

Wednesday, September 26, 2018

4:00p.m.

Benson Room 180

[Geological Sciences' Colloquium Series](#)

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Associate Professor

Water and Lithium - The nexus of hydrogeosciences and green energy in the transition from fossil fuels

Abstract:

The Earth is warming at an unprecedented pace due to the release of carbon dioxide from the burning of fossil fuels. Our society is now in the great transition to a green and more sustainable energy supply. The development of portable and powerful energy storage mechanisms is essential to replace our dependence on the high-energy density fossil fuels. Lithium-ion batteries have emerged as one important technology for this purpose. The element lithium is abundant and plentiful on the planet but is rarely found at high concentrations to be of economical use. Economic deposits of lithium are found in pegmatites and closed-basin continental brines. The origin of the lithium brines and their distribution worldwide is fundamentally tied to the hydrology and hydrogeology of the host basins. This talk focuses on the multifaceted role of (ground) water in transporting, accumulating, and extracting lithium in continental brines and this discipline represents an important interface between hydrogeology, economic geology, and our green energy supplies. Field examples from Northern Chile and the Great Basin of the United States highlight the inter-disciplinary nature of the origin and evolution of continental lithium brine deposits. Many aspects of geosciences including volcanology, sedimentology, geomorphology, geochemistry, geophysics, paleoclimate, structural geology and tectonics combine with hydrogeosciences make this a particularly exciting example of the importance of earth sciences to future energy supplies. The environmental impacts of lithium brine pumping is explored and discussed in the context of balancing the sustainability of lithium-ion batteries.

~ ~ Please also join us for Colloquium Social Hour ~ ~

Social Hour after Colloquium:

WHEN: Wednesday, September 26th from 5 to 6 pm

WHERE: **BESC 1B75 or 185 - TBD**

WHAT: An hour of science, socialization, and good food and drink!