

TANGO: The Twin Anthropogenic Greenhouse Gas Observers

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SRON

SPACE
RESEARCH
ORGANISATION
NETHERLANDS



Global GHG
Mappers

Facility Scale
Plume Monitors

Carbon Dioxide
Observations
from Space

- Collocated CO_2/CH_4 and NO_2 measurements
- $30 \times 30 \text{ km}^2$ field of view with a spatial resolution of 200/ 300 m
- Science mission
- Open data - open-source policy
- Launch 2028

TANCO



NO_2

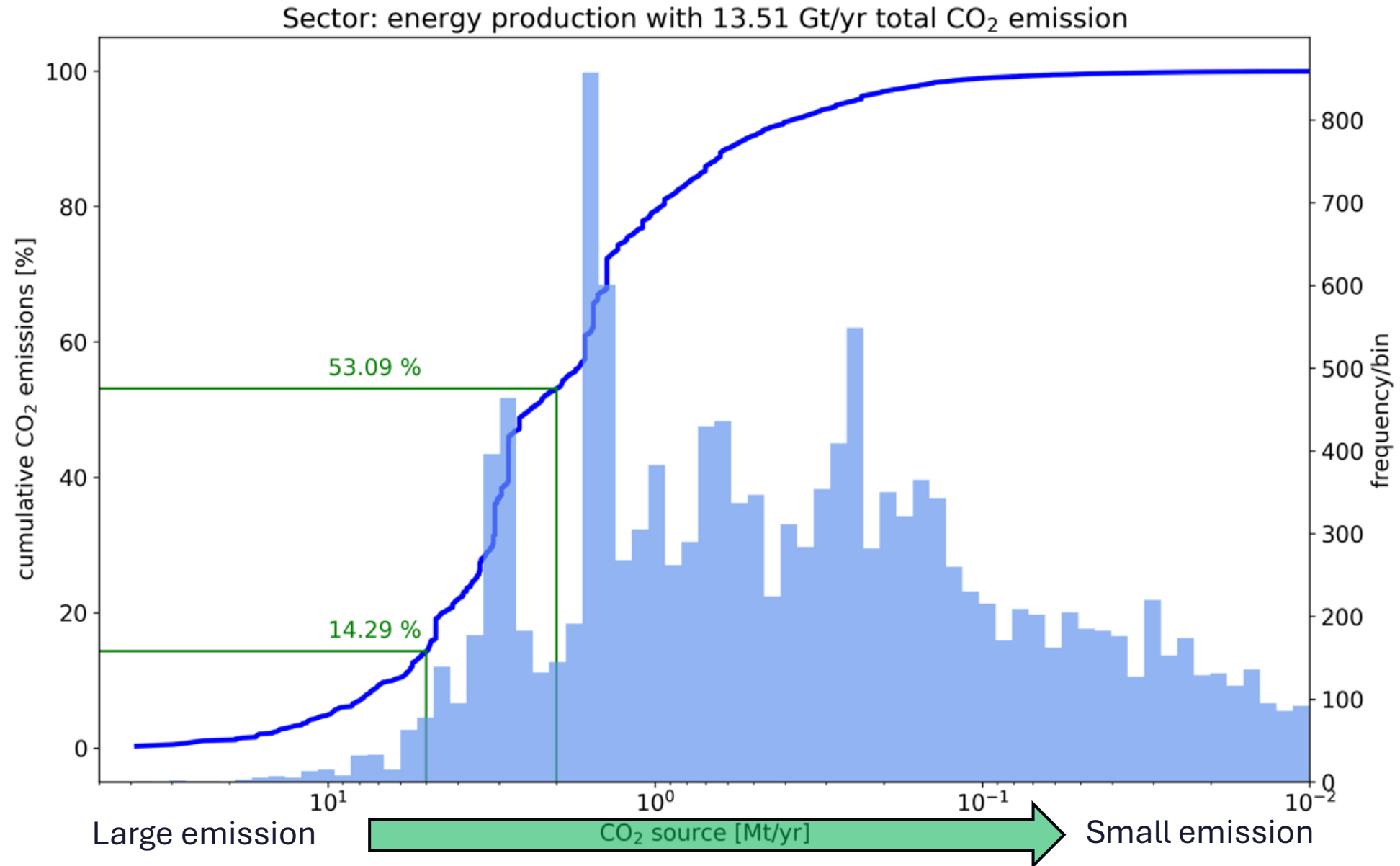
CO_2/CH_4

ESA's SCOUT Program

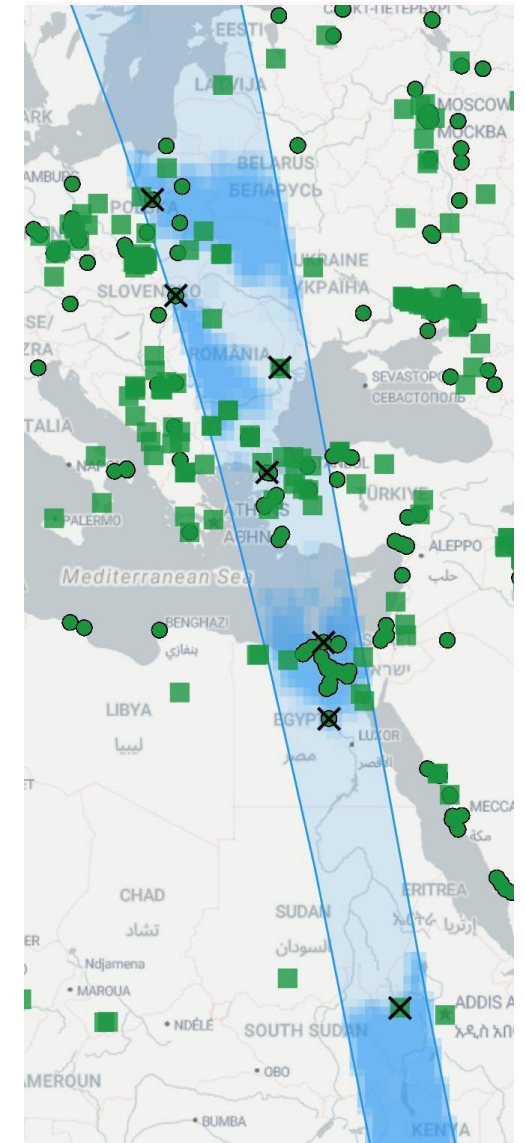
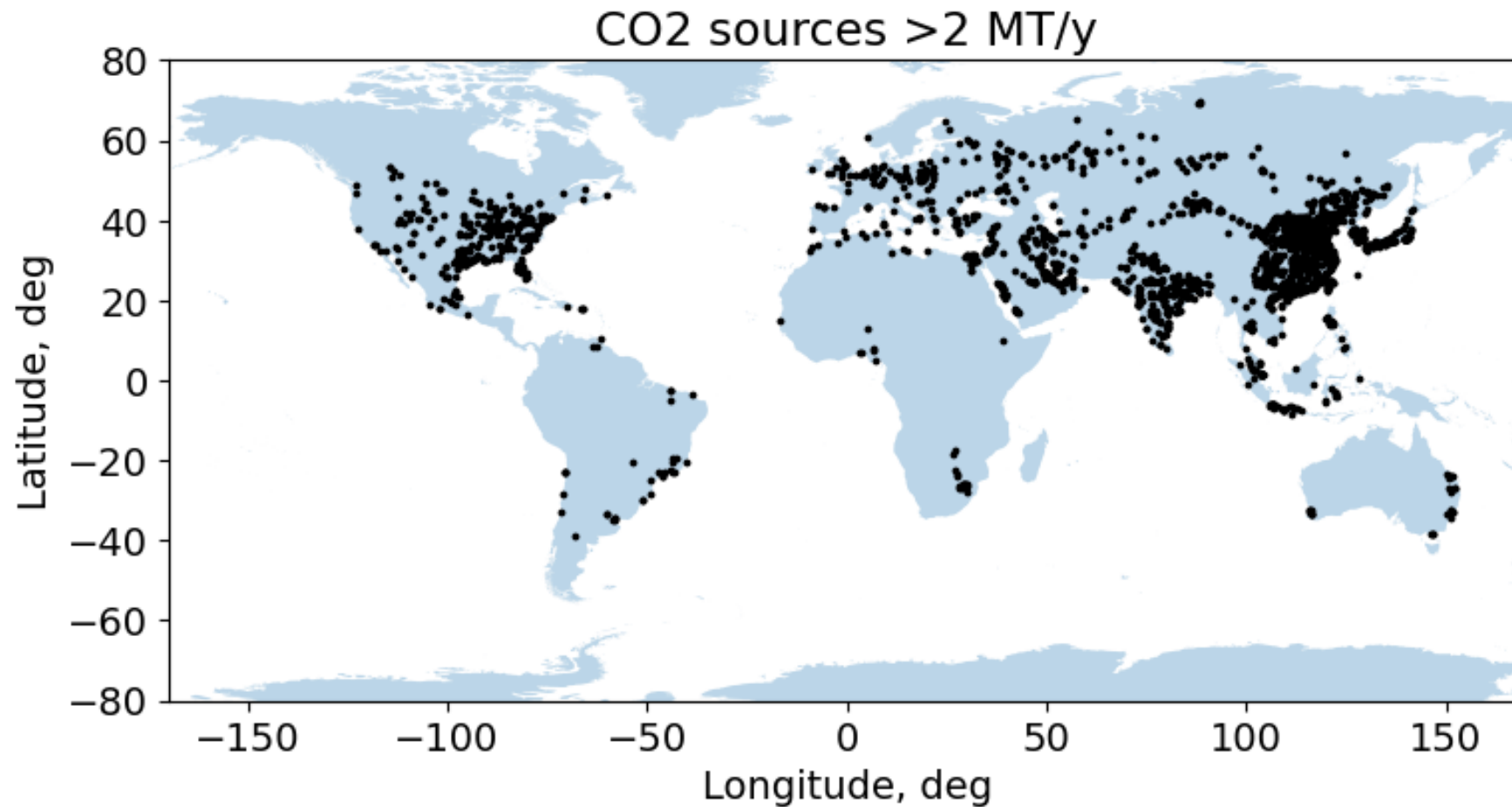
- **Scout missions** are a new component of ESA's Earth Observation FutureEO programme, complementing the Earth Explorer research satellite missions
- Small satellites delivers value-added science, either by miniaturising existing space technologies or by demonstrating new observing techniques.
- Short implementation time (3 years), budget < 35 Me



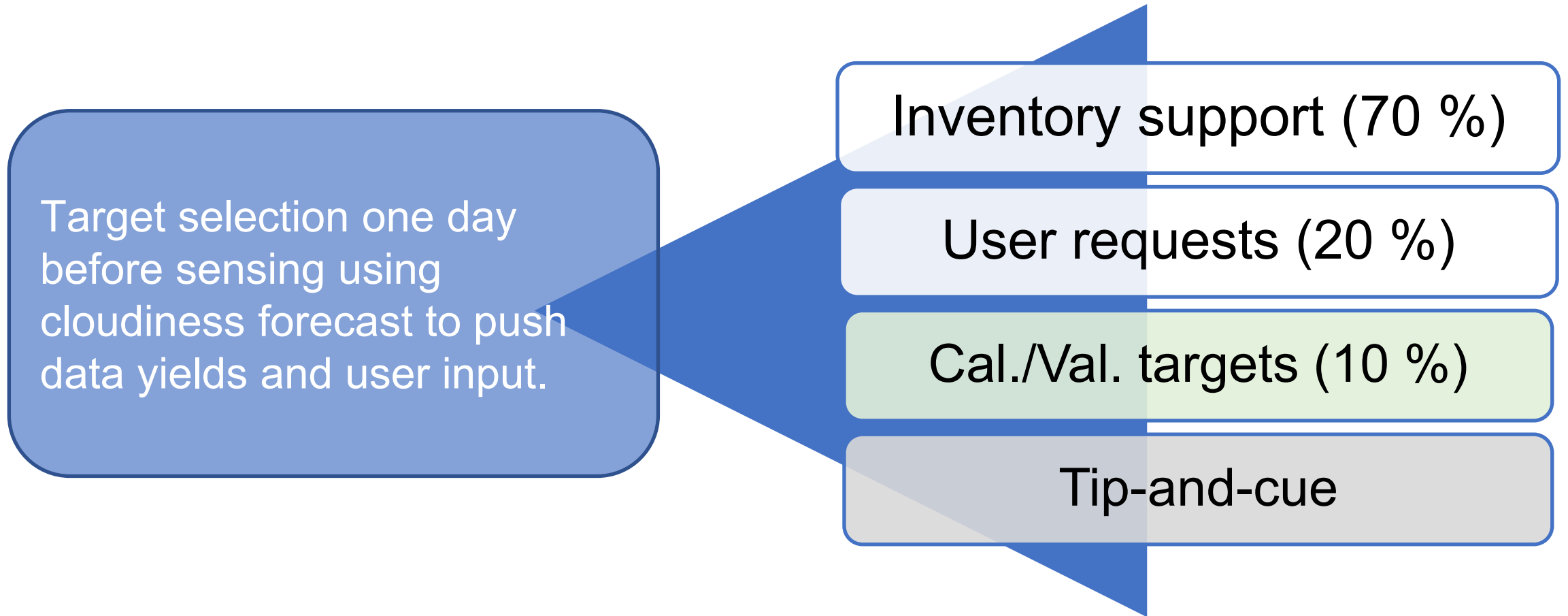
CO₂ emissions from the energy sector



How to select targets?



Flexible target selection

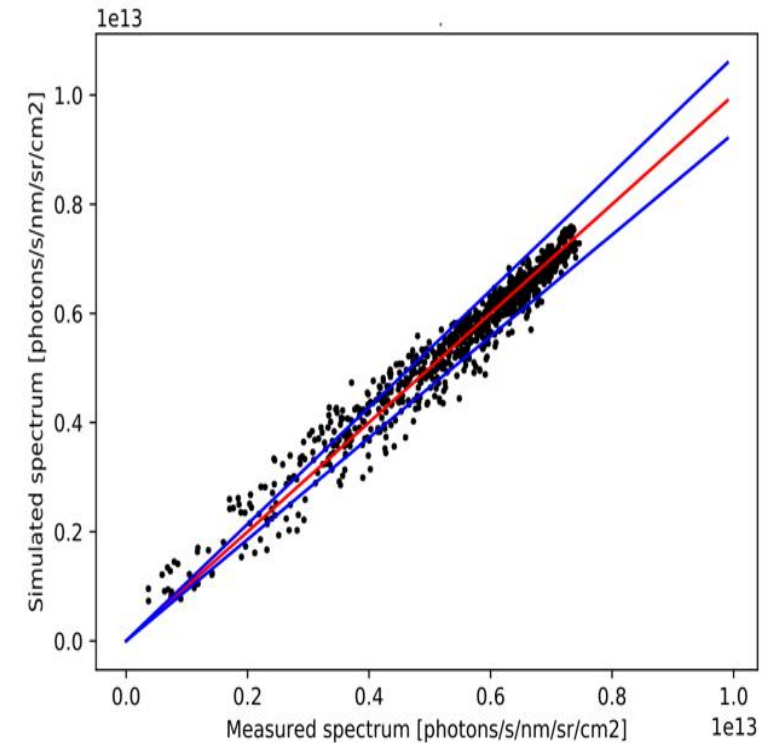
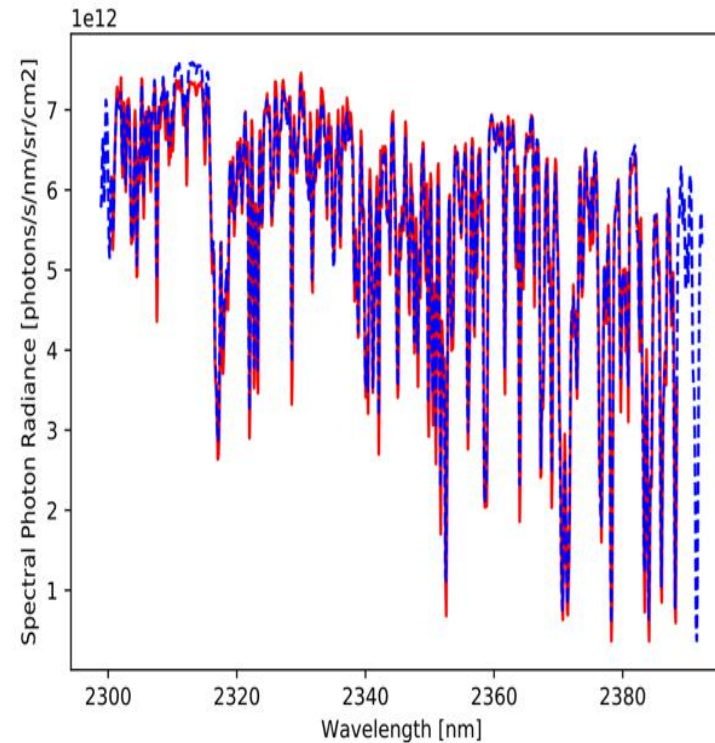


The target type proportioning is an indication but not set in stone.

Inflight Radiometric Calibration - RadCalNet

19-May-2003

TROPOMI 2.3 μm radiance observation and RT simulation

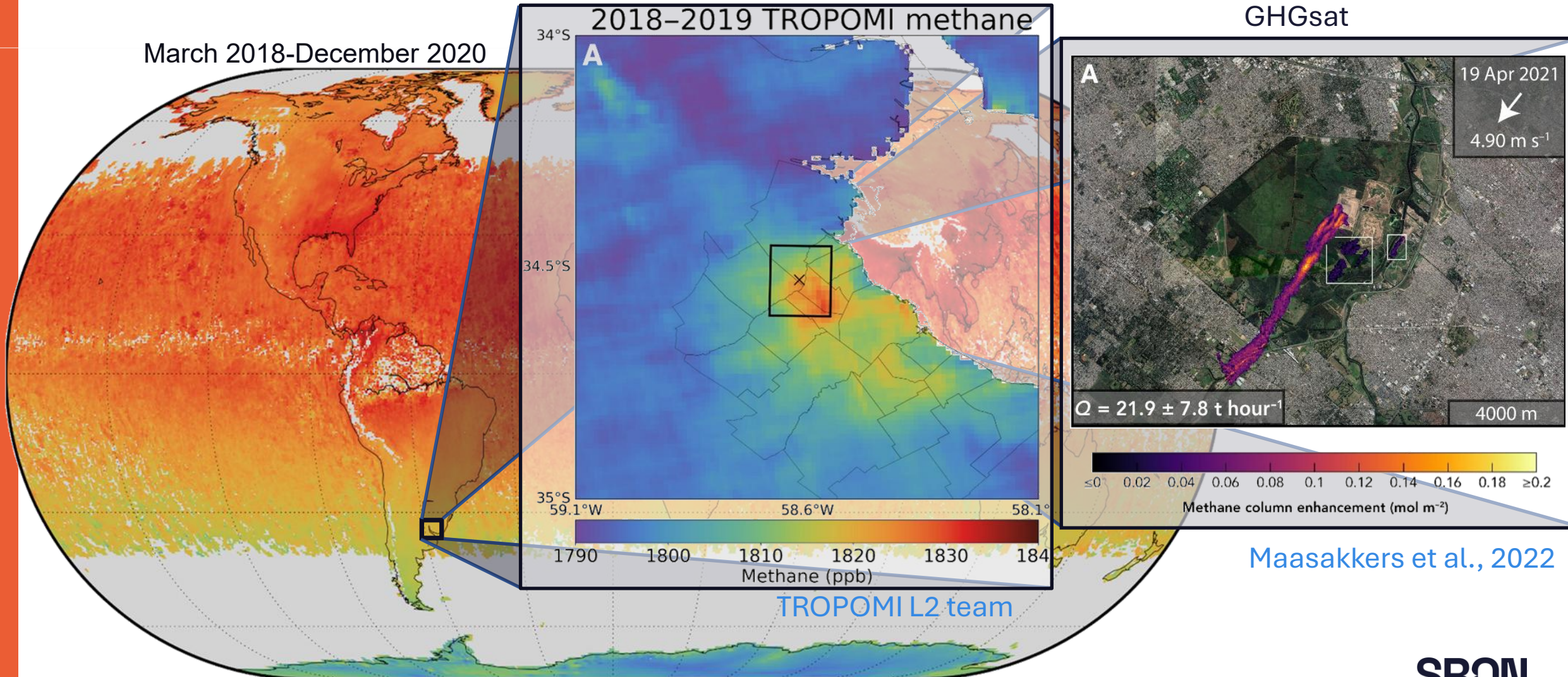


Van Kempen et al., 2023

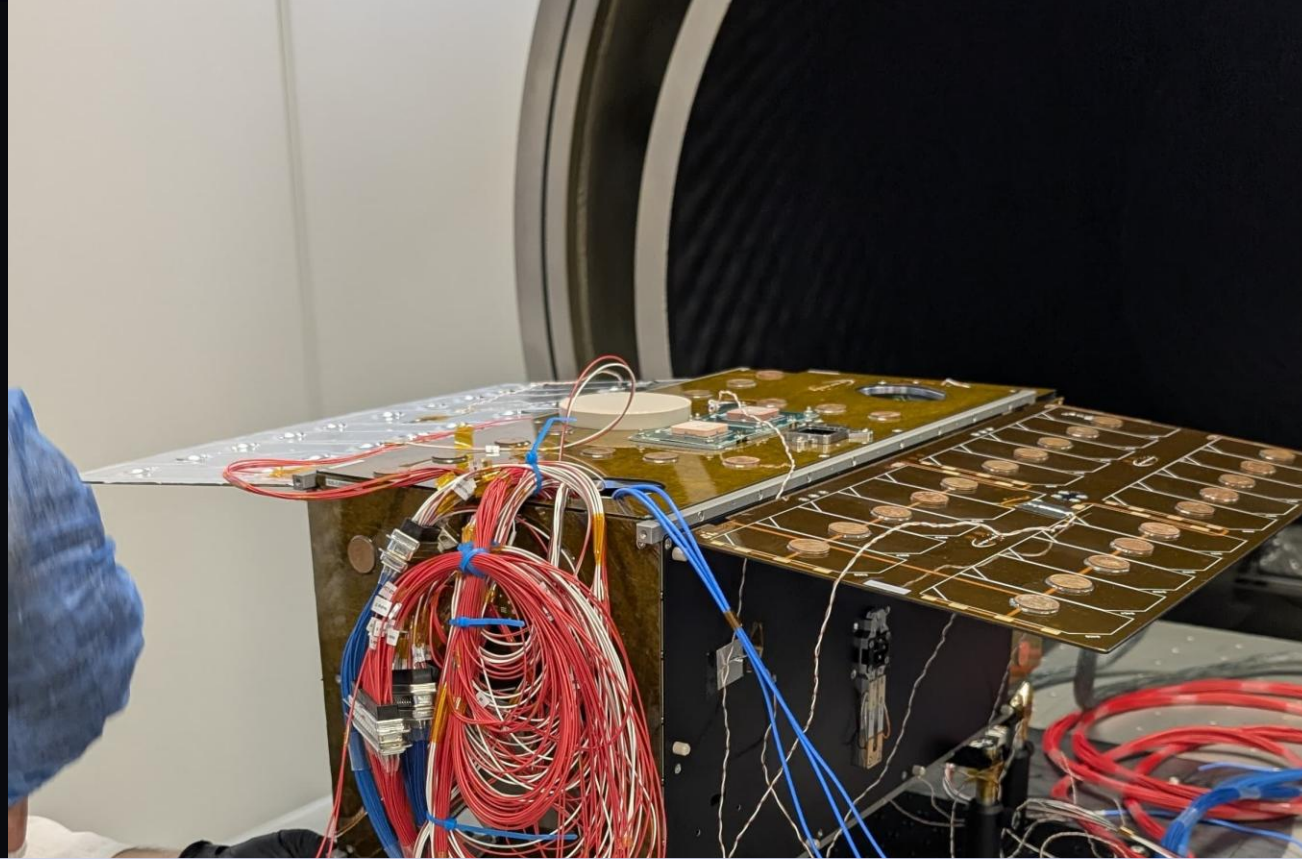
CEOS LANDNET sites can be used to calibrate the ARA of TANGO.

Tip and cue approach: GHGsat-TROPOMI

March 2018-December 2020



**TANGO is
getting
real!**



CEOS related aspects:

1. Vicarious calibration using RadCalNet sites
2. Tip-and-cue approach as an operational aspect



TANGO at TVAC
facility in Bremen