

**Dr. Daniel Keyser**  
**Department of Earth and Atmospheric Sciences**

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**The Detection and Diagnosis of Dry Air Aloft and its Potential Impact  
on Fire Weather in the Eastern United States**

The proposed study applies to RWU-FS-NRS-06 problem area 1, “core fire science and fire-environment interactions.” Specifically, the study will focus on diagnosing the presence of dry air aloft and the potential for this dry air to be transported to the surface such that it can influence fire danger and fire behavior. The study will employ mesoscale numerical weather prediction (NWP) models and coupled fire-atmosphere models to develop appropriate diagnostics and assess their potential application to fire-weather forecasts and predictions of fire danger and fire behavior. Surface and upper-air meteorological observations, as well as selected fire-danger and fire-behavior data from individual fires, will be employed to validate the performance of the models and support the physical arguments used to design the diagnostics.