

Groundwater and the changing water cycle

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The participation of groundwater in the global water cycle under natural conditions is typically considered less dynamic than surface and soil moisture. However, increasing reliance on groundwater abstraction as a water source for the large areal extent of irrigated land, particularly in water limited regions, means this participation is potentially accelerating. We propose to examine this using a unique observational opportunity, the large scale extraction of groundwater via coal seam gas operations and redistribution across surface storages and agriculture in the Surat Basin, Australia. The relatively short time period in which this extraction will increase and be supplied to the surface provides the ability to observe and model changes to the water and energy balances and therefore test our understanding of land surface feedbacks to increasing groundwater abstraction.

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