

RMAG April Special Luncheon
April 15, 2026

“Quantifying Outcrops: Digital Methods in Contemporary Geoscience”

Speaker: Brian S. Burnham, VRGeoscience Limited

Geological outcrops are routinely used for research and education purposes and are a key component of geoscientific training. Fundamentally, re-evaluation of outcrop observations and reproducibility of results is critical for scientific advancement. Accessibility to the field and outcrops, however, remain problematic for several technical and societal reasons. Since the turn of the 21st Century, a quiet revolution of geological field data collection practices, analysis, and visualisation has taken place. This talk will focus on the history of 3D outcrops, the necessity to digitally capture outcrops of all scales, and contemporary quantitative outcrop analysis and visualisation techniques that traditional methods would struggle to achieve. The important role that digitally captured and preserved outcrops play as milieus for increased accessibility and inclusivity, and for the promotion of scientific reproducibility across both academic and industry applications, is also discussed. Digital outcrops are more accessible than ever and complement traditional field methods that provide a powerful tool across academic and industry sectors, particularly in regions with limited outcrop accessibility.

Biography

Brian is a geoscientist working at the intersection of Earth science and technology, with a particular focus on digital outcrop modelling (DOM) and analysis. He earned bachelor’s and master’s degrees in Geosciences and Arts and Technology from the University of Texas at Dallas, where he collaborated with geoscientists and digital artists to develop methods to analyse and visualise photorealistic 3D models of geological outcrops in immersive virtual environments. He later completed a PhD at the University of Manchester, conducting fieldwork across the United Kingdom and internationally, including South America and Spain, to build analytical tools to facilitate quantitative analysis of regional and basin scale sedimentary systems. Following his doctorate, Brian served as a Research Fellow at the University of Aberdeen before joining VRGeoscience Limited as a Senior Geoscientist, where he develops tools and analytical approaches to interpret and extract insight from digital outcrop data. Alongside his scientific work, Brian collaborates with artists and interdisciplinary researchers and advocates for open scientific practices and effective communication of scientific ideas through both technological and artistic approaches.