

1. Supplementary

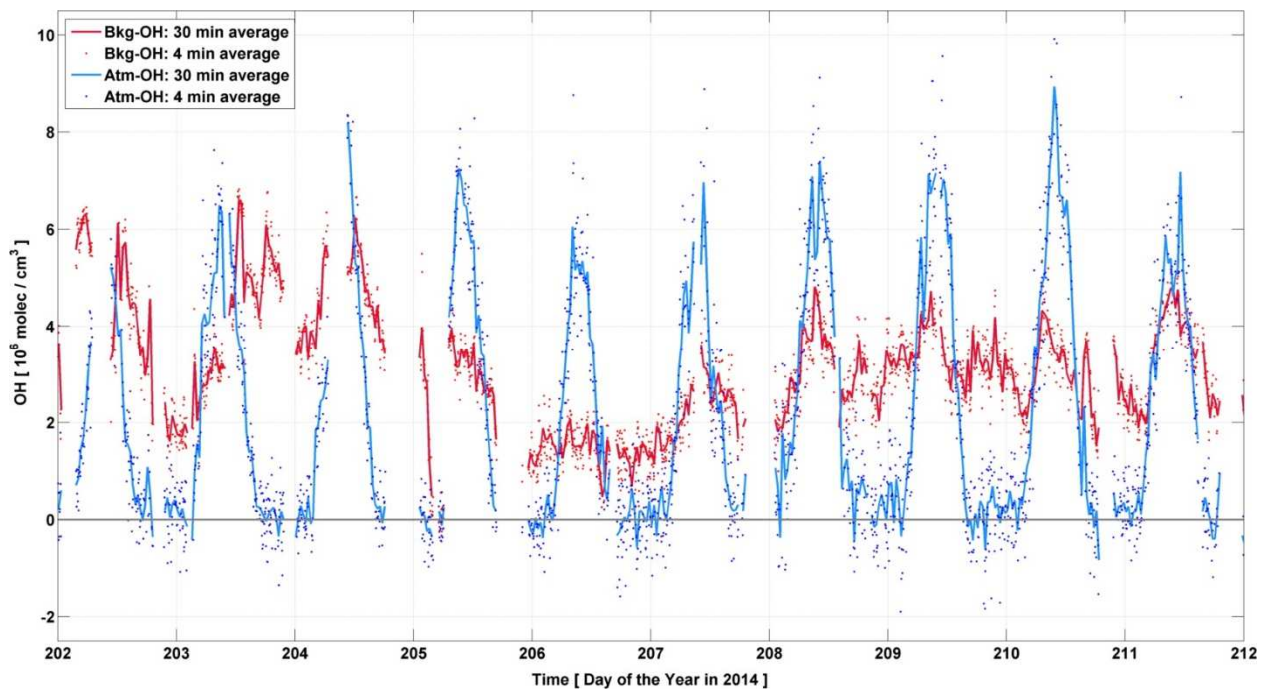


Figure S1: Variation of atmospheric and background OH radicals during CYPHEX-2014.

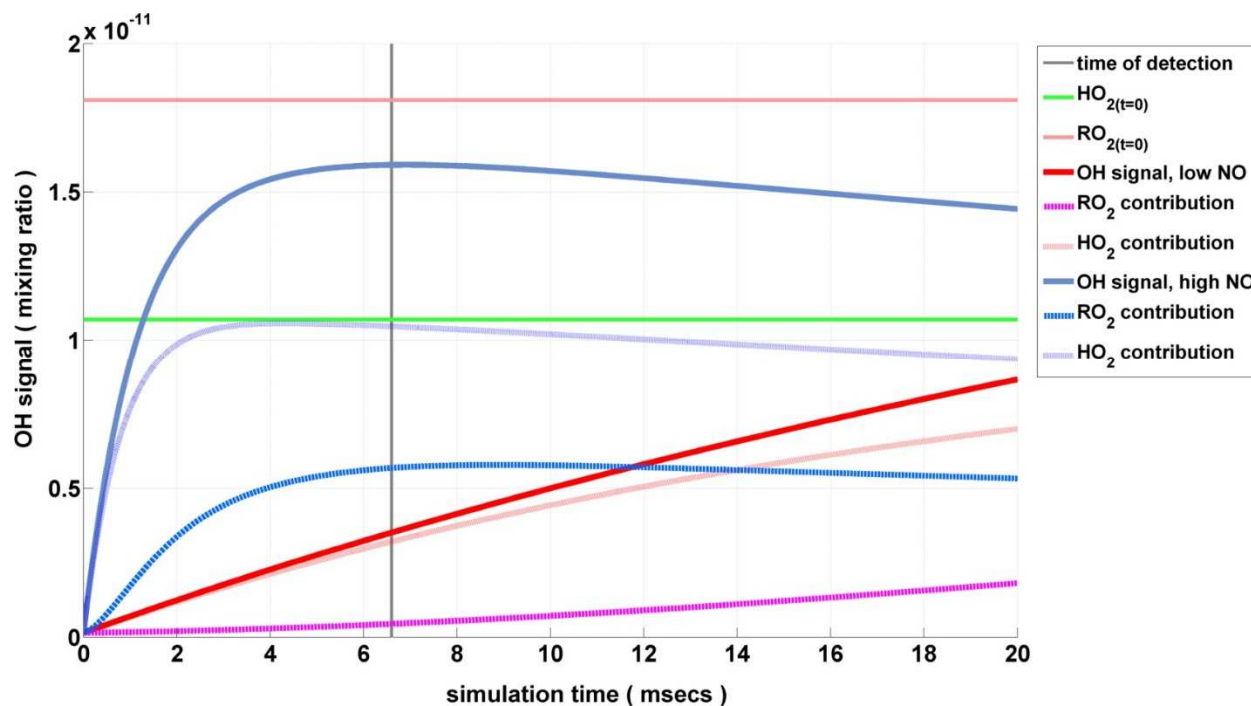


Figure S2a: Evolution of the OH signal in the low pressure detection cell with increasing residence time at 2 different NO concentrations (high NO: $1.71 \times 10^{14} \text{ cm}^{-3}$ shown in blue; low NO: $7.1 \times 10^{12} \text{ cm}^{-3}$ shown in red). The initial HO₂ and RO₂ signals are 10.7 and 18.1 pptv respectively.

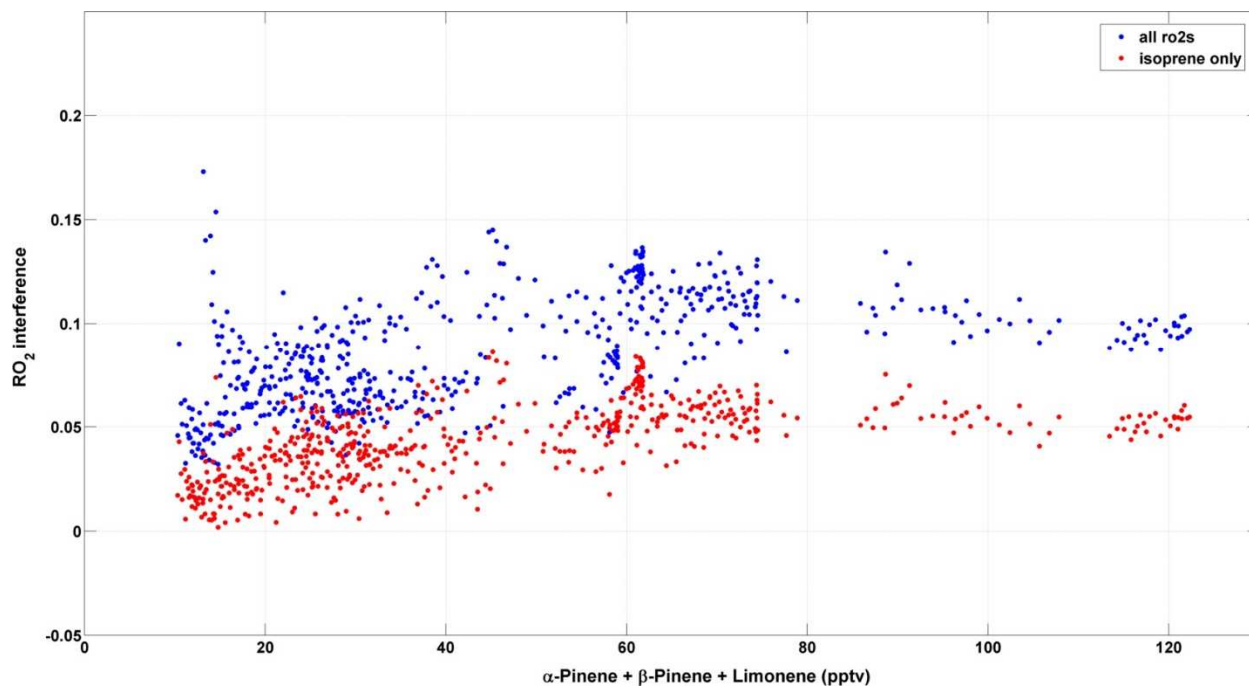


Figure S2b: Estimated RO₂ interference from all RO₂ and only from Isoprene based RO₂ during CYPHEX-2014 as function of the terpene concentrations.

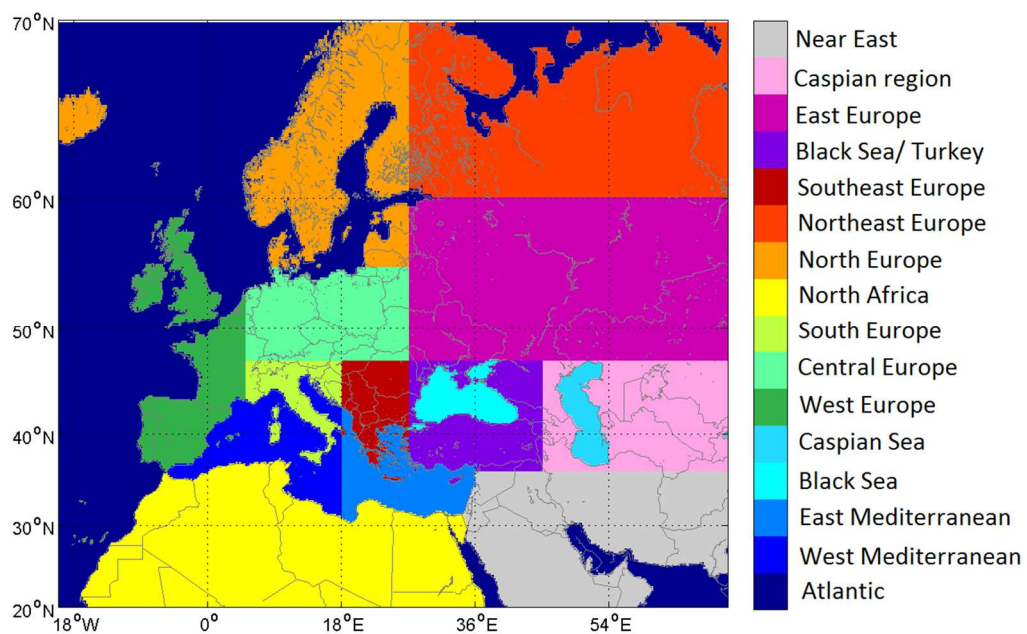


Figure S3: *Source regions identified by FLEXPART.*

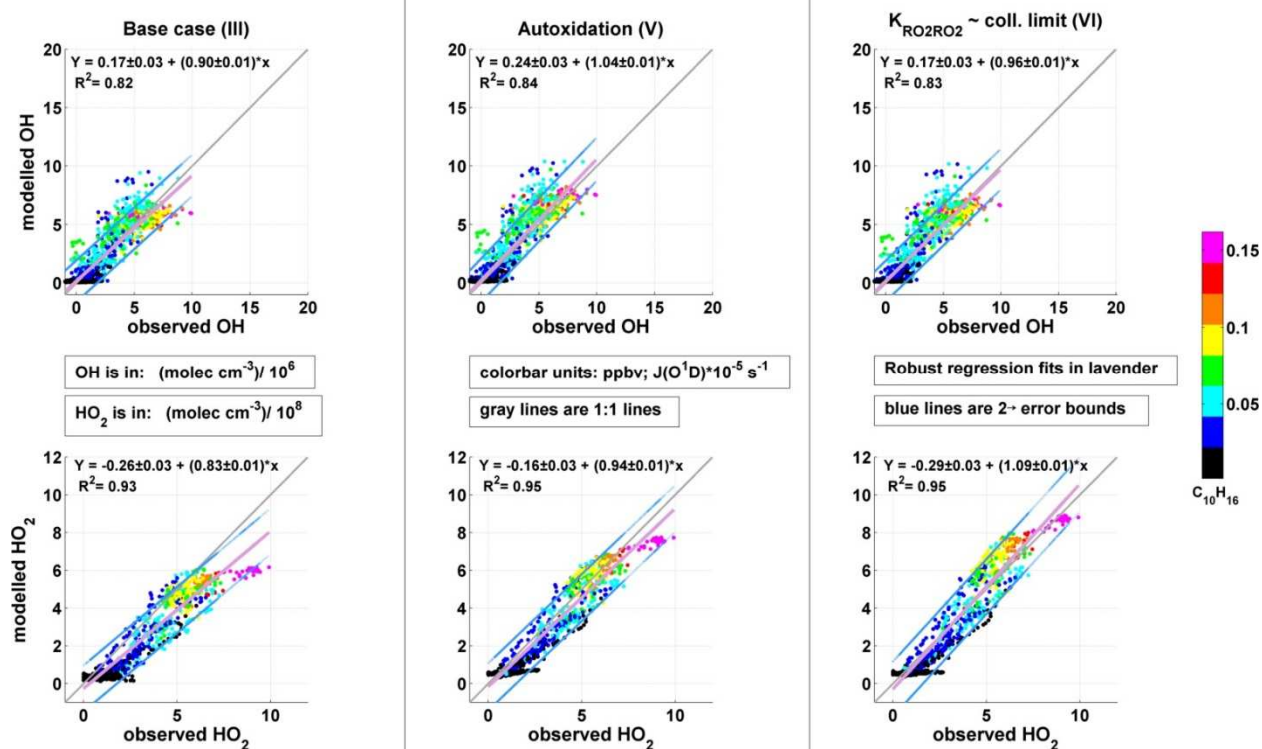


Figure S4. LIF-FAGE measurements of OH (top panel) and HO₂ (bottom panel) vs model simulations with CAABA/MECCA. From left to right: model simulations using base case i.e. initialized with all measured species (case III), simulations emulating the autoxidation scheme (case V), after increasing the rate coefficient of RO₂ – R'O₂ reactions close to the gas kinetic limit (case VI).

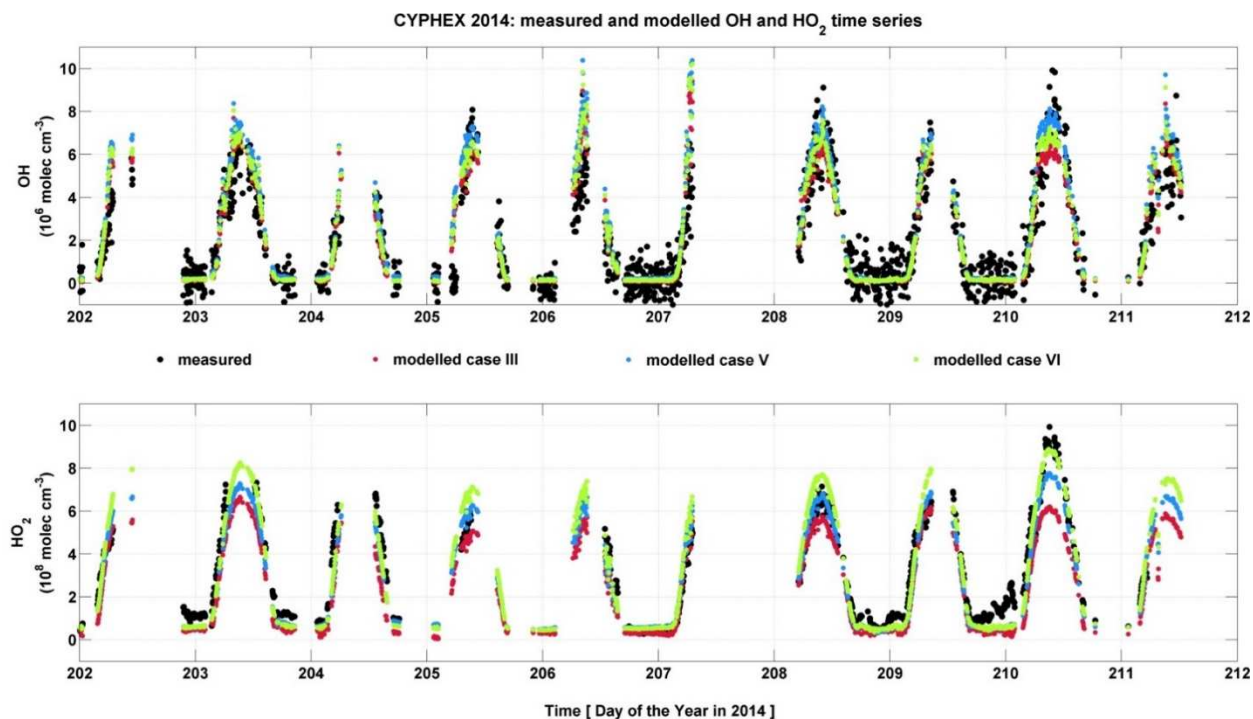


Figure S5. Time series of LIF-FAGE measurements of OH (top panel) and HO₂ radicals (bottom panel) along with various model simulations with CAABA/MECCA; model simulations using base case i.e. initialized with all measured species (case III), simulations emulating the autoxidation scheme (case V), after increasing the rate coefficient of RO₂ – R'O₂ reactions close to the gas kinetic limit (case VI). Time is in UTC. Local time in Cyprus during summer is UTC+3.

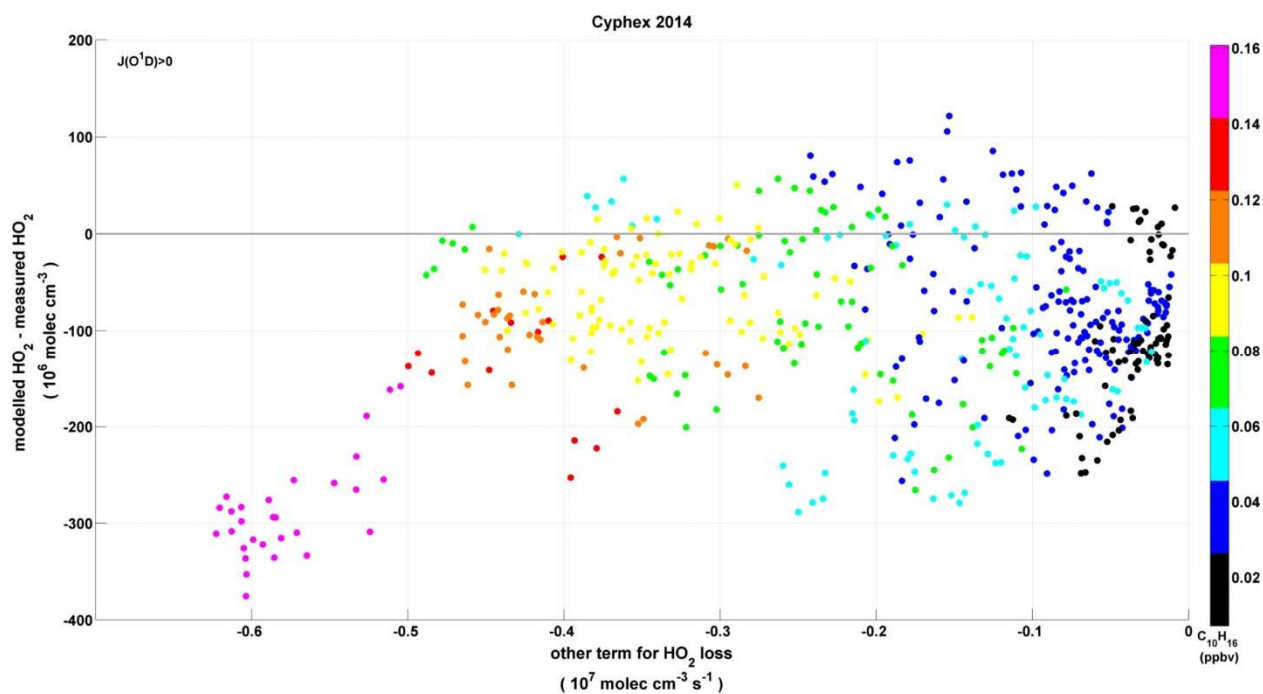


Figure S6. Variation of the difference between modelled and measured HO_2 radicals w.r.t. the ‘other term’ in the HO_2 radical loss budget (Figure 7 in manuscript), most of which is constituted by the reactions of peroxy alkyl and acyl radicals with HO_2 .

FileS1. Caaba/Mecca model scheme based on the Mainz Organic Mechanism (MOM).