Thoughts for the Future

Anthony Wexler, Director, Air Quality Research Center, UC Davis
Flow Control

Last Year’s Ideas

- Flow Control → Nicole’s talk
- Meteorology
- Real-time PM10 and PM2.5 (PurpleAir) → Nicole’s talk
- MAIA → Ann’s talk; NASA discussion tomorrow

An Addition for this Year

- Aeromet
Meteorology

The Current Situation
- No meteorology at the sites
- Do not know key factors governing PM concentration, composition and visibility factors
- Need help with source attribution

Why Change?
- RH dependence is key to visibility
- Wind direction and speed can point to the source location
- New controller and internet to collect and transmit data home

What’s the cost?
- Cost is less than $100 per site
- RH, Temperature, and Barometric Pressure can be obtained with Bosch BME280 chip (Built into PurpleAir and others)
- And controller and database programming costs
Aeromet

Who? What?

• Not this or that aeromet (private company, EPA Method 9, …)
• http://www.aerometproject.com/
• Goal: … improve the uncertainty of particle mass, size and number concentration measurements and the characterisation of regulated components in airborne particles as needed by EU air quality monitoring networks.

• EURAMET (EU Metrology Institutes) - EMPIR (research funding arm)

• 7 Work Packages
  1. Reference methods for PM10 and PM2.5
  2. Validated methods for PM components (EC/OC, ions, metals, PAHs)
  3. Improve quality of aerosol number measurements
  4. Quantify particle compositions in real time
  5. Improve x-ray methods
  6. Outreach to member states
  7. Manage everything and coordinate meetings

Proposal

• Reach out to them to find synergies
• Round Robin with them
Questions?

Meteorology
AEROMET
MAIA (Multi-Angle Imager for Aerosols)

The Current Situation
• We do not have focused help from satellites
• NASA does not have ground truth synchronized with overflights

Why Change?
• IMPROVE provides mass and composition data in areas with generally low spatial gradients
• NASA will be launching MAIA whose goal is PM2.5 composition
• Better interpolation between our sites

Progress
• Other talks today and tomorrow
• Santiago, Chile
Flow Control

Good Progress on Last Year’s Ideas

• Flow Control
• Meteorology
• Real-time PM10 and PM2.5 (PurpleAir)
• MAIA

How/If to Move Forward with Aeromet

• Who leads?
• Small subcommittee to make contact and report back?
Network Reinvestment

Next steps
1. Flow control
2. Real-time PM1, PM2.5, PM10, T, RH, BP
3. Wind Direction and Speed
4. OK to use X module for MAIA ground truth if NASA pays?