

## Project 16 - Understanding and estimating groundwater use in semi-arid agricultural regions

**Location:** The project will be based at The University of Queensland, Brisbane, QLD

**Required area of expertise/background:** An Honours or MSc degree in Hydrology, Environmental Sciences/Engineering, or relevant fields with expertise in at least one of the following areas: Groundwater modelling including uncertainty analysis; Geostatistics/spatial analysis; Engagement with and surveys of farmers.

**Project: Project Description (Max 200 words):** The project will investigate patterns of groundwater abstraction in semi-arid agricultural regions of Australia and their significance for groundwater modelling. This may include investigation of: 1) Socio-economic and environmental factors that affect groundwater use; 2) how to improve estimates of groundwater abstractions using statistical modelling; 3) how to incorporate abstraction uncertainty into groundwater modelling and significance for predicting impacts of new abstractions. The Surat Basin in South-East Queensland will be the case study. The project may focus on two or more of the aforementioned topics, depending on the skills and interest of the candidate. For example, (1) may be approached in a primarily qualitative manner focussing on engagement with bore owners/managers; (2) is primarily a statistical modelling project; and (3) is primarily groundwater modelling and uncertainty analysis. In all cases, the project will also require field work (approximately 3 weeks per year), to help maintain and refine an existing network of 43 flow meters that are installed on bores around the Surat Basin, to download data, and to maintain good working relationships with land owners. A driving license will be required. 4WD training will be provided. Previous experience in field work in remote areas is beneficial but not essential.

**2017 RTP full time RTP Stipend Rates\* (\$26,682). Approximate annual top-up amount:** The field work costs will be covered by a project funded by the Centre for Coal Seam Gas at The University of Queensland. An allowance for conference attendance will be provided. Up to \$10,000 per year

**Principal Supervisor:**

[Prof Neil McIntyre](#) - Centre for Water in the Minerals Industry, The University of Queensland

**Co Supervisors:**

[Prof Jim Underschultz](#) - Centre for Coal Seam Gas, The University of Queensland

