

## **Title: The AmeriFlux Rapid Response System**

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The AmeriFlux Management Project (AMP) technical services enable AmeriFlux to maintain high-quality data, with comparability and continuity of observations across the network, and to support innovation. The team helps AmeriFlux sites adhere to high data-collection standards and provides technical support and resources to the community.

AMP has three Rapid Response flux systems available to take advantage of unique research opportunities that come up suddenly, 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. Site PIs may need to start measurements quickly, and/or they may plan to seek funding to purchase a new system for long-term measurements. The Rapid Response flux system can fill the gap in time or they might make measurements just for a short time.

In this poster, we will present preliminary results from three deployments of the rapid response systems:

- A plant species composition change is underway in Florida coastal wetlands, where mangrove is invading coastal wetlands. A flux tower system has been setup in a *Spartina* and *Juncus* marsh (no mangroves yet) in 2017 as part of this study. A Rapid Response system has been 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”.
- A large-scale irrigation experiment in rice fields in Arkansas (PI: Ben Runkle, May 2019–Nov. 2020). Measuring methane emissions on adjacent fields over three growing seasons where different management practices are employed will enable researchers to quantify the degree to which this irrigation practice can reduce methane production.

A pinyon-juniper recovery following severe drought in southern Utah (PI: Dave Bowling, June 2019–May 2022). This recently installed tower at Cedar Mesa in the middle of Bear's Ears National Monument (US-CdM) will let the researchers understand how carbon and water fluxes are affected as this ecosystem recovers and/or mortality continues.