetic data and application to South America, *Geochem. Geophys. Geosys.*, 10, Q04005. 54 2.63
  - Pérez-Gussinyé, M., A.R. Lowry, J. Phipps Morgan, and A. Tassara (2008) Effective elastic thickness variations along the Andean margin and their relationship to subduction geometry, *Geochem. Geophys. Geosys.*, 9, Q02003. 85 2.98

- Paul, J., A.R. Lowry, R. Bilham, S. Sen, and R. Smalley (2007) Postseismic deformation of the Andaman Islands following the 26 December, 2004 Great Sumatra-Andaman Earthquake, *Geophys. Res. Lett.*, 34, L19309. 63 2.74
- Pérez-Gussinyé, M., A.R. Lowry, and A.B. Watts (2007) Effective elastic thickness of South America and its implications for intracontinental deformation, *Geochem. Geophys. Geosyst.*, 8, Q05009. 120 2.35
- Levshin, A.L., X. Yang, M.H. Ritzwoller, M.P. Barmin, and A.R. Lowry (2006) Toward a Rayleigh wave attenuation model for Central Asia, Proc. 28th Seismic Res. Rev., Orlando, FL (Sept 19-21). 5 —
- Lowry, A.R. (2006) Resonant slow fault slip in subduction zones forced by climatic load stress, *Nature*, 442(7104), 802-805. 76 26.68
- Yang, X., A.R. Lowry, A.L. Levshin, and M.H. Ritzwoller (2005) Toward a Rayleigh wave attenuation model for Eurasia and calibrating a new  $M_s$  formula, Proc. 27th Seismic Res. Rev., Palm Springs, CA (Sept 20-22). 2 —
- Pérez-Gussinyé, M., A.R. Lowry, A.B. Watts, and I. Velicogna (2004) On the recovery of effective elastic thickness using spectral methods: Examples from synthetic data and from the Fennoscandian Shield, *J. Geophys. Res.*, 109(B10), #B10409. 128 2.84
- Yoshioka, S., T. Mikumo, V. Kostoglodov, K.M. Larson, A.R. Lowry, and S.K. Singh (2004) Interplate coupling and a recent aseismic slow slip event in the Guerrero seismic gap of the Mexican subduction zone, as deduced from GPS data inversion using a Bayesian information criterion, *Phys. Earth Planet. Int.*, 146, 513-530. 57 2.37
- Iglesias, A., S.K. Singh, A.R. Lowry, M. Santoyo, V. Kostoglodov, K.M. Larson, S.I. Franco-Sanchez, and T. Mikumo (2004) The silent earthquake of 2002 in the Guerrero seismic gap, Mexico ( $M_w = 7.4$ ): inversion of slip on the plate interface and some implications, *Geofisica Int.*, 43(3), 309-317. 37 0.53
- Larson, K.M., A.R. Lowry, V. Kostoglodov, W. Hutton, O. Sanchez, and K. Hudnut (2004) Crustal deformation measurements in Guerrero, Mexico, *J. Geophys. Res.*, 109(B4), #B04409. 98 2.84
- Lowry, A.R., and S. Zhong (2003) Surface versus internal loading of the Tharsis rise, Mars, *J. Geophys. Res.*, 108(E9), doi:10.1029/2003JE002111, #5099. 31 2.99
- Bartel, B.A., M.W. Hamburger, C.M. Meertens, A.R. Lowry, and E. Corpuz (2003) Dynamics of active magmatic and hydrothermal systems at Taal Volcano, Philippines, from continuous GPS measurements, *J. Geophys. Res.*, 108(B10), #2475. 49 2.99
- Kostoglodov, V., S.K. Singh, J.A. Santiago, S.I. Franco, K.M. Larson, A.R. Lowry, and R. Bilham (2003) A large silent earthquake in the Guerrero seismic gap, Mexico, *Geophys. Res. Lett.*, 30(15). 247 2.08

- Lowry, A.R., C. Rocken, S.V. Sokolovskiy, and K.D. Anderson (2002) Vertical profiling of atmospheric refractivity from ground-based GPS, *Radio Sci.*, 37. 98 0.80
- Hamburger, M.W., V. Rybakov, A. Lowry, B. Shen-Tu, and J.A. Rupp (2002) Preliminary results from a GPS geodetic network in the southern Illinois basin, *Seismol. Res. Lett.*, 73, 762-775. 9 2.21
- Lowry, A.R., K.M. Larson, V. Kostoglodov, and R. Bilham (2001) Transient fault slip in Guerrero, southern Mexico, *Geophys. Res. Lett.*, 28, 3753-3756. 177 2.52
- Lowry, A.R., M.W. Hamburger, C.M. Meertens, and E.G. Ramos (2001) GPS monitoring of crustal deformation at Taal volcano, Philippines, *J. Volc. Geotherm. Res.*, 105, 35-47. 32 1.00
- Sokolovskiy, S.V., C. Rocken, and A.R. Lowry (2001) The use of GPS for estimation of bending angles of radio waves at low elevations, *Radio Sci.*, 36, 473-482. 29 1.14
- Wannamaker, P.E., J.M. Bartley, A.F. Sheehan, C.H. Jones, A.R. Lowry, T.A. Dimitru, T.A. Ehlers, W.S. Holbrook, G.L. Farmer, M.J. Unsworth, D.B. Hall, D.S. Chapman, D.A. Okaya, B.E. John, and J.A. Wolfe (2001) The Great Basin-Colorado Plateau transition in central Utah: An interface between active extension and stable interior, in *The Geological Transition: Colorado Plateau to Basin and Range*, Erskine, M.C., J.E. Faulds, J.M. Bartley, and P. Rowley (Eds.), UGA/AAPG Guideb. 30/GB78, 1-38. 41 —
- Lowry, A.R., N.M. Ribe, and R.B. Smith (2000) Dynamic elevation of the Cordillera, western United States, *J. Geophys. Res.*, 105, 23,371-23,390. 165 2.68
- Lowry, A.R., and R.B. Smith (1995) Strength and rheology of the western U.S. Cordillera, *J. Geophys. Res.*, 100, 17,947-17,963. 165 2.41
- Lowry, A.R., and R.B. Smith, Flexural rigidity of the Basin and Range-Colorado Plateau-Rocky Mountain transition from coherence analysis of gravity and topography (1994) *J. Geophys. Res.*, 99, 20,123-20,140. 131 2.41
- Lowry, T., and P.N. Shive (1990) An evaluation of Bristow's method for the detection of subsurface cavities, *Geophysics*, 55, 514-520. 21 0.82
- Shive, P.N., T. Lowry, D.H. Easley and L.E. Borgman (1990) Geostatistical simulation for geophysical applications - Part II: Geophysical modeling, *Geophysics*, 55, 1441-1446. 5 0.82
- Lowry, T., M.B. Allen, and P.N. Shive (1989) Singularity removal: A refinement of resistivity modeling techniques, *Geophysics*, 54, 766-774. 143 0.82

\* Number of citations cross-references listings in Web of Knowledge and Scopus.

\*\* Impact Factors are for nearest year listed in Journal Citation Reports®.

**16 External Grants Funded:**

	Program	Role	Institution	Amount
(1925575) Collaborative Research: Development and Application of a Framework for Integrated Geodynamic Earth Models	NSF-EAR Frontier Res in ES	PI	Utah State U.	\$190,356
(G17AP00104) Toward Earthquake System Science: Western U.S. Lithospheric Stress/Strain Partitioning of Mantle Dynamics	USGS Earthquake Hazards	PI	Utah State U.	\$179,086
(1358622) Collaborative Research: The Effects of Water and Lithology on North American Lithosphere	NSF-EAR EarthScope	PI	Utah State U.	\$58,020
(1246977) Collaborative Research: Deciphering the Structure and Evolution of North America's Cratonic Core	NSF-EAR Geophysics EarthScope	PI	Utah State U.	\$46,500
(1114268) Collaborative Research: Deformation Processes in the Andaman Islands	NSF-EAR Geophysics	PI	Utah State U.	\$111,271
(0955909) CAREER: Earth Rheology and Deformation Processes	NSF-EAR Geophysics EarthScope	PI/ PD	Utah State U.	\$500,047
(0809954) Collaborative Research: Deformation Processes in the Andaman-Nicobar Islands	NSF-EAR Geophysics	PI	Utah State U.	\$60,000
(0537559) Collaborative Research: Deformation Processes in the Central Andaman Islands	NSF-EAR Geophysics	CoPI	U. Colorado	\$99,974
(0454541) Collaborative Research: Crustal Deformation Measurements and a Multidisciplinary Geophysical Investigation of the Rio Grande Rift	NSF-EAR EarthScope Science	CoPI	U. Colorado	\$481,069
(0207820) Collaborative Research: Seismic and Aseismic Slip Interactions on a Subduction Megathrust, Guerrero, Mexico	NSF-EAR Geophysics	PI/ PD	U. Colorado	\$45,686
(0125618) Hybrid Measurements of Crustal Deformation in Guerrero, Mexico	NSF-EAR Geophysics	CoPI	U. Colorado	\$298,769
(NAG5-11224) Investigating the formation of the Tharsis Rise and crustal dichotomy by modeling the MGS data and mantle dynamics	NASA Mars MGSDAP	CoPI	U. Colorado	\$150,459
Determination of vertical refractivity structure from ground-based GPS observations	Office of Naval Research	CoPI	UCAR	\$559,302
(#9072) GPS measurement of crustal deformation in the Wabash Valley seismic zone	USGS-NEHRP	CoPI	Indiana U.	\$39,954
(9727300) GPS measurement of tectonic and volcanic deformation in an active arc, Luzon, Philippines	NSF-EAR Geophysics	CoPI	Indiana U.	\$189,903
(NAG5-7619) Lithospheric rheology and geodynamic processes from integration of geodetic, gravity and topography data	NASA SENH	PI/ PD	Indiana U.	\$100,000

**1 Patent Granted**

- Belen'kii, M.S., E.J. Holder, S.F. Dugas, C. Rocken, and A.R. Lowry, Method of Compensating for Atmospheric Effects While Using Near Horizon Radar Utilizing a Doppler Signal, Patent No. US 6,853,331 B1, Feb. 8, 2005.

### **38 Invited Talks/Seminars/Keynotes:**

- 9 September, 2021: "*What's up with the Cordillera? Mantle roots of elevation, tectonism and seismicity in the western U.S.*", Brigham Young University Geology Department seminar.
- 17 February, 2020: "*Thermal, volatile and melt state of the Cordilleran lithosphere*", Mackenzie Mountains and Northern Canadian Cordillera Workshop, Fort Collins, Colorado.
- 12 June, 2018: "*Evidence for hydration and its role in dynamics of the western U.S. Cordillera*", 2018 Canadian Geophysical Union, Fallsview, Ontario, Canada.
- 16 May, 2017: "*EarthScope illumination of melts, volatiles, dynamics and structure of a continent*", EarthScope National Meeting 2017, 4:00pm, Dena'ina Convention Center, Anchorage, Alaska.
- 11 February, 2016: "*Thermo- & hydration dynamics of the lithosphere from combined seismic, potential field and petrophysical constraints*", **keynote address** to the British Geophysical Association—New Advances in Geophysics, Burlington House, Piccadilly Mayfair, London UK.
- 2 October, 2015: "*Pulling Utah's Earthquakes Up by Their Roots: It's the Water!*" Utah State University "Sunrise Sessions", Little America Conference Center, Salt Lake City, Utah.
- 4 December, 2014: "*Water, Lithology, Temperature and Stability of the Continental US Lithosphere*", Guy F. Atkinson Distinguished Lecture Series, Department of Geology & Geophysics, University of Utah, Salt Lake City, Utah.
- 22 October, 2013: "*What controls intraplate deformation in the western United States*", for the Earth Science Seminar, Noon, Department of Earth Science, Utah Valley University, Orem, Utah.
- 3 September, 2013: "*EarthScope Illuminates Ductile Flow Properties of the US Continental Lithosphere*", Earth Science and Engineering Seminar Series, King Abdullah University of Science and Technology, KAUST, 4:15pm, Thuwal, Saudi Arabia.
- 22 April, 2013: "*Imaging Ductile Flow: What EarthScope Seismic Data Tell Us About Flow Rheology of the Lithosphere*", National Geophysical Research Institute AcSIR Talk series, New Conference Hall, Main Building, NGRI campus, 3:00 pm, Hyderabad, India.
- 19 April, 2013: "*GPS, Gravity and Seismic Expression of Postseismic Transient Deformation, Slow Fault Slip and Tectonic Tremor: Implications for the Seismic Cycle*", National Geophysical Research Institute of India's Institute Talk series, S. B. Hall, NGRI campus, 3:00 pm, Hyderabad, India.
- 11 April, 2013: "*Challenges (And Promise) of In-Situ Lithospheric Rheology from Isostatic Strength Analyses (Invited)*", European Geosciences Union General Assembly, rm G10, Austria Center, 8:30am, Vienna, Austria.
- 13 January, 2012: "*Why Mountains Are Where They Are: Quartz Marks the Spot*", Department of Earth & Planetary Sciences Seminar Series, Locy 301, 3:30 pm, Northwestern University, Evanston IL.

- 20 September, 2011: “*Toward In-Situ Estimation of Lithospheric Rheology*”, Contributed Plenary Talk to the EarthScope Institute: The Lithosphere-Asthenosphere Boundary. 2:05 pm, World Trade Center, Portland OR.
- 9 September, 2011: “*Why Mountains Are Where They Are: Quartz Marks the Spot*”, for Southern Methodist University's Roy M. Huffington Department of Earth Sciences' Seminar Series, Heroy Bldg rm 153, noon, Dallas TX.
- 18 May, 2011: “*Crustal Quartz Plays a Surprising Role in Cordilleran Tectonism*”, Contributed Plenary Talk to the 2011 EarthScope National Meeting. 10:10 am, AT&T Conference Center, Austin TX.
- 12 April, 2010: “*Crustal Quartz: The Seeds of Mountains?*”, Department of Geology and Geophysics Distinguished Lecturer Series. 3:10 pm, University of Wyoming, Laramie WY.
- 25 September, 2009: “*Fire, Ice and Explosions: Volcanoes in Our Solar System*”, for the USU College of Science' *Science Unwrapped: Windows on the Cosmos* Series. 7pm, Emert Auditorium (Room 130), Eccles Science Learning Center, Logan UT.
- 6 November, 2008: “*EARS: Requirements for Crustal Studies Research*”, **Keynote address** to the Workshop to evaluate EARS and community needs for mantle discontinuity research using EarthScope data, University of South Carolina, Columbia SC.
- 30 May, 2008: “*Improved Receiver Function Estimates of Moho Using Spatial Statistics and Gravity (Invited)*”, Joint Assembly Meeting of the AGU, Ft. Lauderdale, FL.
- 7 March, 2008: “*Mass Loading and Rock Flow: New Insights from Isostatic Analysis*”, Department of Geological Sciences “*Smith Lecture Series*”, University of Michigan, Ann Arbor MI.
- 26 February, 2008: “*Slip Processes on Earthquake Faults: Some Recent Insights from Earth Deformation Measurements*”, Department of Physics Colloquium series, Utah State University, Logan UT.
- 3 October, 2007: “*A Tale of Two Subduction Zones: Geodesy, Fault Slip, and Implications for Frictional Rheology*”, Department of Geological Sciences Seminar, University of Oregon, Eugene OR.
- 13 March, 2007: “*The Role of Fault Friction in Geodetic Transients: A Tale of Two Subduction Zones*”, Department of Geology and Geophysics “*Seismo Seminar*”, University of Utah, Salt Lake City UT.
- 14 December, 2006: “*Gleaning Rheology from Lithospheric Flexural Strength (Invited)*”, AGU Fall Meeting, San Francisco CA.
- 14 September, 2006: “*Periodic Slow Fault Slip: A Resonant Response to Small Stress Forcing?*”, Geosciences Department Colloquium Series, Arizona University, Tucson AZ.
- 14 March, 2006: “*Resonant Slow Fault Slip in Response to Climatic Load Stress*”, **Keynote address** to the 2006 UNAVCO Science Workshop, Denver CO.
- 22 August, 2005: “*Observations, hazard implications, and a likely mechanism for slow fault slip events in subduction zones*”, School of Earth and Environment Seminar. 3pm, University of Leeds, Leeds, United Kingdom.

- 29 July, 2005: “*Observations, hazard implications and a likely mechanism for slow slip events in subduction zones*”, Earthquake Science Center Seminar Series. 10:30am, US Geological Survey, Menlo Park CA.
- 15 November, 2004: “*Lithospheric strength, stress and loading processes in the western U.S. Cordillera*”, Department of Geosciences Seminar Series. 4pm, Colorado State University, Fort Collins CO.
- 1 April, 2004: “*Silent slip and the earthquake cycle in subduction zones*”, Department of Geological Sciences Seminar. 3pm, University of Florida, Gainesville FL.
- 10 October, 2003: “*Silent slip and the earthquake cycle on major faults*”, Department of Earth and Planetary Sciences Seminar. 2pm, University of New Mexico, Albuquerque NM.
- 4 November, 2002: “*Silent slip and the earthquake cycle on major faults*”, 90<sup>th</sup> Journées Luxembourgeoises de Géodynamique. 3pm, Munsbach Castle, Munsbach, Luxembourg.
- 28 October, 2002: “*Geophysical evidence for processes of Cordilleran uplift*”, GSA Annual Meeting. 3:45pm, C108/110/112, Colorado Convention Center, Denver CO.
- 24 May, 2002: “*Fault slip dynamics of the subduction thrust in Guerrero, Mexico*”, Earth Science Department Seminar. 1:30pm, CICESE, Ensenada, Mexico.
- 18 July, 2001: “*A transient, aseismic slip event on a subduction megathrust, Guerrero, Mexico*”, LITHOSPHERE 2001 International Seminar Series, OGS Istituto Nazionale di Oceanografia e di Geofisica Sperimentale, Trieste, Italy.
- 26 April, 2001: “*Evidence for rate-state-dependence of friction on the Guerrero segment of the Cocos-North American plate boundary, Mexico*”, Department of Geological Sciences Seminar. University of Nevada, Reno NV.
- 7 March, 2001: “*Transient fault slip in the Guerrero segment of the Cocos-North America plate boundary*”, Department of Geoscience Lecture Series. University of Nevada, Las Vegas NV.

### **8 Courses Taught at USU**

- USU Honors 1360: Planet Earth. (*General introduction to Earth system science, for non-majors*).
- GEO 2500: Field Excursion. (*Field trip to observe expressions of deep-Earth dynamical processes in situ*).
- GEO 5600/6600: Signal Analysis. (*Grad/undergrad course in analysis of stochastic processes, including linear systems, spectral analysis, filtering, stacking, deconvolution and more*).
- GEO 5640/6640: Seismology. (*Grad/undergrad introduction to the wave equation and various topics in global seismology*).
- GEO 5660/6660: Applied Geophysics. (*Grad/undergrad introduction to exploration geophysics, surveying seismic, potential field and well-logging techniques suitable for shallow subsurface investigation, with a field data collection component*).
- GEO 5670/6670: Inverse Theory. (*Grad/undergrad course in optimal solution for model parameters and uncertainties from observational data*).



- GEO 5690/6690: Geodynamics. (*Grad/undergrad introduction to dynamical processes in the lithosphere and asthenosphere, emphasizing topics in thermal transfer, stress, strain, flow, rheology and geochemistry*).
- GEO 6590/7590: Geodesy and Crustal Deformation. (*Graduate course in measurement of the shape of the Earth and its gravity field, including various approaches to modeling these measurements*).

### **Students Advised:**

#### **Undergraduate research/theses:**

- Alan Gunnell, 2008: "*Monte Carlo simulation of uncertainty in estimates of the geotherm*".
- Hans Anderson, 2009: "*Estimating the Earth's geothermal gradient using Curie depths*". Presented at USU's 2009 Student Showcase.
- Tamara Jeppson, 2009: "*Is there slow slip on the Wasatch fault?*" Presented at the Utah Conference on Undergraduate Research (Salt Lake City) and USU's 2009 Student Showcase.
- Jared Romero, 2010: "*Effects of water mass on GPS measurements of Rio Grande Rift motions*". Presented at USU's 2010 Student Showcase.
- Isaac Allred, 2014: "*Geotherms, the effective elastic thickness, and the role of quartz in Utah's Basin and Range*".
- Michael Berry, 2015: "*Thermal Evidence of Flatslab Subduction Perturbations in the Western US*". Won Best Undergraduate Oral Presentation at USU's 2014 Student Showcase; presented at the 2014 and 2015 AGU Fall Meetings.
- Eric Lyman, 2016: "*Mineral Physics Modeling of the Effect of Water on Crustal Seismic Velocity Ratios*".
- Matt Olsen, 2016: "*Smartphone Seismology: Data Acquisition Through Consumer-Available Devices*".
- Jared Bryan, 2020: "*The role of flexural stresses in forecasting seismicity distributions*". Presented at the 2019 Utah Conference for Undergraduate Research.
- Ryker Tracy, 2021: "*Seismic data from the Mars' InSIGHT seismometer.*"

#### **Graduate Theses (as chair):**

- Amanda Leaman, MS expected 2023.
- Xiaofei Ma, PhD 2017: "*USArray Imaging of North American Continental Crust*".
- Eric Beard, MS 2012: "*Using modern measurements of Pleistocene loads to model lithospheric rheology*".

#### **Graduate Theses (as committee member):**

- Ema Armstrong, PhD expected 2025.
- Jordan Jensen, PhD expected 2025.
- Aser Abbas (USU-Civil Engineering), PhD expected 2024.
- Shelby Litton, MSc expected 2023.
- Kevin Mendoza (University of Utah), PhD expected 2023.

- Coleman Hiatt, PhD 2023: “*Volatile Cycling and Metasomatism in Flat-Slab Subduction Zones of the Central Andes*”.
- Rob McDermott, PhD 2020: “*A Thermochronometric, Microtextural, and Numerical Modeling Approach to Deciphering the Rock Record of Deformation Processes in the Wasatch and Denali Fault Zones*”.
- Luis Navarro (USU-Physics), PhD 2020: “*Storm-Time Equatorial Thermospheric Dynamics and Electrodynamics*”.
- Garth Hesseltine, MSc 2018: “*Micro- to Macro-Scale Structural and Lithological Architecture of Basal Nonconformities: Implications for Fluid Flow and Injection Induced Seismicity*”.
- Brandt Scott, MS 2018: “*Structural Control of Thermal Fluid Circulation and Geochemistry in a Flat-Slab Subduction Zone, Peru*”.
- Michael Negale (USU-Physics), PhD 2018: “*Investigating the Climatology of Mesospheric and Thermospheric Gravity Waves at High Northern Latitudes*”.
- Doug Jones, MS 2016: “*Crustal Architecture of the Snake River Plain, Idaho, Through Geochemical Investigation of Crustal Sill and Shallow Subvolcanic Xenoliths*”.
- Janelle Jenniges (USU-Physics), PhD 2015: “*A Study of the Dayside Ionospheric Electrodynamics During Extended Solar Minimum*”.
- James Kessler, PhD 2014: “*In-situ Stress and Geology from the MH-2 Borehole, Mountain Home, Idaho: Implications for Geothermal Exploration from Fractures, Rock Properties, and Geomechanics*”.
- Katie Potter, PhD 2014: “*The Kimama Core: A 6.4Ma Record of Volcanism, Sedimentation and Magma Petrogenesis on the Axial Volcanic High, Snake River Plain, ID*”.
- Mitch Prante, PhD 2013: “*Earthquake Petrology: Linking Fault-Related Deformation to the Earthquake Cycle*”.
- Steve Thornock, MS 2013: “*Southward Continuation of the San Jacinto Fault Zone Through and Beneath the Extra and Elmore Ranch Left-Lateral Fault Arrays, Southern California*”.
- Susit Chaiprakaikeow (USU-Civil Engineering), PhD 2012: “*New Methods for Engineering Site Characterization Using Reflection and Surface Wave Seismic Surveys*”.
- Kelly Bradbury, PhD 2012: “*Rock Properties and Structure Within the San Andreas Fault Observatory at Depth (SAFOD) Borehole, Northwest of Parkfield, California: In-Situ Observations of Rock Deformation Processes and Fluid-Rock Interactions of the San Andreas Fault Zone at ~ 3 km Depth*”.
- Marlon Jean, PhD 2012: “*The Chemical Evolution of Continental and Oceanic Lithosphere: Case Studies in the US Cordillera*”.
- Megan Lahti (USU-Biology), PhD 2010: “*The status of dwarfed populations of short-horned lizards (*phrynosoma hernandesi*) and Great Plains toads (*anaxyrus cognatus*) in the San Luis valley, Colorado*”.
- Meagan DeRaps, MS-AEG 2009: “*The Pliocene/Pleistocene volcanic evolution of the western Snake River Plain, Idaho*”.

- Christine Puskas (University of Utah), PhD 2009: “*Contemporary deformation, kinematics, and dynamics of the Yellowstone hotspot and western U.S. interior from GPS, fault slip rates, and earthquake data*”.
- Katrina Settles (University of Utah), MS 2007: “*Crustal Structure and Tectono-Magmatic Processes of the Yellowstone-Snake River Plain Volcanic System from Gravity Density and Lithospheric Strength Modeling with Seismic and Heat Flow Constraints*”.

**Postdoctoral/Research Associate Mentor:**

- Dr. Ravi Kanda, 2014-2016.

**Professional Service Activities:**

**Department:**

- Organizer of the Geology Department Distinguished Lecture Series, September 2008–January 2010.
- Chair/member, Tenure Advisory Committees for Ben Burger, Dennis Newell, Alexis Ault, Don Penman & Sharan Shreedharan

**College/University:**

- College of Science Ombudsperson, 2020-present.
- Member, Faculty Evaluation Committee, 2017-2020.
- Member, Parking and Transportation Committee, 2015-2020.
- Member, Faculty Senate, representing College of Science, July 2011–2017.
- Member, Post-Tenure Review Working Group, 2014-2015.
- Speaker for the College of Science’ *Science Unwrapped* series (Sep 25, 2009: “Fire, Ice and Explosions: Volcanoes in Our Solar System”)
- Member, College of Science Dean Search Committee, September 2006–January 2007.

**Community:**

- Chair, Geodetic Infrastructure Advisory Committee (part of UNAVCO governance), March 2015–December 2019.
- Member, Plate Boundary Observatory Working Group; and Liaison, Geodetic Infrastructure Advisory Committee (parts of UNAVCO governance), January 2013–March 2015.
- Member and Secretary, Plate Boundary Observatory Advisory Committee, December 2009–December 2012.
- Contributing author on UNAVCO White Paper, “*The Scientific Value of High-Rate, Low-Latency GPS Data: A White Paper*”.
- Peer-reviewer, averaging ten manuscripts and five proposals per year. (Cited for Excellence in Refereeing by AGU editors, 2012).