

UQ Winter Research Project Description

Project title:	Environmental impacts of aquifer – reservoir groundwater connectivity
Hours of engagement & delivery mode	For the Winter program, students will be engaged for 4 weeks only. Hours of engagement must be between 20 – 36 hrs per week and must fall within the official program dates (30 June – 25 July 2025). Please outline if the project will be offered on-site, remotely or through a hybrid arrangement. Project can be any of the above
Description:	<i>Groundwater is a vital resource to Australians that must be protected. This project will analyse groundwater data to understand groundwater aquifers and connectivity with gas reservoirs.</i>
Expected learning outcomes and deliverables:	<i>Scholars may gain skills in data collection, analysis, and may have an opportunity to generate publications from their research. Students will also be asked to produce a report or oral presentation at the end of their project.</i>
Suitable for:	Please highlight any particular qualities that individual supervisors are looking for in applicants to assist with the selection process. <i>This project is open to applications from students with a background in chemistry, chemical engineering, earth sciences/hydrogeology or geoscience.</i>
Primary Supervisor:	Dr Julie Pearce
Further info:	If you would like applicants to contact your unit for further information, please provide the relevant contact details here. For any questions contact gas-energy@uq.edu.au.

UQ Winter Research Project Description

Project title:	Looking at coal trade behaviour during the early 2020s during the Chinese ban on importing Australian coal
Hours of engagement & delivery mode	For the Winter program, students will be engaged for 4 weeks only. Hours of engagement must be between 20 – 36 hrs per week and must fall within the official program dates (30 June – 25 July 2025). The Project will be offered on-site or a hybrid of on-site and remote.
Description:	Many commodities are traded globally – such as base metals, crude oil, thermal and metallurgical coal, and LNG. Australia is a major exporter of coal, iron ore and LNG. In the early 2020s China implemented a non-official ban on the import of Australian coal. This project looks at impacts on: 1. Total consumption of coal in China and other importing countries, 2. Domestic production changes in China – if relevant, 3. Other coal exporters in terms of exports to China, 4. Coal prices, 5. Total shipped distance of coal volumes, 6. Other considerations relevant to energy security and decarbonisation. And seeks to put these findings in context of other commodities, and LNG in particular. Importantly looking at what impact the supply, or otherwise, of Australian coal to international markets impacts those markets. Background: https://public.axsmarine.com/blog/how-australia-adjusted-coal-exports-to-china-import-ban
Expected learning outcomes and deliverables:	<i>Learning outcomes: research skills in commodity markets, improved familiarity with global commodity markets, an understanding of geopolitical implications for global trade, and other research skills.</i> <i>Deliverables will include written and/or powerpoint report of findings.</i>
Suitable for:	<i>This project could be completed by a wide variety of majors from business, law, economics, engineering, or science disciplines.</i>
Primary Supervisor:	Prof David Close
Further info:	If you would like applicants to contact your unit for further information, please provide the relevant contact details here. If this project is of interest please apply.

UQ Winter Research Project Description

Project title:	Does the Proterozoic sedimentary record indicate greater abundance of aeolian deposition relative to the Phanerozoic due to the post-Proterozoic development of a terrestrial biosphere?
Hours of engagement & delivery mode	For the Winter program, students will be engaged for 4 weeks only. Hours of engagement must be between 20 – 36 hrs per week and must fall within the official program dates (30 June – 25 July 2025). The Project will be offered on-site or a hybrid of on-site and remote.
Description:	The greater McArthur Basin, and the Beetaloo Sub-basin in particular, preserve relatively undeformed Proterozoic sedimentary rocks. Since 2010 there have been wells drilled into the meso-Proterozoic Roper Group that have provided detailed log, cuttings and core data. New data suggest that prior depositional models, assuming deltaic point-source deposition, are not sufficiently complex to explain observed data. My more recent model (Close & Wilson, 2024) postulates that aeolian deposition may better explain some observations from the relatively recent (post-2010) suite of wells. The model is partly premised on the likelihood that, given that land plants had not yet evolved, sandstorms were far more frequent and played a relatively greater role in sediment deposition relative to the Phanerozoic. This project reviews literature relating to Proterozoic depositional environments and potentially can involve interpretation of digital data and core/cuttings to better describe these environments.
Expected learning outcomes and deliverables:	Improved understanding of: • Earth environments in the Proterozoic vs Phanerozoic, • gross depositional environment modelling and interpretation, • wireline log interpretation and the use of total vs spectral gamma-ray logs in particular, and • Sedimentology and sequence stratigraphy. Deliverables will include written and/or powerpoint report of findings.
Suitable for:	This project would require a working level understanding of geology or geography, and the ability to undertake research and literature reviews.
Primary Supervisor:	Prof David Close
Further info:	If you would like applicants to contact your unit for further information, please provide the relevant contact details here. For additional information please contact <u>gas-energy@uq.edu.au</u>.