



## **Application research of using CASI/SASI airborne hyperspectral remote sensing on lithology identification**

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Remote sensing provides an advanced method for lithology identification, which is one of the important research fields in geological prospecting. In theory, each lithology is of individual spectrum characteristics. Based on the spectral differences between them, we can identify different lithologies by remote sensing images. At present, the studies on lithology identification by remote sensing are primarily conducted on the multispectral images, such as Landsat 7 ETM+, SPOT-5, QuickBird and WorldView-2. Hyperspectral remote sensing images provide richer information, making it easier to identify the lithologies, but studied rarely.

CASI/SASI is an airborne hyperspectral system covering a wavelength range of 0.38-2.45 $\mu$ m. With hundreds of bands, the hyperspectral images are useful to identify the spectrum characteristics of lithology. In addition, images are of high spatial resolution, with CASI of about 1m and SASI of about 2-2.5m, which make lithology identification more accurate. CASI/SASI hyperspectral data was collected in Beishan metallogenic belt in northwest China, as same as the ground spectral data of the lithologies. After data preprocessing, we divided different lithologies using CASI/SASI hyperspectral images and lithology spectrum, identified some important lithologies related to mineralization, and successfully found a few new ore clues.