

Data Intake Processing and Verification Report

Background Information

- **Original Dataset Name:** CEOS Pilot Top-down methane emissions estimates by sector and country
- **GHG Center Dataset Title:** GOSAT-based Top-down Total and Natural Methane Emissions Overview
- **Dataset Provider:** NASA
- **Date Obtained:** August 2023
- **Location Obtained From:** <https://doi.org/10.5281/zenodo.8306874>
- **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.

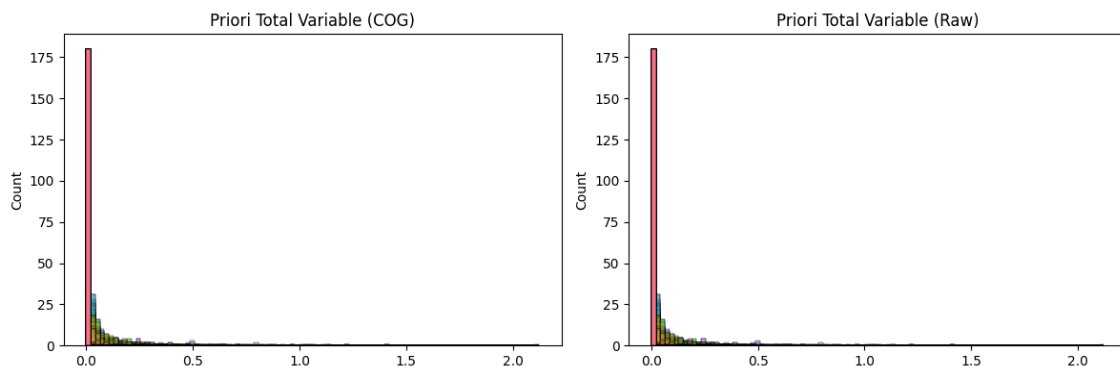
Data Intake Process

- https://us-ghg-center.github.io/ghgc-docs/data_workflow/gosat-based-ch4budget-yeargrid-v1_Data_Flow.html

Overall Dataset Statistics

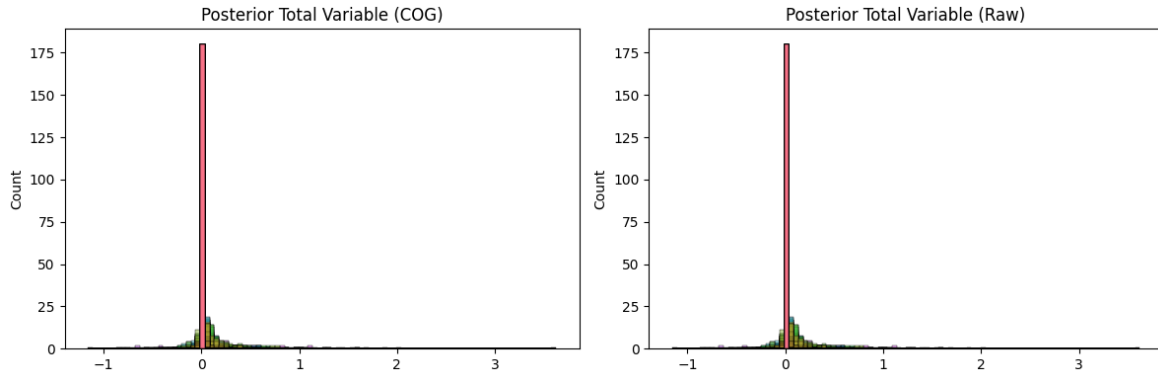
NetCDF (original data) and COGs (transformed cloud optimized GeoTIFF) files were read to generate the statistics.

- **Statistics for Priori Total Variable:**



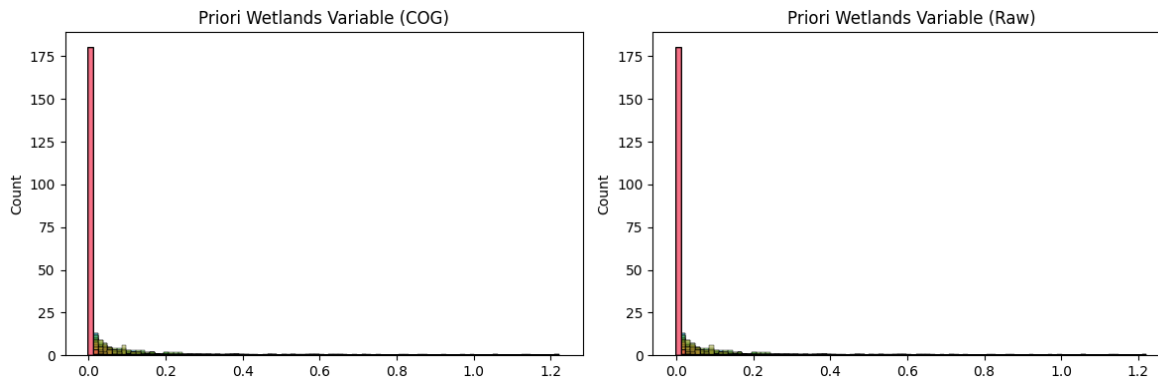
	Minimum (Tg CH4/yr)	Maximum (Tg CH4/yr)	Mean (Tg CH4/yr)	Standard Deviation
Original Data	0.00	2.1218	0.0083	0.0416
Transformed Data	0.00	2.1218	0.0083	0.0416

- Statistics for Posterior Total variable:



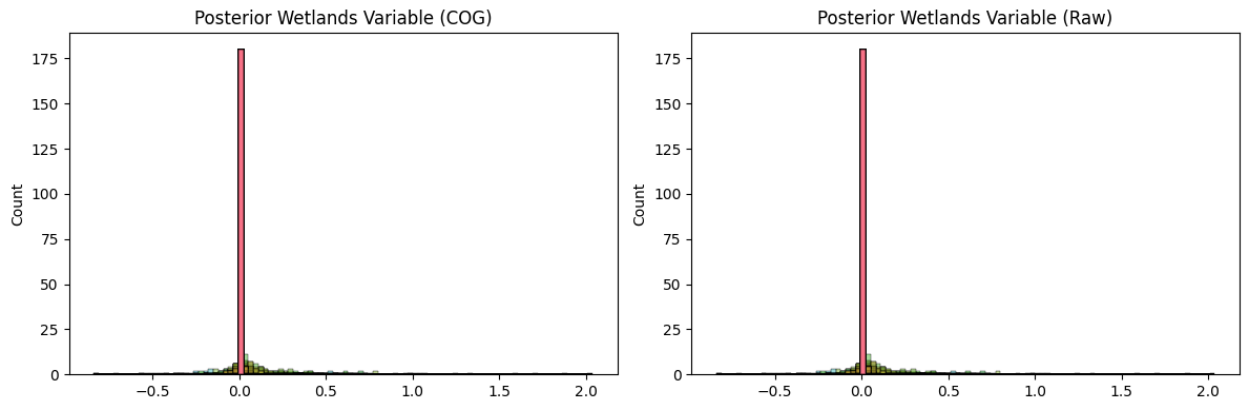
	Minimum (Tg CH4/yr)	Maximum (Tg CH4/yr)	Mean (Tg CH4/yr)	Standard Deviation
Original Data	-1.1573	3.6216	0.0086	0.057
Transformed Data	-1.1573	3.6216	0.0086	0.057

- Statistics for Priors Wetlands Variable:



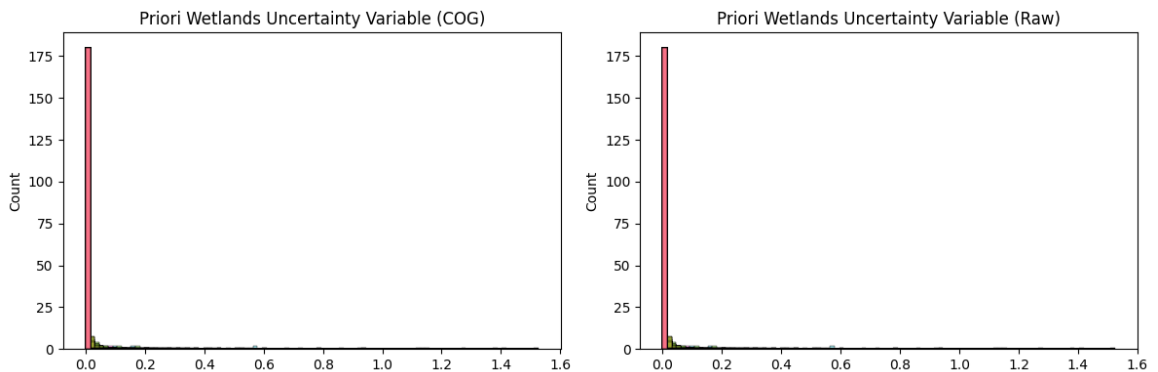
	Minimum (Tg CH4/yr)	Maximum (Tg CH4/yr)	Mean (Tg CH4/yr)	Standard Deviation
Original Data	0.00	1.2217	0.003	0.026
Transformed Data	0.00	1.2217	0.003	0.026

- Statistics for Posterior Wetlands Variable:



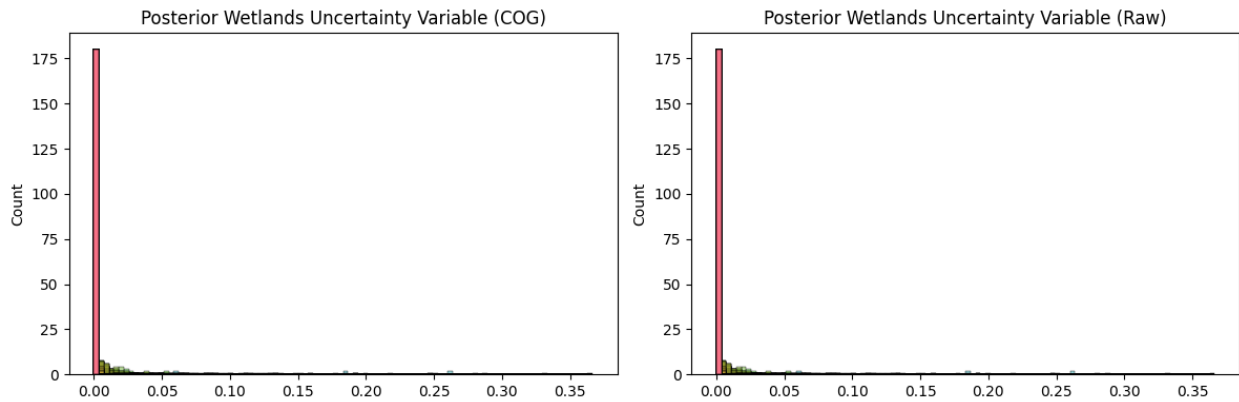
	Minimum (Tg CH4/yr)	Maximum (Tg CH4/yr)	Mean (Tg CH4/yr)	Standard Deviation
Original Data	-0.8375	2.0359	0.0027	0.0334
Transformed Data	-0.8375	2.0359	0.0027	0.0334

- Statistics for Priors Wetlands Uncertainty Variable:



	Minimum (Tg CH4/yr)	Maximum (Tg CH4/yr)	Mean (Tg CH4/yr)	Standard Deviation
Original Data	0.0	1.5251	0.0009	0.0203
Transformed Data	0.0	1.5251	0.0009	0.0203

- Statistics for Posterior Wetlands Uncertainty Variable:



	Minimum (Tg CH4/yr)	Maximum (Tg CH4/yr)	Mean (Tg CH4/yr)	Standard Deviation
Original Data	0.00	0.3663	0.0003	0.0053
Transformed Data	0.00	0.3663	0.0003	0.0053

- 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 [user notebook](#)
- Link to GHG Center data catalog [overview page](#)

Report Completed on: 10/29/2023

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