

## Regional contributions to primary and secondary inorganic components of particulate matter in India

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Source-oriented versions of the Community Multiscale Air Quality (CMAQ) model were used to estimate the contributions of different sources and regions to primary and secondary inorganic components (including elemental carbon, organic carbon, sulfate, nitrate, and ammonia) of particulate matter (PM) in India using Emission Database for Global Atmospheric Research (EDGAR) and Weather Research & Forecasting (WRF) model for meteorological inputs. The whole year 2015 was simulated with emissions grouped to seven sectors and nine regions. Seasonal variations in contributions of different sources and regions to major cities in Delhi were analyzed. Results indicate that while residential burning was the dominant source of PM during winter, open burning dominated during pre-monsoon. The source-region analysis indicates that Haryana-Punjab, Rajasthan, Haryana-Punjab and Uttar Pradesh regions were contributing to major fractions of primary and secondary inorganic PM in Delhi during winter, pre-monsoon and post-monsoon seasons.

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