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Title:	Statistical Analysis of Wintertime Methane Measurements From the IISER Atmospheric Chemistry Facility - A Bottom up Validation of the REAS Methane Emission Inventory
Authors:	George, Tess (/jspui/browse?type=author&value=George%2C+Tess)
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Abstract:	Methane is the second most important green house gas. The large number of methane plumes observed in the ambient measurements at Mohali (30.667° N, 76.729° E) requires special scientific attention, as current emission inventories suggest that area sources such as landfills, agriculture and animal husbandry should be responsible for most of the methane emissions in the vicinity of the measurement site. Plumes typically originate from strong point sources rather than area sources. Background levels of methane over North West –Indo Gangetic Plains were estimated for the first time using statistical tools. Source apportionment of wintertime in-situ measurements of methane was carried out using clustering techniques to understand the emission scenario over the region and validated it with the existing emission inventory for Asia, REAS (v2.1). The emission inventory yearly flux profile around the study site was compared with the data thus obtained and revised according to the observations. The major methane sources other than the area sources were found out to be domestic fuel usage and heating accounting for 18% of total mass concentration. The relationship between heat demand and methane levels were also looked at. Discrepancies between predicted fluxes and observed mixing ratios in the months of October and November point towards a missing source, potentially rice residue burning.
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