

# Atmospheric reactivity of organic nitrates: impact on the long-range transport of NO<sub>x</sub>

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Organic nitrates are important species of the reactive nitrogen (NO<sub>y</sub>) budget in the troposphere. They are formed in NO<sub>x</sub> rich air by the degradation of hydrocarbons initiated by OH (daytime) and NO<sub>3</sub> (nighttime) radicals. Since organic nitrates have lifetimes of several days or weeks (1), they can act as reservoirs for reactive nitrogen by undergoing long-range transport in the free troposphere before decomposing and releasing NO<sub>x</sub>. They play therefore a key role in the ozone budget at regional scale, as shown by several modelling studies (2,3).

Among the organic nitrates, a variety of polyfunctional species such as hydroxy-nitrates, carbonyl-nitrates and dinitrates is formed and significantly contributes to the NO<sub>y</sub> budget in both rural and urban area (4). However, their reactivity remains poorly understood so far.

This study aims at providing new kinetic and mechanistic data on the atmospheric reactivity of organic nitrates: photolysis, oxidation by OH and NO<sub>3</sub> radicals. Experiments have been carried in two simulation chambers at LISA. Results on alkyl nitrates, hydroxy-nitrates, keto-nitrates and aldehyde-nitrates will be presented and discussed.

## References

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