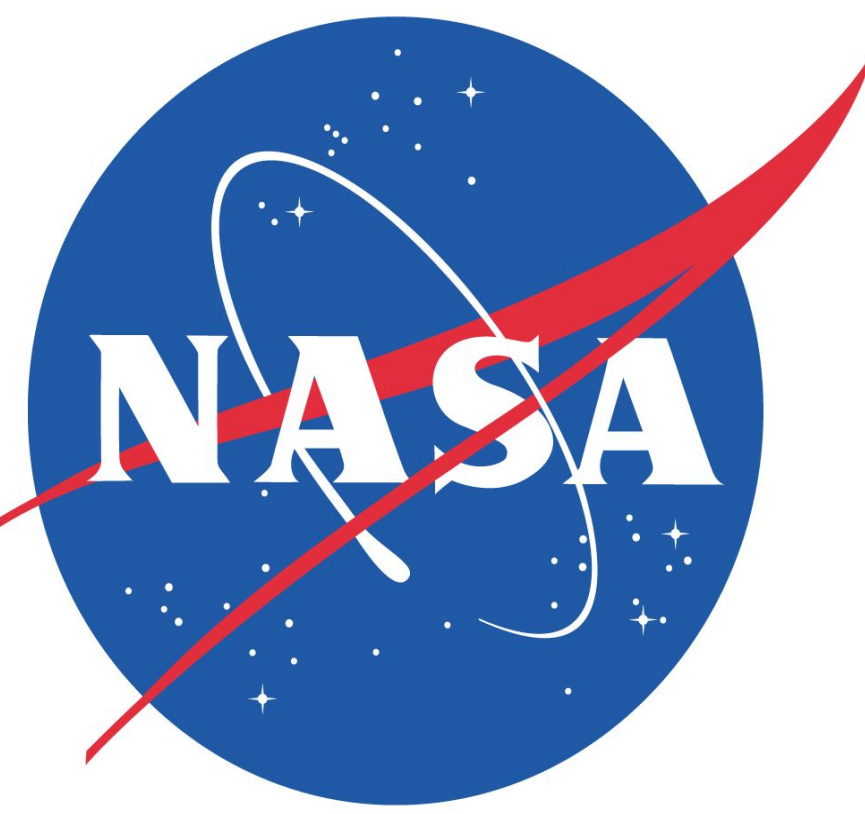




Update of HAQAST Products at NASA GES DISC: Data and Resources

Xiaohua Pan^{1,2}, Suhung Shen^{1,3}, Lena Iredell^{1,2}, James Johnson^{1,2},
Jerome Alfred^{1,2}, Jennifer Wei¹

¹GES DISC, NASA Goddard Space Flight Center, Greenbelt, MD, USA ²ADNET Systems Inc., Lanham, MD, USA ³
George Mason University, VA, USA **Contact:** xiaohua.pan@nasa.gov



1. HAQAST Gateway in GES DISC (webpage)

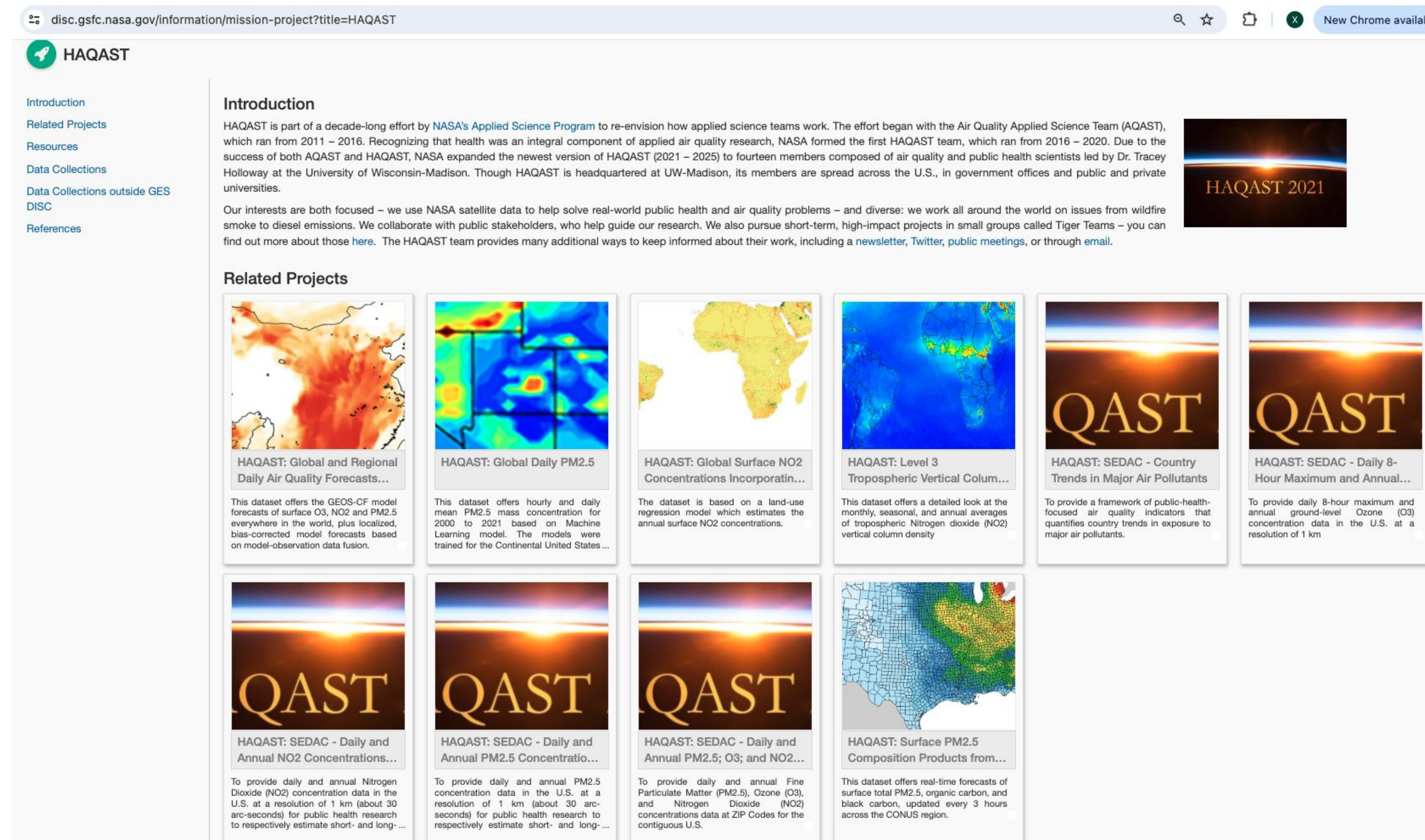


Figure 1 Screenshot of the HAQAST mission page on the GES DISC website. This webpage links to the product icons listed in the table below, where you can access the dataset landing page to download the data and access various documents.

2. HAQAST Products in GES DISC

PIs	Project Title	Released Date	Number of products	Pollutant	Resolution	Coverage	Processing Level	Data Format
Susan Anenberg	Global Surface NO2 Concentrations Incorporating OMI NO2	04/10/2023	1	NO2	~ 1 km x1 km annual	Global; 1990, 1995, 2000, and 2005-2020	4	NetCDF
Qian Xiao	Annual Summary of Artificial Light at Night from VIIRS/S-NPP at CONUS county and Census Tract	04/18/2023	1	Artificial light at night	county and census tract, Annual	CONUS; 2012-2020		ASCII
Daniel Tong	Surface PM2.5 Composition Products from the Hazardous Air Quality Ensemble System	05/11/2023	9	OC, BC, PM2.5	~ 12 km x12 km, county, and census tract, 3-hourly	CONUS; 2022.11.01 - present	4	NetCDF, ASCII
Dan Goldberg	Level 3 Tropospheric Vertical Column NO2 (TROPOMI)	02/22/2024 (see Section 3)	3	NO2	0.01° x 0.01° Monthly, seasonal, annual	CONUS; 2018.05-present	3	NetCDF
		In progress	2	NO2	0.1° x 0.1° Monthly, annual	Global; 2019.01-present	3	NetCDF and CSV
Pawan Gupta	Global Daily PM2.5 (machine learning derived from MERRA-2)	In progress	?	PM2.5	0.5° x 0.625° hourly	Global; 2000 - 2021	4	NetCDF
Christoph Keller	Global and Regional Daily Air Quality Forecasts (NO2; O3; PM2.5)	In progress	?	NO2, O3, PM2.5	Point data 3 hourly	Global and regional; 2018.01.01 to present	4	NetCDF

4. Resources in GES DISC



Help desk: if you have any question, please email gsfc-dl-help-disc@mail.nasa.gov

3. Recent Releases

Products

- HAQAST Level 3 TROPOMI NO2 collections Version 2.4 over CONUS (Released on Feb. 22, 2024)

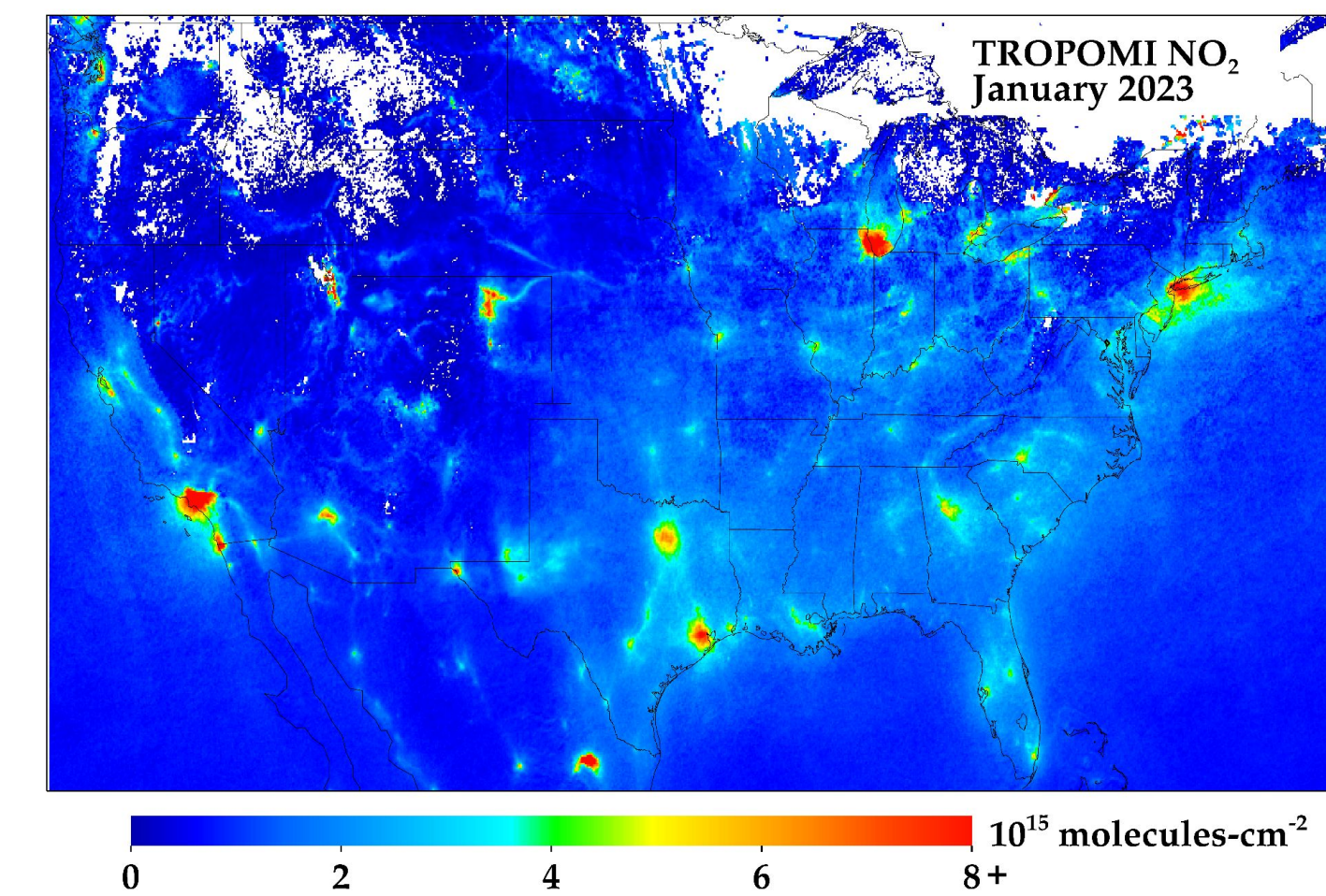


Figure 2 The monthly mean Level 3 HAQAST Sentinel-5P TROPOMI Nitrogen Dioxide (NO2) column density over CONUS for January 2023. (Collection: HAQ_TROPOMI_NO2_CONUS_M_L3_2.4, variable name: Tropospheric_NO2)

Data-in-Action

- Tropospheric NO2 concentration before, during, and after the pandemic in the USA (in progress)

Tropospheric_NO2:(molec cm-2)

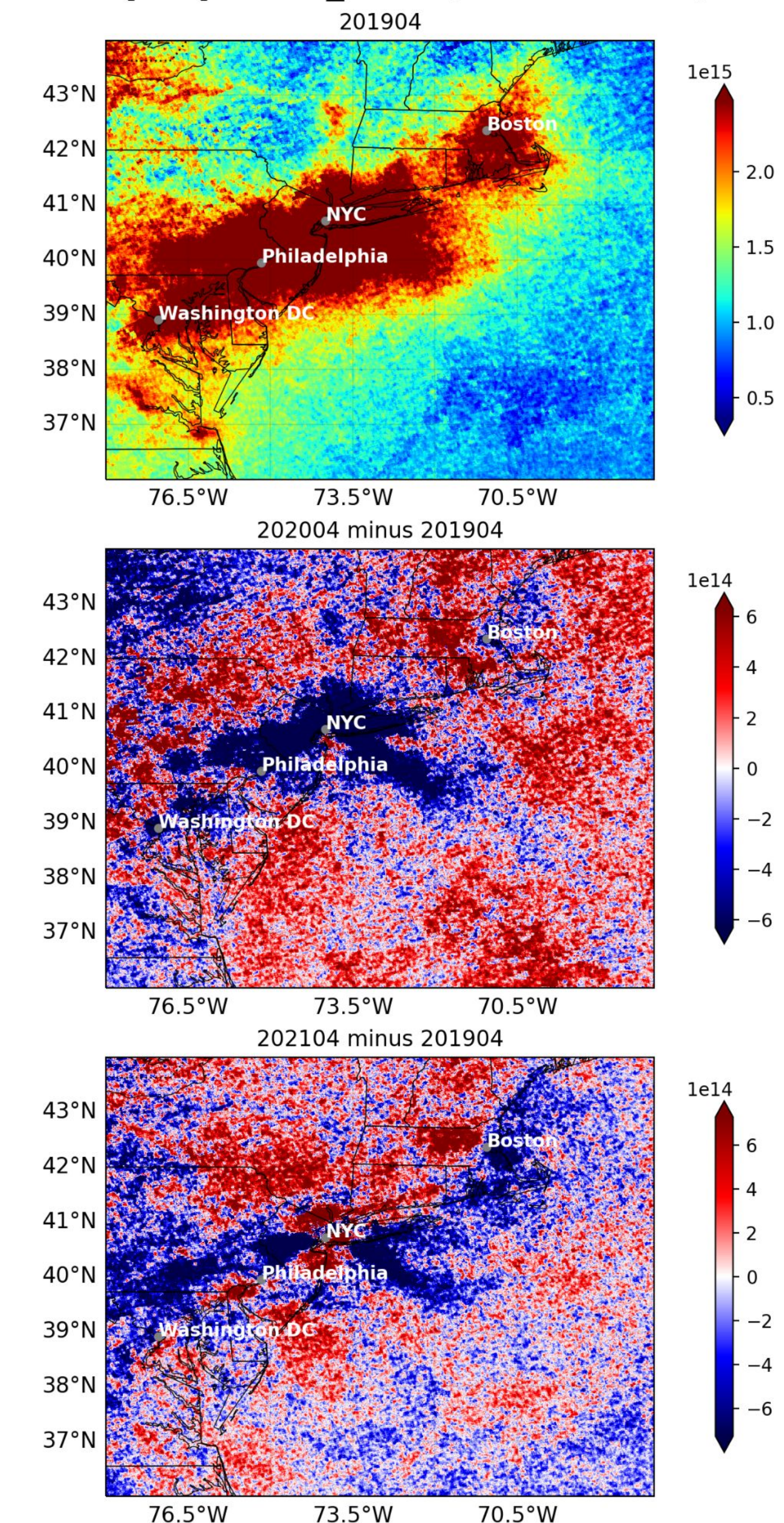


Figure 3 The monthly mean Level 3 HAQAST Sentinel-5P TROPOMI Nitrogen Dioxide (NO2) column density over eastern CONUS in April 2019 (top panel), the differences in following two years, April 2020 (middle panel) and April 2021 (bottom panel).

(Collection: HAQ_TROPOMI_NO2_CONUS_M_L3_2.4, variable name: Tropospheric_NO2)

How-to

- Open the Census file in ASCII format with a shapefile join in ArcGIS Pro and QGIS

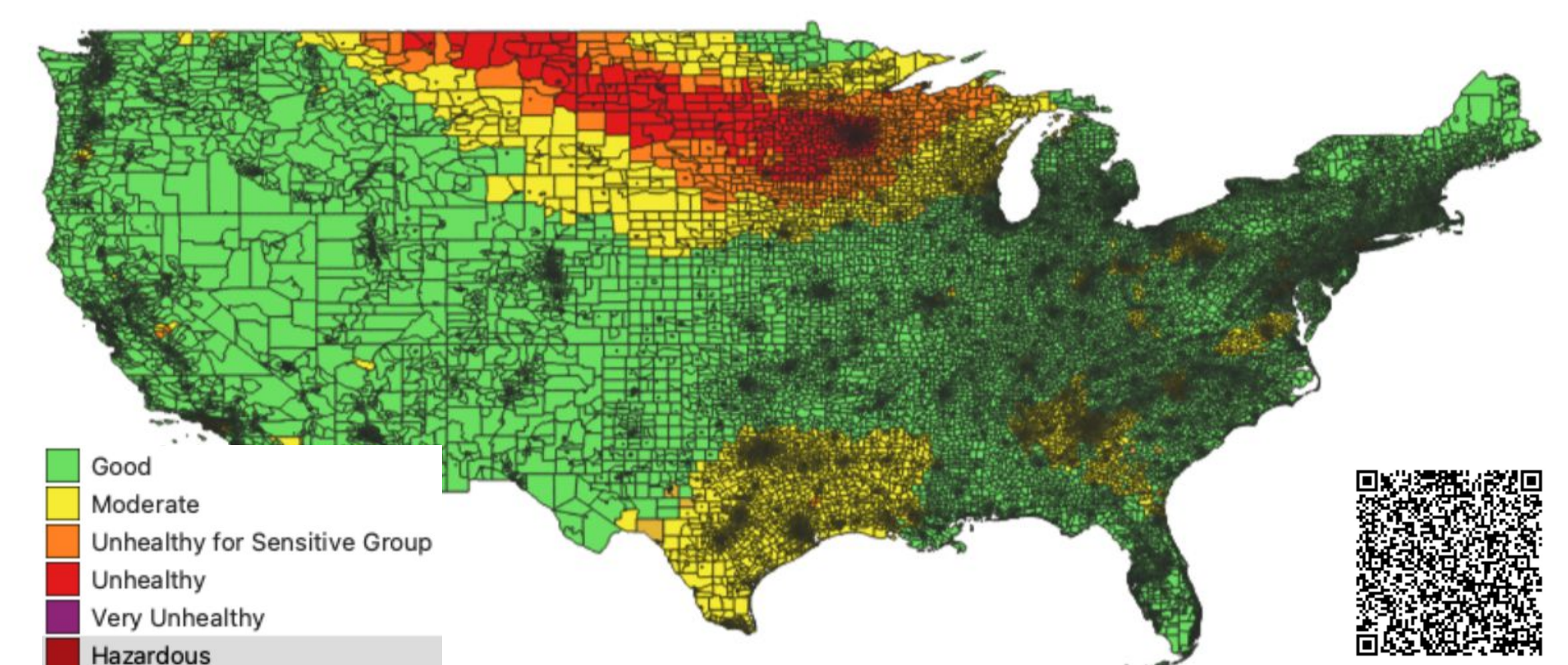


Figure 4 The 3-hourly ensemble mean surface total PM2.5 concentration at census level over North America on July 15, 2023, 12z, when severe Canadian wildfires were occurring. (Collection: HAQES_NA_PM25_TOT_CENSUS_1)