Satellite Monitoring for Methane Emissions Detection & Quantification

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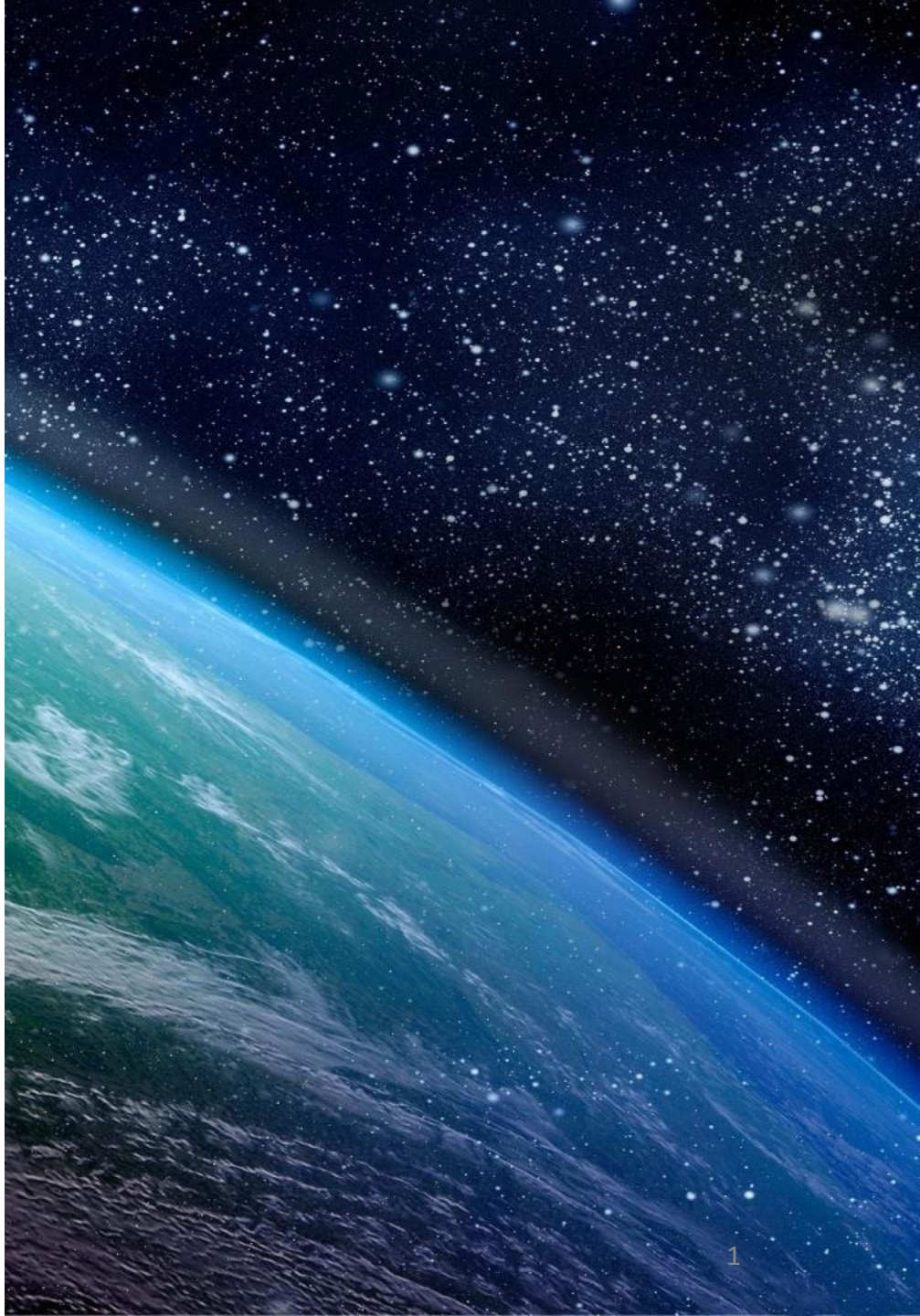
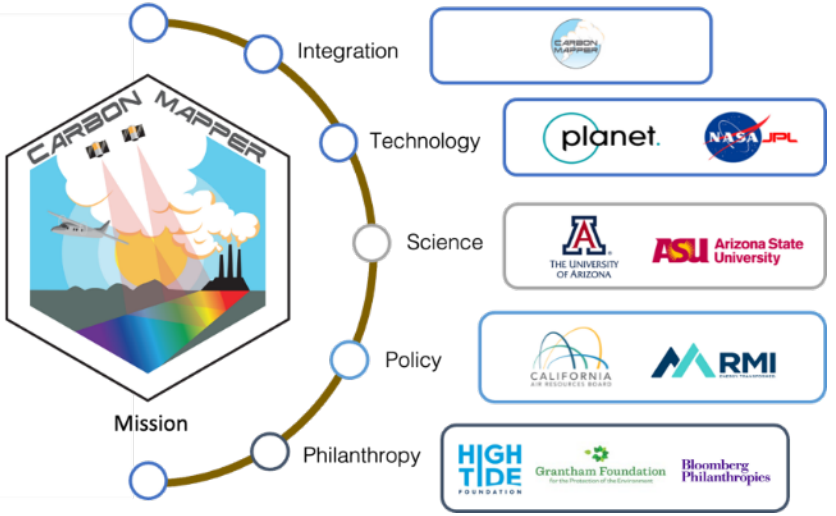
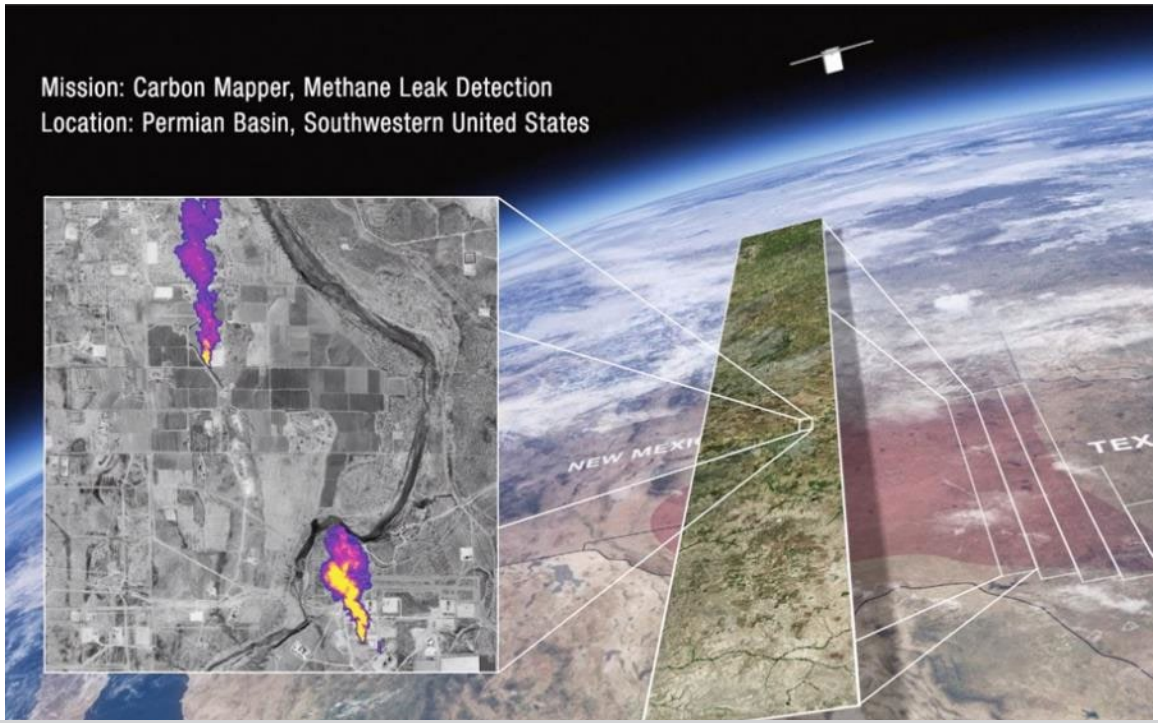


What is Carbon Mapper?

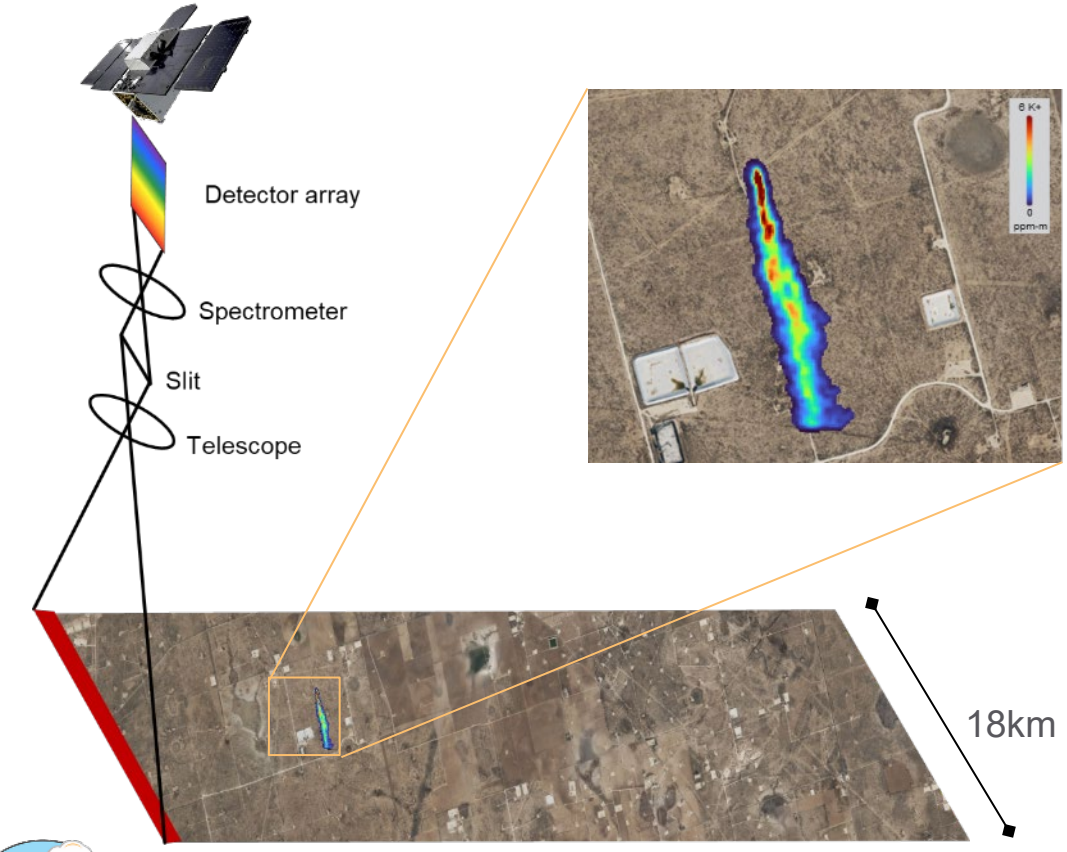
- Carbon Mapper is a non-profit working to deliver actionable, localized CH_4 and CO_2 data
- Carbon Mapper leads a public-private partnership to develop and deploy emissions detecting satellites
- Our first satellite, Tanager-1, launched August 2024, funded by philanthropy
- Long-term goal: Scale to a full constellation to track 90% of high emitting CH_4 & CO_2 point sources globally
- Work with industry, governments, and other stakeholders to translate data into action
- All CH_4 & CO_2 data publicly available





We use remote sensing technology to precisely detect, quantify & track high emission CH_4 and CO_2 point sources

Imaging spectrometers are designed to see point sources over a wide viewing region



High-spatial resolution means infrastructure level quantification (few meters resolution)

Factors to consider when using imaging spectroscopy to detect & quantify CH_4 & CO_2 point source emissions:

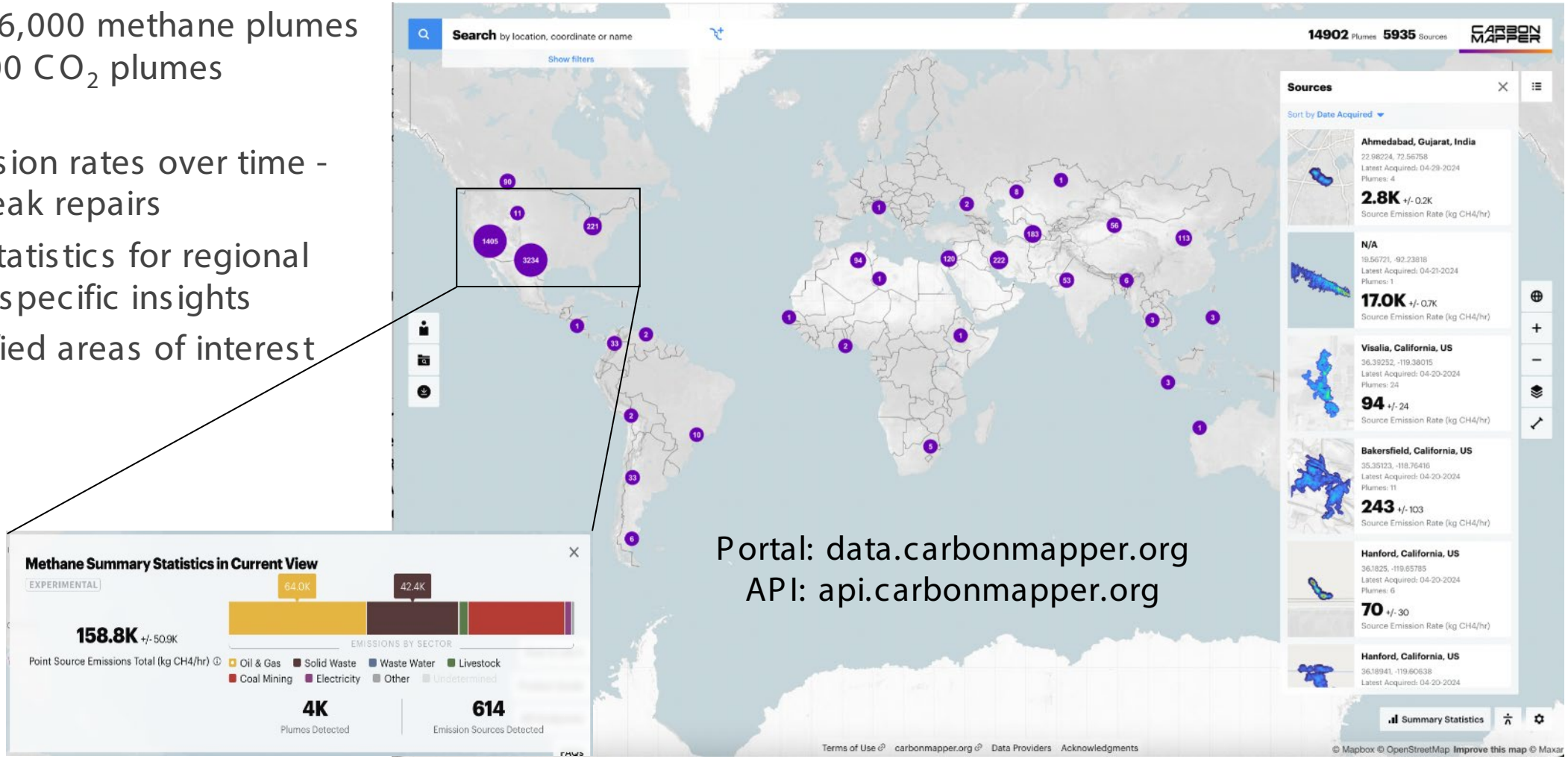
Environmental:
- Cloud Cover
- Light Conditions
- Windspeed
- Land surface

Ideal observing conditions
- Minimal clouds
- Max (mid-day)
- 1-8 m/s
- Homogeneous and not too bright or dark

Source:
- Emission magnitude
- Diffuse vs point source

Global Data Portal: Enhanced Access and Insights

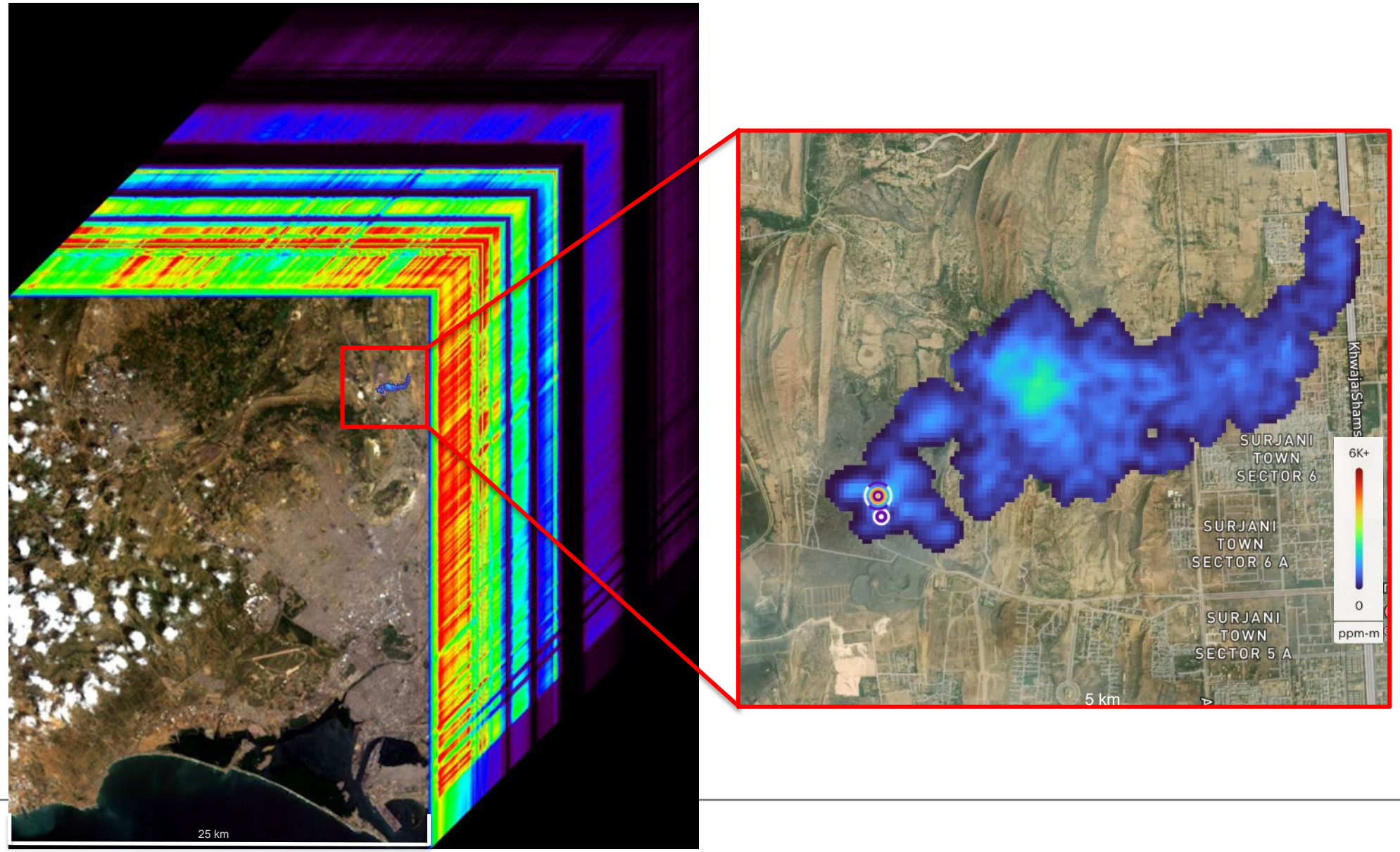
- Now over 16,000 methane plumes and over 800 CO_2 plumes published
- Trend emission rates over time - and verify leak repairs
- Summary statistics for regional and sector-specific insights
- User-specified areas of interest
- API access



Portal: data.carbonmapper.org
API: api.carbonmapper.org

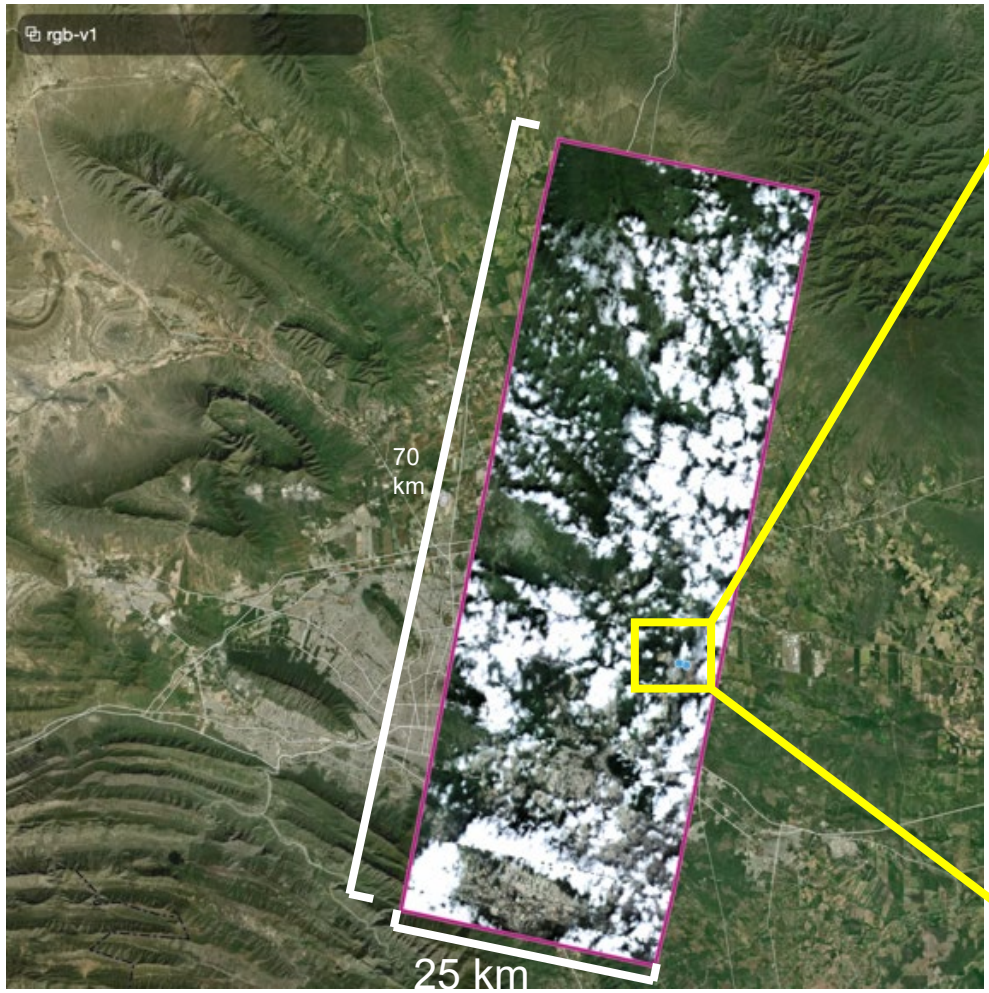
Tanager-1: First Light Image & First Methane Detection

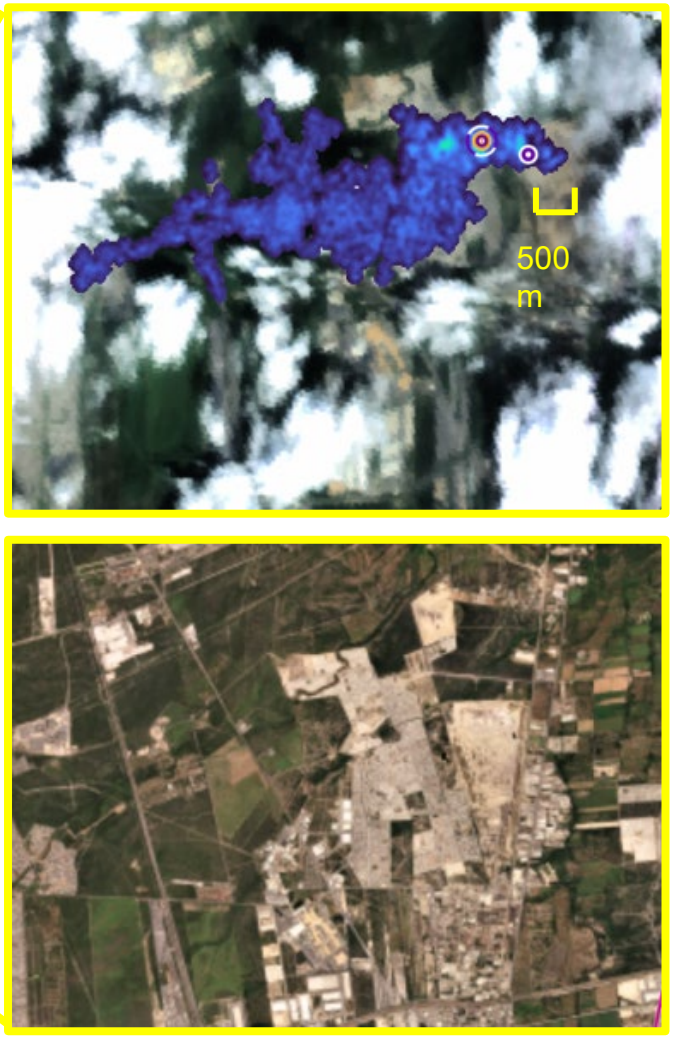
Karachi, Pakistan | September 19, 2024



Tanager-1: Methane plumes detected between gaps in clouds

Landfill: Monterrey, Mexico | September 19, 2024

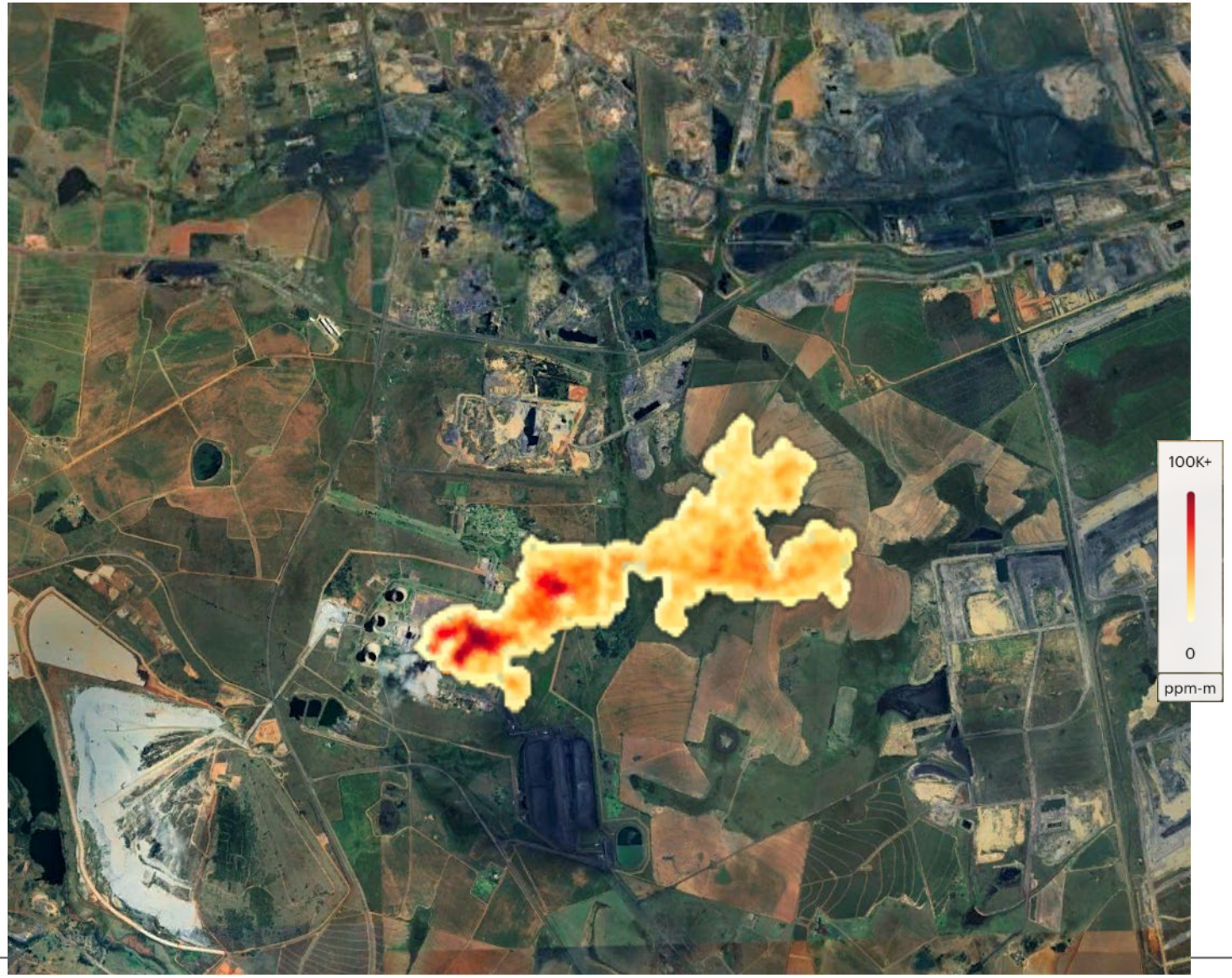




Initial emission estimate: ~1700 kg methane/hr

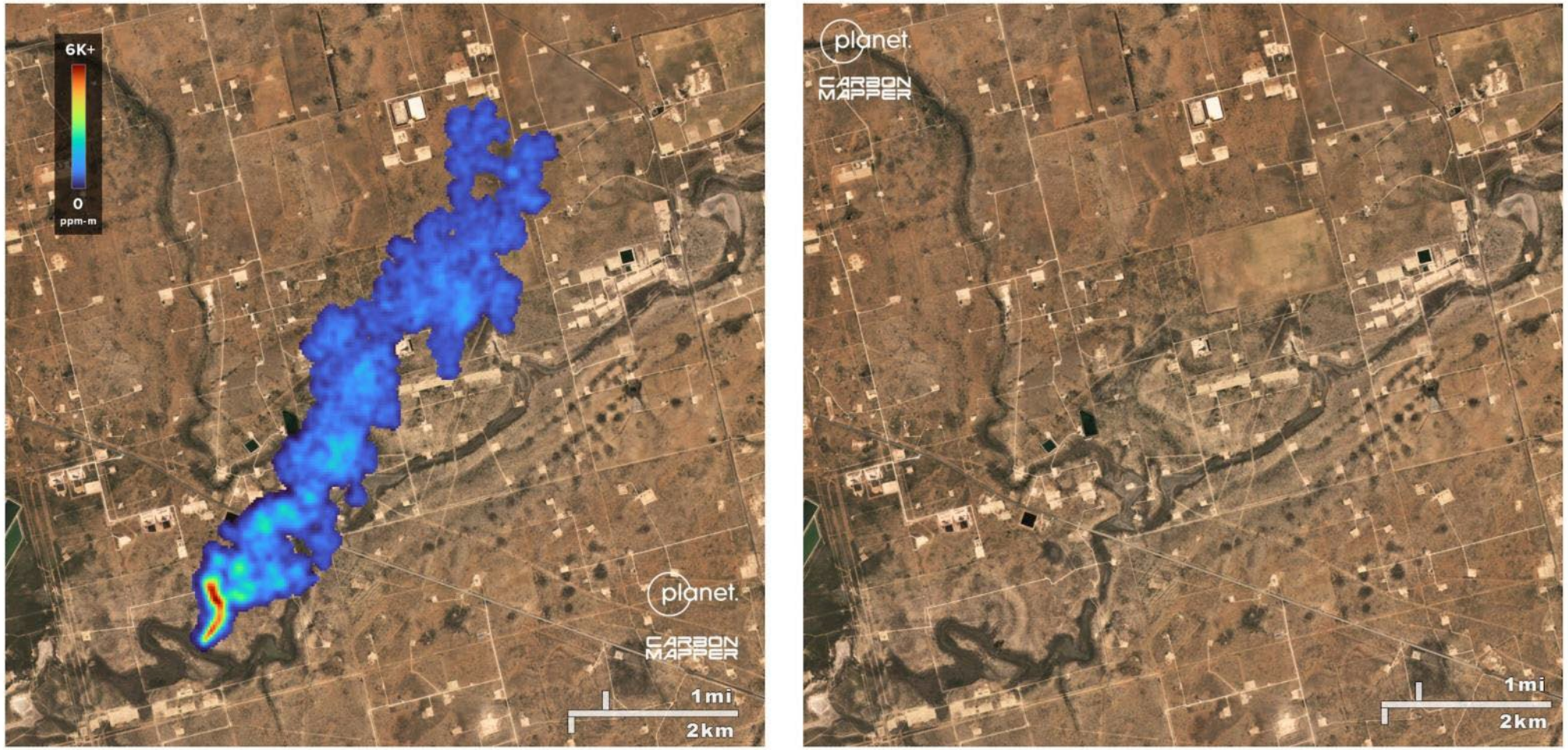
Tanager-1: First CO2 Detection

Johannesburg power plant, South Africa | September 19, 2024



Tanager-1: First Methane Mitigation Success

Permian Basin, Texas | October 2024

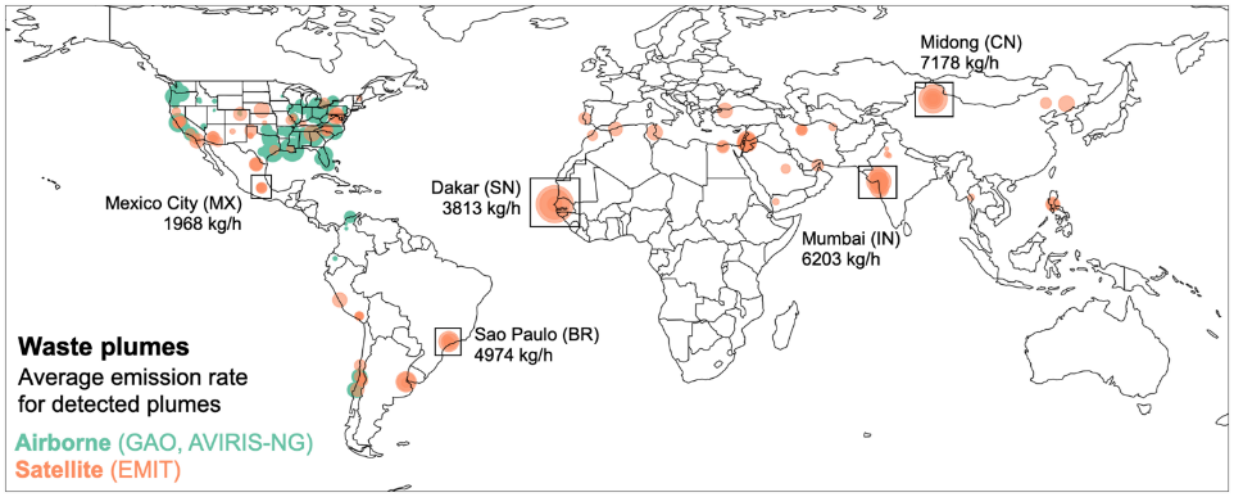


Left - a large methane plume from a leaking oil and gas pipeline was detected in the Texas Permian Basin by Tanager-1 on Oct. 9. Approximate emissions 7000 kg/hr. After being shared with federal and state agencies, the leak was voluntarily fixed by the operator. Right - a subsequent Tanager observation on Oct. 24 detected no methane.

Stakeholders using our data to drive action

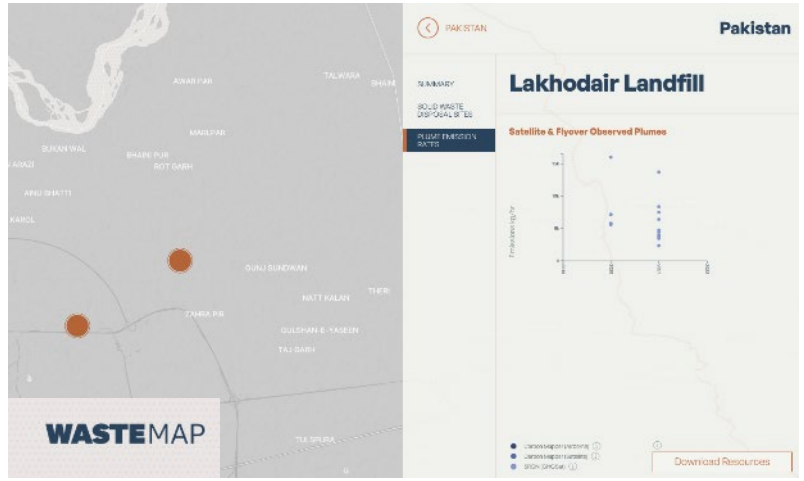
Sector-specific initiatives are integrating our data:

- Tools like Global Energy Monitor and RMI and CATF's WasteMAP incorporate our observations.
- CM is part of the LOW-Methane initiative led by US State Department and CCAC to tackle waste methane at the jurisdictional level.



Nonprofits are leveraging the power of our data to drive better policy making and community health:

- Advocacy groups like Food and Water Watch and Industrious Labs are analyzing CM data to inform discussions around methane mitigation or push governments to close policy gaps.



Global organizations are using the data to develop projects:

- Organizations such as the World Bank are also leveraging our observations to inform their engagements and analyses such as their Global Flaring Report.