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Chemical Aging of Biomass Burning Organic Aerosol: Insight from Airborne Extractive Electrospray Mass Spectrometry (EESI) Measurements

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Fast, quantitative measurements of the chemical composition of organic aerosol (OA) is necessary to characterize OA sources, aging, and fate. To meet this need, we carried out airborne extractive electrospray time-of-flight mass spectrometry (EESI) measurements of OA composition during the 2019 Fire Influence on Regional to Global Environments and Air Quality (FIREX-AQ) mission on the NASA DC-8. We show successful 1-Hz EESI quantification of individual OA components within smoke plumes, allowing for investigation of biomass burning OA emissions and aging at the near-molecular level. Combined with Aerosol Mass Spectrometry (AMS) measurements of bulk OA, EESI measurements provide direct evidence for balanced rates of secondary OA production and primary OA loss as smoke plumes age.

Monday, September 14, 2020, 3:30 p.m

Virtual refreshment 3:15 p.m

Live webcast: https://operations.ucar.edu/live-acom

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