

# Data Intake Processing and Verification Report

## Background Information

- **Original Dataset Name:** Vulcan Fossil Fuel CO<sub>2</sub> Emissions
- **GHG Center Dataset Title:** Vulcan Fossil Fuel CO<sub>2</sub> Emissions
- **Dataset Provider:** NASA, DOE, NOAA, NIST
- **Date Obtained:** August 2024
- **Location Obtained From:**
- **Data Location in GHG Center:** vulcan-ffco2-yeargrid-v4
- **Data POC(s):** Dr. Lesley Ott
- **Dataset File Type(s):** TIFF
- **Projection (if different from WGS84):** Lambert Conformal Conic

## Data Transfer Confirmation

An SHA-256 checksum is used to detect high-level errors within data transmissions. Results from individual checksum file comparisons of pre-transfer and post-transfer shows all files were transferred successfully and no individual files had any transfer issues.

## Data Intake Process

- [https://us-ghg-center.github.io/ghgc-docs/data\\_workflow/vulcan-ffco2-yeargrid-v4\\_Data\\_Flow.html](https://us-ghg-center.github.io/ghgc-docs/data_workflow/vulcan-ffco2-yeargrid-v4_Data_Flow.html)

## Overall Dataset Statistics

- Statistics across all files:

	Minimum (tC/km <sup>2</sup> /year)	Maximum (tC/km <sup>2</sup> /year)	Mean (tC/km <sup>2</sup> /year)	Standard Deviation
Original Data	0.0	6222153.0	19.218233	3572.617188
Reprojected Data	0.0	6222153.0	19.188971	3555.795654
Reprojected Data (non zero pixels)	1.105706e-14	6222153.0	81.499359	7327.585938
Transformed Data	1.105706e-14	6222153.0	81.499359	7327.585938

## Yearly Dataset Statistics for Total Fossil Fuel emissions

- Statistics for Total Fossil Fuel CO<sub>2</sub> Emissions in 2010:

	Minimum (tC/km <sup>2</sup> /year)	Maximum (tC/km <sup>2</sup> /year)	Mean (tC/km <sup>2</sup> /year)	Standard Deviation
Original Data	0.0	6222153.0	114.446114	10073.695312
Reprojected Data	0.0	6222153.0	114.996605	10048.226562
Reprojected Data (non zero pixels)	1.468547e-08	6222153.0	187.312027	12823.672852
Transformed Data	1.468547e-08	6222153.0	187.312027	12823.672852

- Statistics for Total Fossil Fuel CO<sub>2</sub> Emissions in 2015:

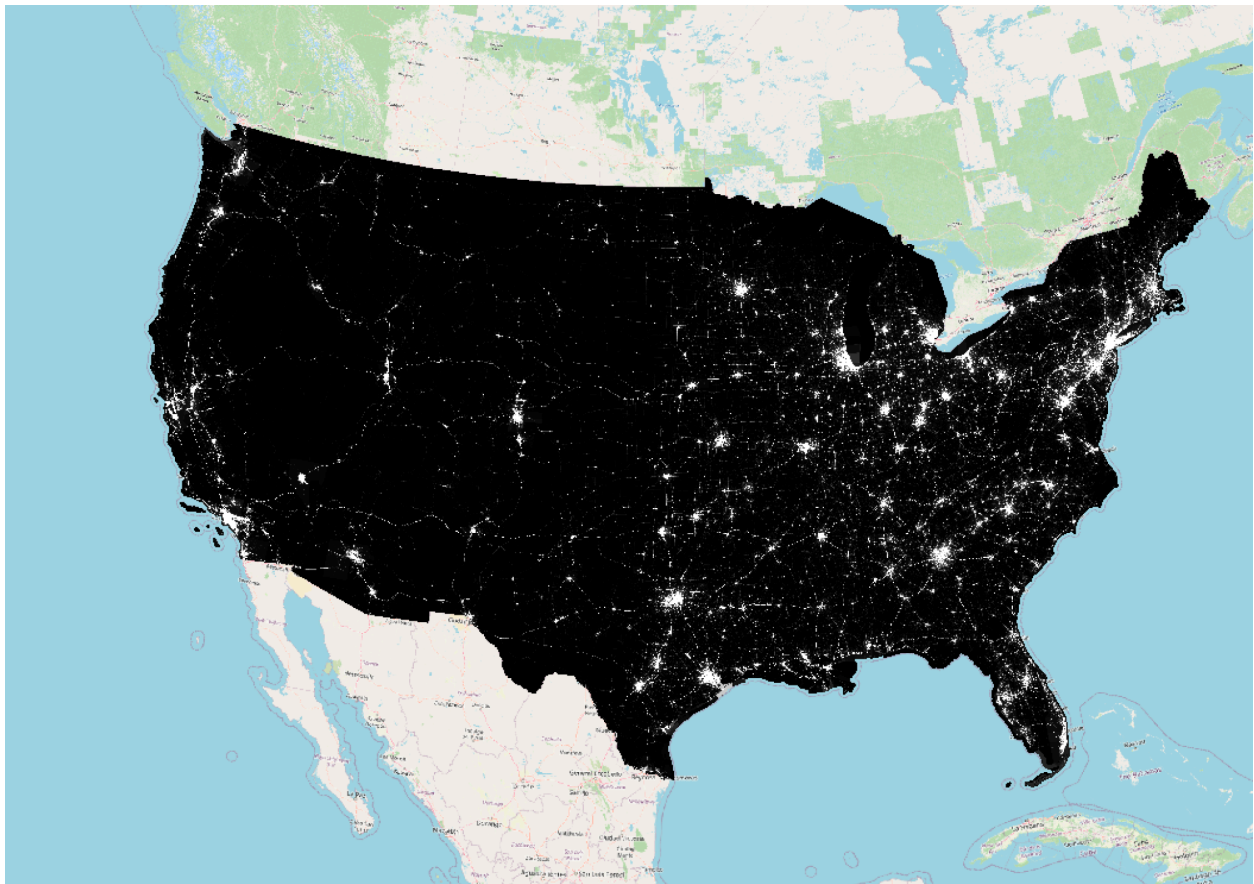
	Minimum (tC/km <sup>2</sup> /year)	Maximum (tC/km <sup>2</sup> /year)	Mean (tC/km <sup>2</sup> /year)	Standard Deviation
Original Data	0.0	5211198.0	107.540215	8397.161133
Reprojected Data	0.0	5211198.0	107.749908	8409.642578
Reprojected Data (non zero pixels)	7.584400e-09	5211198.0	175.508255	10732.370117
Transformed Data	7.584400e-09	5211198.0	175.508255	10732.370117

- Statistics for Total Fossil Fuel CO<sub>2</sub> Emissions In 2020:

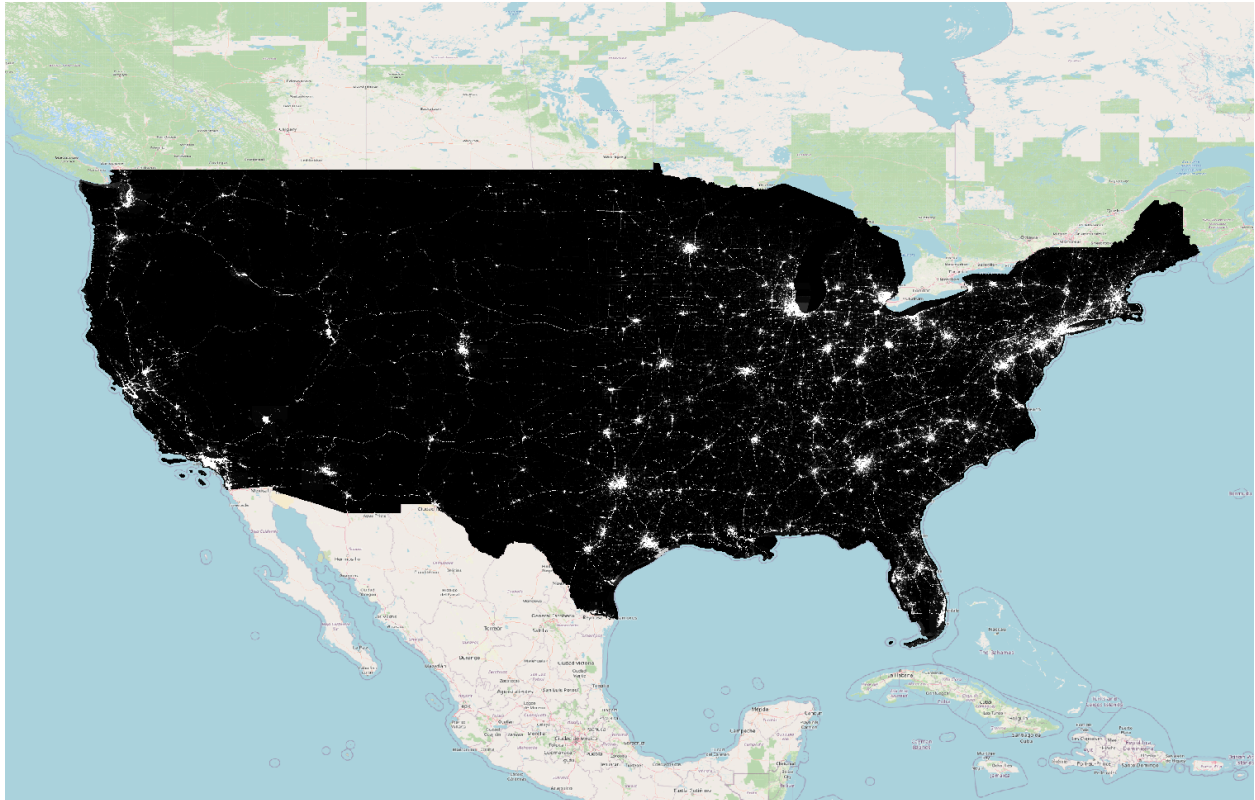
	Minimum (tC/km <sup>2</sup> /year)	Maximum (tC/km <sup>2</sup> /year)	Mean (tC/km <sup>2</sup> /year)	Standard Deviation
Original Data	0.0	4665875.5	92.866798	6380.595703
Reprojected Data	0.0	4665875.5	92.248459	6321.569824
Reprojected Data (non zero pixels)	1.259104e-08	4665875.5	150.258743	8067.452148
Transformed Data	1.259104e-08	4665875.5	150.258743	8067.452148

## Visual Comparison:

Original Data for Total Fossil Fuel CO<sub>2</sub> Emissions 2015 visualized on QGIS



Transformed Data Total Fossil Fuel CO<sub>2</sub> Emissions 2015 visualized on QGIS



- Link to transformation record in [Jupyter Notebook](#)
- All values are in expected range

## Summary

- We are confident that the transformation and display of data in the GHG Center is correct
- There were no problems identified in the data
- Link to [Data Usage Notebook](#)
- Link to [US GHG Center Data Catalog overview page](#)

**Report Completed on:** 20/8/2024

**MSFC POC for questions:** [Deborah Smith](#), [Siddharth Chaudhary](#)