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Title:	Appraisal of regional haze event and its relationship with PM2.5 concentration, crop residue burning and meteorology in Chandigarh, India
Authors:	Sinha, V. (/jspui/browse?type=author&value=Sinha%2C+V.) Sinha, B. (/jspui/browse?type=author&value=Sinha%2C+B.)
Keywords:	Crop residue burning Poor visibility Urban haze episode PM2.5
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Abstract:	Air pollution affects not only the air quality in megacities but also in medium and small-sized cities due to rapid urbanization, industrialization, and other anthropogenic activities. From October 28, 2015 to November 3, 2015, the Indo-Gangetic Plains region, including Chandigarh encountered an episode of poor visibility during the daytime. The daily average PM2.5 concentration reached 191 µg/m3, and visibility reduced by ~2.2 times in the Chandigarh region. PM2.5 concentration was found around 4 times higher than a non-haze day and more than 3 times higher than National Ambient Air Quality Standards for 24 h. A significant correlation between PM2.5 and CO (r: 0.87) during the haze period indicated similarity in their emission sources; which was attributed to the burning of solid organic matter. Further, satellite data and back-trajectory analysis of air masses showed large-scale rice stubble burning in the agricultural fields, adjoining to the city areas. The transboundary movement of air masses below 500 m and meteorological conditions played a major role in building the pollution load in the Chandigarh region. Moreover, the enhanced concentration of biomass burning tracers, i.e., organic carbon (~3.8 times) and K+ ions (2~ times) in PM2.5 and acetonitrile (~2.3 times) in ambient air was observed during the haze event. The study demonstrates how regional emissions and meteorological conditions can affect the air quality in a city; which can be useful for proper planning and mitigation policies to minimize high air pollution episodes.
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