IMEO Eye on Methane data platform

Data Dictionary

IMEO built the Eye on Methane data platform to drive climate action. We invite you to use this data to identify and mitigate methane emissions.

The following table outlines the structure of the CSV file and the properties of features in the GeoJSON file available for download on the IMEO Methan Data portal. The table specifies the data on the methane plumes data layer, specifically variable name, description, data type, and an example of a typical value. This information is intended to help users interpret the dataset and facilitate its proper usage. For any other clarification, please visit the Frequently Asked Questions section or send an email to unep-mars@un.org

S5P/TROPOMI plumes with detection institution CAMS/ECMWF/SRON were generated using Copernicus Atmosphere Monitoring Service information 2025.

Column name	Definition	Type	Example
id_plume	Unique 36-character identification code of each plume.	String (text)	bd5f3817-ded2-4cc1-9a5d-a0d02968865f
source_name	ID of the source.	String	ALG_S_002
satellite	Name of the satellite and the agency responsible for the observation.	String	Sentinel-2 - ESA
tile_date	Timestamp of the satellite observation in ISO 8601 format*	String	2020-01-01T12:00:00
lat	Latitude of the source location (north-south direction) in degrees, based on EPSG 4326.	Numeric	12.34567
lon	Longitude of the source location (east-west direction) in degrees, based on EPSG 4326.	Numeric	12.34567
notified	TRUE indicates whether the plume was notified to governments and/or OGMP 2.0 companies (if applicable).	Bool	TRUE

*The **timestamp of satellite observation** in **ISO 8601 format, which** refers to a standardized way of representing the exact date and time when the observation occurred. The **Time zone is** represented in UTC.

	FALSE indicates that the plume was not notified because it was not ‘actionable’ .		
country	Name of the country where the emission occurred.	String	United States of America
sector	Economic sector associated with the emission (e.g., Oil and Gas, Coal or Waste).	String	Oil and Gas
ch4_fluxrate	. A **methane flux rate** is a measure of the rate at which methane gas (CH_4) is emitted from a specific source into the atmosphere over time. It quantifies the mass of methane released by unit of time in **kilograms per hour (kg/h).** Usual range between 500-10000.	Numeric	3500
ch4_fluxrate_std	Standard deviation of the estimated methane flux rate, measured in kilograms per hour kg/h. Usual range between 200 and 1000 kg/h.	Numeric	400
wind_u	Eastward component of wind speed, measured in m/s.	Numeric	1.00
wind_v	Northward component of wind speed, measured in m/s.	Numeric	1.00
total_emission	Total mass of methane attributable to the emission, in tonnes. Only available for estimates made with a combination of VIIRS and Sentinel-3 or GOES.	Numeric	100
total_emission_std	Standard deviation of the total estimate methane mass, in tonnes. Only available for estimates made with a combination of VIIRS and Sentinel-3 or GOES.	Numeric	10
wind_speed	Magnitude of the windspeed, measured in m/s.	Numeric	1.00
last_update	Timestamp of the most recent modification to the plume entry, in ISO 8601 format.	String	2020-01-01T12:00:00.000000
actionable	• YES if the (high-resolution and from the O&G sector) plume is attributable to a facility and validated by MARS remote sensing experts	String	

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	approximately 15 days from image acquisition • NO if the (high-resolution and from the O&G sector) plume is not attributable to a facility and/or validated by MARS remote sensing experts approximately 15 days from image acquisition • 'Not applicable' if the plume is not from the oil and gas sector and not high-resolution • 'Not available' for plumes whose validation date is not available (i.e. for plumes detected before May 2024)		
insert_date	Timestamp of when the plume was recorded in the database, in ISO 8601 format.	String	2020-01-01T12:00:00.000000
detection_institution	Name of the institution responsible for detecting the emission.	String	UNEP IMEO MARS
quantification_institution	Name of the institution responsible for quantifying the emission.	String	UNEP IMEO MARS
tile	Id of the satellite product from which the plume was detected.	String	S2B_MSIL1C_20221102T102059_N0400_R065_T31SGR_20221102T122533
feedback_operator	It will be marked as YES if feedback was received It will be marked as NO if feedback has not (yet) been received It will be marked as NOT AVAILABLE in the following cases: • For plumes detected before 2024-12-15 • For plumes that have not been notified (because they were not actionable)	String	
feedback_gove	It will be marked as YES if	String	

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