

## CURRICULUM VITAE - KARL MUELLER

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### EDUCATION

1992 Ph.D. Geology, University of Wyoming  
1984 M.S. Geology, San Diego State University  
1982 B.S. Geology, San Diego State University

### POSITIONS HELD

2015 – present	Professor, University of Colorado
2002 - 2014	Associate Professor, University of Colorado
2003 - 2007	Associate Chair for Graduate Studies, Dept Geological Sci. CU
2001 - 2001	Fellow - Japan Society for the Promotion of Science, Kyoto Univ.
1995 - 2001	Assistant Professor, University of Colorado
1993 - 1995	Postdoctoral Research Associate, Princeton University
1992 - 1993	Visiting Assistant Professor, University of Montana
1990 - 1991	Lecturer, University of Wyoming

### RESEARCH FOCUS

I am a geologist who studies how the upper crust on Earth deforms in response to changes in stress. My work and that of my graduate students is multidisciplinary and combines methods and datasets used in structural geology, geomorphology and geophysics. Questions that have motivated my research include:

- How does erosion, groundwater flow and solute transport interact with, and affect gravity-driven extension and flexure associated with plastically deforming, ultra-weak evaporite deposits and how does this affect coupling of brittle and plastic strain in large salt structures.
- How do large thrust faults grow on the planet Mars and Mercury and how does their geometry develop in response to crustal rheology and heat flow.
- What are the mechanisms that control the kinematics of fault-related folds, their growth during earthquakes, seismic hazards posed by blind thrusts, and fault propagation and scaling as it relates to fault strength.
- How does erosion result in the reorganization of thrust sheets and other compressive structures in critically tapered thrust wedges such as on the Island of Taiwan.
- How and why does long-wavelength rock and surface uplift occur along the Pacific coastline of Southern and Baja California and what does this mean for the development of a rift flank along the Peninsular Ranges.
- Why are seismic events strongly clustered in time in the last several earthquake cycles in the New Madrid seismic zone and how does fault geometry promote elastic stress triggering.

## PEER-REVIEWED PAPERS

\* Graduate student in my research group

\*\* Graduate student supported by a grant where I was the PI, or one I advised

\*\*\* International graduate student I advised overseas and in my lab at CU-Boulder

### **Surface slip variability on strike-slip faults**

1. Reitman, N.G., Mueller, K.J., and Tucker, G.E., 2022, Surface slip variability on strike-slip faults: *Earth Surface Processes and Landforms*, 1-24, <https://doi.org/10.1002/esp.5294>
2. Schulte-Pelkum, V., Ross, Z., Mueller, K., and Ben-Zion, Y., (2020). Tectonic inheritance from deformation fabric in the brittle and ductile Southern California crust: *Journal of Geophysical Research – Solid Earth* , e2020JB019525. <https://doi.org/10.1029/2020JB019525>
3. \*Kravitz, K., Mueller, K., and R. Bilham, (2020), Active steady-state creep on a normal fault in southeast Utah: Implications for strain release in a rapidly deforming salt system: *Geophysical Research Letters*. 47, e2020GL087081. <https://doi.org/10.1029/2020GL087081>
4. \*Reitman, N.G., Mueller, K.J., Tucker, G., Gold, R., Briggs, R., Barnhart, K., 2019. Offset channels may not accurately record strike-slip fault displacement: Evidence from landscape evolution models: *Journal of Geophysical Research*, 124, 12, 13427-13451
5. \*Orlandini, O., Mahan, K., Williams, M., Regan, S., and K. Mueller, 2019, Evidence for deep crustal seismic rupture preserved in a granulite-facies intraplate strike-slip shear zone, northern Saskatchewan, Canada: *Geological Society of America Bulletin*. DOI: 10.1130/B31922.1, 130,
6. Gold, A., Pendergast, P., Ormand, C., Budd, D., and K. Mueller, 2018, Improving spatial thinking skills among undergraduate geology students through short online training exercises: *International Journal of Science Education*, 40, 18, 2205-2224.
7. Gold, A., Pendergast, P., Ormand, Budd, D., C., Stempien, J., Mueller, K., Kravitz, K (2018), Spatial skills among undergraduate students – influence of gender, motivation, academic training and childhood play: *Geosphere*, (2018).
8. \* Kravitz, K., Upton, P., Mueller, K., and S.G. Roy (2017) Topographic controlled forcing of salt flow: Three-dimensional models of an active salt system, Canyonlands, Utah: *Journal of Geophysical Research – Solid Earth*.
9. Mueller, K., 2017, Variation in slip rates on active faults: Natural growth or stress transients: *Research Focus, Geology*, 45, 3, 287-288, doi:10.1130/focus032017.1
10. Haaker, E.C., Rockwell, T.K., Kennedy, G.L., Grant Ludwig, L., Freeman, T., Zumbro, J.A., Mueller, K.J., Edwards, R.L., (2016). Long-term uplift of the Southern California coast between San Diego and Newport Beach resolved with new dGPS survey data: Testing blind thrust models in the offshore California Borderland: *in* Anderson, R.L., and Ferriz, H., *Applied Geology of California*, Assoc. of Environmental and Engineering Geologists Special Pub. 26.

11. Rockwell, T.K., Fletcher, J.M., Teran, O.J., Hernandez, A.P., Mueller, K.J., Salisbury, J.B., Akciz, S.O., Stepancikova, P., Hough, S.E., (2015), Reassessment of the 1892 Laguna Salada Earthquake – fault kinematics and rupture patterns: *Bulletin Seismological Society of America*: 105 (6), p. 2885.
12. Mueller, K., \*Vidal, A., Robbins, S., Golombek, M., and C. West (2014) Fault and fold growth of the Amenthes Uplift, Implications for Late Noachian crustal rheology and heat flow on Mars: *Earth and Planetary Science Letters*, 408 100-109.
13. \*\* Reitman, N., Ge, S., and Mueller, K., (2014), Groundwater flow and its effect on salt dissolution in Gypsum Canyon watershed, Paradox Basin, southeast Utah, USA, *Hydrogeology Journal*, 22, 1403-1419.
14. Fletcher, J., Teran, O., Rockwell, T., Oskin, M., Hudnut, K., Mueller, K., Spelz, R., Akciz, S., Masana, E., Faneros, G., Fielding, E., Leprince, S., Morelan, A., Stock, J., Lynch, D., Ellior, A., Gold, P., Liu-Zeng, J., González-Ortega, A., Hinojosa-Corona, A., González-García, J., (2014) Assembly of a large earthquake from a complex fault system: surface rupture kinematics of the April 4, 2010 El Mayor-Cucapah Mw 7.2 earthquake: *Geosphere*, v. 10, 797-827.
15. \*Grothe, P., Cardozo, N., Mueller, K., and Ishiyama, T., (2014), Propagation history of the Osaka-wan blind thrust, Japan from trishear modeling: *Journal of Structural Geology*, 58, 79-94.
16. \*Wilcox, T., Mueller, K., Upton, P., \*Powell, L., Chen, Y.G., Huang, S., Yanites, B. and Tucker, G., 2013, Structural inheritance and erosional controls on thrust kinematics in western Taiwan: *Geosphere* 9, 1091-1101.
17. Michetti, A., \*\*\*Giardina, F., Livio, F., Mueller, K., Serva, L., \*\*\*Sileo, G., Vittori, E., Devoti, R., Riguzzi, F., Carcano, C., Rogledi, S., Bonadeo, L., Brunamonte, F., and Fioraso, G., 2012, Active compressional tectonics, Quaternary capable faults, and seismic landscape in the Po Plain (N Italy): *Annals of Geophysics*, 55, 5, 969-1001, Special Volume on Active Tectonics in the Mediterranean and Europe: site studies and application of new methodologies.
18. \*Wilcox, T., Mueller, K., Upton, P., Chen, Y., Huang, S., \*\*Yanites, B., and G. Tucker (2011), Linking Taiwan's Subcritical Hsueshan Range Topography and Foreland Basin Architecture, *Tectonics*, 30, TC4011, doi:10.1029/2010TC002825.
19. \*\*Yanites, B., Tucker, G. Hsu, H., Chen, C. Chen, and K. Mueller, 2011, The influence of sediment cover variability on long-term river incision rates: an example from the Peikang River, central Taiwan: *Journal of Geophysical Research - Earth Surface*, 116, F03016, doi:10.1029/2010JF001933.
20. \*\*Yanites, B., Tucker, G., Mueller, K. and Y. Chen., 2010, How rivers react to large earthquakes: evidence from central Taiwan. *Geology*, 38, 639-642; doi10.1130/G30883.1
21. \*\*Yanites, B., Tucker, G., Mueller, K., Chen, Y., \*Wilcox, T., and S. Huang (2010) Incision and channel morphology across active structures along the Peikang River, central Taiwan: Implications for the importance of channel width, *Geological Society America Bulletin*, 122, 1192-1208; doi:10.1130B30035.1

22. Mueller, K., \*Kier, G., Rockwell, T., and C. Jones, (2009) Quaternary rift-flank uplift of the Peninsular Ranges in Baja and Southern California by removal of mantle lithosphere: *Tectonics*, 28, TC5003, doi: 10.1029/2007TC002227.
23. Upton, P., Mueller, K., and Y. Chen (2009), Three-dimensional numerical models with varied material properties and erosion rates: Implications for the mechanics and kinematics of compressive wedges, *Journal of Geophysical Research-Solid Earth*, 114, B04408, doi:10.1029/2008JB005708.
24. Liveo, F., Berlusconi, A., Michetti, A., \*\*\*Sileo, G., Zerboni, A., Trombino, L., Cremaschi, M., Mueller, K., Vittori, e., Carcano, C., and S. Rodledi, (2009a) Active crustal shortening in the epicentral area of the December 25, 1222 Brescia earthquake: seismotectonic implications: *Tectonophysics*, 476, 320-335.
25. Liveo, F., Michetti, A., \*\*\*Sileo, G., Carcano, C., Mueller, K., Rogledi, S., Serva, L., Vittori, E., and A Berlusconi, (2009b) Quaternary capable folds and seismic hazard in Lombardia (Northern Italy): the Castenedolo structure near Brescia. *Bulletin Geological Society of Italy*, 128, 1, 101-200.
26. Tesfaye, S., Rowan, M., Mueller, M., Trudgill, B., and D. Harding, 2008, Relay and Accommodation Zones in the Dobe and Hanle Grabens, Central Afar, Ethiopia and Djibouti: *Journal Geological Society of London*, 165, 535-547.
27. Livio, F., Berlusconi, A., Michetti, A., Mueller, K., 2008, Holocene Coseismic surface folding and paleoliquefaction on the Monte Netto site, Brescia: Seismotectonic implications, *Short Notes, Geological Society of Italy*, 1 (1), 101-103.
28. Furuya, M., Mueller, K., and J. Wahr, 2007, Active salt tectonics in the Needles District, Canyonlands (Utah) detected by Interferometric SAR and Point Target Analysis: 1992-2002: 2007, *Journal of Geophysical Research - Solid Earth*. 112, B06418, doi:10.1029/2006JB004302.
29. Chen, Y.G., Hung, J., Lai, K., Lin, Y., \*Wilcox, T., and K. Mueller, 2007, River terrace development in response to folding above active wedge thrusts in Houli, Central Taiwan: *Journal of Asian Earth Sciences*, 31, 3, 240-250.
30. \*\*\*Sileo, G., \*\*\*Giardina, F., Livio, F., Michetti, A., Mueller, K., and E. Vittori, 2007, Remarks on the active tectonics of the Insubria region (Lombardia, NW Italy and Ticino, Switzerland): *Bulletin of the Geological Society of Italy*, 126, 2, 411-425.
31. \*\*\*Ishiyama, T., Mueller, K., Sato, H., and M. Togo, 2007, Coseismic fault-related fold model, growth structure and the A.D. 1586 multi-segment blind thrust earthquake on the basement-involved Yoro thrust, central Japan: *Journal of Geophysical Research-Solid Earth* 112, B03S07, doi:10.1029/2006JB004377.
32. Chen, Y.G., Mueller, K., and C.H. Lo, 2007, Earthquake Geology and Hazards in Taiwan, *Journal of Asian Earth Sciences*, 31, 3, 195-196.
33. Pujol, J., Mueller, K., Shen, P., and Chitupolu, V., 2006, High-resolution 3-D P-wave velocity model for the East Ventura - San Fernando basin, California, and relocation of events in the Northridge and San Fernando aftershock sequences: *Bulletin Seismological Society America* 96, 6, 2269-2280.

34. Hough, S., Bilham, R., Mueller, K., Stephenson, W., Williams, R., and J. Odum, 2005, Wagonloads of Sandblows: *Bulletin Seismological Society of America*: 76, 373-386.
35. \*\*\*Ishiyama, T., Mueller, K., Togo, M., Okada, A., and Takemura, K., 2004, Geomorphology, kinematic history and earthquake behavior of the active Kuwana wedge-thrust anticline, central Japan: *Journal of Geophysical Research-Solid Earth*: 109, 12408 doi:10.1029/2003JB002547
36. Mueller, K., and Golombek, M., 2004, Compressional structures on Mars: *Annual Reviews Earth and Planetary Sciences*, 32, 435-464.
37. Mueller, K., Hough, S., and Bilham, R., 2004, Investigating 1811-1812 New Madrid mainshocks with instrumentally recorded aftershocks: *Nature*, 429, 284-288.
38. Lee, J.C., Rubin, C., Mueller, K., Chen, Y.G., Chan, Y.C., Sieh, K., Chu, H.T., and W.S. Chen, 2004, Quantitative analysis of movement along an earthquake thrust scarp: a case study of a vertical exposure of the 1999 surface rupture of the Chelungpu Fault at Wufeng, western Taiwan: *Journal of Asian Earth Sciences*, 23, 263-273.
39. \*Bielecki, A.E., and Mueller, K.J., 2002, Origin of terraced hillslopes on active folds in the southern San Joaquin Valley, California: *Geomorphology*, 42, 131-152.
40. Mueller, K.J., and Pujol, J., 2002, 3D geometry of the Reelfoot blind thrust: implications for moment release and earthquake magnitude in the New Madrid seismic zone: *Seismological Society of America Bulletin*, 91, 1563-1573.
41. Guccione, M.J., Mueller, K.J., \*Champion, J., Sheperd, S., Carlson, S.D., and Odhiambo, B., 2002. Stream response to repeated coseismic folding, Tiptonville Dome, western Tennessee: *Geomorphology*, 43, 313-349.
42. \*Champion, J.A., \*Tate, A., Mueller, K.J., and Guccione, M., 2001, Geometry, numerical modeling and revised slip rate for the Reelfoot blind thrust and trishear fault-propagation fold, New Madrid seismic zone: *Engineering Geology* 62, 31-49.
43. Lee, J., Chen, Y., Sieh, K., Mueller, K., Chen, W., Chu, H., Chan, Y., Rubin, C., and R. Yeats, R., 2001, A Vertical Exposure of the 1999 Surface Rupture of the Chelungpu Fault at Wufeng, Western Taiwan: *Structural and Paleoseismic Implications for an Active Thrust Fault*: *Seismological Society of America Bulletin*, 91, 914-929.
44. Rubin, C., K. Sieh, Y.G. Chen, J.C. Lee, H.T. Chu, R. Yeats, K. Mueller and Y.C. Chan, 2001, Post-earthquake response, 1999 Chi-Chi earthquake: Evidence for past earthquakes: *Eos*, 82, 565-567.
45. Bendick, R., Bilham., R., Fielding, E., Gaur, V., Hough, S., Kier, G., Kulkarni, M., Martin, S., Mueller, K., and M. Mukul, 2001, The January 26, 2001 Bhuj Earthquake: India, *Seismological Research Letters*, 72, 329-335.
46. Rivero, C., Shaw, J., and Mueller, K., 2000, Insights into the origin of blind thrust faults in coastal southern California: The Oceanside and Thirtymile Bank thrusts: *Geology* 28, 891-994.
47. Mueller, K., \*Champion, J., Guccione, M., and Kelson, K., 1999, Fault slip rates in the modern New Madrid seismic zone: *Science*, 286, 1135-1138.

48. Grant, L., Mueller, K., Gath, E., Cheng, H., Edwards, L., Munro, R., and Kennedy, G., 1999, Late Quaternary uplift and earthquake potential of the San Joaquin Hills, southern Los Angeles Basin, California: *Geology*, 27, 1031-1034.
49. Mueller, K., Cervený, P., Snee, L., and Perkins, M., 1999, Chronology of polyphase Extension in the Windermere Hills, NE Nevada: *Geological Society of America Bulletin*, 111, 11-27.
50. Walls, C., Rockwell, T., Mueller, K., Bock, Y., Williams, S., Pfanner, J., Dolan, J., and P. Fang, 1998, Escape Tectonics in the Los Angeles Metropolitan Region and Implications for Seismic Risk: *Nature*, 394, 356-360.
51. Mueller, K., and Suppe, J., 1997, Growth of Wheeler Ridge Anticline, California: Implications for fault-bend folding behavior during earthquakes, *Journal of Structural Geology*, 19, 383-396.
52. Mueller, K., and Talling, P., 1997, Geomorphic evidence for tear faults accommodating lateral propagation of an active fault-bend fold, Wheeler Ridge, California, *Journal of Structural Geology*, 19, 397-411.
53. Mueller, K., and Rockwell, T., 1995, Late Quaternary activity of the Laguna Salada fault in northern Baja California, Mexico: *Geological Society of America Bulletin*, 107, 8-18.
54. Mueller, K., and Snoke, A., 1993, Progressive overprinting of normal fault systems and their role in Tertiary exhumation of the East Humboldt-Wood Hills metamorphic complex, northeast Nevada: *Tectonics*, 12, 361-371.
55. Mueller, K.J., 1993, Geologic map of the Windermere Hills, Elko County, Nevada, (with cross sections and descriptions of geologic units): Nevada Bureau of Mines and Geology Field Studies Maps, No. 4, scale 1:48,000.
56. Mueller, K., and Rockwell, T., 1991, Late Quaternary structural evolution of the western margin of the Sierra Cucapa, Baja California Norte: in Dauphin, J., and Simoneit, B., (ed) *The Gulf and Peninsular Province of the California's*, AAPG Memoir 47, 249-260.

CONFERENCE AND SYMPOSIA ABSTRACTS (post tenure) \* indicates advisee at CU

1. Perman, E.A., Gallen, S., Singleton, J., Mavor, S., Gomila, R., Seymour, N.M., Mueller, K., 2021, Quaternary neotectonic lineaments in the hyperarid Atacama Desert, northern Chile: Long-term records of forearc strain, GSA Annual Meeting (Portland, OR)
2. Reitman, N.G., Mueller, K., Tucker, G., (2020), *How does climate affect the evolution of offset channels? Insights from landscape evolution models: Annual Meeting Southern California Earthquake Center. Palm Springs, CA.*
3. Reitman, N.G., Mueller, K., Tucker, G., (2019), *Offset channels are incomplete records of strike-slip fault displacement: American Geophysical Union Annual Meeting*
4. Reitman, N., Mueller, K., Tucker, G., Gold, R., Briggs, R., Barnhart, K., *Offset channels are incomplete records of strike-slip fault displacement, 2019, Southern California Earthquake Center Annual Meeting, Palm Springs, CA.*
5. Mueller, K., Reitman, N., \*Kravitz, K., and S. Ge, (2018), Limits on solute transport in an actively deforming terrestrial salt system, Canyonlands, Utah, USA. Penrose Conference:

Advances in salt tectonics: observations, applications and perspectives, Ein Boqueq, Dead Sea, Israel, 11-16 Feb, 2018.

6. Kravitz, K., Mueller, K., Furuya, M., Tiampo, (2018), A decadal snapshot of displacement length scaling and linkage of creeping faults in an extensional salt system using interferometric synthetic aperture radar: Penrose Conference: Advances in salt tectonics: observations, applications and perspectives, Ein Boqueq, Dead Sea, Israel, 11-16 Feb, 2018.
7. Kravitz, K., Mueller, K., Upton, P., (2018), Topographic influence on the three-dimensional mechanics of a salt system, Canyonlands National Park, Utah, : Advances in salt tectonics: observations, applications and perspectives, Ein Boqueq, Dead Sea, Israel, 11-16 Feb, 2018.
8. Reitman, N., Mueller, K, Tucker, Barnhart, K., 2018, Are offset channels accurate representations of strike-slip fault displacement? Implications from landscape evolution modeling: *American Geophysical Union Annual Meeting*, San Francisco.
9. Reitman, N., Mueller, K, Tucker, Barnhart, K., 2018, Are offset channels accurate representations of strike-slip fault displacement? Implications from landscape evolution modeling: *Southern California Earthquake Center Annual Meeting*, Palm Springs, CA.
10. Reitman, N., Wang, Y., Lin, N., Lindsey, E. and K. Mueller, 2017 InSAR Time Series Analysis of Dextral Strain Partitioning across the Burma Plate, *American Geophysical Union Annual Meeting*, San Francisco.
11. Reitman, N., Wang, Y., Lin, N., Lindsey, E. and K. Mueller, 2017 InSAR Time Series Analysis of Dextral Strain Partitioning across the Burma Plate, *Geological Society of America Annual Meeting*, Seattle, WA.
12. \*Kravitz, K., K. J. Mueller, and P. Upton (2017), Three dimensional mechanical analysis of a gravity driven salt system using InSAR and numerical modeling, in *European Geophysical Union Annual Meeting*, Vienna, Austria.
13. \*Kravitz, K., K. J. Mueller, and P. Upton (2016), Mechanical feedbacks between landscape evolution, rock rheology, and active deformation in Canyonlands National Park, Utah, *Geological Society of America Annual Conference*, Denver, CO.
14. \*Kravitz, K., P. Upton, G. E. Tucker, K. J. Mueller, and S. G. Roy (2016), Coupling landscape evolution with active salt deformation in the Needles District, Utah, *American Geophysical Union Annual Meeting*, San Francisco.
15. Hynek, B., Robbins, S., Osterloo, M., Mueller, K., Gemperline, J, R. Thomas, 2016, Unlocking Mercury's Geological History with detailed mapping of Rembrandt Basin: NASA Lunar and Planetary Science Conference, 2312.
16. Gold, A., Pendergast, P., Ormand, C., Budd, D., Mueller, K., Kravitz, K., 2016, The importance of spatial reasoning skills in undergraduate geology students and the effect of weekly spatial skill trainings – with a specific focus on the gender gap, Annual Meeting, Geological Society of America, Denver, CO.
17. Omero F. Orlandini, Mahan, K., Mueller, K., Williams M., Regan, S., 2016, Frictional melt below the brittle-ductile transition: two explanations from a shear zone in northern Saskatchewan. Session No. 117, New Approaches and Results in Structural Geology and Neotectonics, Geological Society of America Abstracts with Programs. Vol. 48, No. 7. Doi: 10.1130/abs/2016AM-284469
18. Schulte-Pelkum, V., Mueller, K., 2016, Fault-parallel shear fabric in the ductile crust of Southern California imaged using receiver functions: Annual meeting Southern California Earthquake Center, Palm Springs, CA.
19. Hynek, B., Robbins, S., Osterloo, M., Mueller, K., J. Gemperline, 2015, Unlocking Mercury's geological history with Rembrandt Basin: Year 1. NASA Planetary Mappers Meeting, Honolulu, Hawaii, 16.

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21. Haaker, E., Rockwell, T., Kennedy, G., Grant Ludwig, L., Freeman, T., Zumbro, J., Mueller, K., Edwards, L., 2015, Long-term uplift of the Southern California coast between San Diego and Newport Beach resolved with new dGPS survey data: Testing blind thrust models in the offshore California Borderland, Annual Meeting Seismological Society of America Meeting, Pasadena, CA.
22. \*Kravitz, K., Upton, P., Mueller, K., 2014, Numerical modeling of an active salt system in Canyonlands, Utah: The role of topography in driving plastic flow and brittle extension, American Geophysical Union Fall Meeting.
23. \*Orlandini, O., Mahan, K., Mueller, K., Williams, M., Regan, S., 2014, Cora Lake shear zone pseudotachylyte: deep rupture of an intraplate strike-slip crustal fault and implications for the seismology of earthquakes, Geological Society of America Annual Meeting 2014.
24. Mueller, K., \*Kravitz, K., 2014, Erosional forcing of active salt structures, Canyonlands National Park, Utah, Abstracts with programs, Geological Society of America Cordilleran meeting, Abstract No. 8-1.
25. \*Stewart-Moore, J.A., Mueller, K., Anderson, R., Tucker, G., 2014, Evolution of marine terrace platforms in southern California: Interplay between tectonics, sealevel and climate modulated erosional processes. Abstracts with programs, Geological Society of America Cordilleran meeting, Abstract No. 31-12.
26. \*Kravitz, K., Furuya, M., Mueller, K. (2013), Decadal strain along creeping faults in the Needles District, Paradox Basin Utah determined with InSAR Time Series Analysis, American Geophysical Union Fall Meeting 2013, Abstract G31A-0952.
27. \*Reitman, N., Ge, S., and Mueller, K., 2012, Groundwater flow and potential effects on groundwater dissolution in the Paradox Basin, SE Utah: American Geophysical Union, Fall Meeting 2012, abstract H33G-1408
28. \*Grothe, P., Mueller, K., Cardozo, N., & Ishiyama, T. (2012). 3D growth of the Osaka-wan thrust and fault-related fold - a detailed 1250 ka record of rapid outward lateral propagation followed by higher rates of central uplift. Abstracts with Programs - Geological Society of America, 44(6), 95-95.
29. \*Levoir, M. A., Mueller, K. J., 2010 Using remote sensing and GIS techniques to determine the tectonic significance of small-scale surface water runoff in Canyonlands National Park: American Geophysical Union, Fall 2010, abstract #EP53B-0615
30. \*Levoir, M., and K Mueller., 2010, Links between surface water runoff and active subsidence of Paradox Evaporites in the Needles District, Canyonlands National Park: Geological Society of America Abstracts with Programs, Vol. 42, No. 5, p. 458
31. Rockwell, T., Fletcher, J, Teran, O., and Mueller, K., 2010, The surface rupture of the 2010 El Mayor-Cucapah Earthquake and its interaction with the 1892 Laguna Salada rupture – complex fault interaction in an oblique rift system (invited), American Geophysical Union, Fall Meeting 2010, abstract #T51E-01.
32. Fletcher, J., Rockwell, T., Hudnut, K., Teran, O., Masana, E., Faneros, G., Spelz, R., Gonzalez-Garcia, J., Gonzalez, A., Mueller, K., Chung, L., Akciz, S., Stock, J., Galetzka, J., 2010, Kinematic and dynamic analysis of the Mayor-Cucapah earthquake: A case for 3-D strain Accommodation in a single earthquake cycle, American Geophysical Union, Fall Meeting, 2010, abstract #T51E-07
33. Fletcher, J., Rockwell, T., Teran, O., Masana, E., Faneros, G., Hudnut, K., Gonzalez, J., Spelz, R., and Mueller, K., 2010, The surface ruptures associated with the El Mayor-Borrego earthquake sequence: Cordilleran Section - 106th Annual Meeting, and Pacific Section, American Association of Petroleum Geologists (27-29 May 2010)



34. \*Wilcox, T., K. J. Mueller, Y. Chen, S. Huang (2009), Long-lived interplay of Taiwan's Central Range topography and foreland basin architecture. *Eos Trans. AGU*, 90(52), Fall Meet. Suppl., Abstract T33B-1900
35. \*Yanites, B., Tucker, G., Hsu, H., Chen, C., Chen Y. Mueller, K., \*Wilcox, T., (2009) Seismically induced changes in bedrock erosional efficiency along the Peikang River, central Taiwan: the role of sediment cover variability in controlling long-term incision rates. *Geophysical Research Abstracts*, 11, EGU General Assembly, 6263.
36. Sileo, G., Mueller, K., Michetti, A.M., Livio, F., Berlusconi, A., Carcano, C., Rogledi, S., 2009, 3D Quaternary deformation pattern in the central Po Plain (Northern Italy): *Geophysical Research Abstracts*, Vol. 11, EGU2009-12742-1.
37. \*Wilcox, T., Mueller, K., Chen, Y.G. and S. Huang, 2008, Intermediate Scale Structural Control and Interplay of Western Taiwan Topography and Foreland Basin Geometry, *Eos Trans, AGU 89 (53) Fall Meet. Suppl.*, Abstract T43D-06
38. \*Yanites, B. J., Tucker, G. E., Hsu, H., Chen, C., Chen, Y., Mueller, K. and T. \*Wilcox, 2008, Variability in hillslope sediment flux modulates bedrock channel incision rates: evidence from the Peikang River, central Taiwan, *Eos Trans, AGU 89 (53) Fall Meet. Abstract H54D-06*
39. \*Yanites, B.J., Tucker, G.E., and Mueller, K.J., Differential incision and channel dynamics across structural boundaries along the Peikang River, central Taiwan. Paper presented at Summer School in Integrated Solid Earth Sciences (ISES), Colorado Springs, CO, July 2008.
40. Livio, F., Berlusconi, A., Michetti, A. M., Sileo, G., Zerboni, A., Cremaschi, M., Trombino, L., Carcano, C., Rogledi, S., Vittori, E., and K. Mueller, K., 2008, Holocene coseismic surface faulting and paleoliquefaction on the Monte Netto site, Brescia: seismotectonic implications: GIGS meeting, Catania, Italy, *Rend. Soc. Geol. It.*, 6, Nuova Serie, 00-00, 3 figs.
41. \*Yanites, B.J., Tucker, G.E., Mueller, K., \*Wilcox, T and Y.G. Chen, 2007, Structural Controls on Channel Geometry and Dynamics in the Peikang River, Central Taiwan, *Eos Trans, AGU 88 (52) Fall Meet. Suppl.*, Abstract H41D-0762
42. \*Wilcox, T., Mueller, K. and Y. Chen, 2007, Systematic variations in synorogenic fill architecture and fault offsets along strike across the Puli Topographic Embayment: Quaternary strain gradients in the central Western Foothills and Taiwanese foreland basin, *Eos Trans, AGU 88 (52) Fall Meet. Suppl.*, Abstract T32C-07
43. \*Yanites, B.J., Tucker, G.E., Mueller, K., \*Wilcox, T and Y.G. Chen, 2007, Channel dynamics in a Critical Wedge: Deformation, Hydraulic Geometry and Stream Incision Patterns along the Peikang River, Central Taiwan: *Geological Society of America Abstracts with Programs*, Vol. 39, No. 6, p. 263.
44. Ishiyama, T., Mueller, K and H. Sato, 2007, Kinematics and subsurface geometry of active thrust faults by combining tectonic geomorphology and high resolution seismic reflection data: EASTEC Symposium 2007 Dynamic Earth: its Origin and Future
45. Livio, F., Sileo, G., Michetti, A.M., Giardina, F., Carcano, C., Rogledi, S., Mueller, K., and E. Vittori, 2007, Pleistocene compressive tectonics in the Central Southern Alps (Italy): Rates of folding determined from growth strata: *Geophysical Research Abstracts*, v. 9, 02740:1607-7962/gra/EGU2007-A-02740
46. Mueller, K, \*Wilcox, T, Chen, Y, 2006, Subcritical Thrust Wedge Development in West-Central Taiwan in Response to Rapid Erosion of Synorogenic Sediments, *Eos Trans. AGU*, 87(52), Fall Meet. Suppl., Abstract T11A-0433
47. \*Wilcox, T, Mueller, K, Chen, Y, 2006, Active Folding In The Puli Basin, Constraints On Strain Across A Sub-Critical Region Of The Taiwanese Orogen, *Eos Trans. AGU*, 87(52), Fall Meet. Suppl., Abstract T33D-0546
48. Upton, P, Mueller, K, Tucker, G, \*Wilcox, T, \*Yanites, B, 2006 Do higher erosion rates lead to topographic highs or lows? An example from the Puli Embayment, West-Central Taiwan, *Eos Trans. AGU*, 87(52), Fall Meet. Suppl., Abstract T24B-07

49. \*Wolfe, E., \*Vidal, A., and K. Mueller, 2006, Interpreting Wrinkle Ridges on Isidis Planitia. Mars Using Axial Surface Mapping Techniques: Reconstructing Structural Development and Stress Environments, Lunar and Planetary Science Conference XXXVII, abstract 1430.
50. \*Vidal, A., Mueller, K., and M. Golombek, 2006, Constraining Crustal Thickness and Hesperian Heat Flow on Solis Planum, Mars using Depth to Detachment Mapping on Blind Thrust Faults, Lunar and Planetary Science Conference XXXVII, abstract 1712.
51. Mueller, K., Sileo, G., and A. Michetti, 2006, Assessing Mmax on Active Thrust Faults in New Madrid (USA) and the Northern Po Basin (Italy), Workshop on the Conduct of Seismic Hazard Analyses for Critical Facilities, May 15-19, Trieste, Italy.
52. Sileo, G., Livio, F., Michetti, A.M., Giardina, F., Mueller, K., Carcano, C., Rogledi, S., and Vittori, E., 2006, Blind Thrust Hazards in the Po Basin, Active Slow Shortening Across the Frontal Alpine Wedge and Implications for narrowing of the Orogen in Response to Quaternary Erosion, INQUA-SEQS, September 11-15, Milan, Italy.
53. \*Wilcox, T, Mueller, K, Chen, Y, "Active Folding In The Puli Basin, Constraints On Strain Across A Sub-Critical Region Of The Taiwanese Orogen", Eos Trans. AGU, 87(52), Fall Meet. Suppl., Abstract T33D-0546, p. 33D-0546, vol. , (2006).
54. Mueller, K, Wilcox, T, Chen, Y, "Subcritical Thrust Wedge Development in West-Central Taiwan in Response to Rapid Erosion of Synorogenic Sediments", Eos Trans. AGU, 87(52), Fall Meet. Suppl., Abstr. T11A-0433, p. 11A-0433, vol. , (2006).
55. Giardina F., Carcano C., Livio F., Michetti A. M., Mueller K., Rogledi S., Serva L., Sileo G., Vittori E. (2005)- Active compressional tectonics in the Lombardian Southern Alps, implications for seismic hazard assessment. - Geitalia 2005, Quinto Forum Italiano di Scienze della Terra, Spoleto 21 – 23 settembre 2005, Abstracts.
- 56.** Giardina F., Carcano C., Livio F., Michetti A. M., Mueller K., Rogledi S., Serva L., \*Sileo G., Vittori E. (2005)- Active compressional tectonics and capable faults in the Western Southern Alps, European Geophysical Union Annual Meeting Abstracts.
57. Giardina, F., Liveo, F., Chunga, K., Mueller, K., and A. Michetti, 2005, Seismic hazard assessment for a highly populated and industrialized area: The case of the Insubria Region (Lombardian Southern Alps, Italy: Conference on Rapid Natural Change and Human Responses, Como, Italy, 63-64.
58. Michetti, A., Giardina, F., Carcano, C., Livio, F., Mueller, K., Rogledi, S., Serva, L., Sileo, G., and E. Vittori. (2005) - Faglie capaci e paesaggio sismico nelle Alpi Meridionali: l'impatto della tettonica attiva sul territorio più industrializzato del nostro paese- GNGTS Congress.
59. Ishiyama, T., Mueller, K., 2005, Kinematic History and Coseismic Folding of Active Wedge Thrust Structures and Fault-Propagation Folds in Nobi-Ise fault zone, central Japan: Theory and Application of Fault-Related Folding in Foreland Basins, Beijing, p122-123.
60. Mueller, K., 2005, Seismotectonics of the New Madrid Seismic Zone: Hokudan International Symposium on Active Faulting, abstract 21012, p. 99-100.
61. Mueller, K., and Ishiyama, T., 2005, Growth of active fault-propagation folds at 100-1000 year timescales: Theory and Application of Fault-Related Folding in Foreland Basins, Beijing, China, p. 17-18.
62. \*Vidal, A., K.M. Mueller, and M.P. Golombek, 2005, Geometry of thrust faults beneath Amenthes Rupes, Mars, Lunar and Planetary Science Conference XXXVI, abst 2333.
63. Furuya, M., Mueller, K., and J. Wahr, 2005, Active salt tectonics in the Needles District, Canyonlands (Utah) detected by Interferometric SAR and Point Target Analysis: 1992-2002: Eos Trans. 86, 62, Fall Meet. Suppl., G51C-0854
64. Ishiyama, T., Mueller, K., and Togo, M., 2004, Coseismic fold scarp associated with historic earthquakes on the Yoro active blind thrust, the Nobe-Ise fault zone, central Japan, Eos, Trans American Geophys Union, 85 (47) Fall Meet. Suppl., Abs T11D-1291
65. Upton, P., Koons, P.O., Mueller, K., Chen, Y. 2004, Modeling interactions between erosion and tectonics in three-dimensions: examples from New Zealand and Taiwan. Bollettino di

Geofisica teorica ed applicata Vol 45-N.1 Supplement. From Mountains to Sedimentary Basins: Modeling and testing Geological Processes. Abstract 1-11.

66. \*Vidal, A. and K.J. Mueller, 2004, Results of axial surface mapping on Solis Planum, Mars: implications for linked low-relief arches and ridges, Lunar and Planetary Science Conference XXXV, abstract 2086.
67. \*Vidal, K. Mueller, M. Golombek, 2003, Balanced crustal cross sections across wrinkle ridges on Solis Planum, Mars, from MOLA topography: *Eos, Trans American Geophysical Union*, 84, (46), Fall Meet. Suppl., Abstract P41A-0392 F960
68. Hough, S.E., K. Mueller, R. Bilham, N. Ambrasays, S. Martin, 2003, Remotely triggered earthquakes in intraplate regions: Distributed hazard, Dependent Events: *Eos, Trans American Geophysical Union*, 84, (46), Fall Meet. Suppl., Abstract S31G-07 F1062
69. Pujol, J., K. Mueller, P. Shen, V. Chitupolu, 2003, Seismotectonics of the San Fernando Basin, *Eos, Trans American Geophys Union*, 84, (46), Fall Meet. Abst S52I-03 F1144
70. Upton, P., K.J. Mueller, P.O. Koons, L. \*Powell, 2003, Reorganization of Strain in Response to Erosional Forcing at Intermediate Scales: Puli Embayment, Western Taiwan: *Eos, Trans American Geophysical Union*, 84, (46), Fall Meet. Suppl., Abstract T31F-0899 F1391
71. \*Vidal, A., Mueller, K., and M. Golombek, 2003, Axial Surface mapping of wrinkle ridges on Solis Planum, Mars from MOLA topography: Constraints on subsurface blind thrust geometry: *Proceedings of the 34th Lunar and Planetary Science Conf.*, 33, abs 1125
72. \*Cannon, E. C., K. J. Mueller, Y. Sugiyama, N. Kitada, and \*S. Sundermann (2003). Coseismic Growth and Seismic Hazards of Blind Thrust Faults in Osaka Basin, Japan - The Uemachi Fault System, IUGG 2003 XXIII General Assembly of International Union of Geodesy and Geophysics, Abstracts Week B, B.521.
73. \*Cannon, E. C., K. J. Mueller, Y. Sugiyama, N. Kitada, and S. \*Sundermann (2003). Late Quaternary Paleoseismic History Of The Uemachi Blind Thrust System In Metropolitan Osaka, Japan, Based On High-Resolution Stratigraphic Analysis Of Fault-Propagation Folds, Abstracts with Programs - Geological Soc. of America, 2003 Annual meeting.
74. Hough, S.E., Mueller, K., and R. Bilham, 2003, Where was the 23 January 1812 New Madrid Mainshock: *Seismological Research Letters*, 74, 204.
75. Ishiyama, T., Mueller, K., Togo, M., Takemura, K., and A. Okada, 2002, Geomorphology and Kinematics of the Nobi-Ise Active Fault Zone, Central Japan: Implications for the kinematic growth of tectonic landforms within an active thrust belt: *Eos, Trans American Geophysical Union*, 83, (47), Fall Meet. Suppl., Abstract S11B-1140.
76. Mueller, K., Chen, Y., and L. \*Powell, 2002, Modern Strain and Structural Architecture of the Central Taiwanese Orogen – Evidence for Active Backstepping in Response to Erosion: *Eos, Trans American Geophys Union*, 83, (47), Fall Meet. Suppl. T61B-1279.
77. \*Powell, L., Mueller, K., and Y. Chen, 2002, Geomorphic Constraints on Patterns of Shortening and Erosion in the Puli Basin: Hinterland of the Central Taiwan Thrust Belt: *Eos, Trans American Geophysical Union*, 83, (47), Fall Meet. Suppl., Abst T61B-1270.
78. \*Tate, A., Mueller, K.J., and Golombek, M.P., 2002, Kinematics and Structural Inversion of Wrinkle Ridges on Lunae and Solis Plana – Implications for the Early History of Tharsis: *Proceedings of the 32nd Lunar and Planetary Science Conference*, 33, 1828.
79. \*Tate, A., Mueller, K.J., and Golombek, M.P., 2002, Geometry and Kinematics of Wrinkle Ridges on Lunae and Solis Plana, Mars: Implications for Fault/Fold Growth History, *Proceedings of the 32nd Lunar and Planetary Science Conference*, 33, 1836.
80. Ishiyama, T., Mueller, K. J., Togo, M., Sato H., Suzuki, Y. and Okada, A., 2002, Geomorphology and kinematics of the Kuwana anticline: evidence for active wedge thrusting in central Japan, Abstracts.

INVITED SEMINAR and COLLOQUIUM TALKS (2002-2013: post tenure)

Colorado State University, 2020

Colorado School of Mines, 2013

University of Maine, 2013  
University of Wyoming 2012  
Applied Geodynamics Lab, Bureau of  
Economic Geology, UT - Austin, 2011  
University of Sendai, Japan, 2010  
Centro de Investigacion Cientifica y de  
Educacion Superior de Ensenada, Baja  
California. (Cicese), 2010 and 2009  
Chinese Petroleum Company (National)  
Miaoli Taiwan, 2008, 2007  
University of Vermont, 2008

National Taiwan University 2002, 2006, 2007,  
2008  
University of Washington, Seattle 2006  
Universita della Insubria – Como, Italy 2005,  
2006, 2007  
University of Tokyo Earthquake Research  
Institute 2004  
Academica Sinica – Taiwan 2006  
Geological Survey Japan 2004, 2005  
University of Arkansas 2003

#### CONFERENCES, SYMPOSIA AND WORKSHOPS (Post Tenure)

Attendee, : Advances in salt tectonics: observations, applications and perspectives, Ein Boqeq,  
Dead Sea, Israel, 11-16 Feb, 2018.

Member of an Expert Panel on Seismic Hazards for Nuclear Generating Station (power plant) in  
Southern California, 2010, 2013, Irvine, CA.

Invited speaker to workshop on the Conduct of Seismic Hazard Analyses for Critical Facilities,  
May 2006, Trieste, Italy

Invited Keynote Speaker to the Hokudon International Symposium on Active Faulting, Awaji  
Island, Japan 2005

Invited speaker to International Conference on Theory and Application of Fault-Related Folding  
in Foreland Basins, Beijing China (Invited Speaker) June 2005

Workshop on TAIGER Wide Angle Seismic Experiment, Miaoli, Taiwan 2005

Invited participant to Earthscope Workshop on Intraplate Seismicity and Strain, Memphis, TN,  
2004

Invited participant to Penrose Conference on Tectonics, Climate, and Landscape Evolution,  
Taiwan 2003

#### EXTERNAL FUNDING – post tenure

Southern California Earthquake Center, K. Mueller, 2020, Lithologic and climatic controls on  
offset channel development: Implications for slip-per-event measurements, \$22,727.

Southern California Earthquake Center, V. Schulte Pelkam and K. Mueller, 2017, Imaging ductile  
fault roots with deep crustal anisotropy: Implications for the distribution of lithospheric  
deformation in Southern California, \$22,937.

National Aeronautics and Space Agency, Unlocking Mercury's Geological History with  
Rembrandt Basin (2015-2017); \$290,000. Brian Hynek is PI, I am a co-I. My share of grant is ~  
45,000. NASA Planetary Geology and Geophysics Program.

National Science Foundation, Fluid Flow and Growth of Active Salt Structures at Decadal  
Timescales, Paradox Basin – Utah (2011-2014), Amount: \$303,000.

Southern California Earthquake Center, Rupture Characteristics and Segmentation of the 1892  
Laguna Salada Fault Rupture: Setting the Stage for the 2010 El Mayor-Cucapah Earthquake,  
(2011, Amount: \$10,000.

National Science Foundation, Erosional Forcing of Late Quaternary Compressive Strain, West-  
Central Taiwan (2005-2008), Amount \$264,000.

Nuclear Regulatory Commission, Surface Deformation from the 1812 Wabash Valley Earthquake, (2005), \$10,000  
National Earthquake Hazards Reduction Program, Holocene Paleoseismology of the San Joaquin Hills Blind Thrust (2005), \$20,000.  
US-Taiwan Sino-American Joint Research Program, Travel Support to Taiwan (2004-2008) \$10,000.  
Southern California Earthquake Center, Mapping the Vertical Velocity Field in the Los Angeles Basin with Aquifers tied to late Quaternary Sea Level Change (2004), \$16,000.  
National Earthquake Hazards Reduction Program, Analysis of Blind Thrust and Fold Hazards in the Southern Los Angeles Basin from Shallow Aquifers and Airborne Swath-Mapped DEM's. (2002), \$39,914.  
National Aeronautics and Space Agency, Tectonic and Thermal Evolution of the Tharsis Region, Mars (2002-2005); \$140,000. NASA Planetary Geology and Geophysics Program.

#### INTERNAL FUNDING: \$14,450 (2002-2010)

Dean's Fund for Excellence (2010): \$900. Support for Field Work, Magnitude 7.2 Sierra El Mayor-Cucapah Earthquake.  
CU-Boulder Outreach Committee, Office of Provost and Vice Chancellor for Academic Affairs (2007): Amount: \$3450. Teaching National Park Service Interpretive Staff the Geology of Arches and Canyonlands National Parks  
Dean's Fund for Excellence (2004): Amount: \$600. Travel Support for analysis of seismic hazards in Nagoya, Japan  
CU-Boulder Outreach Committee, Office of Provost and Vice Chancellor for Academic Affairs (2004): Amount: \$5000. (with Sandra Laursen and Alan Lester) Mountains to Moraines: A Curriculum Kit for Earth Sciences in St Vrain Middle Schools, Colorado.  
CU-Boulder Faculty Grants in Aid (2004): Amount: \$4500. Seed Grant for Late Quaternary Strain and Earthquake Hazards in the Lombardia - northern Italy.

#### TEACHING ACTIVITIES - COURSES TAUGHT

\*indicates new course developed since tenure in 2002

\*Earthquake Geology (Graduate level) (Geol 5700)  
\*Field Methods in Active Tectonics (Geol 4721)  
Structural Geology (Geol 3120)  
Field Methods in Structural Geology (Geol 4720)  
Historical Geology (Geol 1020)  
Physical Geology (Geol 1010)  
Advanced Structural Geology (5700)

#### GRADUATE STUDENTS SUPERVISED

Stephen Sheehans, Msc (current). Growth of active normal faults in Iceland: the interplay between magmatic resurfacing and scaling.  
Nadine Reitman, PhD (2020) Landscape evolution modeling and uncertainties with stream channels offset across strike slip faults  
Katherine Kravitz, PhD (2017) Growth and mechanics of active salt structures at decadal timescales, Paradox Basin, Utah

James Stewart Moore, Msc (2018) Coastal uplift history of Southern California, the record from marine terraces  
 Pam Grothe, Msc (2012) A precise time-distance-length growth history of the Osaka Wan blind thrust, Japan  
 Tarka Wilcox, PhD (2012) Late Quaternary shortening and erosion in the Central Taiwan Thrust Belt: Links to foreland basin architecture.  
 \*Zane Selvens, PhD (2009) Time, Tides and Tectonics on Icy Satellites (see note)  
 Arwen Vidal, PhD (2007) Late Noachian and Hesperian compressive strain on Mars  
 Sean Sundermann, M.S., (2004) Geomorphology and kinematics of blind thrusts in the Los Angeles Basin, California  
 Lauren Powell M.S., (2003) Tectonic Response to Erosion – Puli Embayment, Central Thrust Belt, Taiwan.  
 Grant Kier, M.S., (2002) Origin of Regional Uplift across Southern California and Northern Baja California  
 Alex Tate, M.S., (2001) Geometry and Kinematics of Wrinkle Ridges, Lunae and Solis Plana, Mars  
 Jon Landau, M.S., (1999) Tectonic and Geomorphic Development of Active Folds and Blind Thrusts in the Southern San Joaquin Valley  
 Jocasta Champion, Msc., (1999) Structural and Geomorphic Analysis of Tiptonville Dome, Northwestern Tennessee.  
 Adam Bielicki, Msc., (1998) Structural and Geomorphic Analysis of Enigmatic Terraced Hillslopes formed on Active Folds in the Southern San Joaquin Valley using High Resolution Laser Altimetry

- Assumed oversight of this PhD student (Selvens) after his principle advisor Robert Pappalardo left our department to work at the Jet Propulsion Lab

#### GRADUATE STUDENT DISSERTATION and/or COMPS COMMITTEES (1995-2021)

John Ohman, Steven Plescia, Stephen Sheehans, Nadine Reitman, Katherine Kravitz, Magali Barba, Jasmine Hansen, Omero Orlandini, Lin Liu, Paula Cutillo, Joya Tetreault, David Pyles, Tom de la Torre, Zane Selvens, Brian Yanites, Rebecca Bendick, Ralph Klinger, Lisa Campbell, Samson Tesfaye, Freddy Bloom, Tina Wells, Molly Bentley, Nicole Feldl

#### UNDERGRADUATE MENTORING

Dept of Geological Sciences Mentor Program

Madeline Schwarz, 2019	
Steve Sheehan, 2019	
Ragan Anthony, 2017	Amanda Nahm, 2004
Joey Gomora, 2017	Elizabeth Wolfe, 2004
James Stewart Moore, 2012	Ryan Tolene, 2002
Patrick Patton, 2011	Mathew Brabeck, 2000
Maureen LeVoir, 2008	Max Thompson, 2000
Jennifer Wilson, 2007	Elliot Larson, 1997
Forest Reider, 2005	

Univ of Colorado Undergrad Research Opportunity (UROP)

	Maureen LeVoir, 2009
Madeline Schwarz, 2019	Elizabeth Wolfe, 2005
Joey Gomora, 2018	Forest Reider, 2005

Ryan Tolene, 2001

Mathew Brabeck, 2000  
Maxwell Thompson, 2000  
Grant Kier, 1999

Southern California Earthquake Center Summer Intern

Patrick Patton, 2011

Ryan Tolene, 2003

Grant Kier, 1999

#### UNDERGRADUATE HONORS THESIS ADVISING

Madeline Schwarz, 2019-2021: Active Tectonics and Faulting in Iceland

Maureen Levoir, 2010: Influence of surface water infiltration on salt strength and modern strain, Needles District, Canyonlands National Park (Magna Cum Laude)

Elizabeth Wolfe, 2006: Folding in Isidis Planitia, Mars (Summa Cum Laude)

Ryan Tolene, 2004: Space-time pattern of instrumental seismicity in Southern California and its relation to elastic stress transfer (Magna Cum Laude)

Alexander Tate, 1998: Late Quaternary history of folding of the Compton-Los Alamitos Fold, Los Angeles, California (Magna Cum Laude)

Jocasta Champion, 1996: Seismotectonics of Tiptonville Dome, New Madrid seismic zone, Tennessee (Magna Cum Laude)

#### CU-BOULDER SCIENCE EDUCATION INITIATIVE

Physical Geology (Geol 1010) Developed initial set of learning goals for course, participated in summer workshop on learning and course goals, gave departmental talk on clickers.

Structural Geology (3120) (2009) Undertook a complete revision of the lab portion of undergrad structural geology with SEI including new curriculum, course goals, lab practicum and field exercises using pedagogy for place-based learning and critical thinking.

#### SERVICE TO THE DEPARTMENT AND UNIVERSITY (2002-2015)

Executive committee, 2015

Admissions committee, 2014 - 2015

Entrance exam committee for incoming PhD students, 2014

Organizer – Parade of Profs seminar for incoming graduate students, 2013

College of Arts & Sciences GIS advisory group: 2013

Salary equity committee: 2013-2014

Promotion and tenure review committee: 2013

Organizer – Dept Geological Sciences colloquium series: 2012-2013

Boulder Faculty Assembly and BFA Committee for Athletic Affairs: 2008-2010, 2011-2013

Grievance Committee – Dept Geological Sciences, 2004, 2012

New Chair Selection committee, 2012

APARC review committee of Geological Sciences, 2011

Boulder Faculty Assembly Bylaws committee, 2011-2012

Chair and Member: Committee for Conflict of Interest and Commitment: 2007-2009

Chair and Member: Council for Research and Creative Work, 2005-2007

Department Liaison for Natl Research Council's Assessment of PhD Programs: 2006

Associate Chair for Graduate Studies, Geological Sciences: 2003-2007

Executive Committee, Geological Sciences: 2001- 2005, 2011

Tenure and Promotion Committees: 2005, 2013

Chair Graduate Curriculum + PhD Exam Revision Committee: 2004-2006

Trip Leader, Incoming Graduate Students Field Trip: 2004-2006, 2008  
Geology Department Mentor (Tucker): 2004-2006  
Course Fees Committee – Geology Department: 2004-2005  
GAANN committee – Geology Department: 2004  
Geological Sciences Program Review (PRP): 2003 (Chair - Graduate Studies)  
CIRES Geomorphology Search Committee: 2003

#### SERVICE TO THE PROFESSION (2002-2014)

Since 2002, I've reviewed manuscripts submitted for the peer-reviewed journals Nature, Science, Journal of Geophysical Research, Geology, Tectonics, Asian Journal of Earth Sciences, Journal of Structural Geology, Geological Society of America Bulletin, Seismological Society of America Bulletin, Geophysical Research Letters, Tectonophysics, Icarus, Earth Planetary Science Letters, Engineering Geology, Remote Sensing of the Environment, Earth, Planets and Space, Geosphere, Lithosphere, Geophysical Journal International, Rocky Mountain Geology and Vadose Zone Journal

Since 2002, I've reviewed (~ 2-3 per year) research proposals for the National Science Foundation, EAR-Tectonics and Geophysics, NASA's Mars Data and Analysis Program, the Petroleum Research Fund, Academic Sinica (Earth Sciences Research in Taiwan), the US Civilian Research and Development Foundation, NASA's postdoctoral program in planetary sciences.

Review Panel member and Chair, US Geological Survey review of the Southern California Earthquake Center proposal (SCEC5).

Nuclear Regulatory Commission Expert Panel: San Onofre Nuclear Power Plant Review, Southern California, 2011-2013

National Earthquake Hazards Research Program Panel Member, 2008, 2001-2002.

Guest Editor, Journal of Asian Earth Sciences, 2007

Co-convenor of American Geophysical Union fall meeting special session: Earthquake Geology, Active Tectonics and Mountain Building in South and East Asia, 2007.

Co-convenor of American Geophysical Union fall meeting special sessions: Earthquake Geology, Natural Hazards, and Active Tectonics in South and East Asia, 2006.

Co-Convenor American Geophysical Union fall meeting special Session, Active Thrust Faults: Neotectonics, Strain Transfer and Seismic Hazards, 2004.

Co-Convenor American Geophysical Union fall meeting special Session, Earthquake Hazards in East Asia, 2003.

Co-Convenor of American Geophysical Union fall meeting special Session, Seismotectonics of Taiwan, Dec. 2002.

Tenure reviews for 3 faculty at various Universities, 2004, 2005, 2007.

#### OUTREACH ACTIVITIES (2002-2016)

Teaching NPS Interpretive Staff the Geology of Death Valley National Parks. Included short courses and field excursions into Death Valley National Park for interpretive rangers and senior managers. Funding provided by CU's Outreach Program. Includes development of curriculum for "Adventure Hikes", Interpretive rangers lead for the general public.

Map and Arts Exhibit – Jerry Crail Map Library, Department of Geological Sciences

A dozen images created as part of my Art of Digital Topography project are currently exhibited in the Earth Sciences Map Library at CU – Boulder. These are created from Shuttle Radar Topography Mission data to illustrate landforms and the patterns they create from



an artistic perspective; additional scenes can be seen on my webpage under the Science as Art button. The exhibit is highlighted in the June 2014 edition of Colorado Arts and Sciences Magazine (College of Arts and Sciences, University of Colorado Boulder).

Teaching NPS Interpretive Staff the Geology of Arches and Canyonlands National Parks. Included a short course held at Arches and field excursions into Arches and Canyonlands National Parks for interpretive rangers. Funding provided by CU's Outreach Program. Includes mapping of sinkholes in the Needles District of Canyonlands, in response to a request from the Park Service.

Creation of a waypoint display and sign that explained the geologic origins of Upheaval Dome, Canyonlands National Park.

National Geographic Television Advisor for a television documentary on Canyonlands National Park that aired in 2009. Work included providing explanatory footage, logistics support for film crew and review of geological concepts presented in the program.

Curriculum development for 7<sup>th</sup> grade Earth Sciences in the St Vrain School District. A project titled Mountains to Moraines Included creation of a booklet illustrated with shaded relief maps, field trips to Rocky Mountain National Park to train middle school teachers and creation of a set of large maps for classroom use. With Sandra Laursen and Alan Lester. Funding provided by CU's Outreach Program.

Juried art competition CU Art in Science/ Science in Art Show. Two of my digital elevation scenes were selected and placed on display in the Denver Museum of Natural History. One, an image of the State of Colorado is how hung permanently in the Geology Department.

Curriculum development for seventh graders at Peak to Peak Charter School based on mapping of natural hazards in Lafayette and surrounding cities relative to student addresses, 2005.