

TOMOFAST-X GRAVITY-MAGNETIC INVERSION TO MAP GREENSTONE BELTS IN ARCHEAN AND PALEO PROTEROZOIC TERRAINS

MINEX CRC PROGRAM 2

Data from Drilling

PHD OR MASTERS PROJECT

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RESEARCH PROJECT

Geophysical data is necessary to understand the structure of the greenstone belts within the cratons. Gravity data is useful in distinguish the geometry of greenstone belts due to the density difference between granitic-gneiss basement (TTG terranes) and the dense mafic-ultramafic layers (Matos et al., 2022). Magnetic data is useful in mapping lithologies and faults (Metelka et al., 2011) within the greenstone belts themselves.

In the region of interest for this project (the Yilgarn Craton), ancillary geophysical data, such as MT, reflection seismic will be used to complement my interpretations. I will utilize the open-source inversion platform Tomofast-X being developed as part of the MinEx CRC. Tomofast-X is designed to integrate geological and petrophysical constraints to the inversion of gravity and magnetic data at different scales (Ogarko et al., 2021).