

CURRICULUM VITA

MARLON M. JEAN

Colorado Mesa University
Department of Geology
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EDUCATION

2012 Utah State University

Ph.D, Petrology and Geochemistry
Principal Advisor: Dr. John Shervais
Dissertation: The Chemical Evolution of Continental and Oceanic Lithosphere: Case Studies in the US Cordillera

2007 California State University, Fresno

M.Sc., Geology
Principal Advisor: Dr. Keith Putirka
Thesis: The Central Sierra Nevada volcanic field of California: A Geochemical Study of a Transitional Arc

2004 University of Michigan - Ann Arbor

B.S., Geological Sciences
Advisor: Dr. Stephen Kesler
UG Project: Origin of Texture and Zoning of Pyrites in Porphyry Copper Systems

PROFESSIONAL APPOINTMENTS

Visiting Appointments

2023–	Visiting Assistant Professor	Colorado Mesa University
2022–2023	Visiting Assistant Professor	University of Maine-Farmington
2021–2022	Lecturer	Western Colorado University
2021	Adjunct Instructor (online)	Ohio University-Lancaster
2018–2020	Term Assistant Professor	University of Alaska-Anchorage
2017–2018	Visiting Assistant Professor	University of Rochester
2012–2013	Visiting Assistant Professor	Northern Illinois University

Staff Appointments

2021	Laboratory Technician	SGS North America
2015–2017	Postdoctoral Research Associate	University of Tennessee-Knoxville
2013–2015	Humboldt Postdoctoral Fellow	Leibniz Universität Hannover, Germany
2012–2013	Shipboard Scientist	IODP Expedition 345-Hess Deep
2011–2012	Senior Staff Scientist	ICDP: Project Hotspot
Fall 2009	Lecturer	Utah State University

TEACHING PROFILE

- 2022–2023 University of Maine-Farmington
The Dynamic Earth, Earth Materials
- 2021–2022 Western Colorado University
Physical Geology (lecture & lab), Igneous Petrology, Earth Materials
- 2021 Ohio University, Lancaster
Natural Disasters (online)
- 2018–2020 University of Alaska-Anchorage
Mineralogy (& Crystallography), Volcanology, Field Methods, Igneous Petrology,
Physical Geology (& Lab), Earth Surface Processes
- 2017–2018 University of Rochester
Geochemistry, Environmental Geochemistry, Earth Materials
- 2016–2017 University of Tennessee-Knoxville
Petrology of Mars and the Moon, Geochemical Analysis & Techniques
- 2012–2013 Northern Illinois University
Introduction to Geology, Solid Earth Composition, Using Geologic Data
- 2009 Utah State University
Mineralogy & Crystallography

Student Mentoring

- 2020 Genevieve Llewellyn University of Alaska, Anchorage
Senior Thesis
Petrologic Investigation of the Seventymile Ultramafic Complex, Alaska
- 2018 Zachary Bunnell University of Rochester
Undergraduate Research Exposition
Metal Analysis of the Novosibirsk Meteorite and Early Solar System Implications.
Awarded the Dean's Medal for outstanding natural science presentation
**current graduate student University of South Florida*
- 2013 Alonzo Benigno & Joshua Schwartz Northern Illinois University
Geological Society of America, 109th Cordilleran Section Meeting
New Chemical Relationships from Drill core in the Snake River Plain, Idaho
- 2013 Alonzo Benigno Northern Illinois University
Undergraduate Research and Artistry Day
Investigating drill core to determine Basaltic Magma Characteristics of the Central
Snake River Plain, Idaho.

AWARDS

- 2013 Alexander von Humboldt Postdoctoral Fellow
- 2010 Outstanding Graduate Researcher – Utah State University
- 2007 Outstanding Earth & Environmental Science Graduate – California State University, Fresno
- 2007 Outstanding Student Award – California State University, Fresno
- 2007 Special Recognition Award – California State University, Fresno
- 1996 Central American Young Scholar Award; Center for the Advancement of Hispanics in
Science and Engineering Education

RESEARCH PROFILE

Total Publications: 15

Current h-Index: 13 (Google Scholar)

Research Interest Score: 494.1 (ResearchGate)

Current Citation Totals: 565 (Google Scholar)

First Authored Publications

1. Jean MM, Christiansen EH, Champion DE, Vetter SK, Phillips WM, Schuth S, Shervais JW (2018) Caldera Life-cycles of the Yellowstone Hotspot track: Death and Rebirth of the Heise Caldera. *Journal of Petrology*, v. 59, no. 8, p. 1643–1670.
2. Jean MM, Shervais JW (2017) The Distribution of Fluid Mobile and Other Incompatible Trace Elements in Orthopyroxene from Mantle Wedge Peridotites. *Chemical Geology*, v. 457, p. 118–130.
3. Jean MM, Taylor LA, Howarth GH, Peslier AH, Fedele L, Bodnar RJ, Guan Y, Doucet LS, Ionov DA, Logvinova A, Sobolev NV, Golovin AV (2016) Olivine inclusions in Siberian diamonds and mantle xenoliths: Contrasting water and trace-element contents. *Lithos*, v. 265, p. 31–41.
4. Jean MM, Hanan BB, Shervais JW (2014) Yellowstone hotspot-continental lithosphere interaction. *EPSL*, v. 389, p. 119–131
5. Jean MM, Shervais JW, Champion DE, Vetter SK (2013) Geochemical and paleomagnetic variations in basalts from the Wendell RASA drill core: Evidence for magma recharge and assimilation-fractional crystallization from the central Snake River Plain, Idaho. *Geosphere*, v. 9, no. 5, p. 1319–1335; doi:10.1130/GES00914.1.
6. Jean MM, Shervais JW, Choi SH, Mukasa SB (2010) Melt Extraction and Melt Refertilization in Mantle Peridotite of the Coast Range Ophiolite: An LA-ICP-MS Study. *Contributions to Mineralogy & Petrology*, v. 159, no. 1, p. 113–136.

Co-authored Publications

1. McCarthy A, Falloon TJ, Danyushevsky LV, Sauermilch I, Patriat M, Jean MM, Maas R, Woodhead JD, Yogodzinski GM (2022) Implications of high-Mg# adakitic magmatism at Hunter Ridge forearc magmatism of the Fiji-Vanuatu region. *EPSL*, *article in press*. <https://doi.org/10.1016/j.epsl.2022.117592>.
2. Grambling NL, Dygert N, Boring B, Jean MM, Kelemen PB (2022) Thermal history of lithosphere formed beneath fast spreading ridges: Constraints from the mantle transition zone of the East Pacific Rise at Hess Deep and Oman Drilling Project, Wadi Zeeb, Samail ophiolite. *Journal of Geophysical Research: Solid Earth*, 127, e2021JB022696. <https://doi.org/10.1029/2021JB022696>
3. Roberts SE, McCanta MC, Jean MM, Taylor LA (2019) New lunar meteorite NWA 10986: A mingled impact melt breccia from the Highlands; a complete cross section of the lunar crust. *Meteoritics & Planetary Science*, v. 54, no. 12, p. 3018–3035. doi:10.1111/maps.13406.
4. Honour VC, Holness MB, Charlier B, Piazzolo SC, Namur O, Prosa TyJ, Martin I, Helz RT, Maclennan J, Jean MM (2019). Compositional boundary layers trigger liquid unmixing in a basalt crystal mush. *Nature Communications*, 10, 4821. <https://doi.org/10.1038/s41467-019-12694-5>

Marlon M. Jean CV

1. Patriat M, Falloon T, Danyushevsky L, Collot J, Jean MM, Hoernle K, Hauff F, Maas R, Woodhead JD, Feig ST (2019) Subduction initiation terranes exposed at the front of a 2 Mya volcanically-active subduction zone. *EPSL*, v. 508, p. 30–40.
2. Gillis KM, Snow JE, Klaus A, Abe N, Adriano AB, Akizawa N, Ceuleneer G, Cheadle MJ, Faak K, Falloon TJ, Friedman SA, Godard M, Guerin G, Harigane Y, Horst AJ, Hoshide T, Ildefonse B, Jean MM, John BE, Koepke J, Machi S, Maeda J, Marks NE, McCaig AM, Meyer R, Morris A, Nozaka T, Python M, Saha A, Wintsch RP (2013) Primitive layered gabbros from fast-spreading lower oceanic crust. *Nature*, v. 505, p. 204–207.
3. Shervais JW, Jean MM (2012) Inside the Subduction Factory: Modeling fluid mobile trace element additions to the mantle wedge above a subduction zone. *Geochimica et Cosmochimica Acta*, v. 95, p. 270–285.
4. Putirka KD, Jean MM, Cousens B, Sharma R, Torrez G, Carlson C (2012) Cenozoic Volcanism in the Sierra Nevada and Walker Lane, California, and a New Model for Lithosphere Degradation. *Geosphere*, v. 8, no. 2, p. 265–291.
5. Kesler SE, Reich M, Jean MM (2007) Geochemistry of fluid inclusion brines from Earth's oldest Mississippi Valley-type (MVT) deposits, Transvaal Supergroup, South Africa. *Chemical Geology*, v. 237, p. 274–288.

In Review/Revision

Neogene Basalts of the NPR-E/WO-2 Deep Corehole, Snake River Plain, Idaho. Submitted to *Geosphere*. Shervais JW, Champion DE, Vetter SK, Hanan BB, Jean MM, Hackett W.

Northwest Africa 10299: Petrogenesis of a low-Al basaltic shergottite and implications for Martian mantle reservoirs. Submitted to *American Mineralogist*. Jean MM, Howarth GH, Fedele L, Schuth S, Bodnar RJ, Taylor LA.

Seminars & Invited Talks

2022 University of Maine-Farmington
From Diamonds to Mars: A Retrospective of Decade in Academia
<https://vimeo.com/773978591>

2020 University of Alaska, Fairbanks
The Nature of Planetary Mantles: Insights from Ophiolites, Drill core, and Meteorites

Research Interests

Ophiolite petrogenesis, Continental magmatic systems, Mantle plume volcanism, Oceanic crust accretion, Lunar and Martian petrogenesis, Isotope geochemistry, Economic geology

Research Areas

Yellowstone-Snake River Plain, Idaho; Coast Ranges, Oregon and California; Sierra Nevada region, California; Fiji & Hunter Ridge; Hess Deep, the Pacific; Mars and the Moon; El Salvador

Analytical Expertise

Electron microprobe analyses of mineral phases, glass, and inclusions
Solution ICPMS for trace elements of igneous rocks
Laser ablation ICPMS of mineral phases

Marlon M. Jean CV

XRF and ICP-OES for major element oxides
Multi-collector ICP mass spectrometry for radiogenic and stable isotope ratios

Field & Sea Experience

- 2018 Field studies at the Leggett peridotite massif, northern California.
- 2015 Field studies at the Lherz peridotite, southern France.
- 2014 Field Excursions to the Franciscan Complex, International Goldschmidt Conference, Sacramento, California.
- 2013 JOIDES Resolution IODP Expedition 345 Hess Deep Plutonic Crust (Petrologist)
- 2011 Field studies of the Josephine Ophiolite, Oregon.
- 2010 Field studies of the Coast Range Ophiolite, California.
- 2008 Geologic Mapping of the Senter and Black Ridge Crater 7.5' quadrangles, Lincoln County, Idaho (1/24000).
- 2008 Field Excursion to the Josephine ophiolite, AGU Chapman Conference, Mount Shasta, California; Shallow Mantle Composition and Dynamics, 5th International Orogenic Lherzolite Conference.

CONFERENCES

Sessions Chaired

- 2023 **AGU** Deep crust and Mantle from a drilling perspective
Primary convener: Jon Snow
Co-conveners: Marlon M. Jean, Norikatsu Akizawa, Valentin Basch
- 2015 **AGU** The Ophiolite-Subduction Connection: Using peridotites as analogs for subduction zone mantle
Primary convener: Marlon M. Jean
Co-conveners: Veronique LeRoux, Julian Pearce, John W. Shervais

Last 5 Abstracts

*student abstract

1. *Llewellyn GE, Jean MM, Todd E, Bizimis M, Loewen MW (2020) Petrogenesis of Supra-subduction zone ophiolites from the Seventymile Ultramafic Complex, Eastern Alaska. Geological Society of America, Abstracts with Programs, v. 52, no. 4.
2. Jean MM, Patchen A, Sueilem MB, Taylor LA (2019) The Formation Conditions of Chondrites: Insights from Northwest Africa 10850 - An Oxidized CV3 Chondrite. Lunar Planet. Sci. L, 1033.
3. *Grambling NL, Dygert NJ, Jean MM (2018) Rapid Cooling of the Crust and Mantle at Hess Deep is Consistent with the Sheeted Sill Model for Accretion of Oceanic Crust. Presented at 2018 AGU Fall Meeting, Washington DC, 10-14 Dec.
4. Jean MM, Taylor LA (2017) Exploring Martian Mantle Heterogeneity: Multiple SNC Reservoirs Revealed. Lunar Planet. Sci. XLVIII, 1666.
5. Jean MM, McCanta M, Howarth GH, Taylor LA (2017) The Martian Olivine Glossary: Common Textures and Zoning Patterns, and Implications for Ascent of Martian Magmas and their Plumbing Systems. Lunar Planet. Sci. XLVIII, 2067.

GRANTS

2022	\$900	Western Colorado University Professional Activities Fund
2013	€19,200	Alexander von Humboldt Fellowship
2011	\$2000	USU - Dept. of Geology Graduate Benchmark fellowship
2010	\$1000	USU - Graduate Student Senate Research and Projects Grant
2009	\$1000	USU - J. Stewart Williams graduate fellowship

PROFESSIONAL ORGANIZATIONS

American Geophysical Union
Geochemical Society
Geological Society of America
Mineralogical Society of America

GRADUATE ADVISORS

Dehler, C.M. (Ph.D.)	Utah State University
Evans, J.P (Ph.D.)	Utah State University
Hanan, B.B. (Ph.D.)	San Diego State University
Lewis, S.D. (M.S)	California State University, Fresno
Lowry, A. (Ph.D.)	Utah State University
Putirka, K.D. (advisor MSc.; Ph.D.)	California State University, Fresno
Shervais, J.W. (advisor, Ph.D.)	Utah State University
Wakabayashi, J. (M.Sc)	California State University, Fresno

SYNERGISTIC ACTIVITIES

Pre-College Upward Bound Instructor. A program designed to help low-income, potential first-generation college students experience college-life through a six-week summer component at The University of Tennessee. My role was to introduce students to Environmental Geology and develop their understanding of how geology interacts with major environmental problems facing people and society.

Geological Society of America On To the Future Meeting Mentor. This program is intended to facilitate effective mentoring relationships and networking opportunities to help minority students become engaged leaders in the scientific and professional community.

Instructional Assistant for third grade math and science at Hillcrest Elementary School, Logan UT. Taught minerals, the rock cycle, and volcanoes and earthquakes.

“Science Education and the Meaning of Science.” A course taken in 2011, concerned with examining the theories and influences that shape the activity of science, how they have been challenged over time, and how they influence science education. By considering the epistemology, social and cultural influences, and the methodology of science, the course will seek to engage students in answering questions relevant to science educators.

Participation in ICDP Training Course, Windischeschenbach, Germany, “Lighting the Darkness: From Borehole Measurements to Earth Models.” This short course gave insights into current science and technology of Continental Scientific Drilling.