1. Conditional Probability Function (CPF)

The CPF was originally used to show the wind directions that dominate a high concentration of a pollutant, showing the probability of such concentrations occurring by wind direction (Ashbaugh et al. 1985). The CPF is defined as:

$$CPF = \frac{m_{\theta,j}}{n_{\theta,j}}$$

Where $m_{\theta,j}$ is the number of samples in the wind sector θ and wind speed interval j with mixing ratios greater than high O_3 concentration. In this study, we defined high O_3 concentration as the 95th percentile of observed O_3 concentration (131 ppbv). $n_{\theta,j}$ is the total number of samples in the wind sector θ and wind speed interval j.
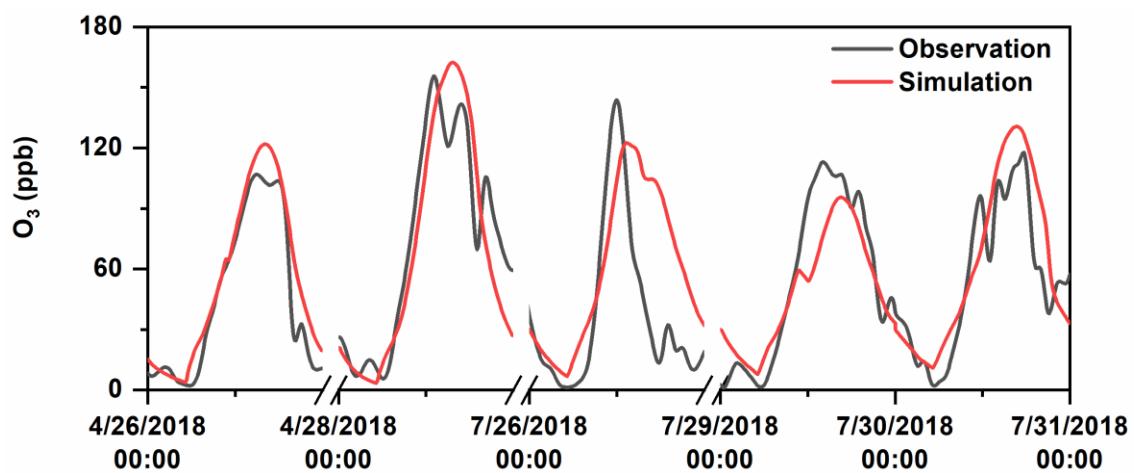
Figure S1. Comparison of observed and simulated O₃ concentrations in 5 episodes.
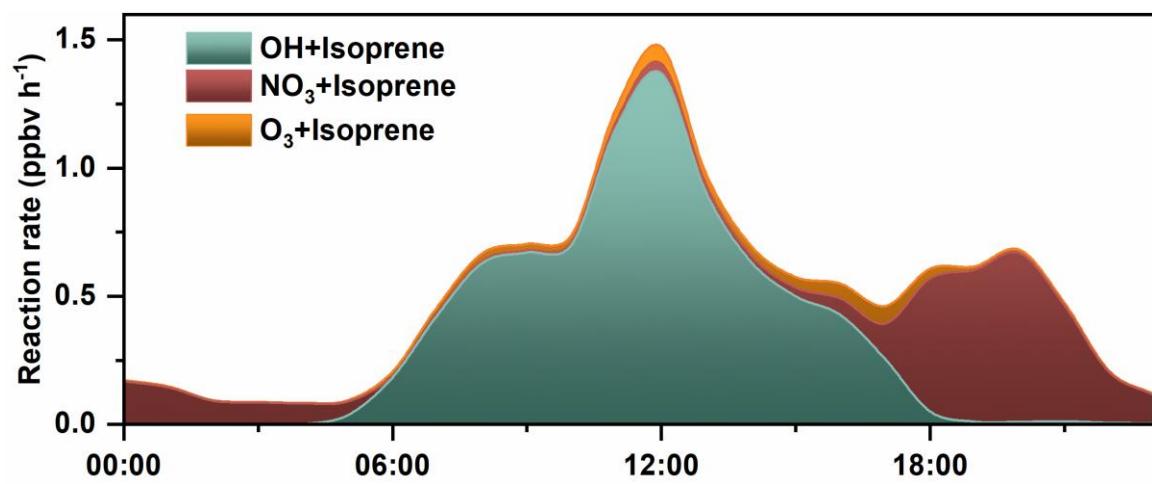
Figure S2. Average rates of loss pathways of isoprene in 5 episodes.

Reference

Lowell L. Ashbaugh, William C. Malm, Willy Z. Sadeh. A residence time probability analysis of sulfur concentrations at grand Canyon National Park[J]. Atmospheric Environment, 1985, 19(8):1263-1270.