

Boise State University

EDUCATION**Ph.D. in Geology, Massachusetts Institute of Technology**, Cambridge, MA, 6/96

Thesis title: "Tectonic evolution of the Caledonian collisional system, Ofoten-Efjorden, north Norway"

Advisor: Dr. B. C. Burchfiel

M.S. in Geosciences, the University of Arizona, Tucson, AZ, 5/91

Thesis title: "Thermal, chemical, and structural characteristics of fluid migration and fluid-rock interaction in a mid-Proterozoic shear zone, Manzano Mountains, New Mexico"

Advisor: Dr. S. R. Titley

B.S. cum laude in Geology, the University of New Mexico, Albuquerque, NM, 5/89

Thesis title: "Compositional variations in beryl and apatite from the Harding Pegmatite, Taos County, New Mexico"

Advisor: Dr. R. C. Ewing

PROFESSIONAL APPOINTMENTS

- Associate Dean for Math and Sciences, College of Arts & Sciences, BSU, 2012 - present
- Professor, Department of Geosciences, Boise State University, 2009 – present
- Director, Geology Summer Field Camp, Sardinia, Italy, 2001-present
- Professor and Chair, Department of Geosciences, Boise State Univ., 2006 - 2009
- Associate Professor and Chair, Department of Geosciences, Boise State Univ., 2003-2006
- Co-Director, *Environmental Science and Policy Research Institute (ESPRI)*, Boise State University, 2003-2007
- Assistant Professor, Department of Geosciences, Boise State University, Boise, ID, 1998-2003
- Post-Doctoral Associate and Lecturer, Boston University, Boston, MA, 1996-1998
- Structural Geology Instructor, Wellesley College, Wellesley, MA, 1995

PROFESSIONAL AND PUBLIC SERVICE

- Boise State Representative, *Center for Advanced Energy Studies (CAES) Geothermal Fluids Initiative*, 2009-present
- Co-Convener and Organizing Committee Member, CAES Geothermal Workshop, Idaho Falls, ID, April 2011. This 2-day conference brought together people from Idaho research universities, the Idaho National Laboratory, geothermal industry, environmental groups, and

interested private citizens to discuss the current status and future potential of geothermal resources in southern Idaho.

- Chair, Geological Society of America, Joint Rocky Mountain & Cordilleran Section Meeting, Boise, May 2004
- Section President, Geological Society of America, Rocky Mountain Section, 2003-2004
- Invited Lecturer, Society of Mining Engineers, Boise Meeting, October 1998. Title: "Geology and Tectonics of the Sierras Pampeanas, western Argentina"

CLASSES TAUGHT AT BOISE STATE

Undergraduate Classes

- GEOS 101 Environmental Geology (3 credits)
- GEOS 200 Evolution of Western North America (3 credits)
- GEOS 221 Mineralogy (3 credits lecture, 1 credit lab)
- GEOS 242 Communications in the Earth Sciences (3 credits)
- GEOS 314 Structural Geology (3 credit lecture, 1 credit lab)
- GEOS 323/324 Metamorphic Petrology/Petrography (3 credits lecture, 1 credit lab)
- GEOS 482 Geology Summer Field Camp (6 credits)

Graduate Classes

- GEOS 514 Advanced Structural Geology (3 credits)
- GEOS 541 Global Plate Tectonics (3 credits)
- GEOS 597 Special Topics: Regional Tectonic Analysis of Metamorphic Terrane
- GEOS 597 Special Topics: Caledonian Orogenic System (3 credits)
- GEOS 597 Special Topics: Variscan Orogenic System (3 credits)
- GEOS 597 Special Topics: Cordilleran Orogenic System (3 credits)
- GEOS 597 Special Topics: Himalayan Collisional Orogenic System (3 credits)

GRADUATE STUDENTS ADVISED

Below are listed the graduate students for whom I have served as Thesis Advisor (or co-advisor), along with the title of their graduate research project.

Gene Kurz, MS Geology, 2001

Thesis Title: Structure and Geochemistry of the Cougar Creek Complex, Northeastern Oregon and West-Central Idaho.

Robert Hargett, MS Geology, 2002

Thesis Title: The Geology of the Inskip Canyon Area, East Range, Nevada.

Jacob Dunston, MS Geology, 2002

Thesis Title: The pre-Cenozoic stratigraphy and structural geology of the Clearwater Canyon, Sonoma Range, Nevada: implications for the timing of Golconda thrusting.

Sara Smith, MS Geology, 2003 (co-advised with S. Wood)

Thesis Title: Quaternary Movement on An Inherited Mesozoic Structure: The Rush Peak Fault, West-Central Idaho.

Bernadette Hoffman, MS Geology, 2006 (co-advised with J. McNamara)

Thesis Title: Scale and heterogeneity in hydraulic properties of the fractured granitic Boise front, Boise, Idaho.

Ashley Dack, MS Geology, 2009

Thesis Title: Internal Structure and Geochronology of the Gerrei unit in the Flumendosa area, Variscan external Nappe Zone, Sardinia, Italy.

Joshua Wilkins, MS Geology, 2010

Thesis Title: Structural and Stratigraphic Age Constraints of the Inskip Formation, East Range, Nevada: Implications for Mesozoic Tectonics of Western North America.

Gene Kurz, PhD Geosciences, 2010 (co-advised with M. Schmitz)

Dissertation Title: Geochemical, Isotopic, and U-Pb Geochronologic Investigations of Intrusive Basement Rocks from the Wallowa and Olds Ferry Arc Terranes, Blue Mountains Province, Oregon-Idaho.

Ander Sundell, MS Geology, 2011

Thesis Title: The Variscan Orogen in Sardinia, Italy: Insights into Late-Stage Deformation as Evidenced in the Lago Mulargia Region.

Colette Breshears, Master of Earth Science, 2012

Course work specialized in integration of Geosciences and Public Policy.

Andrea Wolfowicz, MS Geology, 2012 (co-advised with M. Kohn)

Thesis Title: Determining temperatures of deformation in mylonites from the Scandinavian Caledonides, and the implications for the thermal and kinematic evolution of orogens.

Shaun Finn, MS Geophysics, 2012 (co-advised with L. Liberty)

Thesis Title: Using Near-Surface Deformation of Prince William Sound to Characterize Deeper, Upper Crustal Deformation as it applies to Megathrust Evolution.

Bryant Ware, MS Geology, 2012 (co-advised with M. Schmitz)

Thesis Title (working): Geology of the Weatherby Group and Connor Creek thrust, Blue Mountains terranes, Oregon and Idaho.

Jesse Walters, MS Geology, 2016 (co-advised with M. Kohn) Protracted Thrusting Followed by Late Rapid Cooling of the Greater Himalayan Sequence, Annapurna Himalaya, Central Nepal: Insights from Titanite Petrochronology

Tom Colby, PhD Geosciences, 2017

Dissertation Title: Investigations on the Mesozoic Geologic and Tectonic History of the Jackson Mountains, Northwest Nevada.

15 SELECTED PEER-REVIEWED JOURNAL ARTICLES

- Colby, T., **Northrup, C.**, Snyder, W., and Schmitz, M. (Submitted, in review) Triassic-Jurassic stratigraphic relations in the eastern Jackson Mountains, northwest Nevada: insights from new U-Pb zircon geochronology, *Bulletin of the Geological Society of America*.
- Kurz, G., Schmitz, M., **Northrup, C.** and Vallier, T. (2017); Isotopic compositions of intrusive rocks from the Wallowa and Olds Ferry arc terranes of northeastern Oregon and western Idaho: Implications for Cordilleran evolution, lithospheric structure, and Miocene magmatism. *Lithosphere* ; 9 (2): 235–264. doi: <https://doi.org/10.1130/L550.1>
- Sousa, J., Kohn, M. J., Schmitz, M. D., **Northrup, C. J.**, and Spear, F. S. (2013) Strontium isotope zoning in garnet: implications for metamorphic matrix equilibration, geochronology and phase equilibrium modeling. *Journal of Metamorphic Geology*, V. 31, no. 4, p. 437-452
- Pavanetto, P., Funedda, A., **Northrup, C. J.**, et al. (2012) Structure and U-Pb zircon geochronology in the Variscan foreland of SW Sardinia, Italy. *Geological Journal International*, v. 47, no 4, p. 426-445.
- Kurz, G., Schmitz, M., **Northrup, C. J.**, et al. (2012) U-Pb geochronology and geochemistry of intrusive rocks from the Cougar Creek Complex, Wallowa arc terrane, Blue Mountains Province, Oregon-Idaho. *Geological Society of America Bulletin*, v. 124 no. 3-4, p. 578-595.
- Northrup, C. J.**, Schmitz, M., Kurz, G., and Tumpane, K. (2011) Tectonomagmatic evolution of distinct arc terranes in the Blue Mountains Province, Oregon and Idaho. *Geological Society of America Field Guide*, 21, 67-88.
- Kohn, M. J., and **Northrup, C. J.** (2009) Taking mylonites' temperatures. *GEOLOGY* (Boulder), vol. 37, no. 1, p. 47-50.
- Kurz, G., and **Northrup, C. J.** (2008) Structural analysis of mylonitic rocks in the Cougar Creek Complex, Oregon-Idaho using the porphyroclast hyperbolic distribution method, and potential use of SC'-type extensional shear bands as quantitative vorticity indicators. *Journal of Structural Geology*, vol. 30, no. 8, p. 1005-1012.
- Coleman, D., Briggs, S., Glazner, A., and **Northrup, C. J.**, (2003) Timing of plutonism and deformation in the White Mountains of eastern California. *Geological Society of America Bulletin*, 115, 48-57.
- Simpson, C., Law, R. D., Gromet, L. P., Miro, R., and **Northrup, C. J.**, (2002) Paleozoic deformation in the Sierras Pampeanas, Argentina. *Journal of South American Earth Science*. V.101, p. 126 -133.
- Northrup, C. J.**, Isachsen, C., and Bowring, S. A. (1999) Field relations, U-Pb geochronology, and Sm-Nd isotope geochemistry of the Point Lake greenstone belt and adjacent gneisses, central Slave Craton, N.W.T., Canada. *Canadian Journal of Earth Sciences*, v. 36, p. 1043-1059.
- Northrup, C. J.**, (1997) Timing structural assembly, metamorphism, and cooling of Caledonian Nappes, Ofoten-Efjorden, north Norway: Tectonic insights from U-Pb and $^{40}\text{Ar}/^{39}\text{Ar}$ geochronology. *Journal of Geology*, 105, 565-582

Northrup, C. J., and Burchfiel, B. C. (1996) Orogen-parallel transport and vertical partitioning of strain during oblique collision, E fjorden, north Norway. *Journal of Structural Geology*, v. 18, p. 1231-1244.

Northrup, C. J., (1996) Structural expressions and tectonic implications of general non-coaxial flow in the midcrust of a collisional orogen: the northern Scandinavian Caledonides. *Tectonics*, v. 15, p. 490-505.

Northrup, C. J., Royden, L. H., and Burchfiel, B. C. (1995) Motion of the Pacific plate relative to Eurasia, and its potential relation to Cenozoic extension along the eastern margin of Eurasia. *Geology*, v. 23, p. 719-722.