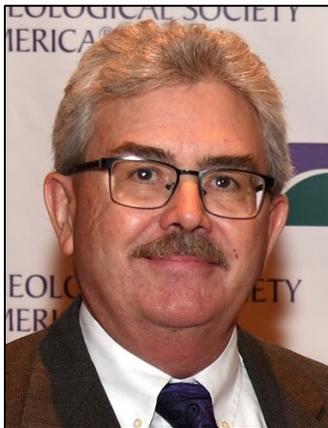


**Virginia Association of Science Teachers  
2021 Virtual Professional Development Institute**

**General Session IV  
Thursday November 18, 8:00 pm – 8:45 pm**

**Dr. Eric Pyle**

President, National Science Teaching Association  
Professor, Department of Geology & Environmental Science  
James Madison University



***" STEM in the 18<sup>th</sup> Century: How Navigation, Geodesy, and the Romance of Euclid made the Industrial Revolution Possible."***

From the time of Tycho Brahe, astronomers sought ever more precise instruments in a quest to define the order of the heavens. This quest led not just to the development of a new mathematics (calculus), but applications of the classical mathematics of Euclid. With precision instruments in hand, scientists applied such instruments to the measure of the Earth, finding anomalies that not just showed how the Earth was “lumpy” and confirming Newton, but also demonstrating the practical limits of hand-made instruments. Standardized, machine-generated instruments, further guided by geometry, exceeded these limits and made possible the tolerances necessary for efficient engines and interchangeable parts – touchstones of the Industrial Revolution.

**Biography**

Eric J. Pyle is a professor of geology at James Madison University, specializing in geoscience education and teacher preparation. He has published on science teacher preparation and professional development as well as instructional materials development and evaluation. He has served in the leadership of five NSF-funded projects, including grants for GK-12 Teaching Fellows, GeoEd, and the Robert C. Noyce program. He was a member of the Earth & Space Science (ESS) Design Team for *A Framework for K-12 Science Education* and was a primary reviewer for the *Next Generation Science Standards*. A former junior and senior high school science teacher, he teaches coursework in Earth materials, contemporary Earth issues, and planetary geology, as well as joint courses in secondary teaching methods. Elected as President of the National Science Teaching Association (NSTA) for 2021-2022, he served on the Board of Directors for NSTA heading the Preservice Teacher Preparation Division from 2014-2017. He is a past president of both the West Virginia Science Teachers Association (WVSTA) and the Virginia Association of Science Teachers (VAST). He received a BS cum Laude in Earth science from UNC-Charlotte (1983), an MS in Geology from Emory University (1986), and a PhD in Science Education from the University of Georgia (1995).