

2011 Campbell Lecture

in Environmental Soil and Water Science

Dr. John Selker

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Engineering, Oregon State University*

**Discovery between the cracks:
Measurements to address
the unknowns of soil water
dynamics and ecohydrology**

Wednesday, March 23, 2011

4:10 p.m in Todd 216

Reception to follow

Videotape available at <http://experience.wsu.edu>

This talk will discuss the importance of connecting key open questions to the opportunities presented by emerging technologies. This strategy will be demonstrated moving from scales of the soil core, to full trees, to landscapes. Specific applications will include soil swelling, canopy interception, and groundwater/surface water interactions. Technologies discussed will include fiber optic Raman sensing, 3-dimensional accelerometers, IV-bags from hospitals, and potato cannons. The goal is to demonstrate the importance of connecting scientific need to appropriate technologies, which leads to diverse, and sometime amusing methods that have remarkable power to address gaps in understanding of complex hydro-ecological systems.

Dr. John Selker has worked as a consulting engineer in the USA, Kenya, Somalia, Sri Lanka and England. His areas of expertise include electronic design (e.g., lead engineer on the Sun Microsystems optical mouse project), irrigation and water systems, and development projects. Since completing his doctoral studies Dr. Selker has been a professor in the department of Biological and Ecological Engineering at Oregon State University for almost 20 years focused on Water Resources Engineering. He has published a book, as well as more than 110 peer reviewed publications related to Water Resources Science and Engineering. He is currently the leader of the National Science Foundation Center for Transformative Measurement Programs, and Editor of a leading research journal on water resources, *Water Resources Research*, and associate editor of *Advances in Water Resources*, and *The Journal of Chilean Agriculture*. Many of his projects blend novel sensing methods with critical water resource management problems. He is currently leading efforts to employ fiber optic methods for environmental sensing, with projects across Europe and the USA.

The Campbell Lecture was created to help further understanding of environmental soil science. It is named for Gaylon Campbell, who spent nearly 30 years as a professor of environmental biophysics and soil physics in the WSU's crop and soil sciences department. He retired from WSU in 1998 to become vice president of engineering at Decagon Devices, a local manufacturer of biophysical research instrumentation. The lecture was created through gifts from Campbell Scientific, Inc., and Decagon Devices, Inc.

