

## Atmospheric Chemistry linked to HO<sub>x</sub> radicals of a Suburban Forest during the ACROSS summer Field Campaign

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Paris, one of the largest European megacities, transports pollution to different surrounding areas depending on the variation of the wind direction associated with specific meteorological conditions. The relatively unique situation of this isolated megacity from other urban areas make it a suitable location to study the impact of urban emissions on the chemistry of close biogenic environments such as forests and vice versa. In order to investigate this influence, the ACROSS (Atmospheric ChemistRy Of the Suburban foreSt) field campaign was performed during summer 2022, with a measurement site located in the Rambouillet forest. The combination of the data provided during this field campaign from different research groups (such as measurements of VOCs, inorganic species, particle concentration and composition, ...) will allow a better understanding of the influence of mixing anthropogenic urban or oceanic air masses, leading to different NO concentrations, with biogenic forestry emissions on the oxidation of tropospheric VOCs. This will ultimately help improving this chemistry within atmospheric models. The UL-FAGE instrument was deployed during the ACROSS campaign, where different types of measurements were performed: OH, HO<sub>2</sub>, RO<sub>x</sub> radical quantification at the ground level and OH reactivity. The OH reactivity was alternatively measured at two different levels: below (ground level) and above the forest canopy (top of a 40 m tower). Clear stratification was observed during the night with a higher OH reactivity at the ground level than above the canopy. Comparison between the measured and the calculated OH reactivity allows to identify the diurnal missing reactivity at both levels. Preliminary results of the OH reactivity and the radical quantification will be presented.

### References

[1] Baklanov et al., *Advances in Science and Research*, 4, 115–120, 2010

[2] MEGAPOLI campaign 2009-2010 special issue, [https://acp.copernicus.org/articles/special\\_issue248.html](https://acp.copernicus.org/articles/special_issue248.html) page, accessed 24 May 2019