

NASA Air Quality Remote Sensing Training

In partnership with Georgia Environmental Protection Division (EPD) and the Southeastern States Air Resource Managers (SESARM)

September 1-3, 2015

Georgia Technology Authority
47 Trinity Avenue S.W., Atlanta, Georgia 30334
7th floor Training Room (710-02)

Instructors: Pawan Gupta, Justin Roberts-Pierel

Training Agenda

Day 1 (AM) - Tuesday

Session I: Introduction, Overview and First Exposure to Satellite Air Quality Measurements

Time	Teaching Module	Format
08:00 – 08:15	Introduction and logistics	Informal
08:15 – 09:15	Current and future satellite capabilities for air quality monitoring – an overview	Talk/Discussion
09:15 – 10:15	Satellite imagery, access/interpretation, and tools	Talk/Hands On
10:15 – 10:30	BREAK	
10:30 – 11:15	Aerosol Observations from Satellites – Brief theory and existing products (MODIS, MISR, OMI, VIIRS, CALIPSO)	Talk/Discussion
11:15 – 12:30	Exploring/ordering satellite data with the Giovanni and LAADS web tool.	Hands on
12:30-01:30	LUNCH BREAK	

DAY 1 (PM)

Session II: Exploring MODIS Level 2 Aerosol Data Sets

01:30 – 02:30	Evaluation of aerosol products using the Aerostat/MAPPS tool – learning more about MODIS 3km, 10km Level 2 data sets, limitations, and uncertainties	Talk/ Hands On
02:30-03:00	BREAK – ICE BREAKER	
03:00 – 5:00	Hands on MODIS 3km and 10km data sets using <i>python</i> . Looking inside level 2 aerosol data files, reading and mapping	Hands On

Day 2 (AM)

Session III: Estimation of Ground Level PM_{2.5} Concentrations with Satellite Data.

Time	Teaching Module	Format
08:00 – 09:00	Theoretical basis for converting satellite observations to ground-level PM 2.5 concentrations	Talk/Discussion
09:00 – 10:00	Conversion of satellite aerosol measurements to PM _{2.5} air quality. Introduction to IDEA/EPA	Hands-on
10:00 –10:30	BREAK & ICE BREAKER	
10:30 –12:00	Satellite aerosol measurements to PM _{2.5} Conversion Activity using Excel/IDL/Python	Hands On
12:00-01:00	LUNCH BREAK	

Day 2 (PM)

Session IV: Additional Aerosols , Smoke, Dust, and Trace Gas Data Sets

Time	Teaching Module	Format
01:00 – 02:00	Satellite trace gas products: NO ₂ , SO ₂ , CO and others. Advantages, limitations and potential applications	Talk/Discussion
02:00 – 02:45	Exploring trace gas data sets using online tools. (Ordering, details, GIOVANNI)	Hands On
2:45 – 3:30	Smoke/Fire and Dust Detection, products and applications	Talk/Discussion
03:30 – 03:45	Break	
03:45 – 04:45	Resolving the Vertical Resolution of Aerosols – LIDAR, CALIPSO	Talk/Hands on
04:45 – 05:00	Air Quality Case Study Orientation & Grouping	Discussion

Day 3: Case Study

Time	Teaching Module
08:30 – 11:00	Groups Prepare Case Study Analysis
11:00 – 12:00	Case Study presentation
12:00 - 12:30	Summary/Concluding Discussion etc./Review/Feedback
12:30	Adjourn