

2018 Groundwater Seminar



"Investigating the fate of hydraulic fracturing fluid in shale gas formations through two-phase numerical modelling of fluid injection"

Ryan Edwards

PRINCETON UNIVERSITY

About the seminar

Hydraulic fracturing in shale gas formations involves the injection of large volumes of aqueous fluid deep underground. Only a small proportion of the injected water volume is typically recovered, raising concerns that the remaining water may migrate upward and potentially contaminate groundwater aquifers. We implemented a numerical model of two-phase water and gas flow in a shale gas formation in order to test the hypothesis that the remaining water is imbibed into the shale rock by capillary forces and retained there indefinitely. In this talk I will introduce the shale gas system, present the results of our modelling, and discuss those results in the context of the broader body of work on potential environmental impacts from shale gas development.

About Ryan

Ryan Edwards will complete a PhD at Princeton in May 2018, on the topic of investigating the fate of hydraulic fracturing fluids in shale gas formations. Ryan hails from SA, and holds a double degree in civil engineering and geology from Adelaide University. He worked at Aquaterra for a few years before winning a scholarship to do a Masters at Princeton under Mike Celia, which led to the PhD. Ryan's research is of direct relevance to the recent federal initiative to investigate shale gas and tight gas via the Geological and Bioregional Assessments program.



**Tuesday 16 January 2018
3.30pm**

**Flinders Uni
Victoria Square
182 Victoria Square,
Adelaide SA
Room 1, Level 1**

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