

Poster #9-39**The AmeriFlux Rapid Response System**

Sebastian C. Biraud^{1*}, Stephen W. Chan¹, Marcy Litvak², Rosvel Bracho³, Ross Hinkle⁴, and Margaret S. Torn¹

¹ Lawrence Berkeley National Laboratory, Berkeley, CA;

² University of New Mexico, Albuquerque, NM;

³ University of Florida, Gainesville FL

⁴ University of Central Florida, Orlando, FL

Contact: SCBiraud@lbl.gov

BER Program: TES

Project: AmeriFlux Management Project

Project Website: <http://ameriflux.lbl.gov/>

The AmeriFlux Management Project has three Rapid Response flux systems that we loan to scientists to take advantage of unique research opportunities that arise quickly, or may have short measurement windows. Such situations might include: measuring ecosystem fluxes following a disturbance, such as a wildfire, an infestation of borer beetles, or a habitat restoration.

Researchers may need to quickly start useful measurements of ecosystem response and recovery. They might plan to make measurements just for a short time or they may plan to seek funding to purchase a system for long-term measurements and use the Rapid Response flux system to fill the gap in time until that process is successful.

In this poster, we present preliminary results from two deployments of Rapid Response systems following:

- A wildfire disturbance in New Mexico that burned the Valles Calera National Preserve in May 2013, where two AmeriFlux sites were established in 2006 in ponderosa pine forest and subalpine mixed conifer forest. These sites are the two highest elevation sites in the New Mexico Elevation Gradient (NMEG) study led by Marcy Litvak. The Ponderosa pine site did not burn, but the mixed conifer forest experienced a stand-replacing fire. The rapid response system deployment enabled monitoring of short-term changes in carbon, water, and energy fluxes immediately following the burn and quantification of how these fluxes change as the forest recovers.
- A plant species composition change that is underway in Florida coastal wetlands, where mangroves are invading coastal wetlands. A flux tower system was setup in a *Spartina* and *Juncus* marsh (no mangroves yet) in 2017 as part of this study. A Rapid Response system was installed in late 2017 into a mangrove-invaded *Spartina* Marsh (US-KS4). The pair of flux towers could provide answers to changes caused by the “lignification of graminoid marshes”.