

Wildfire-Urban Continuum in Aerosol Properties over Thailand: A Discussion from the Airborne and Satellite Investigation of Asian Air Quality (ASIA-AQ) Field Campaign

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Abstract

To advance the understanding of the air quality status, pollution transport, and the composition of atmospheric aerosols and trace gases over South-east Asia, NASA's Airborne and Satellite Investigation of Asian Air Quality (ASIA-AQ) flight campaign combined multi-perspective data (aircraft, satellite, and ground). The NASA DC-8 aircraft was deployed over major cities of the Philippines, South Korea, Thailand and Taiwan for multiple science flights to measure a wide range of real-time aerosol properties, trace gases and meteorology during February and March 2024. While the influences of the varied meteorology and emission sources at each study region were well observed during the campaign, this piece of work comprehensively characterizes the aerosol microphysical, chemical, and optical properties along with gaseous composition of two contrasting locations in Thailand. Chiang Mai is known to experience heavy biomass burning from forest fires and open burning of agricultural wastes during dry-season (February-April), whereas Bangkok has majorly urban influences. Particle number size distribution (PNSD) analysis along with optical properties will be used to delineate the urban and wildfire influences. Gaseous constituents will be used as markers of biomass burning to gain deeper insights. Further, the meteorological influence and possible transport of pollution will be discussed.

Early Career Scientist

YES, I am an early career scientist.

IGAC Activities

ACAM: Atmospheric Chemistry and the Asian Monsoon, GEIA: Global Emissions Initiative, MAP-AQ: Monitoring, Analysis and Prediction of Air Quality, BBURNED: Biomass Burning Uncertainty: ReactionNs, Emissions and Dynamics