Supplement to "Direct observations of NO$_x$ emissions over the San Joaquin Valley using airborne flux measurements during RECAP-CA 2021 field campaign"

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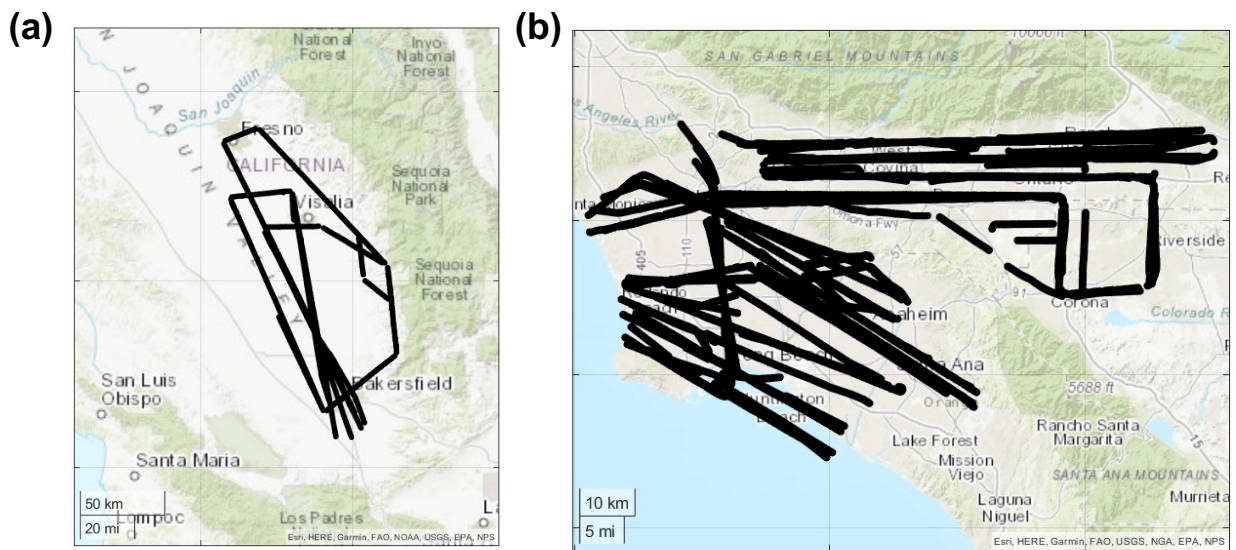
Figure S1: RECAP flight patch over San Joaquin Valley (a) and Los Angeles (b), consisting of 7 flights and 9 flights, respectively.
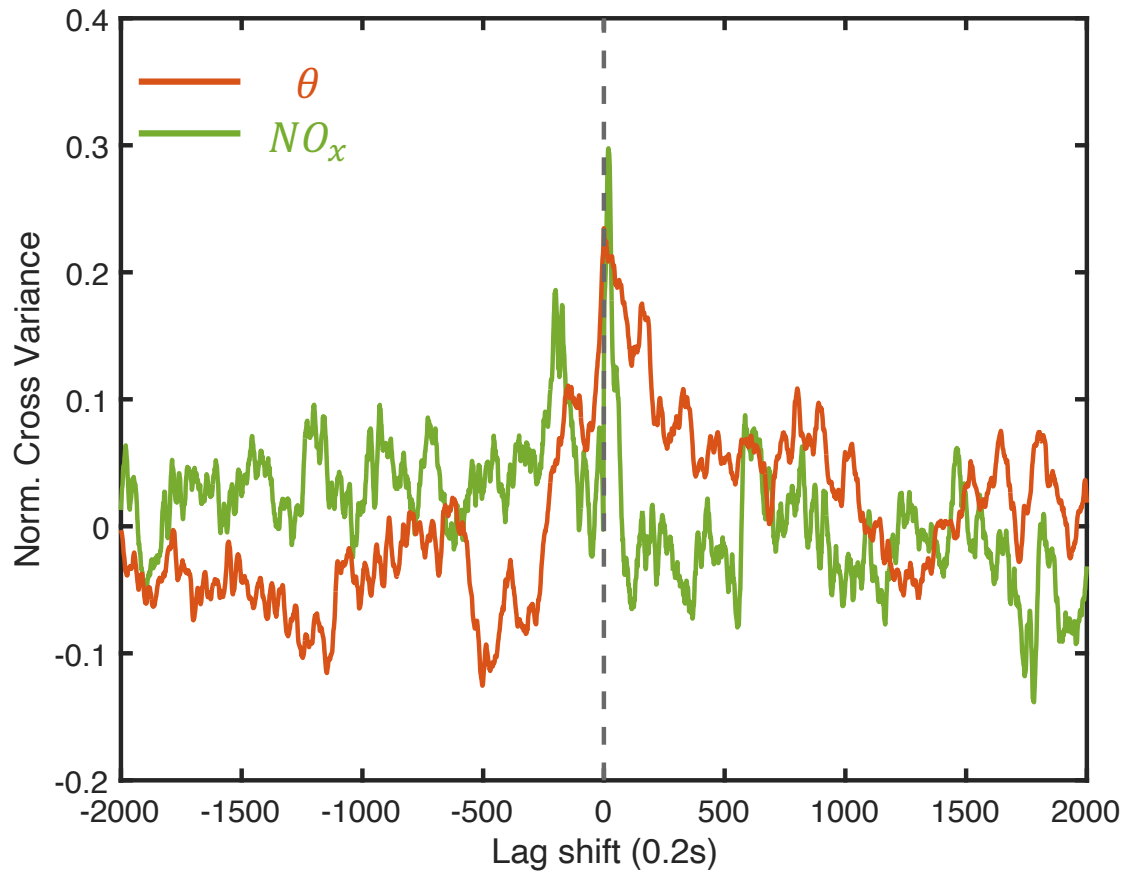
Figure S2: The normalized covariance peak for NO_x and potential temperature (θ).
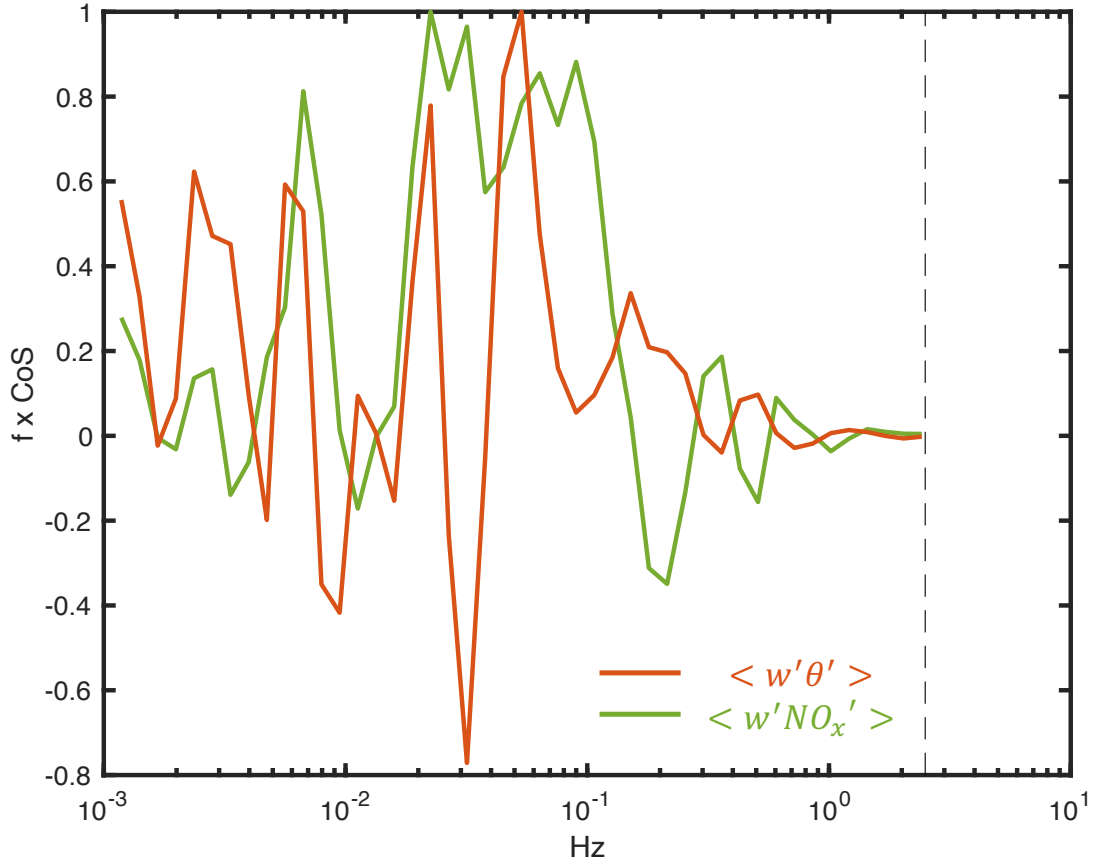
Figure S3: Normalized co-spectra of NO_x and heat flux. The black dashed represents the Nyquist frequency for NO_x flux.
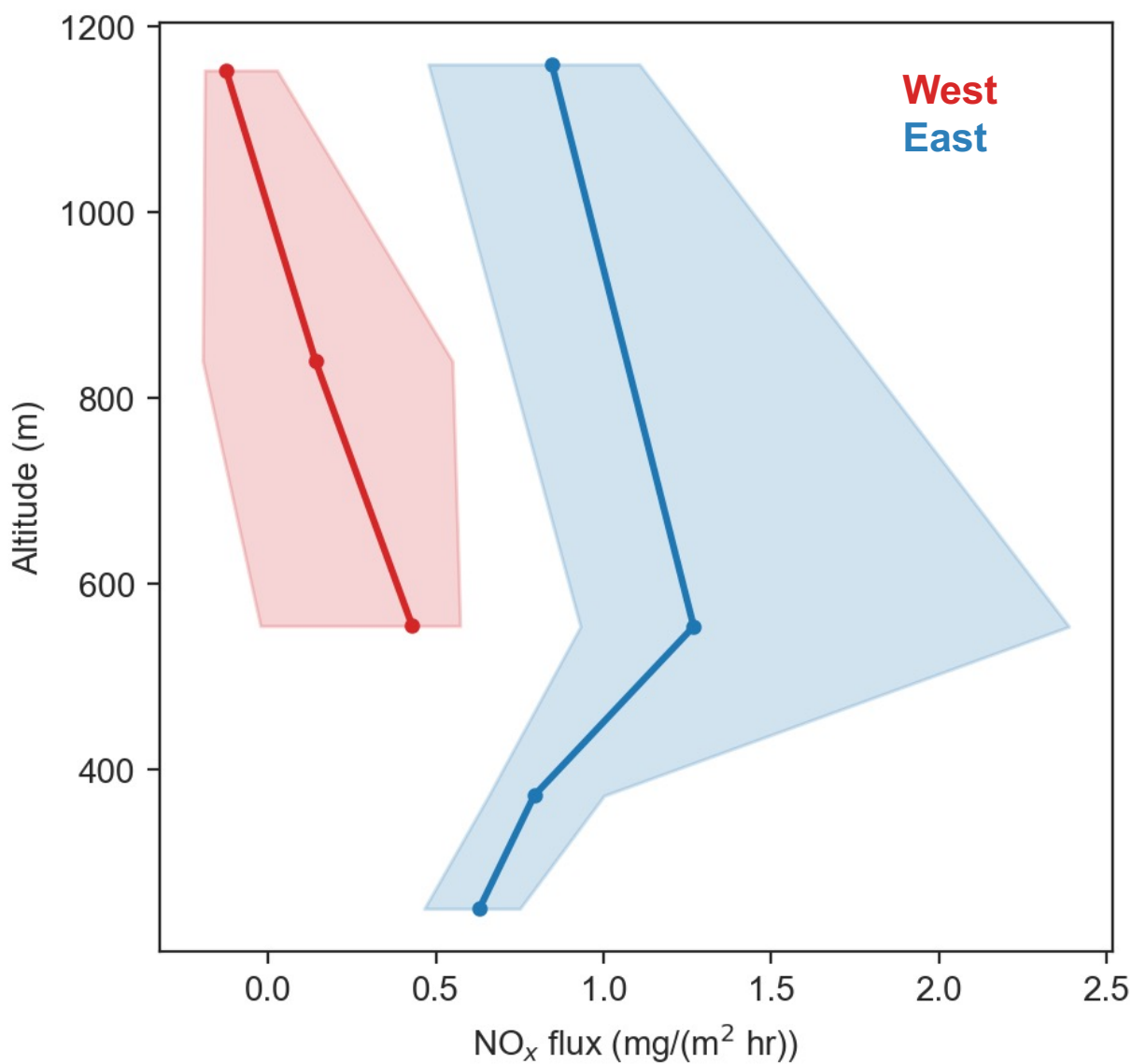
Figure S4: Vertical distribution of observed flux during racetrack, separated by the west patch and east patch. The dot represents the median flux and the shade refers to the interquantile range.
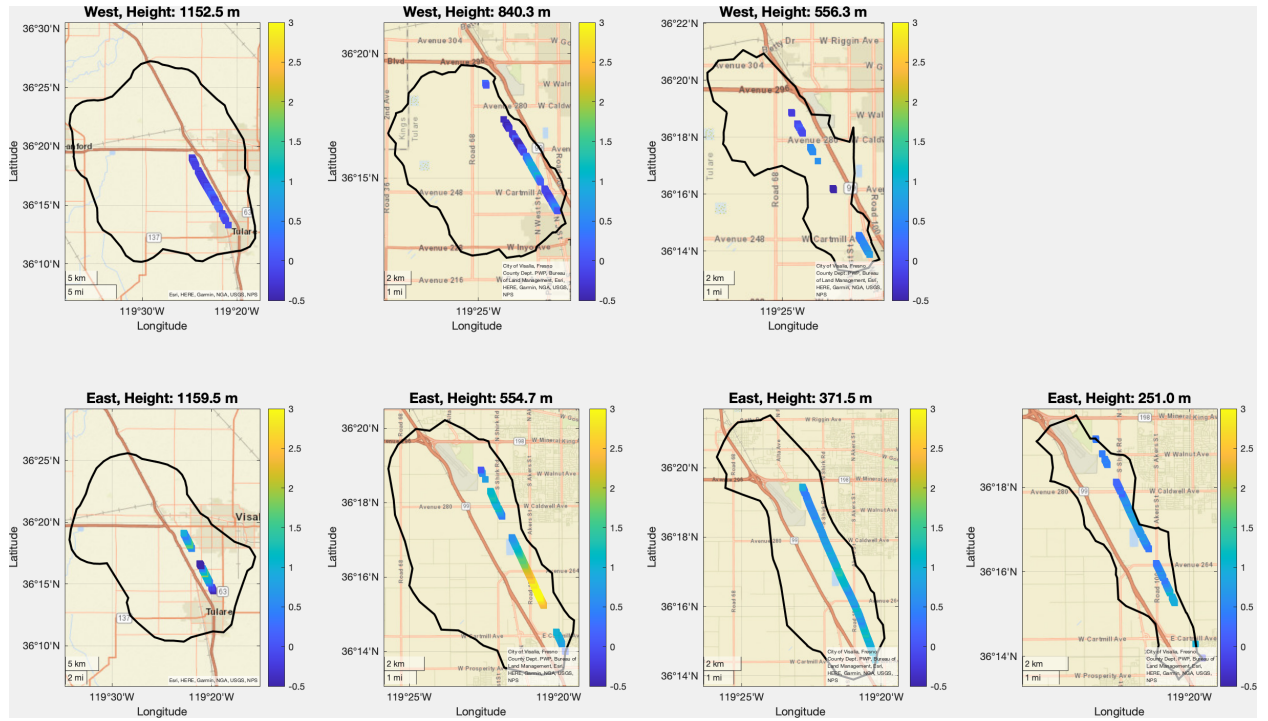
Figure S5: The spatial distribution of observed flux at each segment during racetrack. The black line contours the 90% of the footprint extent.
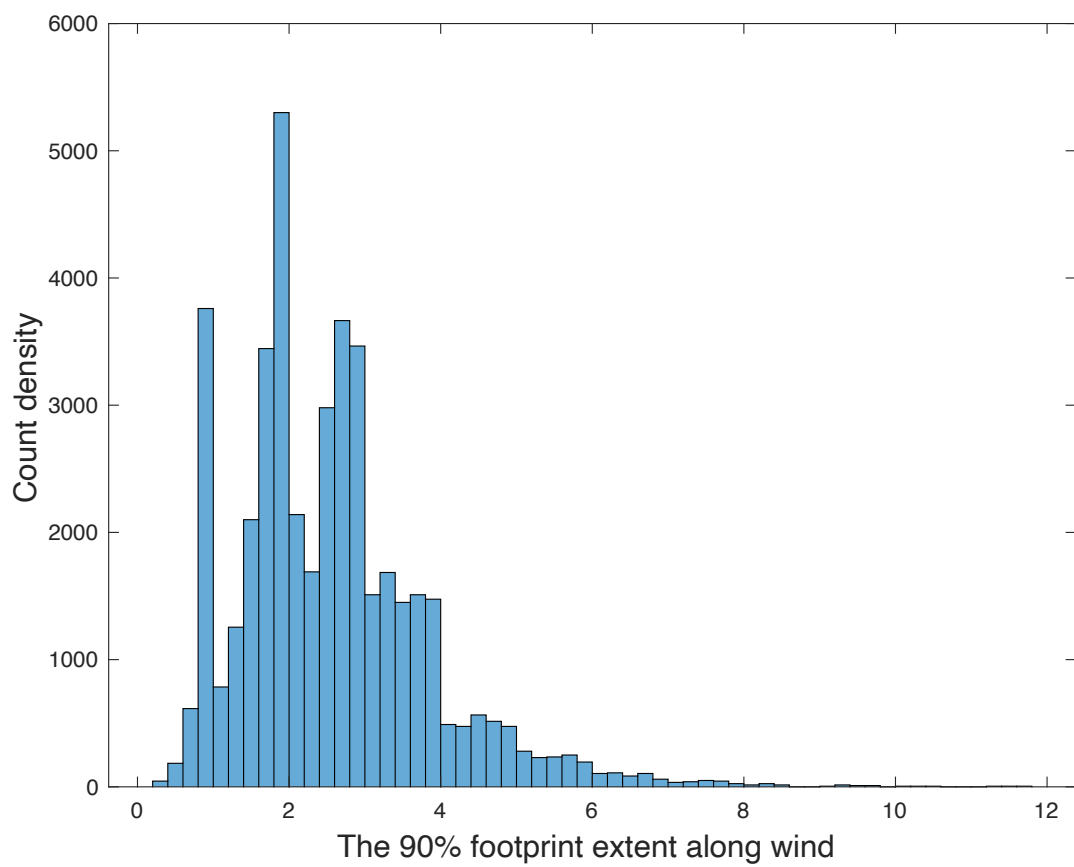
Figure S6: The count density distribution of 90% footprint extent.
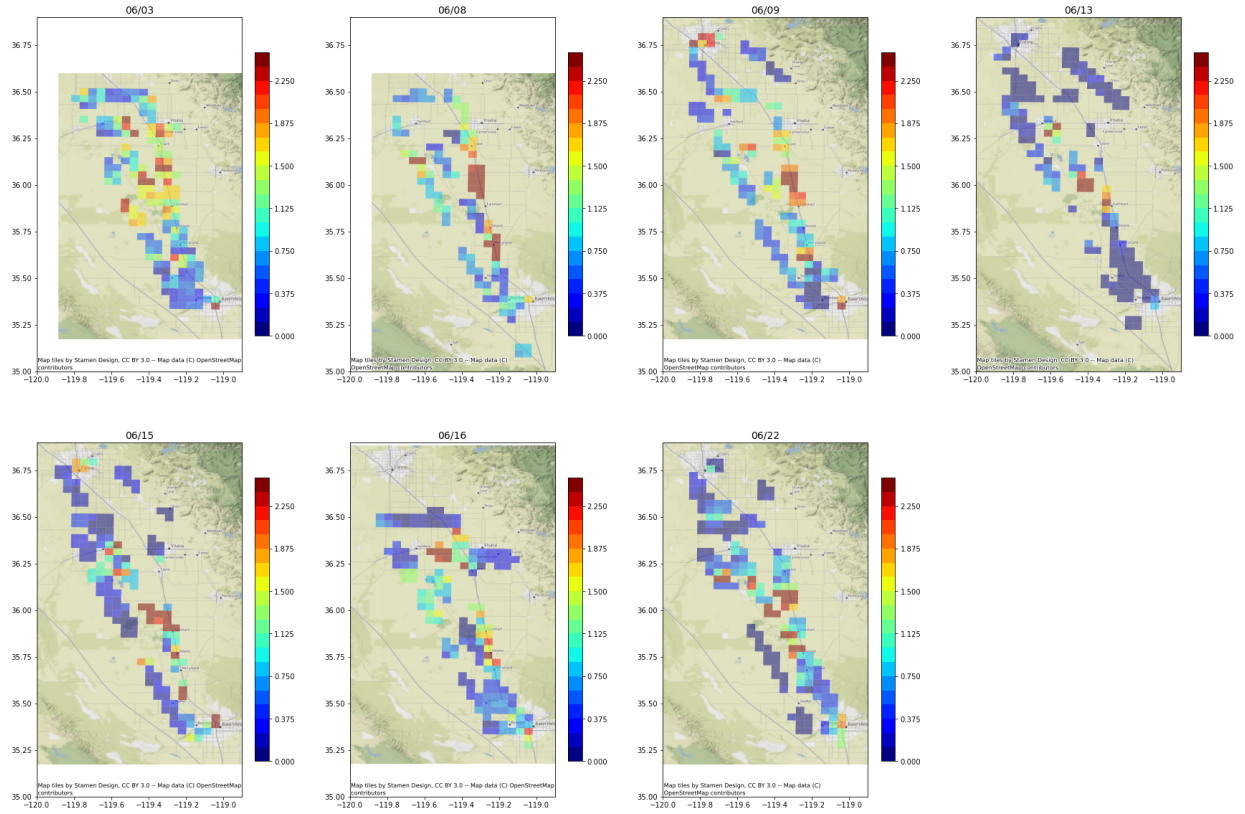
Figure S7: The estimated gridded emission map for each flight, aligned in the order of flight days. ©OpenStreetMap contributors 2022. Distributed under the Open Data Commons Open Database License (ODbL) v1.0.
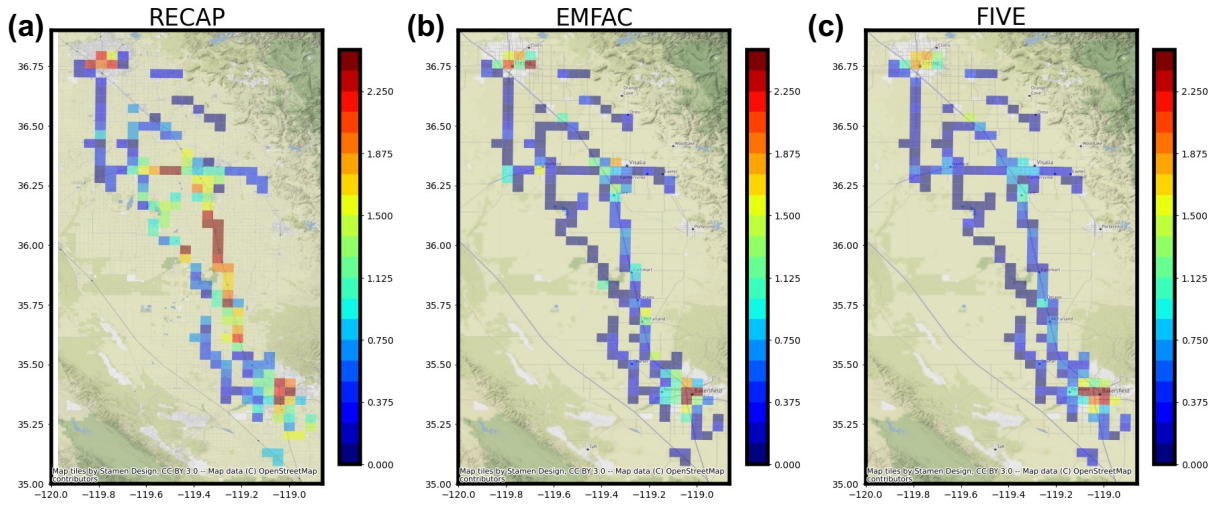
Figure S8: a) The estimated anthropogenic NO_x emission map at 4km during weekday. b) and c) are EMFAC and FIVE anthropogenic emission inventories matched both in time and space, respectively. ©OpenStreetMap contributors 2022. Distributed under the Open Data Commons Open Database License (ODbL) v1.0.
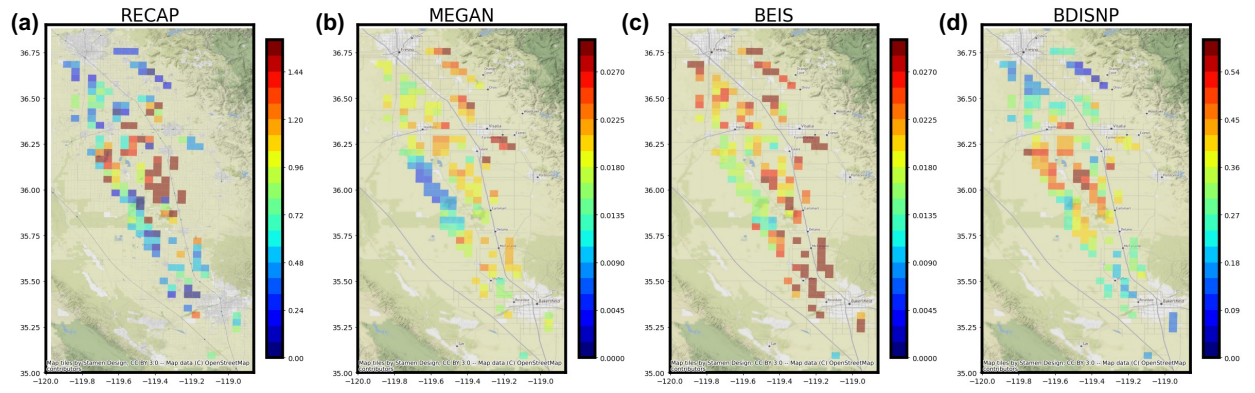
Figure S9: a) The estimated soil NO$_x$ emission map at 4km during weekday. b), c), d) are made from soil NO$_x$ schemes matched both in time and space, including MEGAN, BEIS and BDISNP. ©OpenStreetMap contributors 2022. Distributed under the Open Data Commons Open Database License (ODbL) v1.0.