Supplementary Material

Measurements of Total Hydroxyl Radical Reactivity during CABINEX 2009 – Part 1: Field Measurements

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S1. Trends of temperature and $J(NO_2)$ during CABINEX

Ambient temperatures (black trace, panels a in Figures S3-S5) span the same range of values among the three heights (10–26°C). However, ambient temperatures measured at the 21m (17.9°C on average) and 31m (18.4°C on average) heights are generally higher on average than those measured at the 6m height (16.2°C on average). Values of $J(NO_2)$ from the 31 m height (red trace, panels a in Figures S3-S5) serve as a metric of UV radiation and as an indicator of cloud cover; the impact of cloud cover can be assessed by comparing the measured $J(NO_2)$ to that calculated under clear sky conditions by the Tropospheric Ultraviolet and Visible radiation model (TUV), version 4.4 (shown as a dashed line on panels a). The cloud cover was low ($J(NO_2) \approx 8 \times 10^{-3}$ s^{-1}) for most of the campaign, although there were several cloudy days as shown by the significant differences observed between measured and calculated values of $J(NO_2)$ on 7, 15, 18, 22, 23, and 30 July as well as 1, 3, and 8 August.

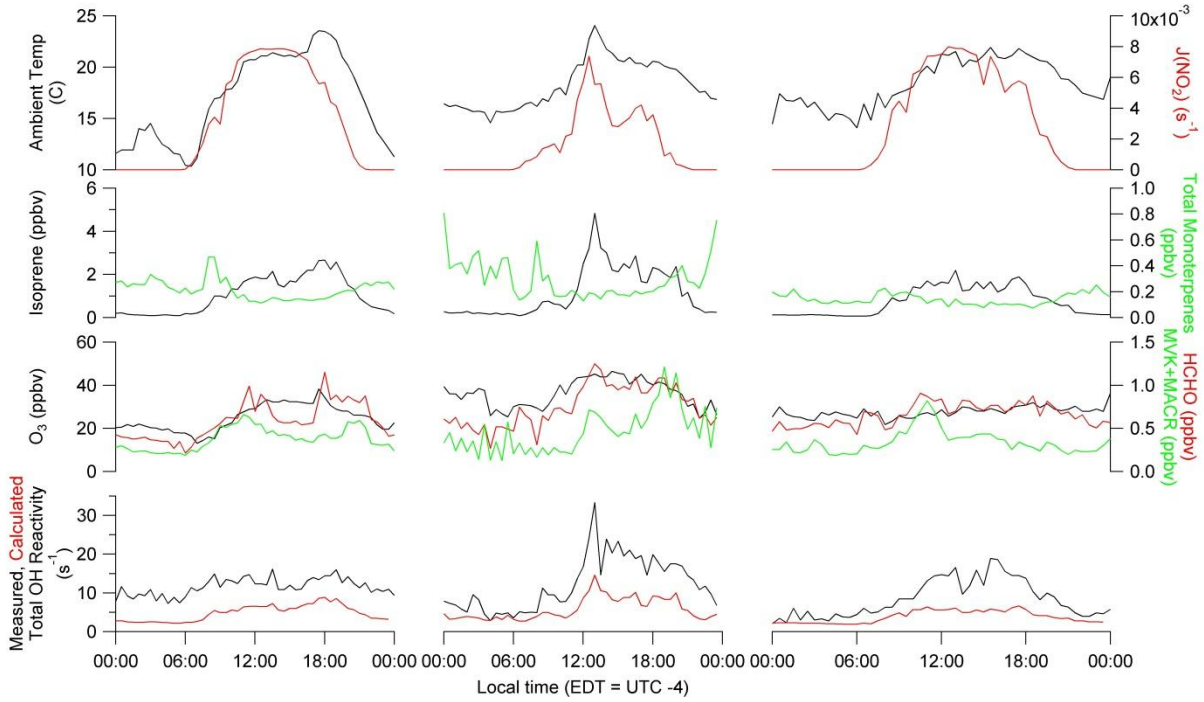

Figure S1. 30-min diurnal medians of measurements for the 6 m (left), 21 m (center), and 31 m (right) heights.

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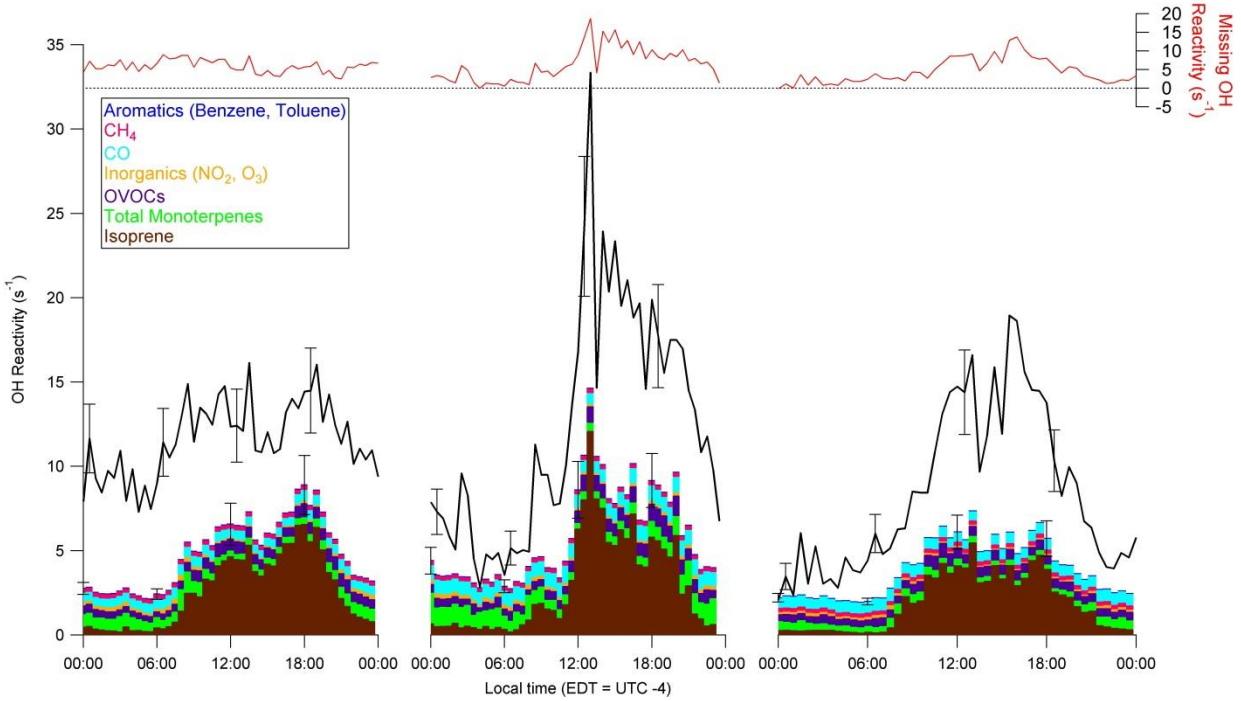

Figure S2. 30-minute diurnal medians of OH reactivity at the 6 m (left), 21 m (center), and 31 m (right) heights. Measured OH reactivity is shown by the line; calculated OH reactivity is indicated by the colored bars. OVOCs include methyl vinyl ketone, methacrolein, MEK, acetone, formaldehyde, acetaldehyde, methanol, and methyl peroxide. Top plots show the missing reactivity at each height.

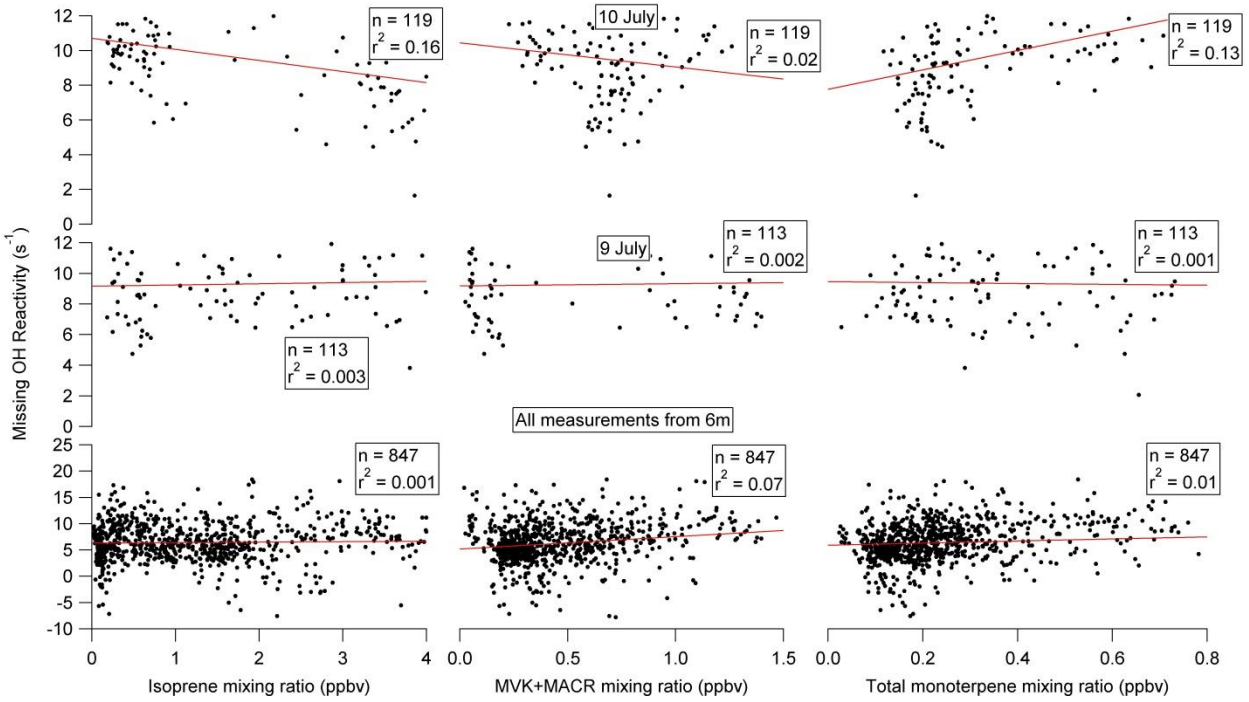

Figure S3. Plots of missing OH reactivity from the 6 m height as a function of ambient isoprene, MVK + MACR, and total monoterpene mixing ratios for 10 July (top panels), 9 July (middle panels), and the entire 6 m dataset (bottom panels).