UN announces satellite-based global methane detection system

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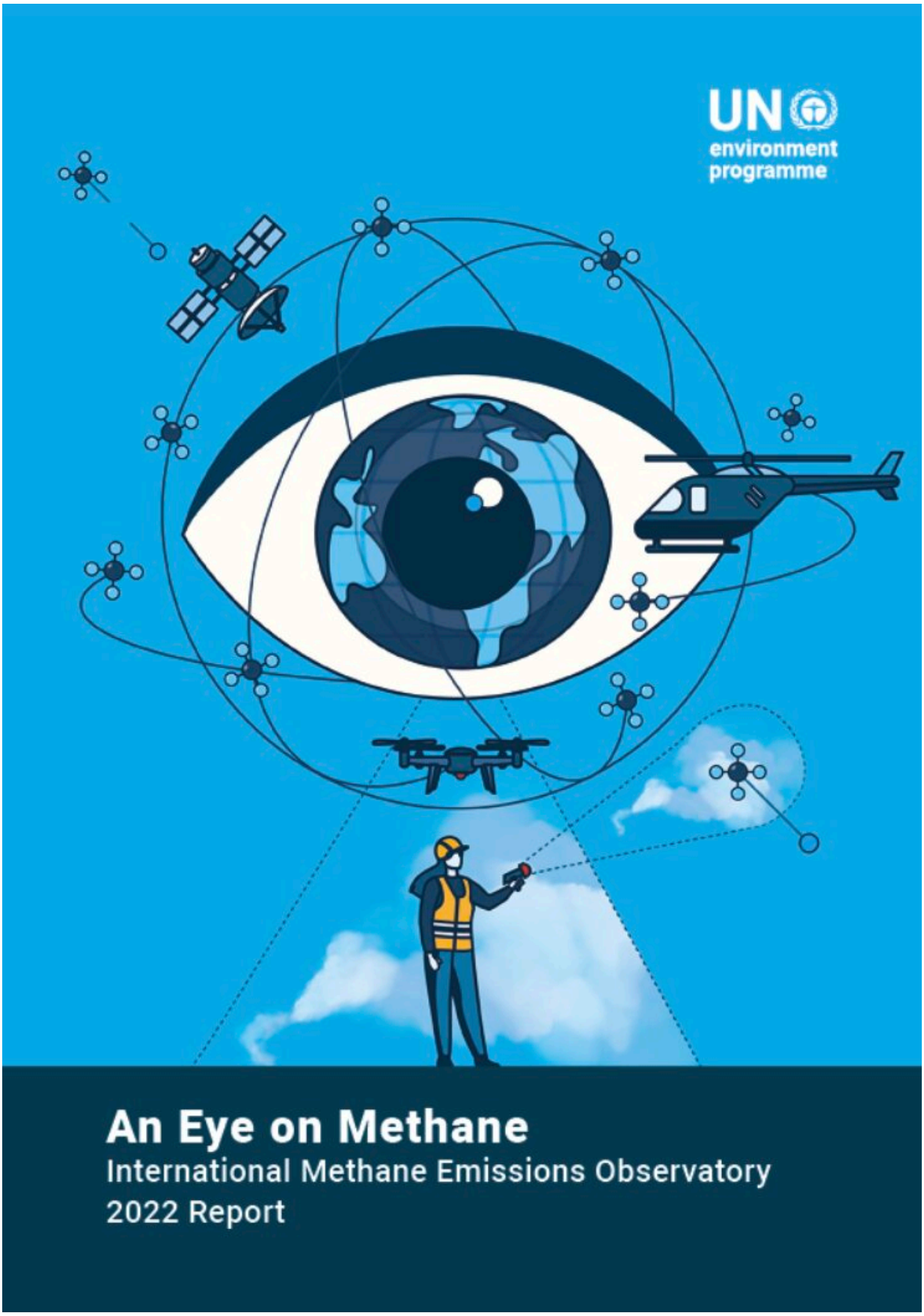
UN environment programme
An Eye on Methane
International Methane Emissions Observatory
2022 Report

The Methane Alert and Response System (MARS) is part of the UNEP International Methane Emissions Observatory (IMEO) strategy to get policy-relevant data into the right hands for emissions mitigation. Credit: UNEP

As part of global efforts to slow climate change by tackling methane, the UN today announced a new satellite-based system to detect emissions of the climate warming gas and allow governments and businesses to respond.

The Methane Alert and Response System (MARS), launched at the 27th United Nations Climate Change Conference, is a data-to-action platform set up as part of the UNEP International Methane Emissions Observatory (IMEO) strategy to get policy-relevant data into the right hands for emissions mitigation.

Methane is a powerful greenhouse gas, contributing at least a quarter of today's climate warming. According to the Intergovernmental Panel on Climate Change, we must cut methane emissions at least 30% by 2030—the goal of the Global Methane Pledge—to keep the 1.5°C temperature limit within reach.

Developed in the framework of the Global Methane Pledge Energy Pathway—with initial funding from the European Commission, the U.S. Government, Global Methane Hub, and the Bezos Earth Fund—MARS will allow UNEP to corroborate emissions reported by companies and characterize changes over time. MARS will be implemented with partners including the International Energy Agency, and the UNEP-hosted Climate and Clean Air Coalition.

"As UNEP's Emissions Gap Report showed before this climate summit, the world is far off track on efforts to limit global warming to 1.5°C," said Inger Andersen, Executive Director of UNEP.

"Reducing methane emissions can make a big and rapid difference, as this gas leaves the atmosphere far quicker than carbon dioxide. The Methane Alert and Response System is a big step in helping governments and companies deliver on this important short-term climate goal."

In addition to supporting MARS, the Global Methane Hub and the Bezos Earth Fund are providing funding for other UNEP IMEO activities. These include baseline studies and initial work on agricultural methane emissions, where integrating multi-scale ground measurements with emerging satellite capacity is expected to provide improved quantification.

First public global system connecting methane detection to notification processes

MARS will be the first publicly available global system capable of transparently connecting methane detection to notification processes. It will use state-of-the-art satellite data to identify major emission events, notify relevant stakeholders, and support and track mitigation progress.

Beginning with very large point sources from the energy sector, MARS will integrate data from the rapidly expanding system of methane-detecting satellites to include lower-emitting area sources and more frequent detection. Data on coal, waste, livestock and rice will be added gradually to MARS to support Global Methane Pledge implementation.

"Cutting methane is the fastest opportunity to reduce warming and keep 1.5°C within reach, and this new alert and response system is going to be

a critical tool for helping all of us deliver on the Global Methane Pledge," said John Kerry, U.S. Special Presidential Envoy for Climate.

Components of the Methane Alert and Response System

MARS will use data from global mapping satellites to identify very large methane plumes and methane hot spots and attribute the emissions to a specific source. UNEP will then notify governments and companies about the emissions, either directly or through partners, so that the responsible entity can take appropriate action.

If requested, MARS partners will provide technical or advisory services such as help in assessing mitigation opportunities. UNEP will continue to monitor the event location and make the data and analysis available to the public between 45 and 75 days after detection.

Additional comments

"We are seeing methane emissions increase at an accelerated rate. With this initiative, armed with greater data and transparency, companies and governments can make greater strides to reduce methane emissions and civil society can keep them accountable to their promises," said Dr. Kelly Levin, chief of science, data and systems change at the Bezos Earth Fund.

"The science is clear. We need to reduce global methane emissions by at least 30% by 2030, to keep 1.5°C alive. Fortunately, action on methane emissions is one of the most cost effective and impactful actions a country can take," said Marcelo Mena, CEO Global Methane Hub.

"Therefore Global Methane Hub is pleased to partner with UNEP and

the Bezos Earth Fund, on providing critical resources—to the MARS initiative—that can enable the identification and rapid response to major methane emissions from the energy sector, as well as take the first steps in enabling satellite observations to address methane emissions from the agricultural sector."

"To keep the global temperature rise limited to 1.5 degrees, it is crucial that we tackle methane emissions," said Frans Timmermans, executive vice president of the European Commission. "These emissions often peak in specific areas for limited amounts of time, for example in the energy sector due to leaks, venting, and flaring. Early detection of these peaks makes it possible to respond faster. The Methane Alert and Response System does just that. Thanks to funding and free satellite data from Copernicus, the European Union's Earth Observation program, the system will enable every country to take rapid action to reduce methane emissions."

Said Fatih Birol, executive director of the International Energy Agency: "The Methane Alert and Response System is an important new tool to help pinpoint major methane leaks. As IEA analysis has highlighted, transparency is a vital part of the solution to tackle the methane problem, and this new system will help producers detect leaks and stop them without delay if and when they occur."

Provided by United Nations Environment Programme

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