

2009 Bonanza Creek LTER Symposium

Charge to the Breakout Groups:

In the LTER proposal, we proposed to study the dynamics of climate driven change in four primary steps, which have served as breakout focus areas at our annual symposium over the four years of our current LTER grant: (1) Climate Sensitivity in 2006; (2) Successional Dynamics in 2007; (3) Thresholds Changes in 2008; (4) Integration in 2009. So our breakout groups for this year's symposium are specifically focused on making progress in the integration of the modes of climate response across multiple temporal and spatial scales and to explore their societal consequences. We proposed a set of field and modeling activities that integrate processes across scales and explore their societal consequences. These were defined within three broad questions and six specific tasks:

1. How are boreal ecosystems responding, both gradually and abruptly, to climate warming, and what new landscape patterns are emerging?

Task I/S1. *Monitor patterns of retention and loss of water, carbon, and nitrogen from watersheds of differing permafrost extent and stability.*

Task I/S2. *Document the temporal and spatial patterns of vegetation distribution and their interaction with climate.*

Task I/S3. *Integrate research on gradual and abrupt responses of boreal ecosystems to climate warming to assess recent and projected changes.*

Task I/S4. *Use ecosystem and landscape models to assess the regional consequences of state changes and threshold responses to climate change.*

2. What are the societal consequences of recent and projected changes in Alaska's boreal forest?

Task I/S5. *Summarize recent and projected changes in boreal ecosystem services and assess their consequences for Alaskan communities.*

3. How can we contribute most effectively to within-site and cross-site synthesis?

Task I/S6. *Use monthly and annual meetings to synthesize systematically our major research themes and to place this in a global context.*

The overall goal of the breakout group activity in today's symposium is to help put together a road map of how we achieve effective integration of the modes of climate response and in so doing ultimately generate integration/synthesis products that demonstrate we've successfully answered our broad stated questions.

To accomplish this, we will break into four groups organized around different aspects of our integration component:

- Linking moisture dynamics with issues of energy balance and element cycling and storage (Harden, Valentine, and Romanovsky).
- Linking site, stand, landscape and regional patterns and processes: how small-scale studies inform regional modeling and emergent patterns (Yarie, Taylor, and Verbyla)
- Changing fire regime and its impacts on ecosystem processes (Johnstone, Mack, Hollingsworth)
- Human effects on stand, ecosystem, and landscape dynamics (Kofinas, Rupp, and Kielland)

Each of the breakout groups should address the following issues:

1. How can we most effectively integrate across multiple temporal and spatial scales?
2. What are the potential societal consequences associated with the modes of climate response?
3. What integration product(s) should we work towards producing over the next year?
4. What technology transfer needs might be required to generate effective integration products?
5. What "integration" talks specific to your particular breakout group should we organize for the monthly BNZ LTER meeting that we will hold over the next year? Please identify both speakers and titles. For each breakout group, we should identify a minimum of two talks, but feel free to propose more talks if there is interest.