

Project 15 - The vulnerability of Andean groundwater springs to land use change

Location: The project will be based at The University of Queensland, Brisbane, QLD. Requires extended visits to Chillan or Concepcion, Chile.

Required area of expertise/background: An Honours or MSc degree in Hydrogeology or geochemistry.

Project: Project Description (Max 200 words): This research will contribute to developing tools to evaluate the vulnerability of piedmont groundwater springs clusters to environmental change, including climate change and mining and urban development. A case study of the Renegado hydrological system will be used. The Renegado system is in the Nevado del Chillan Volcanic Complex in central Chile, which is an important tourism area. The system is composed of three main sub-systems: the aquifers located at the volcanic complex itself; the fractured system of the Renegado watershed; and the Renegado River. Streamflow is produced by many springs that are distributed along the 30 kilometres of the river; and flow rates, temperature and chemistry are highly variable along the river. The project will understand the sources and processes leading to this variability, and will identify areas of the catchment that are priority for protection. The research objectives are: To improve the knowledge of the spatio-temporal dynamics of this mountain groundwater fractured rock system; to estimate groundwater age of the water that is released by the springs; to identify the main recharge areas of the springs.

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2017 RTP full time RTP Stipend Rates* (\$26,682). Approximate annual top-up amount: \$5000

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