

CURRICULUM VITAE

March 2023

NAME: Bruce K. Nelson

INSTITUTION: Dept. Earth & Space Sciences
University of Washington
Seattle, WA 98195

DATE AND PLACE OF BIRTH: May 24, 1955
Minneapolis, Minnesota

EDUCATION:

Carleton College, Northfield, Minnesota, 1973-1977
B.A. Geology (magna cum laude)
Thesis: "Petrogenesis of potassium-rich alkaline rocks, Bearpaw Mountains, Montana"

University of Kansas, Lawrence, Kansas, 1977-1979
M.S. Geology (with honors) – advisor Dr. Pat Bickford
Thesis: "Uranium-lead isotopic systematics in the northeastern border zone of the Idaho batholith, Bitterroot Range, Montana"

University of California, Los Angeles, California 1979-1985
Ph.D. Geology – advisor Dr. Donald DePaolo
Dissertation: "Samarium-neodymium and rubidium-strontium isotopic studies of the origin and evolution of continental crust"

SCHOLARSHIPS AND FELLOWSHIPS:

Tozer Foundation Scholar (1976-1977)
Dean A. McGee Scholarship (1978-1979)
UCLA University Scholarship (1979-1984)
NSF post-doctoral fellowship: U.S.-Industrialized Countries
Program for the Exchange of Scientists and Engineers (1985-1986)

PROFESSIONAL EXPERIENCE:

Research Assistantship, Dept. of Geology, Univ. of Kansas (1977-1979)
Research, Teaching Assistantships, Dept. Earth & Space Sciences, UCLA (1979-1984)
Post-doctoral fellow, Institut de Physique du Globe, Université de Paris 7 (1985-1986)
Assistant Professor, Dept. Geological Sciences, University of Washington (1986-1992)
Associate Professor, Dept. Geological Sciences, University of Washington (1992-1999)
Professeur Invité, Lab. de Géochimie Isotopique, Université Montpellier II (1993-1994)
Adjunct Associate Professor of Oceanography, School of Oceanography, University of Washington (1998-1999)
Professeur Invité, Ecole Normale Supérieure, Lyon France (2000-2001)
Adjunct Professor of Oceanography, School of Oceanography, University of Washington (1999 to present)
Affiliate Professor, Astrobiology Program, University of Washington (2000 to present)
Professor, Dept. Earth & Space Sciences, University of Washington (1999 to present)
Associate Dean for Research, College of the Environment, UW (2011 to 2015)
Chair, Dept. Earth & Space Sciences, University of Washington (2015-2018)
Associate Dean for Research, College of the Environment, UW (2020 to 2021)
Professor Emeritus 2022 -

TEACHING RECOGNITION

Dept. Earth & Space Sciences Teaching Excellence Award (2008)
College of the Environment Outstanding Teaching Faculty Award (2011)

BRUCE K. NELSON

Papers in Press:

Tepper J., Loewen M., Caulfield L., Davidson P., Ruthenburg K., Blakely S., Knudsen D., Black D., Nelson B.K. and Asmeram Y. (in press) Petrology and Geochronology of Cretaceous - Eocene Plutonic Rocks in Northeastern Washington, USA: Crustal Thickening, Slab Rollback, and Origin of the Challis Episode: Geological Society of America Bulletin.

Reviewed Journal Papers:

Bickford M.E., Chase R.B., Nelson B.K., Shuster R.D. and Arruda E.C. (1981) U-Pb studies of zircon cores and overgrowths, and monazite: Implications for age and petrogenesis of the northeastern Idaho batholith: *Journal of Geology*, v. 89, p. 433-457.

Bickford M.E., Harrower K.L., Hoppe W.J., Nelson B.K. and Nusbaum R.L. (1981) Rb-Sr and U-Pb geochronology and distribution of rock types in the Precambrian basement of Missouri and Kansas: *Geological Society of America Bulletin, Part I*, v. 92, p. 232-341.

Nelson B. K. and DePaolo D.J. (1984) Origin of 1700 myr greenstone volcanic successions in southwestern North America and the isotopic evolution of Proterozoic mantle: *Nature*, v. 312, p. 143-146.

Nelson B.K. and DePaolo D.J. (1985) Rapid production of continental crust 1.7-1.8 b.y. ago: Nd isotopic evidence from the basement of North America: *Geological Society of America Bulletin*, v. 96, p. 746-754.

Nelson B.K., DeNiro M.J., Schoeninger M.J., Hare E. and DePaolo D.J. (1986) Effects of diagenesis on strontium, carbon, nitrogen and oxygen concentration and isotopic composition of bone: *Geochimica Cosmochimica Acta*, v. 50, p. 1941-1949.

Nelson B.K. and DePaolo D.J. (1988) Application of Sm-Nd and Rb-Sr isotope systematics to sedimentary provenance determination and basin analysis: *Journal of Sedimentary Petrology*, v. 58, p. 348-357.

Van Schmus W.R., Bickford M.E., Anderson, R.R. Shearer, C.K. Papike, J.J. and Nelson B.K. (1989) Quimby, Iowa, scientific drill hole: Definition of Precambrian crustal features in northwestern Iowa: *Geology*, v. 17, p. 536-539.

- Nelson B.K. and Vidal P. (editors) (1990) *Development of Continental Crust through Geological Time* : Chemical Geology, v. 83, no. 3/4.
- Nelson B.K., MacLeod K.G. and Ward P.D. (1991) Rapid change in strontium isotopic composition of sea water before the Cretaceous/Tertiary boundary: *Nature*, v. 351, p. 644-647.
- Nelson B.K. (1991) Sediment-derived fluids in subduction zones: Isotopic evidence from veins in blueschist and eclogite of the Franciscan Complex, California: *Geology*, v. 19, p. 1033-1036.
- Ward P.D., Nelson B.K. and MacLeod K.G. (1992) Marine isotope evolution - reply to McArthur et al.: *Nature*, v. 358, p. 378.
- Nelson B.K., Nelson S.W. and Till A.B. (1993) Nd- and Sr-isotope evidence for Proterozoic and Paleozoic crustal evolution in the Brooks Range, northern Alaska: *Journal of Geology*, v. 101, p. 435-450.
- Hurlow H.A. and Nelson B.K. (1993) U-Pb zircon and monazite ages for the Okanogan Range Batholith, Washington: Implications for the magmatic and tectonic evolution of the southern Canadian and northern United States Cordillera: *Geological Society of America Bulletin*, v. 105, p. 231-240.
- Tepper J.H., Nelson B.K., Bergantz G.W. and Irving A.J. (1993) Petrology of the Chilliwack batholith, North Cascades, Washington: generation of calc-alkaline granitoids by melting of mafic lower crust with variable water fugacity: *Contributions to Mineralogy and Petrology*, v. 113, p. 333-351.
- de Villiers S., Shen G.T. and Nelson B.K. (1994) Sr/Ca-thermometry: coral skeletal uptake and surface ocean variability in the Eastern Equatorial Pacific upwelling area: *Geochimica Cosmochimica Acta*, v. 58, p. 197-208.
- Russell A.D., Emerson S., Nelson B.K., Erez J. and Lea, D.W., (1994) Uranium in foraminiferal calcite as a recorder of seawater uranium concentrations: *Geochimica Cosmochimica Acta*, v. 58, p. 671-681.
- Herrmann U.R., Nelson B.K. and Ratschbacher L.R. (1994) The origin of a terrane: U/Pb zircon systematics and tectonics of the Xolapa complex (southern Mexico): *Tectonics*, v. 13, p. 455-474.
- Nelson B.K. (1995) Fluid flow in subduction zones: Evidence from Nd- and Sr-isotope variations in metabasalts of the Franciscan Complex, California: *Contributions to Mineralogy and Petrology*, v. 119, p. 247-262.

- Reiners P.W., Nelson B.K. and Ghiorso M.S. (1995) Assimilation of felsic crust by basaltic magma: Thermal limits and extents of crustal contamination of mantle-derived magma: *Geology*, v. 23, p. 563-566.
- de Villiers S.D., Nelson B.K. and Chivas A.R. (1995) Biological controls on coral Sr/Ca and $\delta^{18}\text{O}$ reconstructions of sea surface temperatures: *Science*, v. 269, p. 1247-1249.
- Reiners P.W., Nelson B.K. and Nelson S.W. (1996) Evidence for multiple mechanisms of crustal contamination of magma from compositionally zoned plutons of the Alaska Range: *Journal of Petrology*, v. 37, p. 261-292.
- Hastings D., Emerson S. and Nelson B.K. (1996) Determination of picogram quantities of vanadium in calcite and seawater by isotope dilution inductively coupled plasma mass spectrometry with electrothermal vaporization: *Analytical Chemistry*, v. 68, p. 371-377.
- Hastings D., Emerson S., Erez J. and Nelson B.K. (1996) Vanadium in foraminiferal calcite: Evaluation of a method to determine paleo-seawater vanadium concentrations: *Geochimica Cosmochimica Acta*, v. 60, p. 3701-3715.
- Hinn G.M. and Nelson B.K. (1997) Production and analysis of repetitive sub-boiling laboratory reagents for purity enhancement: *Nuclear Instruments and Methods in Physics Research*, v. A397, p. 189-193.
- Holcomb R.T., Reiners P.W., Nelson B.K. and Sawyer N.-L. E. (1997) Evidence for two shield volcanoes exposed on the island of Kauai, Hawaii: *Geology*, v. 25, p. 811-814.
- Reiners P.W. and Nelson B.K. (1998) Systematic trace element and isotopic changes during monogenetic eruptions of primitive, alkalic lavas, Kauai, Hawaii: Constraints on melt migration and reaction in the mantle: *Geochimica Cosmochimica Acta*, v. 62, p. 2347-2368.
- Reiners P.W., Nelson B.K. and Izuka S.K. (1998) Stratigraphy and geochemistry of the Lihue basin and eastern Kauai, Hawaii: Late-stage post-shield and post-erosional alkalic magmatism and large debris flow deposits: *Geological Society of America Bulletin*, v. 111, p. 674-685.
- de Villiers S. and Nelson B.K. (1999) Detection of low-temperature hydrothermal fluxes by seawater Mg and Ca anomalies: *Science*, v. 285, p. 721-723.
- McCallum I.S., Thurber M.W., O'Brien H.E. and Nelson B.K. (1999) Lead isotopes in sulfides from the Stillwater Complex, Montana: Evidence for subsolidus remobilization: *Contributions to Mineralogy and Petrology*, v. 137, p. 206-209.

- Holcomb R.T., Nelson B.K., Reiners P.W. and Sawyer N.-L. (2000) Overlapping volcanoes: The origin of Hilo Ridge, Hawaii: *Geology*, v. 28, p. 547-550.
- Sjostrom D.J., Hendrix M.S., Badamgarav D., Graham S.A. and Nelson B.K. (2001) Sedimentology and provenance of Mesozoic nonmarine strata in western Mongolia: A record of intracontinental deformation, *in* Paleozoic and Mesozoic tectonic evolution of central Asia: From continental assembly to intracontinental deformation, Hendrix, M.S. and Davis, G.A. eds., *GSA Memoir* 194, p. 361-388.
- Butterfield D.A., Nelson B.K., Wheat C.G. Mottl M.J. and Roe K.K. (2001) Evidence for basaltic Sr in mid-ocean ridge flank hydrothermal systems and implications for the global oceanic Sr isotope balance: *Geochimica Cosmochimica Acta*, v. 65, p. 4141-4153.
- Schwab M., Ratschbacher L., Siebel W., McWilliams M., Minaev V., Lutkov B., Chen F., Stanek K., Nelson B.K., Frisch W. and Wooden J.L. (2004) Assembly of the Pamirs: Age and origin of magmatic belts from the southern Tien Shan to the southern Pamirs and their relation to Tibet: *Tectonics*, v. 23, doi:10.1029/2003/TC001583, 31p.
- Gaffney A.M., Nelson B.K. and Blichert-Toft J. (2004) Geochemical constraints on the role of oceanic lithosphere in intra-volcano heterogeneity at West Maui, Hawaii: *Journal of Petrology*, v. 45, p. 1663-1687.
- Albarède F., Telouk P., Blichert-Toft J., Boyet M., Agranier A. and Nelson B.K. (2004) Precise and accurate isotopic measurements using multiple-collector ICP-MS: *Geochimica Cosmochimica Acta*, v. 68, p. 2725-2744.
- Gaffney A.M., Nelson B.K., Reisberg L. and Eiler J.M. (2005) Oxygen - osmium isotope systematics of West Maui lavas: A record of shallow-level magmatic processes: *Earth and Planetary Science Letters*, v. 239, p. 122-139.
- Gaffney A.M., Nelson B.K. and Blichert-Toft J. (2005) Melting in the Hawaiian plume at 1-2 Ma as recorded at Maui Nui: the role of eclogite, peridotite and source mixing: *Geochemistry Geophysics Geosystems*, v. 6, Q10L11, doi: 10.1029/2005GC000927.
- Ludwig K.A., Kelley D.S., Butterfield D.A., Nelson B.K. and Früh-Green G. (2006) Formation and evolution of carbonate chimneys at the Lost City Hydrothermal Field: *Geochimica et Cosmochimica Acta*, v. 70, p. 3625-3645.
- Sahni J., Nelson B.K. and Scharenberg A.M. (2007) SLC41A2 encodes a plasma-membrane Mg²⁺ transporter: *Biochemical Journal*, v. 401, p. 505-513.
- Gaffney A.M., Blichert-Toft J., Nelson B.K. and Albarède F. (2007) Constraints on source-forming processes of West Greenland kimberlites inferred from Hf-Nd isotope systematics: *Geochimica et Cosmochimica Acta*, v. 71, p. 2820-2836.

- Van Schmus W.R., Schneider D.A., Holm D.K., Dodson S. and Nelson B.K. (2007) New insights into the southern margin of the Archean–Proterozoic boundary in the north-central United States based on U-Pb, Sm-Nd, and Ar-Ar geochronology: *Precambrian Research*, v. 157, p. 80-105.
- Bosch D., Blichert-Toft J., Moynier F., Nelson B.K., Telouk P., Gillot P.-Y. and Albarède F. (2008) Pb, Hf and Nd isotope compositions of the two Réunion volcanoes (Indian Ocean): A tale of two small-scale mantle “blobs”? *Earth and Planetary Science Letters*, v. 265, p. 748-768.
- Harkins S.A., Appold M.S., Nelson B.K., Brewer A.M. and Groves I.M. (2008) Lead isotope constraints on the origin of nonsulfide zinc and sulfide zinc-lead deposits in the Flinders Ranges, south Australia: *Economic Geology*, v. 103, p. 353-364.
- Ratschbacher L., Franz L., Min M., Bachmann R., Martens U., Stanek K.L., Stübner K., Nelson B.K., Herrmann U., Weber B., López Martínez M., Jonckheere R., Sperner B., Tichomirowa M., McWilliams M.O., Gordon M., Meschede M. and Bock P. (2009) The North American – Caribbean Plate boundary in Mexico – Guatemala – Honduras, in James K.H., Lorente M.A. and Pindell J.L., eds., *The Origin and Evolution of the Caribbean Plate*, v. 328: Geological Society, London, Special Publications, p. 219-293.
- Chan C. F., Tepper, J. H. and Nelson B. K. (2012) Petrology of the Grays River volcanics, southwest Washington: Plume-influenced slab window magmatism in the Cascadia forearc: *Geological Society of America Bulletin*, v. 124, p. 1324-1338.
- Stüeken E.E., Foriel J., Nelson B.K., Buick R. and Catling D.C. (2013) Selenium isotope analysis of organic-rich shales: advances in sample preparation and isobaric interference correction: *Journal of Analytical Atomic Spectrometry*, DOI: 10.1039/c3ja50186h.
- Kayzar T.M., Nelson B.K., Bachmann O., Bauer A.M. and Izbekov P.E. (2014) Deciphering petrogenic processes using Pb isotope ratios from time-series samples at Bezymianny and Klyuchevskoy volcanoes, Central Kamchatka Depression: *Contributions to Mineralogy and Petrology*, v. 168, DOI 10.1007/s00410-014-1067-6.
- Sliwinski J.T., Bachmann O., Ellis B.S., Dávila-Harris P., Nelson B.K. and Dufek J. (2015) Eruption of shallow crystal cumulates during explosive phonolitic eruptions on Tenerife, Canary Islands: *Journal of Petrology*, v. 56, p. 2173-2194, DOI: 10.1093/petrology/egv068.
- Kant L.B., Tepper J.H., Eddy M.P. and Nelson B.K. (2018) Eocene basalt of Summit Creek: Slab breakoff magmatism in the central Washington Cascades, USA: *Lithosphere*, v. 10, p. 792-805.

- Bidwell A.L., Callahan S.T., Tobin P.C., Nelson B.K. and DeLuca T.H. (2019) Quantifying the elemental composition of mosses in western Washington, USA: *Science of the Total Environment*, doi.org/10.1016/j.scitotenv.2019.07.210.
- Licht A., Zaw W., Westerweel J., Cogné N., Morley C.K., Chantraprasert S., Poblete F., Ugrai T., Nelson B.K., Aung D.W. and Dupont-Nivet G. (2020) Magmatic history of central Myanmar and implications for the evolution of the Burma Terrane: *Gondwana Research*, v. 87, p. 303-319; doi.org/10.1016/j.gr.2020.06.016.
- Liu J., Li J., Zhu D.-C., Nelson B.K. and Gao R. (2022) Ridge subduction and episodes of crustal growth in accretionary belts: Evidence from late Paleozoic felsic igneous rocks in the southeastern Central Asian Orogenic Belt, Inner Mongolia, China: *Bulletin Geological Society of America*, v. 134, p. 3189-3204; https://doi.org/10.1130/B35986.1.
- Tepper J., Loewen M., Caulfield L., Davidson P., Ruthenberg K., Blakely S., Knudsen D., Black D., Nelson B.K. and Asmeram Y. (in press) Petrology and geochronology of Cretaceous - Eocene plutonic rocks in northeastern Washington, USA: Crustal thickening, slab rollback, and origin of the Challis Episode: *Bulletin Geological Society of America*.

Abstracts:

- Nelson B. K. and DePaolo D.J. (1984) Origin of Precambrian metavolcanic rocks from New Mexico, Colorado, and Wyoming, and the isotopic evolution of Proterozoic mantle: *Geological Society of America, Abstracts with Programs*, v. 16, p. 249.
- Nelson B.K. and Allègre C.J. (1988) Comparative Pb isotope chronology of Precambrian crustal evolution in the west African craton (Man Shield) and the Hoggar: *Chemical Geology*, v. 70, p. 203.
- Nelson B.K., Nelson S.W. and Till A.B. (1989) Isotopic evidence of an early-Proterozoic crustal source for granites of the Brooks Range, northern Alaska: *Geological Society of America, Abstracts with Programs*, v. 21, p. 105.

- Tepper J.H., Nelson B.K. and Irving A.J. (1989) Generation of arc granitoids by melting of mafic lower crust under variable f_{H_2O} : REE and Sr, Nd isotopic evidence from the Chilliwack batholith, North Cascades, Washington: EOS, American Geophysical Union, v. 70, p. 1420.
- Nelson B.K. (1990) Proterozoic anorogenic volcanism in North America: Isotopic and trace element constraints on andesite and rhyolite genesis, St. Francois Mts., Missouri: IAVCEI International Volcanological Conference, Abstracts with Program, p. 77.
- Nelson B.K., MacLeod, K.G. and Ward, P.D. (1990) Time evolution of seawater Sr isotopic composition approximately 3my prior to the Cretaceous-Tertiary boundary, Bidart, S.W. France: Geological Society of America, Abstracts with Programs, v. 22, p. 50.
- Russell A.D., Emerson S.R., Nelson B.K., Mix A. and Erez J. (1990) Uranium in foraminiferal calcite as a tracer of ocean redox conditions: EOS, American Geophysical Union, v.71, p. 1352.
- Hastings D.H., Emerson S.R., Mix A. and Nelson B.K. (1990) Vanadium incorporation into planktonic foraminifera as a tracer for the extent of anoxic bottom water: EOS, American Geophysical Union, v.71, p. 1351.
- Thurber M.W., Nelson B.K. and McCallum I.S. (1990) Pb isotope evidence for the origin of sulfide mineralization in the Stillwater complex, Montana: EOS, American Geophysical Union, v.71, p. 1688-1689.
- Nelson B.K. and Bentz K. (1990) Nd isotopic evidence for a cratonal component in metasedimentary rocks from the Franciscan complex, California: EOS, American Geophysical Union, v.71, p. 1689.
- Hurlow H.A. and Nelson B.K. (1991) U-Pb ages for the Okanogan Range batholith, Washington: Evidence for Middle Cretaceous Cordilleran arc magmatism: Geological Society of America, Abstracts with Programs, v. 23, p. 37.
- Thurber M.W., Nelson B.K. and McCallum I.S. (1991) Pb isotopic evidence for remobilization of sulfides in the Stillwater Complex: Lunar Planetary Sciences Institute.
- Bosch D., Nelson B.K. and McCallum I.S. (1991) Initial Pb isotope composition of feldspars from the Stillwater Complex, Montana: EOS, American Geophysical Union, v.72, p. 298.
- Hurlow H.A. and Nelson B.K. (1991) Late Cretaceous-Eocene dextral transpression in the north Cascades metamorphic core, Washington: Structural styles, U-Pb

- chronologic constraints, and relation to plate motions: Geol. Soc. America Annual Meeting, 1991, San Diego, v. 23, p. 433.
- Herrmann U.R., Nelson B.K. and Ratschbacher L. (1991) Structural, isotopic and petrogenetic evidence for the origin of the Xolapa terrane, southern Mexico: Geological Society of America, Abstracts with Programs, v. 23, p. 479-480.
- Nelson B.K. (1991) Crustal growth in central Europe - Isotopic evidence from the Bohemian Massif, Austria and Germany: Geological Society of America, Abstracts with Programs, v. 23, p. 45.
- Butterfield D.A. and Nelson B.K. (1991) Strontium isotope systematics in hydrothermal fluids from Axial Seamount: EOS, American Geophysical Union, v.72, p. 539-540.
- Nelson B.K. (1991) Proterozoic continental growth near the Archean craton: The isotopic record from anorogenic granites in Wisconsin: EOS, American Geophysical Union, v.72, p. 544.
- Hastings D., Emerson E., Nelson B.K., Mix A. and Erez J. (1991) Vanadium in planktonic foraminifera as a paleoceanographic tracer of sediment redox conditions: EOS, American Geophysical Union, v.72, No. 51, p. 20.
- McCallum I.S., Thurber M.W., Bosch D. and Nelson B.K. (1992) Lead isotopic composition of plagioclases and sulfides in the Stillwater Complex: Evidence for isotopic disequilibrium and remobilization: Lunar and Planetary Sciences Proceedings.
- Barfod D.N. and Nelson B.K. (1992) Isotopic evidence for provenance of Mesozoic sediments of the Methow Basin, Washington and British Columbia: Geological Society of America, Abstracts with Programs, v. 24, no. 5, p. 5.
- Nelson S.W., Foley J.Y. and Nelson B.K. (1992) Metal-rich lamprophyric and associated alkaline mafic, ultramafic, and intermediate to felsic rocks from composite plutons, central Alaska Range, Alaska: International Conference on Arctic Margins, Sept. 1992, Alaska Geological Society, Anchorage, p. 43.
- Hastings D., Emerson S., Nelson B.K., Erez J. and Mix A. (1992) Vanadium in planktonic foraminifera as a paleoceanographic tracer of bottom-water redox conditions: Fourth International Conference on Paleocyanography, Berichte - Reports, Geol. Palaont. Inst. Univ. Kiel, Nr. 57, p. 137.
- Russell A.D., Emerson S., Nelson B.K., Erez J. and Mix A. (1992) Uranium in foraminiferal calcite as a recorder of changes in seawater uranium concentration: Fourth International Conference on Paleocyanography, Berichte - Reports, Geol. Palaont. Inst. Univ. Kiel, Nr. 57, p. 244-245.

- de Villiers S., Shen G.T., Nelson B.K. (1992) Sr/Ca-thermometry: an evaluation of the role of Sr:Ca variability in surface ocean waters, coral growth rate and species effects on the precision and accuracy obtainable with the Sr-paleothermometer: EOS, American Geophysical Union, v.73, No. 43, p. 288.
- Hastings D., Emerson S., Nelson B.K., Mix A. and Erez J. (1992) Vanadium in planktonic foraminifera as a paleoceanographic tracer of sediment redox conditions: EOS, American Geophysical Union, v.73, No. 43, p. 273.
- Delaperriere E. and Nelson B.K. (1992) Rb-Sr and Sm-Nd analyses of Cretaceous sandstones from Methow and Tyaughton basins (Washington-British Columbia) as an indicator of provenance: EOS, American Geophysical Union, v.73, No. 43, p. 574.
- Reiners P.W. and Nelson B.K. (1992) Nd- and Sr-isotope evidence for enriched mantle in south-central Alaska from Cretaceous-Tertiary composite plutons of the Alaska Range: EOS, American Geophysical Union, v.73, No. 43, p. 622.
- Nelson B.K., Herrmann U.R. and Ratschbacher L.R. (1992) Crustal evolution in southern Mexico: Nd- and Sr-isotope evidence for cratonal affinity of the Xolapa terrane: EOS, American Geophysical Union, v.73, No. 43, p. 533.
- Delaperriere E., Nelson B.K. and Barfod D. (1993) Accretionary processes of the northwest American margin inferred from Sr and Nd isotopic compositions of sandstones from the Methow-Tyaughton basins: Terra Nova, v. 5, p. 161.
- Herrmann U.R., Nelson B.K. and Ratschbacher L. (1993) Terranes and active continental margins: isotope systematics and tectonics of the Xolapa complex (southern Mexico): Terra Nova, v. 5, p. 259.
- de Villiers S., Shen G.T. and Nelson B.K. (1993) The accuracy of the Sr/Ca paleothermometer: EOS, American Geophysical Union, v. 74, p. 185.
- Anders N.-L. and Nelson B.K. (1993) East Molokai Volcano, Hawaii: Pb isotopic evidence for source heterogeneity through the tholeiitic-alkalic transition: EOS, American Geophysical Union, v. 74, p. 324.
- Reiners P.W., Nelson B.K. and Nelson S.W. (1993) Isotopic and chemical modification of cumulate mush by partial melts of country rock: Evidence from the composite plutons of the Alaska Range: Geological Society of America, Abstracts with Programs, v. 25, p. 41.
- Barfod D.N. and Nelson B.K. (1994) Isotopic and trace element characterization of Methow Basin sediment provenance, Washington and British Columbia: Geological Society of America, Abstracts with Programs, v. 26, p. 36.

- Maximova J.V., Nelson B.K. and Prikhod'ko V.S. (in press) Petrology and isotopic systematics of Khungariisk granites as a key to the history of Early Cretaceous collision in the Sikhote-Alin fold belt, far-eastern Russia: AAAS Arctic Division Meeting.
- Russell A.D., Emerson S., Mix A.C., Nelson B.K. and Lea D.W. (1994) U/Ca in G. sacculifer from Atlantic, Caribbean and Pacific cores over las 30 kyr: EOS, American Geophysical Union, v. 75, no. 3, p. 79.
- Anders N.-L., Nelson B.K. and Holcomb R.T. (1994) The tholeiitic to alkalic basalt transitions of East Molokai and Waianae Volcanoes, Hawaii: Systematic sampling of Pb isotope heterogeneities in the upper mantle: EOS, American Geophysical Union, v. 75, p. 368.
- Holcomb R.T., Nelson B.K. and Anders N.-L. (1994) Headward extent and depth of giant landslide, submarine north flank of East Molokai volcano, Hawaii: Geological Society of America, Abstracts with Programs, v. 26, p. 114.
- Barfod D.N. and Nelson B.K. (1994) Contrasting shale and sandstone provenance in the Methow Basin: Nd isotope and trace element evidence: Geological Society of America, Abstracts with Programs, v. 26, p. 148.
- Joswiak D.J., McCallum I.S., Irving A.J. and Nelson B.K. (1994) Age and geochemistry of lower crustal granulite xenoliths from minette dikes in central Montana: Geological Society of America, Abstracts with Programs, v. 26, p. 296.
- Reiners P.W., Ghiorso M.S. and Nelson B.K. (1994) Isenthalpic assimilation of pelitic rock and its partial melt by basaltic magma: Petrologic and geochemical consequences: Geological Society of America, Abstracts with Programs, v. 26, p. 476.
- Murphy M.T., Nelson B.K. and O'Brien H.E. (1995) Discriminating background from anthropogenic lead by isotopic methods: Results from Eielson Air Force Base, AK: Geological Society of America, Abstracts with Programs, v. 27, no. 5, p. 67.
- Herrmann U.R., Ratschbacher L. and Nelson B.K. (1995) From suspect to known: The origin of some caribbean "terrane": Terra Nova, v. 7, Abstracts Supplement no. 1, p. 108-109.
- Anders N.-L. and Nelson B.K. (1995) Isotopic variability and evidence for the Koolau component at Waianae Volcano, Oahu, Hawaii: EOS, American Geophysical Union, v. 76, p. F692.

- Holcomb R.T., Reiners P.R., Nelson B.K. and Anders N.-L. (1995) Isotopic evidence for two shield volcanoes exposed on the Island of Kaua'i, Hawaii: EOS, American Geophysical Union, v. 76, p. F699.
- Nelson B.K., O'Brien H.E. and Murphy M.T. (1996) Pb isotope characterization of sites as a means to identify and prioritize remediation targets: Geological Society of America, Abstracts with Programs, v. 28, no. 5, p. 96.
- Sjostrom D.J, Hendrix M.S. and Nelson B.K. (1996) The relationship of Jurassic nonmarine sediments to Archean-Paleozoic basement rocks in western Mongolia: Results of petrographic and Sm/nd isotopic provenance analysis: Geological Society of America, Abstracts with Programs, v. 28, no. 7, p. A-68.
- Reiners P.W. and Nelson B.K. (1996) Geologic and petrologic evolution of the Lihue Basin, Kaua'i and implications for the origin of Hawai'ian post-erosional volcanics: Geological Society of America, Abstracts with Programs, v. 28, no. 7, p. A-502.
- Reiners P.W. and Nelson B.K. (1996) Temporal-compositional-isotopic relationships in primitive alkalic lavas of the Koloa Volcanics, Kaua'i: Source, melting, and melt migration implications: EOS, American Geophysical Union, v. 77, p. F812.
- Anders N.-L. and Nelson B.K. (1996) Characteristics of the Hawaiian plume: Correlations between intershield major element and isotopic compositions and the relation to the tholeiitic to alkalic basalt transition of Hawaiian volcanoes: EOS, American Geophysical Union, v. 77, p. F812.
- Reiners P.W. and Nelson B.K. (1996) Reactive transport of melt through the mantle: Chromatographic-reactive modeling and evidence from cogenetic lavas of the Koloa volcanics, Kaua'i: AGU Chapman Conference: Shallow Level Processes in Ocean Island Magmatism, Tenerife, Canary Islands, p. 20.
- Nelson B.K., Herrmann U.R., Gordon M.B. and Ratschbacher L. (1997) Sm-Nd and U-Pb evidence for Proterozoic crust in the Chortis Block, Central America: Comparison with the crustal history of southern Mexico: Terra Nova, v. 9, Abstract Supplement No 1, p. 496.
- Holcomb R.T., Nelson B.K., West B.P., Carracedo J.C., Ten Brink U. and McGee D. (1997) Post-landslide stratigraphy of the 1300-m terrace, submarine north flank of East Molokai Volcano, Hawaii: Geological Society of America, Abstracts with Programs, v. 29, no. 6, p. 19.
- McGee W.D., Nelson B.K. and Holcomb R.T. (1997) Pb, Sr and Nd isotope data from Lanai, Hawaii: Implications for mantle source mixing and magmagenesis: Geological Society of America, Abstracts with Programs, v. 29, no. 6, p. 28.

- Holcomb R.T., Nelson B.K. and Carracedo J.C. (1997) Growth, collapse and subsidence of Wailau Volcano, East Molokai, Hawaii: International Workshop on Volcanism and Volcanic Hazards in Immature Intraplate Oceanic Islands, Programme and Abstracts, pp.94-96.
- Reiners P.W., Sawyer N.-L., Nelson B.K. and Holcomb R.T. (1997) Alkalic and tholeiitic submarine lavas from the Hilo Ridge rift zone, Hawaii: Implications for the evolution of Mauna Kea volcano: EOS, American Geophysical Union, v. 78, p. F645.
- Reiners P.W., Clague D.A. and Nelson B.K. (1998) Petrologic and structural evolution of Kauai, Hawaii: Evolution of Ocean Island Volcanoes Penrose Conference Series, Geological Society of America, Program and Abstracts, p. 71.
- Nelson B.K., Butterfield D.A., de Villiers S. and Wheat C.G. (1998) Mg-, Ca-concentration and Sr-isotope evidence for low-temperature flank flux as a significant contribution to the oceanic chemical mass balance: Eighth Annual Goldschmidt Conference, Mineralogical Magazine, v. 62A, p. 1071-1072.
- Drury R.M., Ghiorso M.S. and Nelson B.K. (1998) Thermodynamic modeling of the effects of variable oxygen fugacity on composition during adiabatic, decompressive melting of peridotite: EOS, American Geophysical Union, v. 79, p. F1005.
- Reiners P.W., Kent A.J.R. and Nelson B.K. (2000) Whole rock and melt inclusion geochemistry of Lanai basalts: 3d Plume Conference, Hawaii.
- Nelson B.K. and Holcomb R.A. (2000) Change in partial melting processes following lateral collapse of East Molokai Volcano, Hawaii: EOS, American Geophysical Union, v. 81, p. F1379.
- Gaffney A.M., Nelson B.K. and Blichert-Toft J. (2001) Geochemical structure of the plume beneath Maui Nui, Hawaii: EOS Trans. American Geophysical Union, v. 82, p. F1279-80.
- Guetschow H.A., Ghiorso M.S. and Nelson B.K. (2001) The moderating effect of clinopyroxene on REE abundance patterns of progressively melted mantle peridotite during solid phase transitions: EOS Trans. American Geophysical Union, v. 82, p. F1394-5.
- Jordan B.T., Grunder A.L. and Nelson B.K. (2002) Basaltic volcanism of the Oregon high lava plains: Geological Society of America, Abstracts with Programs, v. 34, no. 5, p. .

- Agranier A., Blichert-Toft J., Schilling J.-G., Nelson B.K. and Albarede F. (2002) Hf-Pb isotope systematics in MORB along the Reykjanes Ridge (50-64°N): *Geochimica Cosmochimica Acta*, v. 66, p. A9 (12th Annual Goldschmidt Conference).
- Gaffney A.M., Nelson B.K. and Blichert-Toft J. (2002) Chemical complexity of the Kea component preserved in West Maui lavas: *Geochimica Cosmochimica Acta*, v. 66, p. A255 (12th Annual Goldschmidt Conference).
- Nelson B.K., Blichert-Toft J. and Albarede F. (2002) Nd-Sr-Hf-Pb isotope correlations in lavas from Lanai, Hawaii: *Geochimica Cosmochimica Acta*, v. 66, p. A550 (12th Annual Goldschmidt Conference).
- Gaffney A.M., Nelson B.K. and Blichert-Toft J. (2002) Intra-volcano compositional variability and the role of oceanic lithosphere in West Maui and East Molokai volcanoes: *EOS Trans. American Geophysical Union*, v. 83, p. F1433.
- Guetschow H.A. and Nelson B.K. (2002) Shallow fractionation signature of phase chemistry in Taburiente lavas, La Palma, Canary Islands: Results of MELTS modeling: *EOS Trans. American Geophysical Union*, v. 83, p. F1418.
- Nelson B.K., Blichert-Toft J., Guetschow H.A. and Albarède F. (2002) Nd-Sr-Hf-Pb isotope evidence for HIMU source evolution in the western Canary Islands: *EOS Trans. American Geophysical Union*, v. 83, p. F1447.
- Gaffney A.M., Nelson B.K., Reisberg L. and Eiler J.M. (2003) Oxygen - Osmium Isotopic Compositions of West Maui Lavas and the Link to Oceanic Lithosphere: *EOS Trans. American Geophysical Union*, v. 84, Fall Meet. Suppl., Abstract V42C-0370.
- Ludwig K.A., Kelley D.S., Butterfield D.A., Nelson B.K. and Karson J.A. (2003) Chemistry of a serpentinization-controlled hydrothermal system at the Lost City hydrothermal vent field: *EOS Trans. American Geophysical Union*, v. 84, Fall Meet. Suppl., Abstract B12A-0776.
- Nelson B.K. and Blichert-Toft J. (2004) Origin of moderate HIMU source in the Canary Islands: new limits from Nd-Hf-Sr-Pb isotope data: *Geochimica Cosmochimica Acta*, v. 68, p. A572 (14th Annual Goldschmidt Conference).
- Hamilton A., Nelson B.K. and Carracedo J.C. (2004) Contrasting isotope systematics in Canarian rift zones: La Palma and Tenerife: *EOS Trans. American Geophysical Union*, v. 85, Fall Meet. Suppl., Abstract V31C-1441.
- Nelson B.K., Carracedo J.C., Badiola E.R., Hamilton A. and Guetschow H. (2005) Spatial and temporal isotopic gradients in the western Canary Islands: *EOS Trans. American Geophysical Union*, v. 86, Fall Meet. Suppl., Abstract V41C-1471.

- Hamilton A., Nelson B.K. and Carracedo J.C. (2005) Evidence for shallow-level assimilation of the submarine volcanic complex underlying the NW Rift Zone of Tenerife, Canary Islands: EOS Trans. American Geophysical Union, v. 86, Fall Meet. Suppl., Abstract V13E-0603.
- Locke J.A., Peterson B.T. and Nelson B.K. (2005) High resolution, Pb isotope variability within historic eruptions of the Cumbre Vieja Volcano, La Palma, Canary Islands: EOS Trans. American Geophysical Union, v. 86, Fall Meet. Suppl., Abstract V41C-1473.
- Hoppe K.A., Paytan A., Chamberlain, P. and Nelson B.K. (2006) Reconstructing the migration patterns of prehistoric bison using analyses of tooth enamel carbon, oxygen, and strontium isotope ratios: implications for paleoenvironmental reconstructions: Geological Society of America, Abstracts with Programs, v. 38, no. 7, p. 69.
- Harkins S.A., Appold M.S., Nelson B.K., Brewer A.M. and Groves I.M. (2006) Lead isotope analysis of non-sulfide zinc and sulfide zinc-lead deposits in the Flinders Ranges, South Australia: Geological Society of America, Abstracts with Programs, v. 38, no. 7, p. 348.
- Ewing S.M, Nelson B.K., Kelley D.S. and Nielson D.C. (2006) Cu, Fe and Zn isotope variations within a high-temperature mid-ocean ridge sulfide structure: EOS Trans. American Geophysical Union, v. 87, Fall Meet. Suppl., Abstract V21B-0573.
- Smith R.S., Streck M.J. and Nelson B.K. (2006) The making of fore-arc andesite of the Portland Basin, Oregon: EOS Trans. American Geophysical Union, v. 87, Fall Meet. Suppl., Abstract V31D-0616.
- Harkins S.A., Appold M.S., Nelson B.K., Brewer A.M. and Groves I.M. (2007) Lead isotope and fluid inclusion microthermometry constraints on the origin of non-sulfide zinc and sulfide zinc-lead deposits in the Flinders Ranges of South Australia: Geological Society of America, Abstracts with Programs, v. 39, no. 3, p. 28.
- Ewing S.M, Nelson B.K., Kelley D.S. and Nielson D.C. (2007) A model of Fe isotope fractionation within a high-temperature sulfide structure from the Mothra Field, Juan de Fuca Ridge: EOS Trans. American Geophysical Union, v. 88, Fall Meet. Suppl., Abstract V51E-0829.
- Hagedorn B., Nelson B.K., Kennell T.J., Henck A. and Hallet B. (2008) Seasonal trends in solutes and $^{87}\text{Sr}/^{86}\text{Sr}$ ratios of SE Tibet rivers: Yarlung, Tsangpo and Parlung: *Geochimica Cosmochimica Acta*, v. 72, p. A340 (18th Annual Goldschmidt Conference).

- Tepper J.H., Nelson B.K., Clark K. and Barnes R.P. (2008) Heterogeneity in mantle sources for Eocene basalts in Washington: Trace element and Sr-Nd isotopic evidence from the Crescent and Teanaway Basalts: EOS Trans. American Geophysical Union, v. 89, Fall Meet. Suppl., Abstract V41D-2121.
- Kayzar T.M., Nelson B.K., Izbekov P.E. and Belousova M. (2008) Fine-scale source variations in time-series samples from Kamchatkan volcanoes recorded in high-precision Pb isotope ratios: EOS Trans. American Geophysical Union, v. 89, Fall Meet. Suppl., Abstract V43A-2146.
- Foriel J., Stüeken E.E., Nelson B.K. and Buick R. (2009) Selenium biogeochemistry as a deep-time redox proxy: *Geochimica Cosmochimica Acta*, v. 73, p. A389 (19th Annual Goldschmidt Conference).
- Chan C.F., Tepper J.H. and Nelson B.K. (2009) Geochemistry of the Late Eocene Grays River Volcanics: Evidence for a slab window in the Cascadia forearc: Geological Society of America, Abstracts with Programs, v. 41, no. 7, p. 309.
- Kayzar T.M., Nelson B.K., Reagan M.K., Izbekov P.E. and Belousova M. (2009) A Multi-Component Geochemical Study of Short-Term Melt and Volatile Evolution in the Kamchatka Volcanic Arc: EOS Trans. American Geophysical Union, v. 90, Fall Meet. Suppl., Abstract V51A-1648.
- Kayzar T.M., Nelson B.K., Reagan M.K., Izbekov P.E., Belousova M. and Belousova A. (2010) Periodically Erupting Degassed Magma: The Evolution Of Karymsky, Bezymianny, and Shiveluch Volcanic Systems In The Past Decade: Cities on Volcanoes-6.
- Kirkpatrick J.B., Nelson B.K., Edwards K.J., Staley J.T. and Murray J.W. (2010) Iron Isotope Fractionation by Aerobic Bacteria; A Useful Biosignature?: Astrobiology Science Conference 2010: Evolution and Life: Surviving Catastrophes and Extremes on Earth and Beyond, held April 26-20, 2010 in League City, Texas. LPI Contribution No. 1538, p. 5459.
- Stüeken E.E., Foriel J., Nelson B.K. and Buick R. (2010) Selenium biogeochemistry as a planetary deep-time redox proxy: Astrobiology Science Conference 2010: Evolution and Life: Surviving Catastrophes and Extremes on Earth and Beyond, held April 26-20, 2010 in League City, Texas. LPI Contribution No. 1538, p. 5100.
- Kayzar T.M., Nelson B.K., Bachmann O, Portnyagin M. and Ponomareva V. (2010) Are U-series disequilibria transparent to crustal processing of magma? A case study at Bezymianny and Klyuchevskoy volcanoes, Kamchatka, Russia: EOS Trans. American Geophysical Union, v. 91, Fall Meet. Suppl., Abstract V43A-2358.

- Kayzar T.M., Nelson B.K., Portnyagin M., Bachmann O. and Ponomareva V. (2011) Examining canonical theories of U-series disequilibria in volcanic arcs in light of a more comprehensive, global database: EOS Trans. American Geophysical Union, v. 92, Fall Meet. Suppl., Abstract V52A-05.
- Nelson B.K., Ghiorsso M.S., Bachmann O. and Dufek, J. (2011) Modeling the Daly gap: the influence of latent heat production in controlling magma extraction and eruption: EOS Trans. American Geophysical Union, v. 92, Fall Meet. Suppl., Abstract V43A-2563.
- Kant L.B., Tepper J.H. and Nelson B.K. (2012) Petrology of the basalt of Summit Creek: A [slab] window into Pacific Northwest tectonics during the Eocene: EOS Trans. American Geophysical Union, v. 93, Fall Meet. Suppl., Abstract T23E-2732.
- Schmalzle G., McCaffrey R., Creager K.C., Wech A. and Nelson B.K. (2013) Linking variations in Cascadia Subduction Zone locking, episodic tremor and slip, crustal properties and primitive arc magmas: EOS Trans. American Geophysical Union, v. 94, Fall Meet. Suppl., Abstract S11C-03.
- Hammond P.E., Scott M.T., McClaughry J. D., Niem A., Ferns M.L. and Nelson B.K. (2014) A possible dislocated track of the Yellowstone mantle plume in Oregon: Geological Society of America, Abstracts with Programs, v. 46, no. 6, Paper 57-16.
- Tepper J.H., Eddy M.P. and Nelson B.K. (2014) Origin and tectonic implications of the Eocene Golden Horn batholith: a unique "A-type" granite in the North Cascades, Washington: Geological Society of America, Abstracts with Programs, v. 46, no. 6, Paper 4-12.
- Hammond P.E., Scott M.T., McClaughry J.D., Niem A., Ferns M.L. and Nelson B.K. (2014) A possible dislocated track of the Yellowstone mantle plume in Oregon: Geological Society of America, Abstracts with Programs, v. 46, no. 6, Paper 57-16.
- Ruthenberg K., Tepper J. and Nelson B.K. (2015) Delineating terrane boundaries in northeastern Washington using isotopic and geochemical analysis of Cretaceous plutons: EOS Trans. American Geophysical Union, v. 95, Fall Meet. Suppl., Abstract V23B-3119.
- Davidson P., Tepper J. and Nelson B.K. (2015) Petrology of Eocene dikes near Lake Chelan, WA: evidence of mantle and crustal melting during the Challis event: EOS Trans. American Geophysical Union, v. 95, Fall Meet. Suppl., Abstract V23B-3121.
- Barrett P.M, Resing J.A., Nelson B.K., Morton P.L., Shelley R. and Landing W.M. (2016) Isotopic composition of dissolved and particulate Cu in the North Atlantic:

Constraining the atmospheric deposition of aerosol Cu: Ocean Sciences Meeting
AGU/ASLO/TOS, Abstract CT14B-0132.

Nelson B.K. (2019) Magmagenesis and chemical evolution of continental crust during
post-collisional tectonics: Evidence from “anorogenic” granites: Symposium on
the 111 Project Petrogenesis and Continental Crustal Formation in Collisional
Zones, Beijing, China, Symposium Manual, p. 13-14.

Invited Seminar and Conference Talks:

Western Washington University, Bellingham, 5/87, "Pb isotope evolution of the lower continental crust: evidence from west Africa."

International Congress of Geochemistry and Cosmochemistry, Paris, 8/88, "Evolution of west African Archean crust."

University of Kansas, Lawrence, 3/89, "Infiltration metasomatism in a paleo-subduction zone - isotopic evidence from the Franciscan complex, California."

University of Washington, Dept. Chemical Engineering, 1/90, "Age determination of terrestrial and extraterrestrial events."

University of Texas, Austin, 4/90, "Anorogenic magmatism in the North American midcontinent" and "Metasomatism in high-grade Franciscan complex metabasites."

University of Tübingen, Tübingen, Germany, 8/90, "Proterozoic anorogenic magmatism in North America."

International Conference on Volcanism and Chemistry of the Earth's Interior, Mainz, 9/90, "Proterozoic anorogenic volcanism in North America: isotopic and trace element constraints on andesite and rhyolite genesis, St. Francois Mts., Missouri."

University of Montpellier, Montpellier, France, 9/90, "Metasomatism in subduction zones and implications for evolution of continental crust".

University of Washington, School of Oceanography colloquium series, 2/5/92, "Sr isotope composition of the oceans near the K/T boundary".

Shanon & Wilson Geotechnical and Environmental Consultants, Seattle, 6/24/93, "Identifying sources of Pb contamination by using natural variations in Pb isotopes."

University of Montpellier, Montpellier, France, 11/93, "Geochemistry of mantle plumes: implications for mantle structure and dynamics."

University of Montpellier, Montpellier, France, 11/93, "Le gisement à sulfures massifs de Prince William Sound associé aux ophiolites du Sud de l'Alaska."

University of Montpellier, Montpellier, France, 12/93, "L'origine et l'accroissement de la croûte continentale: le témoin des isotopes aux sédiments."

Universidade Federal de Pernambuco, Recife, Brazil 2/95 - 3/95, Lecture series (30 hours) on the origin and evolution of Proterozoic continental crust.

Landau Associates Geotechnical and Environmental Consultants, Seattle, 6/6/96, "Pb isotope characterization of sites as a means to identify and prioritize environmental remediation targets."

Oregon State University, Dept. Geosciences seminar series, 4/97, "Inter-shield and Intra-shield geochemical variations in Hawaii; investigating plume dynamics using both the big picture and the little picture."

University of Idaho and Washington State University, Dept. Geological Sciences seminar series, 5/97, "Inter-shield and Intra-shield geochemical variations in Hawaii; investigating plume dynamics using both the big picture and the little picture."

University of Washington, School of Oceanography colloquium series, 11/12/97, "From mantle plumes to volcanic collapse: Scale-dependent observations of Pele's moods."

Universidad de La Laguna, Tenerife, Canary Islands, Spain, 7/98, Lecture series (4 lectures) as part of a course on "From Hawaii to the Canaries: Contrasts in the geology of ocean island volcanoes."

University of Washington, Astrobiology Program Seminar, 11/99, "Isotopic Clocks and Tracers: Resolving global change in deep time"

Washington State University, Dept. Geological Sciences seminar, 5/00, "Hydrothermal fluxes and the global ocean chemical balance"

Ecole Normale Supérieure, Lyon France, Division Colloquium (May, 01) "Connecting the large-scale and small-scale processes in Hawaiian Volcanism"

Université de Montpellier, Montpellier France, Department Colloquium (May, 01) "The correlation of physical volcanism with mantle source composition in the Hawaiian Islands"

Portland State University, Department of Geology seminar, 11/04, "The importance of low-temperature off-axis hydrothermal flux in the chemical balance of the oceans"

University of Missouri, Department of Geology seminar, 11/07, "Young recycled oceanic crust in the Canary Island hot spot mantle source"

University of Washington, Astrobiology seminar, 6/08 "How to use extinct isotopes to determine the fine-scale chronology and elemental budget of the early solar system and planet formation"

China University of Geosciences Beijing, Symposium for the 111 Project on Petrogenesis and Continental Crustal Formation in Collisional Zones, Invited Talk, 6/19, "Magmagenesis and chemical evolution of continental crust during post-collisional tectonics: Evidence from "anorogenic" granites".

Department and University Service

Current Department and University Service:

Member, Whiteley Center Board of Directors, Friday Harbor Laboratory,
University of Washington

Recent University Service:

Advisor for ESS Honors Program (2007 – 2021)
GeoClub advisor (2007 – 2021)
Member, Activity Based Budgeting Steering Committee's subcommittee on
Research Support (2019 – 2020)
Member, Steering Committee for Team – Leadership Workshop (Office of the
Provost) (2017-2018)
Member, Diversity Leadership Program steering committee (Office of Faculty
Advancement) (2017-2018)
Panel member, Leadership Responsibilities & Best Practices Workshops (Office
of Academic Personnel) (2017-2018)
Member, Faculty Onboarding Initiative Committee (Office of Faculty
Advancement) (2016-2018)
Member, Graduate School Public Lecture Selection Committee (2017 – 2021)
Member, ADVANCE Leadership Team (2016 – 2018)
Member UW Research Advisory Board (2011 – 2020)
Member UW Academic Advisory Board (2011 – 2015)
Speaker at numerous summer parent orientation sessions for new student-parent
orientation program (2013 – 2018)
Member, CoENV Curriculum Committee (2019-2020)

Past Department Service:

Leader GeoClub spring field trip and seminar (2020)
Leader GeoClub spring field trip and seminar (2018)
Leader GeoClub spring field trip and seminar (2017)
Colloquium Organizer (Autumn 2016)
Seminars for GeoClub on graduate applications, grant writing (2010 - 2015)
Graduate Program coordinator and advisor (1995-2004)
TA Advisor and Assignment Coordinator (1995-2004)
Graduate Admissions Committee (1995-2004; 2006-2008)
ESS Executive Committee & Associate Chair (2000-2012)
Chair Prelim Exam Committee (2004-2006; 2008-2010)
Member Prelim Exam Committee (2007-2010)
JHN Building Design Committee and Surge coordinator (2004-2006)
Chair, Barksdale Award Committee (2007-2008)
Tenure Committee (Bachmann) (2010)

Crustal materials faculty search committee (2011-2012)
Chair, tenure and promotion evaluation subcommittee (2013-2014)
Department Chair (2015-2018)
Chair, Curriculum Committee (2019-2020)

Past University Service:

chair, Friday Harbor Laboratory Director search committee (xxxx – xxxx)
chair, UW-APL Executive Director Search Committee (2016 – 2017)
member, UW Tacoma Chancellor Search Committee (2014 – 2015)
member, UW Learning Spaces Governance Committee (2014 – 2015)
member, Faculty Council on Teaching and Learning (2009 – 2015)
member, Office of Research Limited Submissions Committee (2011 – 2015)
member, Hyak Governance Board (2013 – 2015)
panel member, for Graduate School workshop on negotiating job offers (2014 - 2015)
panel member, for graduate school application workshop (UW Seattle & UW Tacoma campuses) (2014 - 2015)
chair, CoENV Research Future Task Force (2011-2012)
member, Science Communication Task Force (2011-2012)
member, College of Arts & Sciences Dean Search Committee (2012-2013)
member, Search Committee – Center Teaching and Learning consultant (2011)
member, College of Environment Faculty Council (2009-2011)
mentor for Waseda Faculty Development Program (Professional & Continuing Education) (2011)
member, College of Environment Dean Search Committee (2010)
facilitator, Collegium on Large Class Teaching, Faculty Fellows Program (2009)
facilitator, Microteaching workshop, Faculty Fellows Program (2008)
member, Dept. of Biology Chair Search Committee (2008)
member, Faculty Search Committee, Oceanography (2007-2008)
chair, College of Arts and Sciences Curriculum, Practices and Standards Committee (1999-2003)
member, Graduate School Interdisciplinary Committee on Global and Environmental Geochemistry (1996 - 2001)
member, Royalty Research Fund, Physical Science and Engineering committee, for evaluation of RRF grant proposals ('97 - '99)
member, President's Task Force on Environmental Education ('96 - '97)
member, Provost's Steering Committee for Global Change ('92-'93)

Scientific Community Service

Organizer and editor of special session "Development of Continental Crust through Geological Time", First International Congress of Geochemistry and Cosmochemistry, 1990

Editorial Board, *Geology*, 1988-1990

Editorial Board, *Geology*, 1996-1999

Associate Editor, *Journal of Geophysical Research*, 2001 – 2005

DOSECC, Nomination Committee 2003 – 2012

GRANTS AWARDED

Title	Funding Agency	Amount	Responsibility	Effective Dates
Acquisition of a solid source mass spectrometer	NSF*	\$124,560	P.I.	6/15/86 - 11/30/87
Mass Spectrometer supplement	NSF*	\$5,000	P.I.	6/15/86 - 11/30/87
Fluid metasomatism in subduction zones	NSF	\$84,000	P.I.	6/15/86 - 4/30/89
Isotopic studies of the origin of continental crust in central Europe	UW - GSRF	\$6,079	P.I.	7/1/87 - 6/30/88
Research Experiences for Undergraduates	NSF	\$4,000	P.I.	11/1/88 - 10/31/89
Petrogenesis of Proterozoic anorogenic granites	NSF	\$140,000	P.I.	1/1/89 - 6/30/91
Evolution of ore fluids in the Collville igneous complex	Bureau of Mines (WA Mining Inst.)	\$27,000	P.I.	7/1/88 - 5/31/90
Isotopic investigation of Cascade magmatism	UW - GSRF	\$6,759	P.I.	1/1/90 - 12/15/90
Geochemical pathways of heavy metal contamination	Resurrection Mining	\$41,980	P.I.	9/1/91 - 1/31/92
Extent of landsliding on the north flank of Molokai	NOAA	4 days sub time	co P.I. (Holcomb)	9/92
Sourcing of environmental Pb contamination	Walsh & Associates	\$25,000	P.I.	8/92-2/93

Geochemistry of Deep Mantle Plumes	UW - RRF	\$18,000	P.I.	6/16/92 - 12/31/93
Geochemical pathways (renewal)	Resurrection Mining	\$46,808	P.I.	4/1/92 - 8/31/93
Isotopic provenance study of the Methow basin	NSF	\$100,000	P.I.	1/15/92 - 12/30/94
Fluid-rock interaction in the Franciscan subduction complex	NSF	\$103,000	P.I.	1/15/92 - 12/30/94
Pb contamination in the arctic environment, Eielson AFB (and supplement for Elmendorf AFB)	DOE	\$49,758	P.I.	7/94 - 9/96
Extent of landsliding on the north flank of Molokai	HURL + USGS	6 days sub time + \$10,000	co P.I. (Holcomb)	6/96 - 6/97
Technician Support: Isotope Geochemistry Laboratory, Dept. of Geological Sciences, University of Washington	NSF	\$117,150*	P.I.	1/1/95 - 1/31/98
Geochronology of the Brooks Range, Alaska	USGS	\$15,000	P.I.	11/96 - 11/97
Geochronology and Tectonics of southern Mexico and Guatemala	NSF	\$140,034	P.I.	6/95-3/99
Metal deposits from deep-sea hydrothermal systems	UW-RRF	\$21,000	P.I. (McDuff coI)	3/97 - 3/99
Ca and alkalinity distributions in the oceans	NSF	\$180,000	co P.I. (lead P.I. is DeVilliers)	12/96 - 12/99
Isotopic and chemical investigation of melt-mantle interaction	NSF	\$100,005	P.I.	10/96 - 6/00

Technician Support Phase II: Isotope Geochemistry	NSF	\$85,000*	P.I.	2/1/98 - 1/31/00
High-planes lavas, subcontract from OSU, A. Grunder	NSF	\$7,000		4/99-12/99
Geochemical Stratigraphy of Canary Islands	NSF	\$190,000	P.I.	1/00 – 1/03
Geochemical Stratigraphy of Canary Islands: Supplement	NSF	\$14,926	P.I.	1/00 – 1/03
West Maui Drill Hole	DOSECC	\$5,000	P.I.	1/02
Acquisition of Instrumentation for an Elemental and Isotopic Analytical Facility	NSF-MRI	\$200,000	P.I.	10/01 – 10/04
A New Elemental and Isotopic Analytical Facility	Murdock Trust	\$345,000	P.I.	10/01 – 10/04
A New Elemental and Isotopic Analytical Facility	Provost & Dean match	\$150,000	P.I.	10/01 – 10/04
Virtual Learning Environments for Undergrad Courses, ESS	College of Arts & Sci	\$40,000	Co P.I. (w. Winglee)	6/05 – 4/06
Himalayan mass balance	NSF	≈0.5 mo/yr effort	1 of 6 co-P.I.	1/02 – 1/05
Natural stable isotope variations of Cu, Zn and Fe	UW-RRF	\$23,500	P.I.	6/05– 6/07
Selenium biogeochemistry as a deep-time redox proxy and biosignature	NSF	\$300,041	Co-P.I. (w. Buick)	11/09 – 10/12
Pb isotope investigation of airborne contamination of NE Washington lakes	Colville Tribe	\$5,500	PI	2013-2015

Active Grants:

Upper Columbia River Basin metal contamination	Colville Tribe & WA state	\$45,000	PI	2022
--	---------------------------	----------	----	------

Pb isotope investigation of airborne contamination of NE Washington soils	Colville Tribe & WA state	\$25,000	PI	2022
---	---------------------------	----------	----	------

* Award matched by the University of Washington

GRANTS PENDING

Title	Funding Agency	Amount	Responsibility
--------------	-----------------------	---------------	-----------------------

**Post-Doctoral Researchers
in the Isotope Geochemistry Laboratory**

Investigator	Funding Agency	Dates of Research	Research Area
Delphine Bosch	NATO fellowship	1/91 - 6/91	Stillwater magma genesis (Pb isotopes)
Uwe Herrmann	U. Tübingen	10/90 - 5/91 10/91 - 5/92	Mexican terranes (U-Pb geochronology)
David Butterfield	NRC fellowship	10/90 - 9/92 (25% time)	Sr/Li isotope variations in hydrothermal fluids
Kate Pound	Resurrection Mining	9/91 - 2/92	Pb chemistry in the environment
Eric Delaperriere	French gov't fellowship	11/91 - 12/92	Terrane accretion in Pacific northwest
Uwe Herrmann	Humboldt fellowship	8/93 - 6/96	Volcanism in Mexico and Guatemala
Stephanie de Villiers	NSF	12/96 – 12/99	Ca, Sr and alkalinity mass balance in oceans
Julien Foriel	NASA	10/07-2010	Se isotope fractionation

Courses Taught at the University of Washington

Course	Date	Title	% Responsibility
GEOL 590	Aut 87	Techniques of Mass Spectrometry	100
GEOL 472	Win 88	Intro to Geochemistry	100
GEOL 476	Spr 88	Isotope Geology (w M. Stuiver)	50
GEOL 590	Win 89	Cascade Volcanism	100
GEOL 472	Win 89	Intro to Geochemistry	100
GEOL 476	Spr 89	Isotope Geology	50
ENVS/GPHYS 508	Spr 89	Geochemical Cycles	10
GEOL 472	Win 90	Intro to Geochemistry	100
GEOL 476	Spr 90	Isotope Geology	50
ENVS/GPHYS 508	Spr 90	Geochemical Cycles	10
GEOL 472	Aut 90	Intro to Geochemistry	100
GEOL 590C	Spr 91	Ocean Island Volcanism	50
GEOL 472	Aut 91	Intro to Geochemistry	100
GEOL 590B	Spr 92	Mid-Ocean Ridge Volcanism	50
ENVS/GPHYS 508	Spr 92	Geochemical Cycles	10

GEOL 477	Spr 92	Isotope Geochem: Lithosphere	100
GEOL 472	Aut 92	Intro to Geochemistry	100
ENVS/GPHYS 508	Spr 93	Geochemical Cycles	10
GEOL 590	Spr 93	Melt Generation at mid- Ocean Ridges	50
GEOL 490H	Spr 93	Undergraduate Honors Seminar	100
sabbatical year	Aut 93 - Spr 94		
GEOL 472	Aut 94	Intro to Geochemistry	100
GEOL 590	Spr 95	Melt Generation at mid- Ocean Ridges	50
ENVS/GPHYS 508	Spr 95	Geochemical Cycles	10
GEOL 472	Aut 95	Intro to Geochemistry	100
GEOL 477	Win 96	Isotope Geology: Lithosphere	100
GEOL 490/590C	Spr 96	Pinatubo Volcano	50
GEOL 490/590F	Spr 96	Pinatubo Field Work	50
GEOL 490/590I	Spr 96	Basalt Geochemistry	100
ENVS/GPHYS 508	Spr 96	Geochemical Cycles	10
GEOL 472	Aut 96	Intro to Geochemistry	100
GEOL 477	Win 97	Isotope Geology Lithosphere	100
GEOL 590	Win 97	Congeaed Magma	100

GEOL 490/590D	Spr 97	Process Volcanology	50
GEOL 321	Spr 97	Petrology	33
GEOL 472	Aut 97	Intro to Geochemistry	100
GEOL 590F	Aut 97	Basalt Geochemistry	100
GEOL 490A/590A	Win 98	Origin of Oceanic Crust	50
GEOL 490B/590B	Win 98	Field studies Oman ophiolite	50
GEOL 321	Spr 98	Petrology	100
GEOL 391	Aut 98	Geochemistry	50
GEOL 477	Win 98	Isotope Geochemistry	100
GEOL 590A	Win 99	Hawaii field trip	50
GEOL 480	Spr 99	Volcanology	33
GEOL 391	Aut 99	Geochemistry	66
GEOL 477	Win 00	Archean Lifesigns	50
GEOL 590A	Win 00	Fluvial Geochemistry	100
GEOL 590B	Spr 00	Advanced Geochemistry	100
sabbatical year	Aut 00 - Spr 01		

GEOL 391	Aut 01	Geochemistry	50
GEOL 477	Win 02	Isotope Geology Lithos	100
GEOL 590E	Win 02	Hawaii Field Trip	33
GEOL 4/590F	Spr 02	Volcanology Petrology	100
ESS 462	Aut 02	Volcanology	50
ESS 590D	Win 03	Advanced Geochemistry	100
ESS 312	Spr 03	Geochemistry	50
ESS 106	Aut 03	Living with Volcanoes (new course)	95 students 50%
Quarter release for building renovation service			
ESS 312	Spr 04	Geochemistry	48 students 50%
ESS 402	Aut 04	Intl Field Geology (Canary Islands)	9 students 100%
ESS 590	Win 05	Techniques of MC-ICP	10 students 100%
ESS 312	Spr 05	Geochemistry	28 students 50%
Quarter release for building renovation service			
ESS 590D	Win 06	Geochemical Systems grad core course (new)	11 students 100%
ESS 312	Spr 06	Geochemistry	22 students 50%

ESS 106	Aut 06	Living with Volcanoes	196 students 100%
ESS 501	Win 07	Geochemical Systems grad core course	9 students 100%
ESS 490C	Win 07	Geology of SW US and spring field trip	9 students 50%
ESS 312	Spr 07	Geochemistry	35 students 50%
ESS 402	Aut 07	Intl. Field Geology – Canary Islands	11 students 100%
ESS 489	Aut 07	Honors Seminar	10 students 100%
ESS 599	Aut 07	Canary Islands research	1 student 100%
ESS 538	Win 08	Petrogenesis of igneous rocks	5 students 100%
ESS 490	Win 08	Hawaiian Island volcanology and spring field trip	25 students 50%
ESS 312	Spr 08	Geochemistry	25 students 50%
Sabbatical year	Aut 08 – Spr 09		
ESS 489	Aut 09	Honors Seminar	11 students 100%
ESS 501	Win 10	Geochemical Systems grad core course	21 students 100%
ESS 312	Spr 10	Geochemistry	38 students 50%
ESS 402	Aut 10	Intl. Field Geology – Australia	8 students 50%
ESS 489	Aut 10	Honors Seminar	8 students 100%
ESS 501	Win 11	Planetary Differentiation: isotope (ESS490/590)	10 students 100%

ESS 312	Spr 11	Geochemistry	50 students 50%
ESS 489	Aut 11	Honors Seminar	11 students 100%
Teaching release	Win 12 & Spr 12		
ESS 489	Aut 12	Honors Seminar	10 students 100%
Teaching release	Win 13 & Spr 13		
ESS 489 ESS 700	Aut 13	Honors Seminar MS Thesis research	16 students 1 student 100%
ESS 490E ESS 600A	Win 14	Hawaii Seminar Independent Research	18 students 1 student 100%
Teaching release	Spr 14		
ESS 489 ESS 499B	Aut 14	Honors Seminar Independent Study	13 students 2 students 100%
Teaching release/ ESS 499A	Win 15	Independent Study	2 students 100%
Teaching release/ ESS 499A	Spr 15	Independent Study	2 students 100%
ESS 489 ESS 499B	Aut 15	Honors Seminar Independent Study	17 students 2 students 100%
Teaching release/ ESS 499A	Win 16	Independent Study	1 student 100%
Teaching release/ ESS 499A	Spr 16	Independent Study	1 student 100%
ESS 489	Aut 16	Honors Seminar	8 students 100%
ESS 490E	Win 17	Hawaii Seminar	10 students 100%

ESS 489	Aut 17	Honors Seminar	17 students 100%
ESS 489	Aut 18	Honors Seminar	11 students 100%
Sabbatical	Win 19 – Spr19		
ESS 489	Aut 19	Honors Seminar	17 students 100%
Teaching release	Win 20		
ESS 489	Aut 20	Honors Seminar	9 students 100%
ESS 594	Spr 21		
ESS 594	Aut 21	Grad Student Intro to Earth & Space Sciences Research	10 students 66%
ESS 489	Aut 21	Honors Seminar	9 students 100%

Student Supervision

Primary Advisor, Graduate Studies:

Dan Barfod	M.S. 1994	Research staff, SUERC
Nuni-Lyn Anders	Ph.D. 1999	high-school teacher
Peter Reiners	M.S. 1993	Texaco post-doc fellowship at CalTech;
	Ph.D. 1997	Assist. Prof., Washington State University
		Assist. Prof., Yale University
		Prof., University of Arizona
Gwynneth Jones	M.S. 2002	teaching Seattle Community College
Amy Gaffney	Ph.D. 2004	Post-doctoral fellow; NASA LBL
		Res. Scientist, Lawrence Livermore Lab
Rebecca Drury	M.S. 1999	Teacher certificate program
Heidi Guetschow	M.S. 2002	Law School
Amber Hamilton	M.S. 2005	Exxon-Mobile

Samantha Ewing	M.S. 2008	Exxon-Mobile
Theresa Kayzar	Ph.D. 2012	Lawrence Livermore Lab Research Scientist
Lixue Zhang	Ph.D. 2015-16	Visiting graduate student China University of Geosciences Beijing
Peter Wynn	Ph.D. 2021 -	co-advising with Fangzhen Teng

Supervisor, Undergraduate Research Project:

Gordon Rattray
 Kristen Bentz (supported by NSF REU supplement)
 Derek Sjostrom
 Jenny Crook
 David McGee (NSF REU student)
 Jason Woodward
 Alyssa Beck
 Jenn Adleman
 Lori Greene
 Gretchen Moore
 Robin Smith
 Bruce Williamson
 Ben Elijah (03-04)
 Brook Peterson (04-05) (Mary Gates Scholar)
 Grace Schnebly (04-05)
 Jennifer Locke (04-05)
 Jenn Glass (05-06) (Mary Gates Scholar)
 Andrea Mundl (06-07)
 Tara Smiley (07-08) (Mary Gates Scholar)
 Rachel Weber (07-08) (Mary Gates Scholar)
 Rex McLachlin (07-08)
 Jessica Dake (07-08)
 Kyle Samek (07-08)
 Molly Ravits (07-08)
 Rex McLaughlin (08)
 Marijana Surkovic (08-09)
 Natalie Baker (2010)
 Christine Chan (2010-11) Univ. Puget Sound
 Alex Lusk (2010-11)
 Ann Bauer (2010-11) (Mary Gates Scholar)
 Jakub Sliwinski (2010-11)
 Will Schlitzer (2011-2012) Colgate College (with Harpp)
 Julie Gross (2011-2012) Western Washington U. (with DeBari)
 Sam Berkelhammer (2011-2012) Univ. Puget Sound (with Tepper)
 Lisa Kant (2011-2012) Univ. Puget Sound (with Tepper)
 Katie Gauglitz (2012-13)
 Christine Heisen (2013-2014) (ORCA)
 Sebastian Belfonti (2014-2015)

Elizabeth Grant (2014-2015)
Emily Olson (ORCA) (2014-2015)
Alexandra Bernhard (ORCA) (2014-2015)
Elizabeth Grant (2014-2015) (Mary Gates Scholar)
Linnea McCann (2014-2016) (Mary Gates Scholar & Husky 100)
Katherine Hotchkin (2015-2016)
Kalpana Prasad (2018-2019) (Mary Gates Scholar)
Hannah Weinrich (ORCA; Everett Community College) (2018-2019)
Hannah Weinrich (2019-2021)
Haile Nietzsche (2020-2021)
Anna Berg (2021-2023)

Research Supervision that includes Paper Co-authorship, Graduate Studies:

Jeff Tepper	Ph.D. Geology
Ken MacLeod	Ph.D. Geology
Hugh Hurlow	Ph.D. Geology
Mark Thurber	M.S. Geology
Stephanie de Villiers	Ph.D. Oceanography
Ann Russell	Ph.D. Oceanography
David Hastings	Ph.D. Oceanography
Katie Bain	M.S. Oceanography
Uwe Herrmann	Ph.D. Universitat Tubingen
Diane Nielson	M.S. Oceanography
Kris Ludwig	M.S.; Ph.D. Oceanography
Robin Smith	M.S. Portland State University