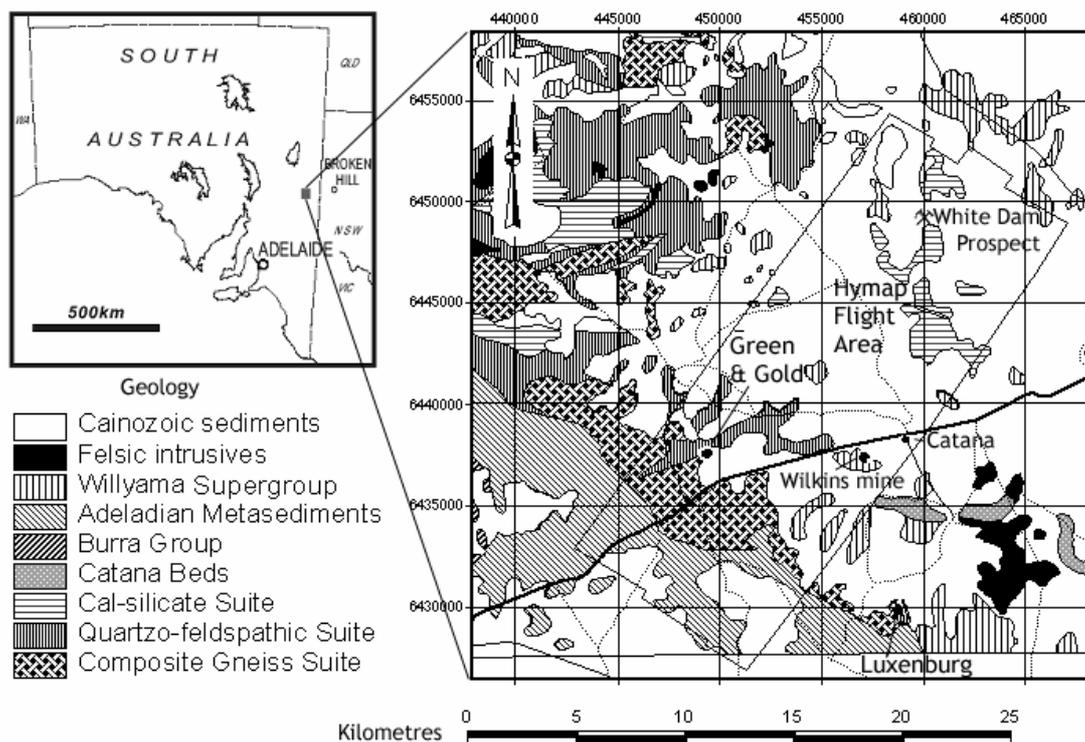


SPECTRAL MAPPING OF REGOLITH LANDFORMS AND FRESH AND ALTERED BEDROCK IN THE OLARY DOMAIN, SOUTH AUSTRALIA

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Geological remote sensing and mineral mapping has predominantly been performed in regions of prominent outcrop with very little vegetation. Considerably less research has been attempted in weathered terrains where much of the bedrock is obscured by regolith or biota. The White Dam copper-gold-molybdenite prospect, together with adjacent mineral workings offer a promising location for investigating regolith spectral characteristics in relation to basement and altered mineralised rocks.

The White Dam prospect is situated in Olary Domain Proterozoic basement approximately 25 kilometres north east of the township of Olary in the Curnamona Province, South Australia. It is covered by recent colluvial and alluvial sediments while the host rock to the mineralisation at White Dam is a bedded quartzo-feldspathic biotite leucocratic gneiss of upper amphibolite grade. Other outcroppings of high grade basement gneiss, granite, calc-silicate albites and an overlying Palaeoproterozoic metasedimentary sequence and retrograde shear zones also occur in the region.



Five HYMAP airborne hyperspectral strips, flown in December 1998 were processed and basic mineral maps were produced for the selected regions of interest. Similar techniques were used with the short-wave infrared and thermal infrared bands of the ASTER satellite imagery to discriminate minerals and cover types. Orthoimagery was used as an underlay and a digital elevation model generated to allow a terrain perspective to be incorporated into remotely sensed regolith and landform mapping of the regions of interest. Drill core and rock chips from the White Dam Prospect have been analysed and a three-dimensional model of the regolith was constructed which will be integrated with a three-dimensional geochemical dispersion model for

the mineralisation. Ground truthing and follow up surveys with a field spectrometer have been performed to verify the results of the mineral mapping and to gain surface regolith measurements.

Abstract only
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