Jeffrey Clark

**Award:** Higher Education Initiatives; $9733.00

**Title:** Professor, Geology

**Project:** Developing Spacial Intiution Using an Augmented Reality Sandbox

**Abstract:** (First Paragraph of the Proposal) Spatial reasoning skills such as pattern recognition, interpretation of topographic maps, and contouring are fundamental to interpreting our modern world (NRC, 2006). Through the course of an ordinary day we are bombarded with contoured maps cleverly disguised as weather maps, mobile-device terrain maps, and geospatial infographics. However, our familiarity hides the fact that few understand how we get from the underlying data to the pretty color-coded weather maps we use to plan our weekend outings. Moreover, interpretation of these images can be difficult for the uninitiated. Spatial reasoning is a special subset of quantitative literacy, yet it is an underdeveloped skill for college students and the general population (Ishikawa and Kastens, 2005). The work proposed here aims to address this weakness. The project goals are well aligned with those of NASA’s Science Mission Directorate by educating a science literate workforce and citizenry, and the skills developed herein are essential for future earth and planetary scientists.

**Biography:** Professor of Geology Jeffrey Clark earned his undergraduate degree at Middlebury  
College as a double major in geology and environmental studies. He began teaching at  
Lawrence University in 1998 after earning his Ph.D. in geography and environmental  
engineering from Johns Hopkins University. Dr. Clark’s research focuses on the  
anthropogenic impact on river systems, and he has evaluated the role of dams changing  
sediment storage dynamics and the impact of land use on channel morphology. As a  
visiting scientist at the NSF-funded National Center for Earth Surface Dynamics, he  
spent a year investigating the role of bed composition and morphology on hyporheic  
flow. In the classroom, Dr. Clark’s pedagogical approach is to establish a stimulating  
learning environment through the innovative use of technology to enhance hands-on  
activities and field experiences. He has written on the use of “field-computers” in the  
outdoor classroom and more recently has turned his attention to the use of indoor  
physical models to demonstrate earth processes at greatly condensed spatial and temporal  
scales—an endeavor that has received past support from WSGC.

**Congressional District**: 8

**Congressional Representative**: Mike Gallagher