

# THE TECTONIC SETTING OF EARLY MESOPROTEROZOIC MINERAL SYSTEMS IN THE GAWLER CRATON

## MINEX CRC PROGRAM 3

### National Drilling Initiative

#### PHD PROJECT

University of Adelaide

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#### RESEARCH PROJECT

This project focuses on the 1600-1500 Ma timeslice with the aim of determining the tectonic setting of early Mesoproterozoic mineral systems in the Gawler Craton. The project directly ties into the temporal and spatial of the Geological Survey of South Australia by working in the 'Fowler to Flinders' belt.

The project has four parts:

- 1) Titanite U-Pb geochronology, with the aim of better constraining the timing of high temperature calcic alteration in the eastern Gawler Craton. This project also aims to explore the relationship between titanate trace element compositions and U-Pb age, as trace element compositions can provide additional information about the salinity, acidity and temperature of the alteration fluid.
- 2) Metamorphic environment of IOCG mineralisation in the Moonta-Wallaroo region.
- 3) Tectonic setting of high-grade early Mesoproterozoic metamorphism in the northern central Gawler.
- 4) Synopsis of the tectonic setting of early Mesoproterozoic mineral systems in the Gawler Craton, including tectonic and thermal regimes and structural environments of fluid flow.