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Methane Leakage from a Gas Well Blowout in Ohio Detected from Space.

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There are strong indications from on-ground and airborne measurement campaigns that methane (CH_4) leakage due to activities by the oil & gas sector may have been significantly underestimated. Especially, accidental leakages of CH_4 from the oil & gas sector can release large amounts of the gas to the atmosphere within a short period of time. These accidental emissions are difficult to monitor due to their erratic nature, and administrative and logistical limitations. A promising means to regularly monitor CH_4 emission due to leakages is via a space-based platform regularly scanning the entire globe. In this study, we use CH_4 total column estimates derived from Tropospheric Monitoring Instrument (TROPOMI) measurements, with a 7×7 km^2 spatial resolution at nadir and daily global coverage. We demonstrate that single sounding accuracy of the TROPOMI data is sufficient to detect and quantify large accidental emissions by reporting on atmospheric measurements of CH_4 leakage from a gas well blowout in Ohio that took place in February 2018. Using TROPOMI CH_4 measurements and WRF atmospheric tracer transport simulation, we quantify the CH_4 emission rate and total release from the blowout accident.