



NASA Atmospheric Composition Ground Networks Supporting Air Quality and Climate Applications

August 8, 13, 15, 20, & 22, 2024

11:00-12:30 EDT (UTC-4)

In this five-part, online, intermediate-level training, multiple NASA networks will participate and provide training on their atmospheric composition ground networks. These networks provide data relevant to aerosol and trace gas column concentrations and vertical structure, supporting applications in air quality and climate. Surface networks from NASA and other international contributions form the backbone of long-term atmospheric composition observations globally and provide continuity and validation across typically shorter satellite mission lifetimes. This online training will provide a basic understanding of aerosol and trace gas measurements using both active and passive techniques for ground based remote sensing. It will also teach users how to select, access, and incorporate relevant data from these ground networks into their work. Finally, it will demonstrate an application comparing ground-based and satellite remote sensing products. The training will include lectures, hands-on exercises, and a homework assignment.

Part 1: Introduction to the Aerosol Robotic Network (AERONET)

ARSET Trainers: Carl Malings

Guest Instructors: Pawan Gupta

- Identify the basic characteristics of the AERONET instruments used by NASA for ground-based passive remote sensing of aerosols.
- Recognize how the AERONET network sustains global long-term observations, supports air quality and climate applications, and complements satellite observations.

Part 2: Hands-On Analysis of AERONET Data

ARSET Trainers: Carl Malings

Guest Instructors: Pawan Gupta, Petar Grigorov

- Access relevant AERONET data for given locations and application purposes.
- Compare and jointly analyze AERONET and satellite aerosol data products for a given location and time.

Part 3: Introduction to the Pandora Instrument and the Pandonia Global Network

ARSET Trainers: Carl Malings

Guest Instructors: Tom Hanisco, Apoorva Pandey, Bryan Place

- Identify the basic characteristics of the Pandora instruments used by NASA for ground-based passive remote sensing of trace gases.
- Recognize how the Pandonia Global Network sustains global long-term observations, supports air quality and climate applications, and complements satellite observations.
- Access relevant Pandora and Pandonia Global Network data for a given location and application purpose.



ARSET empowers the global community through remote sensing training.



Part 4: Introduction to the Tropospheric Ozone LiDAR Network (TOLNet)

ARSET Trainers: Melanie Follette-Cook

Guest Instructors: John Sullivan

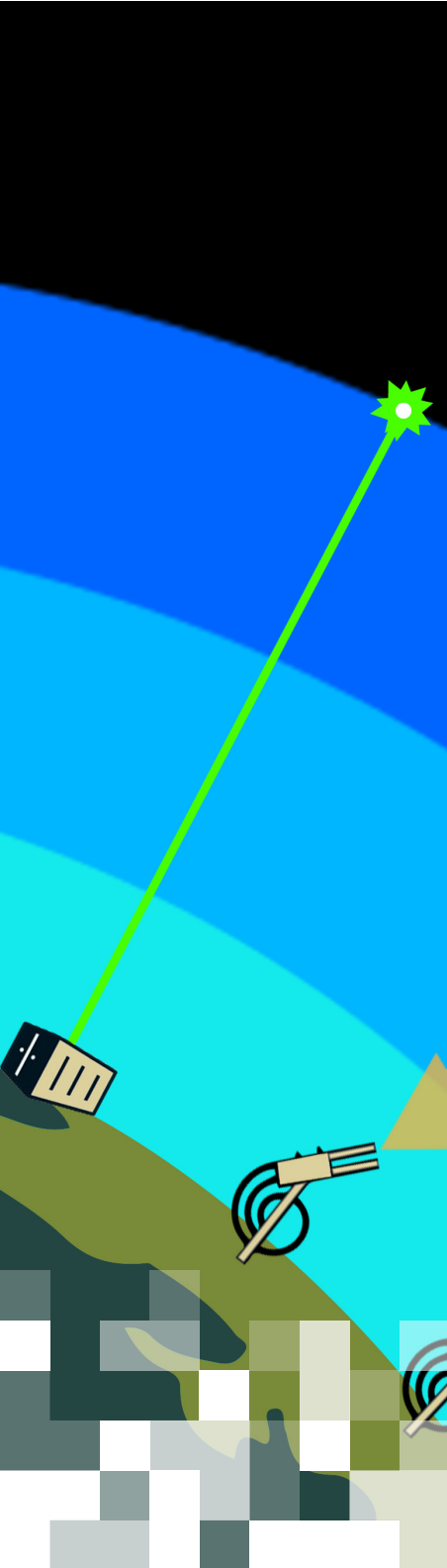
- Identify the basic characteristics of the TOLNet instruments used by NASA for ground-based active remote sensing of tropospheric ozone.
- Recognize how TOLNet supports air quality and climate applications and complements satellite observations.
- Access relevant TOLNet data for a given location and application purpose.

Part 5: Introduction to the Micro-Pulse LiDAR Network (MPLNET)

ARSET Trainers: Melanie Follette-Cook

Guest Instructors: Judd Welton

- Identify the basic characteristics of the MPLNET instruments used by NASA for ground-based active remote sensing of aerosols, clouds, and the planetary boundary layer.
- Recognize how MPLNET sustains global long-term observations, supports air quality and climate applications, and complements satellite observations.
- Access relevant MPLNET data for a given location and application purpose.



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