Detection of methane emission from the Ohio well blowout using satellite data
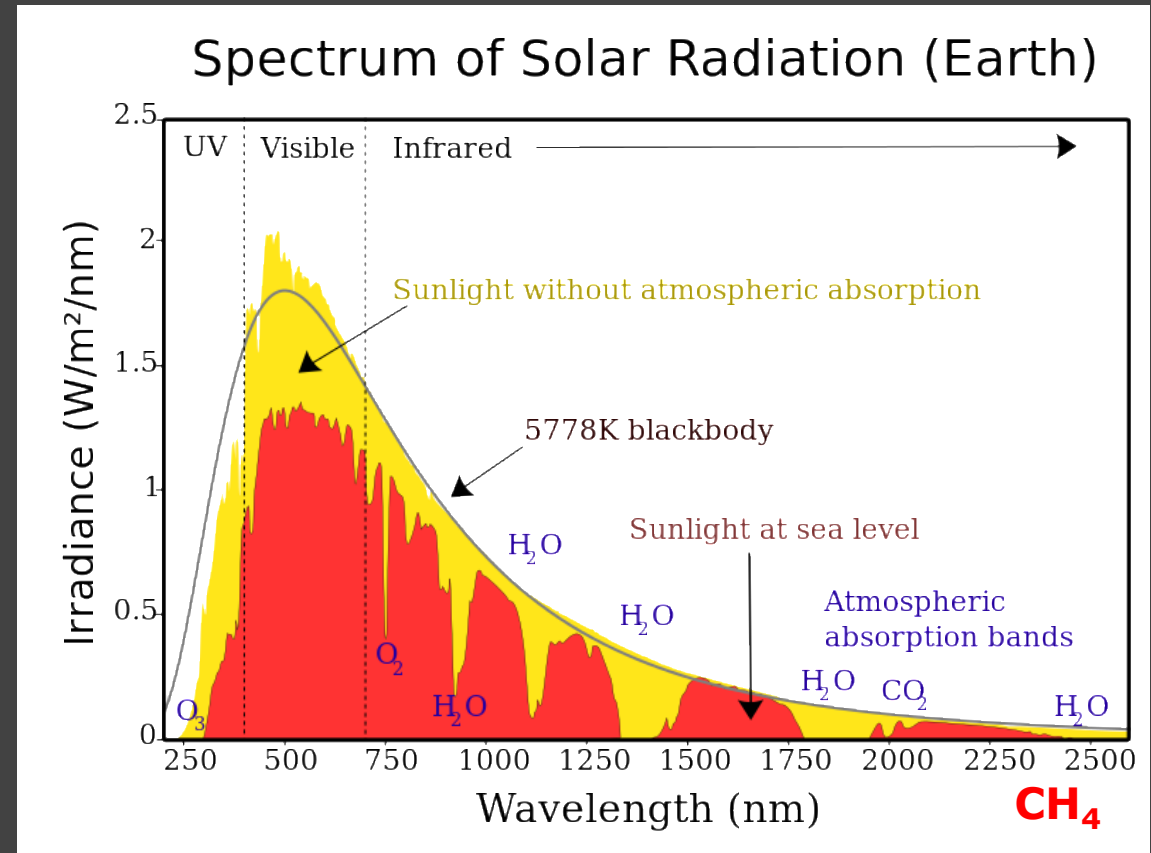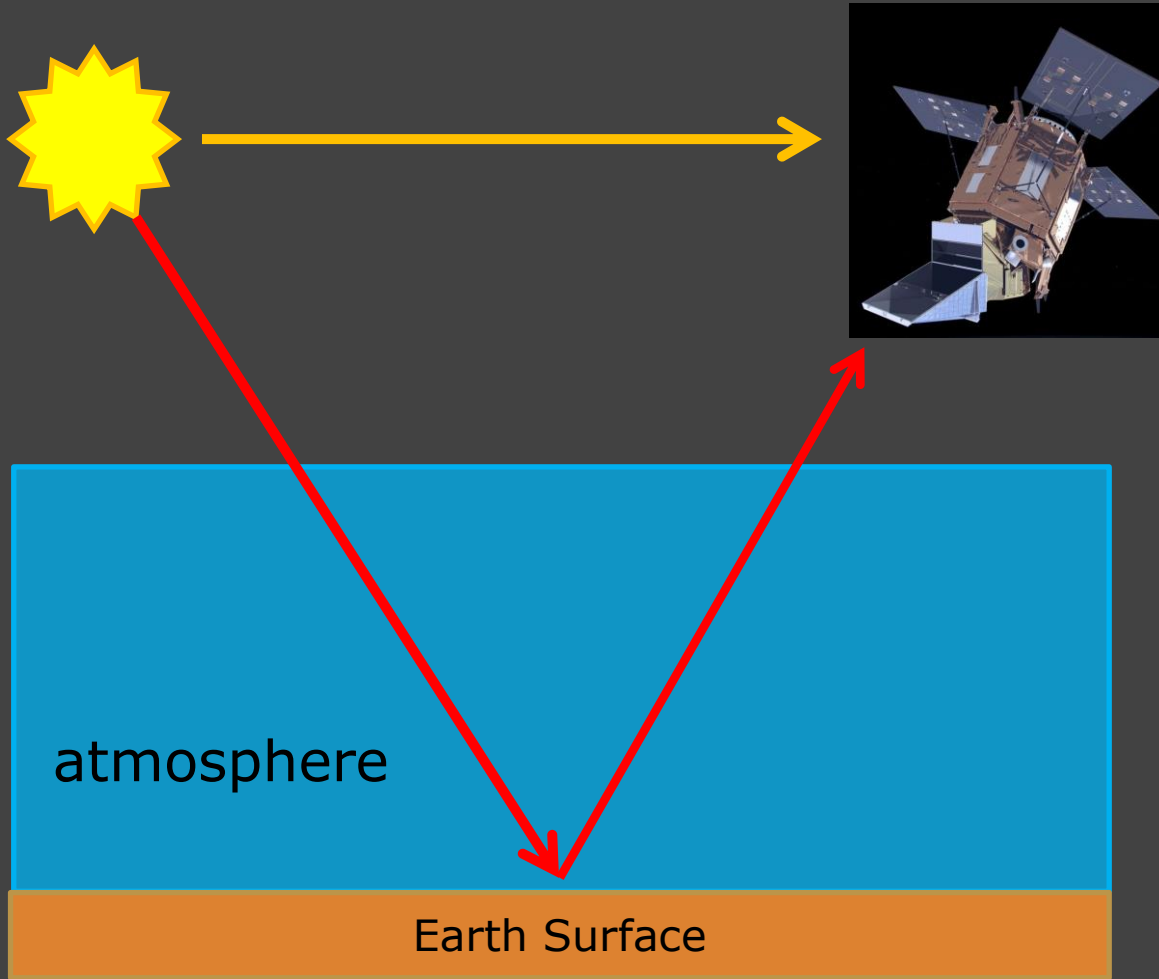

SRON

Sudhanshu Pandey (s.paney@sron.nl), Ritesh Gautam, Sander Houweling, Hugo van der Gon, Pankaj Sadavarte, Tobias Borsdorff, Otto Hasekamp, Jochen Landgraf, Paul Tol, Steven P. Hamburg, Yuzhong Zhang , Alba Lorente Delgado, Daniel Zavala-Araiza, Joannes D. Maasakkers, Ilse Aben. **EDF & core TROPOMI team:** KNMI, ADSN, TNO, NSO, IUP-Bremen, RAL and FMI

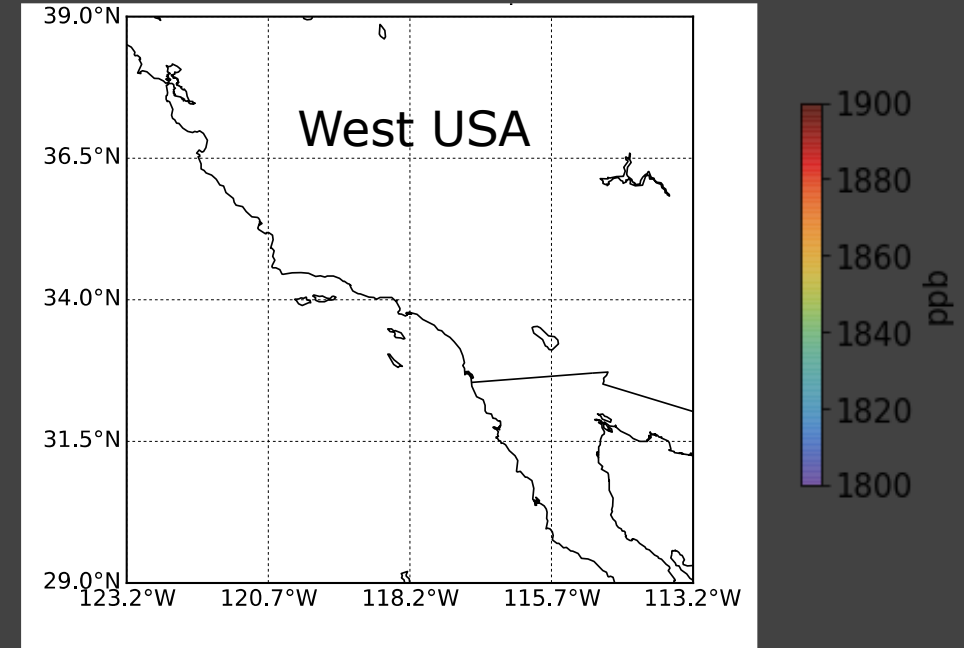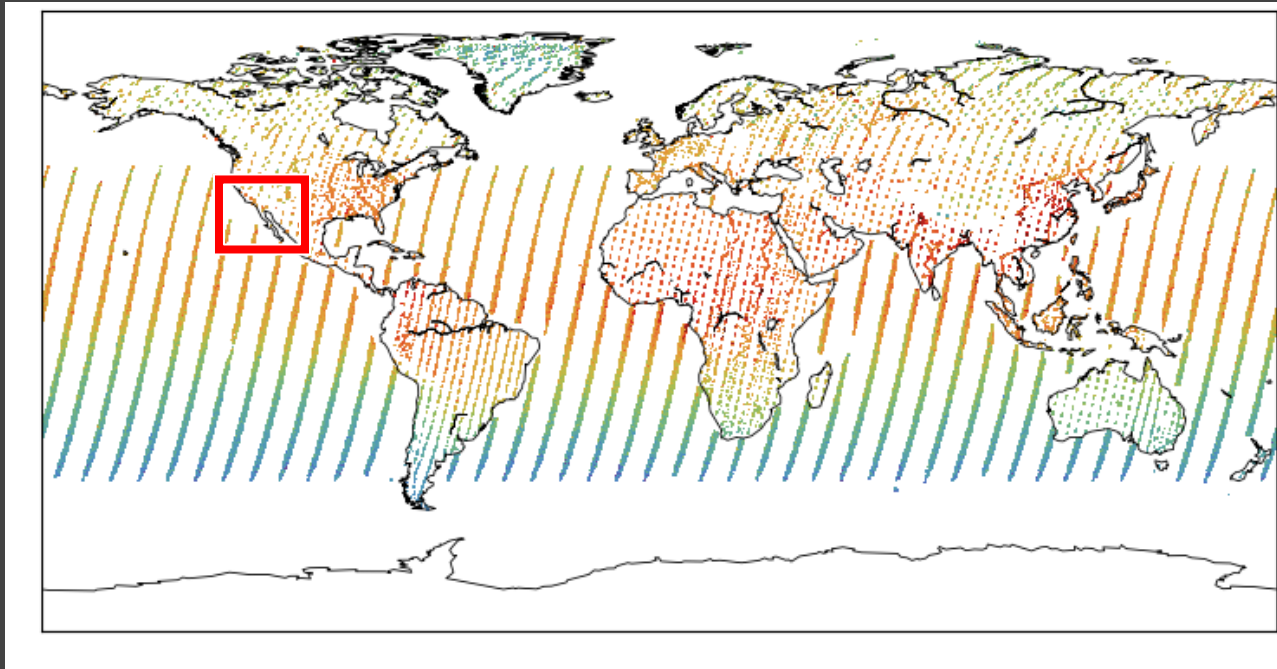Netherlands Institute for Space Research

Netherlands Organisation for Scientific Research (NWO)

# Passive remote sensing gives column average methane

atmosphere

Earth Surface

Spectrum of Solar Radiation (Earth)

UV | Visible | Infrared

Sunlight without atmospheric absorption

5778K blackbody

Sunlight at sea level

H_2O

H_2O

Atmospheric absorption bands

O_2

H_2O

H_2O CO_2

H_2O

O_3

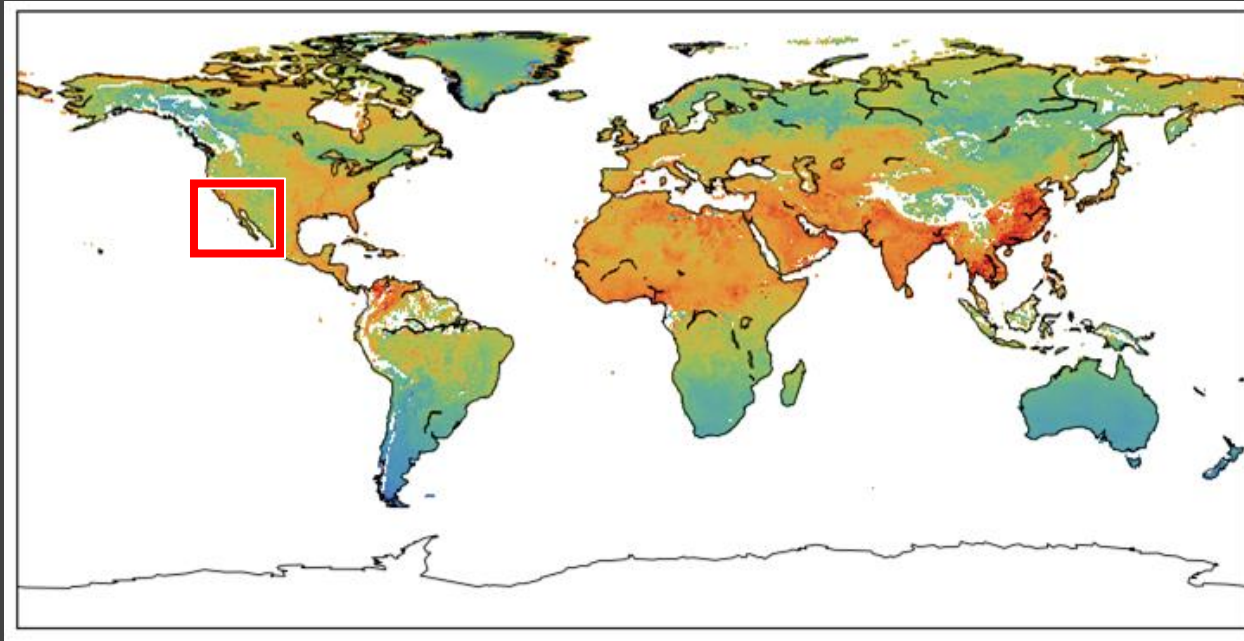Irradiance (W/m²/nm)

Wavelength (nm)

CH_4

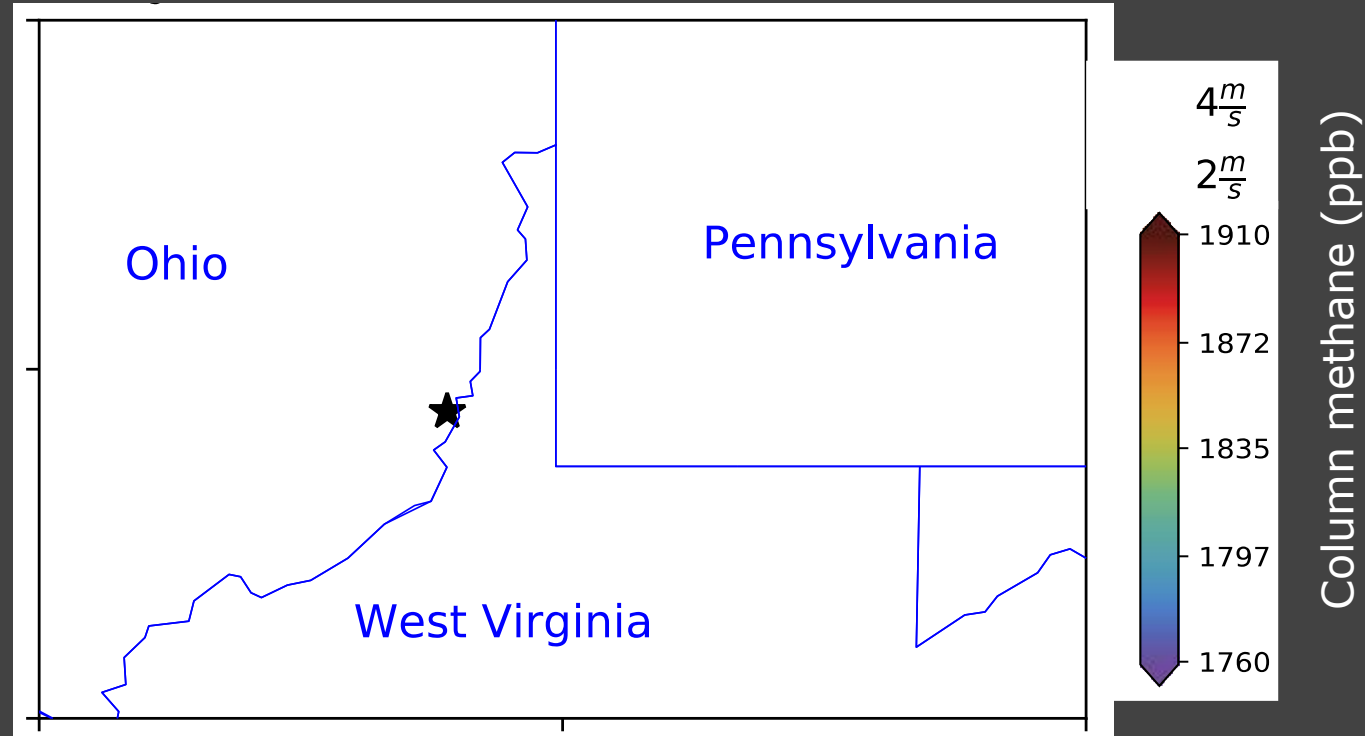# TROPOMI: a leap forward in methane observation

GOSAT spatial coverage

TROPOMI: a leap forward in methane observation

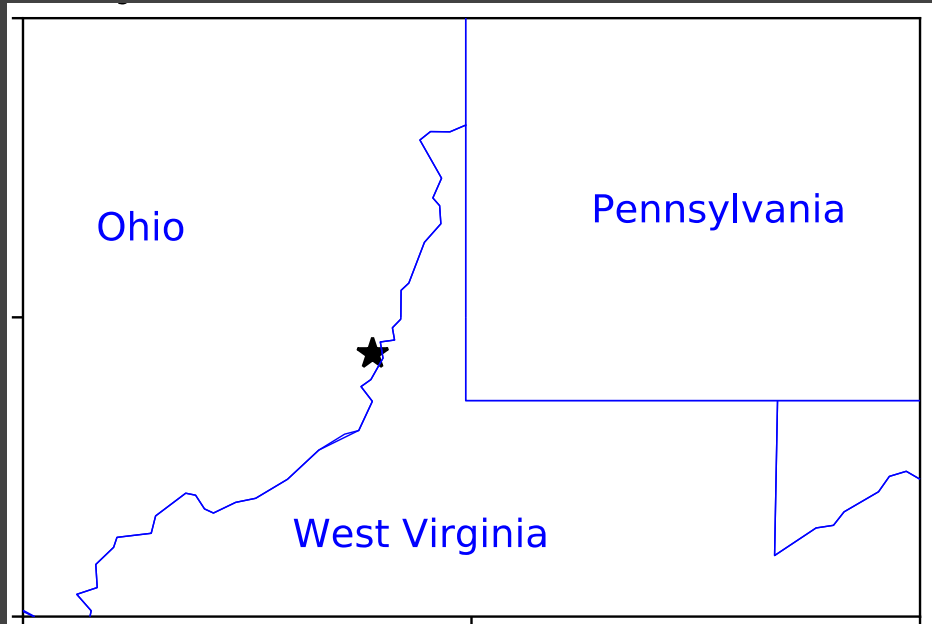## TROPOMI spatial coverage
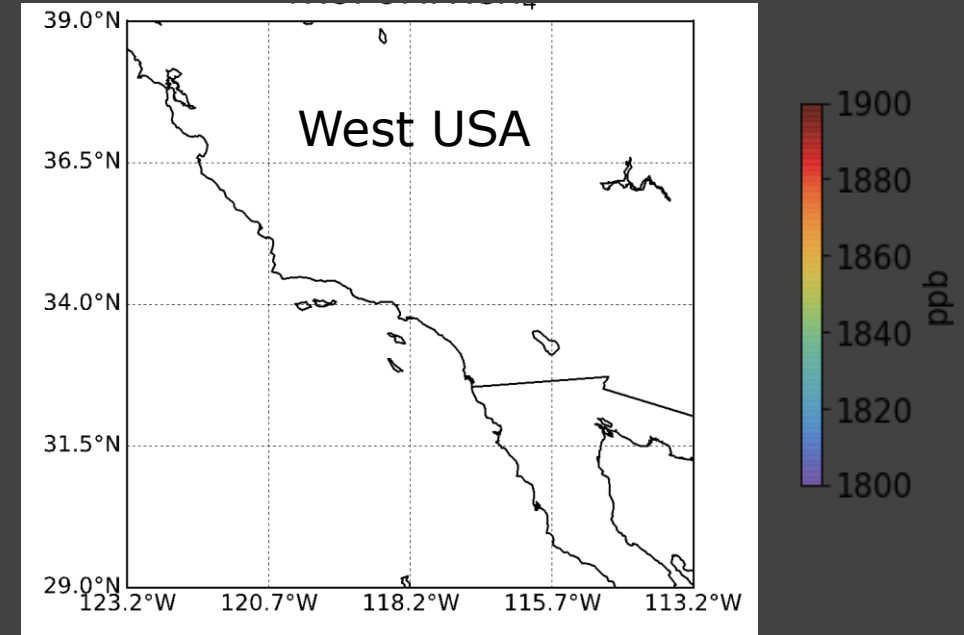
The Ohio blowout
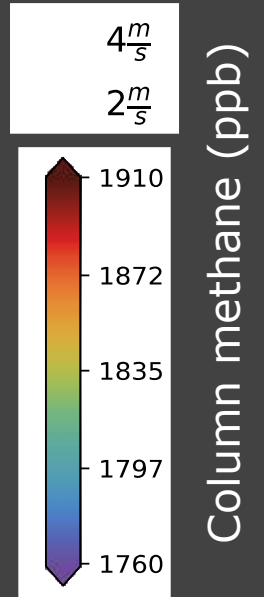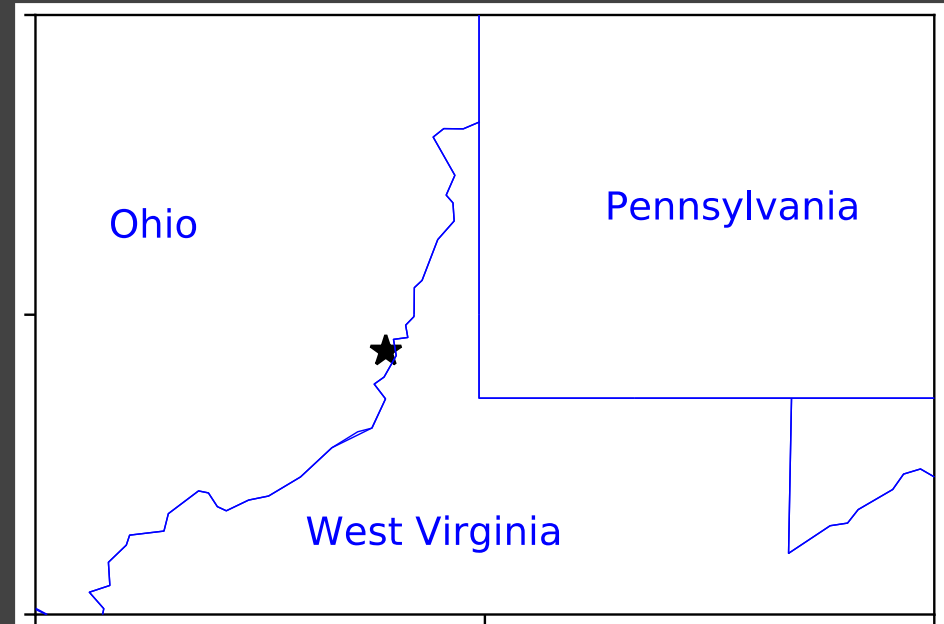

TROPOMI during the blowout

100 ppb enhancement 30 km downwind

The Ohio blowout

TROPOMI before the blowout

TROPOMI after the blowout

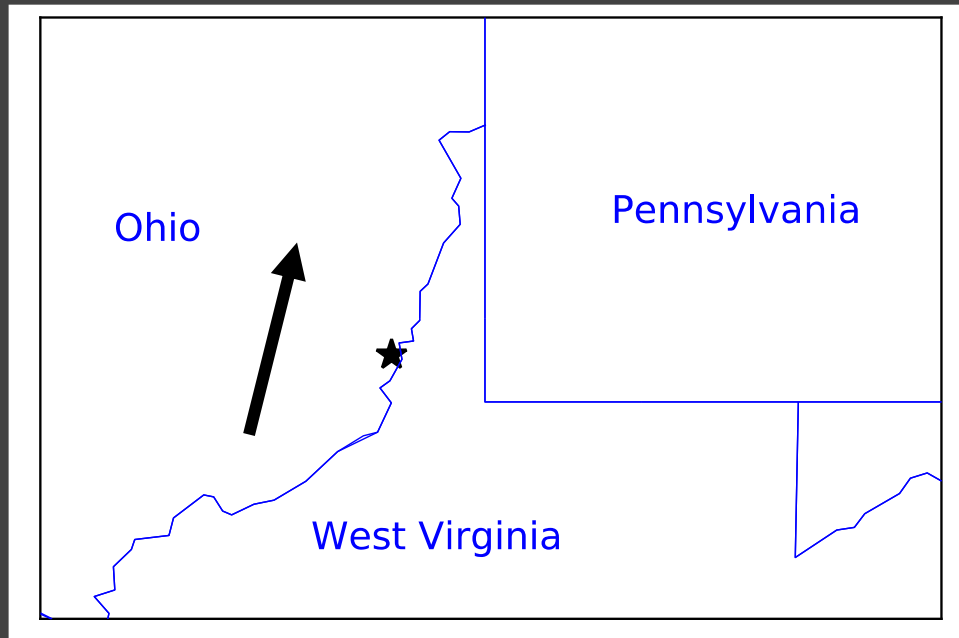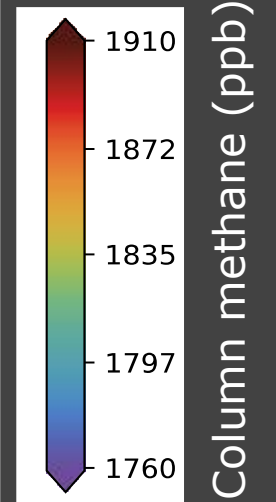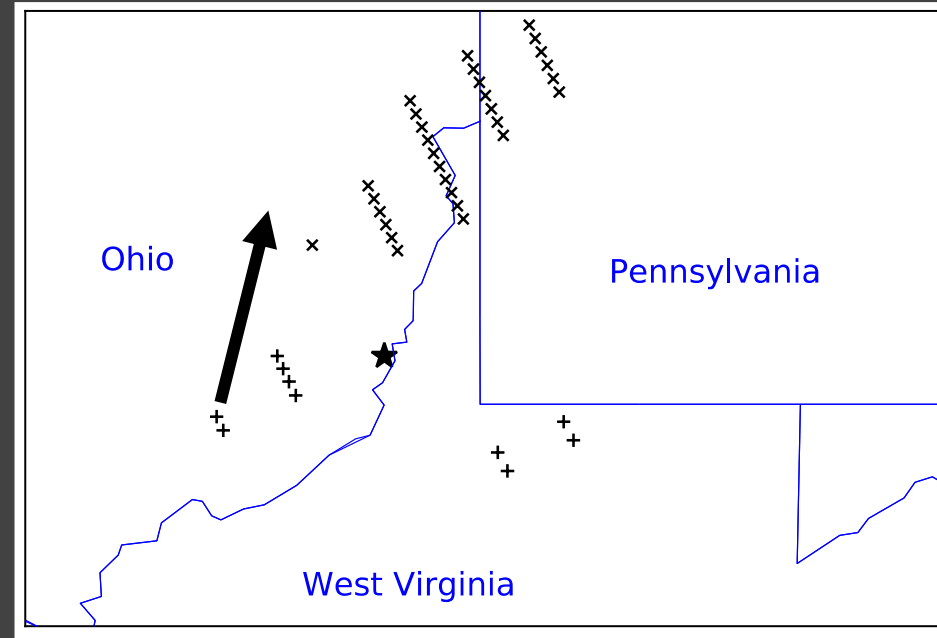Column methane (ppb)

No large enhancement

6

Emission calculation using model plume comparison

Transport model

TROPOMI measurements

Column methane (ppb)

1910
1872
1835
1797
1760

Model agrees with the observations

- Emission rate: 120 ± 32 t/hr
- Total emission: 60 ± 15 kt

Thank you