# INTERPRETING GEOLOGY FROM GEOPHYSICS IN POLYDEFORMED TERRANES: THE OTAGO SCHIST, NEW ZEALAND

*Casey Blundell[1*], Laurent Ailleres[2], Robin Armit[3], Adam Martin[4]*
*Monash University, casey.blundell@monash.edu[1]; Monash University, laurent.ailleres@monash.edu[2]; Monash University, robin.armit@monash.edu[3]; GNS Science, a.martin@gns.cri.nz[4]*

Acquisition of airborne geophysical data across Otago, New Zealand, presents a unique opportunity to explore in detail the subsurface geometries of the Otago Schist, a polydeformed Mesozoic belt. A relationship is known for hard-rock Au (±W) occurrences with increasing metamorphic grade across the exhumed metasedimentary belt, though structural controls are less clear at a regional scale. Using new geophysical data, this study aims to identify the structural controls leading to mineralisation in the schist within the broader framework of the tectonic evolution of the South Island since ca. 150 Ma. Interpreting geology from geospatial data requires critical assessment and integration of this data with detailed structural field mapping and other geochemical and petrophysical analyses. This workflow aims to identify lithology distributions, patterns and anisotropies resulting from tectonic juxtaposition and the development of structural fabrics at regional scales. The Otago Schist preserves a complex history of deformation and metamorphism beginning with terrane accretion to southeastern Gondwana in the Paleozoic, to the present dextral translation of terranes along the Australian-Pacific plate boundary. This study presents for the first time a detailed geological interpretation of 3-dimensional geometries of the Otago Schist using regional geophysical data and places it in a regional tectonic context for the crustal assimilation and deformation of the South Island.