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| Title: | Massive emissions of carcinogenic benzenoids from paddy residue burning in North India |
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| Keywords: | Atmospheric<br>Chemistry<br>Benzene<br>Cancer |
| Issue Date: | 2013 |
| Publisher: | Indian Academy of Sciences |
| Citation: | Current Science, 104(12), pp.1703-1709. |
| Abstract: | Benzenoids are organic pollutants emitted mainly by traffic and industrial sources. Here, using a combination of on-line in situ PTR-MS measurements of several benzenoids and methyl cyanide (a biomassburning tracer), satellite remote sensing data of fire counts and back trajectory of air masses at a site in Mohali, we show that massive amounts of benzenoids are released from post-harvest paddy residue burning. Two periods, one that was not influenced by paddy residue burning (period 1, 18 : 00-03 : 30 IST; 5-6 October 2012) and another which was strongly influenced by paddy residue burning (period 2, 18 : 00- 03 : 30 IST; 3-4 November 2012) were chosen to assess normal and perturbed levels. Peak values of 3830 ppb CO, 100 ppb NOx, 40 ppb toluene, 16 ppb benzene, 24 ppb for sum of all C-8 benzenoids and 13 ppb for sum of all C-9 benzenoids were observed during period 2 (number of measurements in period 2 = 570) with the average enhancements in benzenoid levels being more than 300%. The ozone formation potential of benzenoids matched that of CO, with both contributing 5 ppb/h each. Such high levels of benzenoids for 1-2 months in a year aggravate smog events and can enhance cancer risks in northwestern India. |
| URI: | https://www.currentscience.ac.in/Volumes/104/12/1703.pdf (https://www.currentscience.ac.in/Volumes/104/12/1703.pdf)<br>http://hdl.handle.net/123456789/2889 (http://hdl.handle.net/123456789/2889) |
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