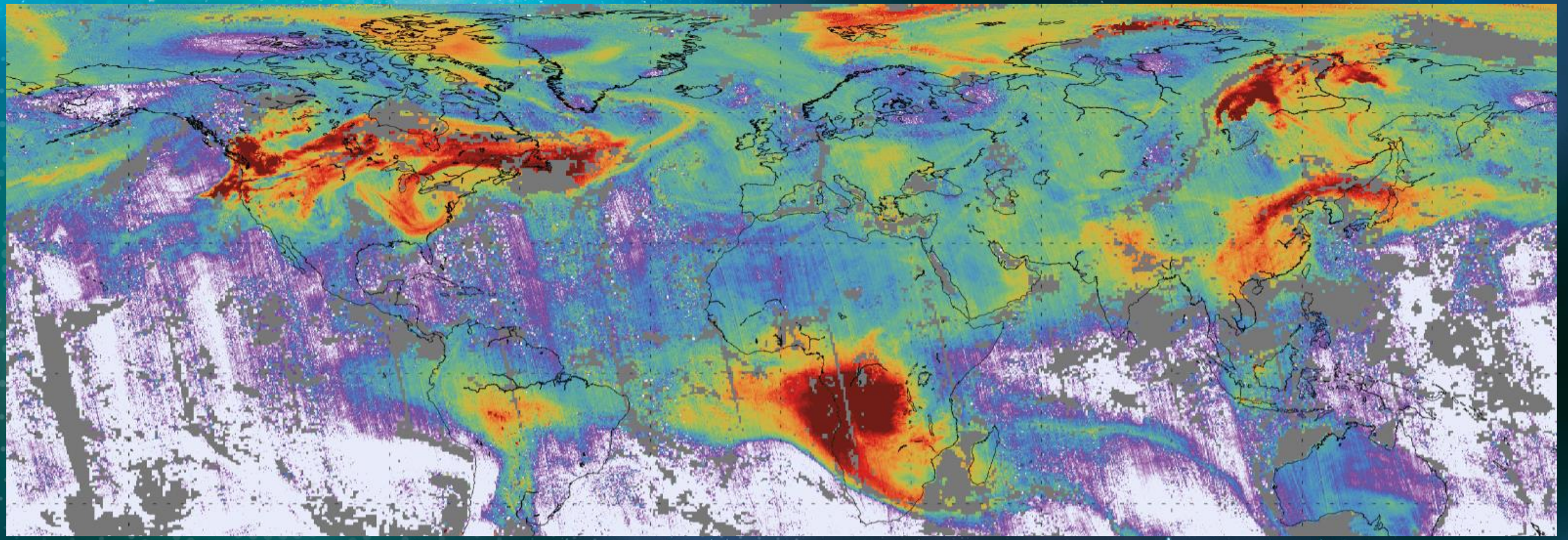


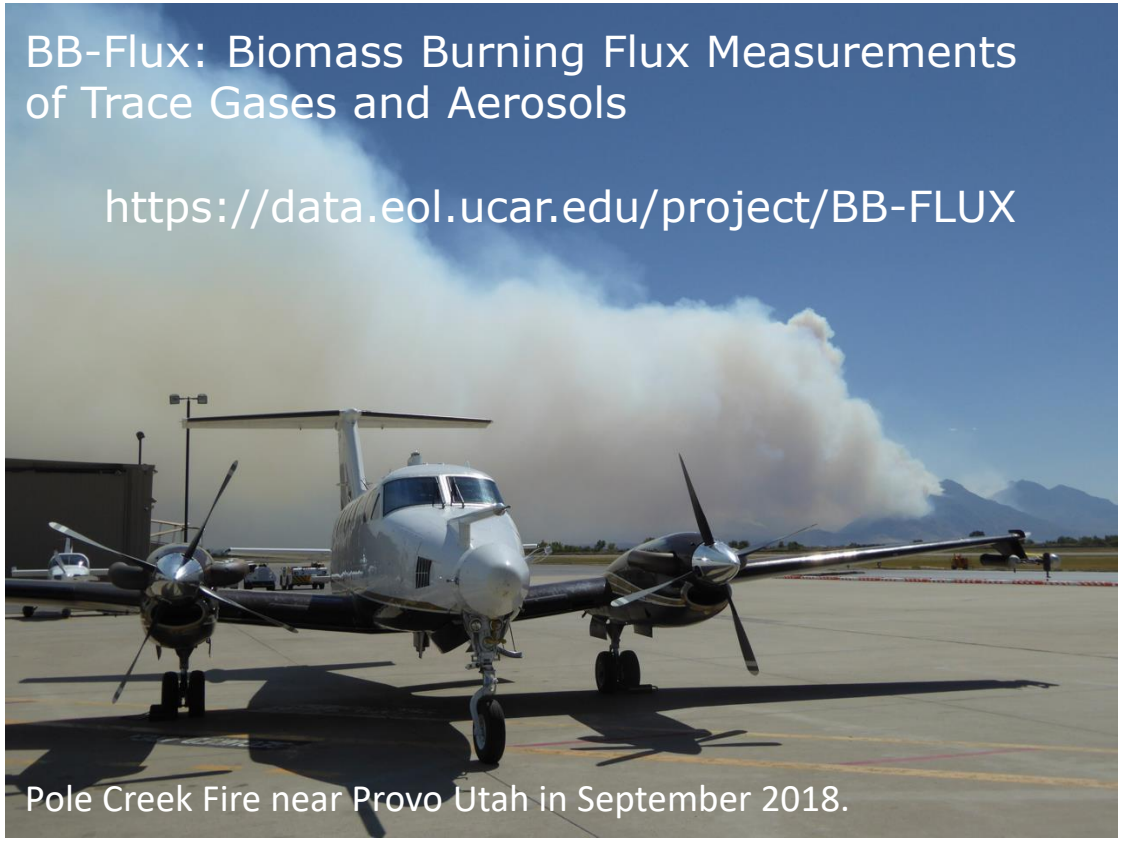
Automated processing of 6 years TROPOMI CO data to identify emissions rates from pollution sources

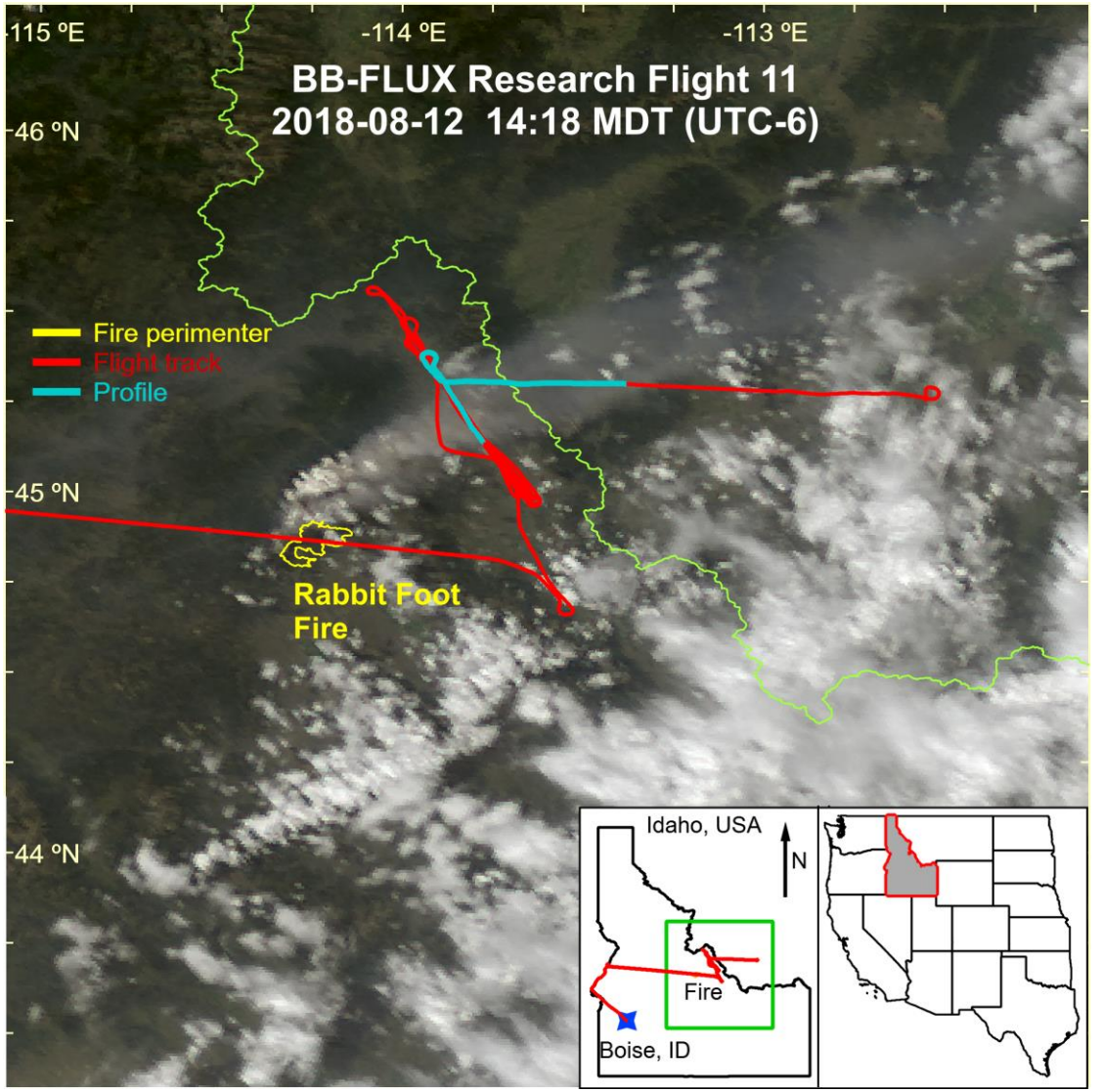
Tobias Borsdorff, Manu Goudar, Jord van Rossum, Arthur Bronstring and Jochen Landgraf

Netherlands Institute for Space Research, SRON, Leiden, the Netherlands

Validating TROPOMI CO under High Aerosol Load:

The Rabbit Foot Fire in Idaho, August 12th, 2018



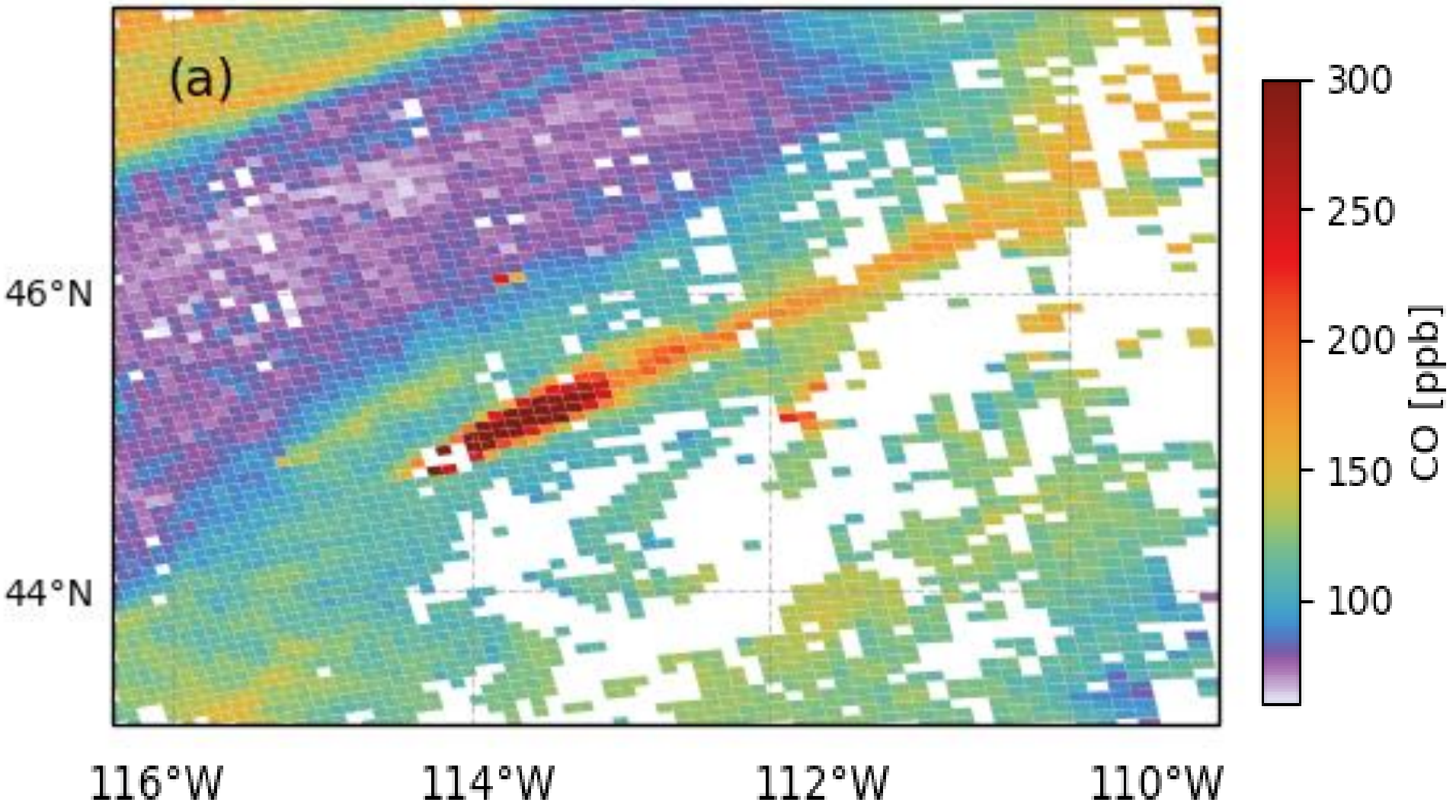


Carbon Monoxide in Optically Thick Wildfire Smoke: Evaluating TROPOMI Using CU Airborne SOF Column Observations

Jake P. Rowe et al., ACS Earth and Space Chemistry (2022).

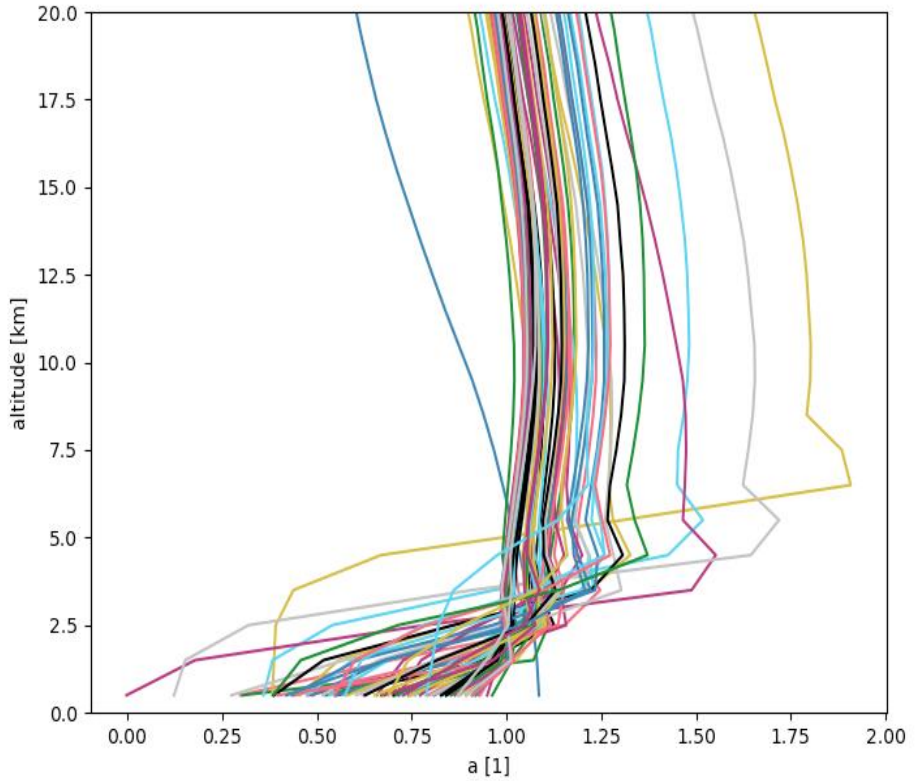
TROPOMI CO Column Measurements :

The Rabbit Foot Fire in Idaho, August 12th, 2018



Retrieving Vertical CO Profiles from TROPOMI CO:
Combining Total Columns with Varying Sensitivities

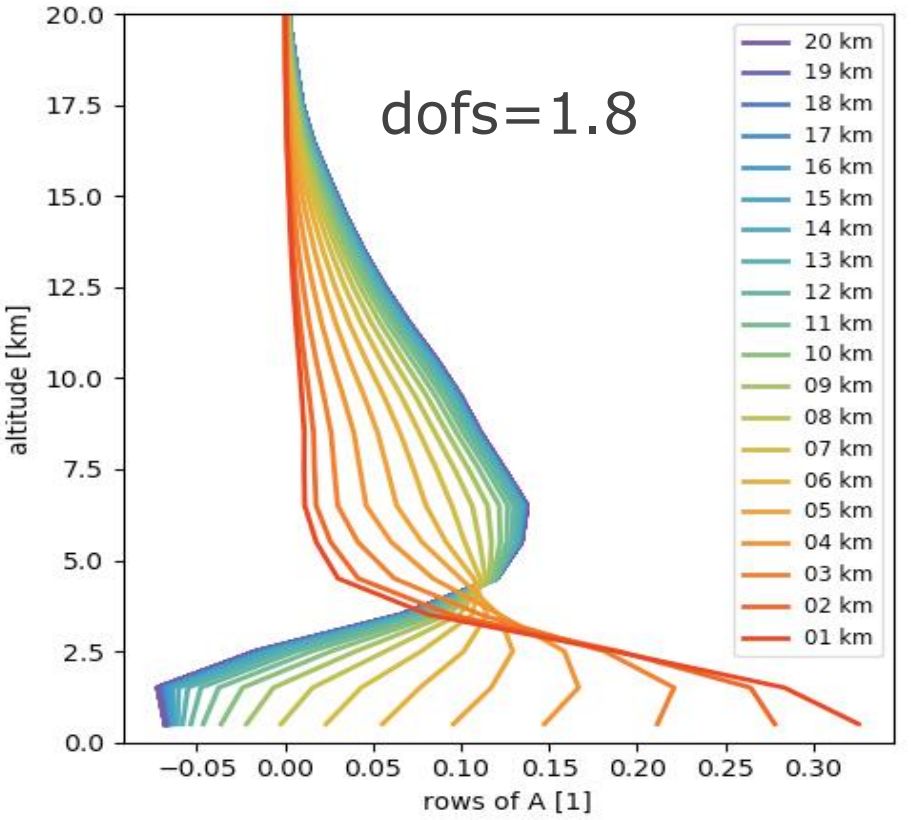
Total column averaging kernels



$$c_{ret} = a \cdot x_{true}$$

Posteriori profile retrieval

Profile averaging kernel

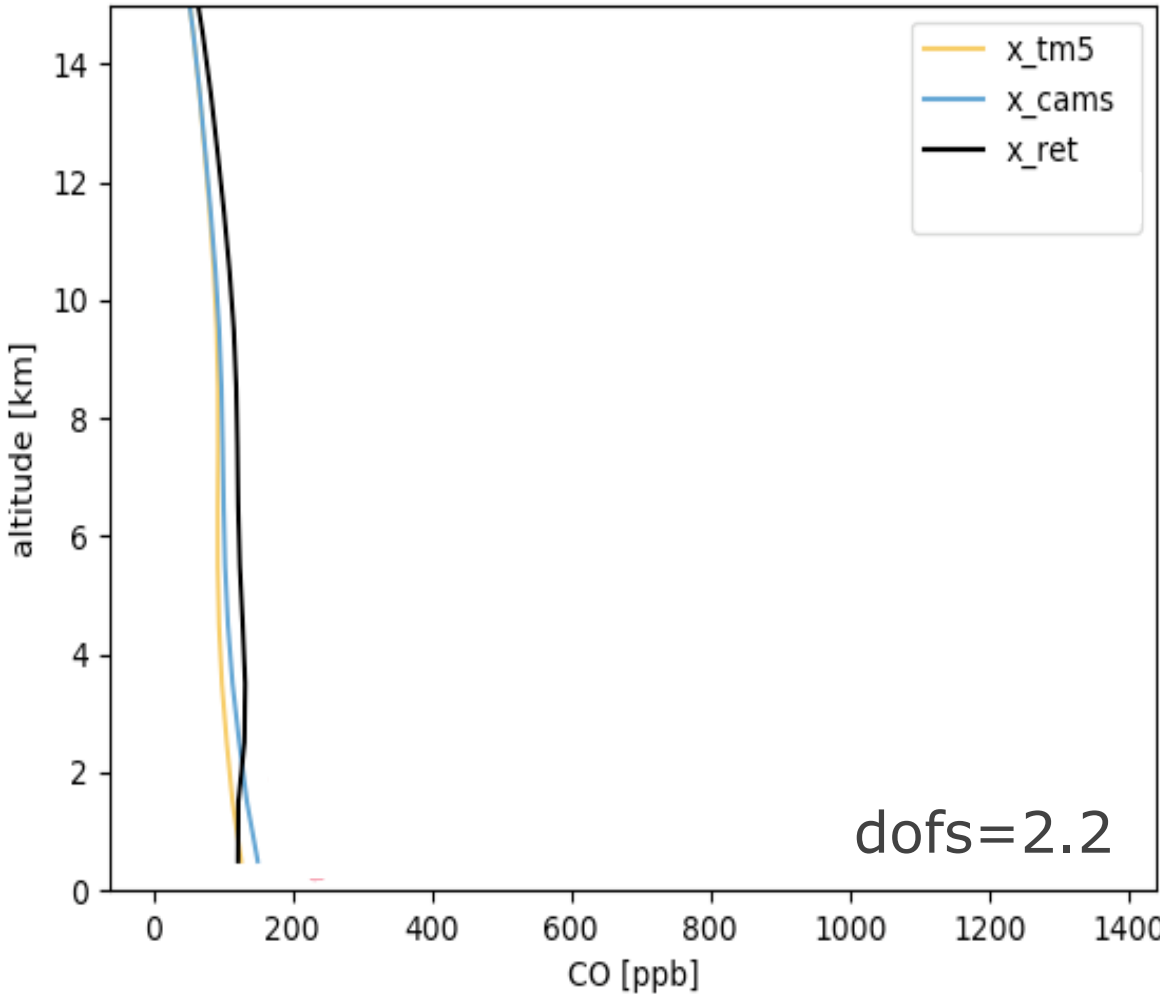


Borsdorff et al. 2023

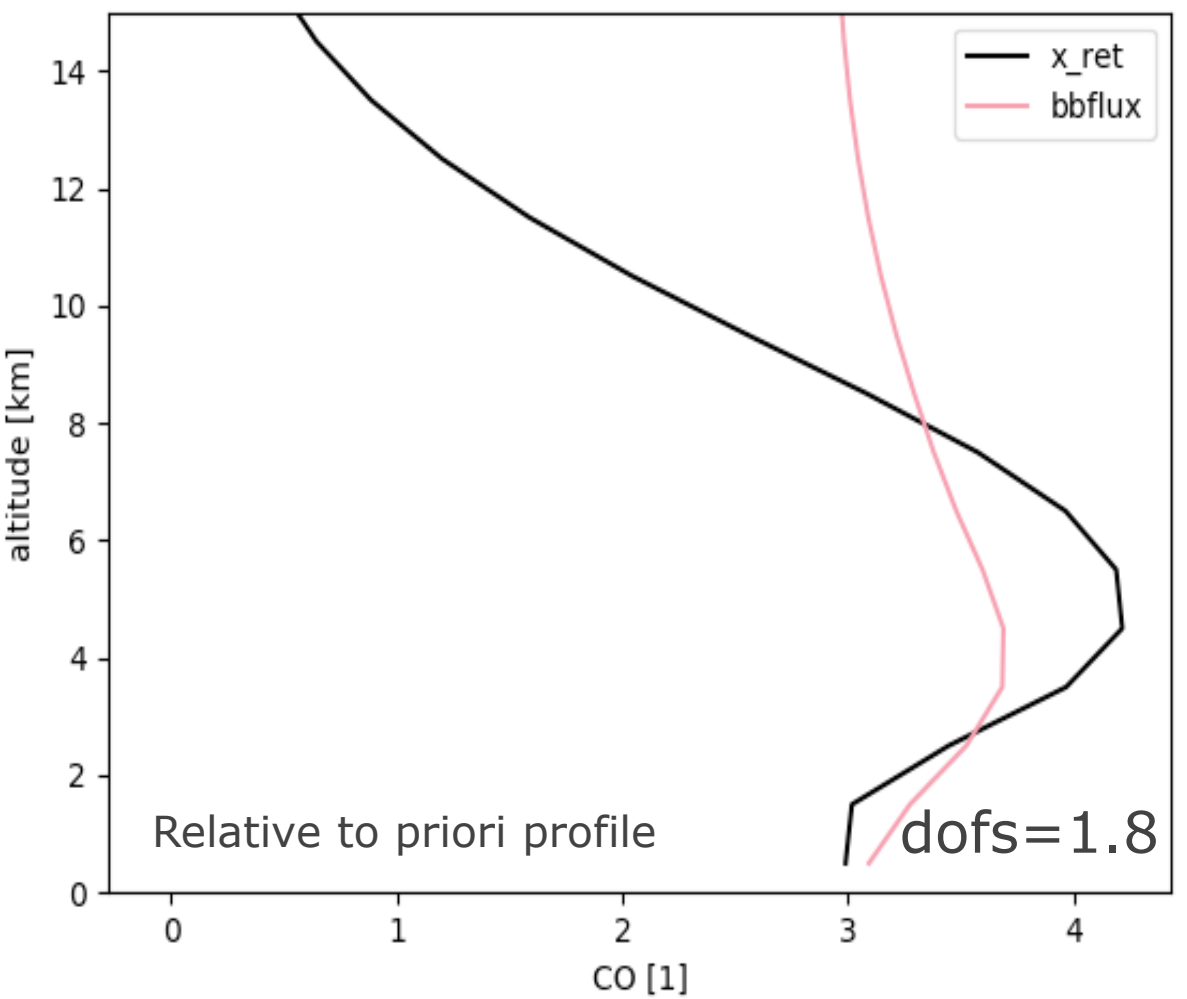
TROPOMI CO Mean Vertical Profiles:

Rabbit Foot Fire in Idaho, 12th of August 2018

background (CO<=2.8e18)



plume (CO>2.8e18)



European Geosciences Union

Geoscientific Model Development

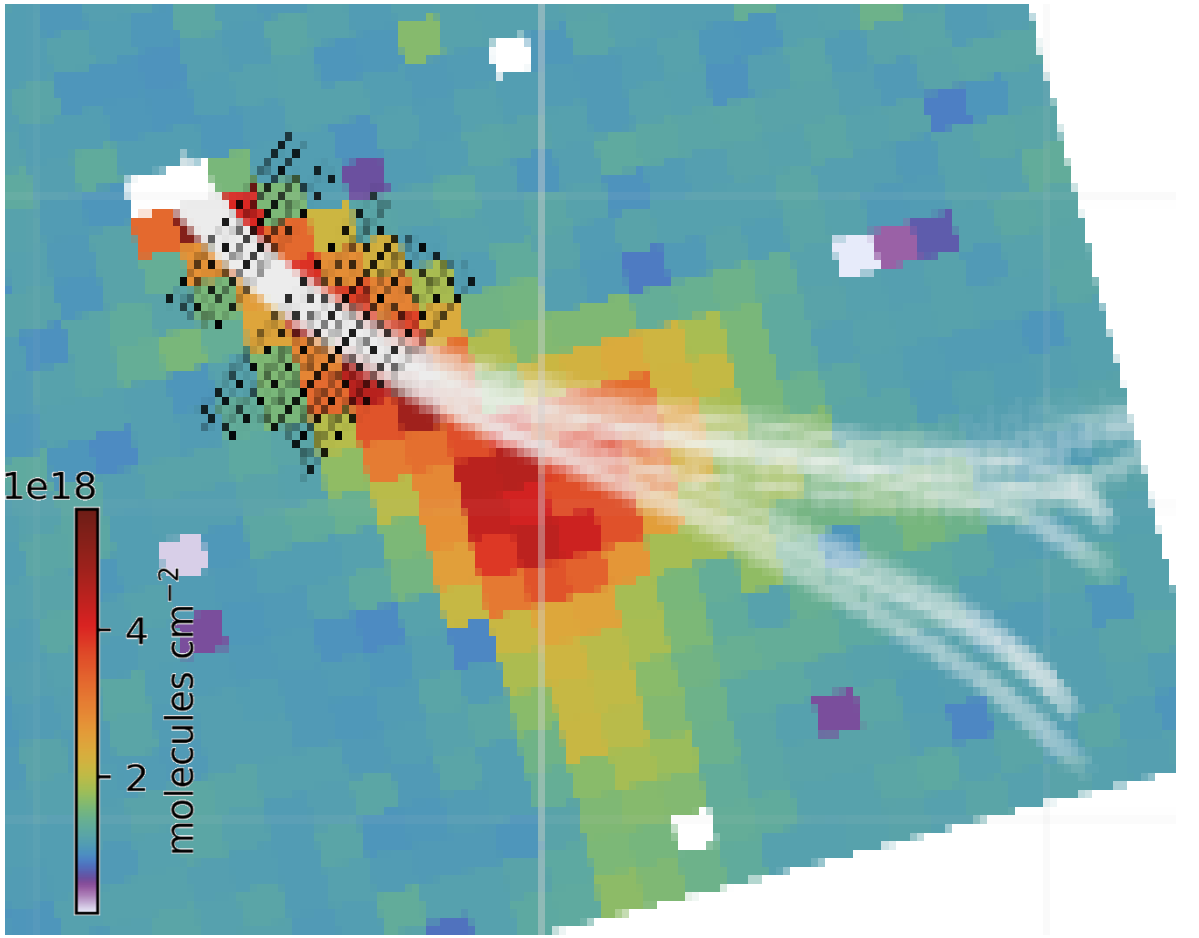
ARTICLES & PREPRINTS SUBMISSION POLICIES PEER-REVIEW PROCESS EDITORIAL BOARD ABOUT EGU PUBLICATIONS

Article

Articles
Volume 16, issue 16
GMD, 16, 4835–4852, 2023
https://doi.org/10.5194/gmd-16-4835-2023

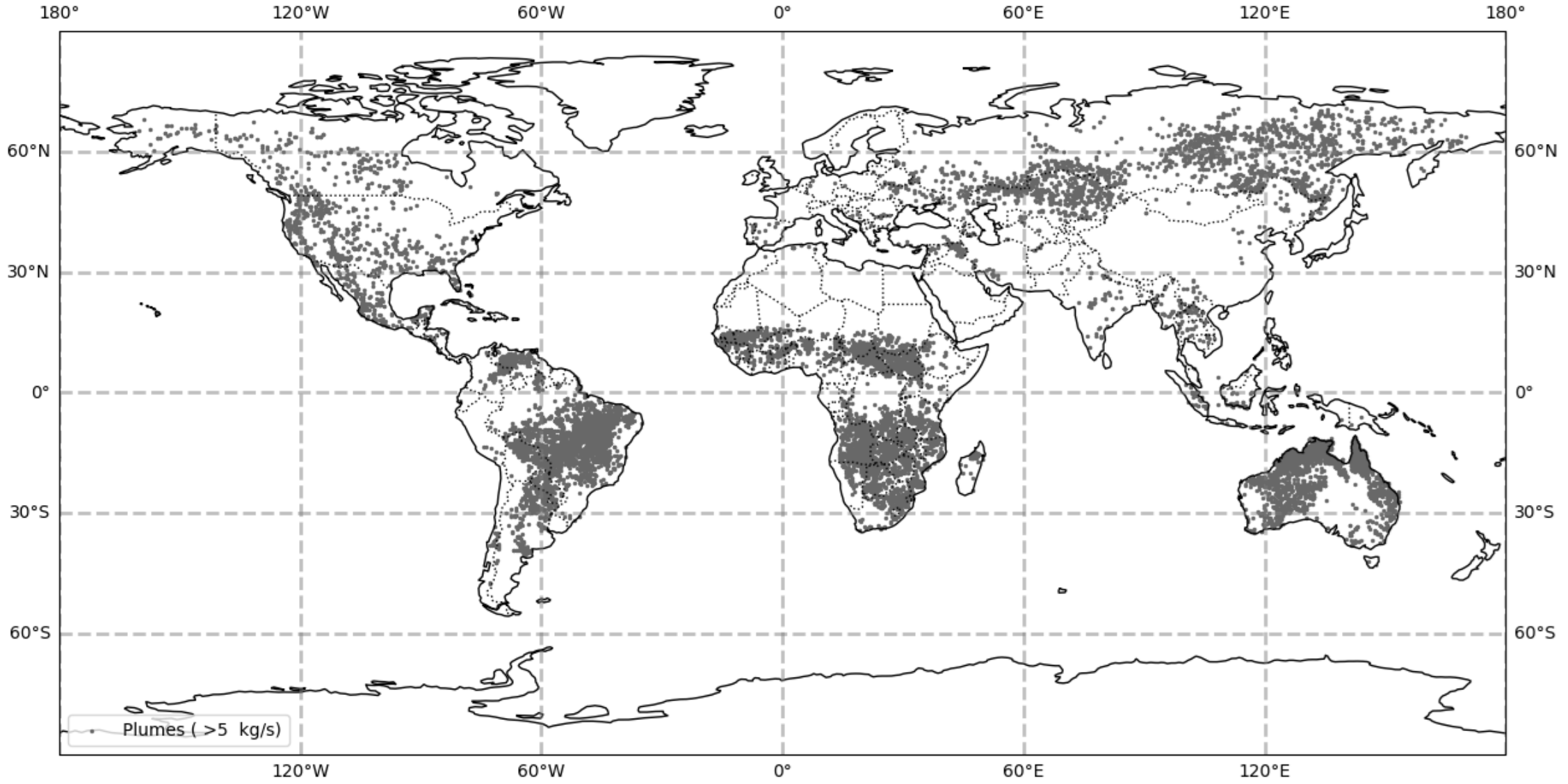
Plume detection and emission estimate for biomass burning plumes from TROPOMI carbon monoxide observations using APE v1.1

Manu Goudar, Juliëtte C. S. Anema, Rajesh Kumar, Tobias Borsdorff, and Jochen Landgraf



Unveiling 17,000 Fire Plumes with TROPOMI CO:

Automated Detection and Emission Estimates (2017-2023)



Explore Our Online Fire and Emissions Database:

6 Years of TROPOMI Data Accessible

Tropomi CO Plumes and their emissions

Explore fires

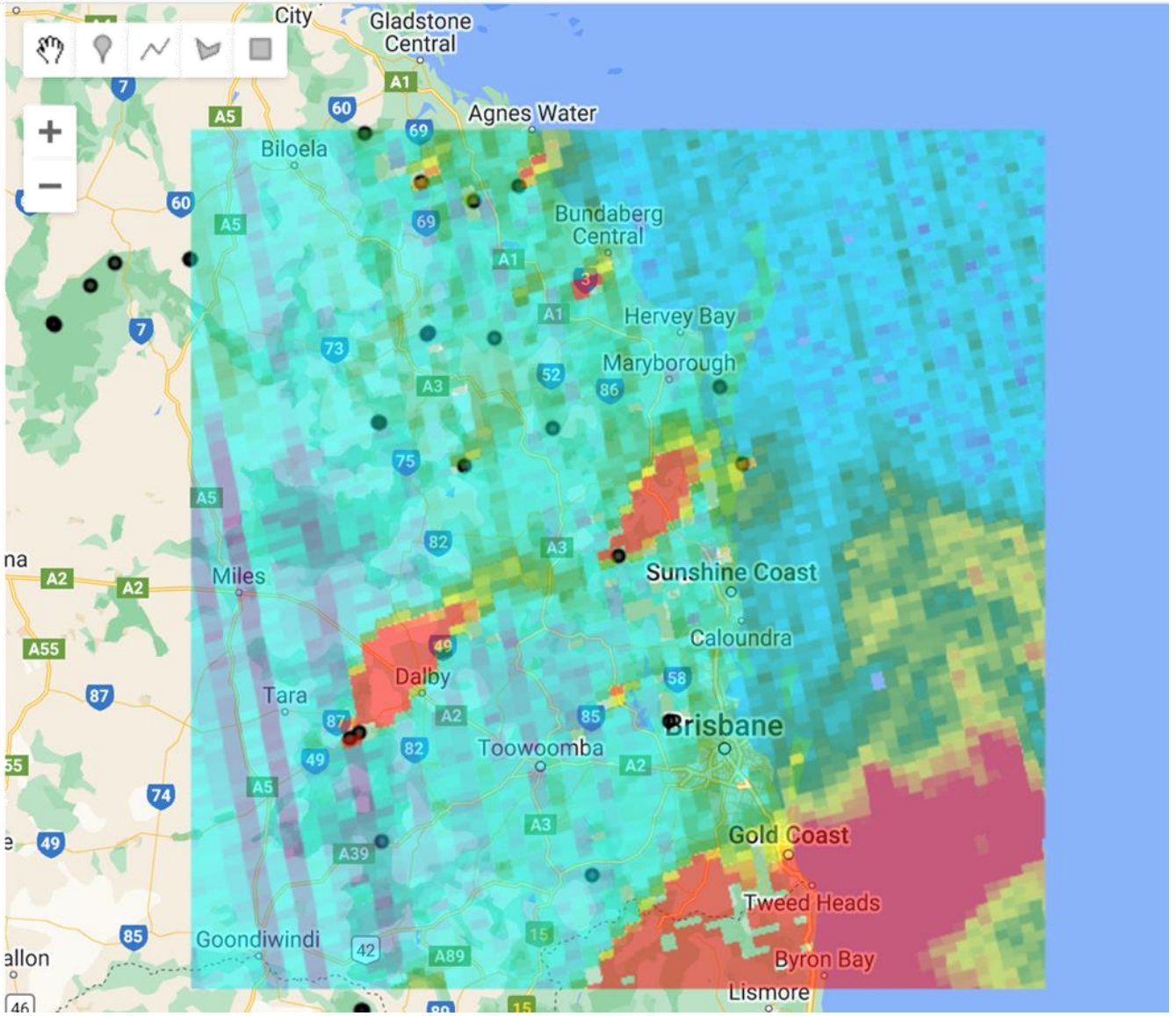
1) Select Year/Month

2019_12 | all days

Center Region on map

2) Plume Details

orbit: 11261
measuredate: 2019-12-16
Emission (kg/s): 269.14

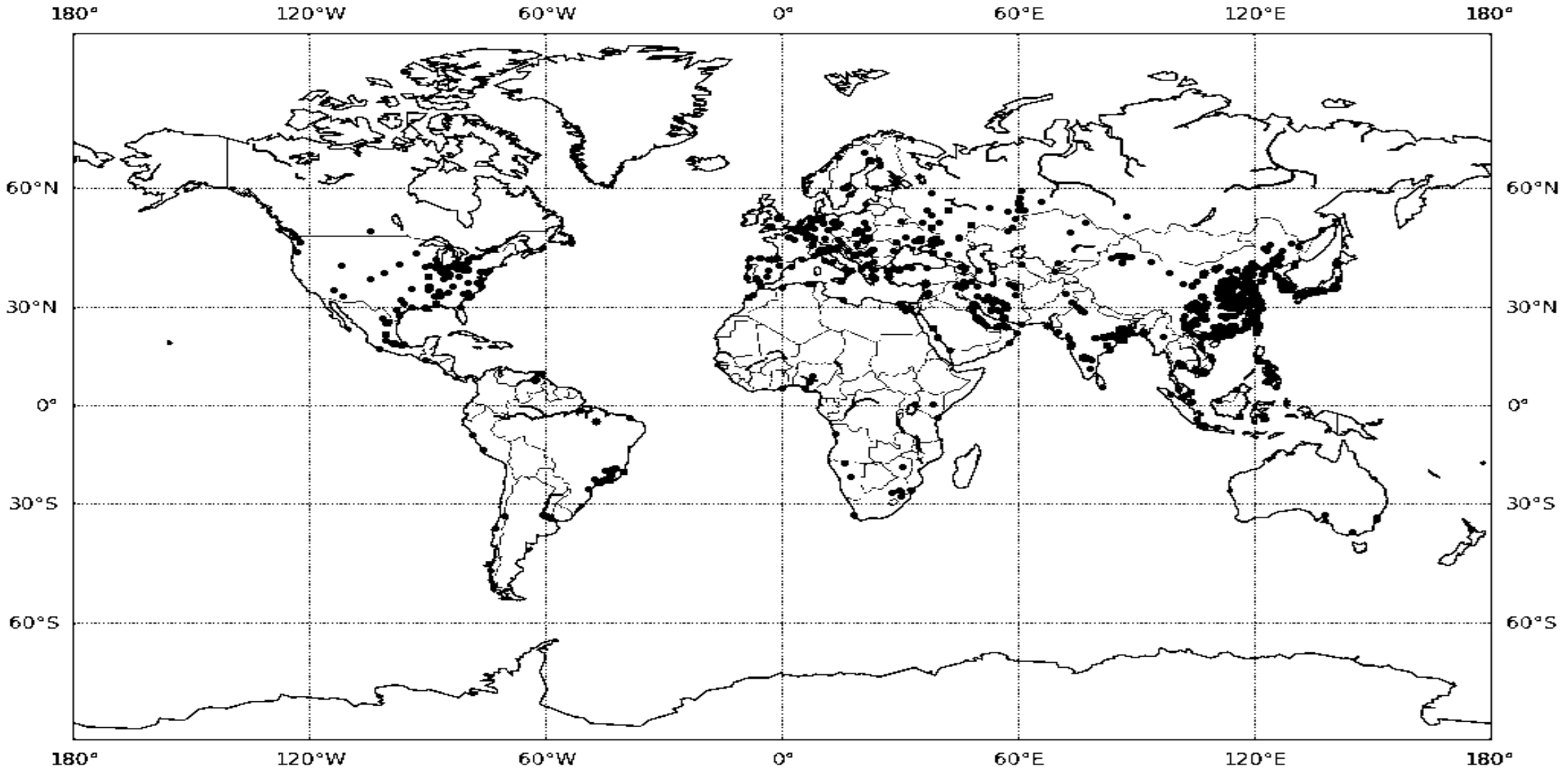


https://sronape.users.earthengine.app/view/plumes

SCAN ME

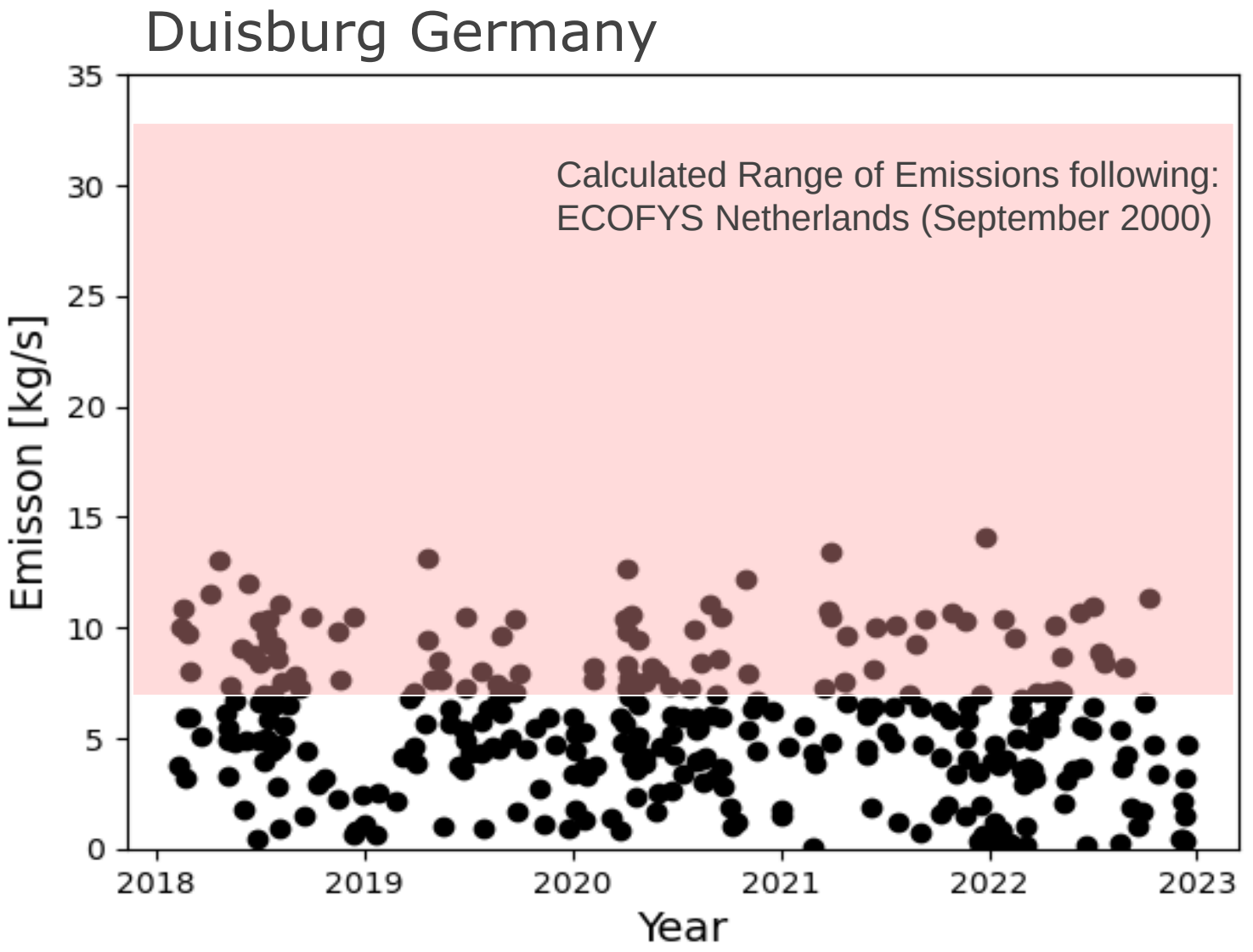
Monitoring 1115 steel plants with TROPOMI CO:

Automated Detection and Emission Estimates (2017-2023)



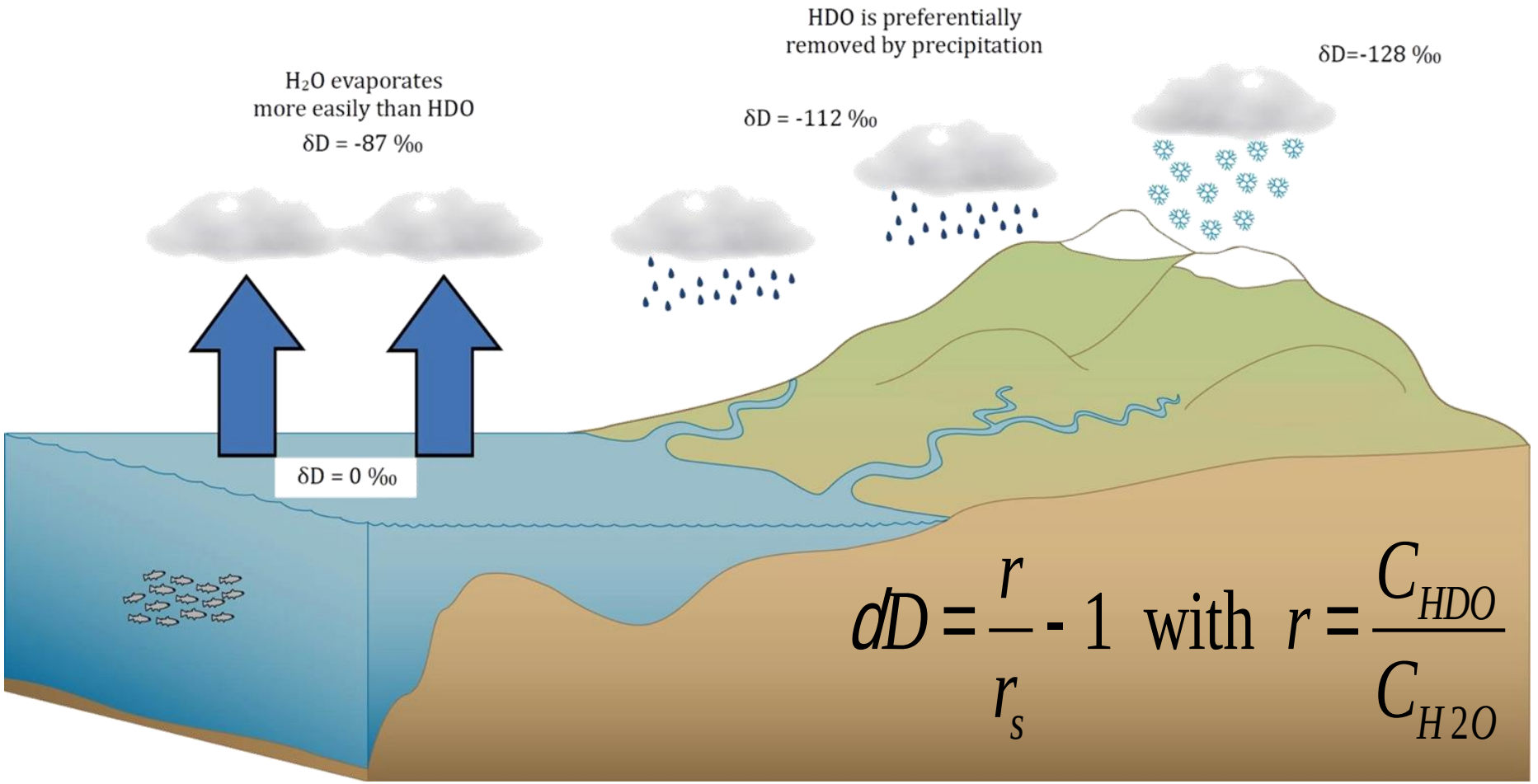
Monitoring 1115 steel plants with TROPOMI CO:

Automated Detection and Emission Estimates (2017-2023)



Global Energy Monitor crude steel capacity: **14,000 ktpa**

Scientific TROPOMI HDO/H_2O Data Product for the Full Mission

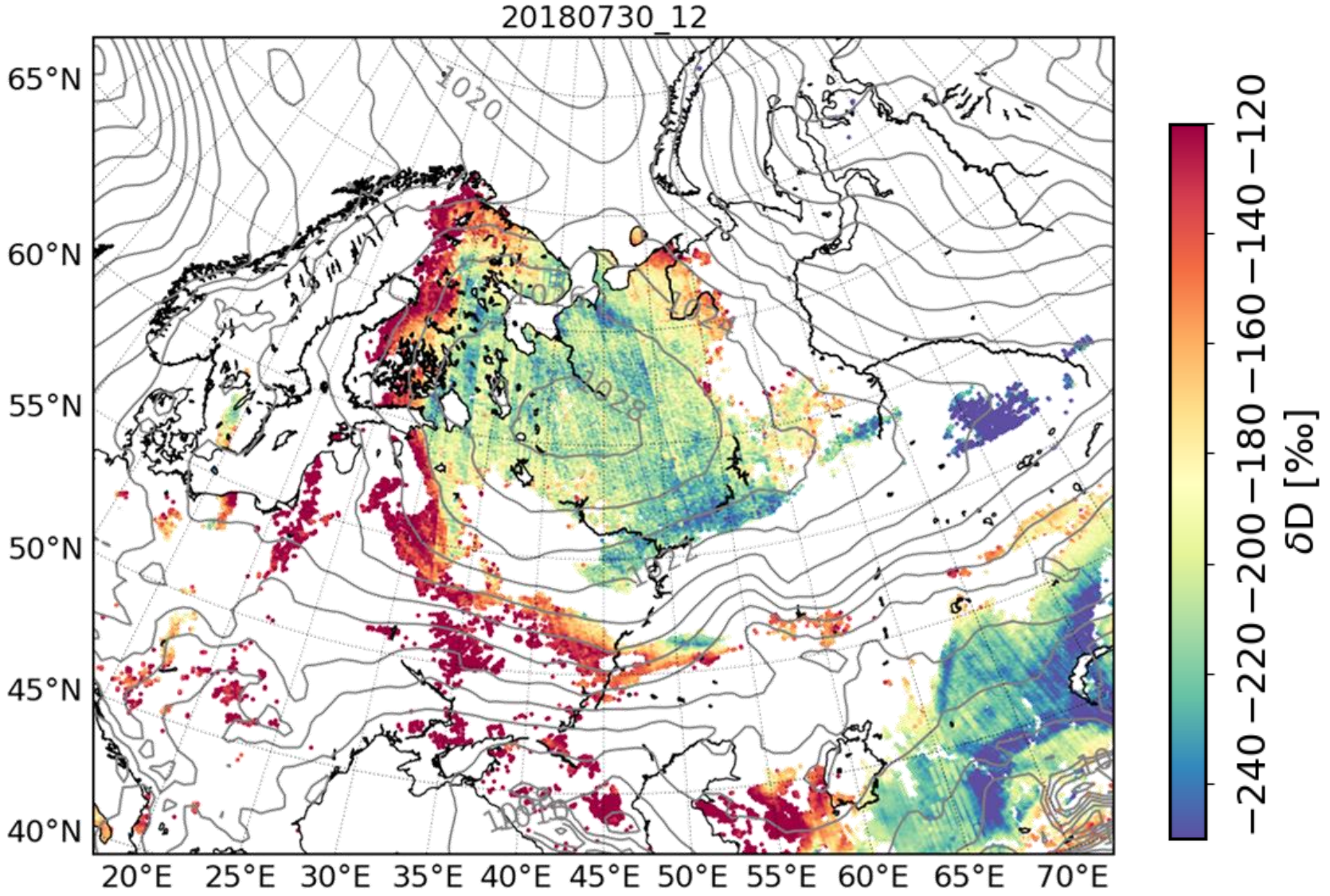


Not yet on S5P-PAL

SCAN ME

https://tropomi.grid.surfsara.nl

Scientific TROPOMI HDO/H_2O Data Product for the Full Mission



Not yet on S5P-PAL

SCAN ME

https://tropomi.grid.surfsara.nl

Summary and Conclusions

- TROPOMI CO valid for high aerosol load
- Averaging kernels provide vertical information on burning events
- Automated framework for biomass burning and steel plant emissions
- 17,000 fire plumes accessible via web interface
- 1115 steel plants to be integrated in web interface
- New TROPOMI H2O/HDO data product on S5P-PAL soon