

CURRICULUM VITAE

Dr. Kristen E. K. St. John

Department of Geology & Environmental Science, James Madison University

Harrisonburg, VA 22807, (540) 908-5744; stjohnke@jmu.edu

HISTORY OF EMPLOYMENT

- **James Madison University**, Department of Geology & Environmental Science, Harrisonburg, VA: Professor (2010-present), Associate Professor (2005-2010).
- **Appalachian State University**, Department of Geology, Boone, NC: Associate Professor (2004), Assistant Professor (1998-2004)
- **Ohio State University**, Department of Geological Sciences, Columbus, OH, Part-time Instructor (1997)
- **Otterbein College**, Department of Life Sciences, Westerville, OH, Part-time Instructor (1997)

DEGREES

<u>College/University</u>	<u>Major</u>	<u>Degree & Year</u>
Ohio State University	Geological Sciences	PhD, 1998
Ohio State University	Geological Sciences	MS, 1995
Furman University	Geology	BS, 1992 (Cum Laude, PBK)

NARRATIVE OF RESEARCH EXPERIENCE

My scholarship is a blend of geoscience research and geoscience education research. My geoscience research background is in the **reconstruction of high latitude paleoceanography and paleoclimatology which help our understanding of past climate and the environment**. I develop long-term records of ice-rafting (IRD) and explore their paleo-environmental and climatic implications. This draws on my marine sedimentology work with scientific ocean drilling (ODP/IODP Expeditions 163, 173, 302, 320T, future-377). My IODP 302 expedition-related research demonstrated that Northern Hemisphere ice-rafting began at least 30 million years earlier than previously understood, which supports the hypothesis of a more bipolar Greenhouse to Icehouse transition in the Cenozoic. My geoscience education scholarship builds on my scientific experience and focuses on **translating marine geology (e.g., paleoclimatology, paleoceanography) research results and analytical skills into effective learning materials** for education at the college and secondary levels. In addition to peer-review publications, a lab book, and grants, this scholarship has resulted in >40 faculty professional development workshops (e.g., IODP School of Rock, On the Cutting Edge). Currently, I am particularly interested in studying the design and effectiveness of **course-based undergraduate research experiences (CUREs)**, and how such experiences can support geoscience workforce development. I've built a unique CURE course for students at JMU where they can get a first-hand team-based research experience that uses core samples and a wide range of analytical tools with multiproxy approaches to understand past climate and ocean conditions.

The scholarship probably most important to the AGU Education Section is my geoscience education research (GER) at the national level. This includes grant-funded collaborations with other GER community leaders to help **shape the future of GER by creating resources (e.g., GER Toolbox) and strategic planning reports (e.g., GER Framework) through community-building efforts**. The online [GER Toolbox](#) is a community-developed resource to help faculty start or improve how they do research on geoscience teaching and learning. It provides information and advice on: instruments and surveys, analytical tools, conducting GER studies across institutions, navigating a career in GER, getting published, and translating results into practice. The [GER Framework](#) strategic planning report also involved broad community-input and collaboration. It identifies large-scale guiding question that can provide direction to current and future researchers about where the community thinks effort should be made for future research. These questions span ten major intersecting themes that include research on students' conceptual understanding of geoscience content and skills, diversity and inclusion, teacher education, instructional methods, and professional development. This framework is summarized in a [presentation](#) on the future of geoscience education research in the 2019 AGU Centennial Plenary: *Inspire the Future for the Benefit of Humanity*.

SHORT LIST OF KEY PUBLICATIONS

Related to Geoscience Education

- **St. John, K.**, Bitting, K., Cervato, C., Kastens, K., Macdonald, R.H., McDaris, J., McNeal, K., Petcovic, H., Pyle, E., Riggs, E., Ryker, K., Semken, S., and Teasdale, R. (2019). [An evolutionary leap in how we teach geosciences](#), *EOS*, 100 (10), 15-17.
- **St. John, K.**, Robinson, C., Suranovic, B., Rand, C, and Bristol, D. (2019). [Exploring Marine Sediments Using Google Earth](#) , NAGT Teach the Earth. A four-part online exercise developed as part of the Google Earth for Onsite and Distance Education (GEODE) collection.
- **St. John, K.** (Editor) (2018). *A Community Framework for Geoscience Education Research*. National Association of Geoscience Teachers. Retrieved from http://commons.lib.jmu.edu/ger_framework/15
- Dolan, E., Elliot, S., Henderson, C., Curran-Everett, D., **St. John, K.**, and Ortiz, P. (2018). [Evaluating Discipline-Based Education Research for Promotion and Tenure](#). *Innovative Higher Education*. Vol 43, Issue 1, pp 31–39.
- **St. John, K.**, and McNeal, K., (2017). The Strength of Evidence Pyramid: One Approach for Characterizing the Strength of Evidence of Geoscience Education Research (GER) Community Claims. *Journal of Geoscience Education*, Vol. 65, No. 4, pp. 363-372.
- **St. John, K.**, Leckie, R.M., Pound, K., Jones, M., and Krissek, L., (2012). *Reconstructing Earth's Climate History: Inquiry-Based Exercises for the Class and Lab*, Wiley-Blackwell Publishers, 485p.

Related to Paleoceanography & Paleoclimatology

- **St. John, K.**, Passchier, S., Tantillo, B., Darby, D., and Kearns, L., (2015). Microfeatures of Modern Sea Ice-Rafted Sediment and Implications for Paleo-Sea Ice Reconstruction, *Annals of Glaciology*, v. 56, n. 69.
- Stickley, C.E., **St. John, K.**, Koç, N., Jordan, R.W., Passchier, S. Pearce, R.B., Kearns, L.E., (2009). Evidence for middle Eocene Arctic sea ice from diatoms and ice rafted debris. *Nature*, v.460, p.376-379.
- **St. John, K.**, (2008). Cenozoic History of Ice-Rafting in the Central Arctic: Terrigenous Sands on the Lomonosov Ridge, *Paleoceanography*, v.23, PA1S05.

HONORS

- JMU Shirley Hanson Roberts and Richard D. Roberts Endowment for Faculty Excellence Award (2019)
- JMU Research and Scholarship Lifetime Achievement Award (2017)
- Geological Society of America (GSA) Fellow (2016)
- JMU College of Science and Math Outstanding Teaching Award (2014)
- JMU General Education Distinguished Teacher Award (2013)
- Finalist, State Council of Higher Education for Virginia (SCHEV) Outstanding Faculty Award, (nominated 2010 and 2011)

PROFESSIONAL SOCIETY MEMBERSHIPS

- American Geophysical Union (AGU): Education Section, Paleoceanography and Paleoclimatology Section
- Geological Society of America (GSA): Geoscience Education Division
- National Association of Geoscience Teachers (NAGT): Geoscience Education Research Division
- Association for Women Geoscientists (AWG)
- American Association for the Advancement of Science (AAAS)
- Phi Beta Kappa (PBK)
- Project Kaleidoscope F21 member
- Sigma Xi