

# Data Intake Processing and Verification Report

## Background Information

- **Original Dataset Name:** Pilot top-down CO<sub>2</sub> budget constrained by the v10 OCO-2 MIP Version 1
- **GHG Center Dataset Title:** OCO-2 MIP Top-down CO<sub>2</sub> Budget
- **Dataset Provider:** CEOS, NASA/JPL
- **Date Obtained:** August 2023
- **Location Obtained From:** <https://doi.org/10.48588/npf6-sw92>
- **Data Location in GHG Center:** oco2-mip-co2budget-yeargrid-v1
- **Data POC(s):** Dr. Kevin Bowman, Dr. Matthew Thill, Dr. Brendan Byrne
- **Dataset File Type(s):** NetCDF
- **Projection (if different from WGS84):** NA

## 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.

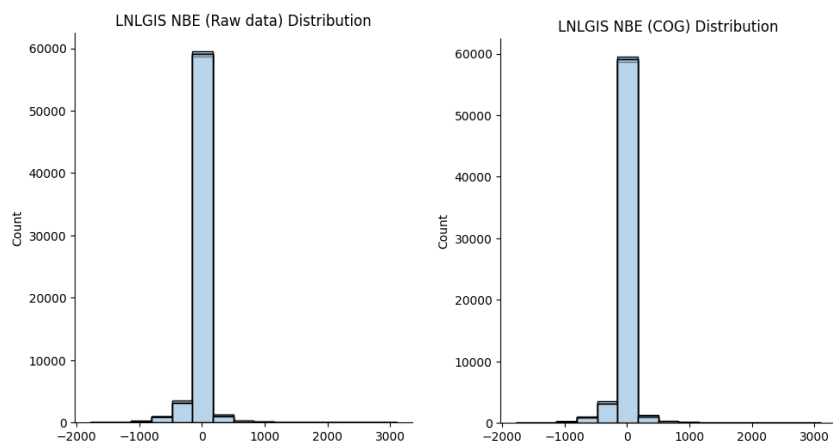
## Data Intake Process

- [https://us-ghg-center.github.io/ghgc-docs/data\\_workflow/oco2-mip-co2budget-yeargrid-v1\\_Data\\_Flow.html](https://us-ghg-center.github.io/ghgc-docs/data_workflow/oco2-mip-co2budget-yeargrid-v1_Data_Flow.html)

## Overall Dataset Statistics

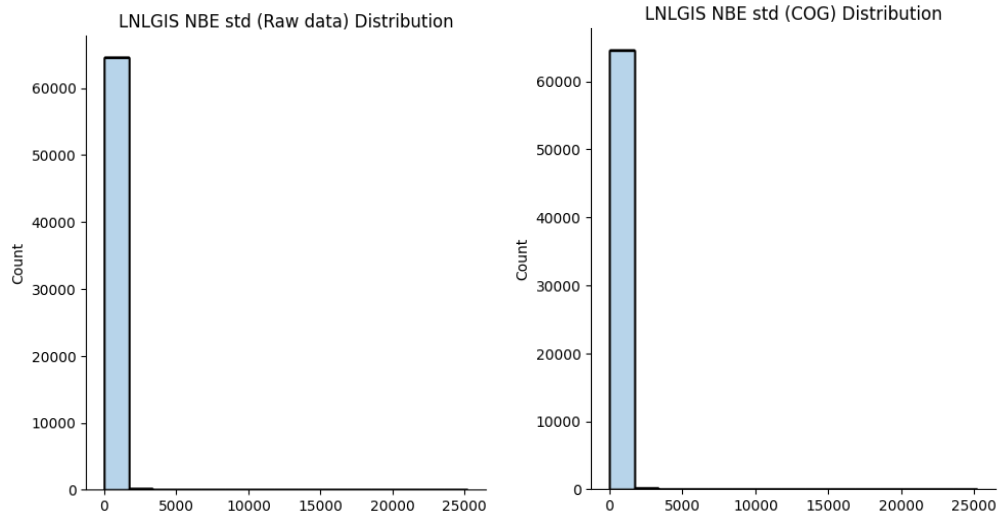
NetCDF (original data) and COGs (transformed cloud optimized GeoTIFF) files were read to generate the statistics.

- Statistics for LNLGIS Net Biosphere Exchange Variable:



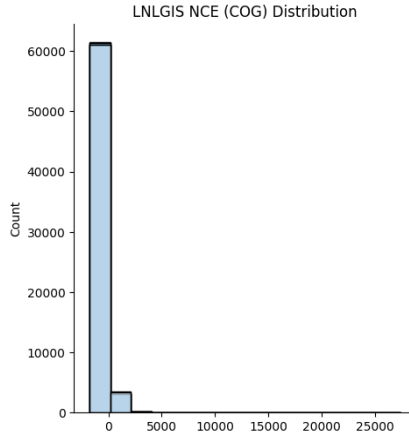
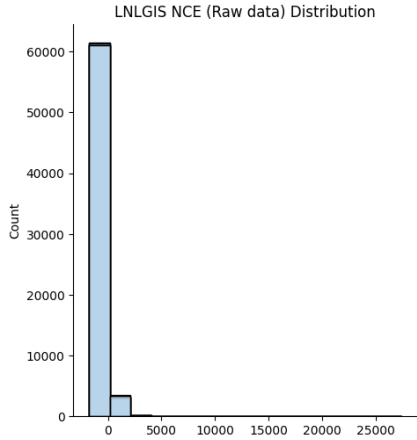
	Minimum (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Maximum (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Mean (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Standard Deviation
Original Data	-1781.954	3111.111	-18.466	138.722
Transformed Data	-1781.954	3111.111	-18.466	138.722

- Statistics for Uncertainty - LNLGIS Net Biosphere Exchange:



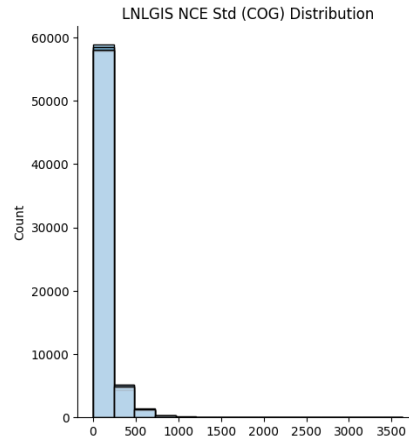
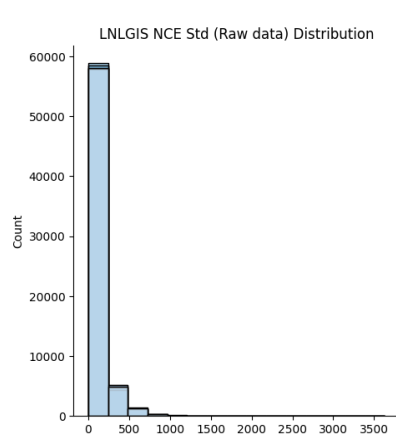
	Minimum (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Maximum (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Mean (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Standard Deviation
Original Data	0.0	25217.181	76.933	272.433
Transformed Data	0.0	25217.181	76.933	272.433

- Statistics for LNLGIS Net Carbon Exchange variable (LNLGIS\_NCE):



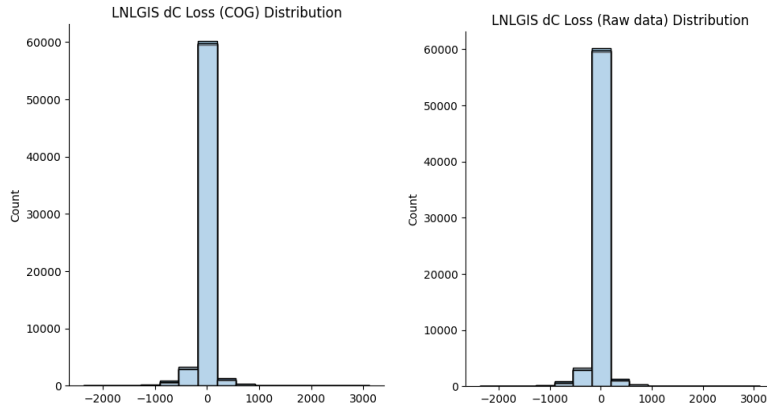
	Minimum (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Maximum (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Mean (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Standard Deviation
Original Data	-1770.917	27399.8608	38.4327	438.115
Transformed Data	-1770.917	27399.8608	38.4327	438.115

- Statistics for Uncertainty LNLGIS Net Carbon Exchange variable (LNLGIS\_NCE\_std):



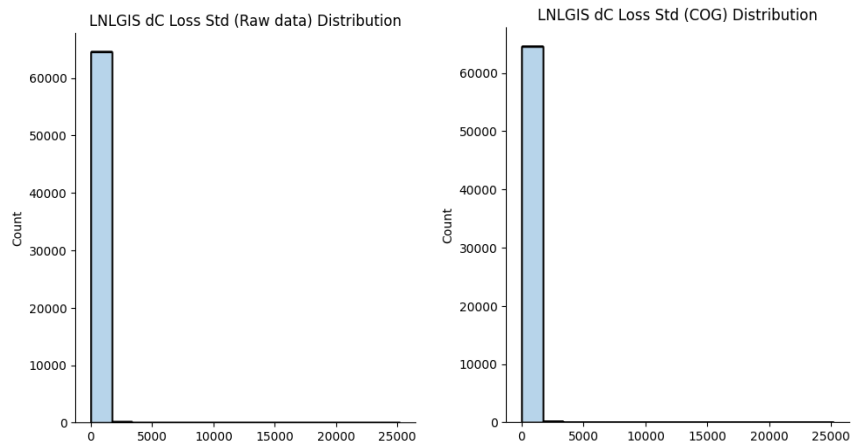
	Minimum (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Maximum (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Mean (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Standard Deviation
Original Data	0.0	3632.335	59.0749	143.437
Transformed Data	0.0	3632.335	59.0749	143.437

- Statistics for LNLGIS Net Land Carbon Stock Loss variable (LNLGIS\_dC\_loss) :



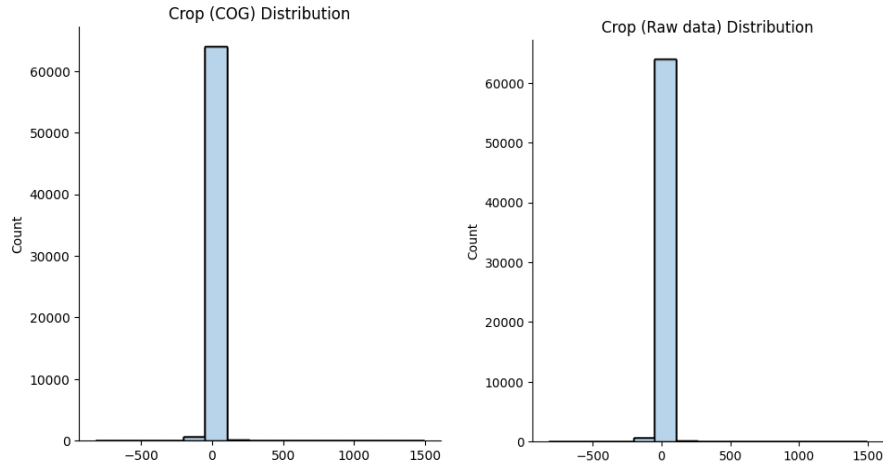
	Minimum (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Maximum (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Mean (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Standard Deviation
Original Data	-2372.259	3122.9865	-16.1898	138.824
Transformed Data	-2372.259	3122.9865	-16.1898	138.824

- Statistics for Uncertainty LNLGIS Net Land Carbon Stock Loss variable (LNLGIS\_dC\_loss\_std):



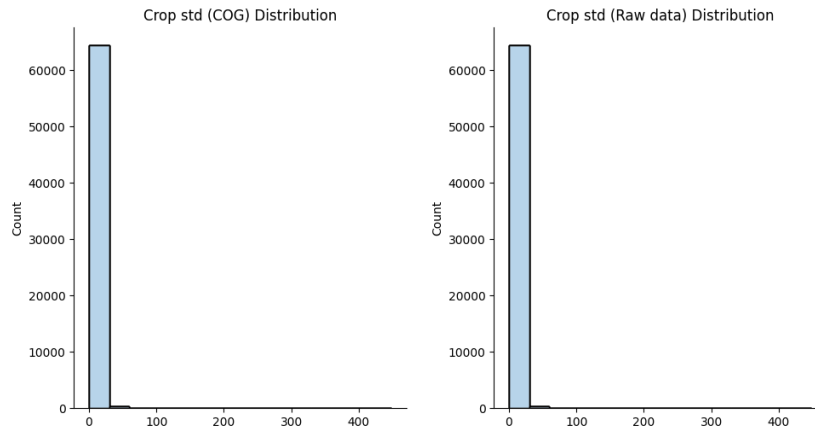
	Minimum (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Maximum (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Mean (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Standard Deviation
Original Data	0.0	25217.188	77.09118	272.566
Transformed Data	0.0	25217.188	77.09118	272.566

- Statistics for Lateral Crop CO2 variable (crop):



	Minimum (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Maximum (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Mean (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Standard Deviation
Original Data	-821.231	1495.350	-0.0872	20.139
Transformed Data	-821.231	1495.350	-0.0872	20.139

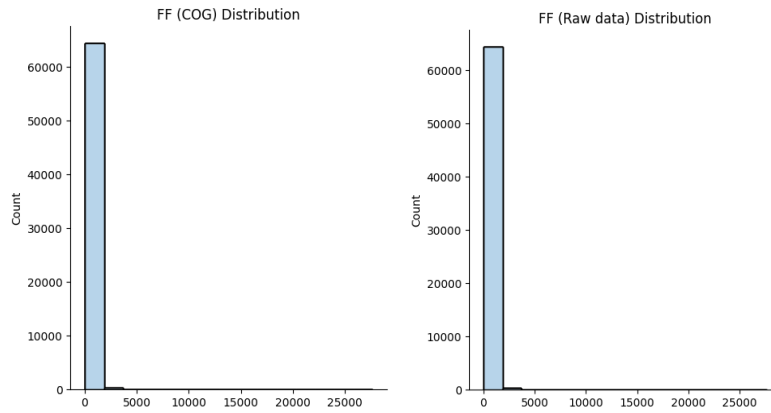
- Statistics for Uncertainty Later Crop CO2 variable (crop\_std):



	Minimum (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Maximum (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Mean (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Standard Deviation
Original Data	0.0	448.605	0.950	5.966

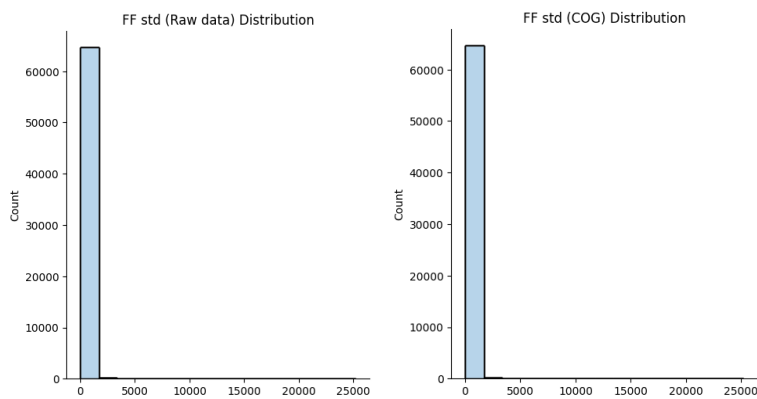
Transformed Data	0.0	448.605	0.9508	5.966
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- Statistics for Fossil Fuel and Cement CO2 Emissions variable (FF):



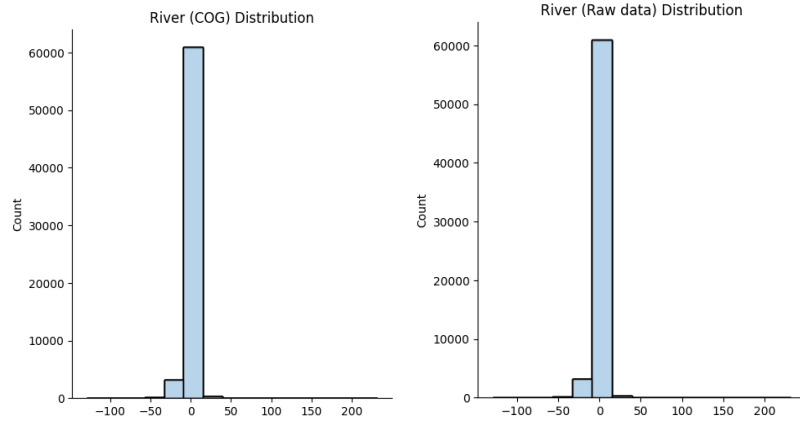
	Minimum (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Maximum (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Mean (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Standard Deviation
Original Data	0.0	27670.273	56.898	446.918
Transformed Data	0.0	27670.273	56.898	446.918

- Statistics for Uncertainty Fossil Fuel and Cement CO2 Emissions variable (FF\_std):



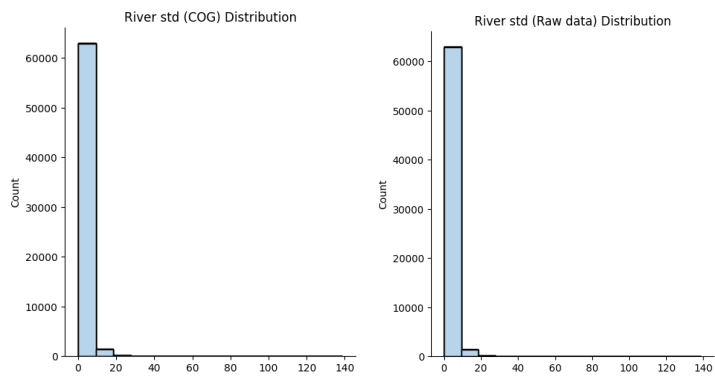
	Minimum (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Maximum (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Mean (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Standard Deviation
Original Data	0.0	25215.769	27.169	235.236
Transformed Data	0.0	25215.769	27.169	235.236

- Statistics for Lateral River CO2 variable (River):



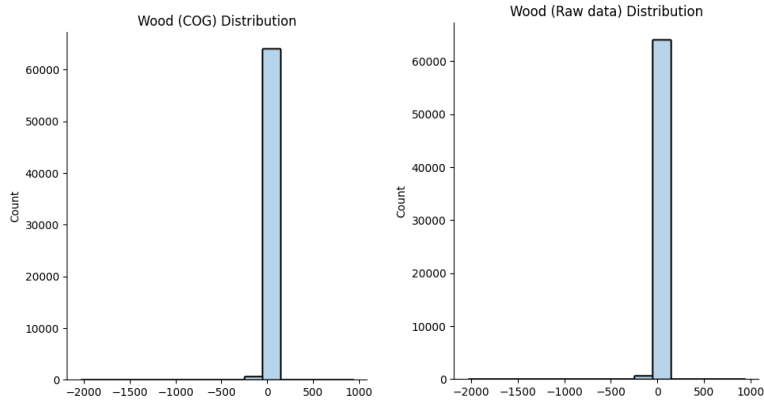
	Minimum (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Maximum (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Mean (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Standard Deviation
Original Data	-128.993	231.391	-0.9315	6.772
Transformed Data	-128.993	231.391	-0.9315	6.772

- Statistics for Uncertainty Lateral River CO2 variable (River\_std):



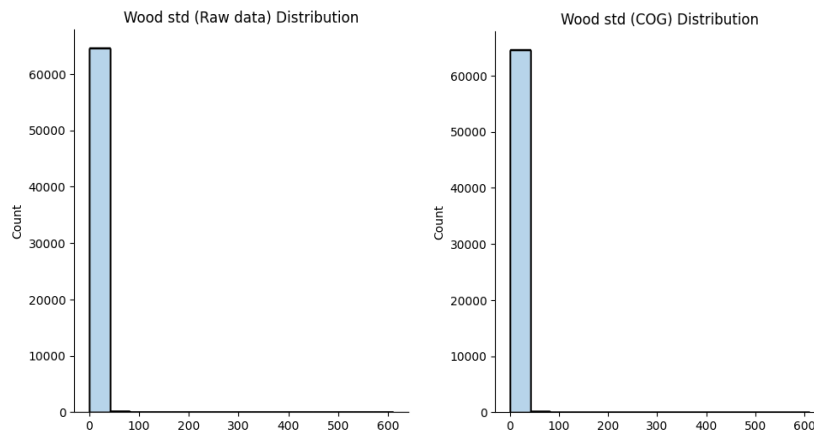
	Minimum (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Maximum (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Mean (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Standard Deviation
Original Data	0.0	138.834	1.1315	3.942
Transformed Data	0.0	138.834	1.1315	3.942

- Statistics for Lateral Wood CO<sub>2</sub> Flux variable (Wood):



	Minimum (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Maximum (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Mean (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Standard Deviation
Original Data	-2036.632	937.564	-1.2575	21.9895
Transformed Data	-2036.632	937.564	-1.2575	21.9895

- Statistics for Uncertainty Lateral Wood CO<sub>2</sub> Flux variable (Wood\_std):





	Minimum (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Maximum (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Mean (gCO <sub>2</sub> /m <sup>2</sup> /yr)	Standard Deviation
Original Data	0.0	610.9896	0.9476	6.5393
Transformed Data	0.0	610.9896	0.9476	6.5393

- 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:**

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