

GHGSAT – ENERGY COMMUNITY

June 2022





WHY METHANE?

“Quick Win” for Climate + Energy Security

84-87X

210 BCM



A Ukrainian thermal power plant destroyed by shelling in the town of Okhtyrka. Image: Iryna Rybakova/Press service of the Ukrainian Ground Forces/Handout via REUTERS



GHGSAT MONITORS GHG EMISSIONS

Multiple sensors & analytics used to monitor facility-level emissions worldwide



-  **Satellite Data**
-  **Aircraft Data**
-  **Analytics**
-  **Insights**



ESA facilitates access to greenhouse gas data

Canadian company GHGSat Inc., which offers high-resolution remote sensing of greenhouse gas emissions, air quality gas, and other trace gas emissions from any point sources in the world—is now an ESA Third Party Mission.

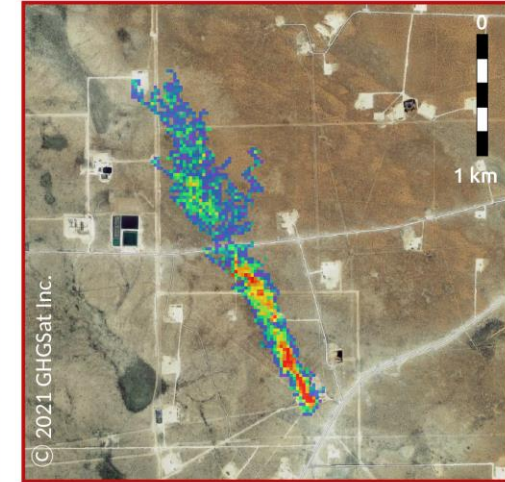
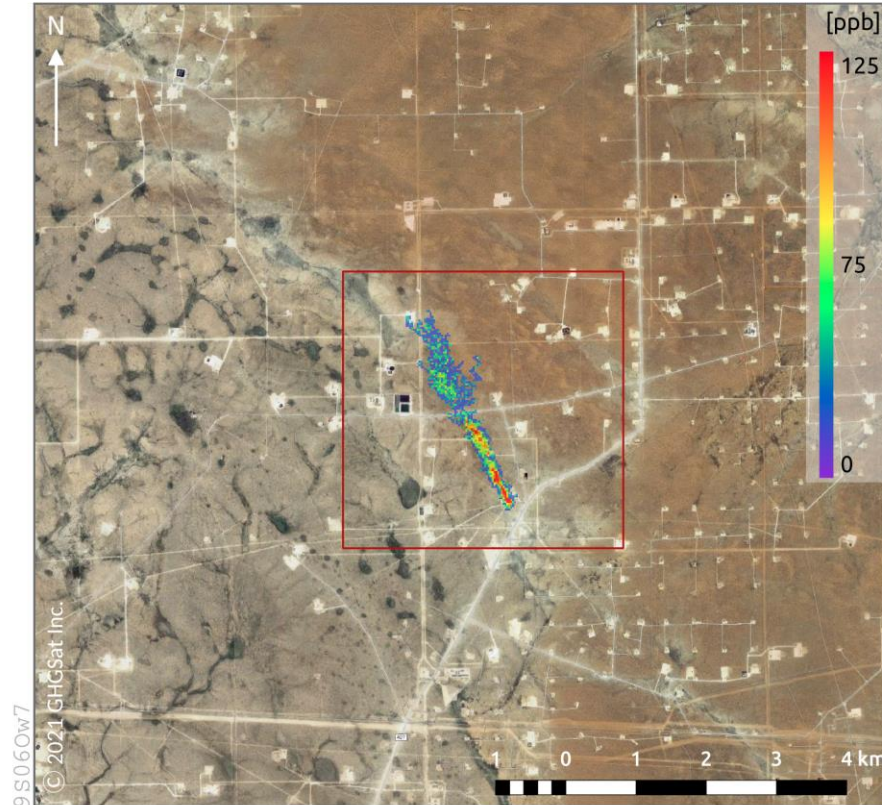
GHGSAT SATELLITES

GHGSat pioneered satellite monitoring of facility-level emissions, starting in 2016

- Facility-level measurements = **attributable**
- Low detection threshold = **actionable**
- Satellites = **global**
- Nanosatellites = **affordable service**



Oil & Gas Facilities, Permian Basin - USA GHGSat-C2 - CH₄ Measurement

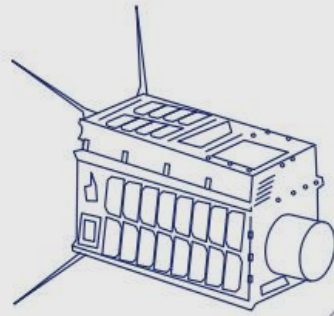


Product:
CH₄ column-averaged concentration
in excess of local background level

Timestamp:
2021-02-01 16:49:58 UTC

Background:
© 2021 Google Map Data





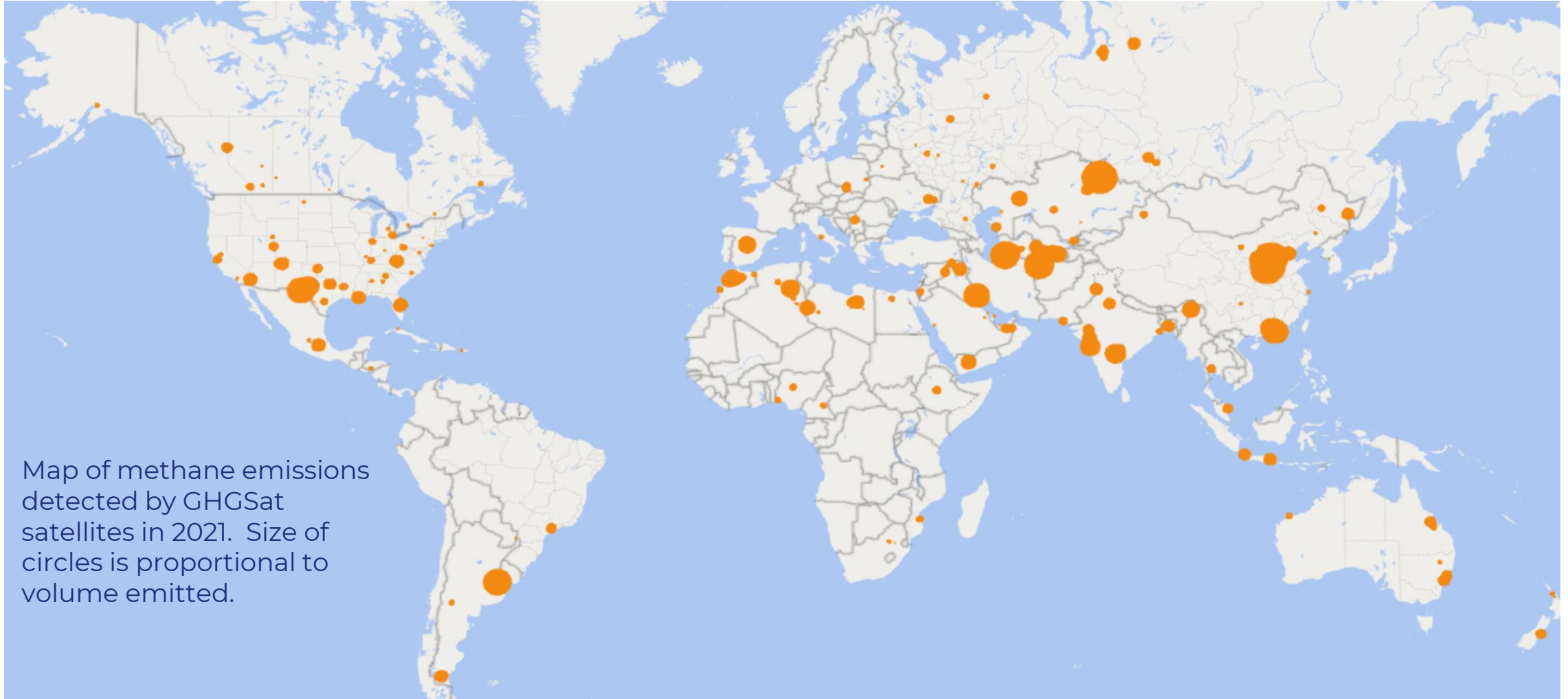
6 SATELLITES IN ORBIT NOW

NEXT LAUNCHES IN Q1 & Q4 2023



SATELLITE MONITORING OF METHANE

GHGSat detected > 140 MtCO₂e from thousands of methane sources worldwide in 2021

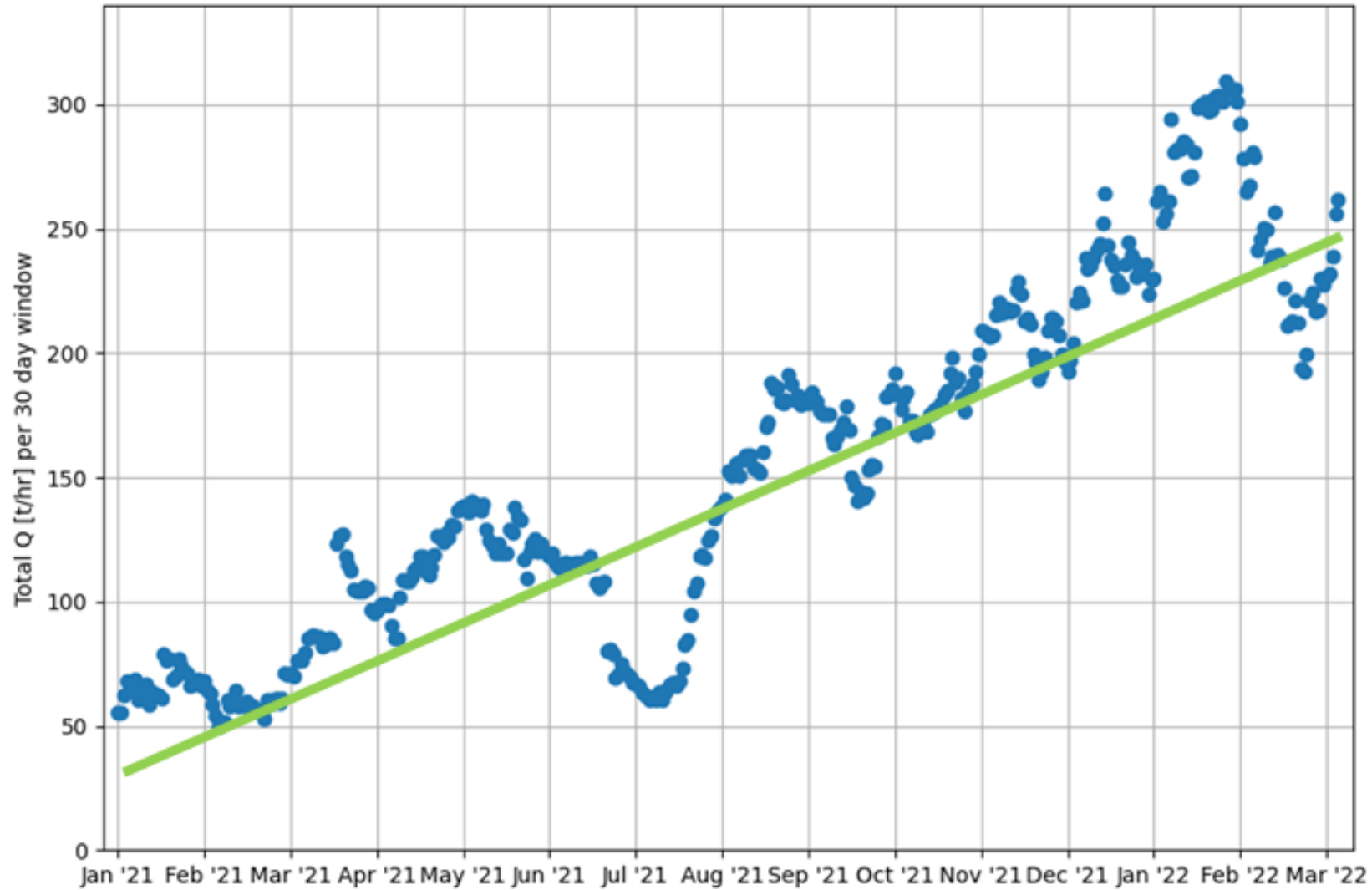


Map of methane emissions detected by GHGSat satellites in 2021. Size of circles is proportional to volume emitted.

*Saunois et al. <https://essd.copernicus.org/articles/12/1561/2020/>; expressed as CO₂e

GLOBAL TRENDS

Detected methane emissions are clearly growing



< Analytics From
Jan 23 to Jan 29, 2022 >

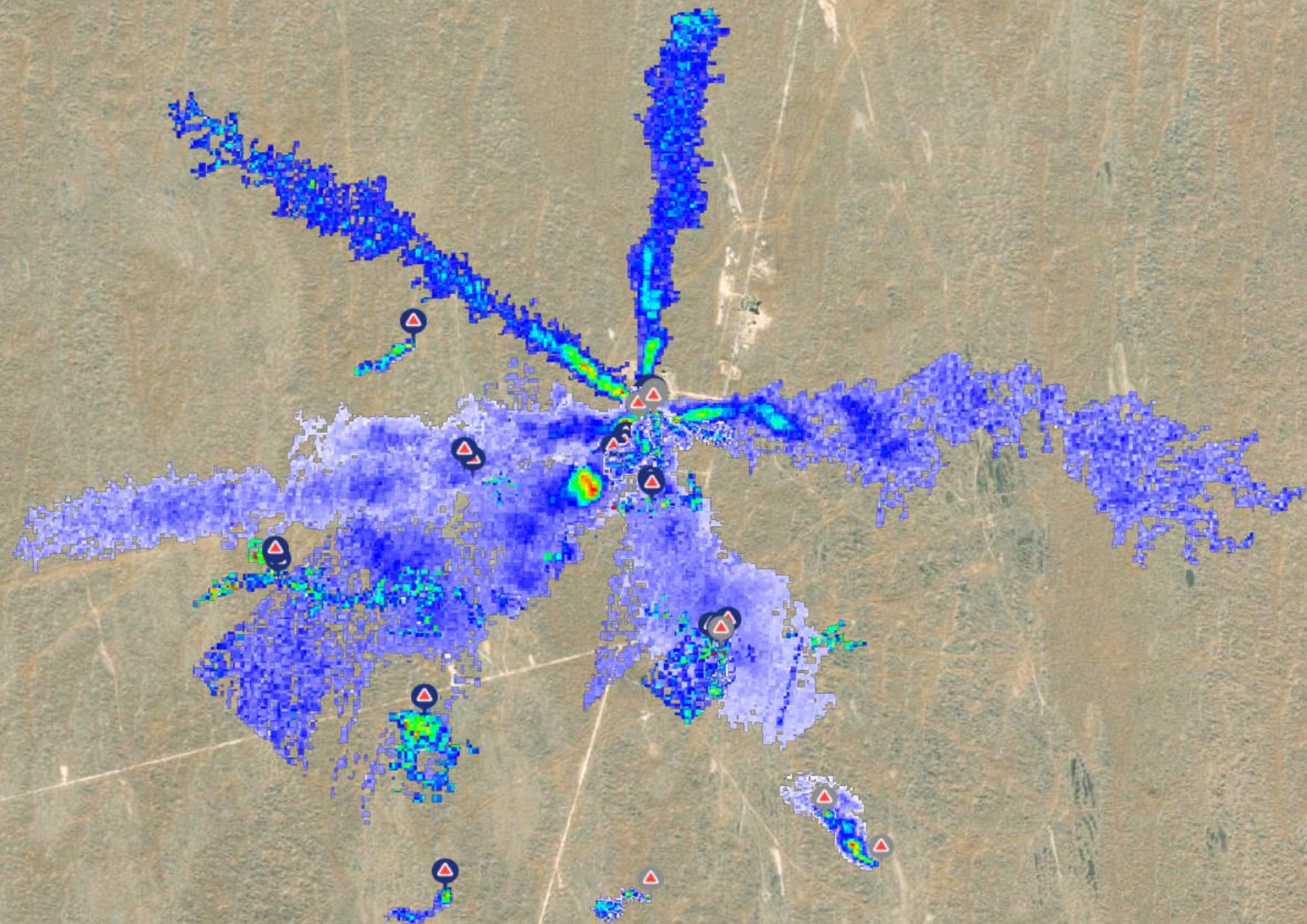
Measurements From
Aug 30 to Feb 20, 2022



2 km
1 mi

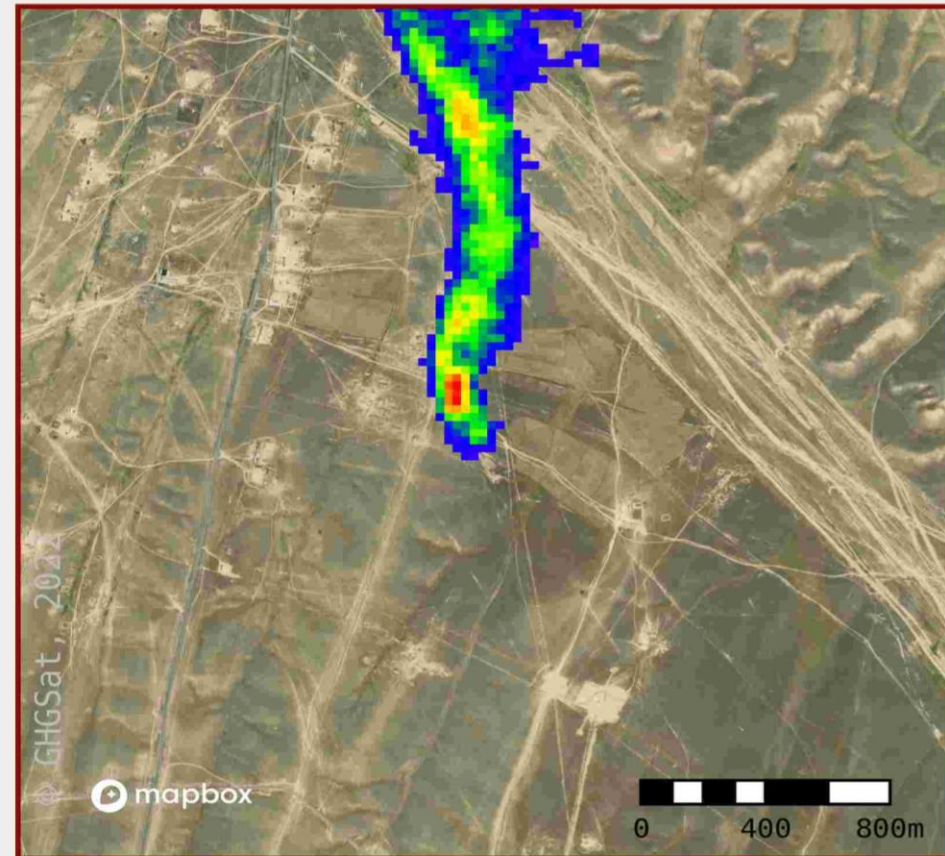
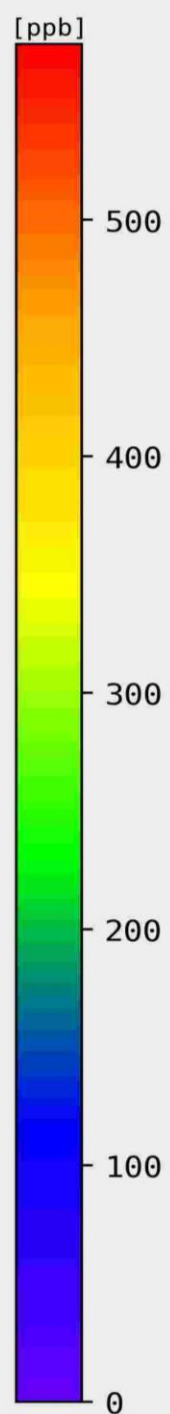
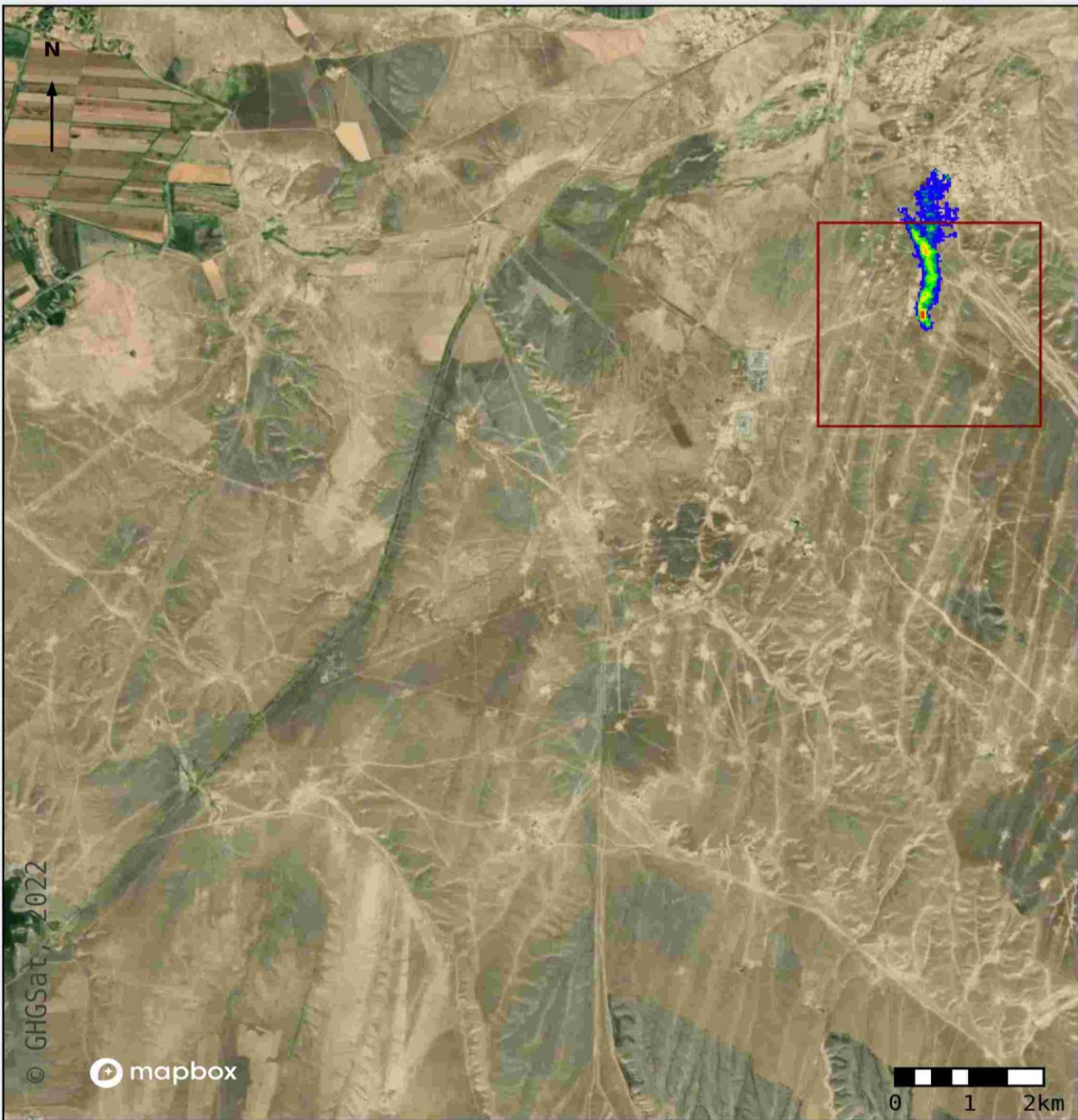
Analytics From
Jan 23 to Jan 29, 2022

Measurements From
Aug 30 to Feb 20, 2022



2 km
1 mi

↑
+
-



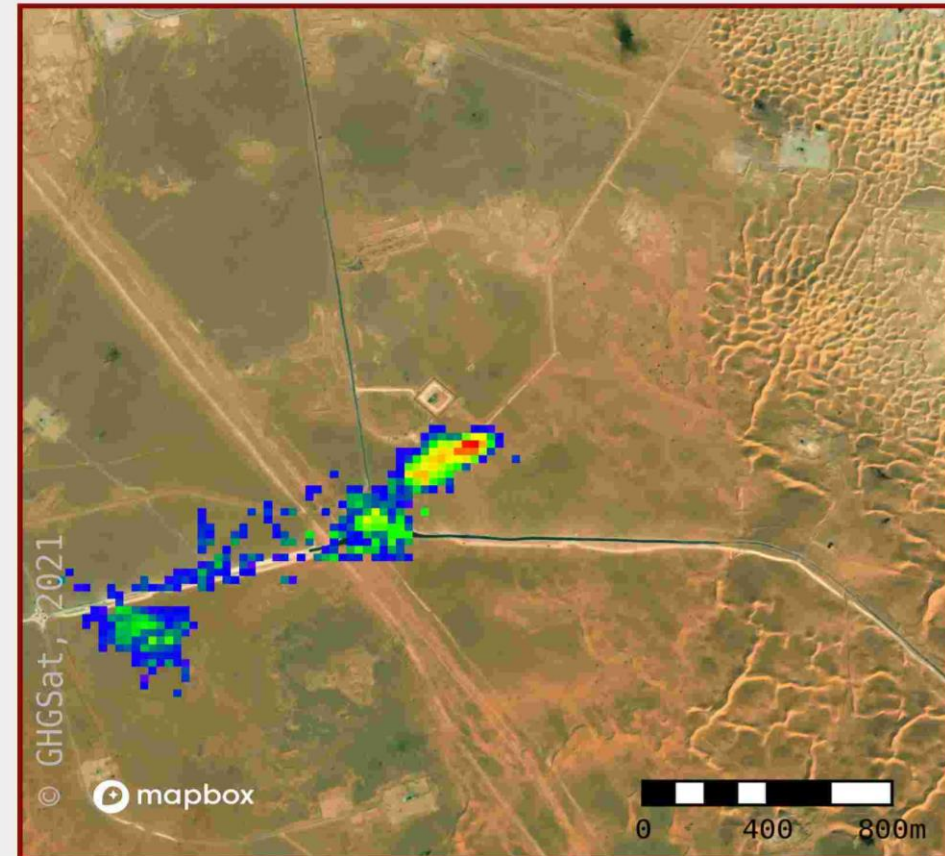
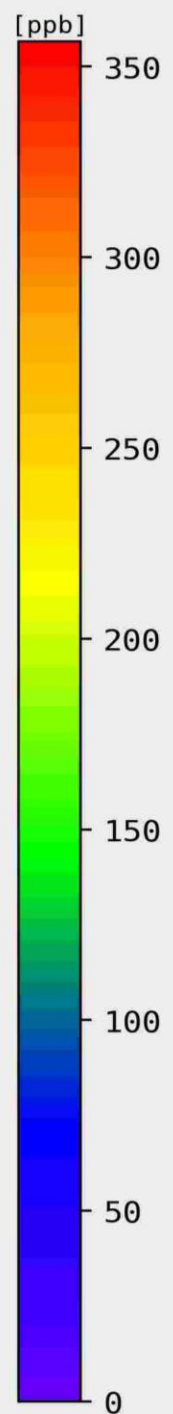
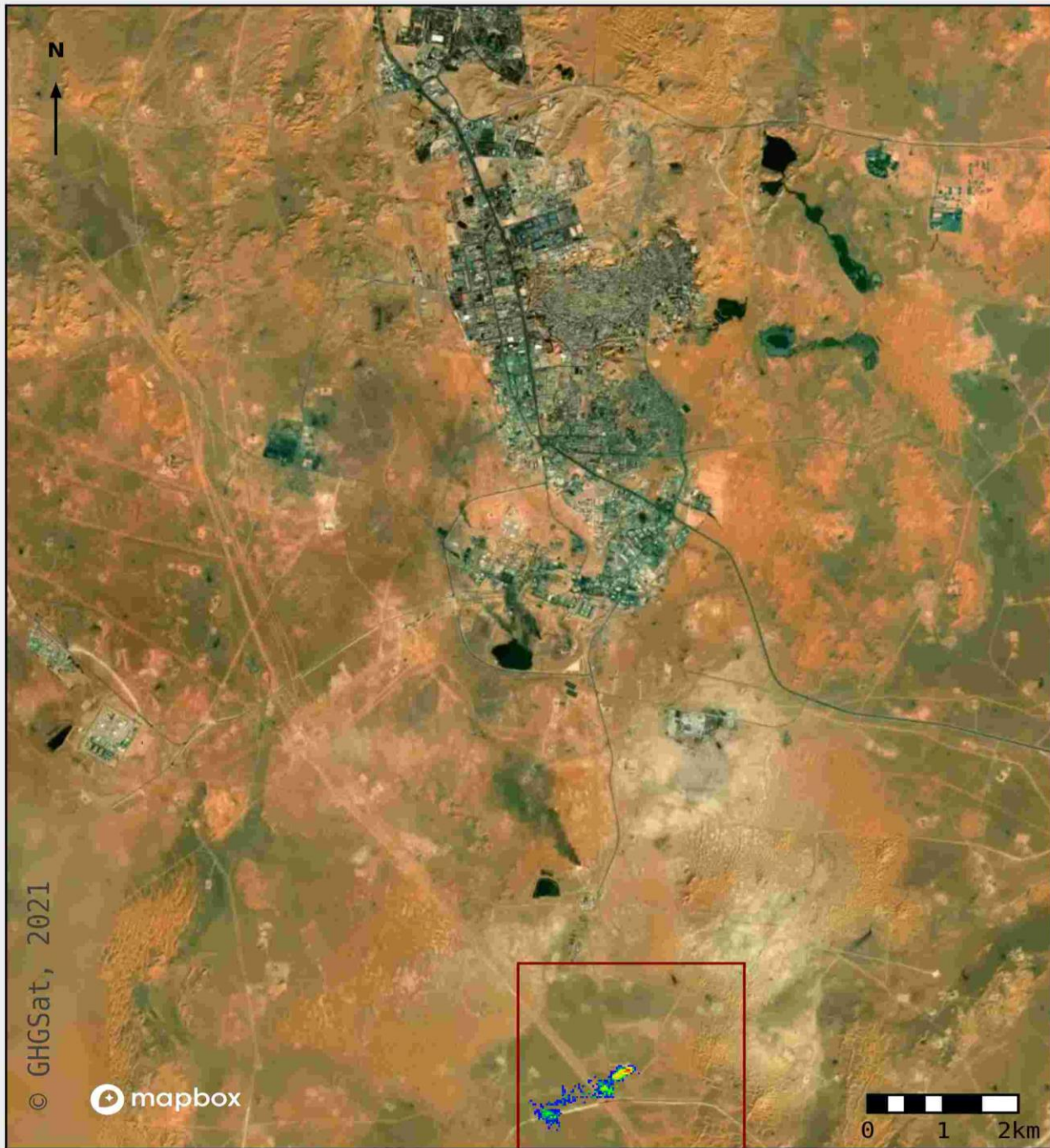
Product:
Column averaged CH₄ concentration in excess of
local background.

Background Image:
© Mapbox: <https://www.mapbox.com/about/maps>
© OpenStreetMap: <http://www.openstreetmap.org/copyright>
© Maxar: <https://www.maxar.com>

Timestamp:
2021-12-29 05:34:21 UTC

Observation ID:
AX8RR0M

Satellite:
GHGSat-C2



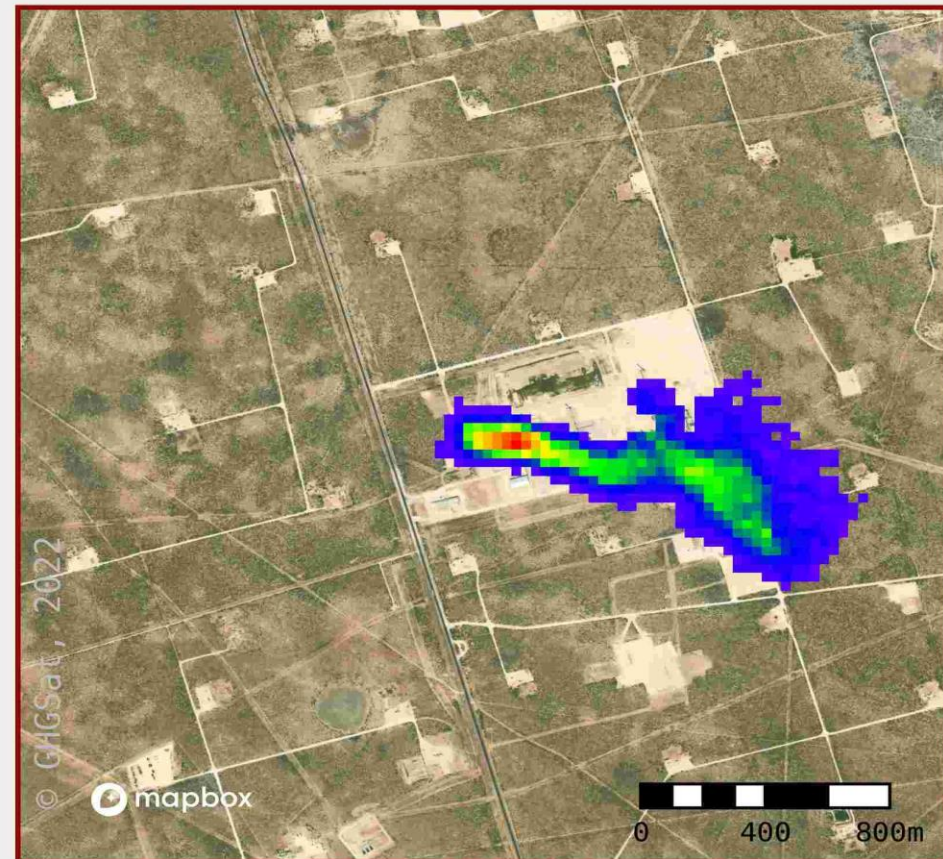
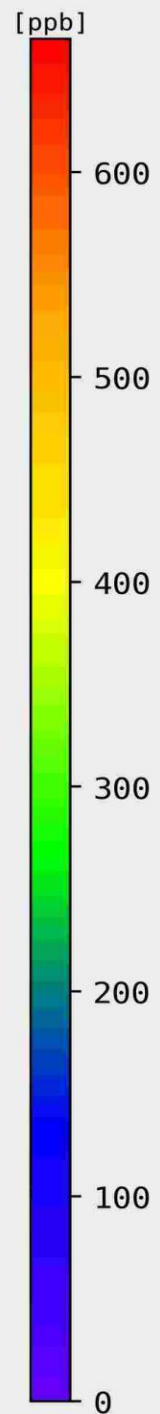
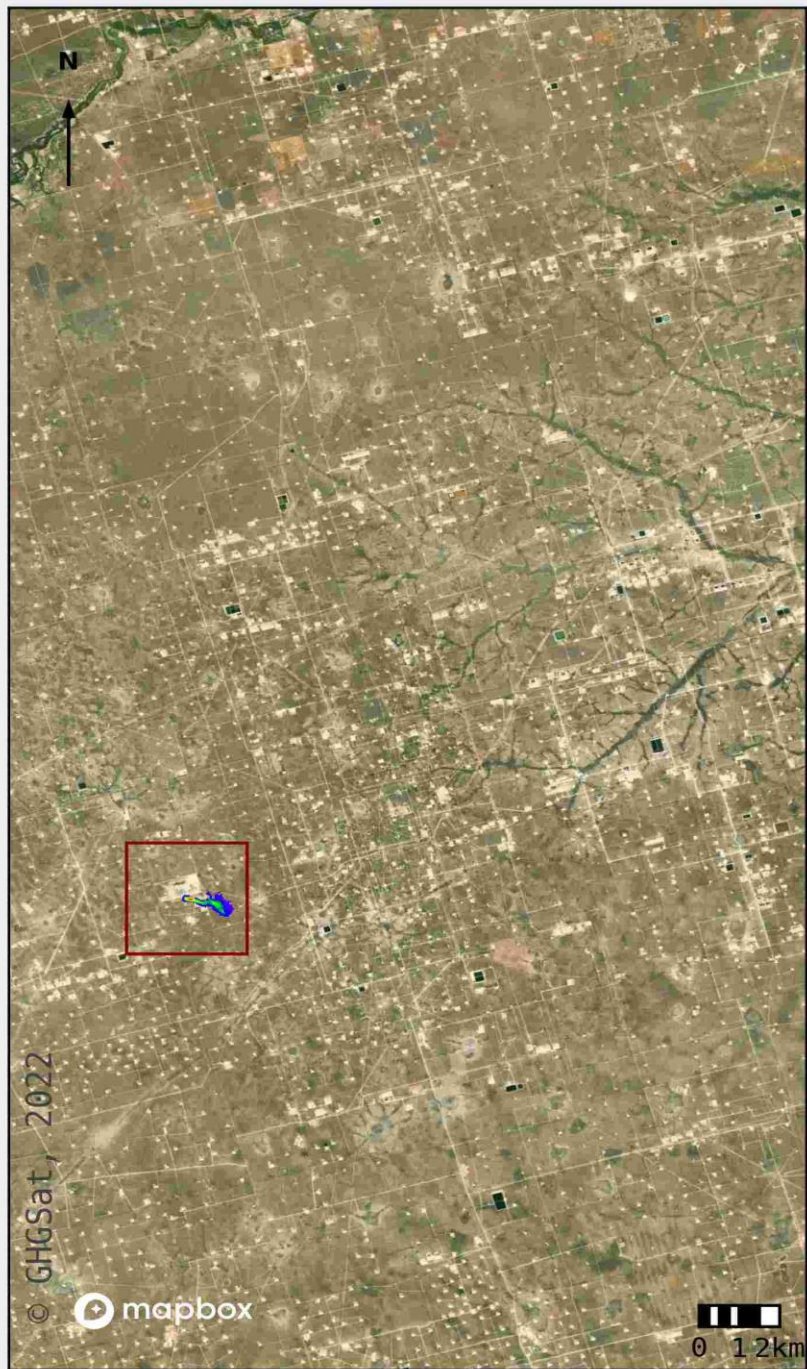
Product:
Column averaged CH₄ concentration in excess of
local background.

Background Image:
© Mapbox: <https://www.mapbox.com/about/maps>
© OpenStreetMap: <http://www.openstreetmap.org/copyright>
© Maxar: <https://www.maxar.com>

Timestamp:
2021-12-17 09:23:10 UTC

Observation ID:
-X11-q0

Satellite:
GHGSat-C2



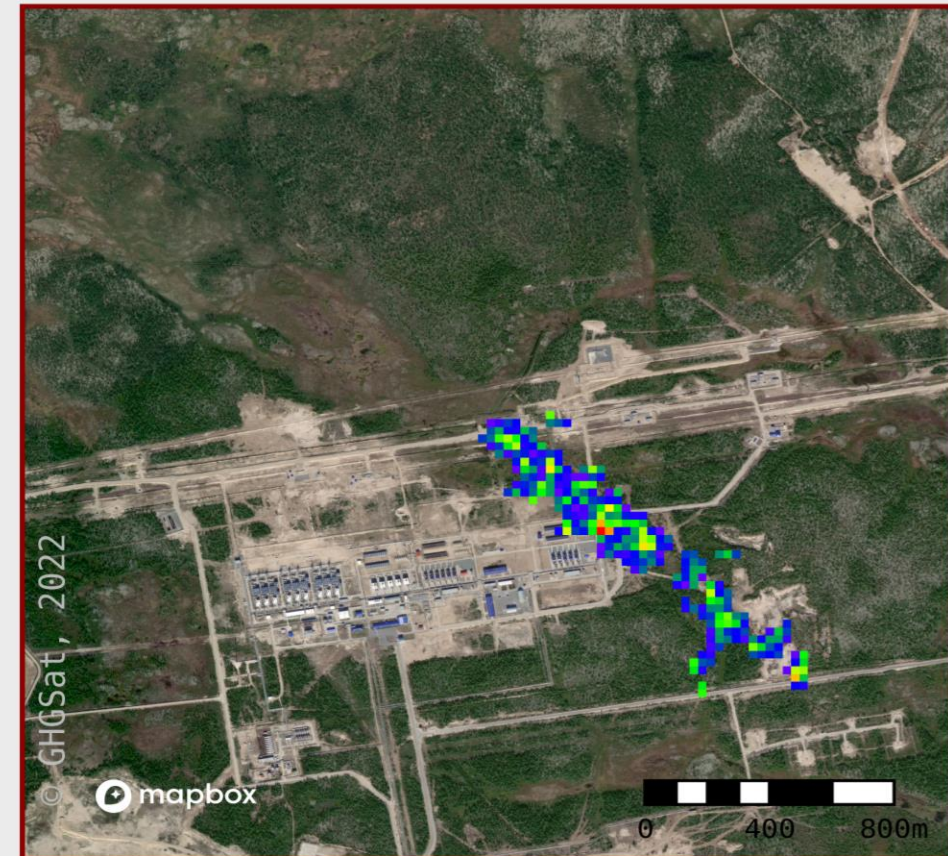
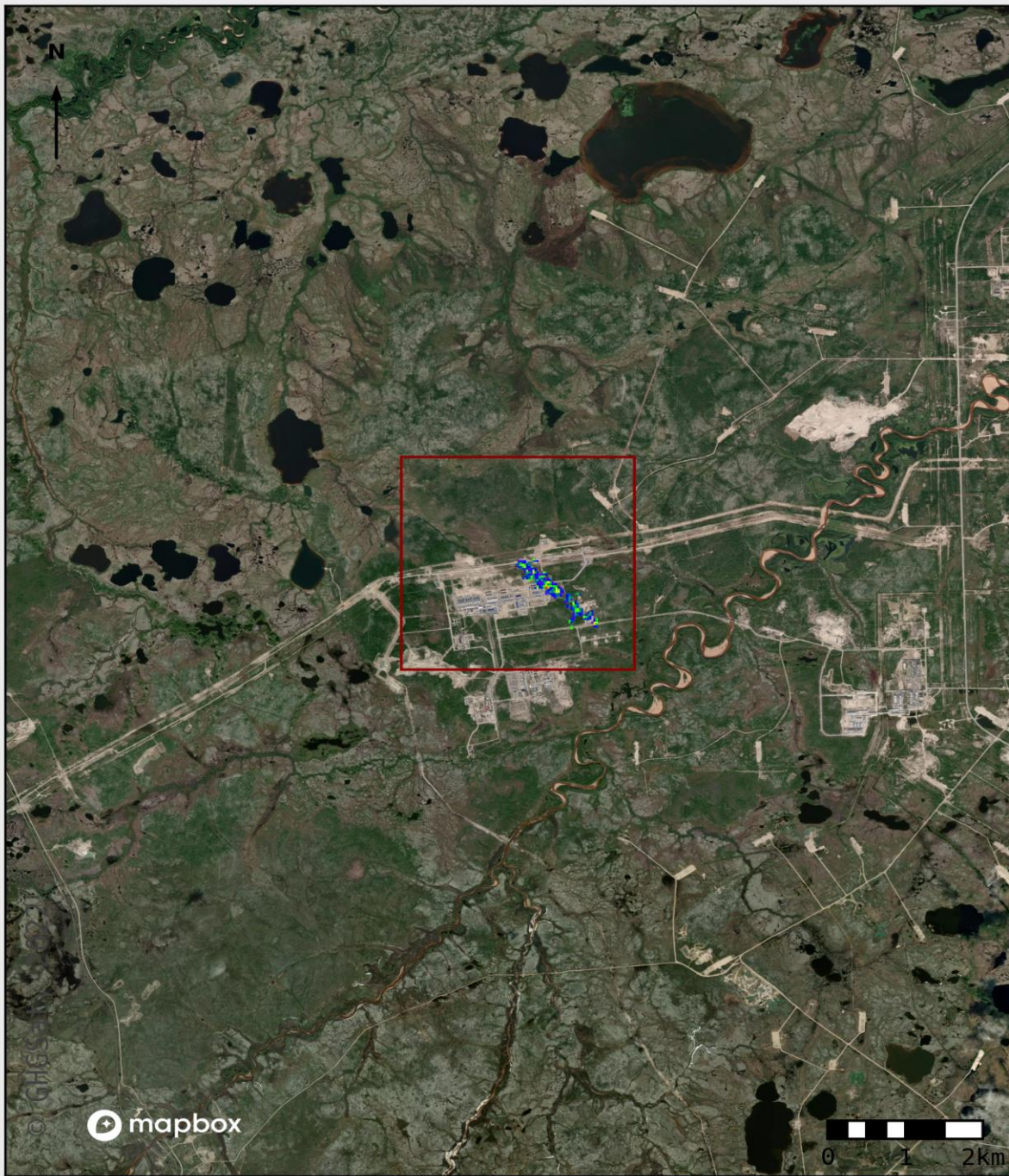
Product:
Column averaged CH₄ concentration in excess of local background.

Background Image:
© Mapbox: <https://www.mapbox.com/about/maps>
© OpenStreetMap: <http://www.openstreetmap.org/copyright>
© Maxar: <https://www.maxar.com>

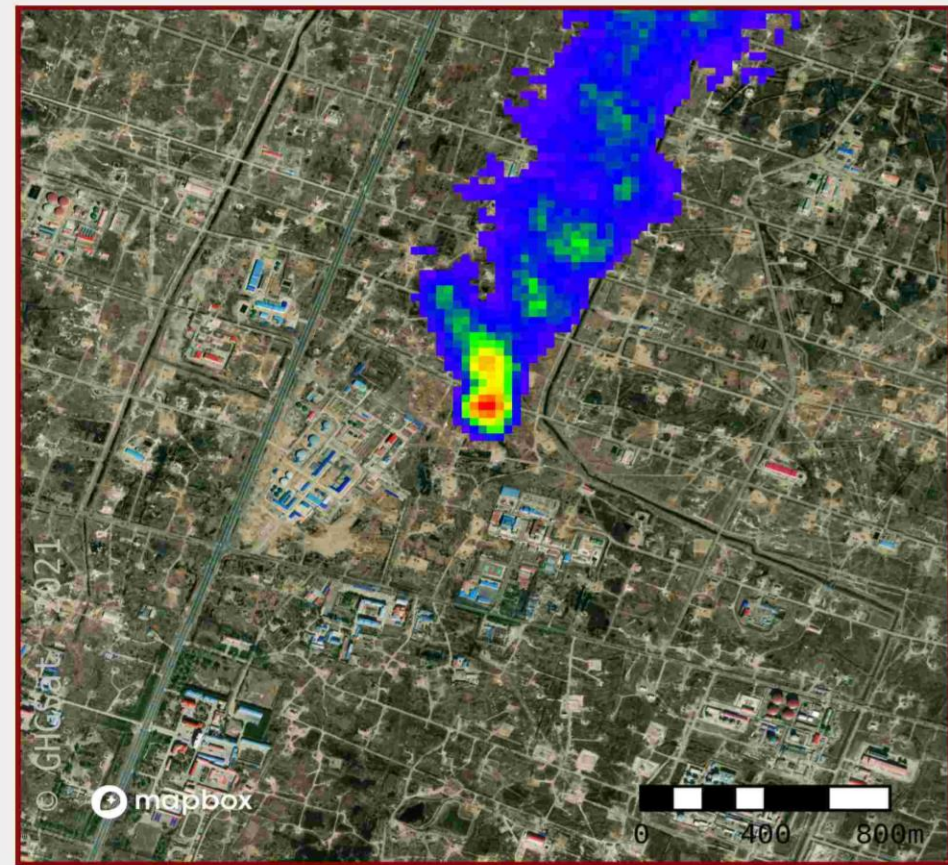
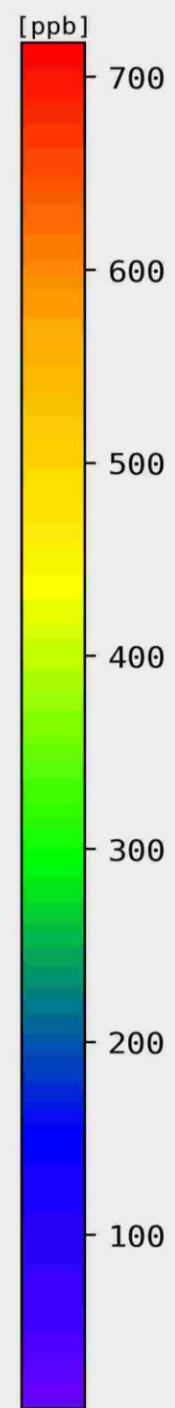
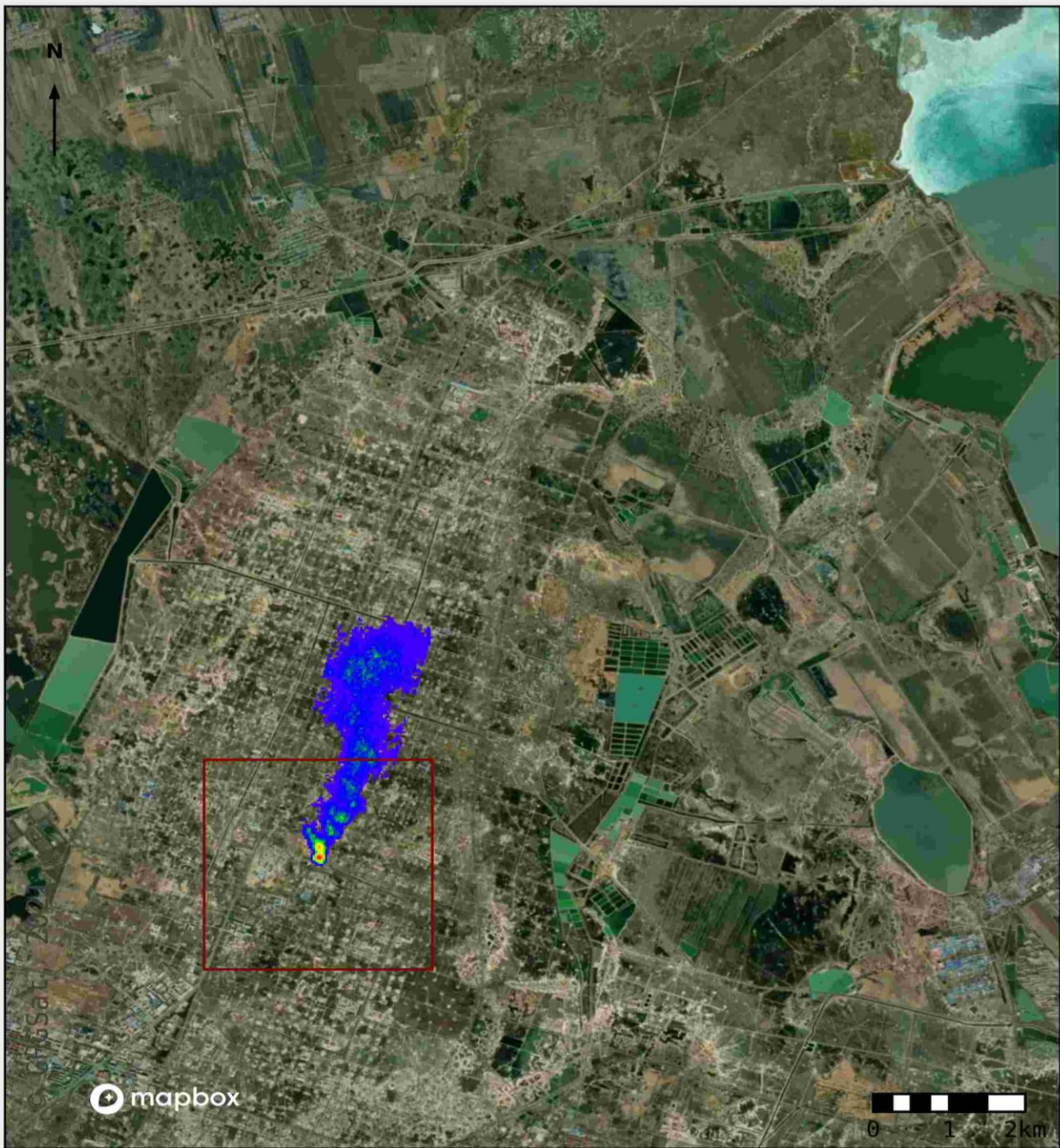
Timestamp:
2021-12-29 16:42:47 UTC

Observation ID:
9XC4ufn

Satellite:
GHGSat-C2



Product:
Column averaged CH₄ concentration in excess of local background.
Background Image:
© Mapbox: <https://www.mapbox.com/about/maps>
© OpenStreetMap: <http://www.openstreetmap.org/copyright>
© Maxar: <https://www.maxar.com>
Timestamp:
2021-04-14 05:41:01 UTC
Observation ID:
AT95C52
Satellite:
GHGSat-C2



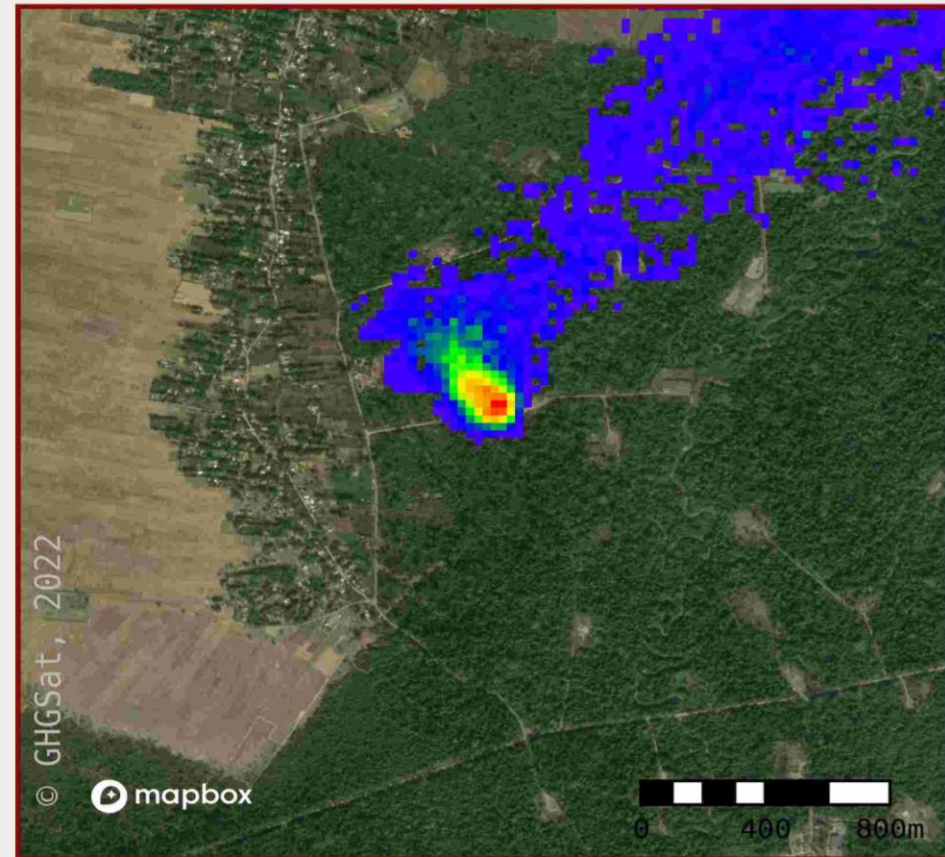
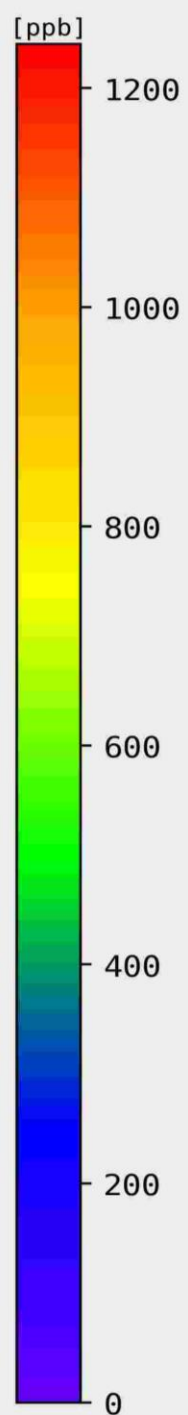
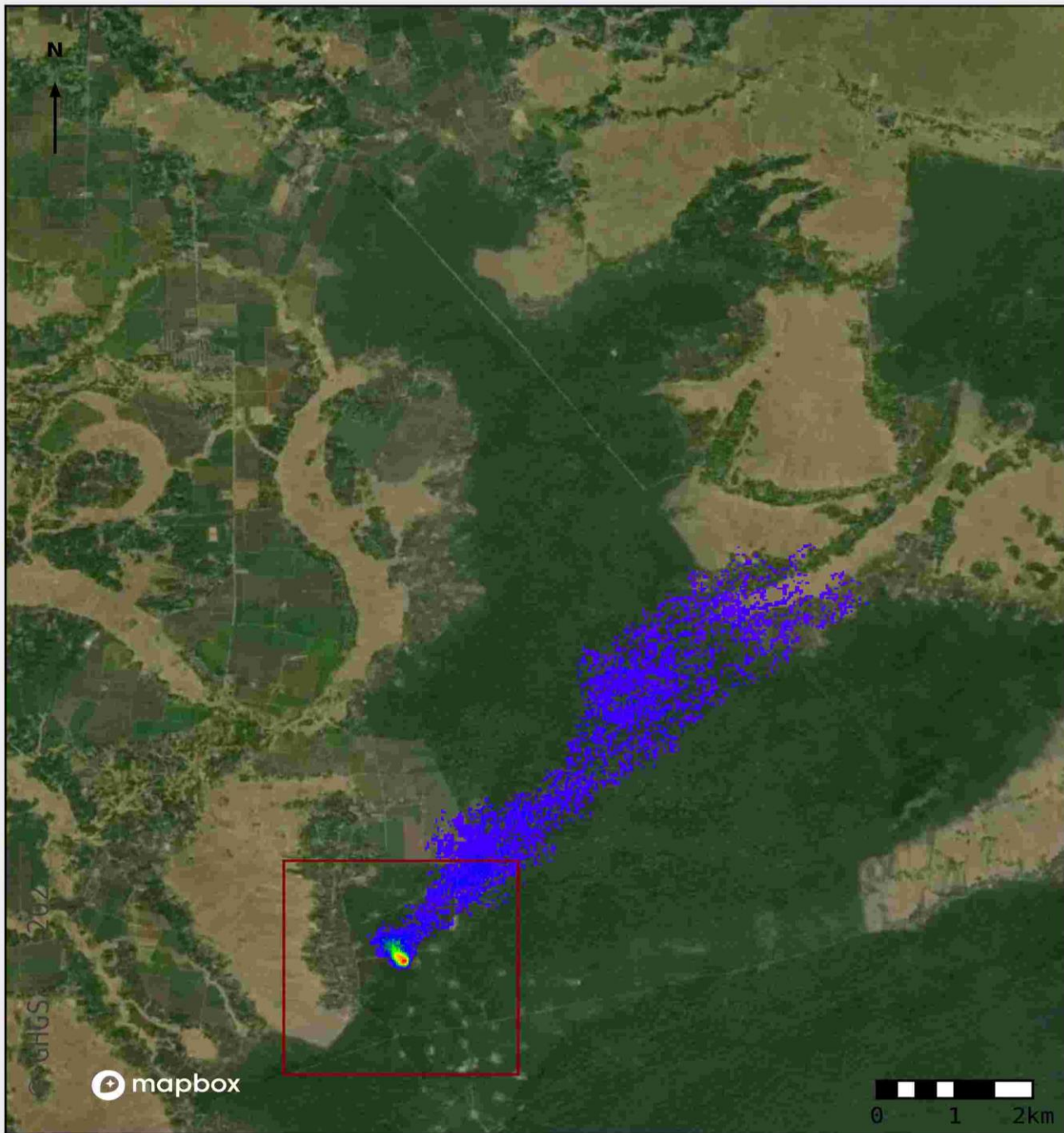
Product:
Column averaged CH₄ concentration in excess of local background.

Background Image:
© Mapbox: <https://www.mapbox.com/about/maps>
© OpenStreetMap: <http://www.openstreetmap.org/copyright>
© Maxar: <https://www.maxar.com>

Timestamp:
2021-10-24 01:39:07 UTC

Observation ID:
AW-31de

Satellite:
GHGSat-C2



Product:
Column averaged CH₄ concentration in excess of local background.

Background Image:
© Mapbox: <https://www.mapbox.com/about/maps>
© OpenStreetMap: <http://www.openstreetmap.org/copyright>
© Maxar: <https://www.maxar.com>

Timestamp:
2021-12-24 03:21:47 UTC

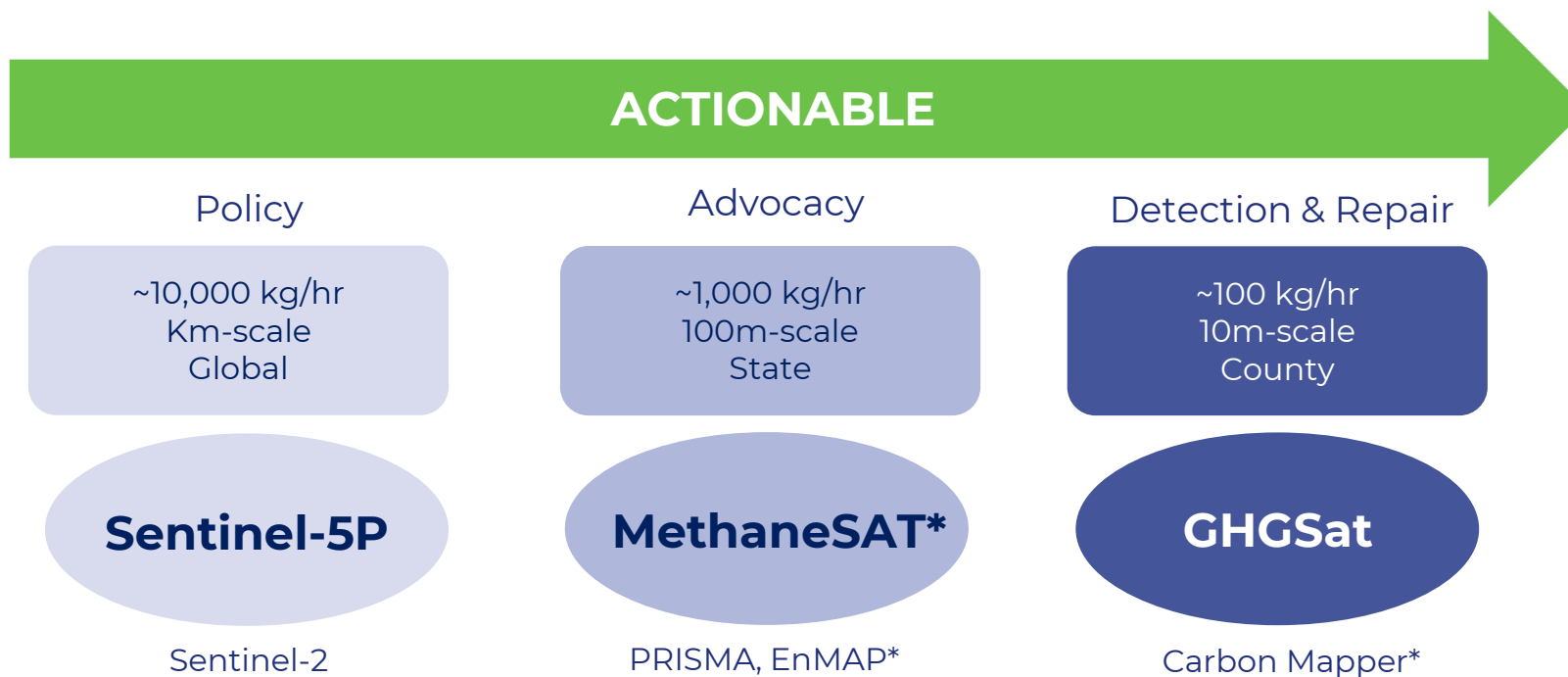
Observation ID:
AX6AXQb

Satellite:
GHGSat-C2



METHANE DATA FROM SATELLITES

Complementary capabilities; different objectives



- Detection threshold
- Spatial resolution
- Coverage
- Dedicated methane missions
- Multi/hyperspectral with methane sensitivity

** Indicates satellites that are not yet launched*



COLLABORATION & VALIDATION

Market confusion is bad for everyone

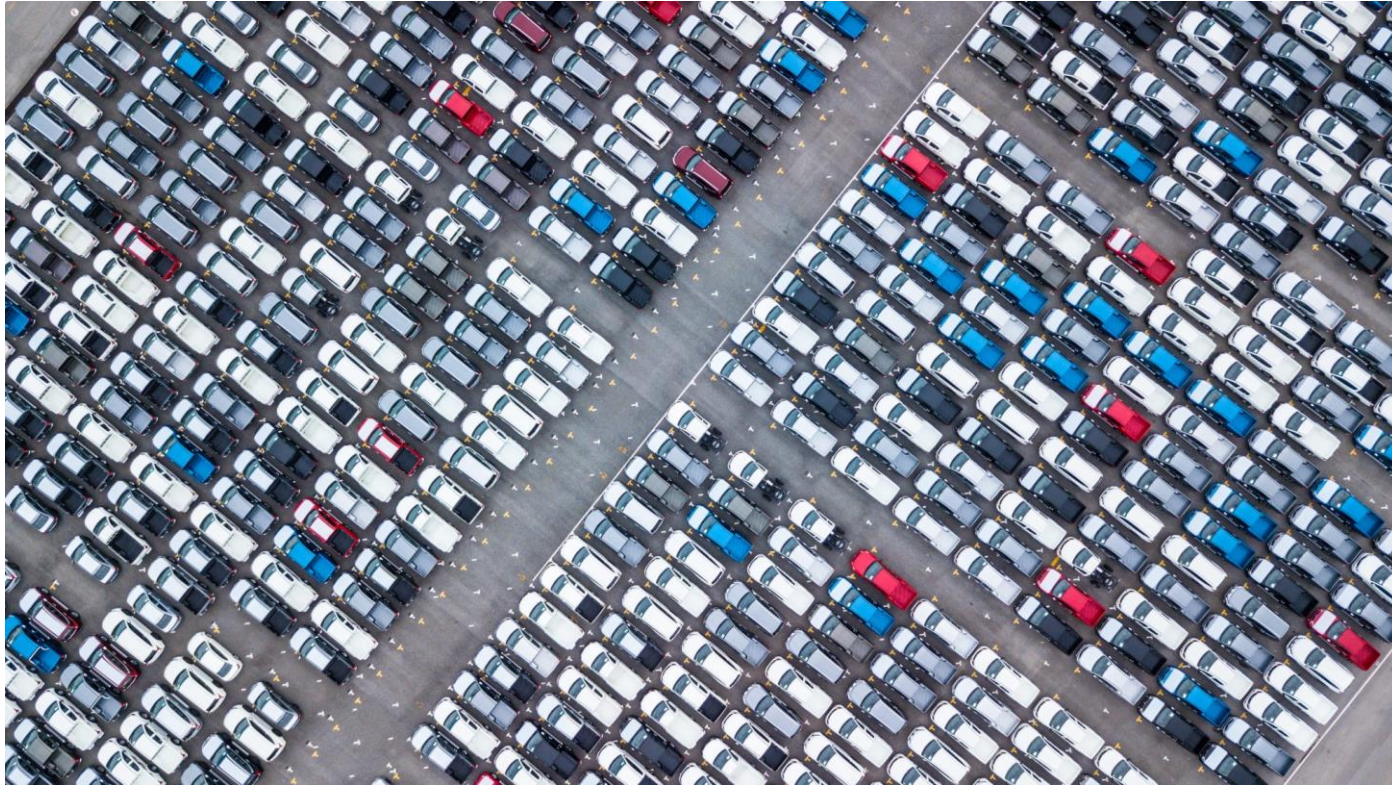
SHARED PURPOSE

IMEO

SCIENCE-BASED

IMPACT - NOW

The rocket science and AI are the easy part... motivating people to act is hard.



- GHGSat mitigated 2.3 MtCO₂e in 2021 alone
 - That's 0.5 million cars off the road for a year
 - By 2023, GHGSat expects to mitigated > 50 MtCO₂e per year
- ... and we're just getting started***

Read about
GHGSat (click
on the logos):



THE WALL STREET JOURNAL.

The Washington Post

The New York Times





**TOGETHER, WE WILL ACHIEVE
THE EMISSION REDUCTIONS WE ALL SEEK.**