Elizabeth A. Balgord

Weber State University Department of Earth & Environmental Sciences
Sedimentology and Tectonics
1415 Edvalson St. Ogden, UT 84408-2507
Office: 801-626-6225 / elizabethbalgord@weber.edu
elizabethbalgord.com

Education and Research Emphases

Ph.D. in Geology – 2015, University of Arizona - Basin evolution recorded in Late Jurassic-early Cenozoic stratigraphy within the Malargüe and Aconcagua fold-and-thrust belts: Northern Neuquén Basin, Argentina

M.Sc. in Geology –2011, Idaho State University - Stratigraphic, geochronologic and geochemical analysis of the Neoproterozoic Perry Canyon Formation, northern Utah: Implications for snowball Earth and Rodinian rifting

B.Sc. in Geology –2009, University of Wisconsin-Eau Claire -Investigating the Origin of the Ni-Mo Deposit, Selwyn Basin, Yukon

Current Research Emphasis

I specialize in sedimentology, tectonics, geochronology and low-temperature thermochronology. I use the sedimentary rock record as an archive of past mountain building events. I am also actively involved in geoscience education, access, and diversity research.

Professional Appointments

Assistant Professor, Weber State University (2015-present)
Affiliated Faculty of Teaching and Research, Western Washington University, Mountain Environments Research Institute (2016-present)
Affiliated Faculty American Climber Science Program (2016-present)
Visiting Professor, Colorado College (2015)
Visiting Professor, University of Wisconsin-Eau Claire (2014)

Teaching Responsibilities

Physical Geology (GEO 1110), Historical Geology (GEO 1220), Sedimentology and Stratigraphy (GEO 3550), Field Methods (GEO 4060), Field Camp (GEO 4080), Geoscience Fieldtrips: Yellowstone and Bryce Canyon NPs (GEO 2950), Directed Studies (GEO 4800), Directed Readings (GEO 4950)

Grants and Awards

National Science Foundation GP EXTRA: Geoscience Education Targeting Underrepresented Populations, *$324,640* (PI, 2018-present)

Weber State University Hemingway Excellence Award (2018)

Utah System of Higher Education Grant: Increased Recruitment and Retention of underrepresented Groups in STEM Fields Using a Combination of Geoscience Concurrent Enrollment and Summer Bridge Program *$73,670* (PI, 2016-2017)

Fulbright Research Fellowship, Argentina (2014-2015)

Professional Memberships and Service

Journal Reviewer for: Geology, Tectonics, Basin Research, Journal of South American Earth Sciences, Lithosphere, Geosphere
Geological Society of America (2007- present)
American Women in Science (2012-present)
American Alpine Club (2012-present)

Weber State University Service and Outreach

Director of Departmental K-12 Outreach (2017-present)
Member of the University Committee for Undergraduate Research (2018-present)
Member of the College of Science Scholarship Committee (2018-present)
Member of the College of Science Adviser Search Committee (2019)
Member of the University Scholarship Committee (2018)
Organizer for Departmental Geoscience Speaker Series (2016-2018)
Faculty Advisor to Geology Club (2017-2019)

Peer Reviewed Publications

Mescua, J. F., Suriano, J., Schencman, L. J., Giambiagi, L., Sruoga, P., **Balgord, E. A.,** Bechis, F., Controls on deposition of the Tordillo Formation in southern Mendoza (34-36 °S): implications for the Kimmeridgian tectonic setting of the Neuquén Basin, *accepted*, Journal of South American Earth Sciences

Gentry, A., Yonkee, W.A., Wells, M.L., and **Balgord, E.A.,** 2018, Resolving the history of early fault slip and foreland basin evolution along the Wyoming salient of the Sevier fold-and-thrust belt: Integrating detrital zircon geochronology, provenance modeling, and subsidence analysis, in Ingersoll, R.V., Lawton, T.F., and Graham, S.A., eds., Tectonics, Sedimentary Basins, and Provenance: A Celebration of William R. Dickinson's Career: Geological Society of America Special Paper 540, p. 509–545.

McKean, A.P., **Balgord, E.A.,** Yonkee, W.A., Hiscock, A., 2018, Geologic map of the Willard Quadrangle, Box Elder County, Utah; Utah Geological Survey open file report, 1:24,000

Balgord, E. A., 2017, Triassic to Neogene evolution of the south-central Andean arc determined by detrital zircon U-Pb and Hf analysis of Neuquen Basin strata, Central Argentina (34°- 40°S): Lithosphere, 9, 3, 453-462.

Di Giulio, A., Ronchi, A., Sanfilippo, A., **Balgord, E. A.,** Carrapa, B., and Ramos, V.A., 2017, Cretaceous evolution of the Andean margin between 36° S and 40° S latitude through a multi‐proxy provenance analysis of Neuquén Basin strata (Argentina): Basin Research, 29, 3, 284-304

Stevens, A., **Balgord, E. A.,** and Carrapa, B. C., 2016, Revised exhumation history of the Wind River Range, WY, and implications for Laramide tectonics: Tectonics, 35, 5, 1121-1136

Balgord, E. A. and Carrapa, B. S., 2016, Basin evolution of upper Cretaceous–lower Cenozoic strata in the Malargüe fold-and-thrust belt: Northern Neuquén Basin: Basin Research, 28, 2, 183-206.

Select Abstracts (*undergraduate author)

*Vaughn, A., *Longo, C., **Balgord, E. A.,** Diedesch, T. F., All., J., 2019, The Impact of Bedrock Composition on Water Chemistry During Rapid Glacial Retreat in the Cordillera Blanca, Peru, 10th Annual Intermountain Sustainability Summit, Weber State University

Vaughn, A., Longo, C., **Balgord, E. A.,** Diedesch, T. F., All., J., 2019, Deglaciation in the Cordillera Blanca and its Effects on Water Quality: 13th Annual Utah Conference on Undergraduate Research, Weber State University

*Morgan, C., Diedesch, T. F., **Balgord, E. A.,** 2019, Deformation and Metamorphism in the Roof of the Cordillera Blanca Batholith, Peru: Geological Society of America Abstracts with Programs, v. 50, n. 41

Balgord, E. A., Frantz, C. M., Matyjasik, M., Yonkee, W. A., Ford, R. L., 2018, A Multifaceted approach to increasing diversity in geosciences: high school concurrent enrollment, summer bridge, community engaged learning, and early research experiences: Geological Society of America Abstracts with Programs, 50, 6. Indianapolis, IN

*Longo, C., **Balgord, E. A**., Diedesch, T. F., All., J., 2018, The Impact of Climate Change of Water Quality in the Cordillera Blanca, Peru: Geological Society of America Abstracts with Programs, v. 50, n. 6

Balgord, E. A., Yonkee, W. A., Wells, M., Laskowski, D. and Gentry, A., 2017, Evaluating arc periodicity and geochemical evolution within the central North American Cordillera: Constraints from the U-Pb and Hf isotopic record of detrital zircons in foreland strata: Geological Society of America Abstracts with Programs, 344, 11. Seattle, WA

*Patel, Daksha, **Balgord, Elizabeth**, and All, John, 2017, Bedrock Geochemistry and its Control on Water Quality During Rapid Glacial Retreat in the Cordillera Blanca, Peru: Geological Society of America Abstracts with Programs, v. 49, n. 6

Balgord, E. A., Matyjasik, M., Davis, G. and Ford, R., 2017, Increased recruitment of students from underrepresented groups in STEM fields using a combination of geoscience concurrent enrollment and summer bridge program: Geological Society of America Abstracts with Programs, 162, 9. Seattle, WA

*Robinson, Kelsey, *Robello, Raquel, K., **Balgord, Elizabeth**, Eaton, Jeffery G., 2017, Depositional Environment and Provenance of the Pink Member of the Claron Formation, Southwestern Utah: Geological Society of America Abstracts with Programs, v. 49, n. 5

Balgord, E.A., Mahoney, J. B., Kimbrough, D. L., Massitelli, M. A.m and Giambiagi, L., 2016, Evolution of the south-central Andean Arc determined by detrital zircon U-Pb and Hf analysis of retroarc basin strata, Central Argentina: Geological Society of America Abstracts with Programs, 201, 11

Richard L. Ford

Weber State University / Department of Earth & Environmental Sciences
Geomorphology and Quaternary Geology
1415 Edvalson St. DEPT 2507 / Ogden, UT 84408-2507
office: 801-626-6942 / rford@weber.edu
https://www.weber.edu/ees/Dr_Richard_Ford_new.html

Education:
Ph.D. in Geography, University of California, Los Angeles (1997) Dynamics of salt-marsh accretion coastal California
M.Sc. in Geology, University of New Mexico (1986) Alluvial-fan sedimentation and climate change western Arizona
B.Sc. in Geology, Virginia Polytechnic Institute & State University (aka Virginia Tech) (1978) *Phi Beta Kappa*
Geology Field Camp, Indiana University (Summer 1976) IU Geologic Field Station, Montana

Current Research Emphases:
(1) Quaternary landscape change in the vicinity of the Coral Pink Sand Dunes, Colorado Plateau, UT;
(2) Quaternary geology in the Torrey area, UT, member of mapping team for 7.5-minute quadrangle.

Professional Appointments:
Chairman, Dept of Earth & Environmental Sciences, Weber State University (2012-present).
Visiting Assistant, Assistant, Associate, Full Professor, Weber State University (1996-present).
Associate Instructor, Dept of Geology & Geophysics and Dept of Geography, University of Utah (1993-1996).
Teaching Fellow, Dept of Geography, University of California, Los Angeles (1988-1992).
Senior Petroleum Geologist, Texaco USA, Western Exploration Division, Los Angeles, CA (1984-1987).
Teaching Assistant, Dept of Geology, University of New Mexico (1981-1983).
Petroleum Geologist, Texaco USA, Southern Exploration Division, New Orleans, LA (1978-1981).

Professional Licenses:
Utah Professional Geologist (#2250), 2003-present, licensed by experience/education.
California Professional Geologist (#4889), 1988-2018, licensed by examination, voluntarily relinquished.

Teaching Responsibilities (courses taught 2015-2019):
Dynamic Earth: Physical Geology (GEO 1110 PS); Physical Geology Lab (GEO 1115); Introduction to Meteorology (GEO 1130 PS); Historical Geology (GEO 1220 lab only); Principles of Earth Science (for elementary education majors, GEO 1350 PS); Oceanography & Earth Systems (GEO 3010); Geomorphology (GEO 3150); Perspectives in Physical Science: *To Frack, or Not to Frack?* (HNRS 1500 PS).

Funded Grant:
USDA Forest Service (Ashley National Forest): *Classification of Groundwater-Dependent Ecosystems in Alpine Wet Meadows* (2008-2014); cost-share agreement; coPIs: Marek Matyjasik & Michael Hernandez.

Professional Service (2015-2019) and Memberships:
Utah State Board of Education Standards Writing Group, 9th-Grade Earth Science (2018-2019).
Thesis Committee, Boise State University (2017-2019).
Fieldtrip-Stop Coordinator, Friends of the Pleistocene Field Trip, Grand Staircase/Colorado Plateau (2016).
The Honor Society of Phi Kappa Phi, national-level nominating committee & VP candidate (2016-2018).
Active member: Geological Society of America; American Geophysical Union; National Association of Geoscience Teachers; Utah Geological Association.

University Service (2015-2019):
Salary, Benefits, Budget, & Fiscal Planning Committee, CUPA Subcommittee chair (2017-present).
Course Offering & Scheduling Task Force, College of Science (CoS) representative (2019-present).
The Honor Society of Phi Kappa Phi, chapter officer (1999-present, chapter president: 2016-2018).
Bachelor of Integrated Studies (BIS) Advisory Committee (2019-present).
Friends of the Stewart Library, Board member (2019-present).
Faculty Board of Review (2016-2019, appointed but no cases heard).
Starfish Implementation Task Force, CoS representative (2017-2019).
General Education Revitalization Rollout Team (2017-2018).

College of Science and Departmental Service (2015-2019):
Environmental Science Curriculum Task Force coordinator (2019-present).
Departmental Curriculum Revision coordinator (2017-2019)
Faculty Advisor, Sigma Gamma Epsilon (Earth Science Honor Society) (1998-present).
College of Science (CoS) Curriculum Committee (2015-present).
CoS Academic Advising Council (2018-present).
Earth & Environmental Sciences Advisory Council, facilitator (2012-present).
Center for Science & Mathematics Education (CSME) Advisory Committee (2012-present).
CoS Scholarship Committee (2016-2018).
Search Committee Chair, EES Lab Manager (2018).
Search Committee Chair, Geochemistry/Biogeosciences tenure-track position (2015-2016).
Search Committee Chair, Sedimentary Geosciences tenure-track position (2014-2015).
Task Force to Revise CoS Tenure Document (2013-2015).

Publications (2012-2019):
Matyjasik, M., Hernandez, M.W, Welsh, S., Ford, R.L., and Arnold, J., 2015, Classification of wetlands in the Reader Creek basin using remote sensing and water chemistry, Uinta Mountains, USA, in Vanden Berg, M.D., Ressetar, R., and Birgenheier, L/P., eds., *Geology of Utah's Uinta Basin and Uinta Mountains*: Utah Geological Association Publication 44, p. 119-138.

Ford, R.L., Massoth, T.W., and Wilkins, D.E., 2012, Geologic road guides to Coral Pink Sand Dunes State Park and vicinity, Utah, *in* Anderson, P.B. and Sprinkel, D.A., eds., *Geologic Road, Trail, and Lake Guides to Utah's Parks and Monuments*: Utah Geological Association Publication 29 (Third Edition), CD, 33p.

Ford, R.L., 2012, Major milestones in the development of Sigma Gamma Epsilon's Core traditions: *The Compass: Earth Science Journal of SGE*, v. 84 (1), article 3. (invited, not peer reviewed).

Recent Abstracts (selected):
Ford, R.L., Frantz, C.M., Yonkee, A., Balgord, E., Hernandez, M.W., Matty, D.J., and Matyjasik, M., 2019, Data-driven decisions in geoscience curriculum revision at Weber State University: *Geological Society of America Abstracts with Programs*, v. 51 (5).

Balgord, E.A., Frantz, C.M., Matyjasik, M., Yonkee, W.A., Ford, R.L., 2018, A multifaceted approach to increasing diversity in geosciences: High school concurrent enrollment, summer bridge, community engaged learning, and early research experiences: *Geological Society of America Abstracts with Programs*, v. 50 (6).

(End 26 Nov 2019)

Carie M. Frantz

Weber State University Department of Earth & Environmental Sciences
Low-temperature geochemistry & Geobiology
1415 Edvalson St., Ogden, UT 84408-2507
office: 801-626-6181 / cariefrantz@weber.edu
weber.edu/cariefrantz

Education and Research Emphases	**Ph.D. in Geological Sciences – 2013, University of Southern California** - Dissertation: Stromatolites as biosignatures and paleoenvironmental records: experiments with modern mats and examples from the Eocene Green River Formation. NSF Graduate Research Fellow **B.S. in Chemistry – 2007, University of Washington** - Departmental Distinction
Current Research Emphases	Microbial carbonates in Great Salt Lake as recorders of lake biogeochemistry, Geobiology of "rotten" late-season Arctic sea ice, Course-based undergrad research as a means of improving scientific and quantitative literacy
Professional Appointments	Assistant Professor, Weber State University (2016-present) Postdoctoral Research Associate, University of Washington Applied Physics Laboratory Polar Science Center (2014-2016) Instructor, International Geobiology Summer Course (2014, 2016)
Teaching Responsibilities	Earthquakes & Volcanoes (GEO PS 1030), Honors Co-Evolution of Life & Earth (HNRS PS 1500), Principles of Microbiology Laboratory (MICR 2054), Geomicrobiology (GEO/MICR 3753), Geochemistry (GEO/CHEM 4550), Environmental Geochemistry (GEO 4560), Geoscience & Society (GEO 4990), Directed Studies (GEO 4800)
Awards and Honors	Weber State University Presidential Teaching Excellence Award (2019) Weber State University Hemingway Collaborative Research Award (2017) Weber State University Hemingway Excellence Award (2017)
Funded Grants	NSF Division of Earth Sciences, Sedimentary Geology & Paleobiology: Collaborative Research: Assessing the sensitivity of high-altitude environments to globally warm climate as recorded by lacustrine microbialite carbonates, $110,594 (WSU)/$598,733 (total) (WSU PI, 2018-2021) NSF Improving Undergraduate STEM Education: Pathways into Geoscience Grant: Geoscience education targeting underrepresented populations, $324,627 (Co-PI, 2018-2021)
Professional Memberships and Service	Journal reviewer for: Biogeochemistry, Environmental Microbiology, Frontiers in Microbiology Journal, Geobiology Journal, Geochmiica et Cosmochimica Acta, Geology, ISME Journal, Palaios Journal (since 2015) Geological Society of America Geobiology & Geomicrobiology Division Joint Technical Program Representative (2016-2017) Member of the American Geophysical Union Member of the Geological Society of America Member of the National Association of Geoscience Teachers
Weber State University Service and Outreach	Department "Green Department" program chair (2016-present) Department seminar series co-organizer (2016-present) Environmental Science Degree curriculum committee member (2019-present) Faculty Advocates for STEM Transformation committee (2017) University Integrating Undergraduate Research in the Curriculum Committee (2017-present) University Sustainability in the Curriculum Community of Practice (2017-2018)

Invited and Peer-Reviewed Publications (* student author)**:**

C. Frantz, B. Light, *S. Farley, S. Carpenter, R. Lieblappen, Z. Courville, M. Orellana, K. Junge. (2019) Physical and optical characteristics of heavily melted "rotten" Arctic sea ice. *The Cryosphere*, 13:775-793. doi:10.5194/tc-13-775-2019

D. Newell, *J. Jensen, **C. Frantz**, M. Vanden Berg (2017) Great Salt Lake (Utah) microbialite $\delta^{13}C$, $\delta^{18}O$, and $\delta^{15}N$ record fluctuations in lake biogeochemistry since the Late Pleistocene. Geochemistry, Geophysics, Geosystems, 18:3631-3645. DOI:10.1002/2017GC007078

S. Domagal-Goldman, K. Wright, K. Adamala,..., **C. Frantz**, et al.. (2016) The Astrobiology Primer 2.0. *Astrobiology*, 16:561-653. DOI:10.1089/ast.2015.1460

V. Petryshyn, *M. Juarez Rivera; *H. Agić; **C. Frantz**; F. Corsetti; A. Tripati. (2016) Stromatolites in Walker Lake (Nevada, Great Basin, USA) record climate and lake level changes ~35,000 years ago. Palaeogeography, Palaeoclimatology, Palaeoecology, 451:140-151. DOI:10.1016/j.palaeo.2016.02.054

V. Petryshyn, F. Corsetti, **C. Frantz**, S. Lund, W. Berelson. (2016) Magnetic susceptibility as a biosignature in stromatolites. *Earth and Planetary Science Letters*, 437:66-75. DOI:10.1016/j.epsl.2015.12.016

C. Frantz. (2015) Research Focus: They might be giants: Colossal lacustrine stromatolites. *Geology*. 43:751-752. DOI:10.1130/focus082015.1 (Invited)

C. Frantz, V. Petryshyn, F. Corsetti. (2015) Grain trapping and binding by filamentous cyanobacterial and algal mats: Implications for stromatolite microfabrics through time. *Geobiology*, 13:409-423. DOI:10.1111/gbi.12145 *Journal issue cover.

C. Frantz, V. Petryshyn, P. Marenco, W. Berelson, A. Tripati, F. Corsetti. (2014) Dramatic local environmental change during the Early Eocene Climatic Optimum detected using chemical analyses of a Green River Formation stromatolite. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 405:1-15. DOI:10.1016/j.palaeo.2014.04.001

Select Abstracts (* student author)**:**

R. Ford, **C. Frantz**, A. Yonkee, E. Balgord, M. Hernandez, D. Matty, M. Matyjasik. (2019) Data-driven decisions in geoscience curriculum revision at Weber State University, Ogden, Utah. Talk. Geological Society of America Meeting, Phoenix, Arizona, USA.

*T. Mahseredjian, **C. Frantz**, A. Celestian, O. Paradis, W. Berelson, V. Petryshyn, F. Corsetti. (2018) Investigation of laminae formation in Eocene Green River Formation stromatolites through combined micro-x-ray fluorescence spectroscopy and petrography. Poster. American Geophysical Union Meeting, Washington, D.C., USA.

M. Ingalls, L. Trower, **C. Frantz**, K. Snell. (2018) Stable isotope variability in modern Great Salt Lake sediments: How do local microbial processes translate to the sedimentary record. Talk. Lake Bonneville Geologic Conference, Salt Lake City, UT, USA.

C. Frantz, M. Matyjasik, *K. Thompson, Weber State University Geomicrobiology & Geochemistry Students. (2018) Microbialites and Microbial Mineralization in the Great Salt Lake, Utah. Poster. American Association of Petroleum Geologists Annual Convention and Exposition, Salt Lake City, UT, USA.

C. Frantz, M. Matyjasik, D. Newell, M. Vanden Berg, *C. Park. (2017) Questioning the Origin of the Great Salt Lake "Microbialites". Talk. American Geophysical Union Meeting, New Orleans, LA, USA.

C. Frantz, F. Corsetti, V. Petryshyn, *M. Wagner, *T. Mahseredijan, D. Wilmeth, O. Piazza. (2017) Stromatolite formation during periods of dramatic hydrologic change in the Eocene Green River Formation revealed from trends in petrography and high-resolution stable isotope measurements. Talk. Geological Society of America Meeting, Seattle, WA, USA.

C. Frantz, K. Junge, B. Light, M. Orellana, S. Carpenter, S. Farley, B. Crump, R. Lieb-Lappen, Z. Courville. (2016) Characterizing "Rotten" Ice: Changes in first-year Arctic sea ice during advanced summer melt. Poster. American Geophysical Union Meeting, San Francisco, CA, USA.

Ryan J Frazier

Weber State University Department of Earth & Environmental Sciences
Geospatial Science and Remote Sensing
1415 Edvalson St., Ogden, UT 84408-2507
office: 801 626 6819 / ryanfrazier@weber.edu

Education and Research Emphases

Ph.D. in Forestry, University of British Columbia (2016)

M.A. in Geographic Information Science, Clark University (2007)

B.A. in Geography, Clark University (2006) - Geographic Information Science

Current Research Emphasis

Dr Frazier's current research focuses on the application of geospatial science and remotely sensed data to environmental issues. Presently the focus areas are on wildfire, environmental degradation, change over time, and the use of maps to better understand Oden, Utah.

Professional Appointments

Assistant Professor, Weber State University (2019-present)

Instructor and Mentor, University of British Columbia (2018-2019)

Arizona State, Postdoctoral Research Associate (2016-2018)

Teaching Responsibilities

Geo3840 Remote Sensing: Principles and Methods.

Service and Outreach

Ogden Civic Action Network Mapping Project (2019-present)
Geography Department Green Team (2019-present)

Professional Memberships & Service

Association of American Geographers
Canadian Remote Sensing Society
Journal reviewer for: Remote Sensing of Environment, Remote Sensing, Photgrammatic Engineering and Remote Sensing, ISPRS Journal of Photogrammetry and Remote Sensing, Forest Ecology and Remote Sensing, Forests

Publications

Navrátilová, J., Havlíček, M., Navrátil, J., & Frazier, R. J. (2019). Land cover changes on temperate organic substrates over last 150 years: evidence from the Czech Republic. Biologia, 74(4), 361-373.

Frazier, R. J., Coops, N. C., Wulder, M. A., Hermosilla, T., & White, J. C. (2018) Analyzing spatial and temporal variability in short-term rates of postfire vegetation return from Landsat time series. Remote Sensing of Environment, 205, 32-45

Navrátilová, J., Hájek, M., Navrátil, J., Hájková, P., & Frazier, R. J. (2017) Convergence and impoverishment of fen communities in a eutrophicated agricultural landscape of the Czech Republic. Applied Vegetation Science. 20(2), 225-235

Pickell, P. D., Hermosilla, T., Frazier, R. J., Coops, N. C., & Wulder, M. A. (2016) Forest recovery trends derived from Landsat time series for North American boreal forests. International Journal of Remote Sensing, 37(1), 138-149.

Frazier, R. J., Coops, N. C., & Wulder, M. A. (2015) Boreal Shield forest disturbance and recovery trends using Landsat time series. Remote Sensing of Environment, 170, 317-327.

Michael W Hernandez

Weber State University Department of Earth and Environmental Sciences

Geospatial Analysis & Geologic Hazards

office: 801-626-8186 / mhernandez@weber.edu

https://www.weber.edu/ees/Dr_Michael_Hernandez_new.html

Education and Research Emphases

Ph.D. in Geography, 2004, University of Utah – Geospatial technologies & analysis, natural hazards assessment

Dissertation: A Procedural Model for Developing a GIS-Based Multiple Natural Hazard Assessment: Case Study – Southern Davis County, Utah

M.Sc. in Geology, 1990, Louisiana Tech University – Geologic hazards, applied geomorphology

Thesis: Distribution, Development, and Risk Mapping of Landslides in Northeastern Louisiana.

B.Sc. in Geology, 1984, Louisiana Tech University.

Current Research Emphasis

1. Improving geospatial education at the undergraduate level (postsecondary, two-year, and four-year).
2. Applying geospatial technologies & analysis techniques to address geologic hazards, forest issues, and community priorities.

Professional Appointments

Assistant, Associate, Full Professor, Weber State University (2004-present)

Instructor, Weber State University (2003-2004)

Research Fellow, University of Missouri – Columbia (2000-2003)

Officer, U.S. Air Force Reserves (Captain – Lieutenant Colonel), Exercise/Contingency Airlift Director – Global Readiness Directorate (XOP), 618th Air Operations Center (TACC), HQ Air Mobility Command, Scott AFB, IL

Officer, U.S. Air Force (2nd Lieutenant – Captain), ICBM Missile Launch Officer – 351st Missile Wing, Whiteman AFB, MO (1988-1992). Command Post Duty Officer and Current Operations Airlift Planner, 437th Airlift Wing, Charleston AFB, SC (1993-1994)

Teaching Responsibilities

Earthquakes and Volcanoes (GEO PS 1030), $Remote Sensing I: Introduction to Remote Sensing (GEO 3400), $Remote Sensing II: Digital Image Processing (GEO 4400), Introduction to Geographic Information Systems (GIS) (GEO 3710…formerly $GEO 4210), Geospatial Analysis (GEO 3720…formerly $GEO 4220), *Geospatial Data Acquisition (GEO 2200/4200), *Geospatial Internship (GEO 2840/4840), *Geospatial Capstone (GEO 2850/4850), Directed Studies (GEO 4800)

NOTE: $ Courses that are no longer being offered in the new curriculum. Replaced by GEO 3840: Remote Sensing: Principles & Methods taught by Dr. Ryan Frazier. * New curriculum being taught for first time.

Funded Grants

National Science Foundation – Advanced Technology Education (ATE) Grant - Developing a Vision and Plan for the Northern Utah Geospatial Technology Education Program (NUGTEP), ***$183,336*** (**PI, 2013 – 2019**). Co-PI was Eric Ewert, Ph.D. Geography.

USDA Forest Service (FIA) – Joint agreement with WSU (2nd renewal) **-** Effects of historic forest disturbance on water quality and flow in the Interior Western US, ***$49,000*** (**co-PI, 2013 – present**). PI is Marek Matyjasik, Ph.D., [Weber State University].

NASA - NASA's Nexus for Exoplanet System Science and Virtual Planetary Laboratory / Weber State University Geospatial Analysis Program Partnership – Geospatial Analysis of Mars Imagery in the Tracy Hall Computational Research Laboratory, ***$24,919*** – plus additional $81,438 capital

investment in lab from NASA, WSU, and College of Science = $106,357) (***co-PI, 2016 – 2017***). PI was John Armstrong, Physics [Weber State University].

Weber State University - Carl D. Perkins Grant – Two High Precision Global Navigation Satellite System Instruments and Software in support of Field-based Geospatial Courses and Undergraduate Research associated with the Geomatics (Applied Mapping Sciences) Institutional Certificate…now Geospatial Analysis Certificate of Proficiency, ***$26,092*** (**Proposal Author, 2017**).

Weber State University - Carl D. Perkins Grant – Twenty Handheld Professional GPS units and software in support of Field-based Geospatial Courses and Undergraduate Research, associated with the Geomatics (Applied Mapping Sciences) Institutional Certificate…now Geospatial Analysis Certificate of Proficiency ***$11,010*** (**Proposal Author, 2015**).

NASA Carbon Monitoring System Program NNH11ZDA001N-CMS - A Global Forest Biomass Inventory Based Upon GLAS Lidar Data, ***$65,174.56*** of $172,851(***Co-PI, 2013 – 2014***). PI was Sean P. Healey, Ph.D. [US Forest Service Rocky Mountain Research Station].

Service and Outreach

University Service

- University-Level – served on five university committees, including faculty senate, and chair of the new Geospatial Science and Technology Assistant Professor Search Committee; Campus ESRI GIS Software Site License Administrator (2003 – present).
- College-Level – served on four college committees, including the College of Science Rank and Tenure Committee (2017 – 2019).
- Department-Level – served on numerous department committees, include both Geosciences and Geography Peer Review and Rank and Tenure Committees.

Professional Service

- Executive Committee – Northern Utah GIS Users Group (NUGIS) (2014 – present)
- Secretary/Treasurer – Intermountain Region, American Society of Photogrammetry and Remote Sensing (2011- 2017)
- Reviewer of manuscripts for the International Journal of Applied Geospatial Research (2014, 2018 – 2)
- Reviewer of manuscript for 3rd North American Symposium on Landslides (2017)

Professional Memberships

Geological Society of America
American Geophysical Union
Northern Utah GIS Users Group

Publications (since 2014)

Matyjasik, M., Hernandez, M.W., Welsh, S., Ford, R.L., and Arnold J., 2015, Classification of wetlands in the Reader Creek Basin using remote sensing and water chemistry, Uinta Mountains, USA, in Vanden Berg, M.D., Ressetar, R., and Birgenheier, L.P., editors, Geology of Utah's Uinta Basin and Uinta Mountains: Utah Geological Association Publication 44, p. 119 – 138.

Matyjasik, Marek, Hernandez, Michael, and Ford, Richard, 2014, Groundwater-Dependent Ecosystems in the Reader Creek and Dry Fork Drainages, Ashley National Forest, Uinta Mountains, Utah: Final Report. U.S. Forest Service (Ashley National Forest) & Weber State University funded research project (2008 – 2011). Department of Geosciences, Weber State University, Ogden, Utah, November 12, 2014, 100 p.

Selected Abstracts (since 2014)

Hernandez, M.W. and Ewert, E., 2018, Developing a Plan for the Northern Utah Geospatial Technology Education Program: Showcase presentation (Showcase I: Booth # 307A, October 24, 2018: 7:00 – 9:00 pm), American Association of Community Colleges ATE Principal Investigators Conference (National Science Foundation-supported event), Washington D.C., October 24-26, 2018.

Marek Matyjasik, Michael Hernandez, Nicholas Shaw, Margaret Baker, Michael Fowles, Teri Cisney, Angela Paige, Gretchen Moisen, 2017, Modelling of phosphorus fluxes produced by wild fires at watershed scales. American Geophysical Union, New Orleans, Louisiana, USA. Oral Presentation. Tuesday, December 12, 2017, 14:00 – 14:20. New Orleans Ernest N. Morial Convention Center, Rm 295-296.

Marek Matyjasik, Michael Hernandez, Nicholas Shaw, Margaret Baker, Michael Fowles, Gretchen Moisen, 2017, Modelling of dissolved organic carbon fluxes triggered by forest wild fires in the Interior Western US. Goldschmidt International Geochemical Conference, Paris, France.

Marek Matyjasik, Michael Hernandez, Nicholas Shaw, Margaret Baker, Michael Fowles, Gretchen Moisen, 2017, Modelling of Nitrogen Fluxes from Wildfires Using BURN (Burn Released Nutrients) Model. International Symposium of Environmental Biochemistry, Carins, Australia.

Hernandez, M.W., and Ewert, E., 2015, Development of the Framework for the Northern Utah Geospatial Technology Education Program: GeoEd 15 Conference, Louisville, KY, June 10, 2015. One of several presentations during group workshop.

Matyjasik, M., Moisen, G., Frescino, T., Schroeder, T., Hernandez, M., Combe, C., Hathcock, T., and Mitts, S., 2014, Chemical Stream Water Indicators Of Forest Wild Fires In The Interior Western US: 2014 Geological Society of America Annual Meeting, October 19 – 22, 2014, Vancouver, British Columbia, Session No. 39 – Booth # 138. Geological Society of America Abstracts with Programs. Vol. 46, No. 6, p. 116.

David J. Matty

Weber State University Department of Earth & Environmental Sciences
Mineralogy/Petrology/Geochemistry
1415 Edvalson St., Ogden, UT 84408-2507
office: 801-626-7195 / dmatty@weber.edu
https://weber.edu/ees/Dr_David_J_Matty.html

Education:

Doctor of Philosophy, Geology, 1984, Rice University, Houston TX
Dissertation: "Petrology of Deep Crustal Xenoliths from the Eastern Snake River Plain, Idaho."

Master of Science, Geology, 1980, Portland State University, Portland, OR
Thesis: "Geology of the North Fork Stock, Northeastern Oregon."

Bachelor of Science Geology, 1977, Central Michigan University, Mt. Pleasant, MI
Senior Thesis: "A U-stage study of structural fabrics within tectonized ultramafic rocks from southwestern Oregon"

Current Research Emphases:

Since leaving the Dean's office, I have been working to support the research efforts of colleagues throughout the COS by preparing laboratory spaces for new instruments (XRF, ICP, ICPMS, Fluxer furnace, and Microwave Digestor), assisting in the installation of the instruments, identifying and purchasing appropriate and necessary labware and chemicals for the instruments, and educating faculty, staff, and students about the instruments, their operation, and their use. Moving into the future, I hope to complete some geochemical studies of xenolith-bearing lavas in eastern Idaho, possibly begin some new petrologic studies of hybridized rhyolites in south-central Idaho, and remain active in geoscience education research.

Professional Appointments:

Dean, Weber State University College of Science, August 2011 to July, 2018.

Full Professor, Weber State University Department of Earth and Environmental Sciences, August, 2011 to present.

Program Director, National Science Foundation: Education and Human Resources Directorate- Division of Undergraduate Education, August 2009 – August 2011 *(IPA Rotator Assigned to: Course, Curriculum, and Laboratory Improvement/ Transforming Undergraduate Education in STEM (CCLI/TUES), Advanced Technological Education (ATE), STEM Talent Expansion Program (STEP), STEP Centers, and Climate Change Education Partnership (CCEP) programs)*

Department Chairperson, Central Michigan University Department of Earth and Atmospheric Sciences, August 2000 to August 2009.

Assistant, Associate, Full Professor, Central Michigan University Department of Earth and Atmospheric Sciences, August 1986 to August, 2009.

National Research Council Postdoctoral Research Associate - U.S. Geological Survey, Denver, CO. September 1985 to June, 1986. Project: Petrology and Geochemistry of Silicic Tuffs from the Central San Juan Volcanic Field, Colorado.

Postdoctoral Research Associate and Instructor, Rice University, Houston, TX. August 1983 to September, 1985.

Teaching Experience:

Undergraduate-level courses and laboratories in physical geology, mineralogy, earth materials, optical mineralogy, petrology, geochemistry, microanalysis, environmental studies, critical thinking in science and technology, and geologic research methods. *Courses to date at WSU: earth materials and petrology.*

Most Recent Scholarly Activity:

Mohanty, Dillip K. and Matty, David J., US Patent 8,636,971. Crosslinked polymer-carbon sorbent for removal of heavy metals, toxic materials and carbon dioxide. Issue Date January 28, 2014. Assignee: Central Michigan University.

Wade, C. B.*, Thurman, C.*, Freas, W.*, Student, J., Matty, D., and Mohanty, D. K. 2012. Preparation and characterization of high-efficiency modified activated carbon for the capture of mercury from flue gas in coal-fired power plants. Fuel Processing Technology, v. 97, p. 107-117.

Singer, J., Ryan, J.G., Lea, P.D, Matty, D.J., Mogk, D. W., Ridky, R.W., Sverdrup, K. A., and Stout, D. 2013. That was then… this is now: Where have we come from and where are we going in geoscience education? Geological Society of America *Abstracts with Programs.* Vol. 45, No. 7, p.204.

Sverdrup, K.A, Singer, J., Ryan, J., Matty, D. J., and Lea, P.D., 2017. On the Cutting Edge, Perspectives from the NSF Division of Undergraduate Education Geoscience Program Officers. Geological Society of America *Abstracts with Programs*. Vol. 49, No. 6.

Ford, R.L., Frantz, C. M., Yonkee, A., Balgord, E., Hernandez, M.W., Matty, D.J., and Matyjasik, M., 2019. Data-driven decisions in Geoscience Curriculum Revision at Weber State University, Ogden, UT. Geological Society of America *Abstracts with Programs*. Vol. 51, No. 5.

Awards and Honors:

Commencement speaker and honorary Doctor of Science recipient, Central Michigan University. May, 2016.
Invited Participant and Facilitator, "Summit on the Future of Undergraduate Geoscience Education." National Science Foundation/ University of Texas, Austin. January, 2014.
NSF Director's Award for Collaborative Integration. May, 2011.

Funding Secured:

Helped secure approximately $5M in donations and gifts to the College of Science between 2013-18.
Assisted successful WSU efforts to secure funding for the Tracy Hall Science Center from the Utah Legislature.
Student, J. S., Matty, D. J., Mohanty, D.K., Sirbescu, M.C., Uzarski, D., 2009. MRI: "Acquisition of a 193nm Laser Ablation Sampling System to Expand Interdisciplinary Uses of an Element2 ICP-MS." NSF Major Research Instrumentation Program. EAR-0923290: $219,312.

Service and Outreach:

WSU Research Foundation Board Member, 2011-2018
Member of the Utah (NGSS) Science Standards Review Committee (2017-18), and the Utah State Mathematics Endorsement Review Committee (2015-16).
Worked with WSU leadership to facilitate college efforts to plan, design, and build the Tracy Hall Science Center(2013-2016).
Represented the COS on numerous statewide, local, and institutional committees during tenure as dean.

Marek Matyjasik

Weber State University Department of Earth and Environmental Sciences

Environmental Hydrogeology

office: 801-626-7726 / mmatyjasik@weber.edu

https://www.weber.edu/ees/Dr_Marek_Matyjasik_new.html

Education

Ph.D. in Geology, 1997, Kent State University, Surfactant enhanced remediation of BTEX compounds.

M.Sc. in Geology, 1987, Warsaw University, Warsaw, Poland, Factors controlling intermittent nature of the Waksmundzki Creek, Tatra Mountains.

B.Sc. in Geology, 1985, Warsaw University, Warsaw, Poland.

Current Research Emphases

(1) forest disturbance influence on water quality studies; (2) mineral dissolution at nanoscale; (3) water chemistry in the Great Salt Lake basin.

Professional Appointments

Assistant, Associate, Full Professor, Weber State University, (1997-present)

Research Assistant, Warsaw University (1990-1991)

Teaching Responsibilities

Courses taught in last 5 years: Earthquakes and Volcanoes (GEO 1030), Environmental Geoscience (GEO 1060), Environmental Geoscience Lab (GEO 1065), Physical Geology (GEO 1110), Water Resources (GEO 3080), Groundwater (GEO 3880), Engineering Geology (GEO 4100), Environmental Assessment (GEO 4150)

Honors

Fulbright Scholarship (2019)

Funded Grants and Collaborative Projects

2018–current	National Science Foundation, GETUP , Geoscience Education Targeting Underrepresented Populations(Co-PI)
2018–current	A Joint Venture Agreement between U.S. Forest Service FIA and the Department of Geosciences at Weber State University (WSU) to address modeling of nutrient fluxes from forest disturbances, $10,000.00. (PI).
2013–2019	A Joint Venture Agreement between U.S. Forest Service FIA and the Department of Geosciences at Weber State University (WSU) to address water resources studies as related to forest disturbances, July, 2013, $59,000.00. 8 WSU students participated so far in this program (with Dr. Hernandez).
2016–2017	STEP-UP READY, Utah System of Higher Education (USHE)- Concurrent enrollment geology education program (CO-PI).
2015–2016	A Joint Venture Agreement between the Intermountain Region USFS and Weber State University (WSU) to address global warming as related to forest disturbances, July, 2015, $15,000.00. 2 WSU students participated so far in this program (PI).

University Service

2015–2019	Faculty Senate Vice Chair
2015–2017	Faculty Senate Ad Hoc Committee FAST for implementation of innovative teaching Chair
2015–2019	Liaison: Honorary Degree
2018–2019	Promotion and Tenure Committee, the College of Health Professions.
2018–2019	Promotion and Tenure Committee, the College of Engineering, Applied Science and Technology.
2018–2019	Applied Climate Science Faculty Search Committee, Chair

2015–current College of Science Graduation Committee
2014–current Applied Environmental Geoscience advisor

Professional Service

2014-current Reviewer of manuscripts for two professional journals.
2014-current Reviewer of grant proposals for the National Science Foundation

Publications

1. Bajda, T., M. Manecki, M. Matyjasik, 2019. "The early stages of mimetite dissolution in EDTA studied with atomic force microscopy and scanning electron microscopy" in Microscopy and Microanalysis March, 2019.
2. Matyjasik, M. and M. Zaluski, "Fundamentals of Flow and Transport in Porous Media", accepted for publication in Encyclopedia of Water, Wiley Publisher, 2019.
3. Halofsky, J, E, D. L. Peterson, J. Ho, N. Little, and L.A. Joyce. Climate Change Vulnerability and Adaptation in the Intermountain Region Part 1, 2018, RMRS-GTR-375. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Chapter 4: Effects of Climate Change on Hydrology, Soil, and Water Resources. M. J. Muir, C. H. Luce, J.T. Gurrieri, M. Matyjasik, J. L. Bruggink, S. L. Weems, J. C. Hurja, D. B. Marr, and S. D. Leahy.
4. Halofsky, J, E, D. L. Peterson, J. Ho, N. Little, L. A. Joyce Climate Change Vulnerability and Adaptation in the Intermountain Region Part 2, 2018, RMRS-GTR-375. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Chapter 8: Effects of Climate Change on Ecological Disturbances. D. M. Malesky, B. J. Bentz, G. R. Brown, A. R. Brunelle, J. M. Buffington, L. M. Chappell, R. J. DeRose, J. C. Guyon II, C. L. Jorgensen, R. A. Loehman, L. L. Lowrey, A.M. Lynch, M. Matyjasik, J. D. McMillin, J. E. Mercado, J. L. Negrón, W. G. Padgett, R. A. Progar, and C. B. Randall, p. 199-263.
5. Matyjasik, M., Ford, R., Hernandez, M., Welsh, S., 2015. Remote-sensing-based hydrochemical classification of wetland plant communities of Reader Creek basin, Ashley National Forest, Uinta Mountains, Utah. Utah Geological Survey publications, 119-138.

Abstracts (selected)

1. Frantz, C, M. Matyjasik, and K. Thompson Microbialites and Microbial Mineralization in the Great Salt Lake, Utah. May 20 - 23, 2018 – AAPG 2018 Annual Convention & Exhibition, Salt Lake City, Utah
2. Matyjasik, M., M. Hernandez, N. Shaw, M. Baker, M. Fowles, T. Cisney, A. Paige, and G. Moisen. AGU, New Orleans, 2017 Modelling of phosphorus fluxes produced by wild fires at watershed scales.
3. Matyjasik, M, M. Hernandez, N. Shaw, M. Baker, M. Fowles, and G. Moisen.Goldschmidt International Geochemical Conference, Paris 2017. Modelling of dissolved organic carbon fluxes triggered by forest wild fires in the Interior Western US.
4. Matyjasik, M., M. Hernandez, N. Shaw, M. Baker, M. Fowles, and G. Moisen. International Symposium of Environmental Biochemistry, Cairns, Australia, 2017. Modelling of Nitrogen Fluxes from Wildfires Using BURN (Burn Released Nutrients) Model.
5. Matyjasik. M. and others "Effects of historic forest disturbance on water quality and flow in the Interior Western US" has been accepted for a poster presentation in association with technical session 256. Managing forests and forest uses to protect and provide clean water. The 24th IUFRO World Congress, Salt Lake City, Utah, USA in October 2014.

Caitlin E. Tems

Weber State University Department of Earth & Environmental Sciences
Paleoceanography & Climate Science
1415 Edvalson St., Ogden, UT 84408-2507
office: 801-626-7421 / caitlintems@weber.edu

Education and Research Emphases

Ph.D. in Geological Sciences, University of Southern California (2016) - Dissertation: Tracking fluctuations in the eastern tropical north Pacific oxygen minimum zone: a high-resolution geochemical evaluation of laminated sediments along western North America

B.A. in Geology, Colorado College (2008) - Thesis: Molluscan assemblages as indicators of depositional environment: discerning paleoenvironments and bioturbation

Current Research Emphasis

My research interests center around marine geochemistry, paleoclimate, modern climate change, geoscience education, and science communication. My geologic research primarily focuses on using stable isotopes and geochemical techniques to investigate paleoclimate, modern climate change, and biogeochemical cycling in marine sediments and I plan to expand this to lacustrine sediments. I recently also expanded my research endeavors to include geoscience education research and the development of science communication activities to promote science literacy with the goals of increasing the number of students who pursue scientific fields, increasing diversity in science, and fostering the development of a well-informed public who can be active members of their communities.

Professional Appointments

Assistant Professor, Weber State University (2019-present)

Assistant Professor, Cuyamaca College (2016-2019)

Teaching Responsibilities

Earthquakes and Volcanoes (GEO 1030), Historical Geology (GEO 1220), Oceanography and Earth Systems (GEO 3010)

Awards and Honors

Nominated by students for the Excellence in Teaching Award, Cuyamaca College (2019)
Science Teaching Fellow, Summer Institute for Scientific Teaching, UCSD (2017)
USC Order of the Arete, recognition award for campus and community leadership (2015)
Outstanding Teaching Assistant Award, USC Department of Earth Science (2015)

Funded Grants

USC Good Neighbors Grant: Young Researchers Program, *$9,420* (2014-2015)

Service and Outreach

Environmental Science Degree Committee (2019)
Advisor to the Geology Club (2019)
Accreditation Committee, Cuyamaca College (2018-2019)

Professional Memberships & Service

American Geophysical Union
National Association of Geoscience Teachers
Journal reviewer for: Paleoceanography and Paleoclimatology (since 2019)

Publications

Lund., S.P, E. Mortazavi, E. Platzman, C. Tems, W. Berelson, and Y. Hamann (2019) The last 1200 years of rainfall/runoff variability along the central Mexico Pacific coast associated with the North American monsoon. Submitted.

Tems, C. E., W. M. Berelson, R. Thunell, E. Tappa, X. Xu, D. Khider, S. Lund, O. González-Yajimovich, and Y. Hamann (2016) Decadal to centennial fluctuations in the intensity of the eastern tropical North Pacific oxygen minimum zone during the last 1200 years. Paleoceanography, 31, 1138–1151, doi:10.1002/2015PA002904.

Tems, C.E., W.M. Berelson, and M.G. Prokopenko (2015) Particulate δ15N in laminated marine sediments as a proxy for mixing between the California Undercurrent and the California Current: A proof of concept. Geophysical Research Letters, 42, 419-27 doi:10.1002/2014GL061993.

Deutsch, C., W. Berelson, R. Thunell, T. Weber, C. Tems, J. McManus, J. Crusius, T. Ito, T. Baumgartner,V. Ferreira, J. Mey, and A. van Geen (2014) Centennial changes in North Pacific anoxia linked to tropical trade winds. Science, 345 (6197), 665-886, doi:10.1126/science.1252332.

Parsons-Hubbard, K., D. Hubbard, C. Tems, and A. Burkett (2014) The relationship between modern mollusk assemblages and their expression in subsurface sediment in a carbonate lagoon, St. Croix, U.S. Virgin Islands, in Hembree, D. (editor) Experimental Approaches to Understanding Fossil Organisms: Lessons from the Living. Topics in Geobiology, Springer publishing, Chapter 7,143-168.

Select Abstracts

Tems, C., W. Berelson, A. van Geen, and Y. Hamann (2020) Assessing regional variability in the eastern tropical North Pacific oxygen minimum zone through geochemical comparison of Pescadero Slope and Soledad Basin sediments. Poster. Ocean Sciences Meeting, San Diego, CA.

Tems, C., E. Rivest and R. Komperda (2020) Improving Science Communication and Developing Ocean Science Career Pathways through Educational Collaboration. Poster. Ocean Sciences Meeting, San Diego, CA.

Tems, C.E., W.M Berelson, R. Thunell, X. Xu and D. Khider (2016) High Frequency Fluctuations in the Eastern Tropical North Pacific Oxygen Minimum Zone During the Last 1200 Years. Oral presentation, Ocean Sciences Meeting, New Orleans, LA.

Tems, C.E., W.M Berelson, R. Thunell, and X. Xu (2014) Tracking Fluctuations of Oxygen Minimum Zones: A High-Resolution Study of $\delta^{15}N_{sed}$ and Biogenic Silica in Laminated Sediments from the Gulf of California and the California Borderland. Oral presentation. American Geophysical Union Fall Meeting, San Francisco, CA.

Tems, C.E., and W.M. Berelson (2014) A comparative high-resolution study of $\delta^{15}N$ in laminated sediments as a proxy for fluctuations in the intensity of oxygen minimum zones. Poster. Ocean Sciences Meeting, Honolulu, HI.

William Adolph Yonkee

Weber State University Department of Earth and Environmental Sciences

Structural Geology

office: 801-626-7419 / ayonkee@weber.edu

https://www.weber.edu/ees/Dr_Adolph_Yonkee_new.html

Education

Ph.D. in Geology, 1990, University of Utah, Geometry and mechanics of basement deformation.
M.Sc. in Geology, 1983, University of Wyoming, Cleavage development in the Wyoming thrust belt.
B.Sc. in Geology, 1980, University of Wyoming.

Current Research Emphases

(1) tectonic evolution of curved orogenic systems using integrated structural and paleomagnetic studies; (2) processes of thick-skin foreland deformation and relations to flat-slab subduction; (3) thermochronometric and geochronologic studies of deformation tempos; (4) relations between fluid-rock interaction and deformation in fold-thrust belts, using micro-imaging and geochemical studies; (5) evolution of foreland basins as recorders of orogenic shortening and exhumation; (6) Neoproterozoic to Cambrian evolution of the western Cordillera margin and record of "Snowball Earth" glaciations; (7) multipurpose geologic and hazards mapping.

Professional Appointments

Assistant, Associate, Full Professor, Weber State University, (1991-present)
Geologist, Utah Geological Survey (1990-1991)
Post Doctorate Research Fellow, University of Utah (1989 – 1990)

Teaching Responsibilities

Courses taught in last 5 years: Earthquakes and Volcanoes (GEO 1030), Physical Geology (GEO 1110), Geoscience Methods and Careers (GEO 3000), Structural Geology (GEO 3060), Geology of Utah (GEO 3250), Field Methods (GEO 4060), Petrology (GEO 4300), Field Camp (GEO 4510), Global Tectonics (GEO 4630), Special Topics (GEO 4570).

Honors

Geological Society of America Fellowship (2019)
Hinckley Award, Weber State University (2018)
Geological Society of America Structure and Tectonics Division Outstanding Publication Award, with co-author Arlo Weil (2017)
Geological Society of America Outstanding Reviewer (2017, 2018)

Funded Grants

2015-current	National Science Foundation Collaborative Research: Characterizing the regional fluid flow system of the Wyoming salient, Sevier fold-thrust belt: Implications for orogenic wedge deformation and propagation; co PIs Gautam Mitra [University of Rochester] and Mark Evans (Central Connecticut].
2014-current	National Science Foundation Collaborative Research: Interrelations between foreland deformation, flat-slab subduction, and crustal architecture, south-central Andes; co PI Arlo Weil [Bryn Mawr College].
2011-2015	National Science Foundation Collaborative Research: Thermochronology of dominant thrust sheets in the Sevier fold-thrust belt, Utah and Nevada, determining fault timing and slip rates; co PI Michael Wells [University of Nevada Las Vegas].

University Service

2015–current	Helped with planning for the new Tracy Hall Science Center, and with purchase and installation of new equipment and upgrades to the scanning electron microscope.
2015-current	Served on various departmental, college, and university committees including College of Science Dean Search Committee, Departmental Peer and Tenure Committees.

Professional Service

2014-current Utah State Mapping Advisory Committee.

2014-current Serve on graduate student committees, Idaho State University, University of Nevada Las Vegas, University of Utah, Utah State University.

2014-current Reviewer of manuscripts for professional journals including American Association of Petroleum Geologists Bulletin, Earth Science Reviews, Earth and Planetary Science Letters, Geology, Geological Society of America Bulletin, , Geological Society of America Special Papers, Geosphere, Journal of Geophysical Research, Journal of Structural Geology, Lithosphere, Tectonics, and Tectonophysics. Served 3 years on the editorial board for the journal Lithosphere.

2014- current Reviewer of grant proposals for the National Science Foundation (served on 2018 Tectonics Review Panel), Petroleum Research Fund, National Geographic Society.

Publications

Yonkee, W.A., Eleogram, B., Wells, M.L., Stockli, D.F., Kelley, S. &, Barber, D.E., 2019. Fault slip and exhumation history of the Willard thrust sheet, Sevier fold-thrust belt, Utah: Relations to wedge propagation, hinterland uplift, and foreland basin sedimentation: Tectonics, v. 38, p. 2850-2893.

Biek, R.F., Yonkee, W.A., & Loughlin, W.D., 2019, Interim geologic map of the Park City West quadrangle, Summit and Wasatch Counties, Utah: Utah Geological Survey Map, scale 1:24000.

Gentry, A., Yonkee, W.A., Wells, M.L., & Balgord, E.A., 2018. Resolving the history of early fault slip and foreland basin evolution along the Wyoming salient of the Sevier fold-and-thrust belt: Integrating detrital zircon geochronology, provenance modeling, and subsidence analysis, *in* Tectonics, Sedimentary Basins, and Provenance: A Celebration of William R. Dickinson's Career: Geological Society of America Special Paper 540, p 509-546.

Giallorenzo, M.A., Wells, M.L., Yonkee, W.A., Stockli, D.F., & Wernicke, B.P., 2018. Timing of exhumation, Wheeler Pass thrust sheet, southern Nevada and California: Late Jurassic to middle Cretaceous evolution of the southern Sevier fold-thrust belt: Geological Society of America Bulletin, v. 130, p. 558-579.

McKean, A., Balgord, E.A., Yonkee, W.A., & Hissock, A., 2018. Geologic map of the Willard quadrangle, Box Elder County, Utah: Utah Geological Survey Map 2780DM, scale 1:24000.

Yonkee, W.A., & Weil, A.B., 2017. Structural evolution of an en echelon fold system within the Laramide foreland, central Wyoming: From early layer-parallel shortening to fault propagation and fold linkage: Lithosphere, v. 9, p. 828-850**.**

Weil, A.B., Yonkee, W.A., & Schultz, M., 2016. Tectonic evolution of a Laramide transverse structural zone: Sweetwater Arch, south central Wyoming: Tectonics, v. 35, p. 1090-1120.

Yonkee, W.A., & Weil, A.B., 2015. Tectonic evolution of the Sevier and Laramide belts within the North American Cordillera orogenic system: Earth Science Reviews, v. 150, p. 531-593.

Weil, A.B., Yonkee, W.A., & Kendall, J., 2014. Towards a better understanding of the influence of basement heterogeneities and lithospheric coupling on foreland deformation: A structural and paleomagnetic study of Laramide deformation in the southern Bighorn Arch. Geological Society of America Bulletin, v. 126, p. 415-437.

Yonkee, W.A., Dehler, C.D., Link, P.K., Balgord, E.A., Keeley, J., Hayes, D., Wells, M., & Johnson, S., 2014. Tectono-stratigraphic framework of Neoproterozoic to Cambrian strata, west-central U.S.: Protracted rifting, glaciation, and evolution of the North American Cordilleran margin: Earth Science Reviews, v. 136, p. 59-95.

Abstracts (selected)

Yonkee, W.A., & Weil, A.B, 2018, Evolution of the Laramide foreland from early layer-parallel shortening to fault linkage and arch growth: Relations to lithospheric stress transmission and crustal architecture: American Geophysical Union National Meeting. [Invited presentation]

Weil, A.B., & Yonkee, W.A., 2018, Deformation patterns across the Laramide and Sierras Pampeanas thick-skinned foreland systems: Relations to plate dynamics, lithospheric stress transmission, and crustal architecture: Geological Society of America Abstracts with Programs, v. 50. [Invited presentation]

Balgord, E.A., Frantz, C.M., Matyjasik, M., Yonkee, W.A., Ford, R.L., 2018, A multifaceted approach to increasing

diversity in geosciences: High school concurrent enrollment, summer bridge, community engaged learning, and early research experiences: Geological Society of America Abstracts with Programs, v. 50.

Kubina, R.L., Dehler, C., & Yonkee, W.A., 2018, Newly discovered stratigraphic record of a Snowball Earth deglaciation, Carrington Island, Utah: Geological Society of America Abstracts with Programs, v. 50.

Weil, A.B., Yonkee, W.A., & Whittey, H., 2017, Regional patterns to local variation in paleo-stress/strains and vertical-axis rotations across part of the south-central Andes: Geological Society of America Abstracts with Programs, v. 49.

Lynch. E., Yonkee, W.A., & van der Pluijm, B., 2017, Syn-deformational infiltration of surface-derived fluids along fault zones in the Idaho-Wyoming salient, Sevier fold-thrust belt: Constraints from paired radiogenic and stable isotopic analysis of authigenic clays. Geological Society of America Abstracts with Programs, v. 49. [A manuscript based on this abstract is in revision for publication]

Balgord, E.A., Yonkee, W.A., Wells, M.L., Gentry, A., & Laskowski, A., 2017, Evaluating arc periodicity and geochemical evolution within the central North American Cordillera: Constraints from the U-Pb and Hf isotope record of detrital zircons in foreland strata: Geological Society of America Abstracts with Programs, v. 49. [A manuscript based on this abstract is ready for submission]

Brink-Roby, D., Evans, M.A., Mitra, G., & Yonkee, W.A., 2016, Fluid flow systems associated with the Meade thrust, Wyoming salient, Sevier fold-thrust belt: Geological Society of America Abstracts with Programs, v. 48, no. 7, paper 210-12.

Weil, A.B., & Yonkee, W.A., 2016, Prelimineary report on an integrated structural, anisotropy of magnetic susceptibility (AMS), and paleomagentic study of a classic triangle zone between the Precordillera and the Sierra Pampeanas of Argentina between 28 and 33°S: Geological Society of America Abstracts with Programs, v. 48, no. 7, paper 208-3.

Yonkee, W.A., Dehler, C.D., Link, P.K., Balgord, E.A., Keeley, J., Wells, & M., Johnson, S, 2015, Tectono-stratigraphic framework of Neoproterozoic to Early Paleozoic strata, western US: Protracted rifting and evolution of the western Laurentia margin: Geological Society of America Abstracts with Programs, v. 47 no. 7, p. 587. [Invited presentation]

Yonkee, W.A., & Weil, A.B., 2015, Paleo-stress and strain and vertical-axis rotation patterns across the Pampean flat-slab region: Geological Society of America Abstracts with Programs, v. 47 no. 7, p. 402.

Wells, M.L., Yonkee, W.A., & Giallorenzo, M., 2015, UV laserprobe 40Ar/39Ar dating of early internal strain and late fluid-induced strain localization associated with the Willard thrust fault, Utah: Geological Society of America Abstracts with Programs, v. 47 no.7, p. 224