

# Data Intake Processing and Verification Report

## Background Information

- **Original Dataset Name:** Global (4°x5°) top-down methane emissions and OH fields constrained by GOSAT methane observations
- **GHG Center Dataset Title:** GOSAT-based Top-down Total and Natural Methane Emissions Overview
- **Dataset Provider:** NASA
- **Date Obtained:** November 2024
- **Location Obtained From:** <https://doi.org/10.7910/DVN/GQ02CC>
- **Data Location in GHG Center:** gosat-based-ch4budget-yeargrid-v1
- **Data POC(s):** Dr. John R. Worden
- **Dataset File Type(s):** NetCDF
- **Projection (if different from WGS84):** N/A

## 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/gosat-based-ch4budget-yeargrid-v1\\_Data\\_Flow.html](https://us-ghg-center.github.io/ghgc-docs/data_workflow/gosat-based-ch4budget-yeargrid-v1_Data_Flow.html)

## Overall Dataset Statistics

NetCDF (original data) and COGs (transformed cloud optimized GeoTIFF) files were read to generate the statistics.

	Minimum (Tg CH <sub>4</sub> /year)	Maximum (Tg CH <sub>4</sub> /year)	Mean (Tg CH <sub>4</sub> /year)	Standard Deviation
Original Data	-4.447	9.012	0.096	0.111
Transformed Data	-4.447	9.012	0.096	0.111

- Statistics for Posterior ANTH\_CH4 variable:

	Minimum (Tg CH <sub>4</sub> /yr)	Maximum (Tg CH <sub>4</sub> /yr)	Mean (Tg CH <sub>4</sub> /yr)	Standard Deviation
Original Data	-4.447	8.014	0.113	0.0302
Transformed Data	-4.447	8.014	0.113	0.0302

- Statistics for Posterior ANTHP\_CH4 Variable:

	Minimum (Tg CH <sub>4</sub> /year)	Maximum (Tg CH <sub>4</sub> /year)	Mean (Tg CH <sub>4</sub> /year)	Standard Deviation
Original Data	0.0	6.6106	0.1077	0.0
Transformed Data	0.0	6.6106	0.1077	0.0

- Statistics for Posterior WET\_CH4 Variable:

	Minimum (Tg CH <sub>4</sub> /year)	Maximum (Tg CH <sub>4</sub> /year)	Mean (Tg CH <sub>4</sub> /year)	Standard Deviation
Original Data	-0.0126	8.256	0.051	0.028
Transformed Data	-0.0126	8.256	0.051	0.028

- Statistics for Posterior WETP\_CH4 Variable:

	Minimum (Tg CH <sub>4</sub> /year)	Maximum (Tg CH <sub>4</sub> /year)	Mean (Tg CH <sub>4</sub> /year)	Standard Deviation
Original Data	0.0	6.6392	0.045	0.0
Transformed Data	0.0	6.6392	0.045	0.0

- 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:** 11/19/2024

**MSFC POC for questions:** [Jeanné le Roux](#), [Siddharth Chaudhary](#)