

Appendix E

TROPOMI Images for Days With Trajectories Through the Western Milwaukee Area

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TROPOMI Images for Days With Trajectories Through the Western Milwaukee Area

This appendix contains Tropospheric Monitoring Instrument (TROPOMI) images of the five days in 2024 and 2025 where air parcels passed through the western part of the Milwaukee area on the way to a violating Milwaukee nonattainment monitor (Racine, Bayside, Grafton, or Harrington Beach).

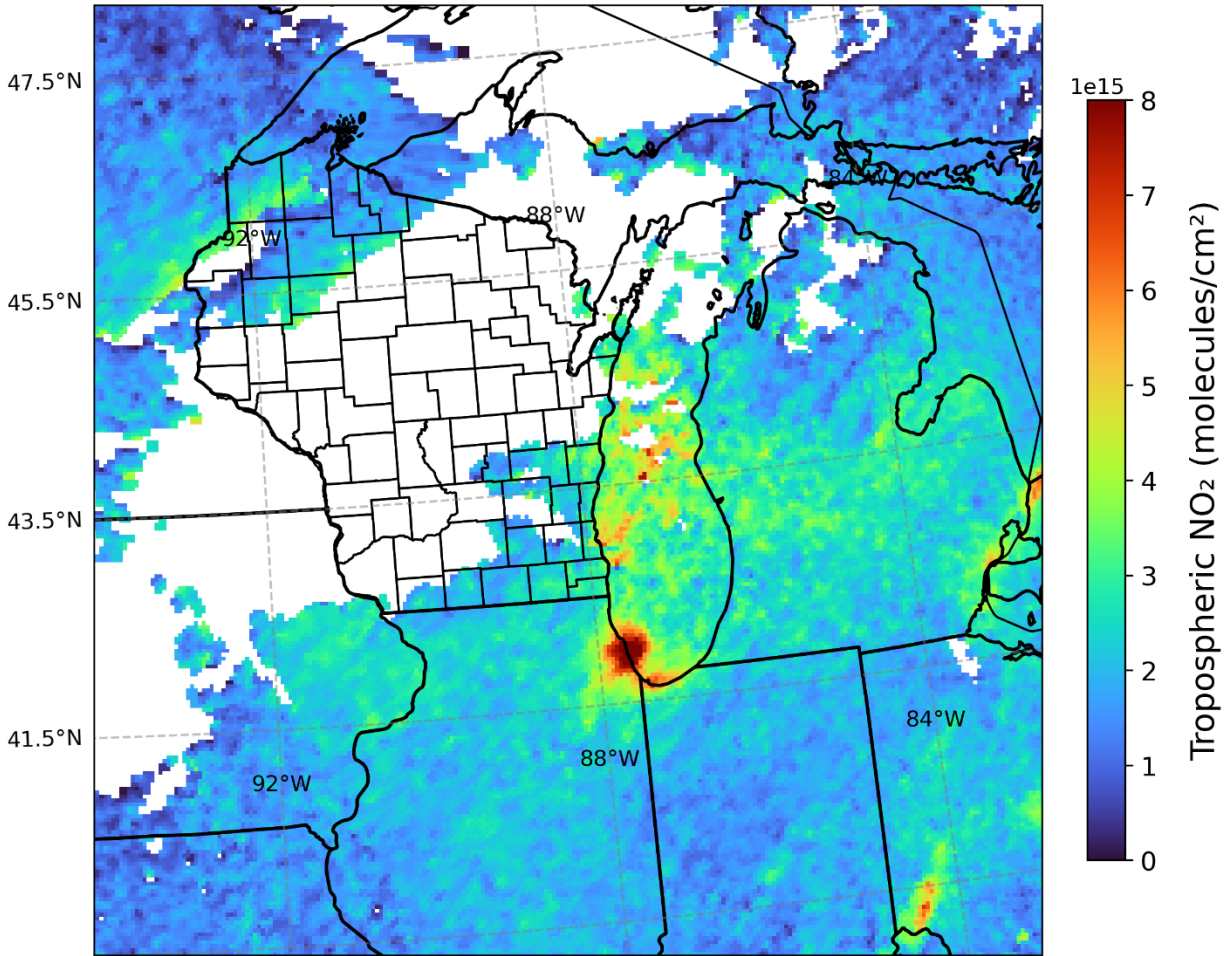
Methodology

Daily column NO₂ data from the TROPOMI imaging spectrometer onboard the Sentinel-5 Precursor satellite were obtained from a publicly-available database developed by the Holloway Group from the Center for Sustainability and the Global Environment at the University of Wisconsin-Madison.¹ Each daily file was generated from Level-2 satellite swath data and gridded to a 4-km horizontal grid using the Wisconsin Horizontal Interpolation Program for Satellites (WHIPS). This process also screened out any pixels with a solar zenith angle greater than 85 degrees, cloud fraction greater than 30%, or were affected by row anomalies.

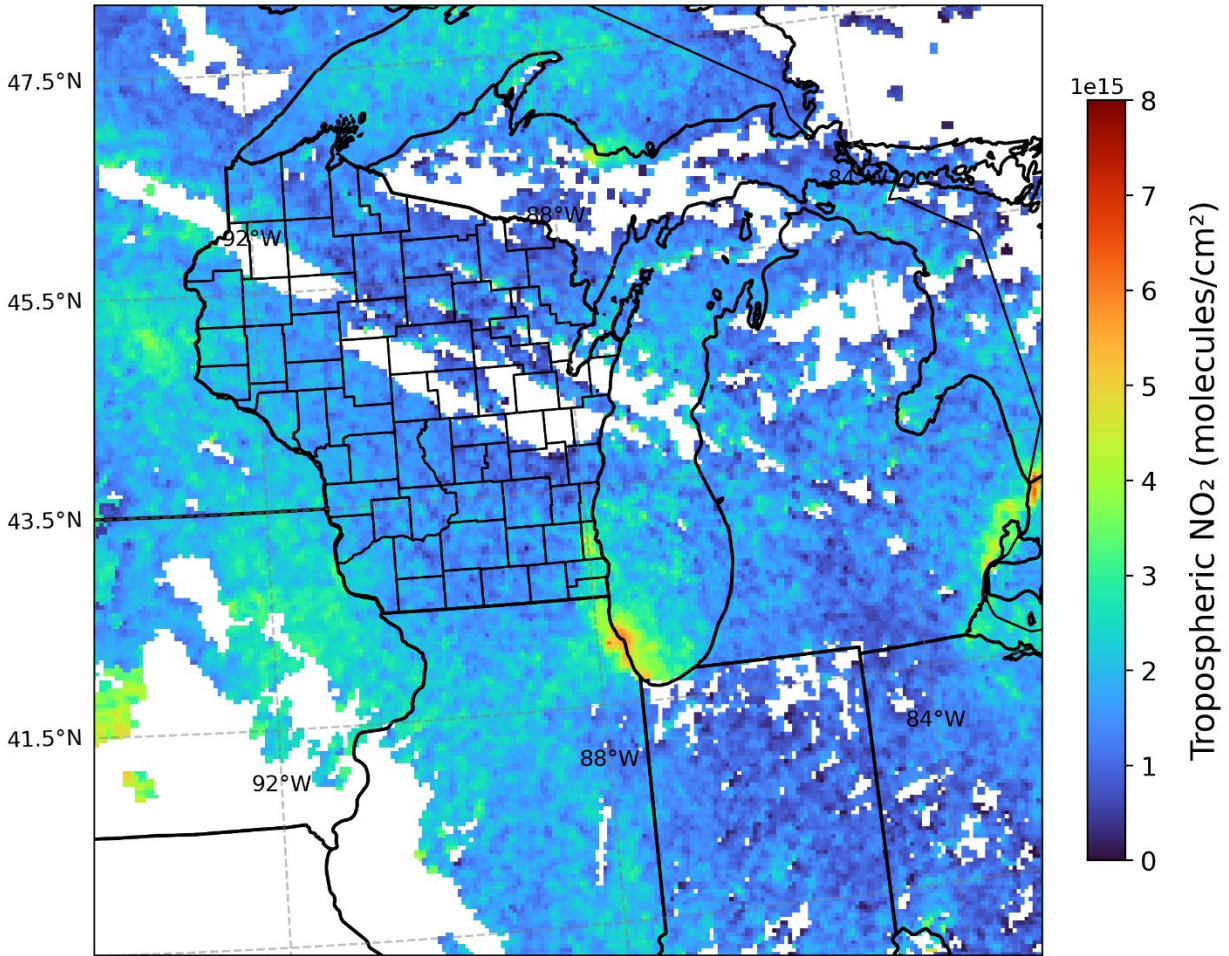
For each specified date, 4-km gridded tropospheric column nitrogen dioxide (NO₂) was plotted using Python for a majority of the Midwest region centered over Wisconsin and projected onto a Lambert Conformal coordinate system. A composite map of all identified days was also created, where a weighted average for each pixel was calculated using all available data and subsequently plotted over the same map extent and projection. To allow for easier day-to-day comparisons, a fixed range of values were used in the color scales for all maps.

¹ Database available at <https://sage.nelson.wisc.edu/data-and-models/datasets/satellite-data-for-air-quality/>

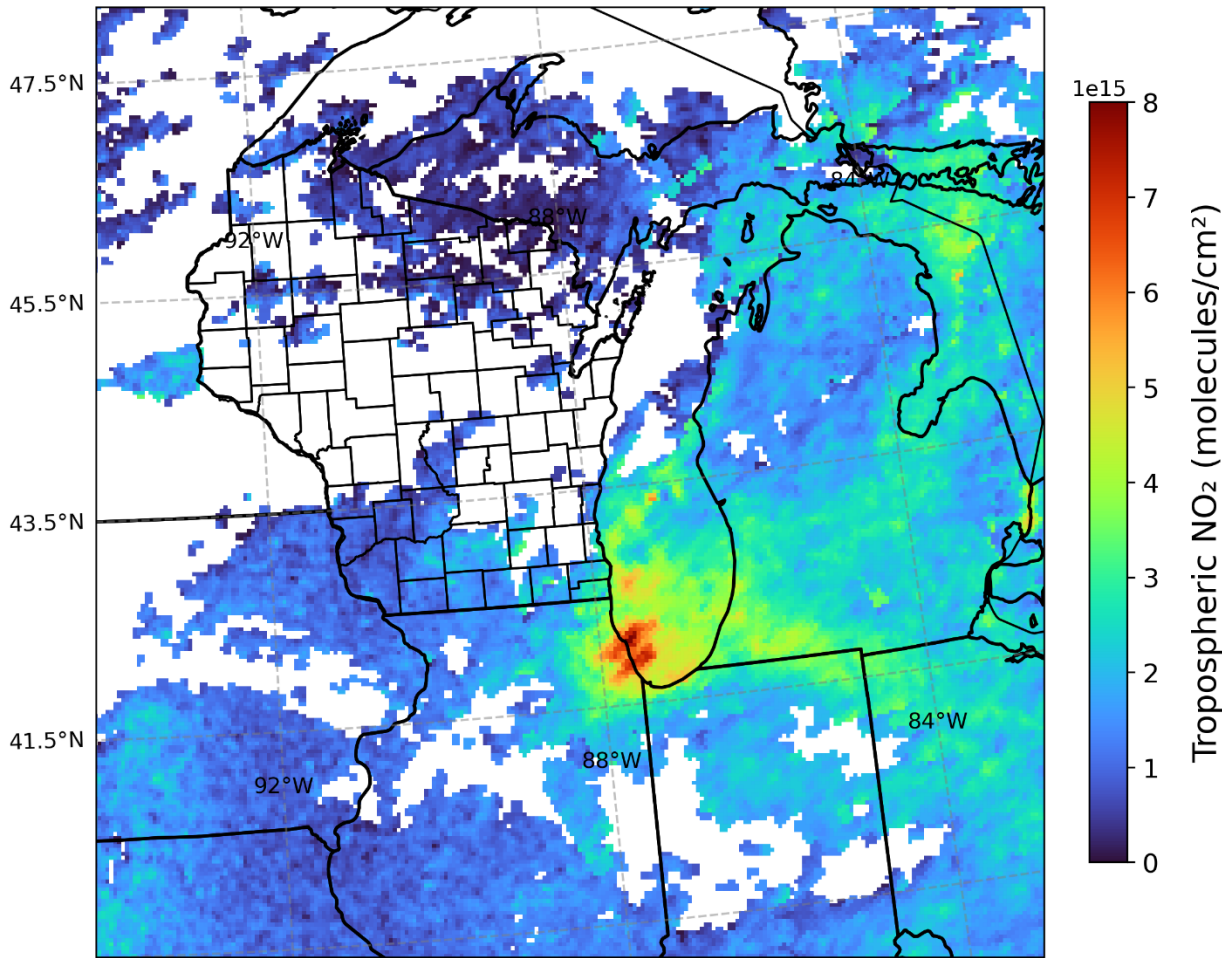
TROPOMI Tropospheric NO₂ on 06-12-2024



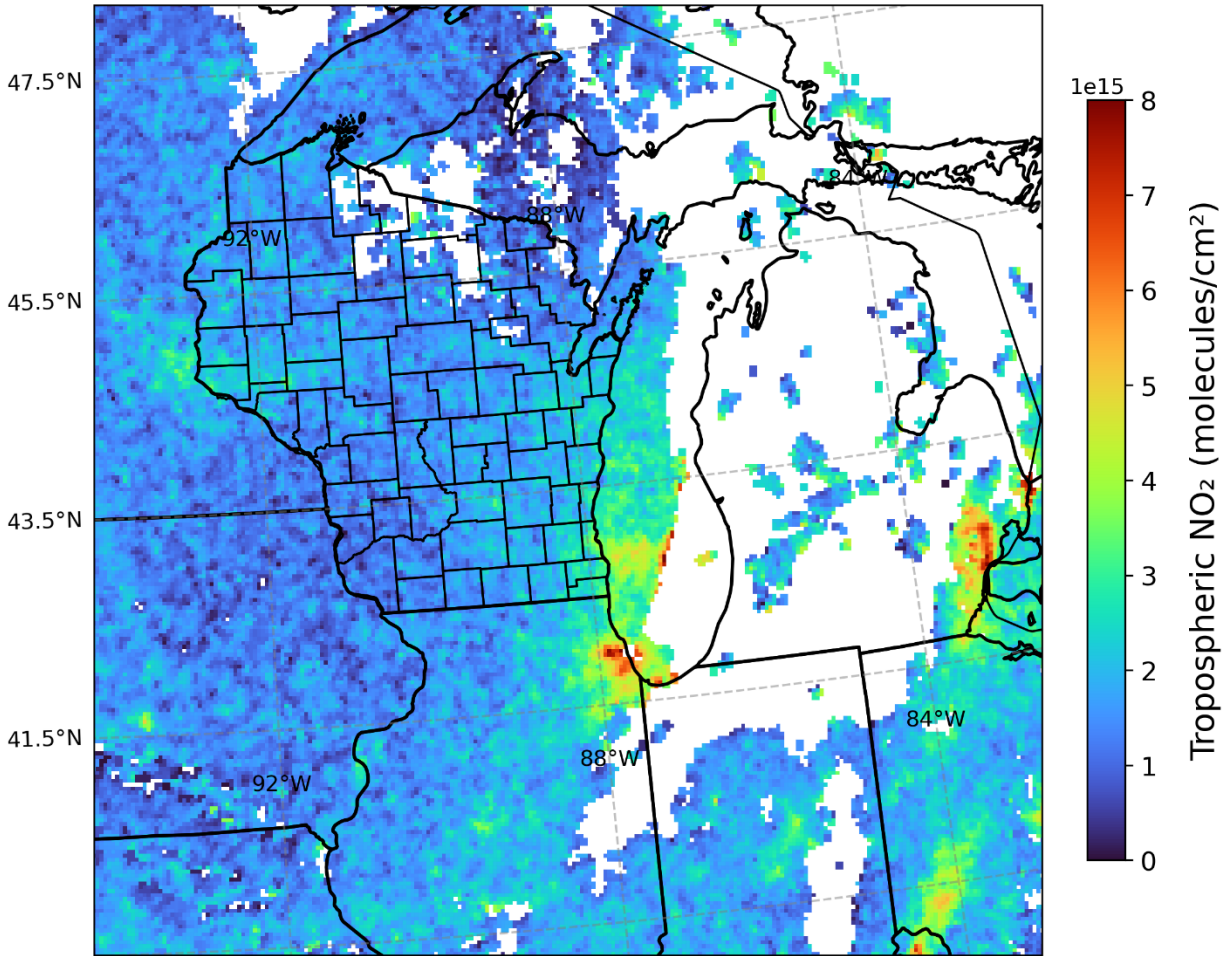
TROPOMI Tropospheric NO₂ on 08-24-2024



TROPOMI Tropospheric NO₂ on 07-15-2024



TROPOMI Tropospheric NO₂ on 09-20-2024



TROPOMI Tropospheric NO₂ on 06-11-2025

