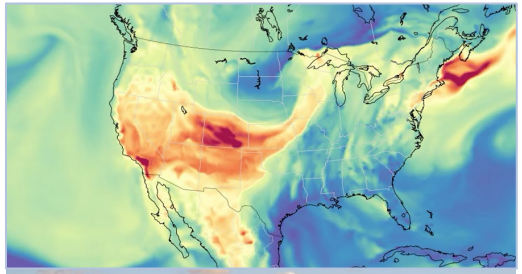
National Centre for Atmospheric Research (NCAR)
ACOM : Atmospheric Chemistry Observations and Modelling

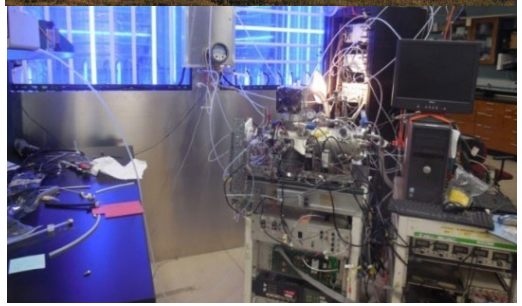
Modelling:
MUSICA Community Infrastructure and MusicBox
Core contributions to NCARs weather and climate models
(e.g. CESM with MUSICA/WACCM)

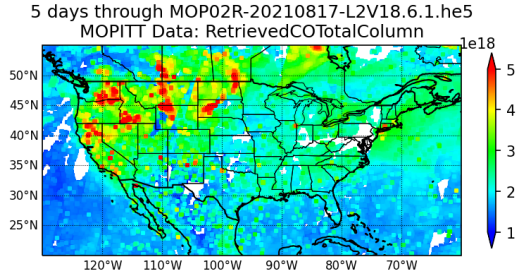
Flight instruments and field campaigns
Standard instruments and innovative instrumentation
design, development, deployment, maintenance and upgrades
Flight campaigns (e.g. WECAN, ACCLIP)

Laboratory/Chemistry chamber:
Atmospheric chemical processes and GECKO-A
Instrument Calibration and Testing

Satellite Observations and groundbased monitoring
NDACC/FTIR and Pandora
MOPITT, data assimilation and machine learning
New satellite observations TROPOMI and TEMPO

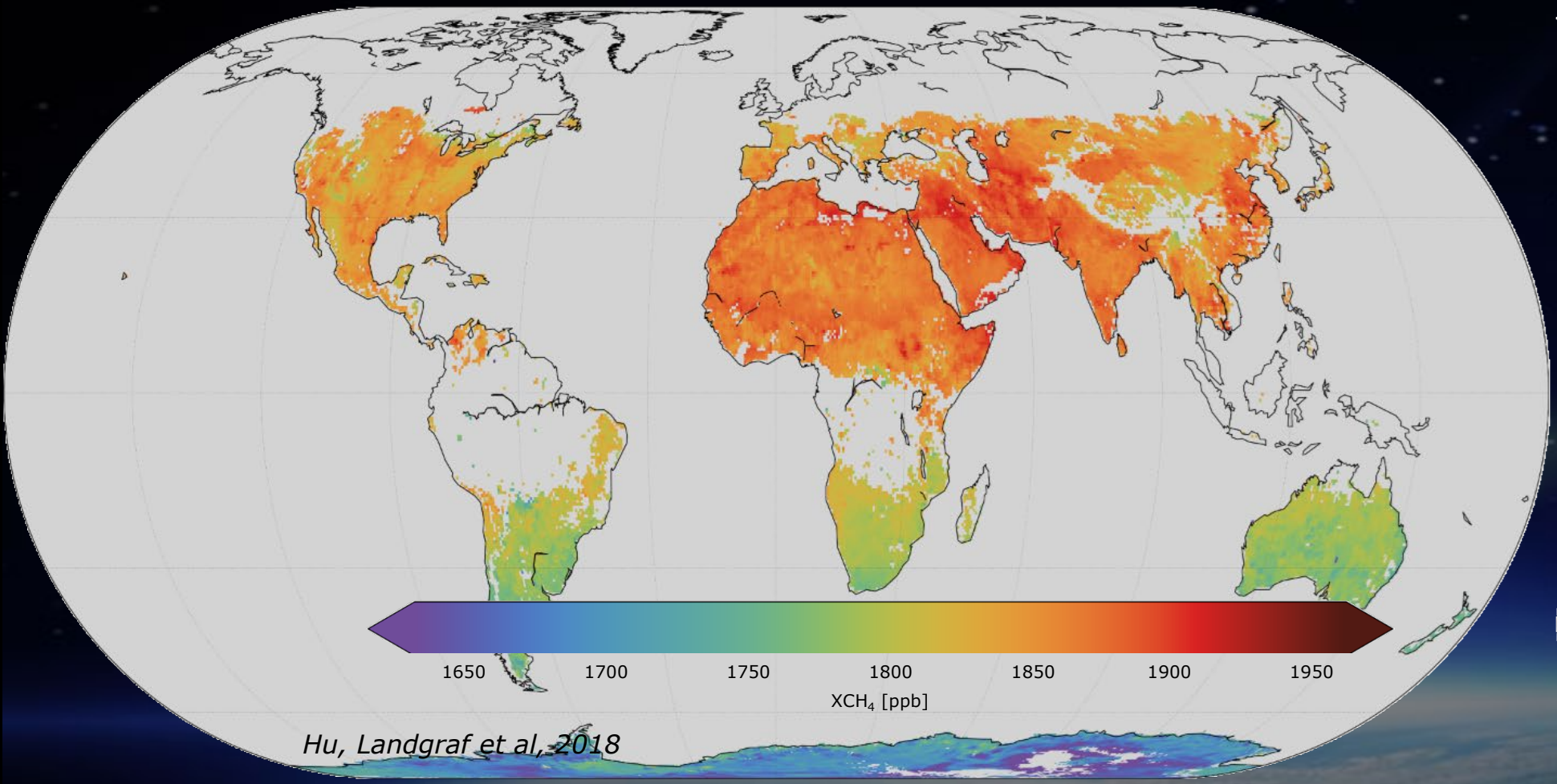






Methane XCH_4

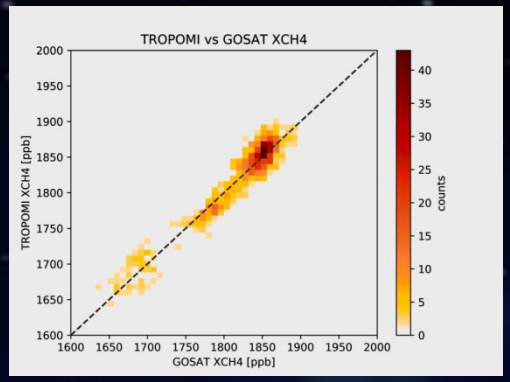
12 Nov – 30 dec 2017

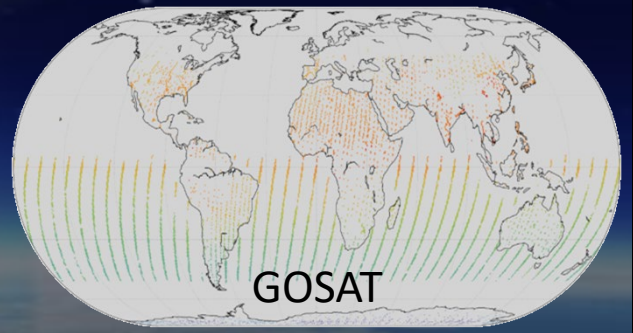


Hu, Landgraf et al, 2018

TROPOMI **1000 x** more measurements than GOSAT!!

TROPOMI-GOSAT comparison





Credits: SRON

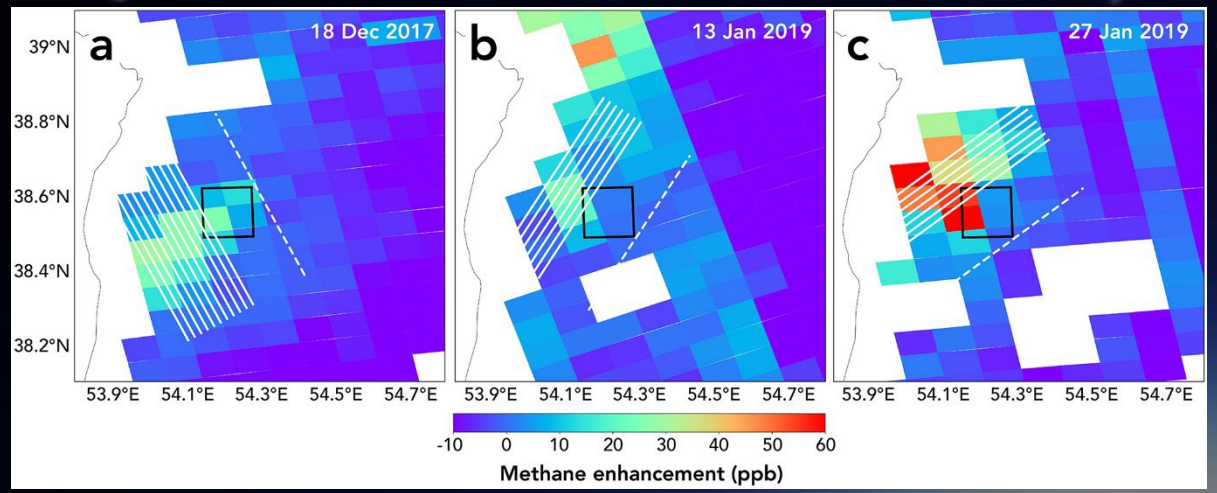
CH_4 Emissions from Oil and Gas

TROPOMI

TROPOMI

LEAKS

Turkmenistan

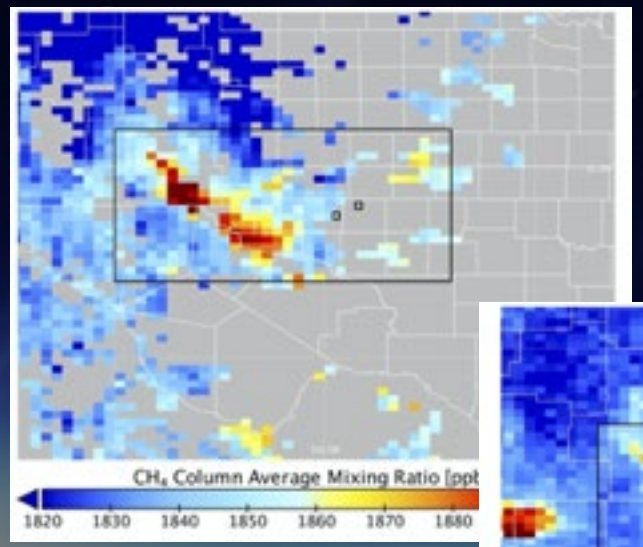


Varon et al., Geophysical Research Letters, First published: 25 October 2019, DOI: (10.1029/2019GL083798)

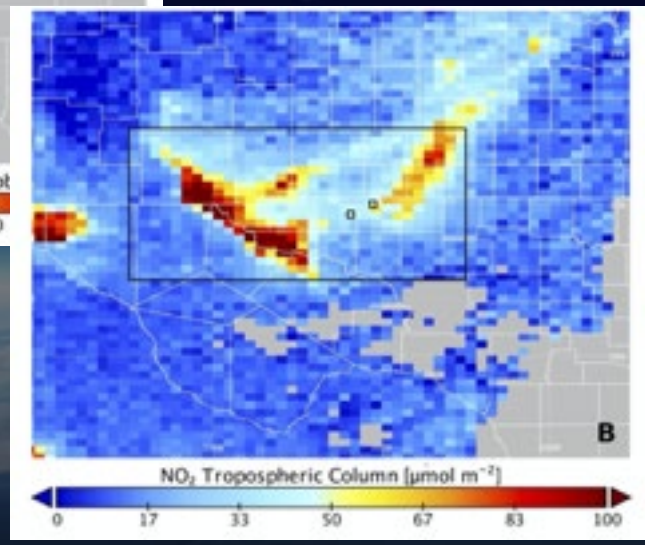
REGULAR OPERATIONS

Permian, 31 Jan 2019

CH_4

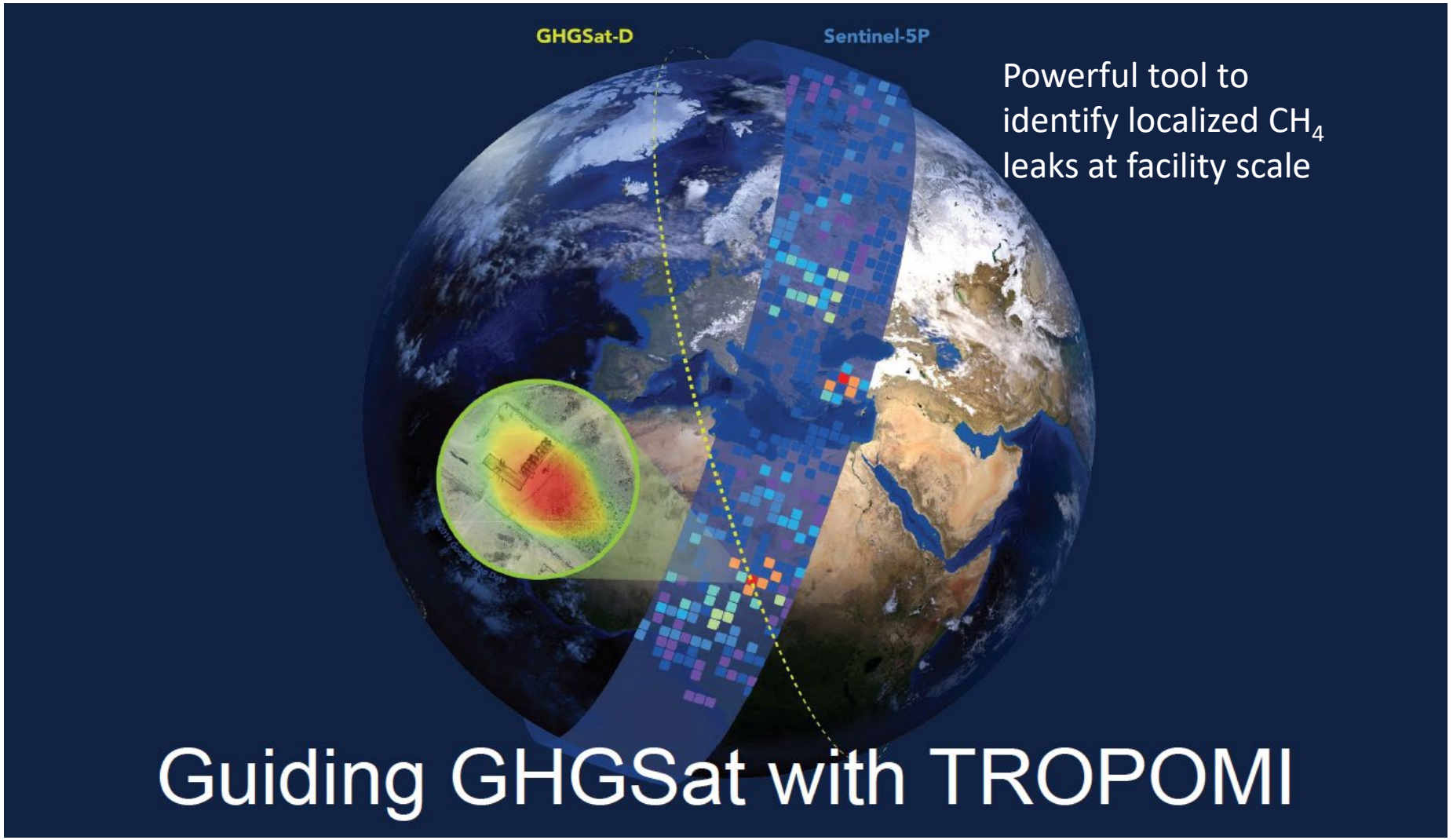


NO_2



De Gouw et al, Nature Scientific Report, 2020

SYNERGY TROPOMI and commercial satellites

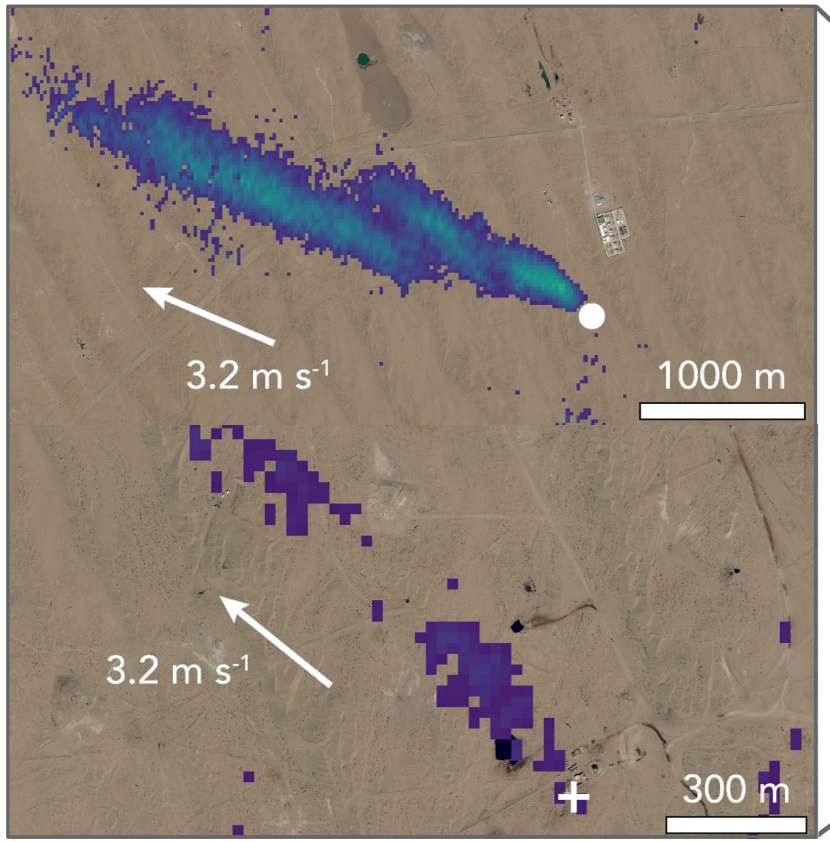


SRON

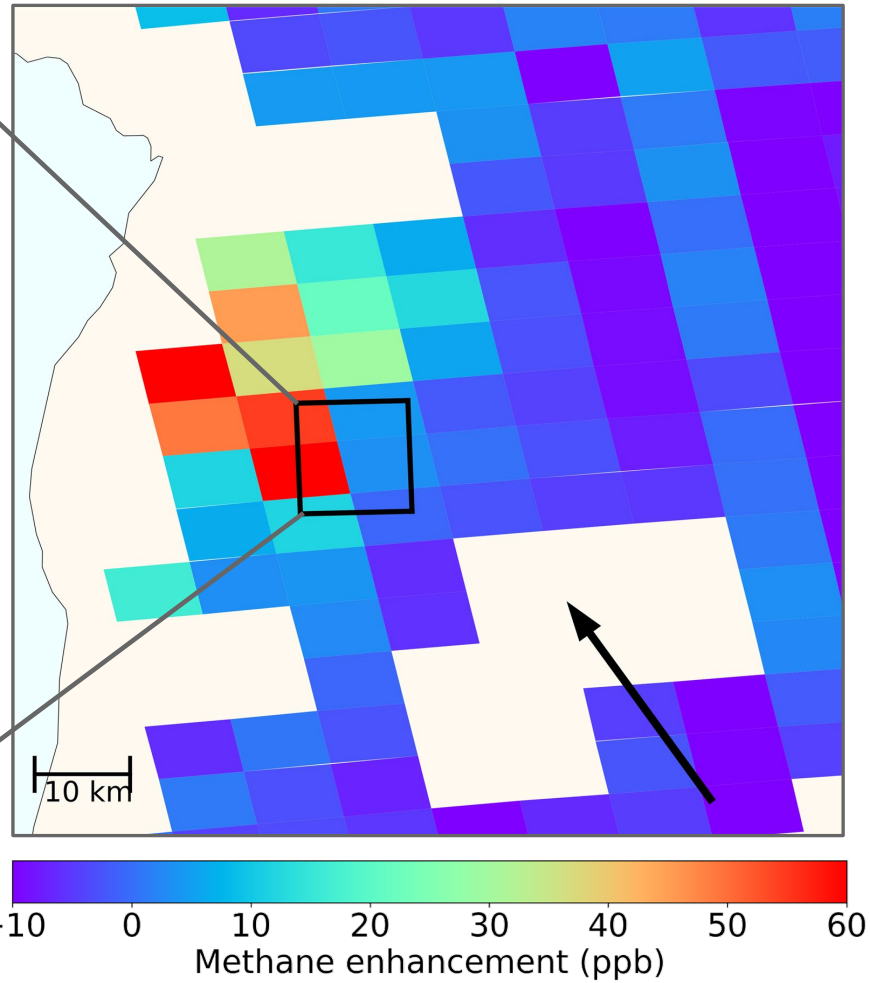
GHGSat
GLOBAL EMISSIONS MONITORING

Satellite discovery of large gas leaks

GHGSat, 27 January 2019



TROPOMI, 27 January 2019



Varon et al., GRL 2019

NOS News on television at 20:00, Friday November 22, 2019