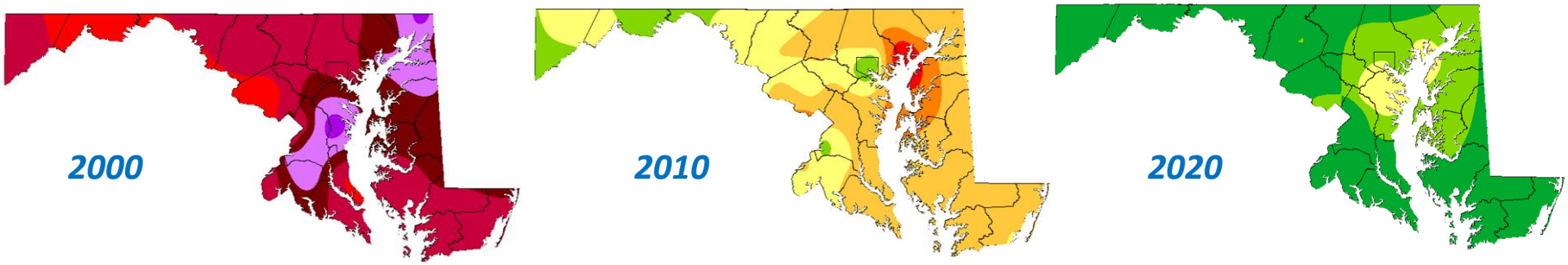
Maryland
Department of the Environment

Addressing Ozone From Upwind States

An Important Opportunity for MWAQC

Maryland's Shrinking Ozone Problem

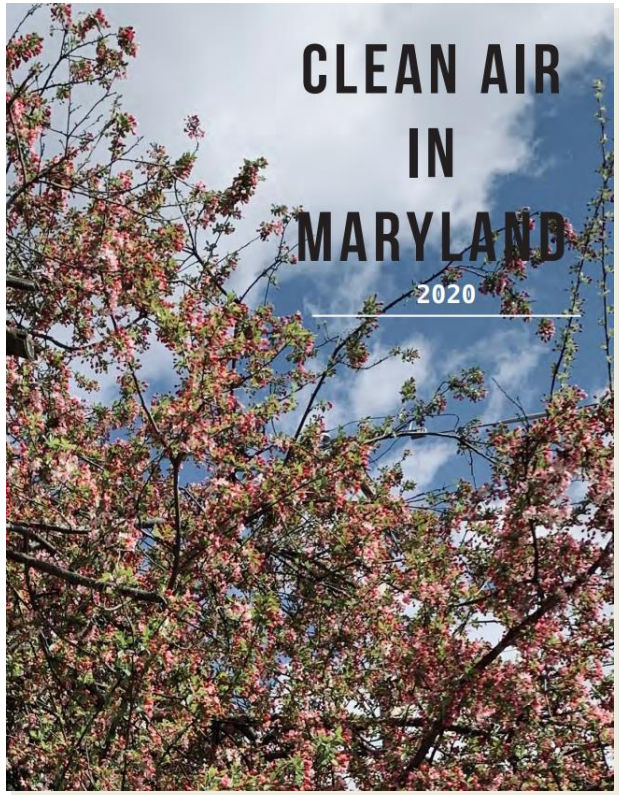


MWAQC Meeting – October 27, 2021

George S. (Tad) Aburn, Director, Air and Radiation Administration

Overview of Presentation

- Background on how ozone from upwind states significantly contributes to the ground-level ozone problem in the Washington DC area
- Why is 2021 a critical year to address this issue
- Opportunities for MWAQC to comment on key state and EPA actions



https://mde.maryland.gov/programs/Air/Pages/index.aspx

Our Ask of MWAQC

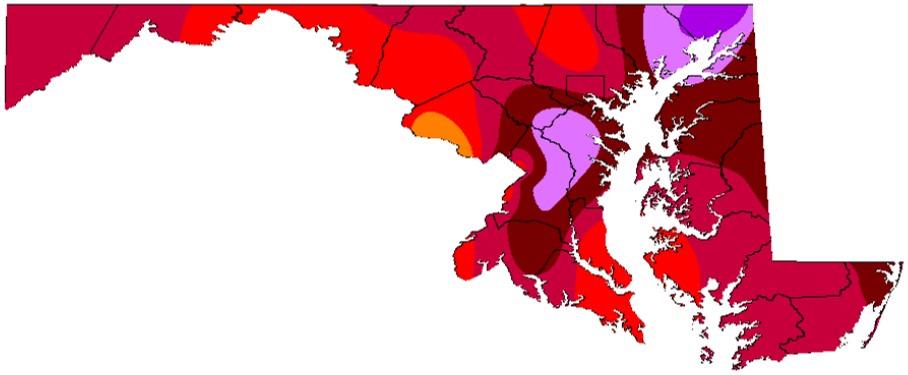
- Submit general, policy level comments on specific state and EPA actions … stressing the need to fully address the significant contribution those upwind states make to the Washington, DC areas ozone problem
  - Multiple opportunities in 2021 and 2022
  - Could support more detailed comments from MD, DC and VA if appropriate
  - Maryland believes this is the single most important issue linked to the need to better protect public health from ozone exposure

30 Years of Ozone Transport Research

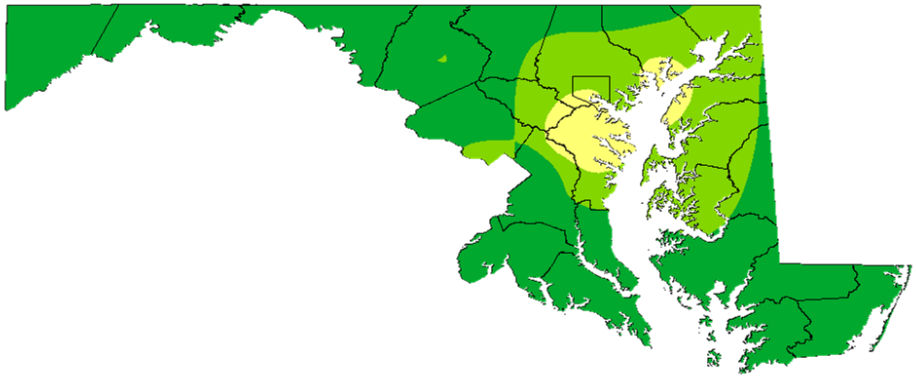
- The Maryland Department of the Environment (MDE) works in partnership with the other states, local universities (UMD at College Park, UMBC, and Howard University) and federal agencies (NASA, NOAA, NIST) to study ozone and fine particulate air pollution problems
- Major focus … Transport
  - Airplanes … Balloons … Lidar
  - Profilers … Satellites … Special monitors … Modeling … Much, much more
- Major driver of the last 15 years of progress. Key lessons learned:
  - About 70% of Maryland's and the DC Area's ozone problem originates in upwind states
  - Reducing nitrogen oxide (NOx) emissions from power plants and vehicles in MD and in upwind states will dramatically reduce ozone in Maryland and the Washington, DC nonattainment area

We have Made Huge Progress

1998

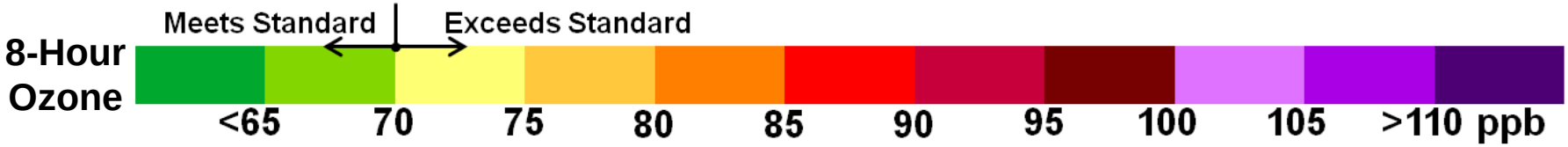


2020

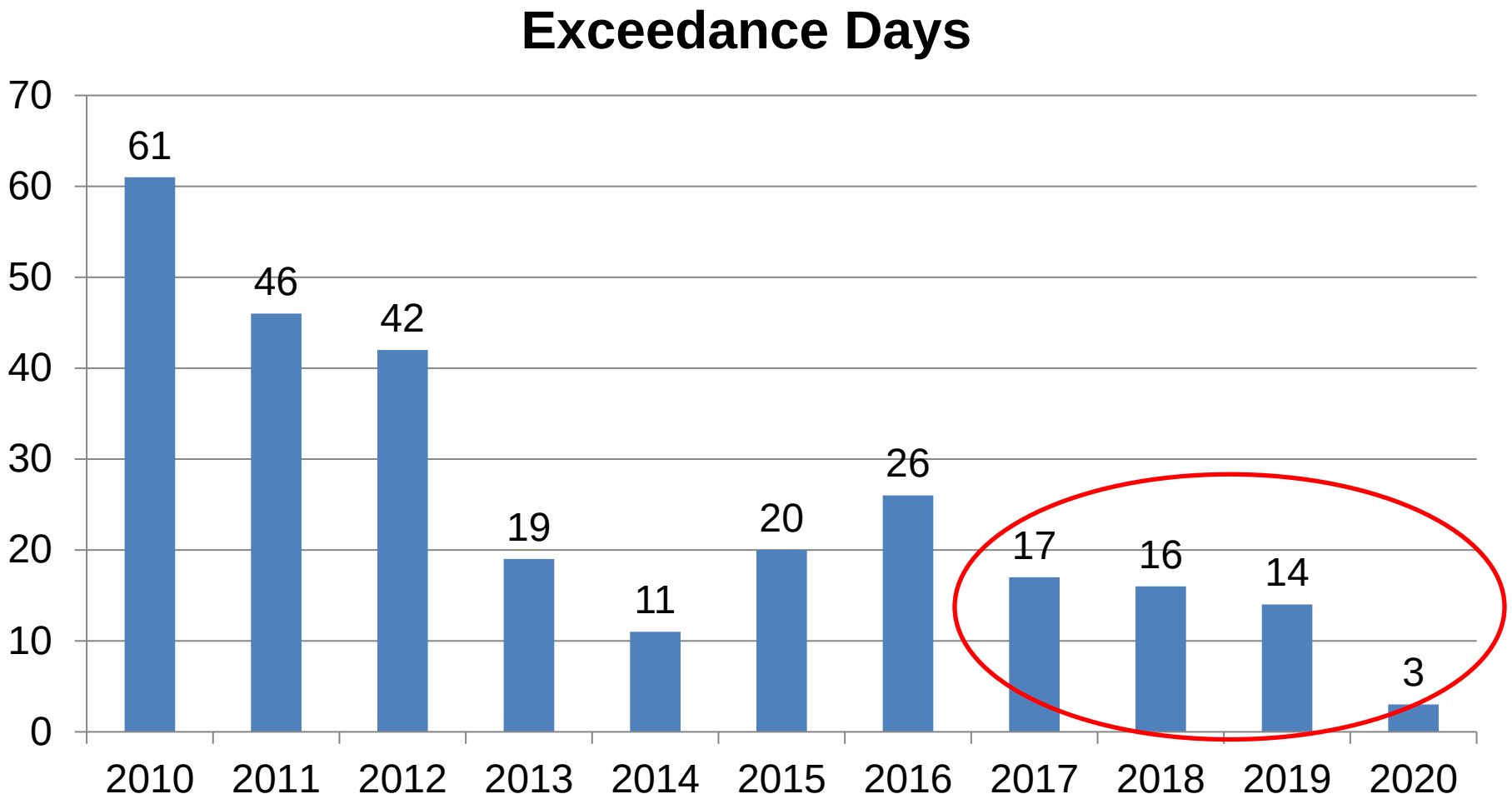


The Shrinking Ozone Problem

Lower Ozone Levels and Significant Spatial Risk Reduction



Getting Close … But Still More to Do



Transport and the Washington Nonattainment Area

How Much of the Washington Area Ozone Originates in States upwind of MD/VA/DC?

- A quick poll …. On your average bad ozone day in DC …
  - 25% … ?
  - 50% … ?
  - 70% … ?
  - 90% … ?

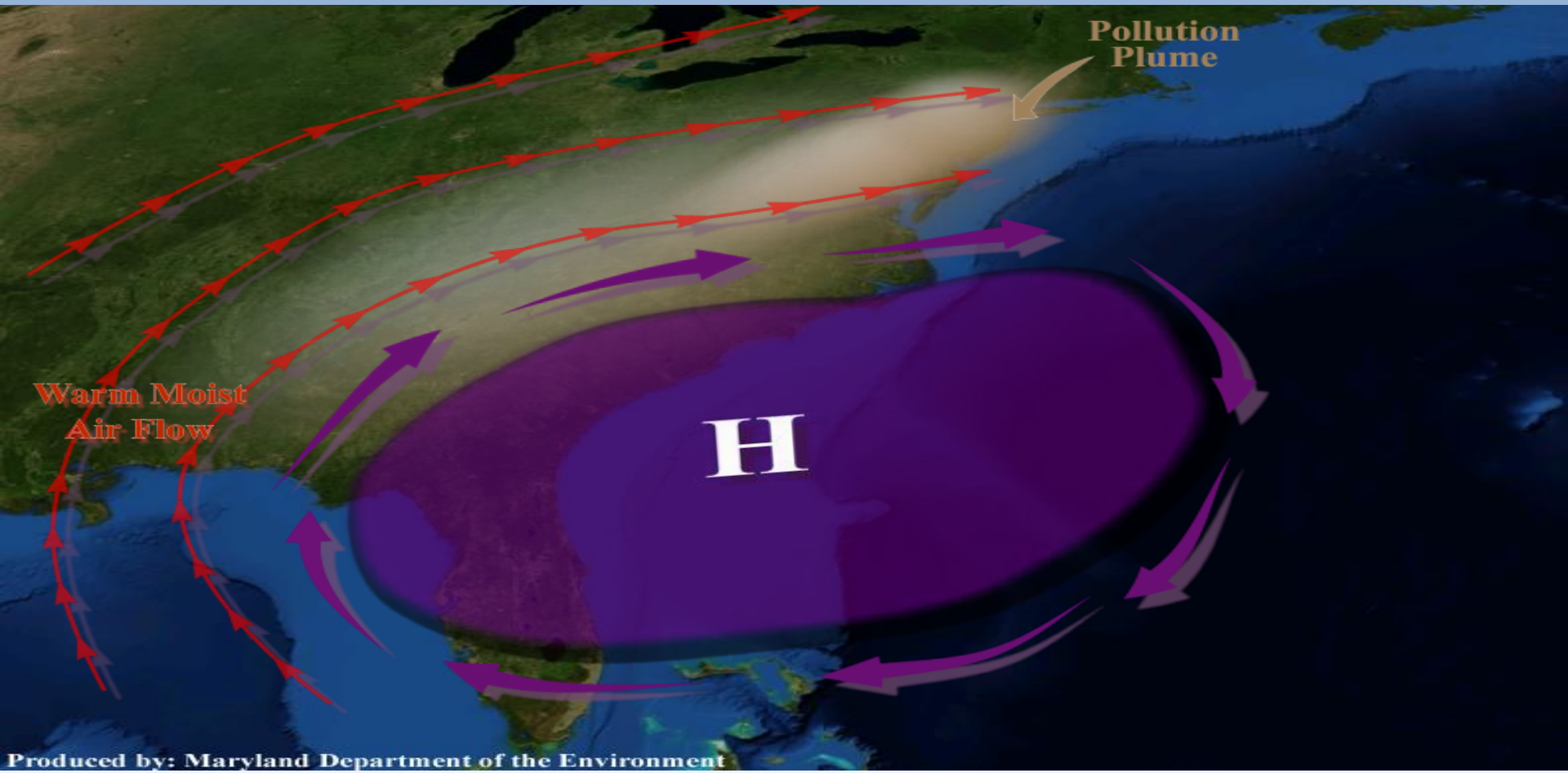
Each Day is a Little Different …

- On your average bad ozone day in DC …
  - About 70% of the areas problem originates from sources outside of DC, VA and MD
  - On the very worst days, the upwind contribution can approach 90%

Which Upwind States?

- Primarily five states with quite a few coal-fired power plants … to the west of the Washington, DC nonattainment area
  - Pennsylvania
  - West Virginia
  - Ohio
  - Kentucky
  - Indiana

- Why from the West? … Classic ozone weather for the DC area
  - Bermuda high sets up over the Southwest
  - Winds circulate clockwise around the high
  - Ozone and ozone precursors from the Ohio River Valley states with coal-fired power plants pushed by winds into the Mid-Atlantic and the Washington nonattainment area



Why are 2021 and 2022 Important?

- Almost all of the recent bad ozone days in the DC area are driven by ozone transport weather patterns
- Upwind states and EPA are now compelled by multiple Court decisions and other deadlines to take significant actions to continue to reduce ozone transport in 2021 and 2022
  - SIP actions and permits for RACT (Reasonably Available Control Technology) in PA – Very important … going on right now
  - The EPA proposal and final decision on the Clean Air Act Section 184C Petition submitted by the OTC (Ozone Transport Commission) focusing on Pennsylvania coal-fired power plants
  - Good Neighbor SIPs for PA, WV, OH, IN and KY
- Multiple opportunities for states, MWAQC and other stakeholders to comment on these proposed actions

What is the Basic Issue?

- The coal-fired power plants in PA, WV, OH, KY and IN need to run their pollution controls every day
  - $$$ Billions invested … just not being run well
- This is already required by all other OTC states with coal-fired power plants including MD, VA, NJ, NY and DE
- This is allowed because these states have not adopted regulations with emission limits that apply every day …
  - They comply with weaker regulations that use cap-and-trade or other long-term emission trading and averaging concepts
- On most bad ozone days, this allows for over 30 tons of excess nitrogen oxide (NOx) to be released in just PA
  - This is a huge amount of excess NOx emissions
  - Eliminating NOx emissions is critical to reducing ozone
  - Maryland modeling showed a potential 5 ppb ozone benefit in DC … if PA simply requires that controls be run every day

How Could MWAQC Comment?

- MWAQC TAC could develop a short, policy level template for commenting on upcoming opportunities to comment on transport actions proposed by upwind states or EPA
- The template could then be used to draft action specific comments
- The MWAQC comments could be less technical … more policy oriented …
  - "Why addressing transport is critical to our region"
- The MWAQC comments could support or simply mention comments submitted by the MWAQC members representing the state air quality agencies

An Example of State Comments

- On October 11, 2021, MDE submitted comments to Pennsylvania on the draft SIP action/permit for the Keystone coal-fired power plant
- The comments are very technical
- Over 200 pages including Appendices
- MDE has shared these comments with TAC and is willing to share future comments and discuss technical issues with TAC if desired
- The District air program also submitted comments on this proposed action

DISCUSSION …. QUESTIONS

Would MWAQC Like to Submit Comments?