

Supplement of Atmos. Chem. Phys., 20, 3697–3711, 2020
<https://doi.org/10.5194/acp-20-3697-2020-supplement>
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Supplement of

Pyruvic acid in the boreal forest: gas-phase mixing ratios and impact on radical chemistry

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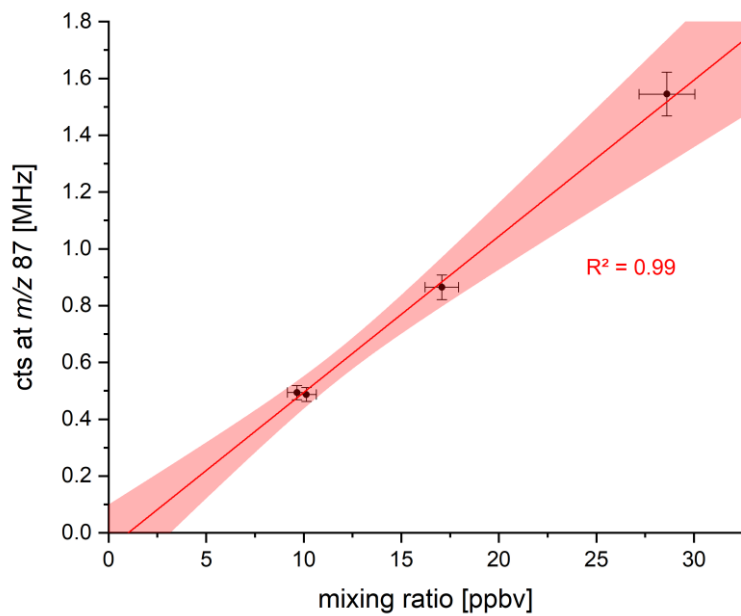


Figure S1: CI-QMS Signal at m/z 87 for different mixing ratios of pyruvic acid. The mixing ratio of pyruvic acid was determined by catalytic conversion to CO_2 which was measured by LI-COR (see main text for details).

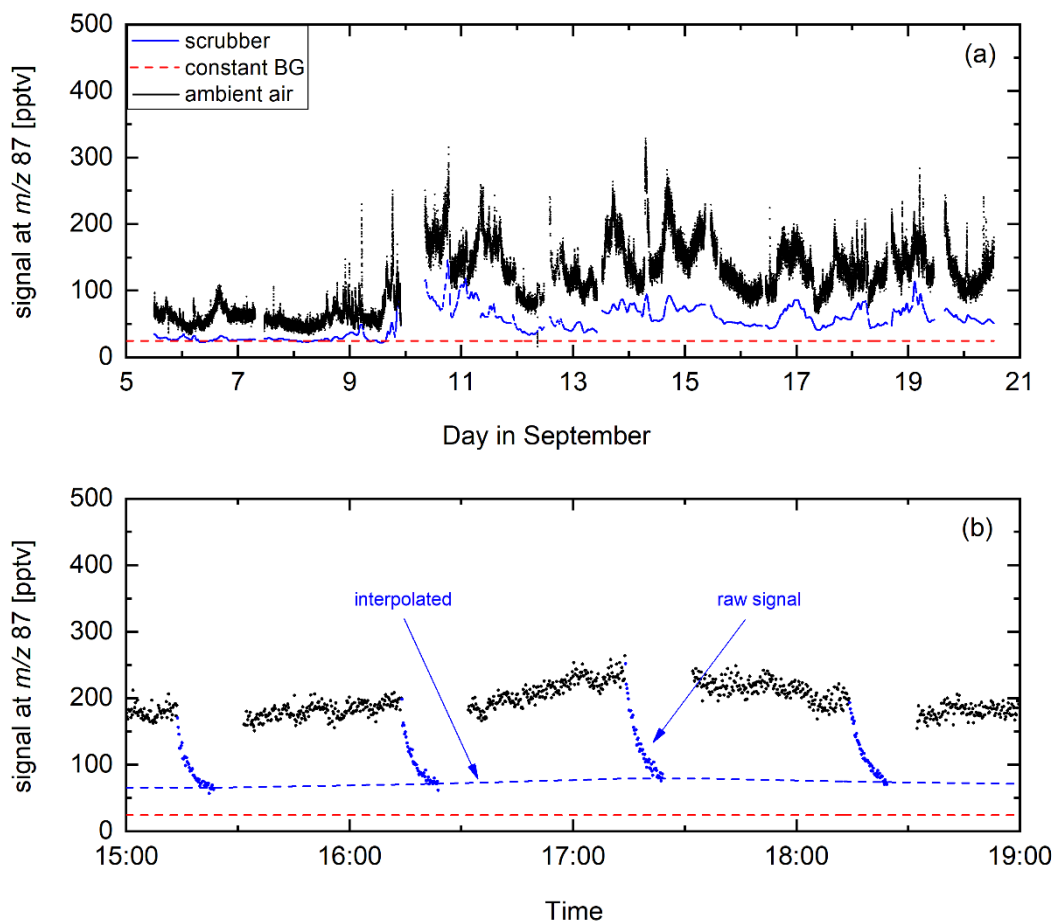
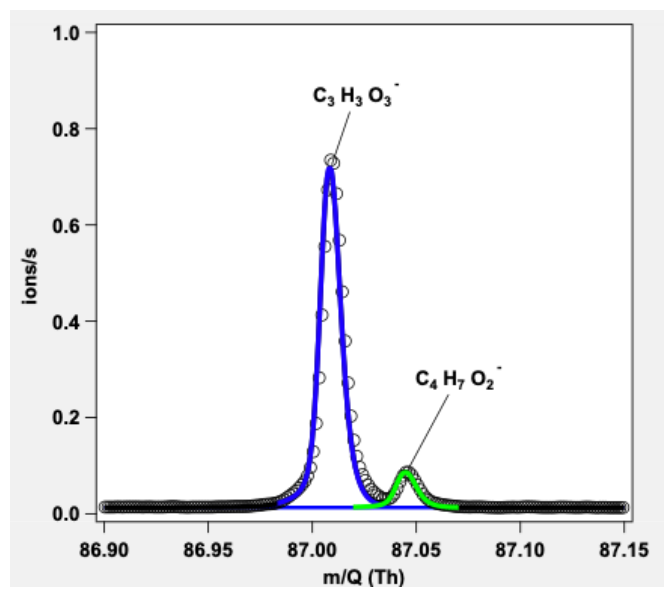


Figure S2: *Upper panel:* Pyruvic acid mixing ratio (measured at m/z 87) by CI-QMS during IB AIRN. The ambient air signal (converted to mixing ratio) is represented by the black curve, the background obtained by bypassing the air through the scrubber is illustrated by the blue curve. *Lower panel:* Raw data showing measurement (black) and scrubbing periods (blue). During scrubbing, the signal decays quasi-exponentially towards the red dotted line, which is the subtracted background signal, measured by overflowing the inlet with zero-air.



5 **Figure S3:** Signals measured by the HR-L-ToF-CIMS at m/z 87.008 (assigned to pyruvic acid) and 87.045 (assigned to butanoic acid).

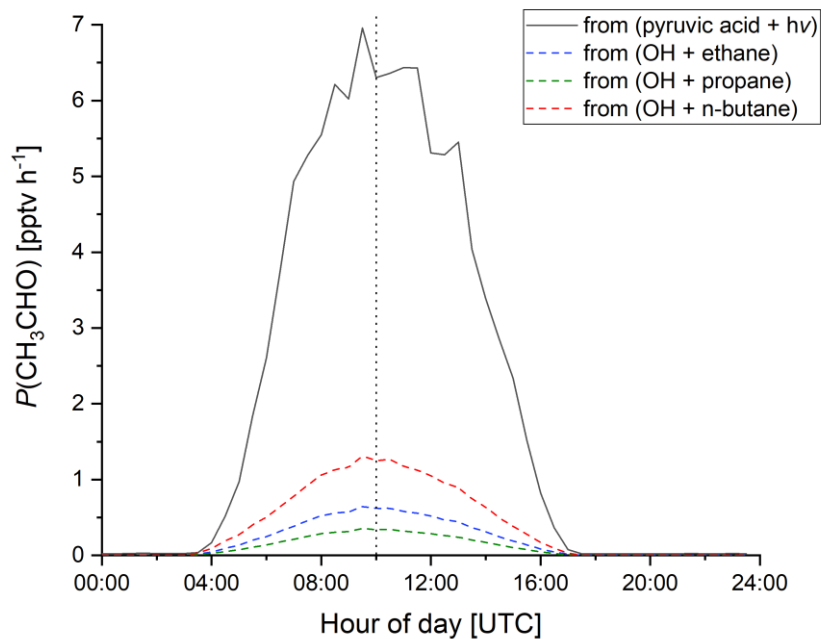


Figure S4: Acetaldehyde (CH_3CHO) production rates over the diel cycle based on measurements (median diel profiles for IBAIRN) of pyruvic acid and J_{pyr} (assuming a photolysis yield of $\phi = 0.2$), calculated OH and estimated mixing ratios of alkanes from literature data (see manuscript). The dashed vertical line indicates solar noon.