METHANE ALERT AND RESPONSE SYSTEM

SNAPSHOT: TOP 50 EMITTERS, COUNTRY RESPONSES AND MITIGATION

September 2026 Update

UNEP's Methane Alert and Response System (MARS) integrates data from more than 30 satellites to alert countries of major methane emissions and enable action.

This snapshot provides information on mitigation cases enabled and confirmed via MARS, country response rates to alerts, and the world's 50 largest methane sources across sectors, as detected by satellites.

MITIGATION

MARS has confirmed mitigation of a major source in Kazakhstan. A gas pipeline leak resulted in the release of an estimated 365 tonnes of methane over the course of one month. This is comparable in climate impact to around 7000 gasoline-powered cars driven for a year. Explore the new mitigation case here.

To date, MARS has enabled and confirmed mitigation of over 40 major methane sources. Each mitigation involved issuing a MARS notification, evaluating the response for technical accuracy and confirming through subsequent satellite data that no further emissions have been detected.

Figure 1 shows where the mitigation cases have occurred, alongside information on each country's overall responsiveness to MARS alerts. The vast majority of mitigation occurs in countries with focal points who actively direct information to where it can be used to enable action.

Further information on each mitigation case is available here.

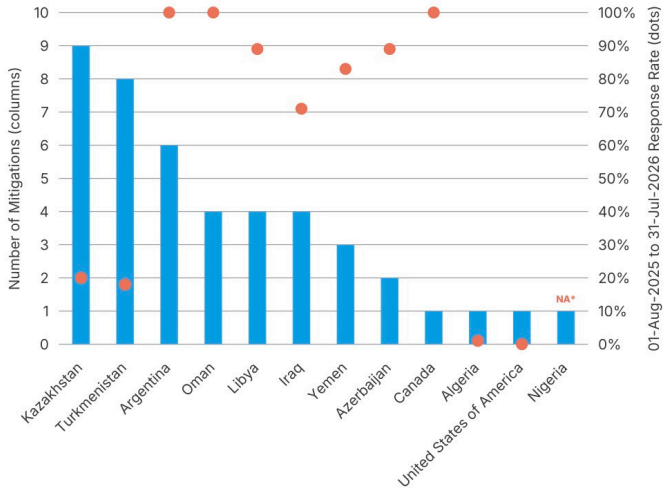


Figure 1
Number of confirmed mitigated sources by country, alongside country response rate for all MARS notified sources between 1 August 2025 and 31 July 2026

*As no sources were notified to this country during the dataset period, the response rate is not applicable.

COUNTRY RESPONSES

Recipients of MARS alerts are asked to respond to UNEP with emission status, the underlying cause of emissions and any mitigation action taken or planned.

Figure 2 depicts the total number of sources notified by country, as well as the fraction of sources for which a response was received, across countries which have or have not designated a MARS focal point.

Response is a critical step towards methane mitigation, as it requires the investigation of a MARS-detected emission source. Responses may be submitted by governments or operators.

Country response rates vary, with some countries exceeding 80 per cent, demonstrating strong engagement and effective follow-through. Others—including countries with many emission sources—are making progress as they scale their response capacity. Countries that have designated a MARS focal point are linked to higher response rates.

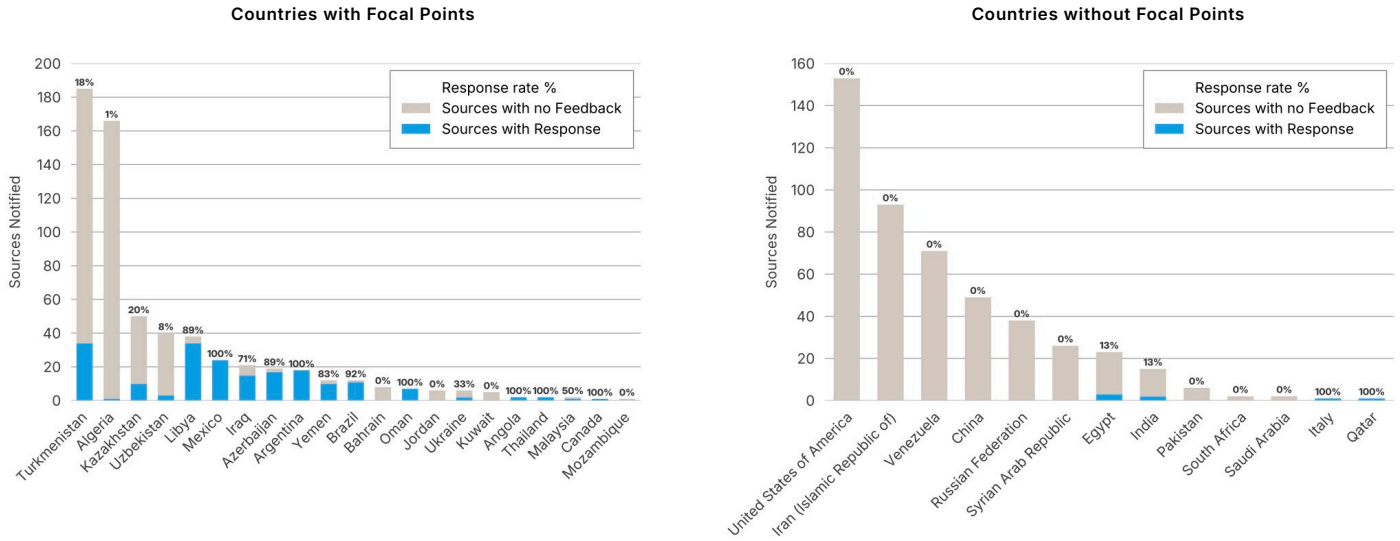


Figure 2
Response rate by country (1 August 2025 – 31 July 2026)

TOP 50 METHANE SOURCES

The map and table below present the 50 largest methane emission sources detected via satellite, based on a six-month rolling period to reflect changes over time. These are significant emitters across the oil and gas, coal, and waste sectors that emit either continuously or frequently.

Satellites detect only the largest methane emissions. While the top 50 sources identified here reflect a small share of total global emissions, they represent priorities for mitigation.

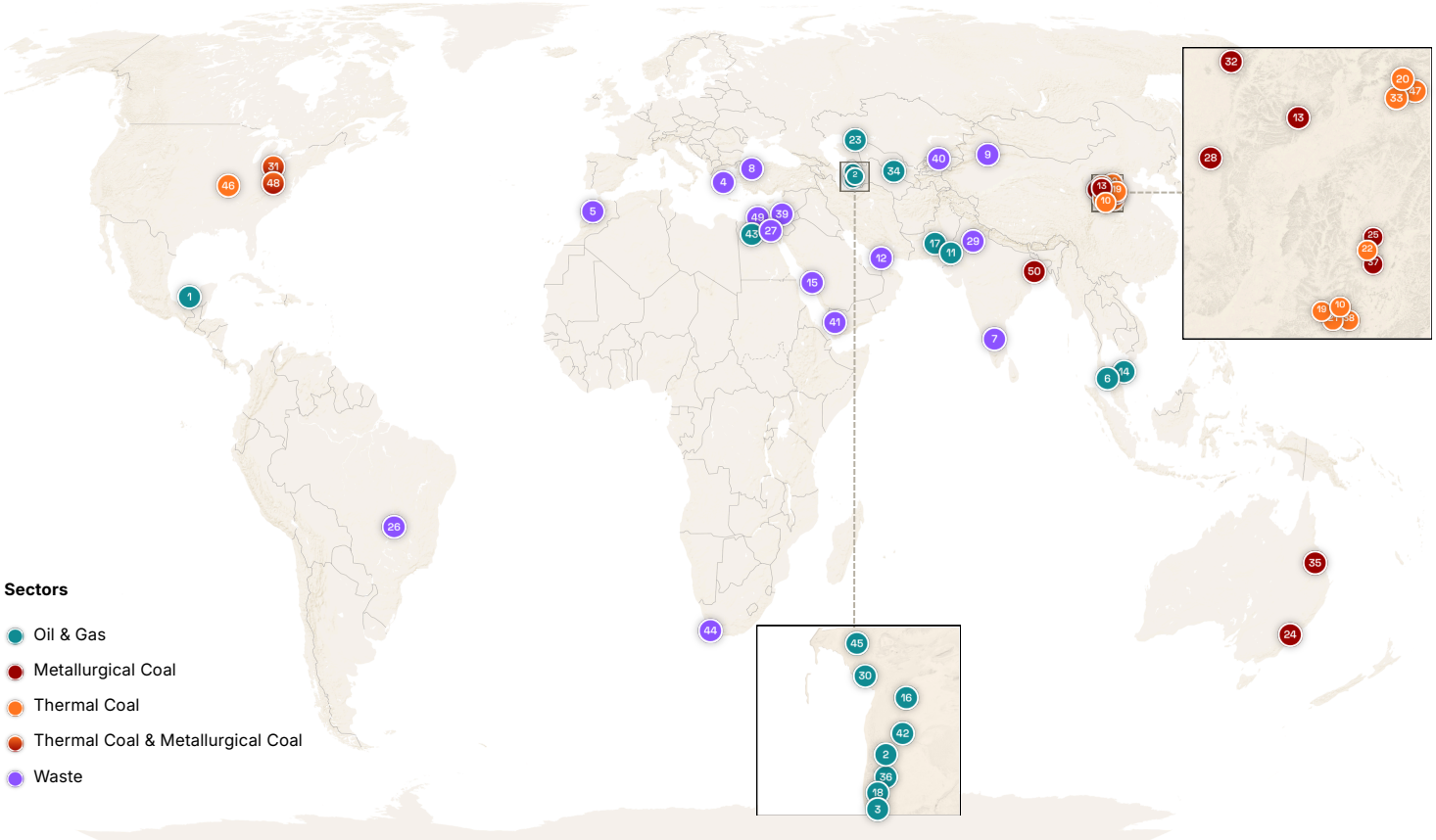


Figure 3
Top 50 methane sources globally (September 2026)

Table 1
List of top 50 methane sources

#		Country	Sector	Potential Source Type	Source ID	Coordinates	Feedback Received	Estimated Annual Emissions (tonnes CH_4)
1		México	Oil and gas	Production offshore	MEX_S_003	19.56611, -92.237	Y	168,086
2		Turkmenistan	Oil and gas	Gas disposal facility	TKM_S_022	38.33075, 54.02815	Y	81,712
3		Turkmenistan	Oil and gas	Flare	TKM_S_367	37.76777, 53.9164	N	66,516
4	▲ 1	Greece	Waste	Landfill	GRC_S_001	38.07435, 23.65077	—	66,225
5	▲ 1	Morocco	Waste	Landfill	MAR_S_004	33.87048, -6.81442	—	54,224
6	▲ 1	Thailand	Oil and gas	Production offshore	THA_S_008	7.49474, 102.61433	Y	51,477
7	▲ 1	India	Waste	Landfill	IND_S_024	13.10912, 77.65866	—	50,107
8	▼ 4	Türkiye	Waste	Landfill	TUR_S_016	40.26438, 28.96923	—	48,423
9		China	Waste	Landfill	CHN_S_044	44.03981, 87.86554	—	46,340
10		China	Thermal coal	Venting shaft	CHN_S_192	35.63986, 112.65204	—	45,814
11		Pakistan	Oil and gas	Gathering and boosting facilities	PAK_S_001	27.96851, 69.80955	N	41,864
12		United Arab Emirates	Waste	Landfill	ARE_S_023	25.63767, 55.79347	—	41,785
13		China	Metallurgical coal	Venting shaft	CHN_S_221	37.79471, 112.03046	—	41,347
14		Malaysia	Oil and gas	Production offshore	MYS_S_001	7.5925, 102.98746	Y	41,336
15		Saudi Arabia	Waste	Landfill	SAU_S_011	21.65043, 39.40224	—	41,084
16		Turkmenistan	Oil and gas	Flare	TKM_S_018	38.85321, 54.23678	N	35,156
17		Pakistan	Oil and gas	Gathering and boosting facilities	PAK_S_008	28.05525, 69.36555	N	33,988
18	▲ 1	Turkmenistan	Oil and gas	Flare	TKM_S_026	37.92912, 53.92428	Y	33,967
19	▼ 1	China	Thermal coal	Drainage station	CHN_S_018	35.64253, 112.56866	—	33,288
20		China	Thermal coal	Venting shaft	CHN_S_131	37.96728, 113.43696	—	32,499
21		China	Thermal coal	Venting shaft	CHN_S_195	35.60638, 112.64465	—	31,273
22		China	Thermal coal	Venting shaft	CHN_S_088	36.23247, 112.94554	—	31,098
23		Kazakhstan	Oil and gas	Transmission compressor station	KAZ_S_003	45.34143, 55.19165	N	29,871
24		Australia	Metallurgical coal	Venting shaft	AUS_S_014	-34.18144, 150.72	—	28,557
25		China	Metallurgical coal	Venting shaft	CHN_S_072	36.41495, 112.9372	—	27,769

Sectors: Oil & Gas · Metallurgical Coal · Thermal Coal · Thermal Coal & Metallurgical Coal · Waste

Note: IMEO currently provides MARS notifications for sources detected in the oil and gas sector. In May 2026, IMEO announced the launch of a pilot phase for rapid alerts in the coal and waste sectors.

#		Country	Sector	Potential Source Type	Source ID	Coordinates	Feedback Received	Estimated Annual Emissions (tonnes CH_4)
26		Brazil	Waste	Landfill	BRA_S_016	-15.85904, -48.15286	—	27,526
27		Egypt	Waste	Landfill	EGY_S_019	30.25634, 31.56229	—	26,192
28		China	Metallurgical coal	Venting shaft	CHN_S_337	37.3317, 110.99532	—	26,192
29		India	Waste	Landfill	IND_S_022	28.74244, 77.1562	—	25,929
30		Turkmenistan	Oil and gas	Oil and gas source (generic)	TKM_S_493	39.10171, 53.83148	N	25,580
31		United States of America	Thermal and metallurgical coal	Venting shaft	USA_S_422	39.64805, -80.41903	—	24,615
32		China	Metallurgical coal	Drainage station	CHN_S_190	38.41493, 111.19233	—	24,090
33	▲ 4	China	Thermal coal	Venting shaft	CHN_S_132	37.88456, 113.37895	—	24,002
34		Turkmenistan	Oil and gas	Transmission pipelines	TKM_S_256	40.45467, 62.13602	N	23,827
35	▼ 2	Australia	Metallurgical coal	Venting shaft	AUS_S_028	-21.88795, 147.99512	—	23,301
36	▼ 1	Turkmenistan	Oil and gas	Oil and gas facility (generic)	TKM_S_438	38.09913, 54.02161	N	21,833
37	▼ 1	China	Metallurgical coal	Venting shaft	CHN_S_212	36.10827, 112.98069	—	20,487
38		China	Thermal coal	Drainage station	CHN_S_196	35.59816, 112.68846	—	19,797
39	NEW	Israel	Waste	Landfill	ISR_S_006	32.64319, 35.54489	—	19,009
40	▼ 1	Kyrgyzstan	Waste	Landfill	KGZ_S_002	42.9683, 74.59052	—	18,483
41	▼ 1	Yemen	Waste	Landfill	YEM_S_019	15.47439, 44.15514	—	18,308
42	▼ 1	Turkmenistan	Oil and gas	Gas disposal facility	TKM_S_020	38.50625, 54.19757	Y	18,080
43	▼ 1	Egypt	Oil and gas	Gas disposal facility	EGY_S_055	29.78652, 28.15206	Y	17,498
44		South Africa	Waste	Landfill	ZAF_S_006	-33.77659, 18.54222	—	17,239
45		Turkmenistan	Oil and gas	Pipeline	TKM_S_029	39.46192, 53.77668	Y	16,351
46	▲ 1	United States of America	Thermal coal	Venting shaft	USA_S_1109	38.09903, -88.68657	—	14,191
47	▲ 1	China	Thermal coal	Venting shaft	CHN_S_134	37.91815, 113.46349	—	13,402
48	NEW	United States of America	Thermal coal	Venting shaft	USA_S_502	39.84836, -80.33096	—	13,034
49		Egypt	Waste	Landfill	EGY_S_043	30.44543, 30.78879	—	12,094
50		India	Metallurgical coal	Coke oven gas	IND_S_055	23.5486, 87.2469	—	10,627

Sectors: Oil & Gas · Metallurgical Coal · Thermal Coal · Thermal Coal & Metallurgical Coal · Waste

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