# EPA Contributions to the U.S. GHG Center

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# Outline

- GHG Inventory Background
- EPA perspective on initial three Use Cases
- EPA contributions to UC 1 & Demo

# Background – U.S. GHG Inventory

***Inventory of U.S. Greenhouse Gas Emissions and Sinks (U.S. GHGI)***

*What?*

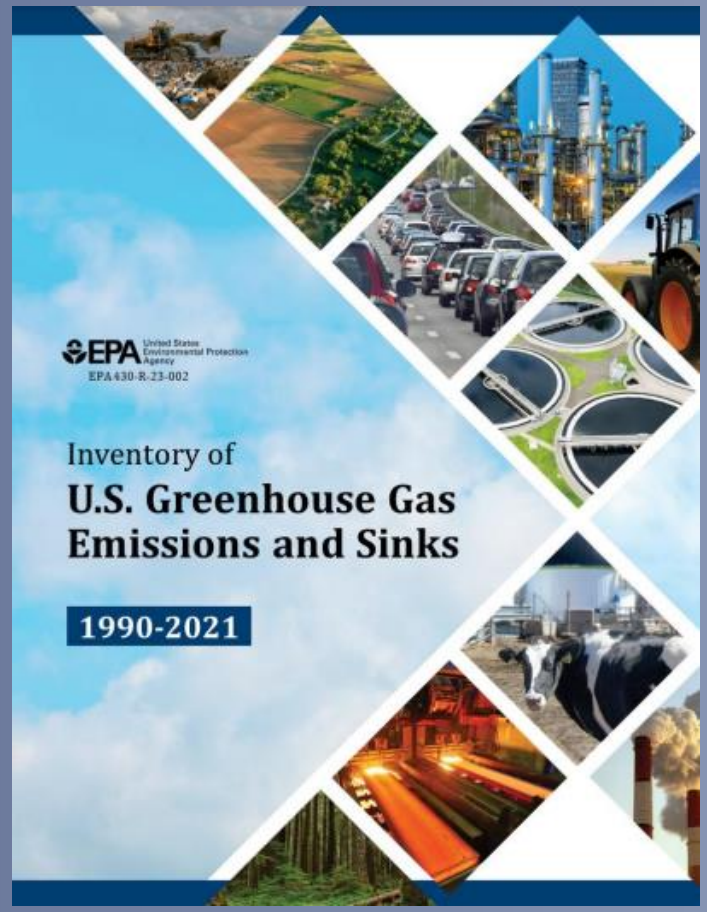
Annual report of national *anthropogenic* GHG emissions and sinks, by gas and economic sector, overtime from 1990 to current year-2.

*How?*

For over 30 years, the USEPA (OAP) has worked with partner agencies, institutions, and organizations to develop a national inventory of GHG emissions, using tiered methods from the IPCC (e.g., country- or activity-specific Emission Factors, modeling, etc.)

*Why & When?*

Developed and submitted to United Nations as part of the Framework Convention on Climate Change (UNFCCC), annually by April 15th, intended to ensure *transparent, accurate, complete, consistent, and comparable* inventories across countries to help track progress towards collective climate goals (e.g., Nationally Determined Contribution)



# U.S. Greenhouse Gas Center – Current Use Cases

U.S. GHG Center - data portal & convening platform

**Gridded Anthropogenic Greenhouse Gas Emissions**

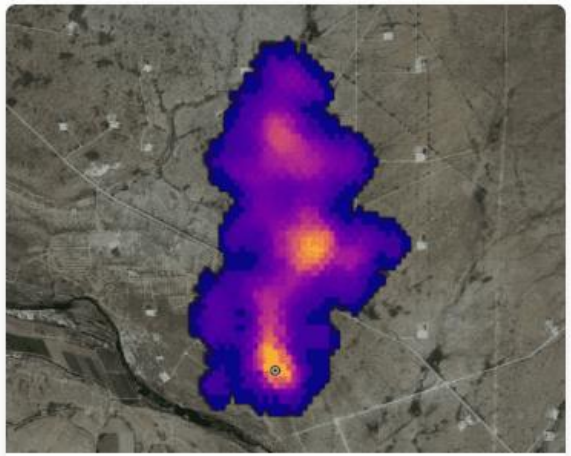
Emission estimates from human activities including the energy, agriculture, waste, and industry sectors

→ Check out relevant datasets

**Natural Greenhouse Gas Sources and Sinks**

Naturally-occurring greenhouse gas fluxes from land, ocean, and atmosphere

→ Check out relevant datasets



**New Observations for Tracking Large Emission Events**

Identify and quantify large methane leak events leveraging aircraft and space-based data

→ Check out relevant datasets

EPA contributions to data portal to-date

# EPA contributions to Use Case 1

## EPA Gridded Methane Inventory

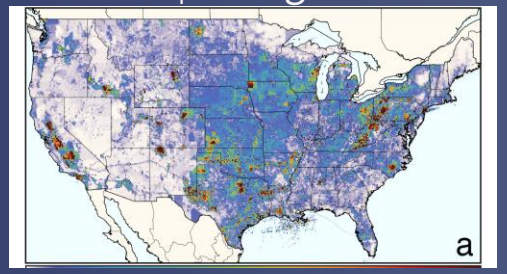
*What?*

- The gridded methane GHGI is a temporal and geographic representation of the annual U.S. methane GHGI and includes annual 2012-2020* gridded (~10 x 10 km) maps of methane emission fluxes from over 25 source sectors

*Why?*

- Major $CH_4$ sources are fugitive or biogenic (agriculture, oil & gas), which are more uncertain than many other GHG sources (e.g., fossil $CO_2$).
- Emissions derived from atmospheric observations can help reduce inventory uncertainties, but direct comparisons are difficult because of a scale mis-match between observations (sub-national, temporal snapshot) and the inventory (national, annual).

Example Satellite-Observed $CH_4$ Mixing Ratio

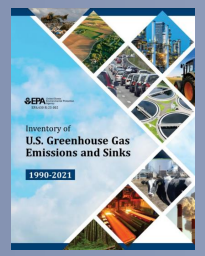



Gridded National Estimates

Atmospheric observations (top-down)

Gridded emissions needed as Prior estimate for inverse analysis

Process-based emission inventory (bottom-up)




National $CH_4$ Emissions

# EPA contributions to Use Case 1

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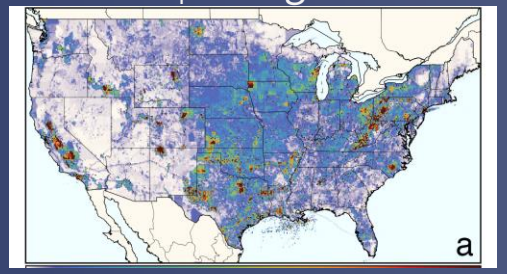


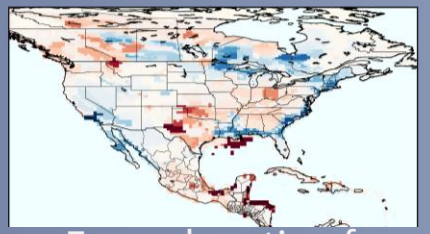

Gridded National Estimates

Atmospheric observations (top-down)

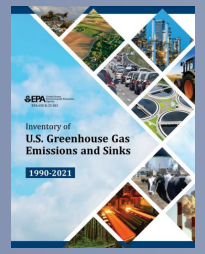
Gridded emissions needed as Prior estimate for inverse analysis

Results based on gridded inventory data can help guide improvements in national estimates

Process-based emission inventory (bottom-up)



Example ratio of observation-based/prior emissions




National $CH_4$ Emissions


## Welcome

The U.S. Greenhouse Gas Center opens up access to trusted data on greenhouse gases. This multi-agency effort consolidates greenhouse gas information from observations and models. The goal of the US GHG Center is to provide decision-makers with one location for data and analysis.

This initial two-year demonstration phase creates a way to explore and analyze U.S. government and other datasets, targeting three greenhouse gas areas of study, as shown below. The US GHG Center also encourages stakeholder feedback and ideas for future expansion.

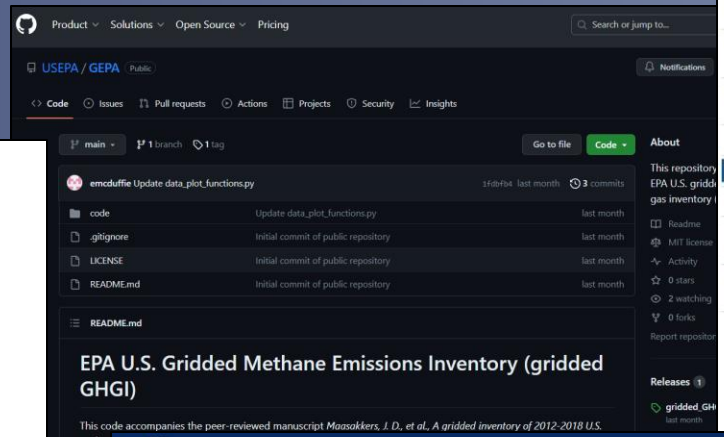
→ Introduction to the US GHG Center

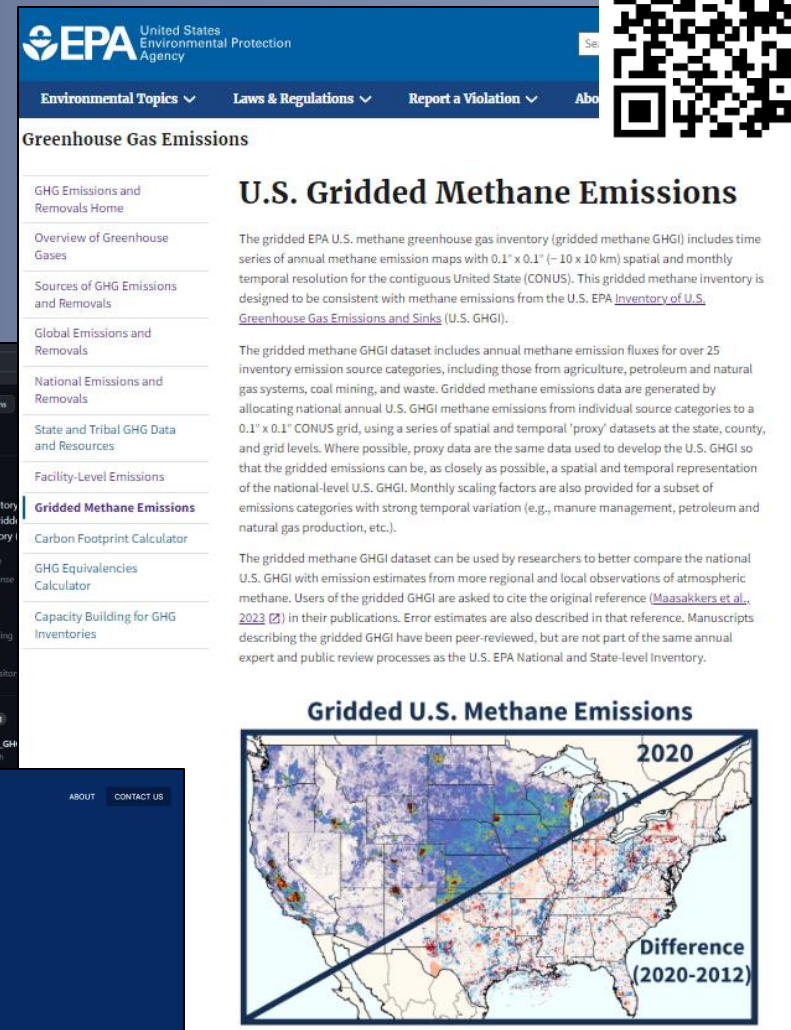
# Thank you!

For more information:

Visit the EPA Gridded Methane Emissions website:
https://www.epa.gov/ghgemissions/us-gridded-methane-emissions

New! US GHG Center
earth.gov/ghgcenter

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