

Joshua M. Smith – Curriculum Vitae

Joshua M. Smith, Ph.D.
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Education

Indiana University, Bloomington, Geological Sciences, Ph.D., 2019
University of Nevada, Reno, Geology, M.S., 2014
Eastern Illinois University, Geology, B.S., 2012

Papers and Abstracts

Smith, J.M., Ripley, E.M., Li, C., and Wasylenki, L.E. (2021) Cu and Ni Isotope Variations of Country Rock-Hosted Massive Sulfides Located Near Midcontinent Rift Intrusions: *Economic Geology*; doi: <https://doi.org/10.5382/econgeo.4872>

Smith, J.M., Ripley, E.M., Li, C., and Shirey, S.B. (In revision) Evidence of a Genetic Link Between Igneous Rock-Hosted Sulfides and Metasedimentary Rock-Hosted Massive Ni-Cu-PGE Sulfides Near Intrusions in the Midcontinent Rift System: In revision for *Mineralium Deposita*.

Smith, J.M., Ripley, E.M., Li, C., Shirey, S.B., and Wernette, B.W. (In prep.) Non-magmatic origins of country rock-hosted massive sulfide(-oxides) beneath the Stillwater Complex, Montana: In prep. for submission to *Economic Geology*.

Smith, J.M., Muntean, J.L., and Vikre, P.G. (In prep) Controls of High Grades within the Clementine Vein System in the Hollister Low-Sulfidation Epithermal Au-Ag Deposit, NV: In prep. for submission to *Economic Geology*.

Smith, J.M., Ripley, E.M., Li, C., and Shirey, S.B., 2019, S, Pb, and Os isotopic studies of massive Ni-Cu±PGE sulfides hosted in metasedimentary country rocks of the Midcontinent Rift System, USA: Crossroads Geology Conference, Bloomington, IN 2019, Program with Abstracts, p. 35.

Smith, J.M., Ripley, E.M., Li, C., and Shirey, S.B., 2018, Origins of country rock-hosted massive sulphides beneath the Stillwater complex, MT, USA: 13th International Platinum Symposium, Polokwane, South Africa, Abstracts with Programs, p. 172 – 173.

Smith, J.M., Ripley, E.M., Li, C., and Shirey, S.B., 2018, S, Pb, and Os isotopic studies of massive Ni-Cu±PGE sulfides hosted in metasedimentary country rocks of the midcontinent rift system, USA: Geological Society of America Abstracts with Programs. Vol. 50, No. 6, ISSN 0016-7592, doi: 10.1130/abs/2018AM-320745.

Smith, J.M., Ripley, E.M., Li, C., and Shirey, S.B., 2018, Genetic controls of country rock-hosted massive sulfides beneath the Stillwater complex, MT, USA: Crossroads Conference 2018, Bloomington, IN, USA, Abstracts with Programs, p. 17 – 18.

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Ripley, E.M., Wernette, B.W., Ayre, A., Li, C., Smith, J.M., Underwood, B.S., and Keays, R.R., 2017, Multiple S isotope studies of the Stillwater Complex and country rocks: An assessment of the role of crustal S in the origin of PGE enrichment found in the J-M Reef and related rocks: *Geochimica et Cosmochimica Acta*, v. 214, p. 226 – 245.

Smith, J.M., Ripley, E.M., and Li, C., 2017, Variable genetic models for the origin of country rock-hosted massive sulfides. In *Proceedings of the 14th Biennial SGA Meeting, Society of Geology Applied to Mineral Deposits*, Quebec City.

Smith, J., Ripley, E., Li, C., Wernette, B., and Taranovic, V., 2016, S, Os, and Cu isotope variations between sheet- and conduit-style Ni-Cu-PGE mineralization in the Midcontinent Rift System, USA; *2016 Annual GSA Abstracts with Programs*.

Wernette, B., Ripley, E., Li, C., Smith, J., and Zhou, Y., 2016, Variations in the distribution of Platinum-group elements associated with varying degrees of silicate alteration within the J-M Reef of the Stillwater Complex, Montana, USA; *2016 Annual GSA Abstracts with Programs*.

Smith, J., Ripley, E., and Li, C., 2016, Petrographic and isotopic studies of sediment-hosted Ni-Cu-PGE massive sulfides associated with layered intrusions of the Stillwater Complex and the Midcontinent Rift System, USA; *2016 GSA Penrose Conference on Layered Mafic Intrusions and Associated Economic Deposits*.

Ripley, E., Wernette, B., Smith, J., Li, C., Underwood, B., and Ayre, A., 2016, Multiple sulfur isotope evidence for a lack of crustal sulfur in the J-M reef of the Stillwater Complex, Montana, USA; *2016 GSA Penrose Conference on Layered Mafic Intrusions and Associated Economic Deposits*.

Smith, J., Prokopf, D., Ripley, E., Li, C., 2016, Sulfur isotope studies of Ni-Cu-PGE sulfide mineralization hosted in metasedimentary country rocks of the Midcontinent Rift System and the Stillwater Complex, USA; *13th International Ni-Cu-PGE Symposium*.

Wernette, B., Ripley, E., Li, C., Smith, J., Underwood, B., Ayre, A., 2016, Multiple S isotope studies of PGE enrichment in the J-M Reef, Stillwater Complex, Montana; *13th International Ni-Cu-PGE Symposium*.

Ripley, E., Li, C., Smith, J., Wernette, B., and Taranovic, V., 2016, S, Os and Cu isotope variations between sheet- and conduit-style Ni-Cu-PGE mineralization in the Midcontinent Rift System, USA; *13th International Ni-Cu-PGE Symposium*.

Smith, J., Ripley, E., Li, C., Dong, S., and Wasylenki, L., 2016, Cu isotope variations between Ni-Cu mineralized intrusions of picritic and high-Al olivine tholeiite descent in the Midcontinent Rift System, North America; *2016 North-Central GSA Abstracts with Programs*.

Prokopf, D., Smith, J., Ripley, E., and Li, C., 2016, Sulfur isotope studies of Ni-Cu-PGE sulfide mineralization hosted in metasedimentary country rocks of the Duluth Complex, Eagle Intrusion and Tamarack Igneous Complex, Midcontinent Rift; *2016 North-Central GSA Abstracts with Programs*.

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Smith, J.M., Muntean, J.L., and Vikre, P.G., 2015, Controls on high grade Au-Ag mineralization within the Clementine vein system in the Hollister low-sulfidation epithermal deposit, NV; *GSN Symposium 2015, Poster Session/Abstracts with Programs*.

Smith, J.M., Muntean, J.L., and Vikre, P.G., 2014, Controls on high grades within the Clementine vein system at the Hollister low-sulfidation epithermal gold-silver deposit, Nevada; *SEG Keystone Conference 2014, Poster Session/Abstracts with Programs*.

Smith, J.M. and Chesner, C.A., 2012, The growth history of quartz crystals from the Youngest Toba Tuff, Sumatra, Indonesia; *GSA Abstracts with Programs*, v. 44, no. 5, p. 9

Relevant Work Experience

University of Illinois Urbana-Champaign

[Aug. 2021 – Present]

Research Specialist, Dept. of Geology

-Manager of the isotope geochemistry lab with ICP-MS, MC-ICP-MS, and clean room capabilities.

Premier Gold Mines Ltd./i-80 Gold Corp.

[June 2019 – Aug. 2021]

Project Geologist

-Primarily logging diamond drill core and RC chips; Updating 3D geological models; Using geochemical analyses and field observations to assess mineral potential at various sites in Nevada and other western states.

Indiana University

[Aug. 2015 – May 2019]

Research Assistant/Associate Instructor

-Performed a variety of analytical geochemistry techniques; primarily stable and radiogenic isotopic analyses to assess the genetic models of various massive sulfide deposits; familiar with a wide range of chemical and analytical techniques, including GC, ion exchange chromatography, vacuum isolation lines, solvent extraction, dual inlet and continuous flow gas source mass spectrometry, quadrupole ICP-MS, multicollector ICP-MS, and TIMS. Results were published as abstracts and oral presentations at national and international geology and geochemistry conferences.

-Instructed undergraduate labs in mineralogy and petrology and grade online submissions for oceanography.

Elko Mining Group/Waterton Global Resources

[Jan. 2015 – July 2015]

Geologist

-Used SWIR analyses to assess alteration footprints of low-sulfidation epithermal deposits in the Great Basin; Included core logging, spectral analyses, and cross-section construction; Generated monthly company reports based on work performed, with suggestions for future exploration work.

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University of Nevada, Reno

[Aug. 2012 – Dec. 2014]

Graduate Research Assistant, Dept. of Geological Sciences and Engineering

-Performed a variety of geochemical and petrographic analyses: polarizing microscopes (transmitted and reflected light), fluid inclusion microthermometry, and SWIR spectroscopy; Experience using ArcGIS, LeapFrog, and other geospatial programs; Experience writing grant proposals to external funding sources; Published abstracts and presented posters at national geologic conferences.

California State University, Sacramento

[May 2014 – June 2014]

Field Teaching Assistant; Undergraduate geology field camp

-Assisted instructors with teaching field geology in eastern California; helped grade field assignments, including maps, cross-sections, and reports.

Great Basin Gold, Ltd.

[June 2012 – Aug. 2012]

Mine Geologist/Core Logging Geologist

-Underground mapping, sampling, and ore control; logging exploration and development drill holes.

Funded Grants

Controls on high grades within the Clementine vein system at the Hollister low-sulfidation epithermal gold-silver deposit, Nevada. PI: Smith, UNR. SEG Foundation, Inc., Newmont Mining Corporation Fund, May 2013 – December, 2013: \$2,500.00

The growth history of quartz crystals from the Youngest Toba Tuff, Sumatra, Indonesia. PI: Smith, EIU. EIU Honors College, Undergraduate Student Research Committee, August 2011 – May 2012: \$500.00

Mining Company Support

Controls on High Grades within the Clementine Vein System at the Hollister Low-Sulfidation Epithermal Gold-Silver Deposit, Nevada. Great Basin Gold, Ltd., August 2012 – December 2014.

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Associate Instructor (AI) and Teaching Assistant (TA) Experience

IU – Bloomington

2018 – 2019 Earth Materials (AI)
Oceanography (AI)

CSU – Sacramento

2014 Geology Field Camp (TA)

EIU

2010 – 2011 Mineralogy (TA)
Petrology (TA)

2011 – 2012 Intro. to Earth Science (TA)

Related Coursework

IU – Bloomington

Economic Geology
Mineral Deposit Seminar
Geochemistry
Igneous Geochemistry
Isotope Geochemistry
Linear Algebra
Mathematical Modeling in Geoscience

UNR

Ore Deposits
Hydrothermal Alteration and Vein Petrology
Reflected Light Microscopy
Anaconda Field Mapping of Ore Deposits
Field Spectroscopy Apps. to Hydrothermal Alteration and Exploration
Hydrothermal Mineral Deposits
Hydrothermal Geochemistry

EIU

Metallic Ore Deposits
GIS
Volcanology

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Mineralogy
Petrology

Volunteer Work

2020 – 2021 Elementary and middle school science guest speaker, and guitar instructor for distance learners during the COVID-19 pandemic, Winnemucca, NV

2011 – 2012 Geology in the Schools Outreach Program, EIU

Professional Society Memberships

Geologic Society of Nevada, Member, 2013 – present

Society of Economic Geologists, Member, 2012 – present

Awards

2019 Outstanding associate instructor, IU, Dept. of Earth and Atmospheric Sciences

2018 Best Ph.D. student presentation, IU Crossroads Conference

2012 Errett and Mazie Warner Presidential Award, EIU, Geology/Geography Dept.