

# Enhanced Monitoring - A Maryland Perspective

David Krask - MDE Air Monitoring Program
Manager

MWAQC Technical Advisory Committee

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# **Background**

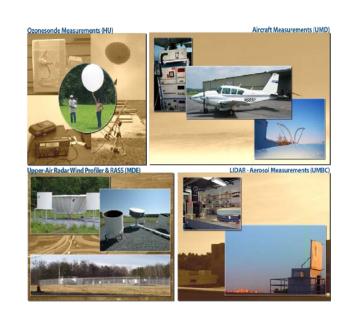
- In October 2015 when the Ozone NAAQS was revised to 70 ppb, the Ozone Monitoring Rule was also revised.
- Requires states with Moderate and above nonattainment areas and states in the Ozone Transport Region to develop and implement an Enhanced Ozone Monitoring Plan.
- Must be submitted to EPA no later than October 1, 2019.



# What Is Enhanced Monitoring?

# From 40CFR Part 58, Appendix D, 5.(h)

- Additional ozone monitors beyond the minimum requirements.
- Additional NOx or NOy monitors above minimum requirements.
- Additional VOC measurements beyond minimum requirements.
- Upper air measurements
   of meteorology or air pollution
   concentrations.





## Why Would You Want To Do It?

- Surface based monitoring alone cannot determine the nature and origin of your particular ozone problem.
- To produce policy relevant science that will aid in the development and tracking of effective control strategies.
- Evaluate model performance (CMAQ & CAMx), identify weaknesses or areas needing improvements.
- Assist in ozone forecasting.
- EPA requires you to.



### Maryland's Enhanced Monitoring Examples

#### **Approaches Utilized**

- Continuous
  - Mountaintop monitoring
  - Radar Wind Profilers (RWPs)
- Seasonal/Episodic
  - Ozonesondes
  - LIDAR- Aerosol & Ozone
  - Aircraft
  - Portable Ozone Monitor (POM) for Land/Water Interface
- Short-term Intensive Studies
  - Once in a blue moon









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#### How much does this stuff cost?

#### Supported through extramural funding sources

- 3 Radar Wind Profilers
  - ~\$45,000 per year for service contract after initial investment
- Ozonesonde launches
  - ~\$50,000 per ozone season
- LIDAR Aerosol
  - ~\$30,000 per year
- LIDAR Ozone
  - ~\$75,000 \$100,000 per ozone season
- Aircraft flights
  - ~\$50,000 per ozone season
- Intensive Studies like DISCOVER-AQ
  - Multi-million \$
- Portable ozone monitor
  - ~ \$20,000





#### **Future Plans**

- MDE plans to continue our existing enhanced monitoring activities.
- Possible coordinated effort to develop an enhanced monitoring plan as a MARAMA effort or some other multi-state/multi-region/or OTR-wide umbrella plan.