

HEILAND LECTURE SERIES

“NEW APPROACHES FOR CHARACTERIZING WATERSHED STRUCTURE AND FUNCTION”

DR. SUSAN HUBBARD

LAWRENCE BERKELEY NATIONAL LABORATORY, BERKELEY, CA

Wednesday, April 18, 2018

4:00 p.m. - Coolbaugh 209

Quantifying how terrestrial systems respond to climate change and other perturbations is challenging due to the complexity of associated processes that occur from bedrock-to-canopy and over a wide range of spatial and temporal scales. This presentation will describe the development of several new approaches to help bridge these compartments and scales. The new approaches integrate disparate geophysical, hydrological, geochemical and microbial datasets, many collected autonomously. We first explore the use of new characterization approaches in an Arctic tundra ecosystem, where increasing temperatures are thawing the permafrost, potentially leading to significantly increased production of greenhouse gases. We then discuss the use of new methods to quantify the structure and function of a mountainous watershed in the Upper Colorado River Basin, where droughts and early snowmelt may influence downgradient water availability and water quality. The recent advances are leading to insights about how these systems function and respond to perturbations - from local scales (where native processes occur) toward watershed scales (that are relevant for managing natural resources).



Dr. Susan Hubbard

As the Associate Lab Director for Earth & Environmental Sciences at Berkeley Laboratory, Dr. Hubbard leads a premier group of scientists with expertise in climate science, terrestrial ecosystem science, environmental and biological system science, fundamental geoscience, and subsurface energy resources.

Susan's research focuses on quantifying how terrestrial environments function, with a particular emphasis on using geophysical methods to explore how hydrological, geochemical and biological processes interact to govern larger scale system behavior. She earned her PhD in Civil and Environmental Engineering at UC Berkeley, where she has been recognized as a Distinguished Alumni. Prior joining Berkeley Lab, she was a geologist at the US Geological Survey and a geophysicist in industry. She founded the American Geophysical Union (AGU) Hydrogeophysical technical committee and co-edited the first book on Hydrogeophysics.

Dr. Hubbard has served on many scientific advisory and editorial boards, including the California Council of Science and Technology (CCST). Susan is Fellow of AGU and GSA, is a recipient of the SEG Frank Frischknecht and SEG Hal Mooney Awards, and has been recognized as a Birdsall Dreiss Distinguished Lecturer.

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