Supplement of

Long-term observations of black carbon and carbon monoxide in the Poker Flat Research Range, central Alaska, with a focus on forest wildfire emissions

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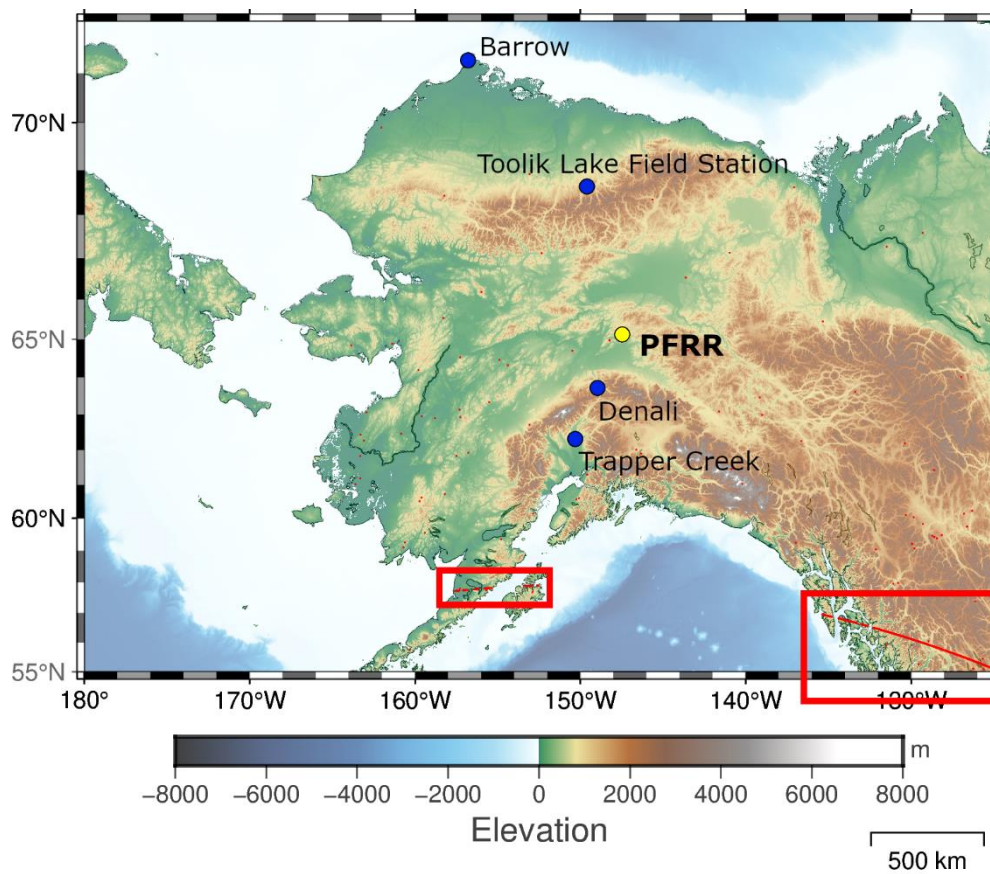
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A map of FRP smaller than 0.3 MW

Figure S1. A map of hot spots smaller than 0.3 MW. We can find outliers indicated by two red rectangles. To avoid these artefacts, we selected FRP values larger than 0.3 MW in this study.

Time series of CO mixing ratio observed at PFRR from ground based observation (our study) and aircraft observation by NOAA
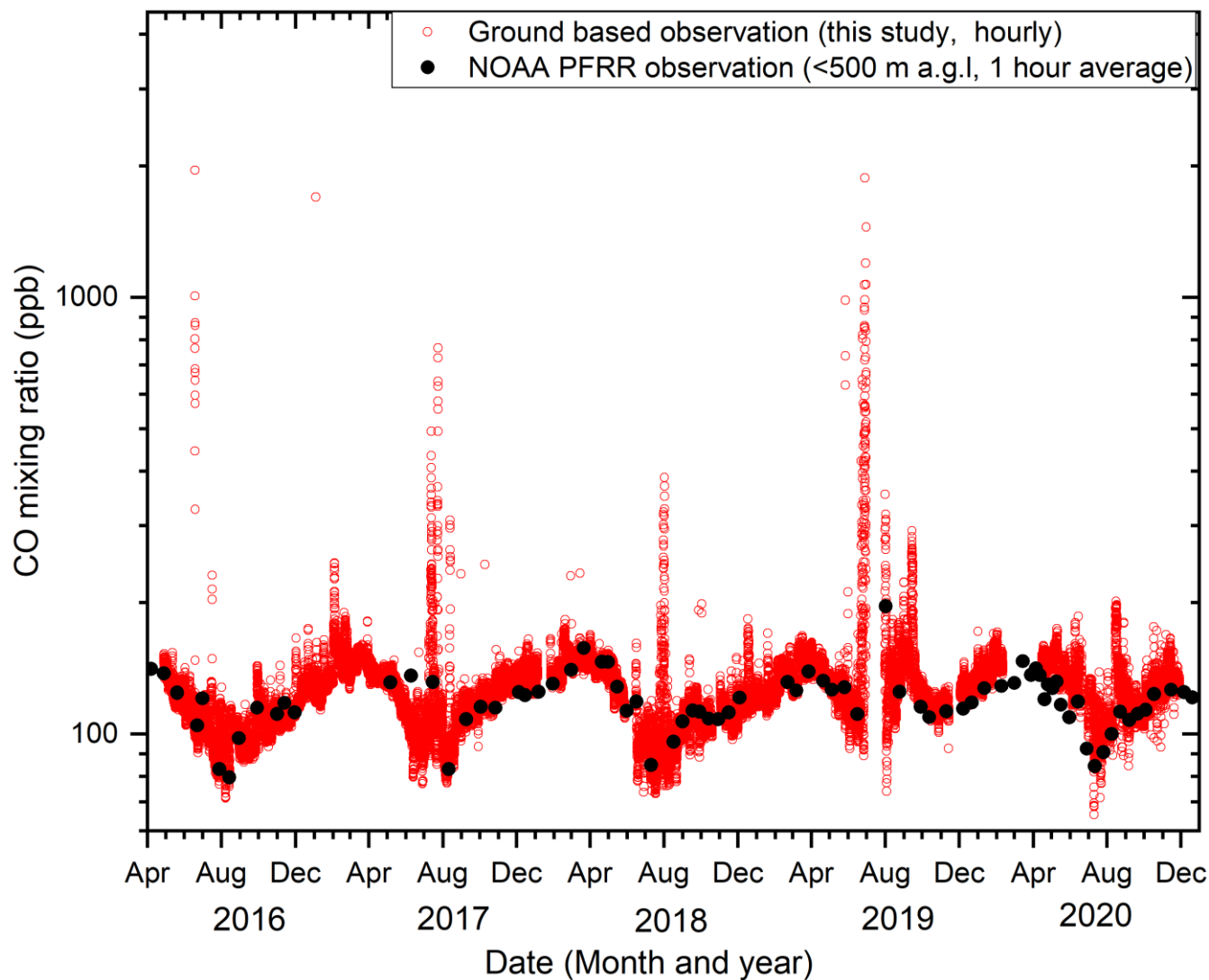
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Figure S2. Time series of CO mixing ratios observed at PFRR. Red circles show the hourly ground-based observation (this study) and black points show the 1-hour averages of the aircraft observation (below 500 m a.g.l) provided by NOAA Global Monitoring Laboratory.

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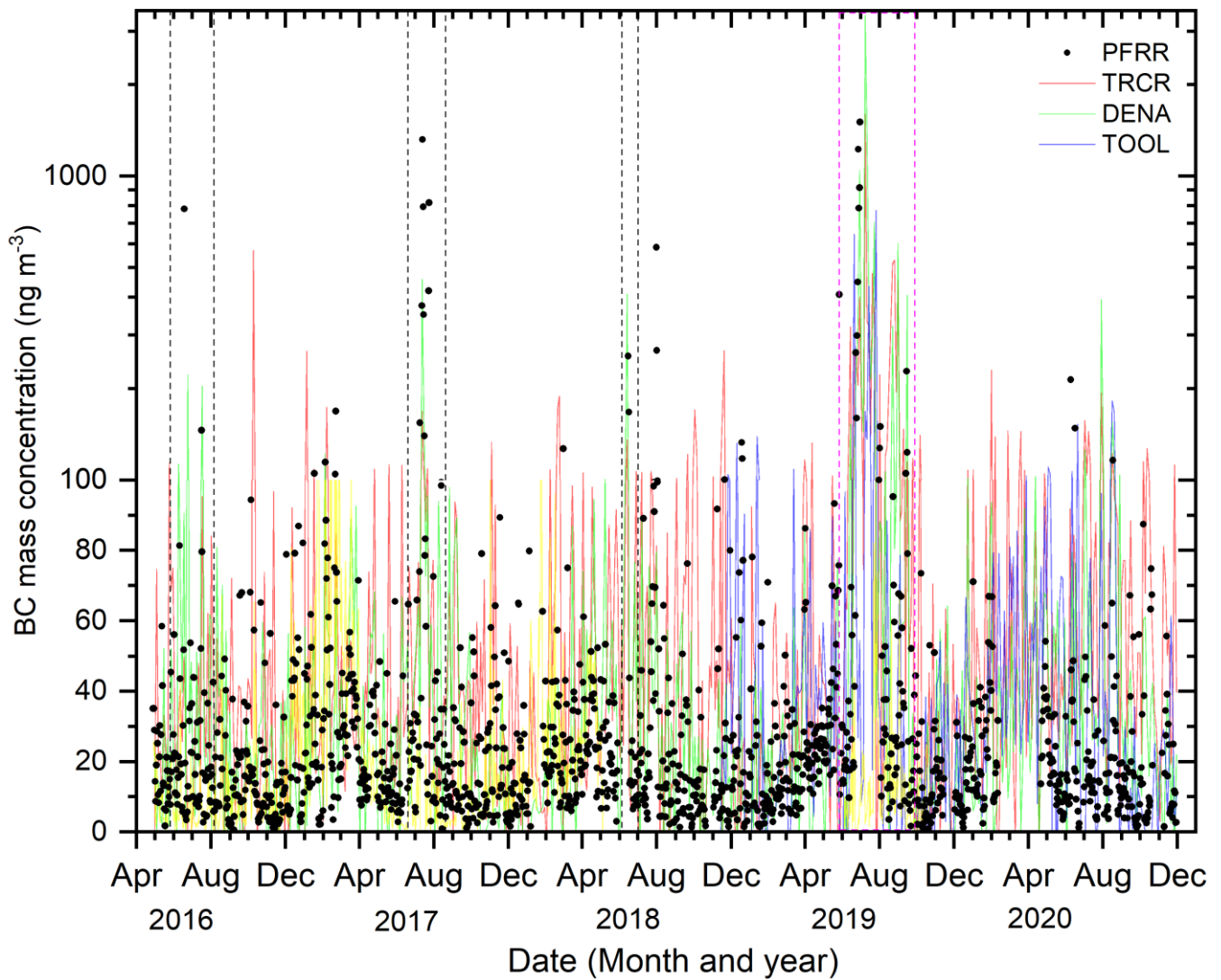**Time series of BC mass concentration observed at PFRR and other sites**

Figure S3. Time series of daily averages and daily observation of BC mass concentrations observed at PFRR, TRCR, DENA, and TOOL. The black points show the observation results at PFRR, and individual coloured lines show the observation results for TRCR, DENA, and TOOL as indicated by legends to the right. Synchronised BC mass concentration peaks observed at PFRR and DENA are indicated by black dot boxes. Synchronised BC mass concentration peaks observed at PFRR, TRCR, DENA and TOOL are indicated by a pink dot box.

The correlation plot observed by COSMOS at PFRR and the FLEXPART-WRF simulation
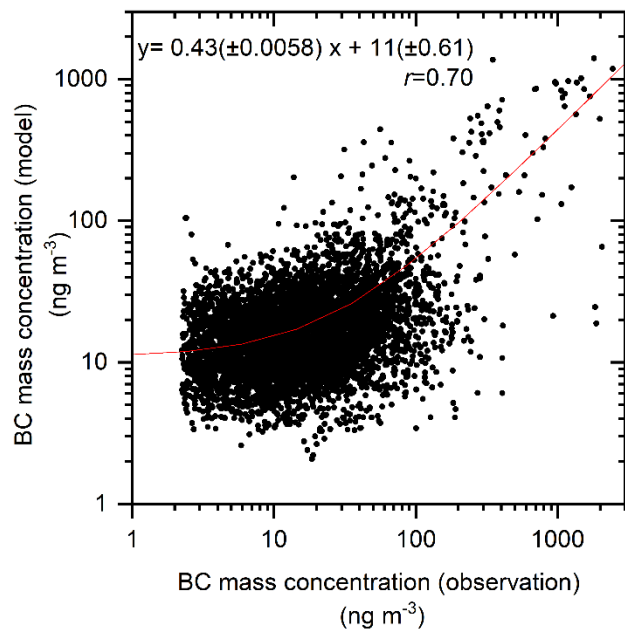
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Figure S4. Correlation plot between 6-hour averages of observed hourly BC mass concentration and simulated 6-hourly BC mass concentration by FLEXPART-WRF. A result of least square regression in linear scale is shown in a red curve. Numbers in parentheses indicate standard errors of a slope and an intercept of this regression.

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