



2025-2026 EOAS Colloquium Series

Where there's fire, there's smoke: fires and air quality in the eastern United States

Fires are widespread and frequent across the eastern United States, as they are used extensively for wildfire mitigation, ecosystem management, and disposing of biomass debris from agriculture and land clearing. Historically, the extent of these fires has been underestimated due to the lack of comprehensive burn records and the difficulty of detecting small, short-duration fires from satellites. Our analysis of fire records finds that prescribed fire policy in Florida is successfully interrupting the natural moisture controls on fire, reducing wildfire risks for the state. We use improved fire detections from geostationary satellite instruments (Advanced Baseline Imager (ABI) on GOES) and a new compilation of locally specific emission factors to develop a new biomass burning inventory for the eastern U.S. We use this emission inventory in an atmospheric chemistry model to simulate air quality across the U.S. and evaluate the model with aerosol measurements from the surface, satellites, and aircraft. The new inventory fits these observations better than multiple other emission inventories and suggests that fire emissions are higher than most previous estimates with air quality impacts 2-4 times larger than previous assessments. We discuss the implications for health and prescribed fire management.



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Time: 3:00 PM, Friday, September 19, 2025

Location: EOA 1044

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