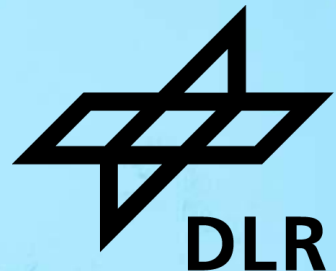


CO2IMAGE

Julia Marshall, on behalf of the CO2Image team



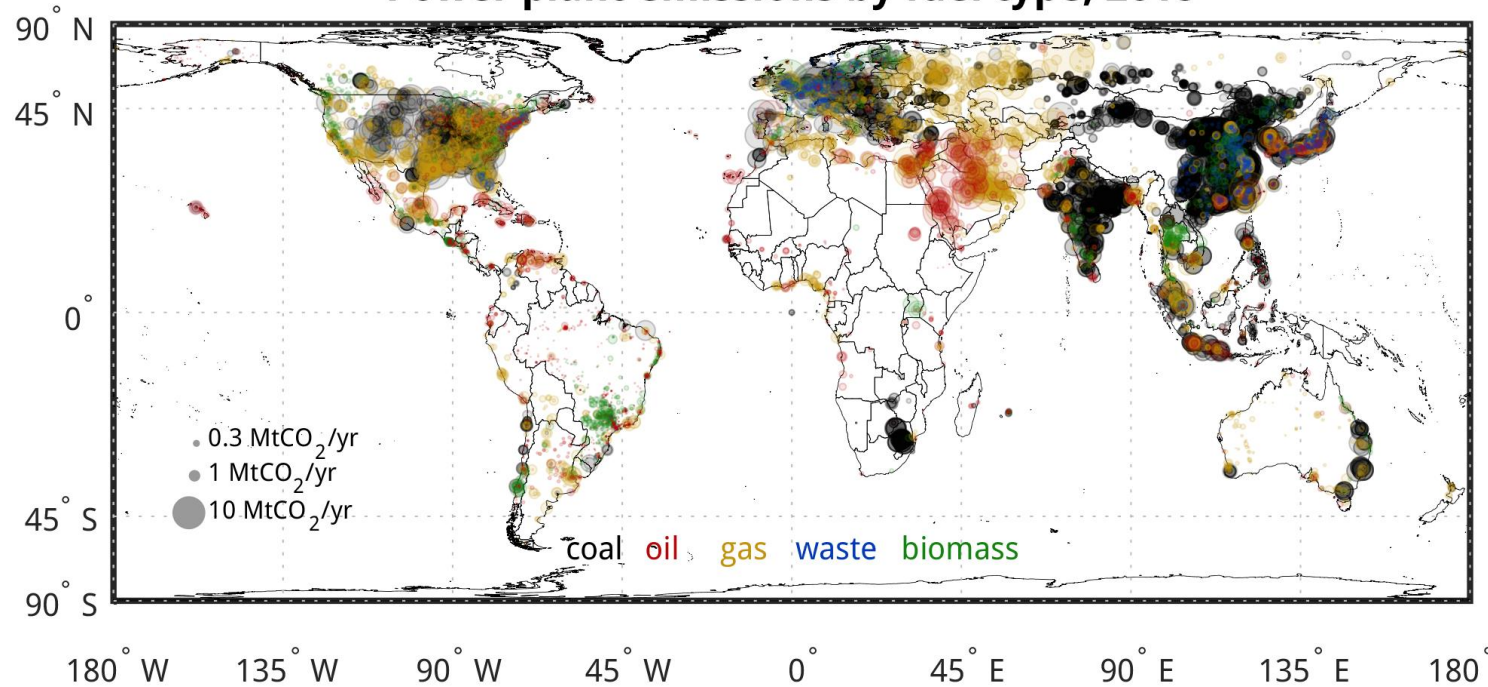
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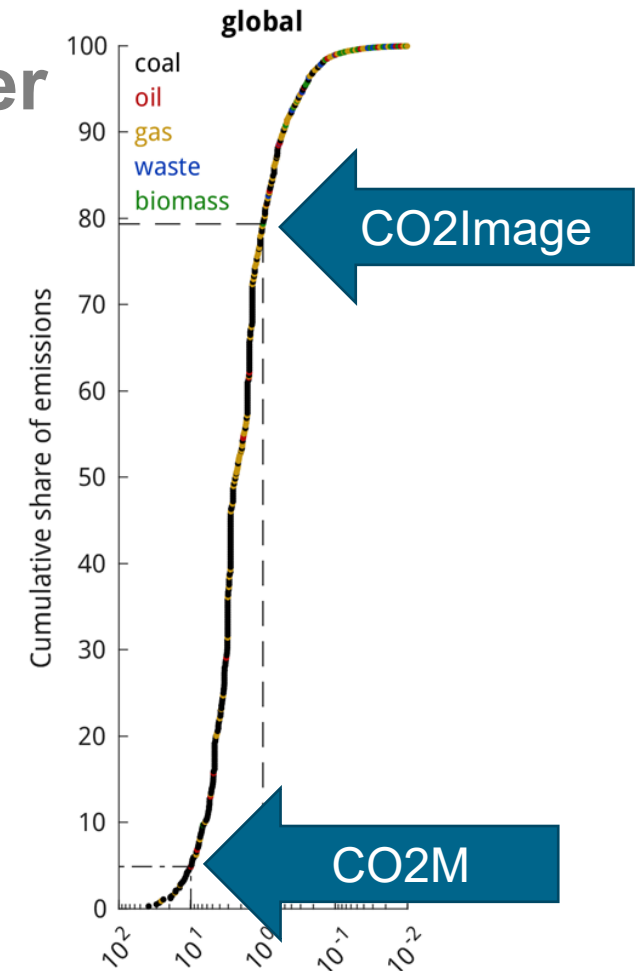
What fraction of anthropogenic point source emissions can be determined by CO2M?

What if this limit could be reduced by an order of magnitude?

Power plant emissions by fuel type, 2018



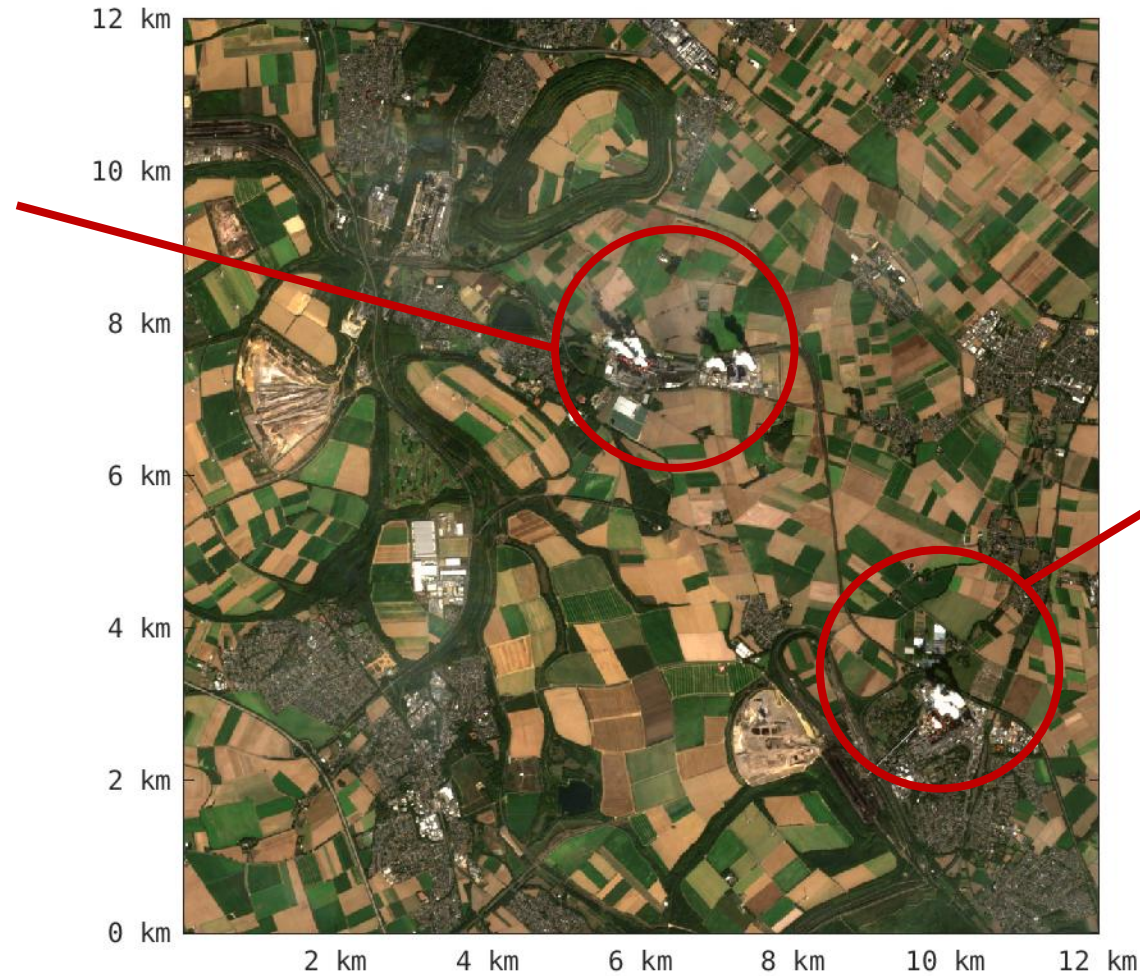
Data from [Guevera et al., 2023](#)



Power plant emission rate (MtCO_2/yr)

Innovation: higher spatial resolution

Neurath
Emissions:
26 Mt CO₂/a

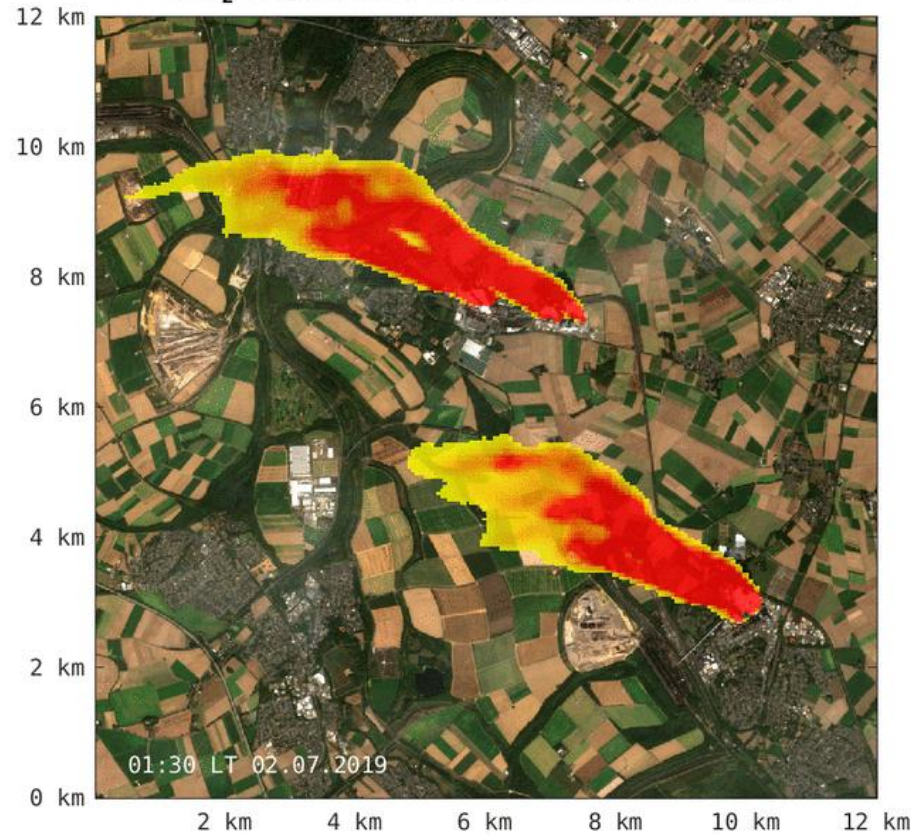


Niederaußem
Emissions:
29 Mt CO₂/a

Innovation: higher spatial resolution

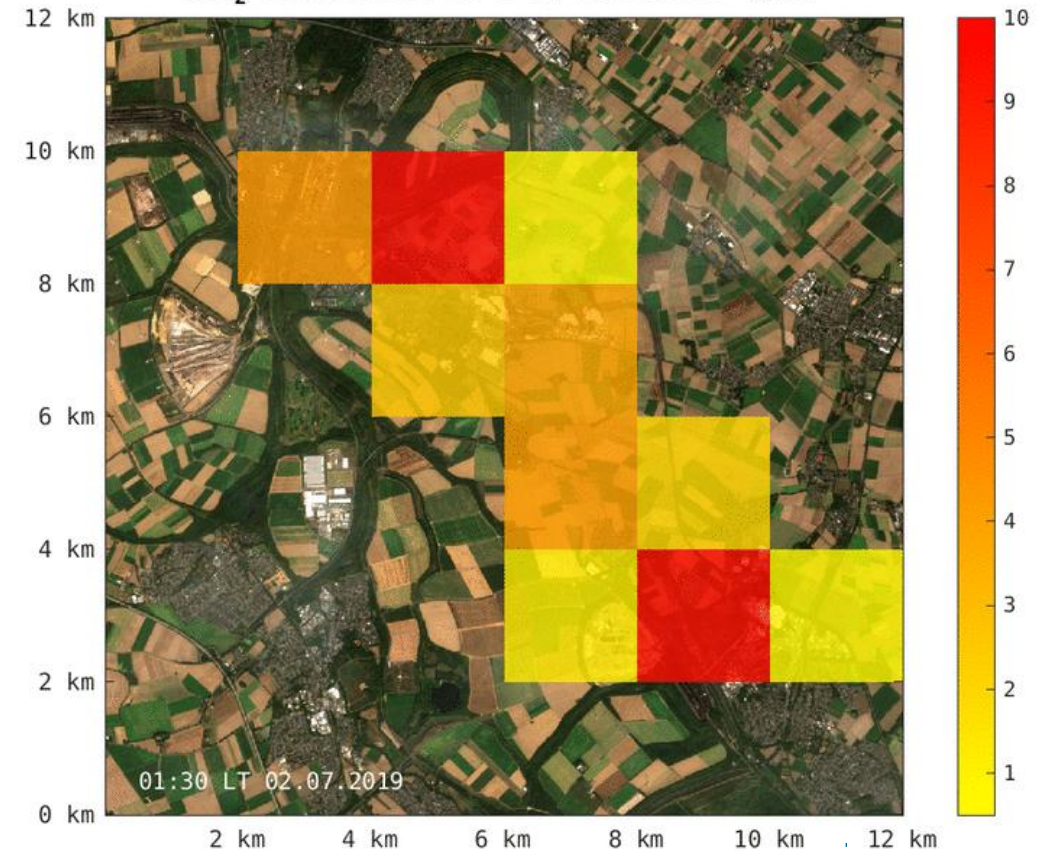
CO2Image

XCO₂ enhancement at 50-m resolution (ppm)



CO2M

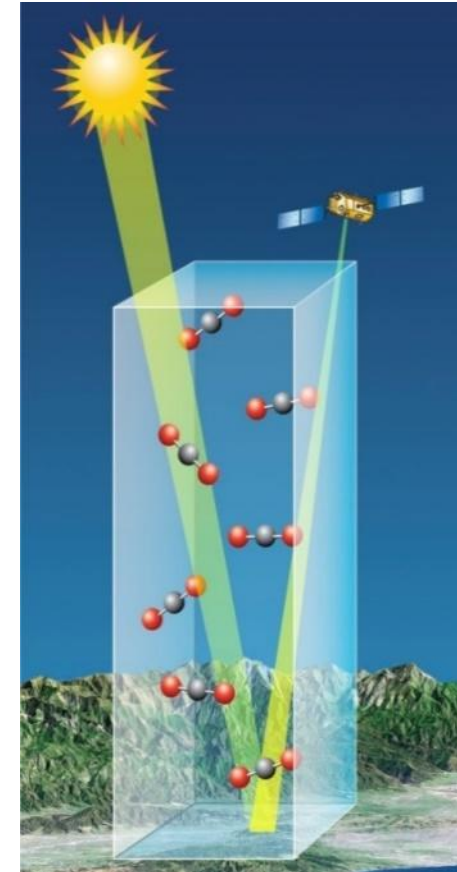
XCO₂ enhancement at 2-km resolution (ppm)



→ The higher spatial resolution of CO2Image will allow for emissions from nearby emissions to be separated, and assist in demasking CO₂ emissions from diffuse sources, such as transportation.

Measurement principle: passive remote sensing

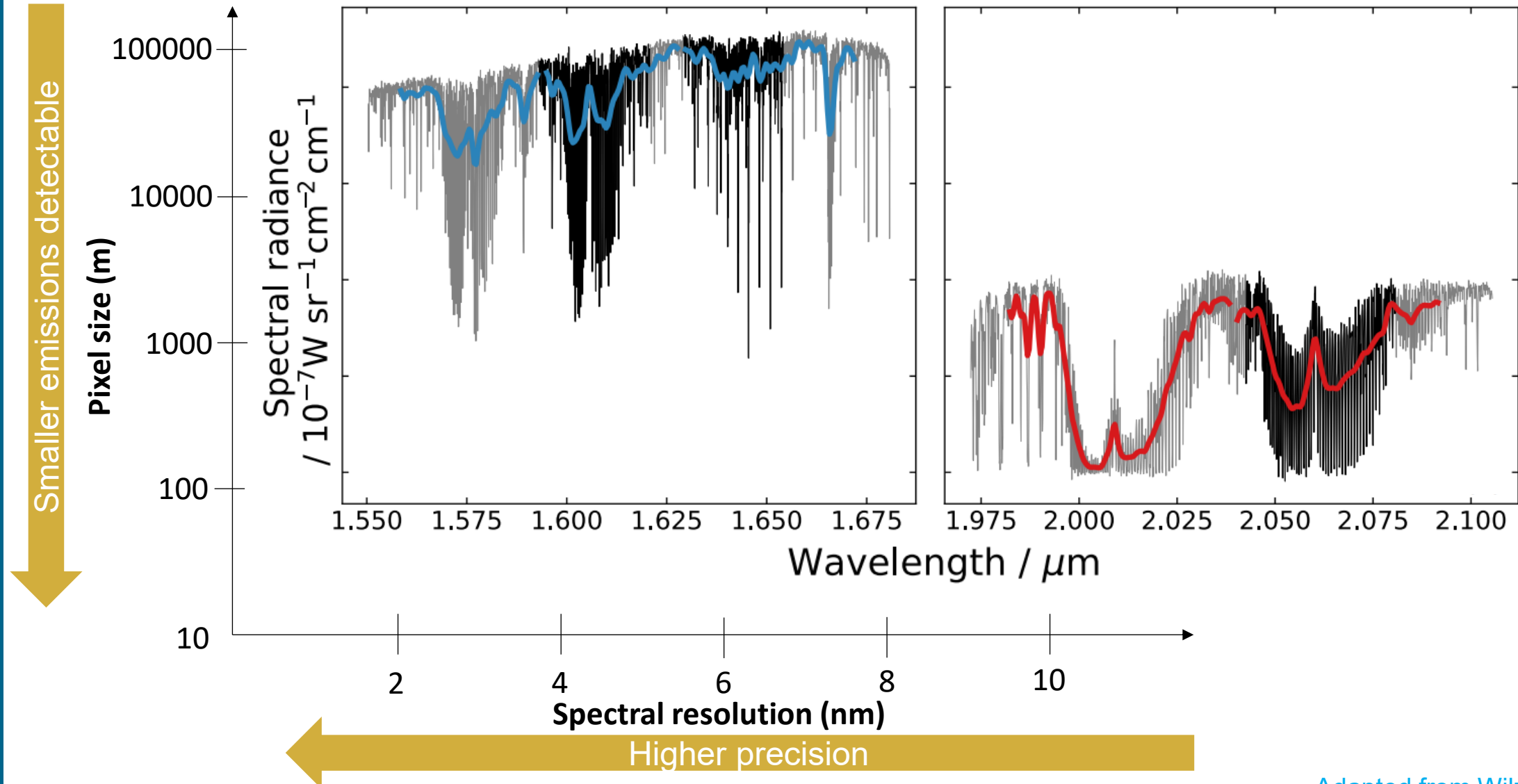
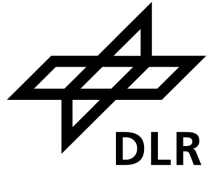
- Measurement of reflected and scattered sunlight in a spectral range in which both carbon dioxide and methane absorb radiation, to retrieve the column-integrated amount of these gases in the atmosphere, **XCO₂** and **XCH₄**
- Challenges for accurately quantifying emissions from point sources:
 - Need for **high spatial resolution** to resolve plumes and enhance gradients
 - Requires reduced **spectral resolution** (CO2Image: sweet spot!)
 - **High SNR** needed → Target mode with increased integration time



Innovation / niche



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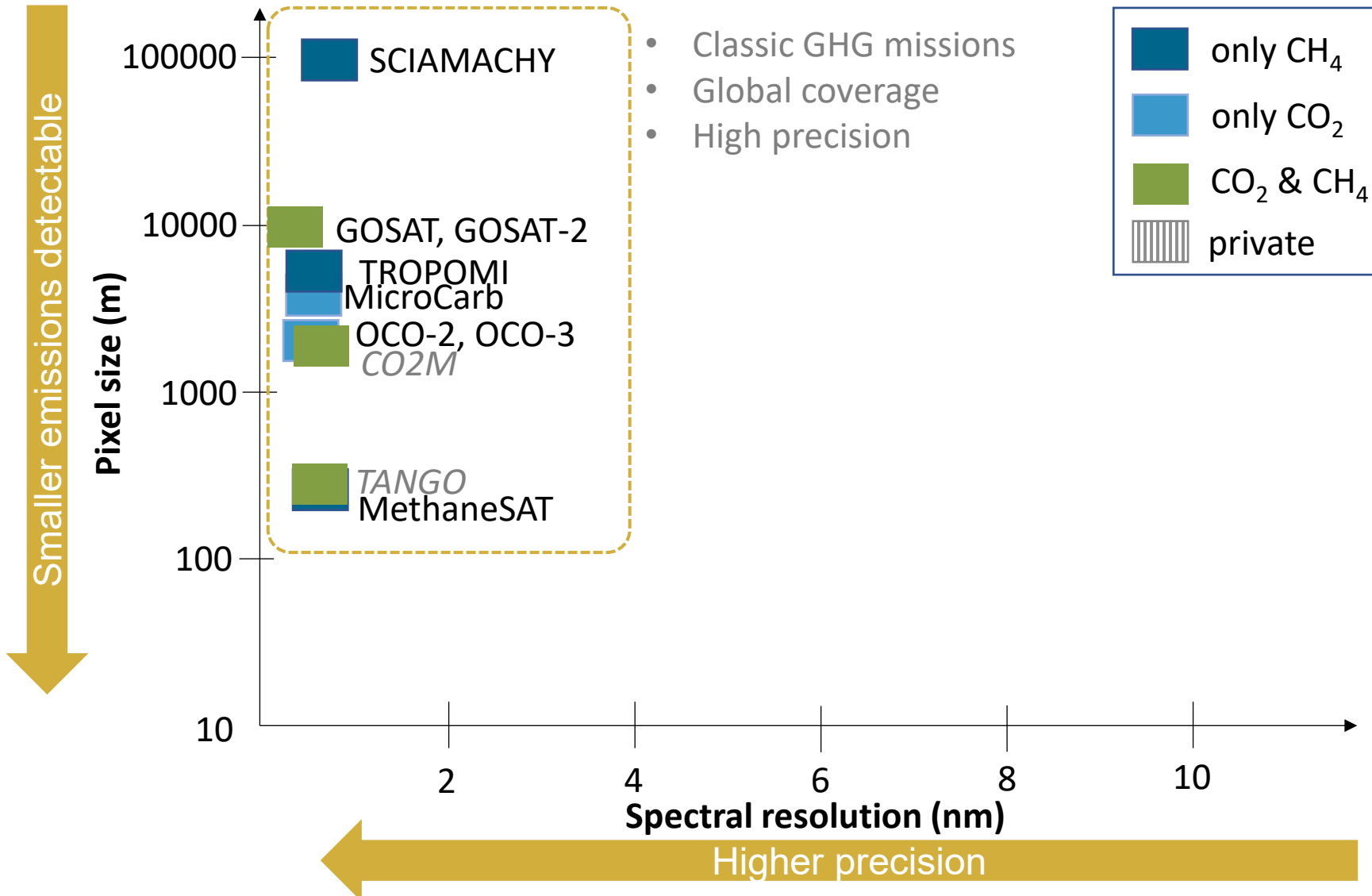


[Adapted from Wilzewski et al., 2020](#)

Innovation / niche



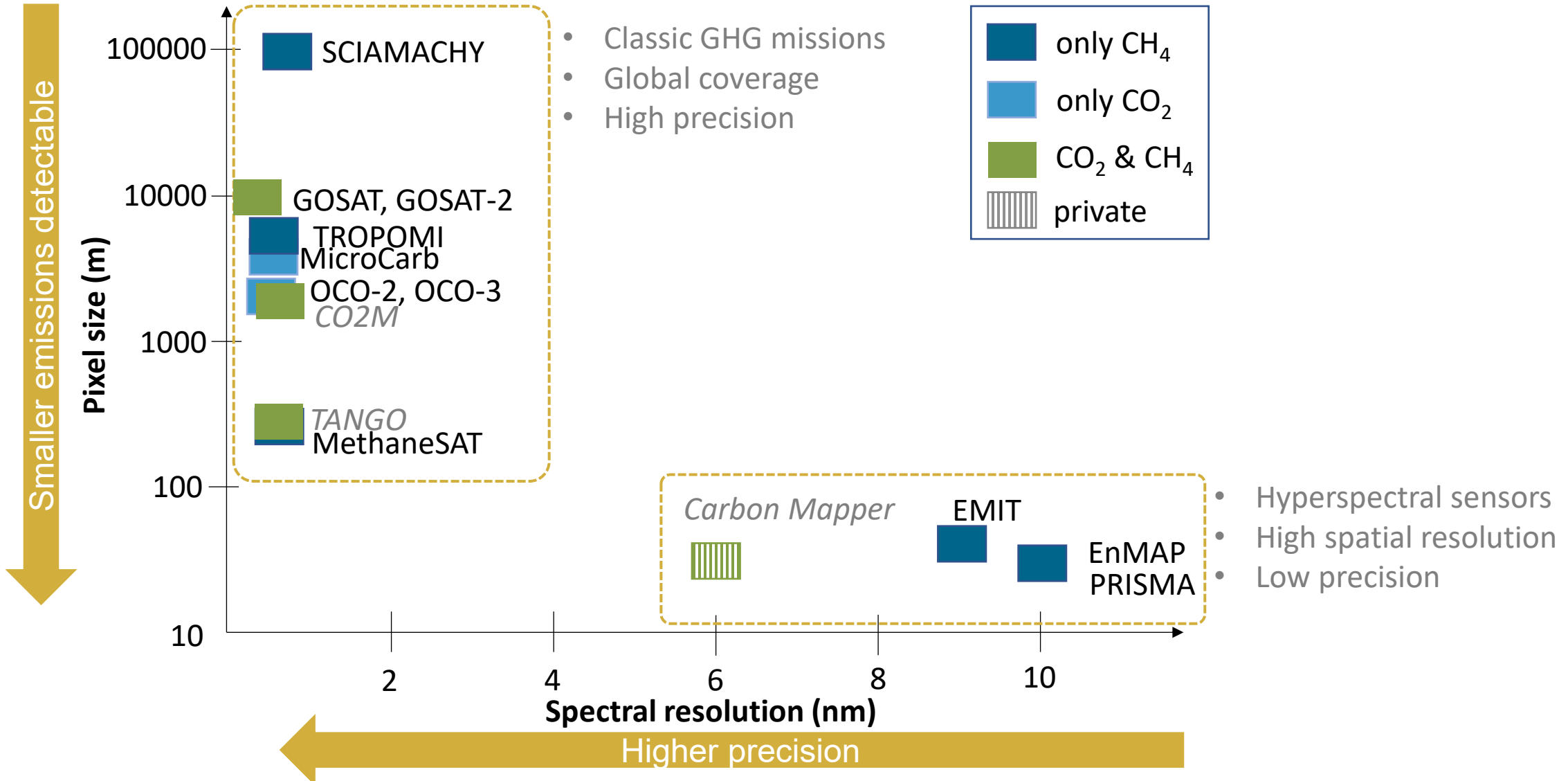
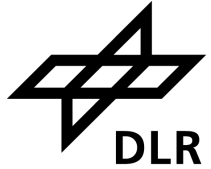
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Innovation / niche



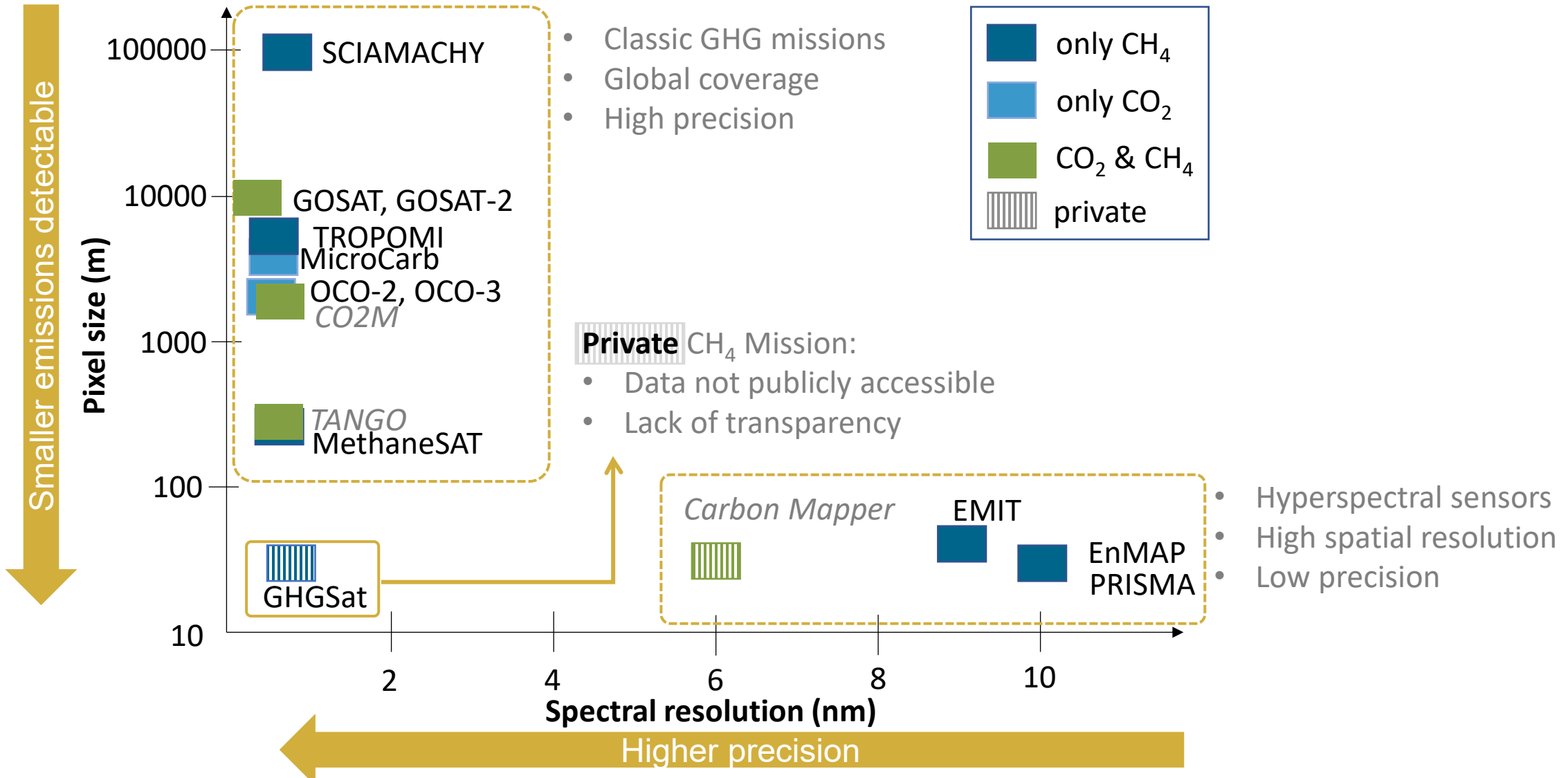
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Innovation / niche



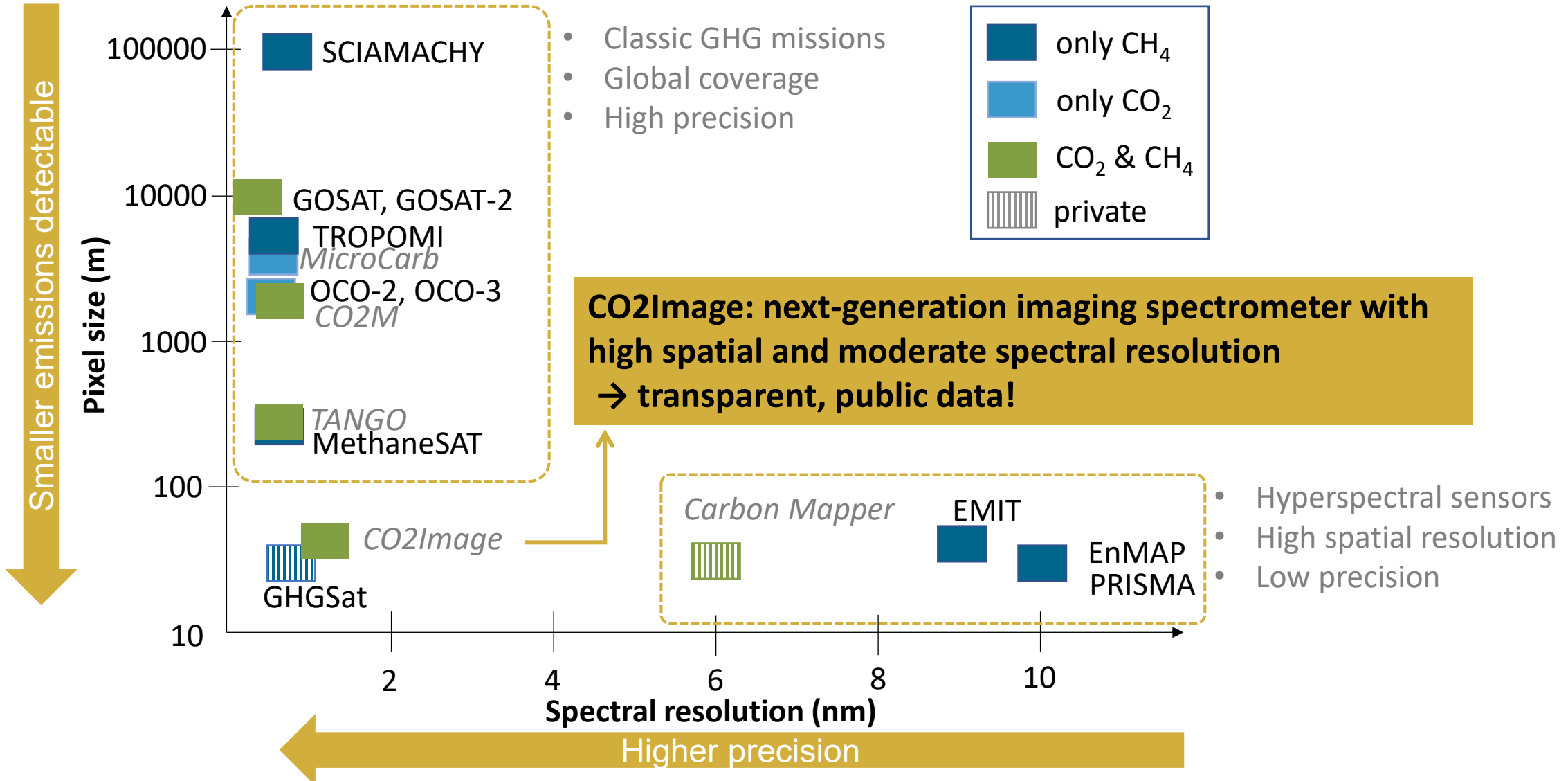
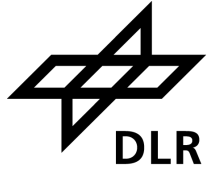
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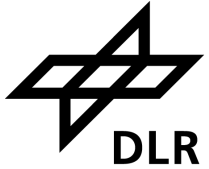
Innovation / niche



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DLR and INPE are now working together...



Spectrometer

+



Multi-mission platform



We have very recently
gotten the official green
light from the Brazilian
government!



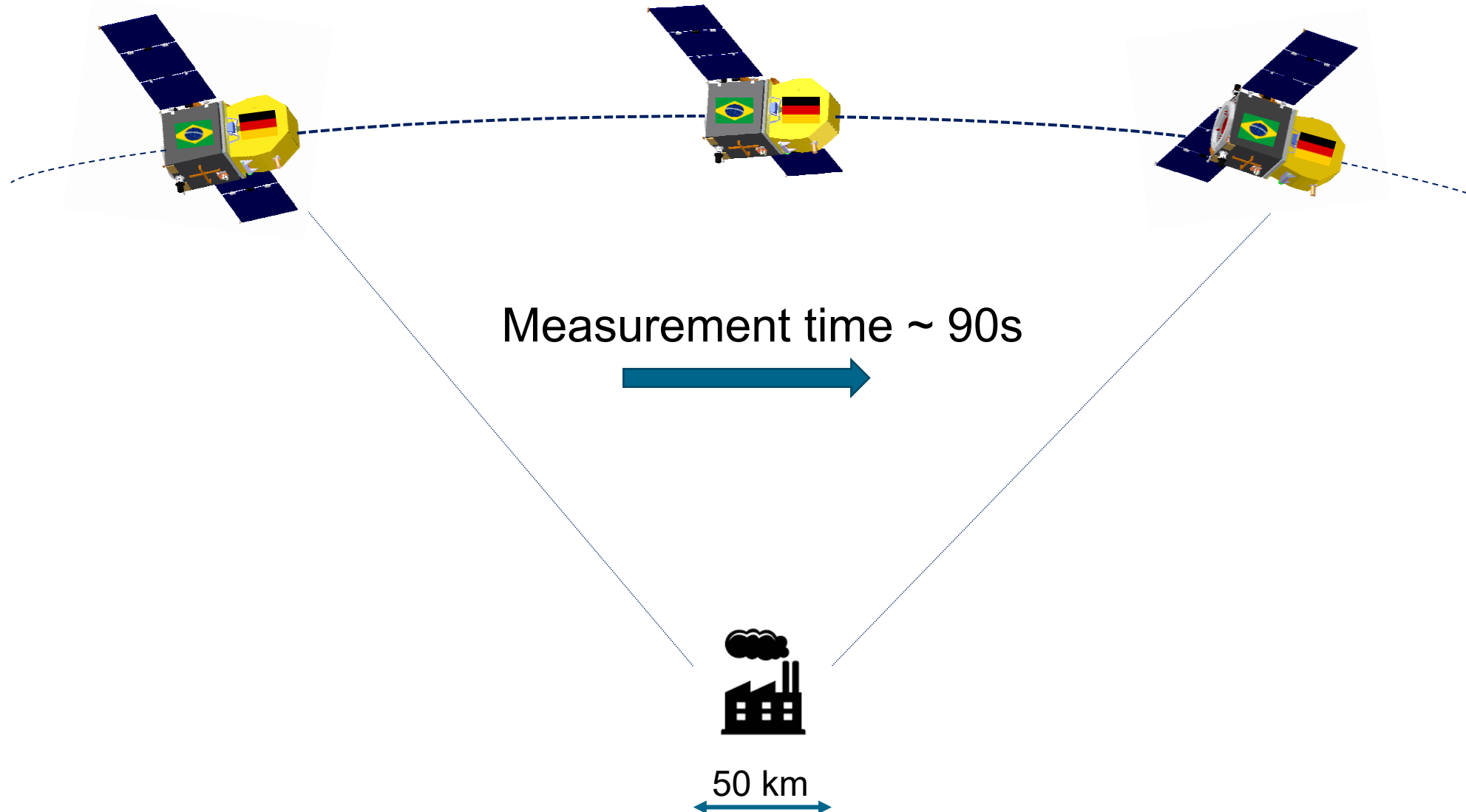
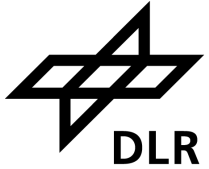
April 28, 2026

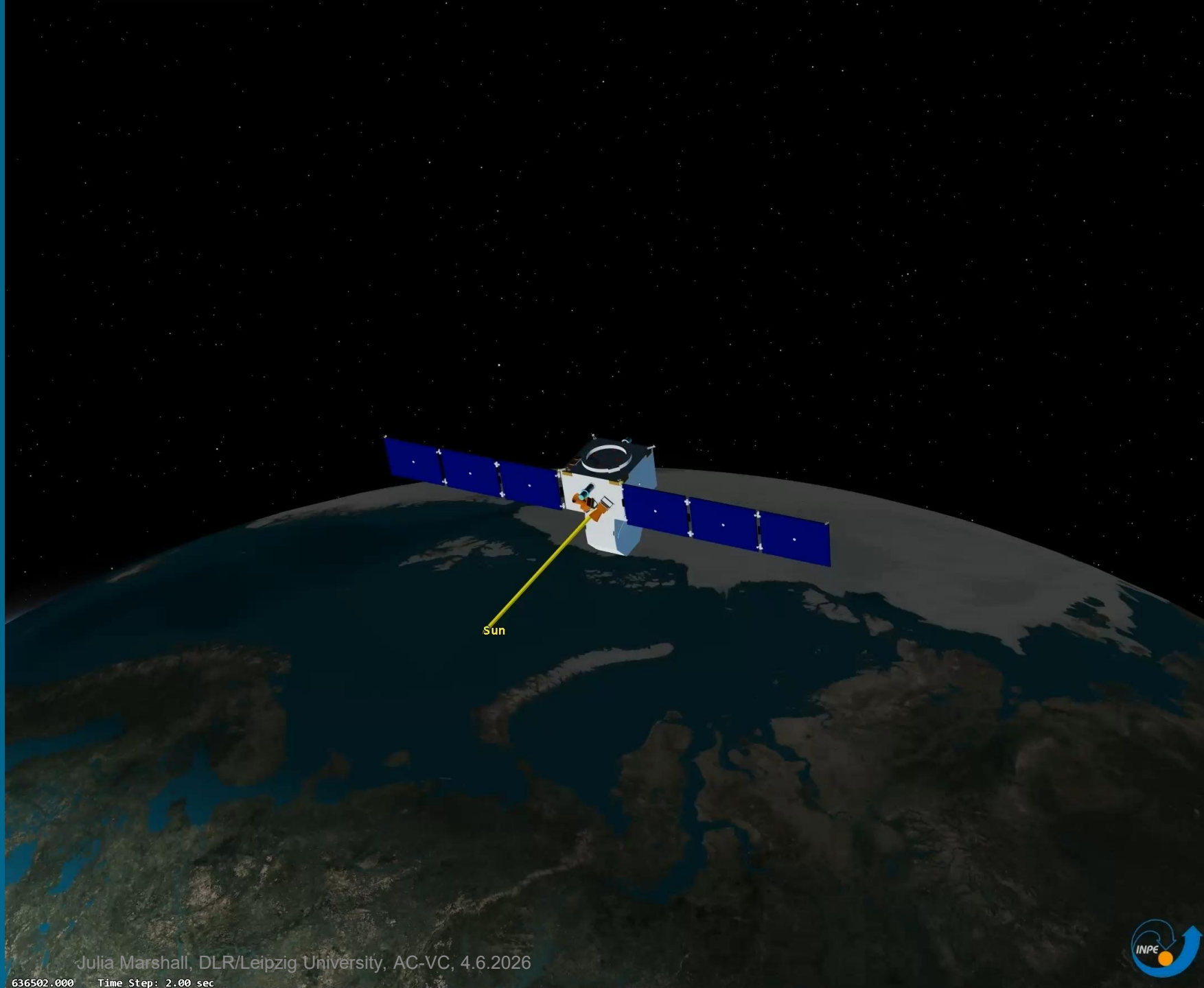
CO2Image: A Brazilian-German satellite mission focussing on greenhouse gases

With the signing of a Joint Declaration of Intent by representatives of Brazil and Germany, the way forward for the CO2Image greenhouse gas mission - scientifically led by the Institute of Atmospheric Physics- has been established.



Observational concept: focus on target regions, with increased observation time to maximize SNR





Timeline (tentative):



- SRR took place in February and March 2026, responses to RIDs will be completed in the next months

	Months after T0	Proposed schedule
T0	0	01.07.2026
System-PDR	6	01.01.2027
System-CDR	18	01.01.2028
- Optics delivery to DLR	30	01.01.2029
- Instrument Delivery to INPE	42	01.01.2030
Launch	49	01.08.2030
Start Operation	53	01.12.2030
End operational	85	01.08.2033