

Insights from Wildfire Research: Air quality, monitoring technologies, and post-fire soils - Webinar

Student Presentations and Panel Discussion

Tuesday 3 March 2026, 11:00-12:30

Data collection for the HDRFS project. Photo courtesy of the Desert Research Institute.

Graduate students will present their research on three topics from the Desert Research Institute's *Harnessing the Data Revolution for Fire Science* (HDRFS) project, followed by discussion.

Topics and Presenters

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Air quality, wildfire, and smoke – Bianca Martinez. Emissions from wildfire in the sagebrush ecosystem are unique and can vary significantly with fuel condition, fuel loading, and moisture levels. This talk shares results from experimental burning of Great Basin vegetation, including the type and amount of air pollutants released, and combustion conditions. The findings of this research are relevant to prescribed fire and fuel treatment planning, and improving smoke management and public warnings.



Technology for real-time monitoring over large distances – Jehren Boehm. Monitoring environmental conditions across large distances in remote areas is challenging. This work focuses real-time monitoring of air, snow, and soil conditions with greater spatial resolution and lower cost. By leveraging existing fire camera networks with robust power systems and reliable internet connectivity, widely distributed low-cost wireless sensors can fill knowledge gaps that would otherwise rely on modeling.



Post-fire soils and water repellency – Conor Croskery. This research is focused on determining if water repellent soils are present in sagebrush ecosystems before wildfire, how the distribution of these soils changes after fire, and if there is a relationship between how much water can be stored in the soil if water repellent soils are present after fire. This presentation shares early results on the prevalence of water repellent soils in proximity to sagebrush before and after fire, as well as comparisons of soil moisture beneath the surface.

