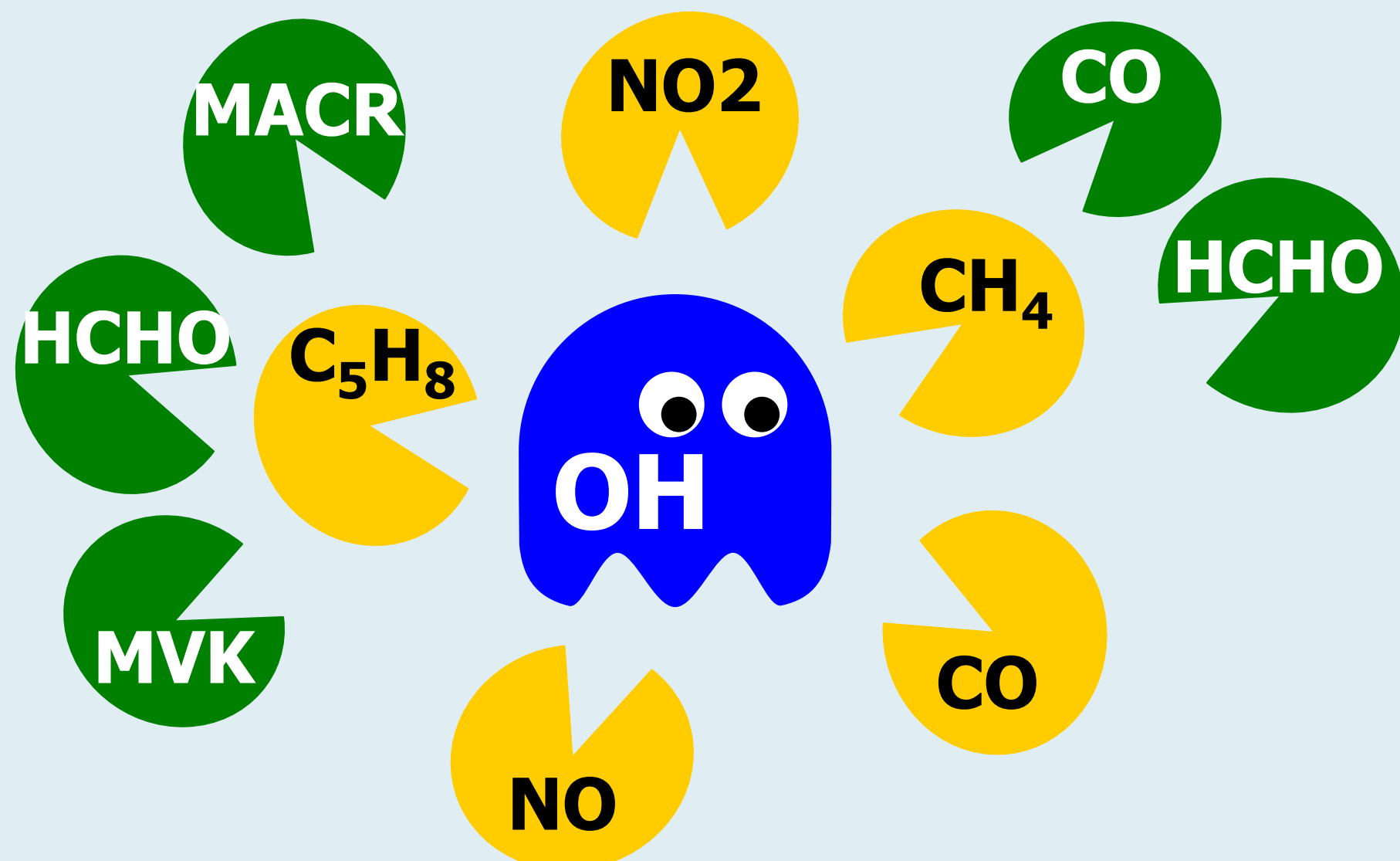


VOC Source Attribution of OH, O₃ and NO₃ Reactivity

Jane Coates and Tim Butler

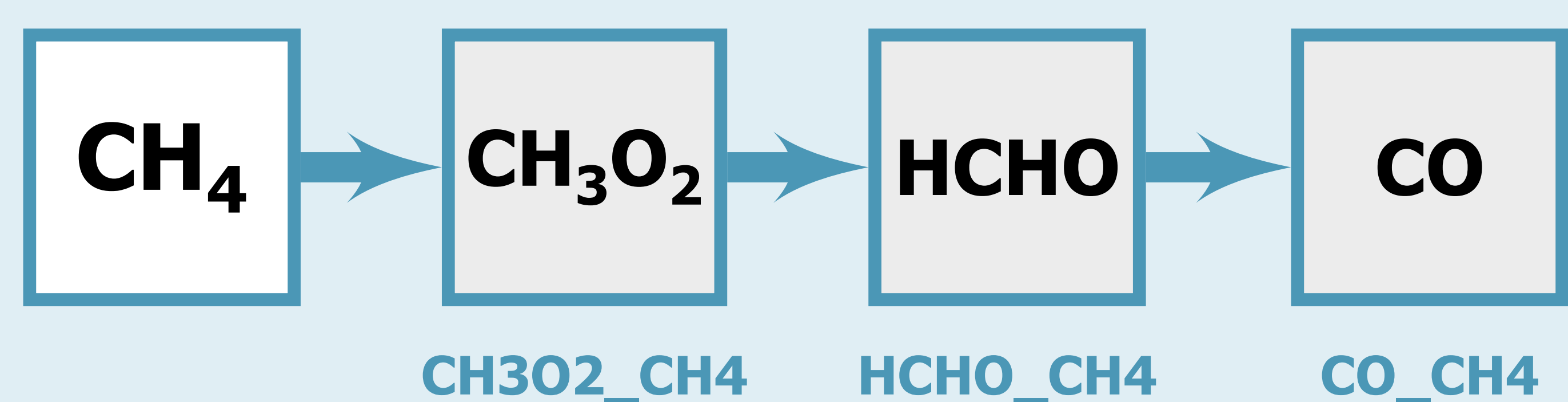
Objective

- Determine VOC and degradation products impacts on total oxidant reactivities.



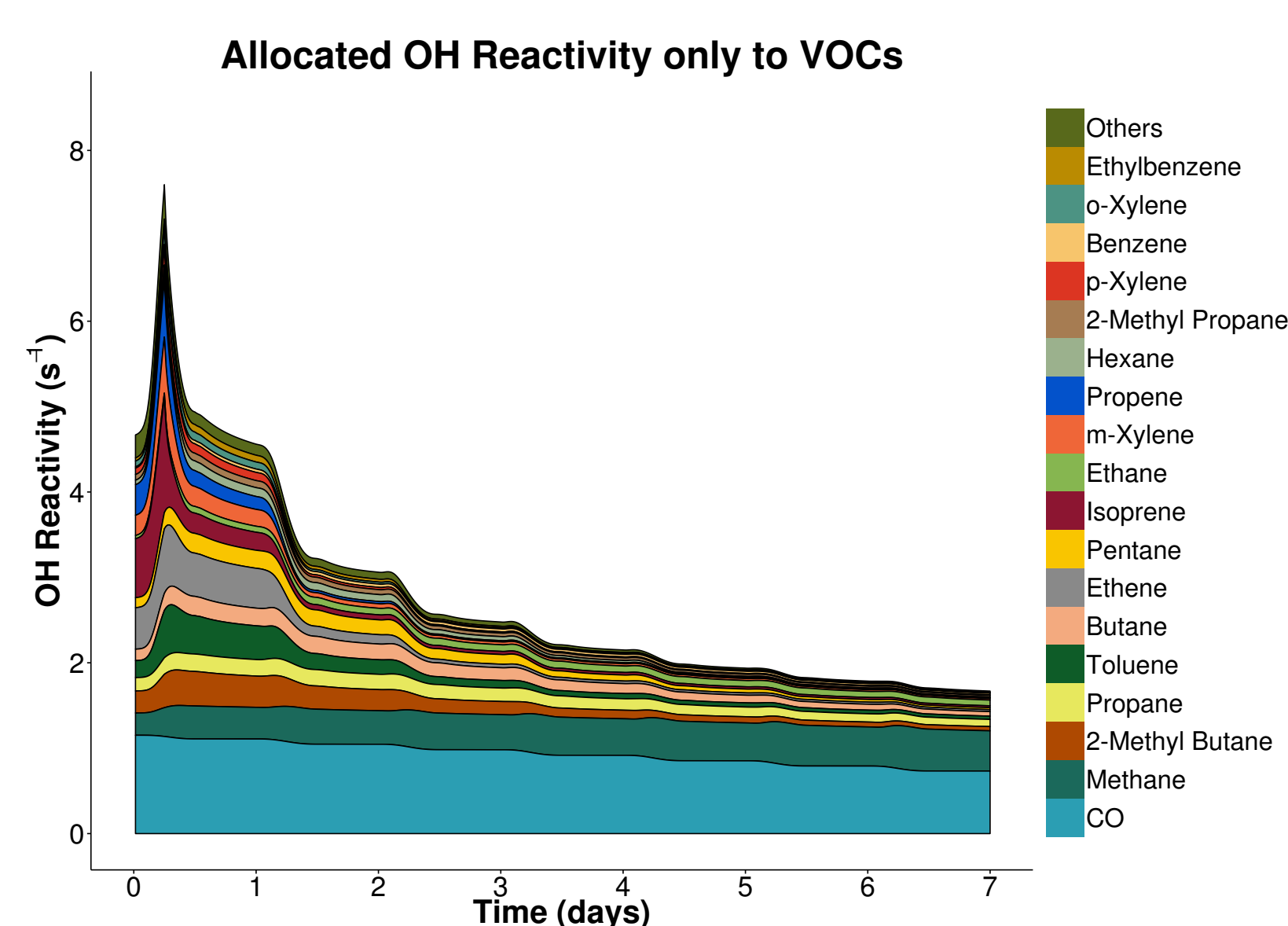
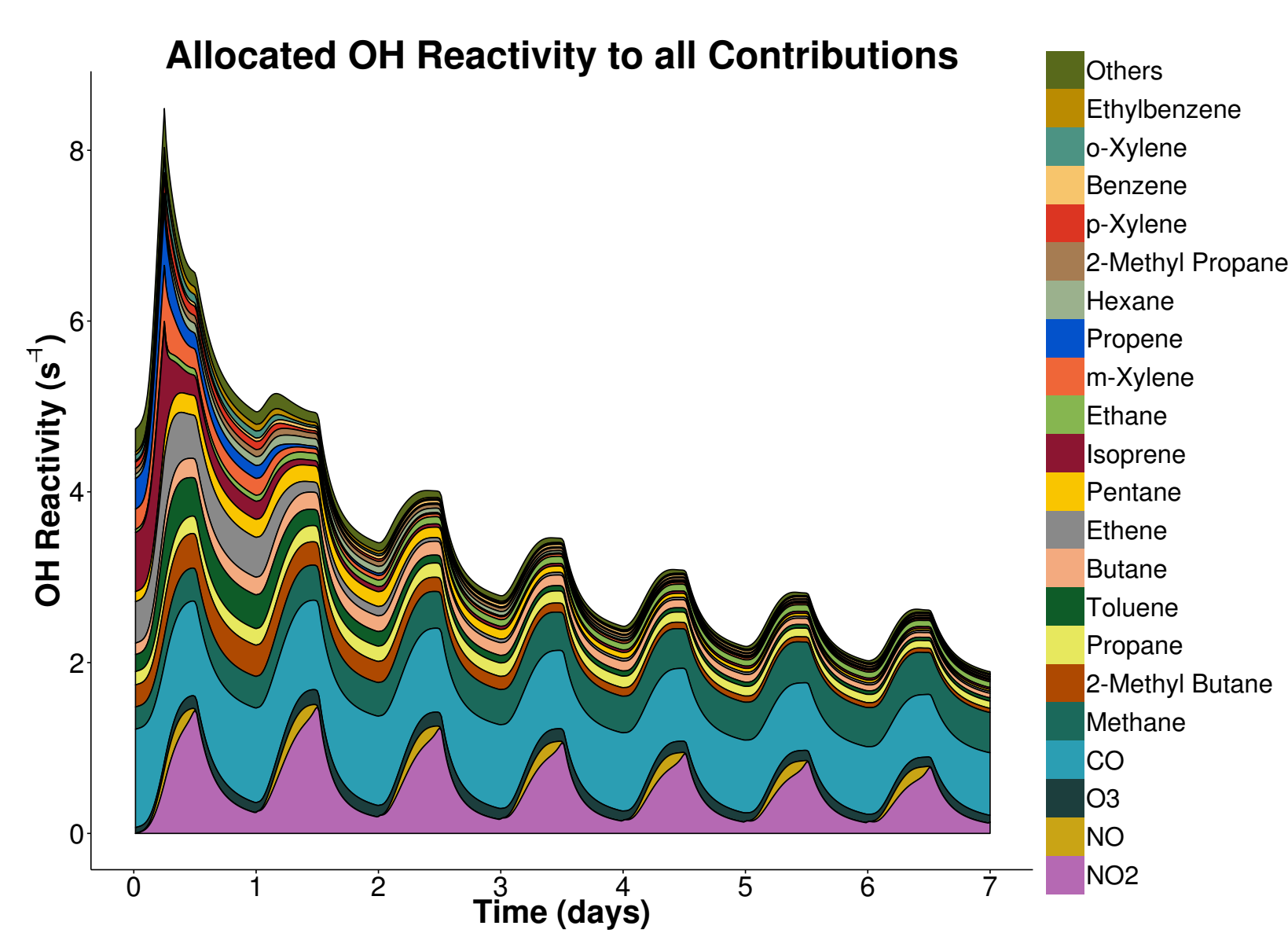
Approach

- Tagging the chemical mechanism (MCM v3.2) [1] allows reactivity allocation back to emitted VOC.
- Can be used for any atmospheric oxidant (OH, O₃, NO₃ and others).

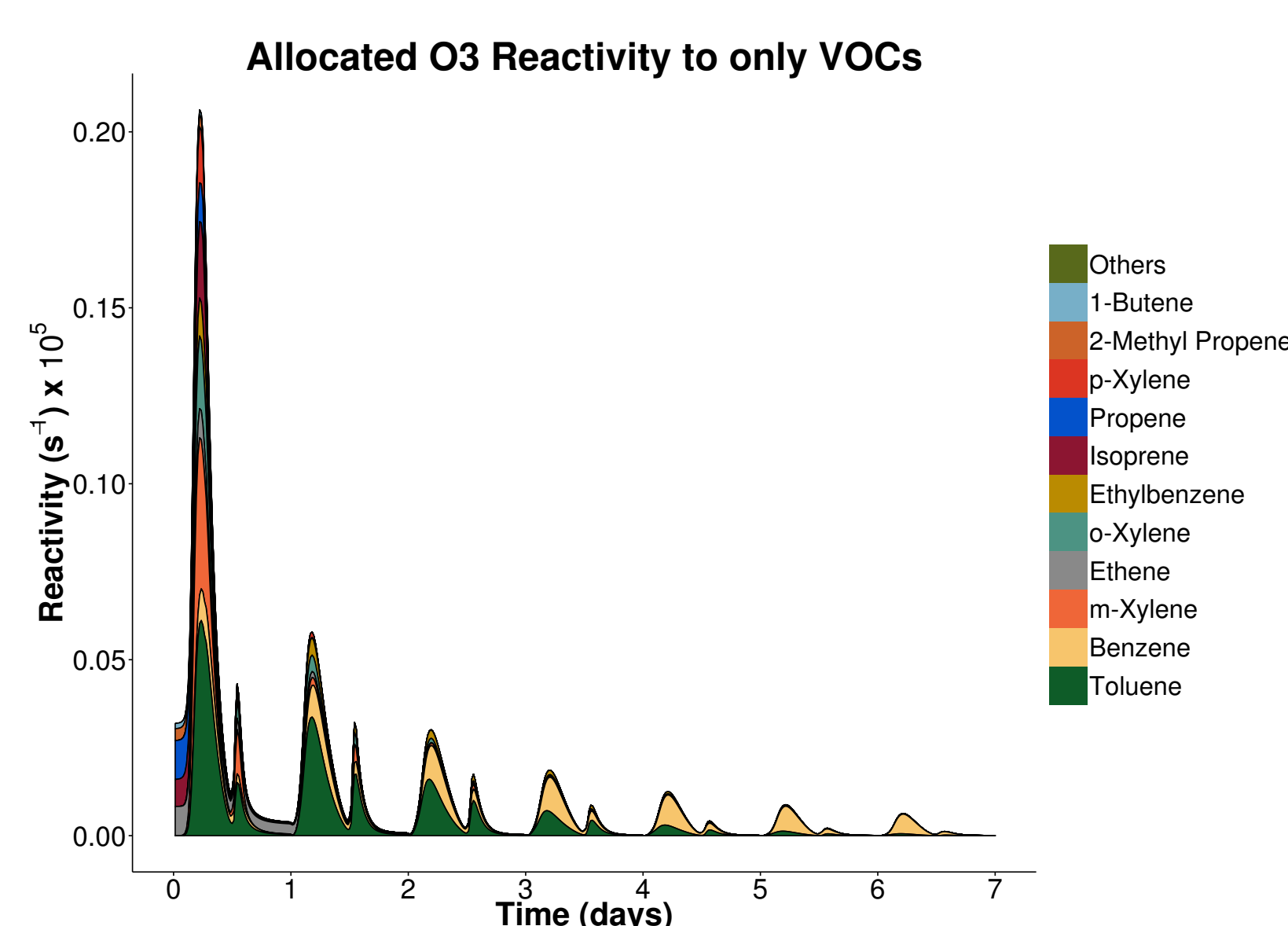
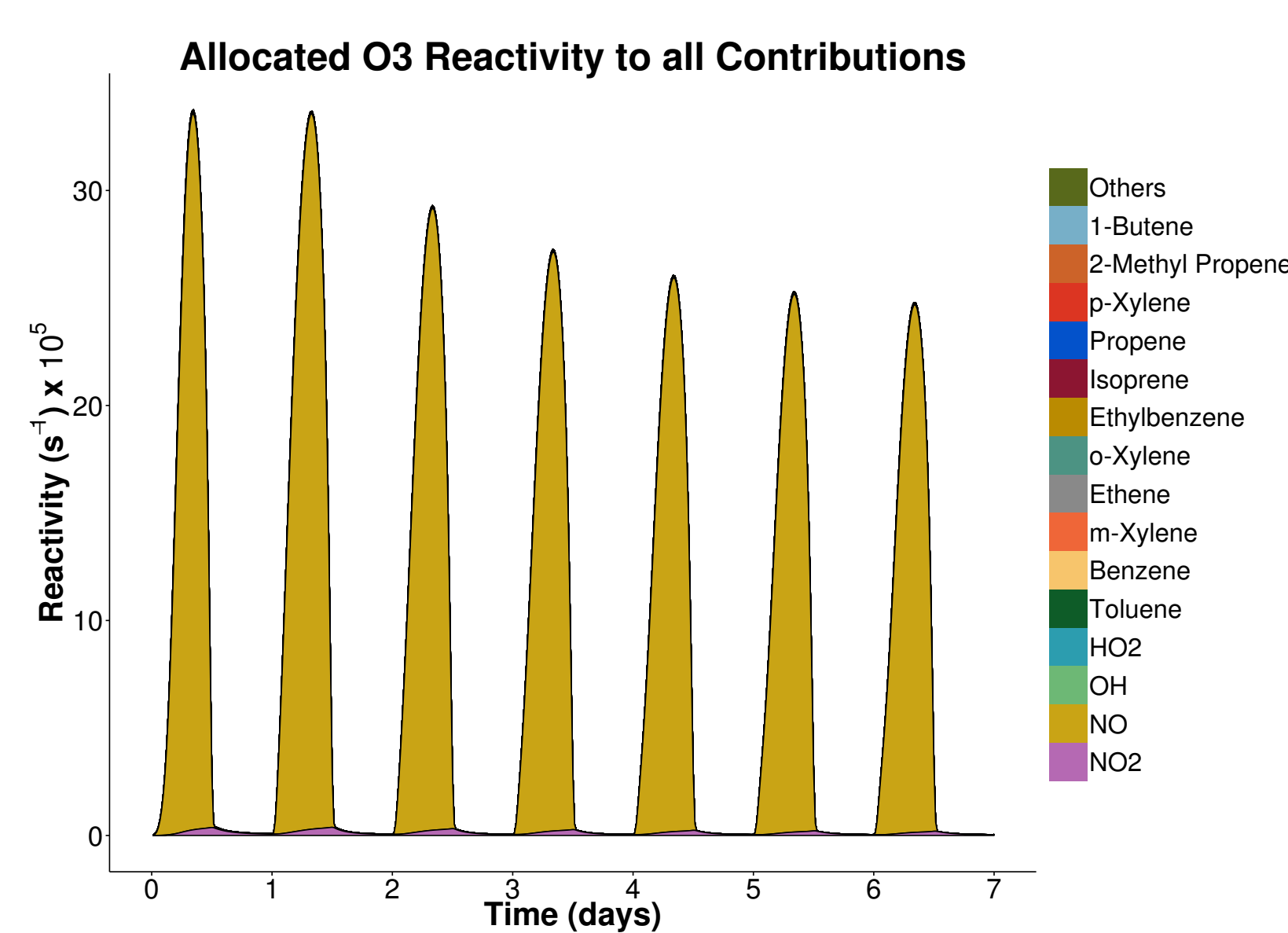


Application

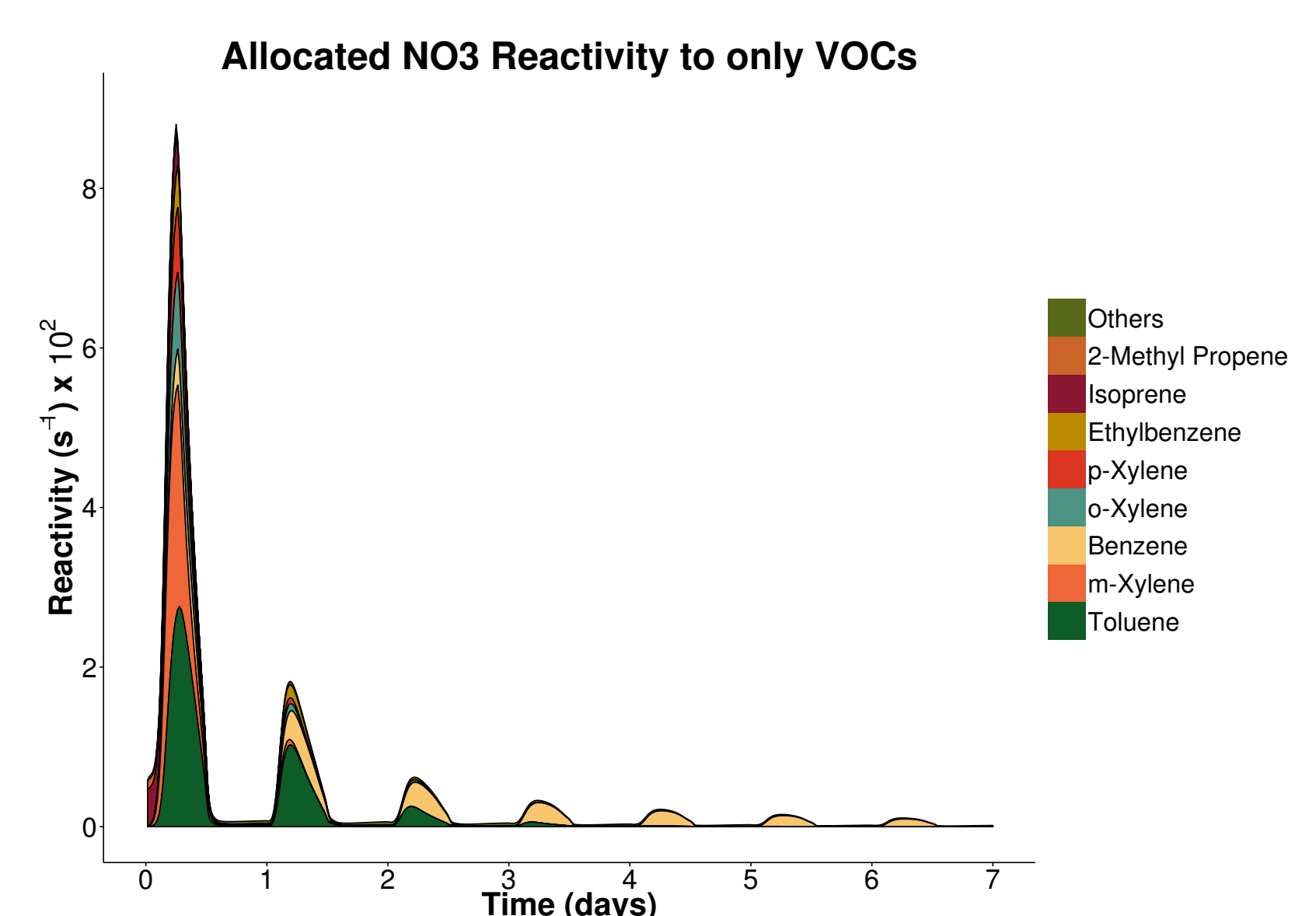
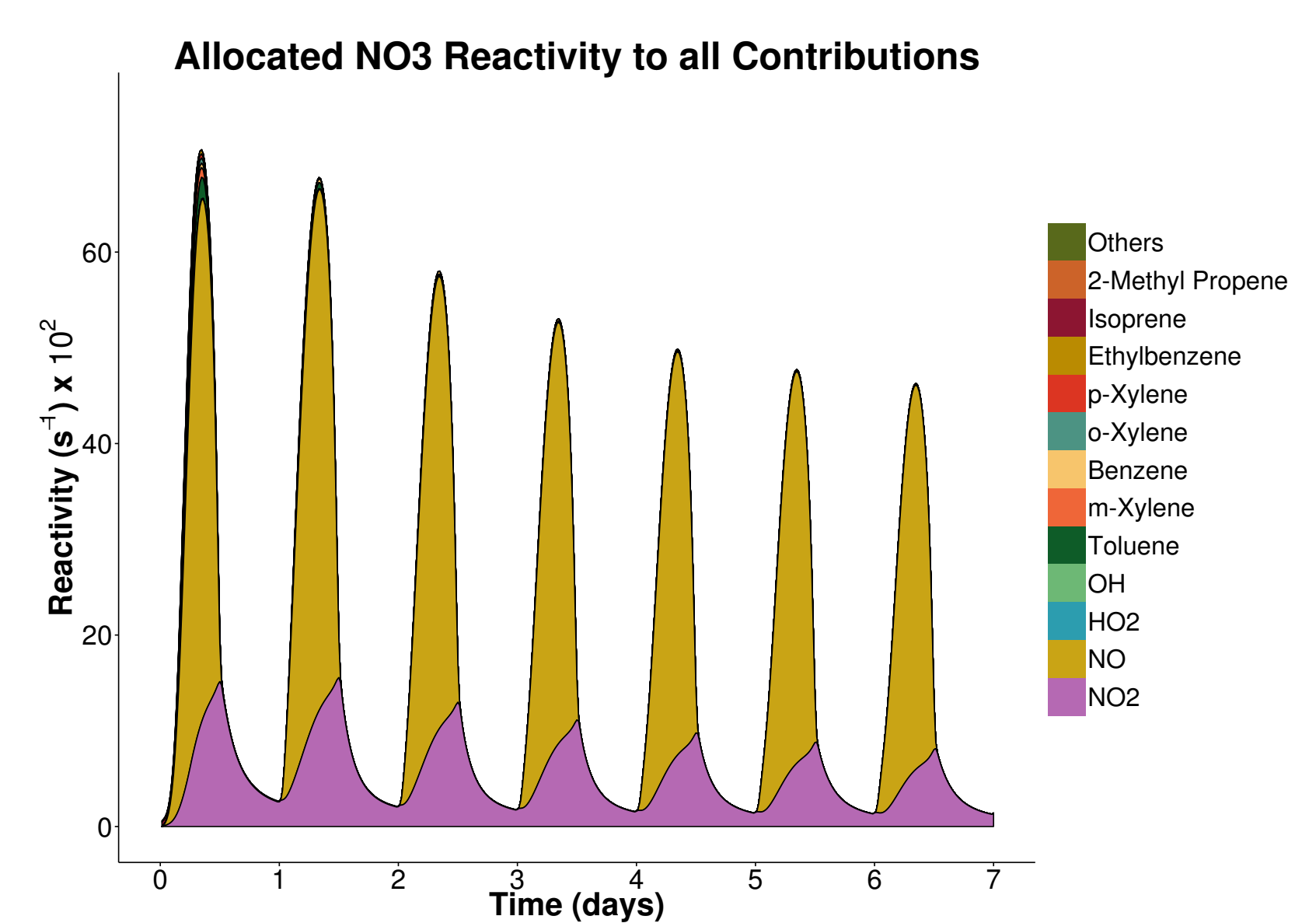
OH Reactivity



O₃ Reactivity



NO₃ Reactivity



Summary

- Tagging chemical mechanisms allows VOC attribution of atmospheric oxidant reactivities.
- Entire VOC impact, including degradation products, are accounted.

References

[1] T. M. Butler, M. G. Lawrence, D. Taraborrelli, and J. Lelieveld. Multi-day ozone production potential of volatile organic compounds calculated with a tagging approach. Atmospheric Environment, 45(24):4082–4090, 2011.

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