B2 Earthscience

B2 Cyberinfrastructure and Instrumentation Workshop Agenda
"ACCELERATING RESEARCH AND DISCOVERY"
May 8 & 9, 2008

Objectives

- Plan out the sensor network and cyberinfrastructure
- Outline a review article on "Coupling experiments and field observations in the age of ecological informatics"
- Plan for opportunities to facilitate future work discussions – e.g. NSF meeting funding, etc.

Thursday, May 8

7:45AM: Breakfast
9:00AM: Welcome / Objectives – Darrel Jenerette
9:30AM: Overview of B2 and planned experimentation – Travis Huxman
10:00AM: An informatics framework – B2 Collaboratory – Salim Hariri
10:30AM: Coffee break
10:45AM: State of art in instrumentation – Paul Flikkemma
11:15AM: Breakout Session 1 – Defining science objectives for cyberinfrastructure and instrumentation by multidisciplinary groups
12:15PM: Report each group / general discussion
1:00PM: Lunch
2:00PM: Overview of operations capabilities - on site engineer
2:30PM Breakout Session 2 – Sensor and network fundamentals
By discipline – H20 / Geochemical, Carbon/Nutrients, Energy and above ground, Network architecture
4:00PM: Recap each group / general discussion
4:00PM: Breakout Session 3– How do we couple outside and under-the-glass research?
5:30PM: B2 tour / Cosmic ray soil moisture observing system(COSMOS)demonstration
6:00PM: Reception
7:00PM: Dinner

Friday, May 9th

7:45AM: Breakfast
9:00 AM: Recap from yesterday – Darrel Jenerette
9:30 AM: Current modeling overview and uses for decision making – Peter Troch
9:50AM: Breakout Session 4 - Constructing the sensor arrays (same groups as breakout 2)
11:20AM: Whole group recap (Breakout 4) and discussion (Breakout 3)
1:00PM: Lunch and free time for informal discussions
2:00PM: End of Day

Participants

Confirmed: Leif Abrell, John Adams, Ali Akoglu, Greg Barron-Gafford, Derik Barseghian, Paul Brooks, Jon Chorover, Katerina Dontsova, Javier Espeleta, Blake Farnsworth, Paul Flikkema, Rick Garcia, Salim Hariri, Travis Huxman, Kolby Jardine, Darrel Jenerette, Rich Jorgensen, Shirley Kurc, Donald Lenschow, Chris Mantzios, Joe Martinez, Jeff McDonnell, Tom Meixner, Manish Parashar, Mitch Pavao-Zuckerman, Jon Pelletier, Craig Rasmussen, Clark Reddin, Russell Scott, Jielun Sun, Peter Troch, Markus Tuller, Joost Van Haren, Brad Wilcox, Michael Young, Xubin Zeng

Unconfirmed: Mike Allen, Steve Archer, Oliver Chadwick, Sharon Desilets, Bo Eberling, Brian Enquist, Paul Ferre, Ferran Garcia-Pichel, Chris Graham, Eric Graham, Lianhong Gu, Maite Guardiola, Alex Guenther, Erik Hamerlynck, Mike Hamilton, Luisa Hopp, Alfredo Huete, Sofia Kling, Praveen Kumar, Tony Lewis, Peter McCartney, Claudio Paniconi, Phil Rundel, Marcel Schaap, John Selker, Mike Taggert, Aaron Thompson, Ann Tyler, Larry Venable, Larry Winter, Soni Yatheendradas, Chris Zhou, Marek Zreda

Unable to Attend: Henry Adams, Joe Berry, Dave Breshears, Deborah Estrin, Ciaran Harman, Arjun Heimsath, Bruce Hungate, Michael Keller, Peggy Lemone, Kitty Lohse, Russell Monson, Kiona Ogle, Bill Reiners, Scott Saleska, Murugesu Sivapalan, Stan Smith

Break Out Session Thought Questions

1 – Defining science objectives for cyberinfrastructure and instrumentation

What questions need the cyberinfrastructure / instrumentation (CI) planned for the B2? How will the B2 CI help advance science?

Define a mission / vision statement for the CI components. What are the objectives for the CI? What are the minimum requirements for the CI? What would be added bonus capabilities?

2 – Sensor and network fundamentals

Sensor Groups

We want a fairly complete list of long-term deployable sensor technologies currently available and in near term development. With this list should include recommendations implementation in the hillslope experiment. A useful product would be a table with parameter measured, instruments, response characteristics, suitable range, recommendations / warnings, cost.

What are the general characteristics for evaluating different sensor options? How would you make choices among different sensor technologies?

Informatics Groups

What are the challenges in developing the software architecture?

3– How do we couple outside and under-the-glass research?

What are relevant data streams outside the B2 that should be incorporated? What questions are addressed with the joint B2 experiment and field monitoring?

What are compelling questions for an integrated study with both B2 and outside components? How are the B2 and field data linked -- conceptually? Quantitatively?

4 - Constructing the sensor arrays?
What are the criteria for evaluating the location of sensors?

Develop a strawman design -- where would you place sensors? How often would they measure? What key process(es) are you hoping to describe with the resulting data. What might be potential other uses of the data?