

Mapping Mine Waste within the Rheidol Valley

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PRESENTATION ABSTRACT

The Rheidol Valley in Mid Wales is a site of ancient and more recent lead mining and is of great importance both historically and mineralogically.

The main objectives of this study are to use hyperspectral imaging spectrometry to: characterise mine waste within, and map contamination transport around, the Rheidol valley and; to map associated vegetation stress using VNIR and SWIR Imaging Spectrometry. This work builds on the expertise gained during the MINEO project in which mine waste was mapped at various sites across Europe using advanced Earth observation techniques. In MINEO BGS used HyMap data to map an area of abandoned tin mining in Cornwall and so the skills learnt in contamination mapping have been applied to the HyMap data for the Rheidol Valley. Mine site characterization has been undertaken using SAM (Spectral Angle Mapper) classification techniques based on a spectral library of endmembers extracted from the calibrated image data . and the contamination within the Rheidol Valley has been mapped. This is being backed up with geochemical analysis for verification of the spectra observed both in the field and the image data. Historical geochemical and spectral data from the Rheidol Valley is being used for comparison proposes. Mine waste at the mine site has been characterised and mapped and the resulting maps of contamination will be shown at the conference.