

Eco-Informatics & Decision Making
Defining Research Objectives for Digital Government for Ecology
December 13-15, 2004
The Evergreen State College
Olympia, Washington

Decision makers at non-governmental organizations and at all levels of government face significant information technology problems as they integrate ecological or environmental information to manage resources or carry out policy. This workshop aims to identify new computer science and social science research and technology that will specifically support ecological and environmental decision makers. The outcome is a report that will be used by sponsoring agencies (and others) to guide future information technology research efforts. In particular, the National Science Foundation plans a Request for Proposals during 2005.

Biodiversity and Ecosystem Informatics (BDEI) Workshops¹ have been funded by the National Science Foundation (NSF), with sponsorship of USGS/NBII, NASA, and the EPA.

Session I. Setting the Stage. Monday 5pm to 9pm– Dinner on Campus, Sem 2, A1107.

This session sets the stage for the workshop with summaries of two past Biodiversity and Ecosystem Informatics (BDEI) Workshops and the PCAST Report. It also uses a case study and the experience of a government decision maker to articulate the role of data and information in Ecology and Environmental Decision Making.

- 4:30, 4:45, 5:00 TESC Vans pick up participants from the Ramada Inn
- 5:00-5:30 Reception and Registration.
- 5:30 Dinner. Introductions at Tables.
- 6:00pm (15 min) Welcome and Overview of Workshop, and Summary of two earlier Biodiversity and Ecosystem Informatics workshops (**Judy Cushing**).
- 6:15 (10-15 min) the NSF Point of View (**Sylvia Spengler**).
- 6:30 (20 min) Dessert and The PCAST report (**John Schnase**).
- 7:00 (20 min) NSF Digital Government Research Case Study, EPA-AIR – Automating the Integration of Heterogeneous Databases. Computer Scientist **Ed Hovy** (ISI, USC). This project also has social science collaborators <http://www.neisgei.org/epa-air/intro/>.
- 7:30 (20 min) Government Decision Maker viewpoint, **William Sonntag** (EPA).
- 8:00 (20 min) Small Group (Dinner Table) Discussions and Feedback to Plenary.
- 9:00 Adjourn; Vans and private cars take participants back to Hotel.

Session II. The Problem Space. Tuesday 8:30am to 1:30pm This session will articulate the eco-informatics decision making problem space.

7:45, 8:00, 8:15 – Vans pick up at hotel. Coffee and Tea will be available at 8am.

II. A. Plenary Panels 8:30-10:30, Sem 2 A1105: This session will articulate for workshop participants what's involved in Eco-Informatics decision making, how ecological and environmental data and information (broadly defined) are now provided to government and NGO decision makers, and issues that information providers confront. **William Sonntag** will coordinate this panel.

1. **45 min. Panel -- Rich Guldin** (USFS), **Molly O'Neill** (ECOS), and **Larry Sugarbaker** (NatureServe) talk about providing information to decision makers.
2. **25 min John Schnase** (20 min) on NASA's eco-informatics decision making requirements gathering and their state of the art, and how NASA makes remotely sensed raw data available for decision makers.
3. 40 min NSF Digital Government and ITR Research Coastal Management Case Studies:

¹ www.evergreen.edu/bdei

- a. (20 min) Digitalization of Coastal Management and Decision-Making Supported by Multi-dimensional Geospatial Information and Analysis, **Ron Li** (Ohio State University) <http://shoreline.eng.ohio-state.edu/research/diggov/DigiGov.htm>
 - b. (20 min) The Oregon Coastal Atlas, **Dawn Wright** (Oregon State University) and **Paul Klarin** (Oregon State's Ocean-Coastal Management Program). Ecotrust. <http://www.coastalatlant.net/> is also a collaborator on this project.
4. 5 min. Breakout group I assignment (**Tyrone Wilson**).

10:35-10:50 < Break >

II. B. Breakout Groups I 10:50-12:45, All in Sem 2, A Wing. Five breakout groups will each explore one aspect of providing ecological and environmental information to decision makers, and articulate that problem space. In other words, they will articulate the problems faced by providers and users of ecological and environmental information.

- Policy (1105). Leader : **Charlie Schweik**
- Data Presentation (2105) Leader: **Carol Hert**
- Data Gaps (2107) Leader: **Kevin Gergley**
- Tools (3105) Leader: **Mike Frame**
- Indicators (3107) Leader: **Steve Young**

II. C. Breakout Group Report Out at 1:00. Prior to lunch, each group will report out with a 3 minute summary of the three biggest issues they identified (two overheads maximum). **Tyrone Wilson** will convene this session.

Session III. Articulating the Research Issues. Tuesday, 1:30pm-9:00pm. This session focuses on how problems identified in the first breakout session relate to five specific information technology (IT) areas.

III. A. 1:30-3pm Lunch and Speakers. NSF Digital Government Researchers will present Case Studies to articulate the research issues they are addressing, and how they are going about conducting that research with their interdisciplinary and government partners. **Val Gregg** will convene.

- Harvesting Information to Sustain our Forests, **Lois Delcambre** (Portland State University), with her USFS, BLM and social science collaborators, <http://www.cse.ogi.edu/forest/>.
- UrbanSim (integrating land use, transportation, and public policy to plan and analyze urban development. **Alan Borning** (University of Washington) and collaborator **Mark Simmons** (Puget Sound Regional Council) <http://www.urbansim.org/>.
- Integrating Data and Interfaces to Enhance Understanding of Government Statistics: Toward the National Statistical Knowledge Network, **Carol Hert** (not yet confirmed) (University of Syracuse) and collaborators, <http://ils.unc.edu/govstat/>.
- (15 min) Comments on how this informs the morning reports, and leads to the afternoon breakout assignment.
- (5 min) Breakout group II assignment (**Judy Cushing**).

2:45-3:00 <Break >

Session III. B. 3:00 –4:45pm. Breakout Groups II, All in Sem 2, A Wing. Each breakout group will focus on how problems identified in the morning breakout session relate to the specific information technology (IT) areas below. This session takes the mission one step farther by identifying and articulating specific research issues involved in eco-informatics decision making. Numbered leaders are the same from the morning breakout, serially:

- Human Centeredness – incl. best practices, training, technology transfer, HCI (1105) Leader: **Eric Landis**.
- Modeling/Simulation incl. community models (2105) Leader: **Alan Borning**,

- Data Quality (2107) Leader: **Julia Jones.**
- Integration (3105) Leader: **Lois Delcambre.**
- Ontologies (3107) Leader: **Ed Hovy.**

4:45 and 5:00 – Vans leave for Hotel.

Session III. C. 6:00pm – 9pm. Dinner at Anthony’s Home Port Restaurant (near Hotel). Breakout Groups report out with suggested research issues. This is followed by discussion, clarification and integration. Particular issues for discussion the following morning will be solicited. **Judy Cushing** will facilitate this session.

5:30 and 5:50 – Vans will pick up at the hotel for those who want to ride. The room is available from 5:30 on in case anyone would like to gather early. Finger food will be served from 6pm on, and Dinner will be served at 6:45. Breakout II reports at 7:30 (10 min each w 5 min max questions, followed by general feedback from floor. Adjourn at 9:15).

To walk or drive to Anthony’s from the Hotel: Turn left (west?) onto Capitol as you exit the hotel; stay on Capitol until it ends at the Farmer’s Market. Anthony’s is the large, tan building directly to the left, across the parking lot.

Session IV. Refining the Research Agenda – Why it Matters. Wednesday. 8:30am-NOON.

IV. A. The Greybeards. 8:30-9:30. Senior scientists and decision makers from a variety of disciplines will comment on and critique the breakout group reports from the previous evening. **Mike Frame** will convene this session.

Frank Biasi (Nature Conservancy), Geoff Bowker (Santa Clara University), Marie (Cindy) Denn (USPS Resource Manager), Stefan Jensen (representative from the European Environmental Agency), Phillippe Rossignol (Oregon State University), Nancy Tosta (Ross and Associates)

Break: 9:30-9:45

IV. B. Breakout Groups III 9:45-11:45(2 hrs). A third breakout sessions will both refine their set of research issues and illustrate the research issues with a scenario that shows how the research will address a real-world problems identified Monday evening and in the first breakout session. A written list of problems identified in BreakOut I and of research issues from BreakOut II will be available to all participants Wednesday morning.

IV. C. 12:00 – 1:30.Lunch, Report Out and Farewells. The breakout sessions report out with final list of research issues (one slide) and a scenario showing how that research addresses one specific decision making problem. The report authors facilitate workshop wide discussion to identify still-missing pieces, and articulate the criticality of the proposed research to the scenarios that are drawn.

Farewell, Thanks, and the future of eco-informatics and decision making at NSF, USGS, NASA, EPA - **Larry Brandt , Mike Frame, John Schnase, Bill Sonntag. Val Gregg** will convene this session.

Session V. 2pm – 5pm. Getting the Word back to Funding Agencies and out to the Research Community. Breakout Group Leaders, with some members of the Workshop Steering Committee, will finalize breakout group reports, and edit a First Draft of the Workshop Report. Breakout group leaders will circulate their reports to participants within a week of the workshop, and the full report will be sent to participants and funding agencies (NSF, USGS, NASA) by January 15, 2005.

NSF currently anticipates a March 2005 program announcement, with proposals due in June.