DTS down to Earth:

Principles, Applications, Operational Factors, and Demonstrations for Environmental Sensing

July 22, 2010

Univ. of Colorado at Boulder

Please check in at:
Center Green 1 Bldg, 3080 Center Green Dr.

Summary
The temperature of standard fiber optic cables can be read as finely as every 0.25m, and lengths up to 30 km as frequently as every second with resolution 0f up to 0.01 deg C using Distributed Temperature Sensing (DTS). Sounds great? It is, but you can't get all of these specs at the same time! So what are the opportunities and limitation of this technology? This workshop presents an overview of the technique, including discussion of applications to date, fiber and instrument selection, fiber placement, fiber repair, data acquisition, and data analysis. The workshop will be held at the University of Colorado campus. In addition to lectures, the participants will handle the equipment, and observe demonstrations of all the operations required to employ this technique. The goal of the workshop is to provide enough information for participants to accurately identify the potential role of this method in their research. This workshop is part of a new NSF funded center which has made five complete DTS systems available to the community though the CTEMPs DTS center led by Drs. Tyler and Selker.

Instructors:
John Selker – Oregon State University (selkerj@engr.orst.edu)
Scott Tyler – University of Nevada, Reno (styler@unr.edu)

Sponsors:
The National Science Foundation EAR Instrumentation and Facilities Program
The Consortium of Universities for the Advancement of Hydrologic Sciences (CUAHSI, HMF);
Center for Transformative Environmental Monitoring Programs (CTEMPs)
Oregon State University; University of Nevada Reno

Participation: (Limited to 75 participants; by order of registration)
Registration: To reserve a space, contact Susan Atkisson at Susan.Atkisson@oregonstate.edu: Registration is not binding until payment is received.
Cost: $150 USD includes snacks, lunch, and materials. A $75 discount for the first 25 current students. Please you're your checks payable to "Oregon State University" and send them to the attention of Susan Atkisson at Biological & Ecological Engineering, 116 Gilmore Hall, Corvallis, OR 97331. **We do not accept credit card payments**.

Program:

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7:00 - 8:15	Registration
8:15-8:30	Introduction to the Workshop (Selker)
8:30-9:00	Introduction to fiber-optic sensing - Part 1: The Physics (Tyler)
9:00-9:30	Introduction to fiber optic sensing – Part 2: Instrumentation (Selker)
9:30-10:15	Installations to date (Selker, Tyler)
10:15-10:45	Coffee break and first chance to see equipment
10:45-12:00	Introduction to fiber optic sensing – Part 3: fiber selection and calibration. (Selker, Tyler)
12:00-1:00	Lunch
1:00-1:30	Introduction to fiber optic sensing – Part 4: installation and power (Selker)
1:30-2:00	Repairing fiber: fusion splicing and making junctions in the field (Selker, Tyler)
2:00 -3:00	Industrial and Academic panel discussion of DTS opportunities and challenges
3:00 -3:30	Coffee break
3:30-5:30	Demonstrations of: fiber installation, fusion splicing, DTS setup, data collection, data analysis.
5:30 -7:30	Snacks and no-host bar with opportunity to work with instruments and talk to vendors