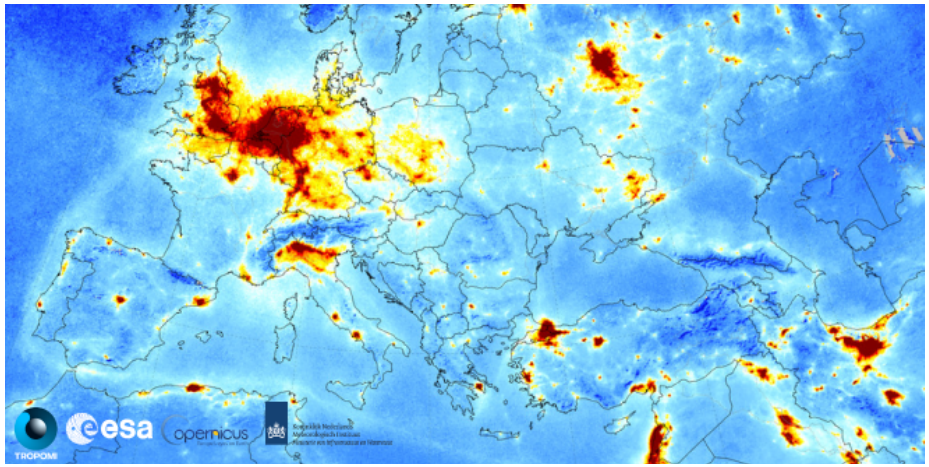
Advanced Webinar: High Resolution NO2 Monitoring From Space with TROPOMI



Date Range: May 28, 2019. May 30, 2019. June 3, 2019.
Times: Parts 1 & 2: 9:00-10:00 EDT (UTC-4), Part 3: 9:00-11:00 EDT (UTC-4)
Registration Closes: Tuesday, May 28, 2019

Nitrogen dioxide (NO_2) is unhealthy to breathe and is a necessary ingredient for the formation of unhealthy levels of surface ozone [**NASA Air Quality (https://airquality.gsfc.nasa.gov/no2)**]. NASA Aura's OMI sensor has been monitoring NO_2 data since 2004 and has been used in a variety of health and air quality applications. The TROPOMI instrument onboard Sentinel-5P, launched in 2017, represents a significant improvement in spatial resolution over OMI. It will be better-suited for many applications currently using OMI data, including monitoring air pollution. In this advanced webinar, attendees will learn how to access and analyze TROPOMI data, and learn about its applications.

Learning Objectives:

By the end of this training, attendees will be able to:

- Understand the available data products
- Access and download TROPOMI data
- Analyze the data using Python tools

Course Format:

- Parts 1 & 2 will be one hour long, including a Q&A period

Health & Air Quality (/airquality)

Online Trainings (/airquality/webinars)

In-Person Trainings (/airquality/workshops)

Applications (/airquality/applications)

Tools (/airquality/tools)

View All Tools (/airquality/tools)

Polar Orbit Satellite (/airquality/polar-orbit-satellite)

Python Scripts (/airquality/python-scripts-aerosol-data-sets-merra-modis-and-omi)

Jul 14, 2020

Water

Advanced Webinar: Using Earth Observations to Monitor Water Budgets for River Basin Management II (/water/webinars/water-budgets-river-basin)

Jul 21, 2020, Jul 28, 2020, Aug 04, 2020

Land

Introductory Webinar: Remote Sensing of Coastal Ecosystems (/land/webinars/coastal-ecosystems)

- Part 3 will be 2 hours long and include an opportunity for attendees to practice using TROPOMI data with the trainers available for questions
- A certificate of completion will also be available to participants who attend all three parts and complete the homework, which will be based on the webinar parts. Note: certificates of completion only indicate the attendee participated in all aspects of the training, they do not imply proficiency on the subject matter, nor should they be seen as a professional certification).

Aug 25, 2020, Sep 08, 2020

View All Events (/calendar/month)

Prerequisites:

- Fundamentals of Remote Sensing (https://register.gotowebinar.com/#register/5274323579896872193)
- Download and Install Python with Anaconda (/sites/default/files/airquality/webinars/19-NO2/Python%20Installation.pdf)
- Register for EO Browser & Sentinel Hub (https://services.sentinel-hub.com/oauth/subscription?origin=EOBrowser&param_client_id=1febe974-ca4f-44c1-9fc8-bafbd3bb4abd&param_redirect_uri=https://apps.sentinel-hub.com/eo-browser/oauthCallback.html&param_state=&param_scope=EOBrowser)
- Create a login for Earth Data (https://urs.earthdata.nasa.gov/users/new)
- Install Panoply for Part 2 (https://www.giss.nasa.gov/tools/panoply/)
- Download the following data for Part 2 (you need an Earth Data login to download)
  - Dataset 1 (https://tropomi.gesdisc.eosdis.nasa.gov/data//S5P_TROPOMI_Level2/S5P_L2__AER_AI.1/2018/228/S5P_OFFL_L2__AER_AI_20180816T183016_20180816T201146_04361_01_010100_20180822T174822.nc)
  - Dataset 2 (https://tropomi.gesdisc.eosdis.nasa.gov/data//S5P_TROPOMI_Level2/S5P_L2__CH4___.1/2018/228/S5P_RPRO_L2__CH4____20180816T182917_20180816T201245_04361_01_010202_20190101T194705.nc)
  - Dataset 3 (https://tropomi.gesdisc.eosdis.nasa.gov/data//S5P_TROPOMI_Level2/S5P_L2__CO____.1/2018/228/S5P_OFFL_L2__CO_____20180816T183016_20180816T201146_04361_01_010100_20180822T174815.nc)
  - Dataset 4 (https://tropomi.gesdisc.eosdis.nasa.gov/data//S5P_TROPOMI_Level2/S5P_L2__NO2___.1/2018/228/S5P_RPRO_L2__NO2____20180816T182917_20180816T201245_04361_01_010202_20190218T070149.nc)
- Attendees that do not complete the prerequisites may not be adequately prepared for the pace of the training

Audience:

The webinar is intended for end-users who are already familiar with satellite observation capabilities and have used online image archives or analysis tools at basic to intermediate levels for air quality

applications, such as emissions estimation using satellite observations.

Registration Information:

There is no cost for the webinar, but you must register to attend the series. Professional organizations in the public and private sectors engaged in air quality management and monitoring will be given preference over organizations focused primarily on research.

Registration, 09:00-10:00 EST (UTC-4) » (https://attendee.gotowebinar.com/register/9025220648333537026)

Course Agenda:

Agenda (https://arset.gsfc.nasa.gov/sites/default/files/agendas/High%20Resolution%20NO2%20Monitoring%20From%20Space%20with%20TROPOMI%20Agenda.pdf)

Part One: Remote Sensing of NO2 with OMI

This webinar will provide an introduction to remote sensing of air quality, a description of OMI, an overview of available data products for NO_2, and available data portals and tools.

- **View the Recording » (https://youtu.be/rvSjD-vGl4k)**
- **Presentation Slides » (/sites/default/files/airquality/webinars/19-NO2/NO2_Session_1_final.pdf)**
- **Q&A Transcript » (/sites/default/files/airquality/webinars/19-NO2/Q%26A%20Doc%20Session%201.pdf)**

Spanish

- **Diapositivas de la Presentación » (/sites/default/files/airquality/webinars/19-NO2/Session_1_Span_final.pdf)**

Part Two: Introducing TROPOMI - High Resolution NO2 Observations from Space

This webinar will cover an introduction to TROPOMI, available data products for NO_2, information about products detecting AI, CO, SO_2, and HCHO, an overview of accessing TROPOMI data, and an exercise for downloading the data.

- **View the Recording » (https://youtu.be/-yOInEUJTYM)**
- **Presentation Slides » (/sites/default/files/airquality/webinars/19-NO2/session2-final.pdf)**
- **Q&A Transcript » (/sites/default/files/airquality/webinars/19-NO2/Q%26A%20Doc%20Session%202.pdf)**

Spanish

- Diapositivas de la Presentación » **(/sites/default/files/airquality/webinars/19-NO2/session2-Span-final.pdf)**

Part Three: Python Tools for Analyzing NO2

This webinar will primarily consist of going through an exercise on using updated python codes to work with TROPOMI data. This will include reading, mapping, extracting over a point location, gridding the data, and dumping the data to a CSV file.

- View the Recording » **(https://youtu.be/MxBg5ZMH2nM)**
- Presentation Slides » **(/sites/default/files/airquality/webinars/19-NO2/session3_final.pdf)**
- Q&A Transcript » **(/sites/default/files/airquality/webinars/19-NO2/Q%26A%20Doc%20Session%203.pdf)**
- OMI Python Code & Data » **(/sites/default/files/airquality/webinars/19-NO2/OMI_PythonCodesAndData.zip)**
- TROPOMI Python Codes & Data (Aerosol Index, CH4, CO2) » **(/sites/default/files/airquality/webinars/19-NO2/TROPOMI_PythonCodesAndData.zip)**
- TROPOMI NO2 Data » **(/sites/default/files/airquality/webinars/19-NO2/TROPOMI_NO2Data.zip)**
- Python Test Code » **(/sites/default/files/airquality/webinars/19-NO2/testcode.zip)**

Spanish

- Diapositivas de la Presentación » **(/sites/default/files/airquality/webinars/19-NO2/session3_v2_span.pdf)**

Application Area: Airquality **(/airquality)**
Available Languages: English **(/available-languages/english)**
Instruments/Missions: Aura **(/aura)**, Sentinel **(/instrumentsmissions/sentinel)**
Keywords:
Model Intercomparisons **(/topics/model-intercomparisons)**, Satellite Imagery **(/topics/satellite-imagery)**, Tools **(/topics/tools)**