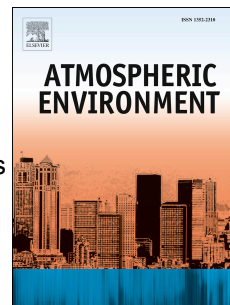


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Chemical composition and characteristics of ambient aerosols and rainwater residues during Indian summer monsoon: Insight from aerosol mass spectrometry

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1 **Chemical composition and characteristics of ambient aerosols and rainwater**
2 **residues during Indian summer monsoon: Insight from aerosol mass**
3 **spectrometry**

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12
13 **Abstract:** Real time composition of non-refractory submicron aerosol (NR-PM₁) is measured via
14 Aerosol mass spectrometer (AMS) for the first time during Indian summer monsoon at Kanpur, a
15 polluted urban location located at the heart of Indo Gangetic Plain (IGP). Submicron aerosols are
16 found to be dominated by organics followed by nitrate. Source apportionment of organic aerosols
17 (OA) via positive matrix factorization (PMF) revealed several types of secondary/oxidized and
18 primary organic aerosols. On average, OA are completely dominated by oxidized OA with a very
19 little contribution from biomass burning OA. During rain events, PM₁ concentration is decreased
20 almost by 60%, but its composition remains nearly the same. Oxidized OA showed slightly more
21 decrease than primary OAs, probably due to their higher hygroscopicity. The presence of organo

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