



## Investigating the missing hydroxyl radical (OH) reactivity of tree emissions in a boreal forest

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Total hydroxyl radical (OH) measurements in forested environments revealed that a large fraction of the measured reactivity remained unaccounted for by trace gas measurements and is named missing reactivity (Di Carlo et al., 2014). Studies in the boreal forest confirmed these observations (Sinha et al., 2010; Nölscher et al., 2012). As it remains ambiguous (e.g. Nölscher et al., 2013) if the missing reactivity is caused by unknown primary emissions of volatile organic compounds (VOCs) from vegetation or from other sources (e.g. soil), the present study investigated emissions from three tree species with on-line gas chromatographs coupled to mass spectrometers (GC/MSs) for speciation of BVOCs and total OH reactivity measurements using the Comparative Reactivity Method (CRM; Sinha et al., 2008; Praplan et al., 2017). The measurements alternated between Scots pine (*Pinus sylvestris*), Norway spruce (*Picea abies*), and downy birch (*Betula pubescens*) trees from May to October 2017. The first results show that correction factors for the method require careful consideration and that missing reactivity of emissions is generally low besides for values close to the detection limits or when the fraction of green leaf volatiles emitted by the Scots pine increased.

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