

<b>Position Title</b>	Research Associate
<b>Classification</b>	Level A
<b>School/Division</b>	School of Earth Sciences
<b>Centre/Section</b>	Centre for Exploration Targeting
<b>Supervisor Title</b>	Professor
<b>Supervisor Position Number</b>	
<b>Position Number</b>	New

## **Your work area**

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The School of Earth and Oceans at The University of Western Australia undertakes diverse fundamental and applied research with recognised strengths in mineral geoscience, petroleum geoscience, geochemistry, hydrogeology and marine geoscience. The School has an international reputation in research and teaching with strong support from the mineral exploration, petroleum and groundwater industries, and well established collaborations with industry and state and federal government agencies.

The School has been recognised internationally, with Earth and Marine Science ranked 37th in the 2021 QS World University subject rankings and Excellence in Research for Australia (ERA) ratings above to well above world standard across the Earth Sciences sub disciplines. Undergraduate and postgraduate teaching programs are underpinned by research activity and expertise, and the School attracts high calibre higher degree by research students into PhD and MPhil programs.

The Centre for Exploration Targeting, within the School of Earth and Oceans at UWA, and JCU at Townsville have developed, together with AMIRA (Australian Mineral Industry Research Association) an applied research project which is funded by BHP, AngloGoldAshanti, Newmont, B2Gold and Poderosa). The project also involves Universities in, and Geological Surveys of, Argentina, Chile, Peru and Ecuador.

## **Reporting structure**

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Reports to: Professor Steffen Hagemann (CET)  
Dotted line report to: Dr. Daniel Wiemer (JCU) and AMIRA

## **Your role**

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As the appointee, you will document, during the first stage of the project in the field, trans-lithospheric fault systems (TLF) in defined E-W corridors through the Andes of South America. The documentation (and collection) of rocks, structures, and hydrothermal alteration/mineralized zones in distinct traverses will underpin the systematic laboratory work including high-precision geochronology, radiogenic and stable isotope work, whole rock and trace element geochemistry (on both rocks and minerals). The evolution of these fault zones in time and space will then be linked to various mineral systems such as porphyry Au-Cu, epithermal Au-Ag, multi-element skarn and IOCG. Integration of available geophysical data will be combined with modelling of intrusive rocks (Lu-Hf, oxygen isotopes, trace element geochemistry) to better understand the deep crustal level geology and structural connectivity through time to the mantle.

## **Your key responsibilities**

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Create/cultivate scientific network with AMIRA sponsors, Geological Surveys and Universities including UWA and JCU.

Collect structural data and conduct structural-kinematic mapping of selected geological traverses to establish structural – tectonic, petrogenetic architecture across scales.

Map and collect intrusive rocks in order to reconstruct the petrogenetic and geotectonic framework, their origin and evolution.

Focussed U/Pb zircon geochronology, Lu-Hf and trace element geochemistry on igneous rocks.

Conduct mineral chemistry analyses on hydrothermal alteration minerals including sulfides. These analyses include but are not restricted to stable and radiogenic isotopes, laser ICP-MS on minerals and fluid inclusions trapped in veins and hydrothermal alteration minerals in veins, breccias and wall rocks.

Geochronology of hydrothermal minerals including Re-Os sulphide (arsenopyrite, pyrrhotite, pyrite), Ar/Ar on sheet silicates, U-Pb on hydrothermal carbonates and accessory minerals such as titanite, apatite and zircon.

Other duties as directed.

## **Your specific work capabilities (selection criteria)**

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PhD qualification in geosciences.

Experience and proven track record in conducting field based structural geology, petrologic and/or geochemical investigations.

Experience with geophysical data, interpretation and integration with structural data in order to develop tectonic/structural models.

Conducting laboratory investigations including geochronology (SHRIMP and laser ICP-MS), SIMS analyses including Lu-Hf and oxygen, sulfur isotopes, laser ICP-MS analyses on zircons, apatite and other accessory minerals is desirable but not essential.

Experience in conducting ore deposit studies including hydrothermally altered rocks is desirable but not essential.

Demonstrate scientific achievement with a record of publications commensurate with the years in the academic environment.

Experience working in a team environment involving academic, government and/or industry research partners.

Well-developed organisational skills with the ability to set priorities, meet deadlines and work within budget and time.

Ability to work independently, show initiative and work safely.

Well-developed written and verbal communication skills.

Willingness to assist in some teaching in structural geology and economic geology.

## **Special requirements (selection criteria)**

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Significant overseas travel will be required, including fieldwork at high altitude. Knowledge of Spanish is desirable.

## **Compliance**

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Ensure you are aware of and comply with legislation and University policy relevant to the duties undertaken, including:

The University's Code of Conduct [hr.uwa.edu.au/policies/policies/conduct/code/conduct](http://hr.uwa.edu.au/policies/policies/conduct/code/conduct)



## POSITION DESCRIPTION

Inclusion and Diversity [web.uwa.edu.au/inclusion-diversity](http://web.uwa.edu.au/inclusion-diversity)

Safety, health and wellbeing [safety.uwa.edu.au/](http://safety.uwa.edu.au/)