GCSC Seminar Series

April 18, 2017
4:00-5:00 PM

210 ASB
(Aline Skaggs Building)

ALL ARE WELCOME

Refreshments & meet the speaker at 3:45

Jennifer McIntosh
University of Arizona Hydrology & Water Resources

"Tracing environmental impacts of hydraulic fracturing and oil/gas production "

GLOBAL CHANGE AND SUSTAINABILITY CENTER
THE UNIVERSITY OF UTAH

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Abstract

Modern hydraulic fracturing ("fracking") has transformed the energy landscape of the United States and other countries, over the past decade+, by enabling extraction of vast quantities of natural gas and oil from unconventional reservoirs (shale, coal, tight sands); yet, several instances of contamination have been reported related to hydraulic fracturing and oil/gas production, and public concern continues about potential future environmental impacts. This talk critically evaluates how natural tracers (isotopes and chemistry) may be used to determine the sources of natural gas and saline fluids in the environment – specifically, where they come from in the subsurface, how they migrate (and mix) from deep reservoirs into shallow aquifers, and how we can distinguish natural versus anthropogenic sources of contamination. New, promising approaches will be highlighted, in addition to how we might deploy a "tracer program" to establish baseline conditions, monitor during and after-"fracking", and investigate alleged cases of contamination.

Bio

Dr. Jennifer McIntosh is an Associate Professor in the Department of Hydrology and Atmospheric Sciences and a Distinguished Scholar at the University of Arizona (UA), a Joint Faculty member in the UA Geosciences Department, and an Adjunct Research Geologist with the United States Geological Survey. She earned a B.A. in geology-chemistry from Whitman College in 1998, and a M.S. and a Ph.D. in Geology in 2000 and 2004, respectively, from the University of Michigan. She was the Morton K. and Jane Blaustein Postdoctoral Fellow at Johns Hopkins University in Earth and Planetary Sciences, before starting at UA in 2006. Her research focuses on natural tracers of hydrologic and biogeochemical processes from the earth's surface to deep subsurface environments, including the origins of saline fluids and natural gas. Related to hydraulic fracturing, Dr. McIntosh recently co-led a technical workshop for the International Atomic Energy Agency (IAEA) on isotopic tracers of environmental contamination from oil/gas production. She also serves on the New Mexico EPSCoR (*Energize New Mexico*) External Advisory Board and has been an expert panelist for the US Nuclear Waste Technical Review Board, EPA, and NSF on topics related to subsurface energy storage and production.