

Proposed Title: Subsurface Geophysical Remote Sensing Methods and Applications in Natural Resource Management

Special Session: Bureau of Land Management, Multi-scale Natural Resources Application

Keywords: Geophysics, BLM, natural resource management, Unmanned Aircraft Systems

Contact: Jason Frels, BLM, jfrels@blm.gov , 303-236-6535

Abstract:

Geophysics is the study of the earth through analyzing its quantitative physical properties (e.g., electrical, magnetic). Through the spatial analysis of these properties, the BLM can rely on scientifically-generated information about the subsurface for land management without disturbance or destruction.

Traditional geophysical exploration methods have been adapted for use in larger-scale environmental or natural resource management applications. Typical environmental geophysical methods used by the BLM in natural resource management include the electromagnetic, magnetic, and electrical methods. A brief overview of geophysics will be presented with expanded discussion on the environmental methods, the instrumentation used in data collection, and case or use studies that describe how we use each method in the various BLM resource areas (e.g., environmental contamination/land health, archaeology/cultural resources, mining resources).

We expect over the next few years that some of these methods will be unmanned aircraft systems (UAS) compatible. This presentation will conclude with a discussion on where geophysics fits in with the UAS movement and how the BLM may benefit from future research and development in UAS-compatible instrumentation.