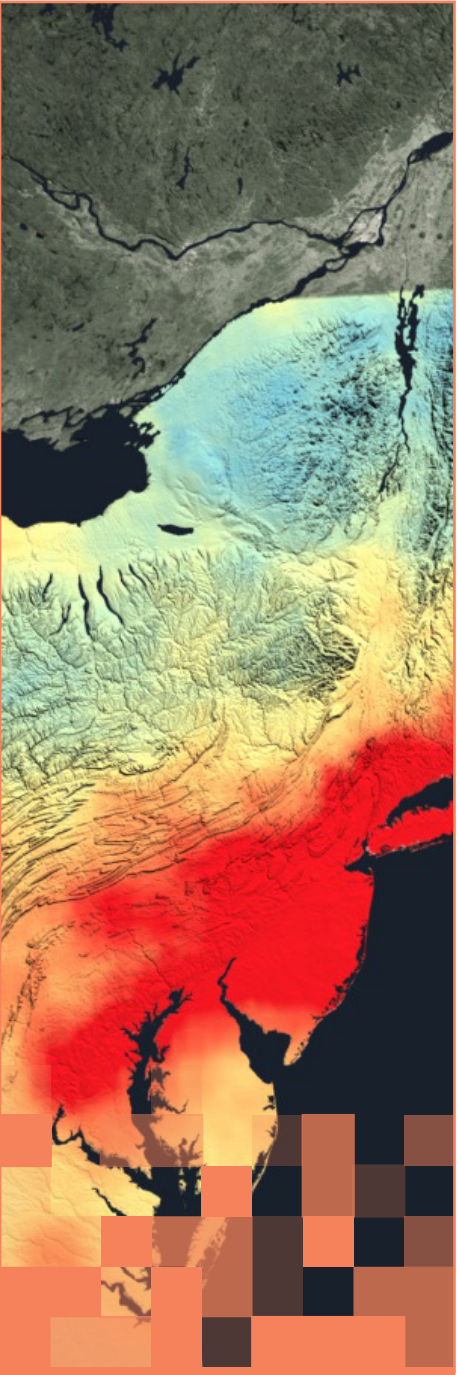

National Aeronautics and
Space Administration

NASA Air Quality-Focused Remote Sensing for EPA Applications

March 10 - 12, 2020

Partners: NASA ARSET, U.S. EPA

(LC = Lecture, DS = Discussion, DM = Demonstration, HO = Hands-On)

Tuesday, March 10

Session I: Introduction to Satellite Air Quality Measurements

08:00 – 08:30 Registration
08:30 – 09:00 Opening, Introduction, and Logistics
09:00 – 09:45 Introduction to Satellite Remote Sensing – LC/DS
09:45 – 10:15 Satellite Imagery, Data Formats, and Access – LC/DS
10:15 – 10:30 Break
10:30 – 11:00 Exploring Satellite Imagery Using NASA Worldview & Earth Observatory – DM/HO
11:00 – 11:45 Satellite-Based Fire Products: Methods, Data Access, and Applications – LC/DS/HO
11:45 – 12:15 Review of Current EPA Satellite Applications – LC/DS
12:15 – 13:30 Lunch Break

Session II: Smoke, Trace Gases and Aerosols

13:30 – 14:00 Smoke Monitoring from Space – LC/DS
14:00 – 15:00 Remote sensing of trace gases and products – LC/DS
15:00 – 15:30 Giovanni exercise for trace gases – LC/DM
15:30 – 15:45 Break
15:45 – 16:45 Aerosol Observations from Satellite: Theory & Existing Products - LC/DS/HO
16:45 – 17:00 Discussion
17:00 Adjourn

ARSET empowers the global community through remote sensing training.

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Wednesday, March 11

Session I: Estimattion of Ground Level PM2.5 Concentrations with Satellite Data

08:30 – 09:00 Q&A, Review of Day 1

09:00 – 10:00 Theoretical Basis for Converting Satellite Observations to Ground-Level PM2.5 Concentrations – LC/DS

10:00 – 10:15 Break

10:15 – 10:30 Download Level 2 aerosol data (MB/DT, MAIAC, VIIRS)

10:30 – 11:00 Conversion of Satellite Aerosol Measurements to PM2.5 Air Quality – LC/DS/HO – Excel based exercise

11:00 – 12:00 Using Python Scripts to Read, Map, and Extract Aerosol Data – HO

12:00 – 13:30 Lunch Break

Session II: Satellite-based emissions and NASA GEOS

13:30 – 14:30 Satellite-based estimations of trace gas surface concentrations/emissions – LC/DS

14:30 – 15:00 Satellite-based PM2.5 data sets – LC/DS/DM

15:00 – 15:15 Break

15:15 – 16:15 Aerosol Products from Geostationary Satellites – LC/DS

16:15 – 17:00 NASA Forecasts and the MERRA-2 Reanalysis – LC/DS

15:40 – 16:00 Discussion

Thursday, March 12

Session I: Additional Observations and Resources

08:30 – 09:00 Q&A, Review of Days 1 & 2

09:00 – 09:45 Overview of CALIPSO and CATS – LC/DS/DM

09:45 – 10:15 Reading and Mapping Data with Panoply – DM/HO

10:15 – 10:30 Break

10:30 – 11:30 Exploring Air Quality from Satellite Using NOAA e-IDEAand Aerosol Watch – DM/HO

11:30 – 12:00 Tools and Resources for Case Studies

12:00 – 13:30 Lunch Break

Session II: Case Study Analysis

13:30 – 15:30 Case Study Analysis in Groups – HO

15:30 – 15:45 Break

15:45 – 16:45 Case Study Presentations and Discussion

16:45 – 17:00 Training review and feedback

More information about the training, including access to training materials, is available on the ARSET website: https://arset.gsfc.nasa.gov/airquality/webinars/epa-2020