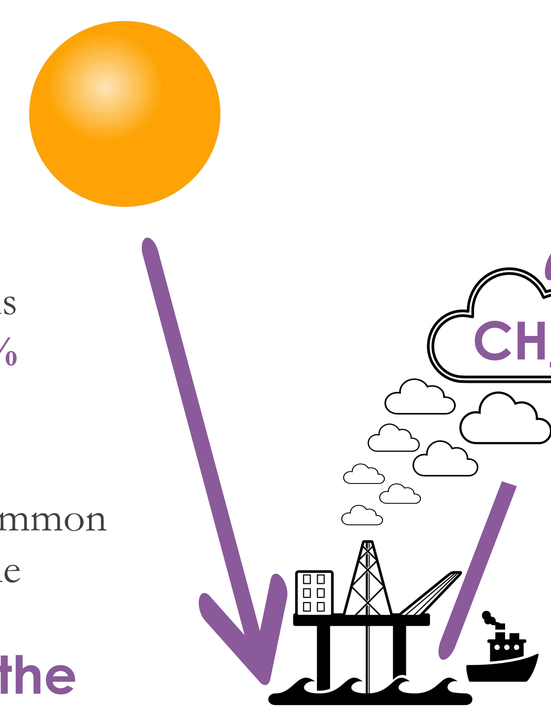
Mapping Methane Emission Plumes with Sunglint-configured Imagery for Offshore Oil and Gas Monitoring

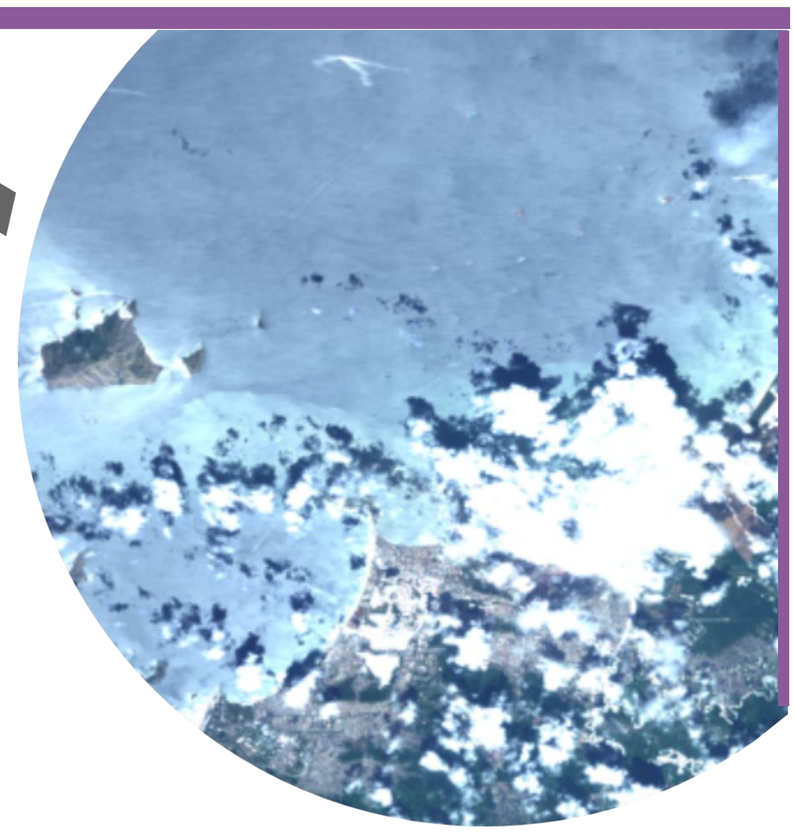
Why Map Methane?

Methane (CH_4) warms the atmosphere **84x** more efficiently than carbon dioxide

1/3rd of anthropogenic methane emissions come from oil and natural gas activity, **30%** of which is produced offshore

Inefficient flaring or **cold venting** are common processes for operators which emit methane



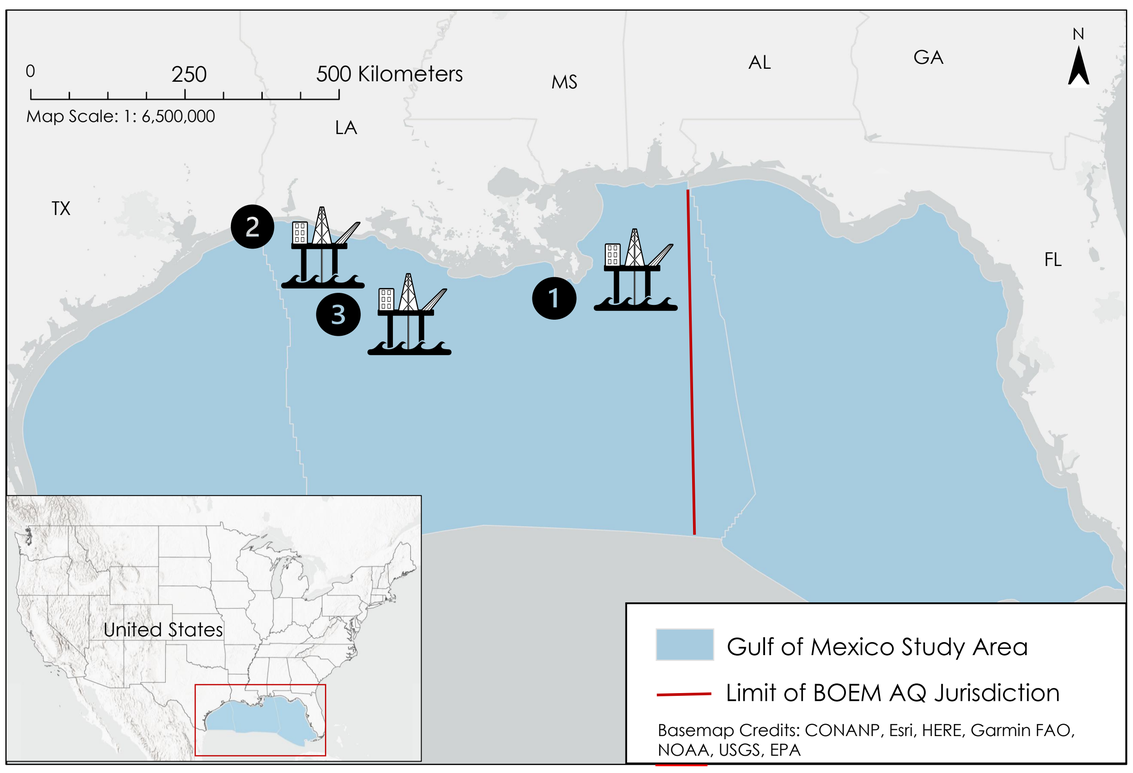


NASA DEVELOP is demonstrating the capacity of existing satellite data to identify and quantify methane plumes.

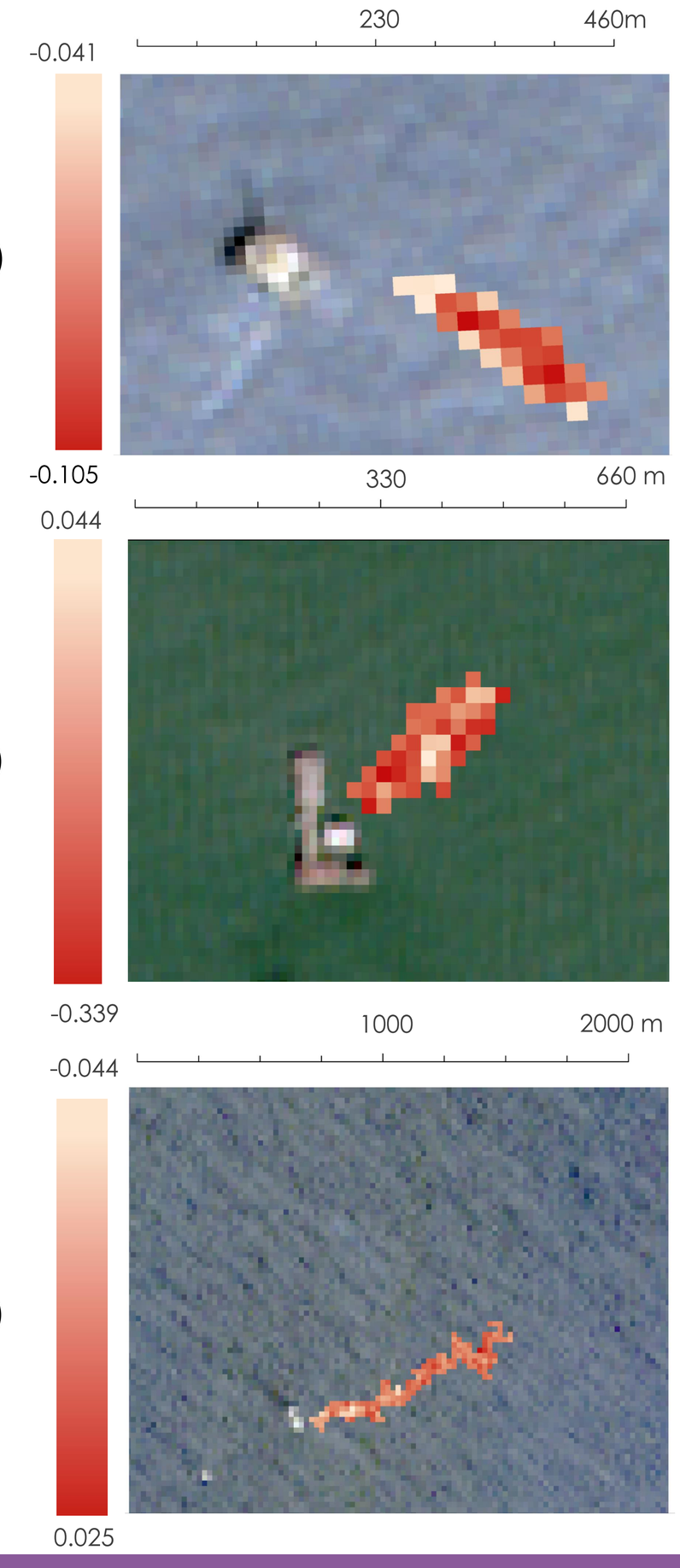
Currently, bottom-up monitoring and emission estimates are self-reported by operators

Inspections are infrequent, and offshore methane sensors are non-existent

Imperceptible to the human eye, methane can be picked up by remote sensors, such as Landsat 8&9, Sentinel-2 and PRISMA used in this project. Sun glint conditions on water, though rare, create enough illumination to reduce background noise.



Emission Rates of Three Plumes in the Gulf of Mexico



Remote sensing is a viable solution to the gap in monitoring oil and gas activity, even in ambiguous offshore environments.

Gulf of Mexico Health & Air Quality

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Acknowledgements

Advisors: Dan Cusworth, Kate Howell, Ben Holt
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Partners: Bureau of Ocean Energy Management, Bureau of Safety and Environmental Enforcement