

## **Springs of the south-eastern Great Artesian Basin: Hydrogeology, environmental tracers and flow**

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The Great Artesian Basin (GAB) is the largest artesian, fresh groundwater source in the world, and the GAB mound springs are one of the rarest landforms in Australia. Characterisation of the artesian springs and identifying their source aquifers in the south-east area of the GAB is hindered by a shortage of data, which limits understanding of the hydrogeological setting. It is critically important to manage the groundwater within the GAB, as the springs are the lifeblood of unique endemic flora and fauna, hold significant cultural values to the indigenous people and are linked with aquifers that are drawn upon by local pastoral stations.

This study is based on field investigations using environmental tracers of artesian springs and proximate bores and the collation of other existing hydrochemistry datasets and hydrogeological information. The study findings showed that the variability and complexity of hydrogeology across the south-east GAB, the multi-aquifer units and structural architecture such as faults impede groundwater flow and the spring expressions at the surface. Outcomes from this study demonstrate the fundamental need for integrating new knowledge from field investigations with existing datasets to help constrain complex hydrogeological conceptual models. Additionally, this study makes the case that a multi-tracer approach from springs and proximate bores together with geological information provides a hydrogeological tool-box to investigate complex groundwater systems with multi-layered aquifer systems.