The Performance of the Satellite-borne Hyperion Hyperspectral VNIR-SWIR Imaging System for Mineral Mapping at Mount Fitton, South Australia

T.J Cudahy, R. Hewson, J.F. Huntington, M.A. Quigley
CSIRO Exploration and Mining

P.S. Barry
TRW Space and Electronics Group

Acknowledgments
D.L.B. Jupp, Jill Huntington
CSIRO COSSA-EOC

J. Pearlman
TRW Space and Electronics Group
Objective

To evaluate how well a diverse suite of SWIR-active minerals can be spectrally identified and spatially mapped for the well exposed Mount Fitton test site using data from the HYPERION spaceborne hyperspectral VNIR-SWIR imaging system.
HYPERION

- NASA Technology Demonstrator
- Spaceborne hyperspectral VNIR-SWIR pushbroom imager
- Onboard EO1, launched Nov 2000
- 242 spectral bands
- 400-2500 nm
- SWIR SNR <40:1
- Successful NRA for Oz
Australian Hyperion Test Sites

-29°55'S, 139° 25'E  700 km NNW of Adelaide
Land Use & Environment

- Semi-arid (<250 mm per year)
- Sheep (wool) and mining (talc)
- Vegetation is stunted and sparse (<15%)
  - grasses, saltbush, bluebush, mallee, mulga
- low-moderate relief (<80 m)
- large areas (>>10s m) of in situ, relatively unweathered rock
  - sharp geological boundaries
  - units 50m to 5 km wide.
- **Terrapinna Granite**: white micas (Tchermak substitution)
- **Bolla Bollana Fm**: actinolite, white mica
- **Amberoona Fm**: dolomite, magnesite, *talc*, *tremolite*, *chlorite*, white mica
- **Balcanoona Fm**: chlorite, white mica