



## **Importance of data comparability for multi-year trends and source apportionment of NMHC concentrations observed in France**

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Non Methane Hydrocarbon Compounds (NMHCs) are of interest due to their potential health impact and their key role in atmospheric processes as precursors of secondary pollutants such as ozone ( $O_3$ ) and secondary organic aerosols (SOA). Hourly measurements of 31 non-methane hydrocarbons (NMHCs) were carried out at three urban sites in France over the period of a decade. The trends analysis showed a significant yearly decrease in pollutant concentrations over the study period and for the majority of species in the range of -1 to -7% in accordance with the decrease of NMHC emissions in France (-5 to -9%). Concentrations of long-lived species such as ethane and propane which are known as tracers of distant sources and natural gas remained constant. These trends are consistent with those recently described at urban and background sites in the northern mid-latitudes and with emission inventories. They are compared with the ones reported for 3 French rural sites (EMEP).

A year per year source apportionment study using PMF was also conducted for 2 of the urban sites over the period 2005-2013. Using source fingerprints, five common anthropogenic sources were identified for Paris and Strasbourg: traffic-exhaust emissions ( $21\pm 5\%$ ,  $18\pm 5\%$ ), evaporative sources ( $17\pm 4\%$ ,  $24\pm 7\%$ ), natural gas & background ( $22\pm 5\%$ ,  $25\pm 5\%$ ), residential heating ( $17\pm 4\%$ ,  $17\pm 5\%$ ) and solvent use ( $19\pm 7\%$ ,  $12\pm 5\%$ ). Biogenic sources were also identified and accounted for  $4\pm 1\%$  of the total measured NMHC's at both sites.

Along the presentation, the robustness of these results will be discussed regarding the site representativeness, the data comparability, and the temporal variation of the data quality