Title:	Modelling atmospheric OH-reactivity in a boreal forest ecosystem
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Abstract:	We have modelled the total atmospheric OH-reactivity in a boreal forest and investigated the individual contributions from gas phase inorganic species, isoprene, monoterpenes, and methane along with other important VOCs. Daily and seasonal variation in OH-reactivity for the year 2008 was examined as well as the vertical OH-reactivity profile. We have used SOSA; a one dimensional vertical chemistry-transport model (Boy et al., 2011a) together with measurements from Hyytiälä, SMEAR II station, Southern Finland, conducted in August 2008. Model simulations only account for ~30-50% of the total measured OH sink, and in our opinion, the reason for missing OH-reactivity is due to unmeasured unknown BVOCs, and limitations in our knowledge of atmospheric chemistry including uncertainties in rate constants. Furthermore, we found that the OH-reactivity correlates with both organic and inorganic compounds and increases during summer. The summertime canopy level OH-reactivity peaks during night and the vertical OH-reactivity decreases with height.
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