

**Influence of Solar Irradiation on Nitrous Acid Production in
Western U.S. Wildfire Smoke**

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Introduction

Figure S1 highlights the nitrate partitioning between the gas and particle phase for the Williams Flats, Nethker and Little Bear fires. Figure S2 provides verification for chemical ageing classifications for the Williams Flats fire. Figure S3 serves as a comparison between measured distributions in NO₂ mixing ratios for the MACH-2 and DC-8 platforms. These data are from a sampling overlap period that occurred on August 6th, 2019 at the Williams Flats fire. Differences in reported N values are a result of a slight shift in the overlap period by four minutes. Special thanks to Carrie Womack for collecting the DC-8 data sets used in this analysis.

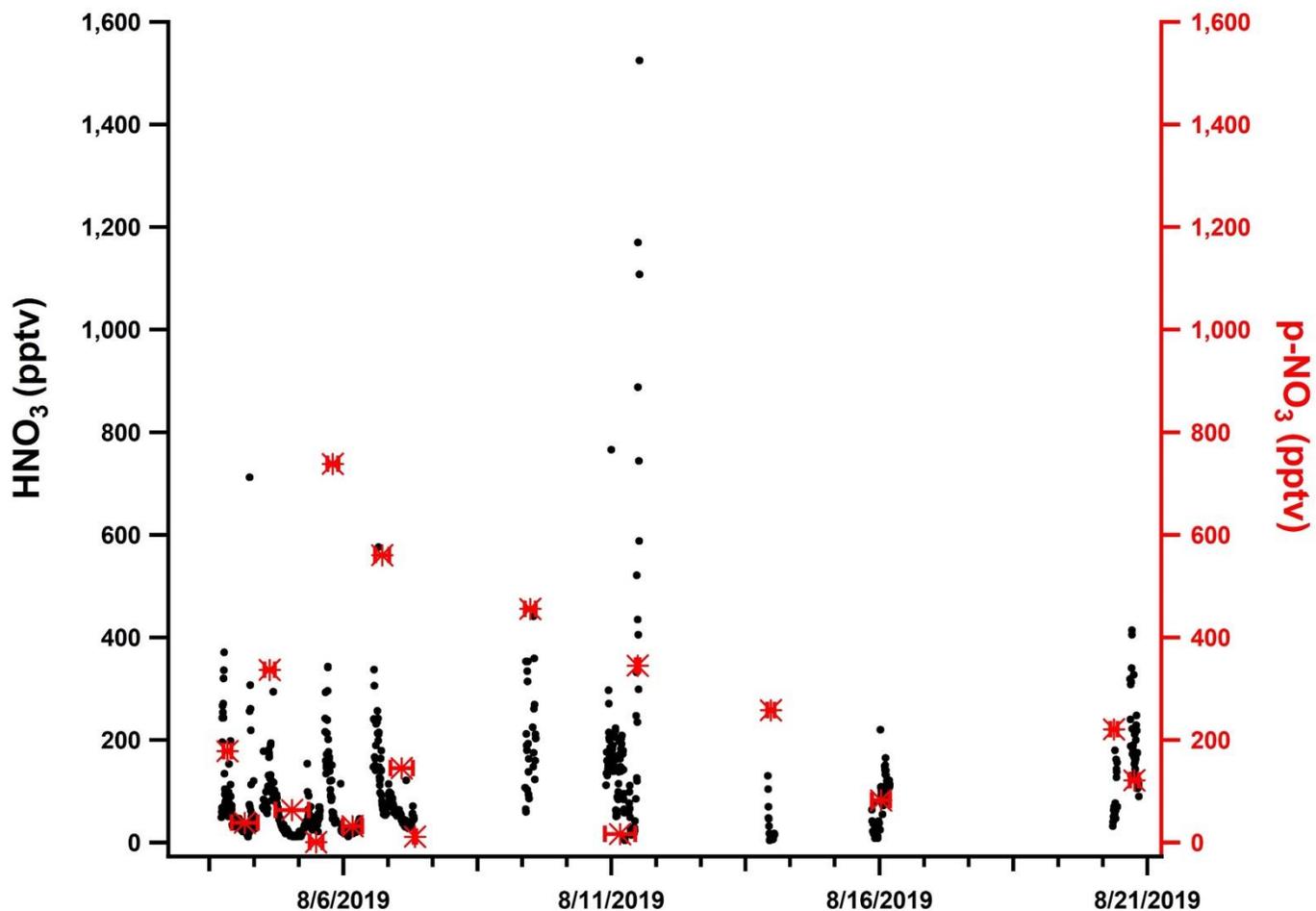
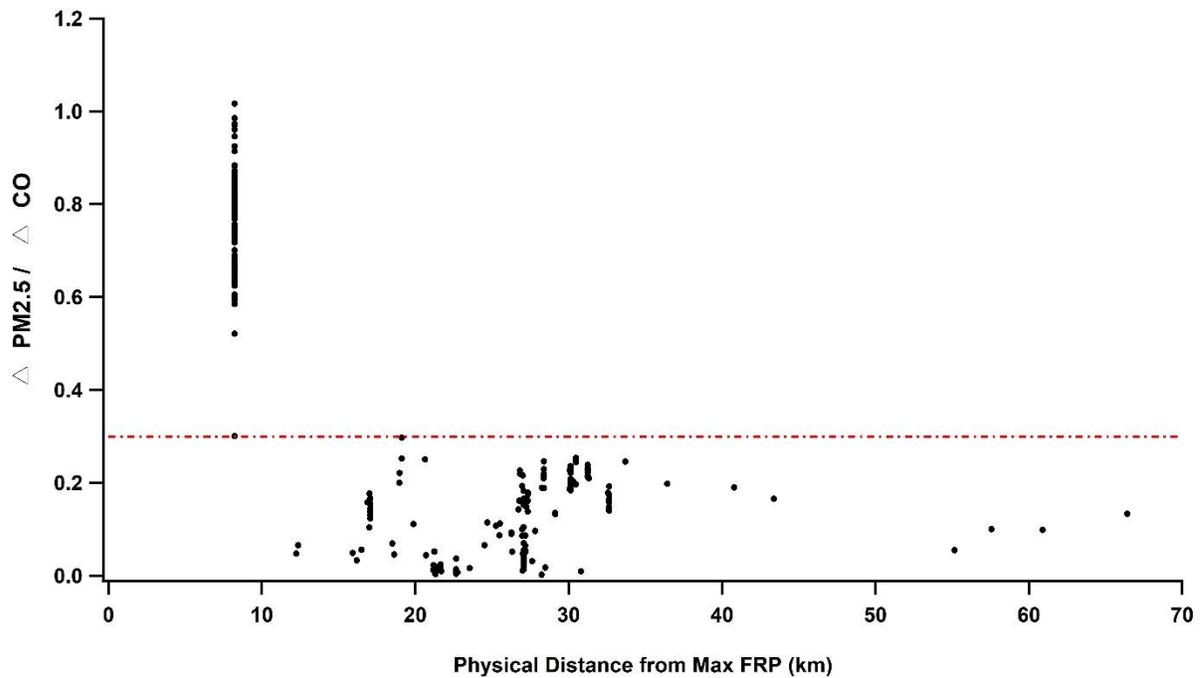


Figure S1. Gas and particle phase (p-NO₃) partitioning for HNO₃ for the Williams Flats, Nethker and Little Bear fires. HNO₃ favored p-NO₃ approximately 60% of the time over the course of these fires. For p-NO₃ stars indicate local midpoint-times while horizontal bars indicate the start and stop times for each filter.



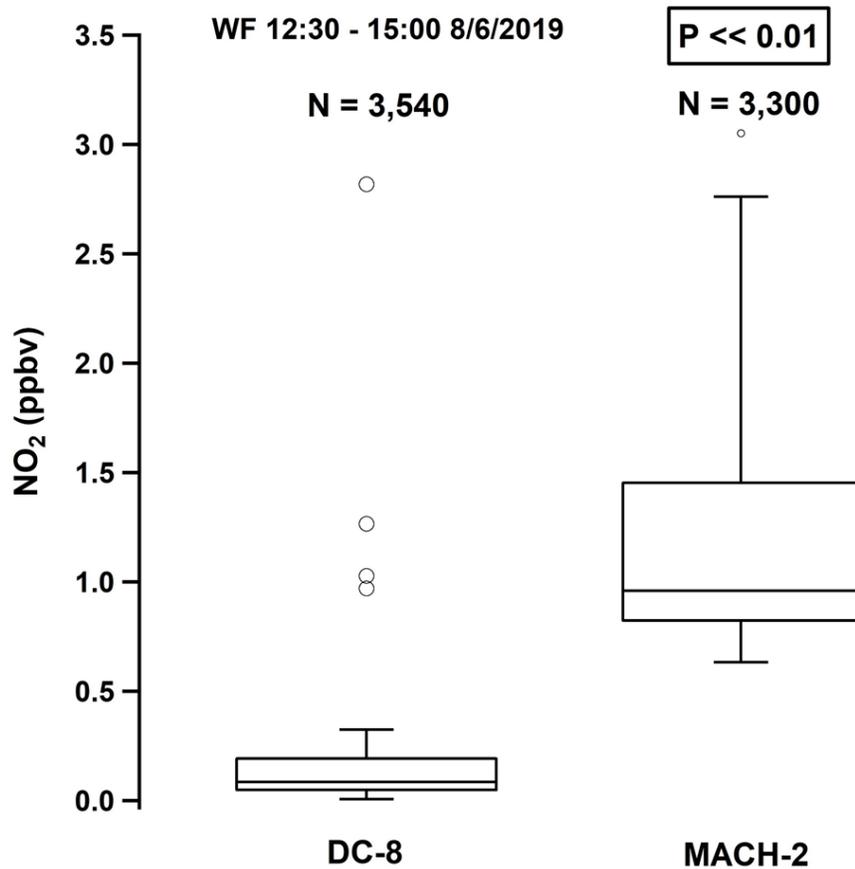


Figure S3. Comparisons between NO₂ average mixing ratios and distributions. Statistical P values were determined using a 95% confidence interval and N values represent population sizes. The average NO₂ mixing ratio measured by MACH-2 is approximately 6.5x that which was measured by the DC-8 during the August 6th overlap of the Williams Flats fire.