



Atmospheric Chemistry
Observations & Modeling

ACOM Seminar

Using satellites in support of methane emission reduction

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Date: Tuesday, March 19th, 2024, 2:00 pm – 3:00 pm (MT)

Link: <https://operations.ucar.edu/live-acom>

ABSTRACT

In this seminar I will present some of our results and on-going work using TROPOMI SWIR data on methane and CO. The bulk of the presentation will focus on our research on methane.

The importance of reducing methane emissions to mitigate climate change in the short term has been recognised at the highest political level. Since COP26 (2021), some 155 countries signed up to the Global Methane Pledge to reduce emissions by 30% by 2030. At COP28 (2023), the International Methane Emission Observatory (IMEO) launched its Methane Alert Response System (MARS) to detect and identify methane super-emitters using satellite data, notify responsible parties, and work together towards reducing their emissions. TROPOMI methane observations are at the core of the MARS system as TROPOMI is the first satellite instrument providing daily global methane observations of methane super-emitters.

We developed a machine learning approach to detect super-emitters in the TROPOMI data. These detections are used to tip-and-cue high spatial resolution satellites (e.g. GHGSat, Sentinel-2, ...) to identify the exact sources. This way, we have been able to identify super-emitting landfills, oil/gas facilities, and coal mines. We will show how this synergistic use of multiple satellites can be used to inform the operators, allowing – for example – gas leaks to be fixed and how the resulting emission estimates can be used to evaluate reported emissions.

For more information, please contact Qing Ye (qingye@ucar.edu) or Kyle Zarzana (kzarzana@ucar.edu).

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