

ACOM Seminar

Impacts of Fires on Air Quality in the Eastern United States

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Link: <https://operations.ucar.edu/live-acom>

ABSTRACT

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. We use the improved fire detections from the Advanced Baseline Imager (ABI) on GOES-16 and a new compilation of locally specific emission factors to develop a new biomass burning inventory for the eastern U.S. Using the GEOS-Chem atmospheric chemistry model, we evaluate the emissions against constraints from observations of surface $PM_{2.5}$, aerosol optical depth (AOD), and FIREX-AQ. The new inventory fits these observations as well or better than multiple other emission inventories and suggests that fire emissions are likely at the upper end of the wide range of previous estimates. We quantify the impacts on air quality in the eastern U.S. and discuss the implications for prescribed fire management.

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