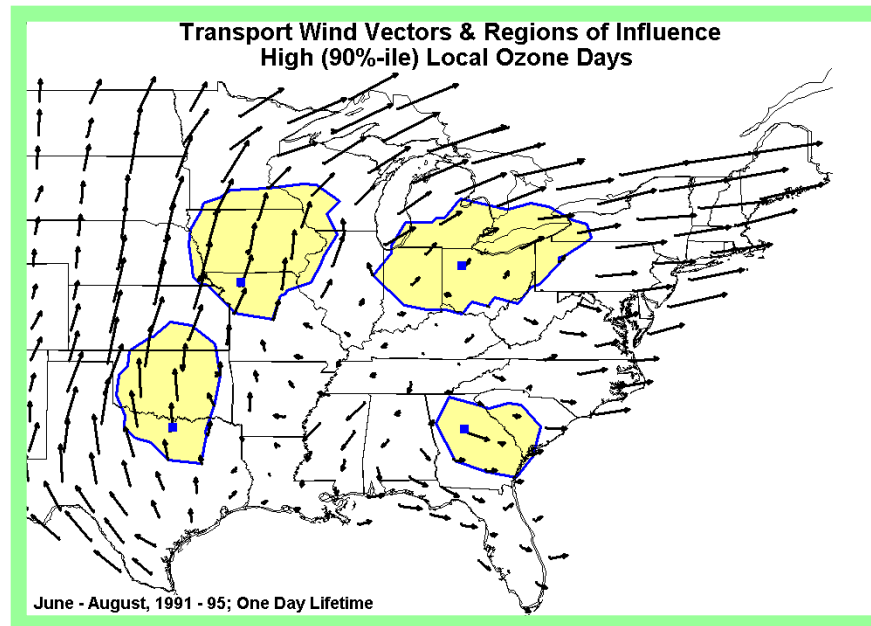




Department of the Environment

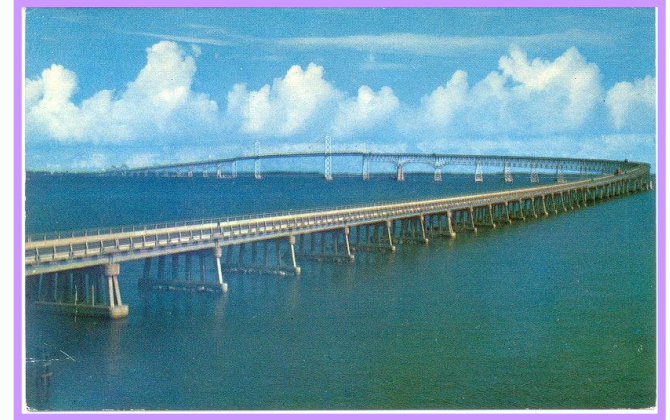
Legal Options to Address Ozone Pollution from Upwind States



MWAQC Meeting – October 24, 2012
Tad Aburn - Air Director, MDE

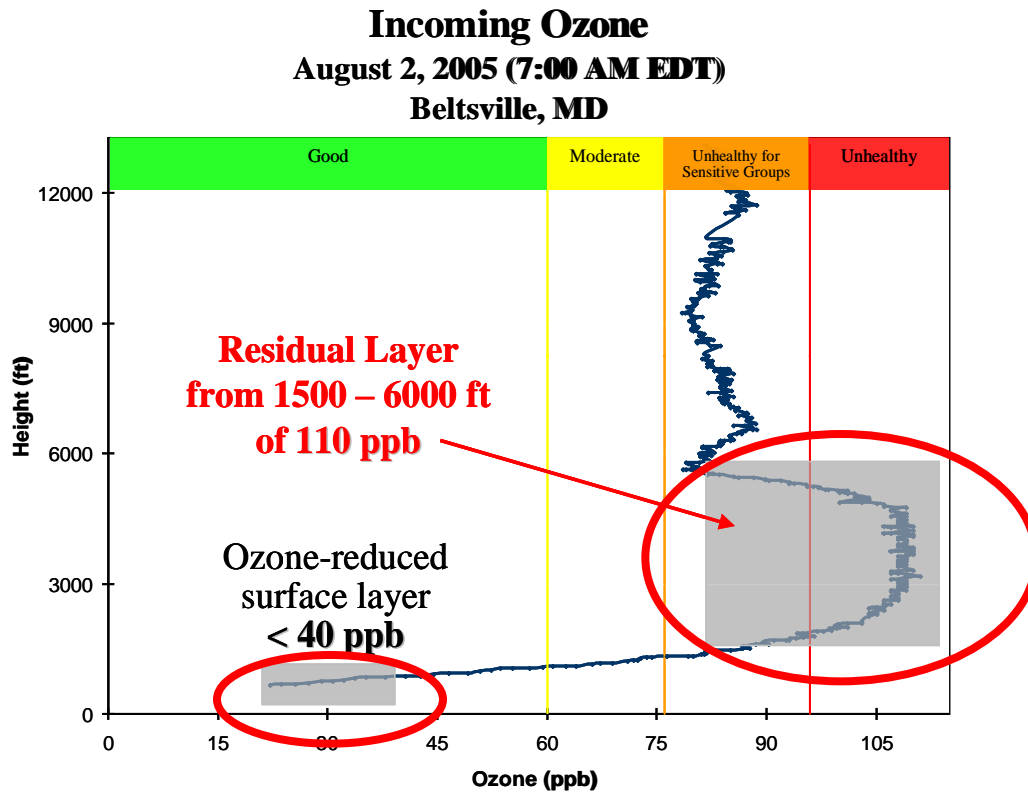


- Background
 - Why is this issue important?
 - What has already been done to reduce pollution from upwind states?
 - The Ozone Transport Commission's (OTCs) push for federal measures
 - The Cross State Air Pollution Rule (CSAPR)
 - Is it working?
- What else can states do?
 - Options to address transport



Wind Happens !!

... On most bad ozone days, 70% or more of the Washington DC areas ozone problem comes from upwind states

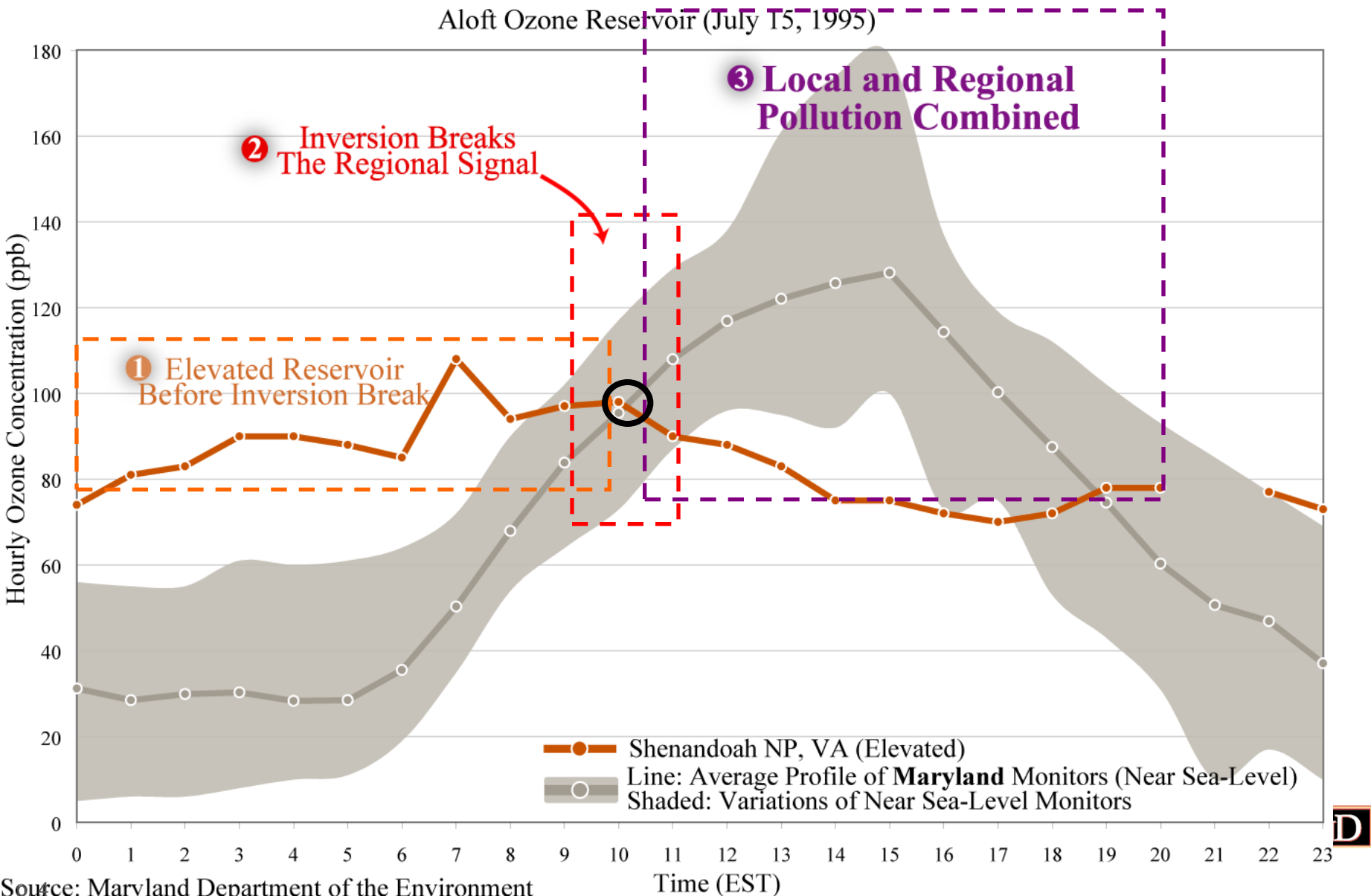


Source: Maryland Department of the Environment & Howard University

- Overnight, a large cloud of transported ozone – an elevated “ozone reservoir” - is trapped aloft (about 2000 feet) by a meteorological phenomena called the nocturnal inversion
- This trapped pollution often comes from sources that are hundreds of miles away

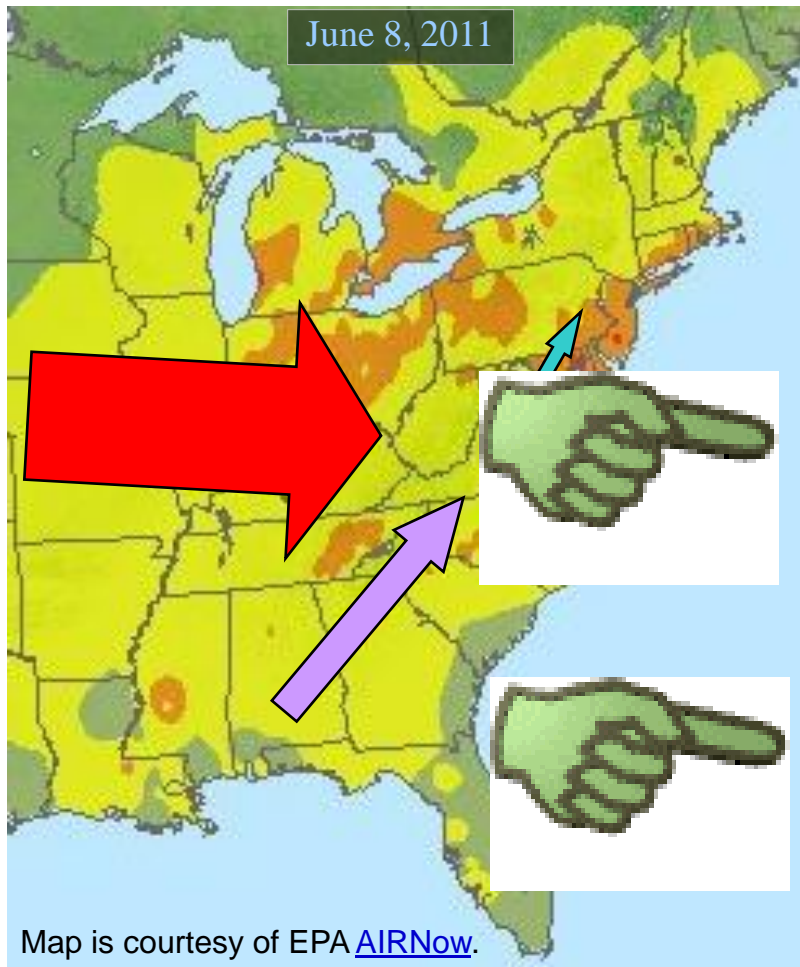


The Daily Ozone "Pattern"



Air Pollution “Transport”

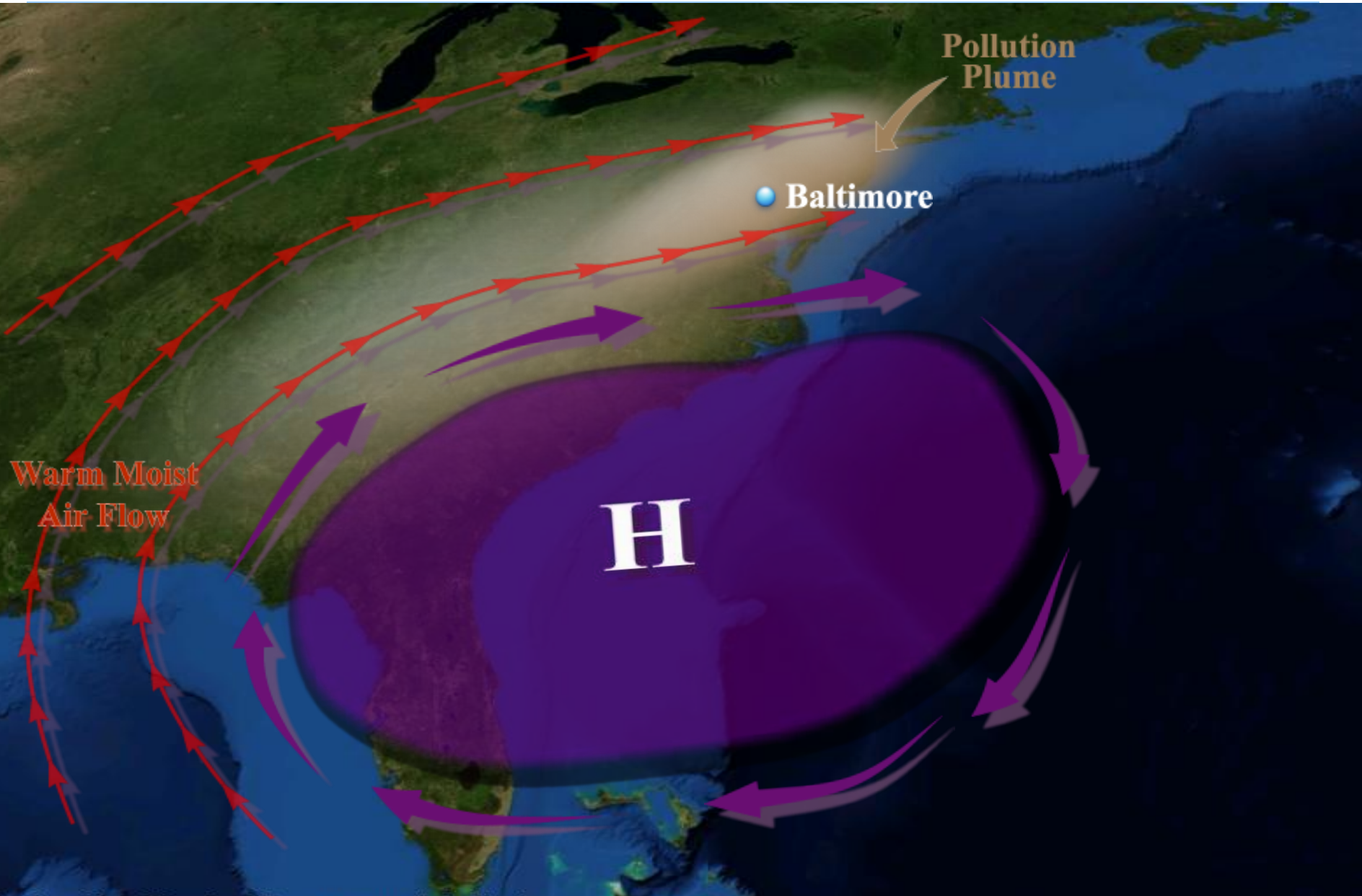
Air Pollution that Travels with the Wind



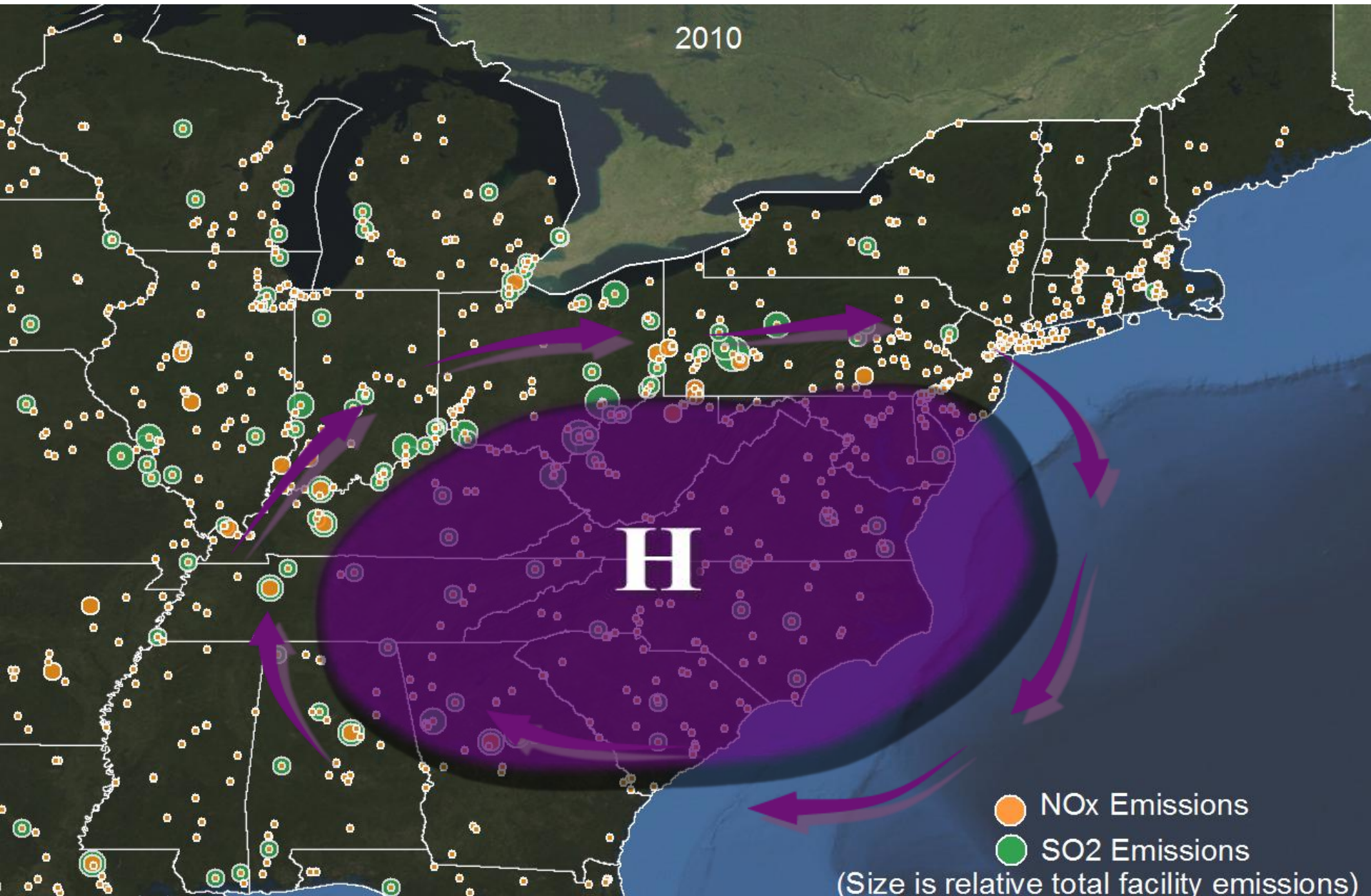
- Three distinct types of transport
 - Short range - City to City
 - “Ground level” transport
 - Washington to Baltimore, Baltimore to Philadelphia, etc.
 - Westerly, Long range transport
 - “Aloft” transport - 100s of miles
 - Generally from W or NW
 - Southerly, Nocturnal Low Level Jet (NLLJ) Transport
 - “Aloft” transport at night !!!
 - 100s of miles
 - SW to NE along the Atlantic



Classic Mid-Atlantic Ozone Weather

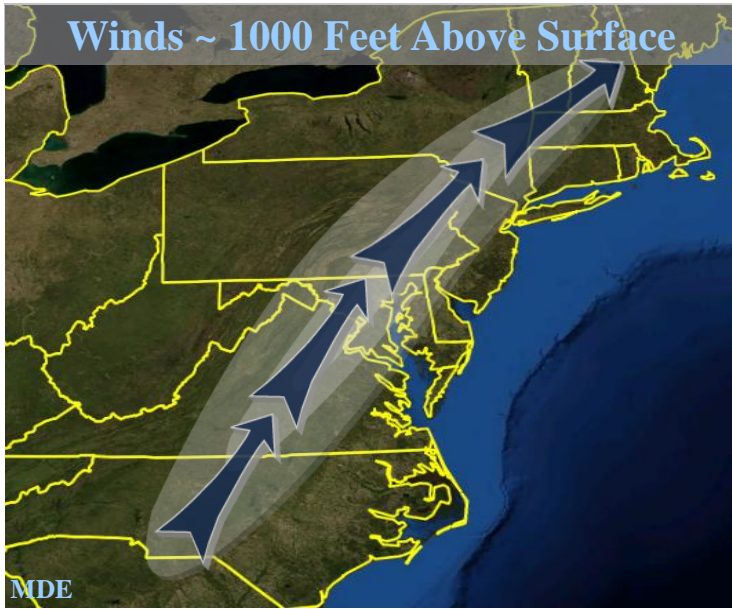


Westerly Transport



Southerly Transport at Night

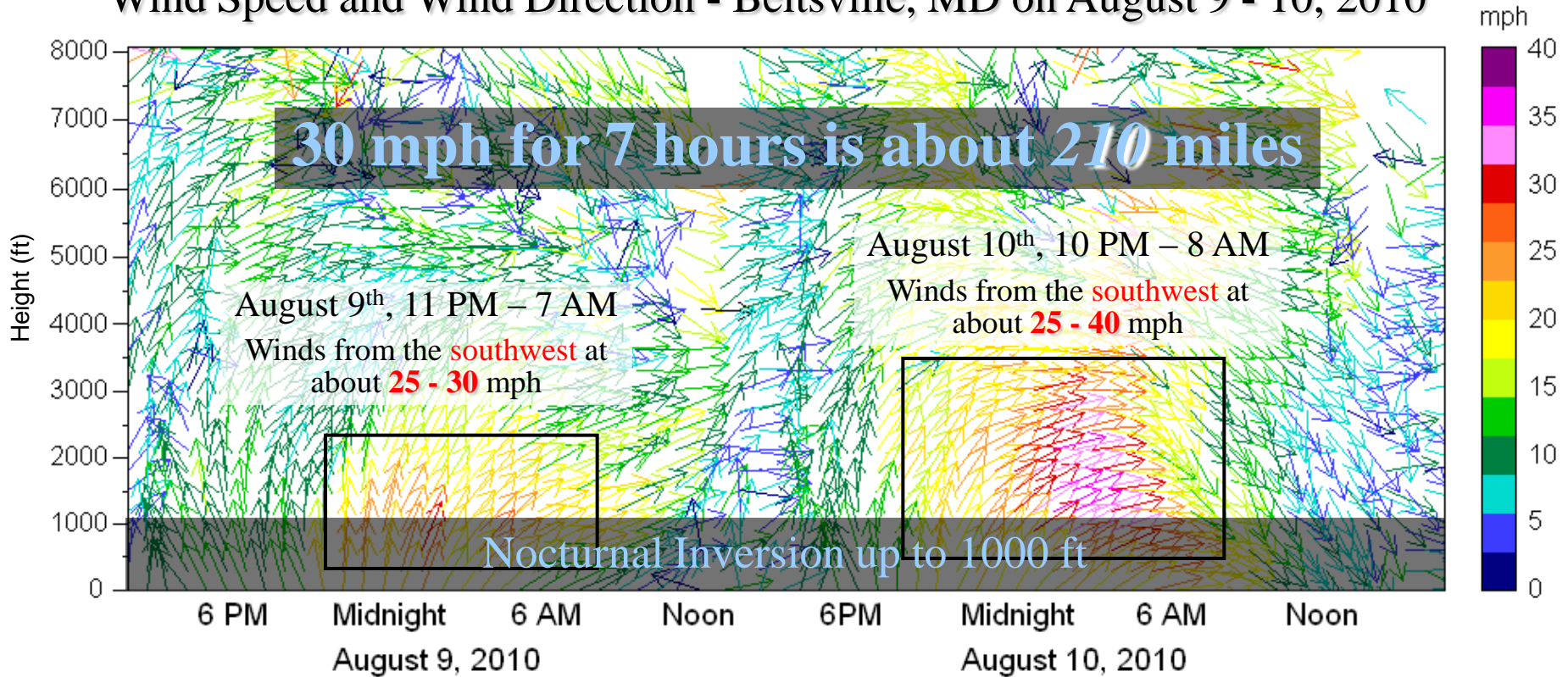
The Nocturnal Low Level Jet (NLLJ)



- ❑ Recent discovery because of new technologies
- ❑ A fast-moving, narrow “river” of air typically around 1000 feet above the surface
- ❑ In the Mid-Atlantic, typically observed during the night between Appalachians and the Atlantic Ocean.
 - Wind speeds can reach 40 mph or more.
 - Stretches from NC to MD to NJ and further up the east coast.
- ❑ Seen during most, Mid-Atlantic summer-time air pollution events.
 - Some form of NLLJ on virtually all code orange or red days
- ❑ Recent findings indicate:
 - Presence of a NLLJ increased Washington maximum ozone 7 ppb.
 - Ozone concentrations of 90 – 100 ppb have been measured in the NLLJ.

Measuring Night-Time Transport

Wind Speed and Wind Direction - Beltsville, MD on August 9 - 10, 2010



What does this graph tell us?

- Wind direction
- Wind speed
- From the ground up

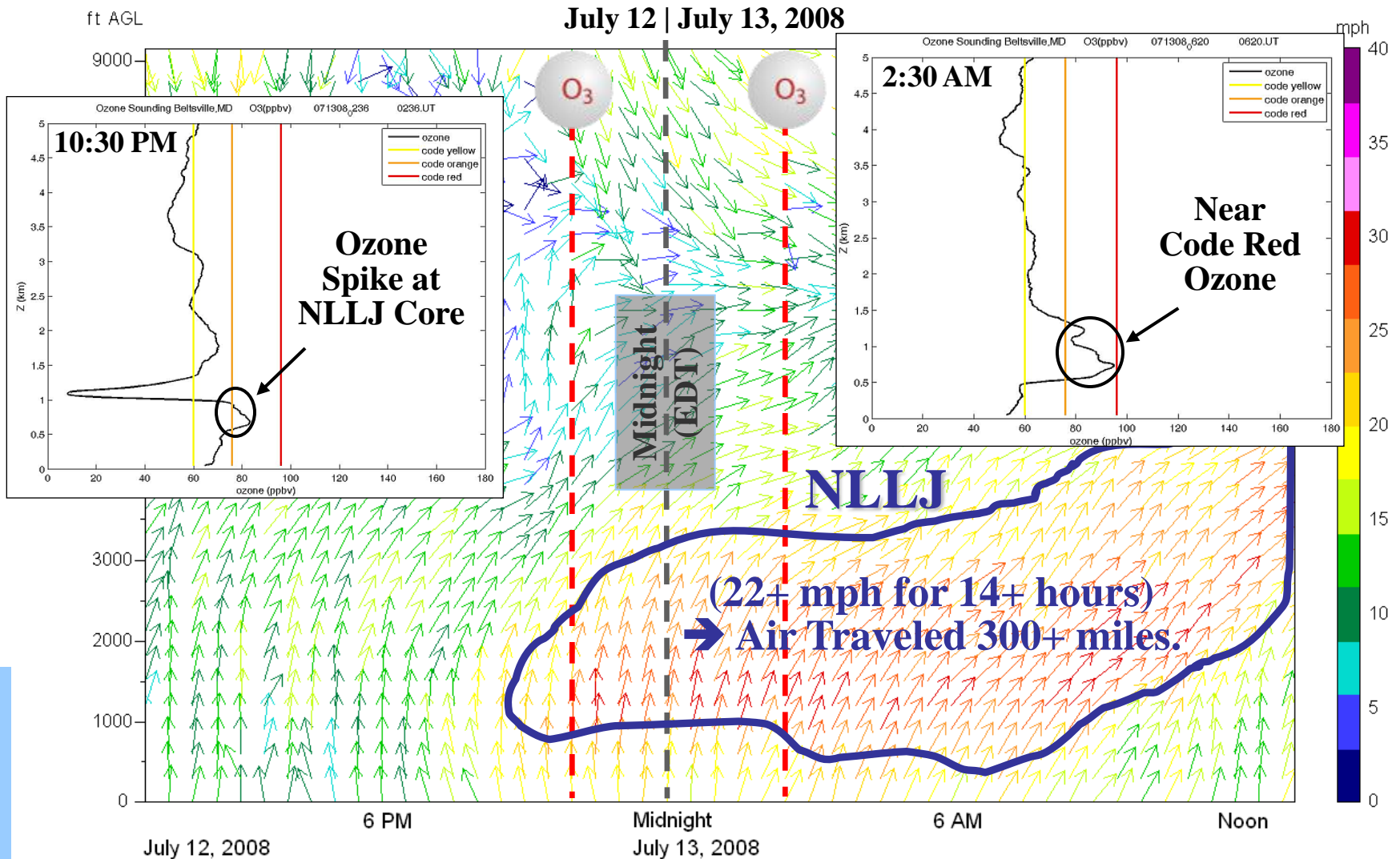
Upper-Air Radar Wind Profiler & RASS (MDE)





Measuring Ozone Transport in the NLLJ

Howard University launched 4 ozonesondes on July 12-13, 2008. The 10:30 PM (Saturday, July 12th) and 2:30 AM (Sunday, July 13th) occurred during a NLLJ event, as captured by MDE's Wind Profiler.



How Can Transport Be Addressed?

- Best Approach ...
 - EPA adopts federal control programs that reduce emissions across the nation or across a large region (like the East)
- Option 2
 - The Clean Air Act’s “Good Neighbor Provisions”
 - Section 110A2D – The CAA requires EPA to make sure that upwind states that contribute significantly to problems in downwind areas include measures in their SIPs to address that contribution
 - Has really not worked very well
- Last Option
 - Take legal action against EPA and other states to compel reductions



Pushing Federal Measures

... as the best tool to address transport

- Multiple OTC actions on federal measures over the past 3 years
 - Support for federal measures to reduce transport from almost all 50 states
- The OTC has built a very strong scientific basis for the need to reduce regional emissions with federal measures
 - Analyses of past efforts show that these regional emission reduction programs will work



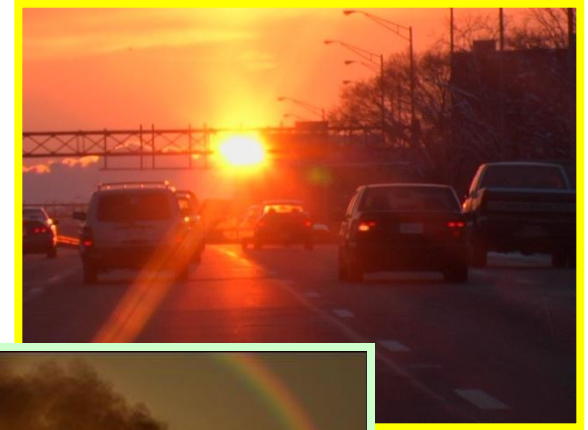
The Priority Source Categories

The OTC National Asks:

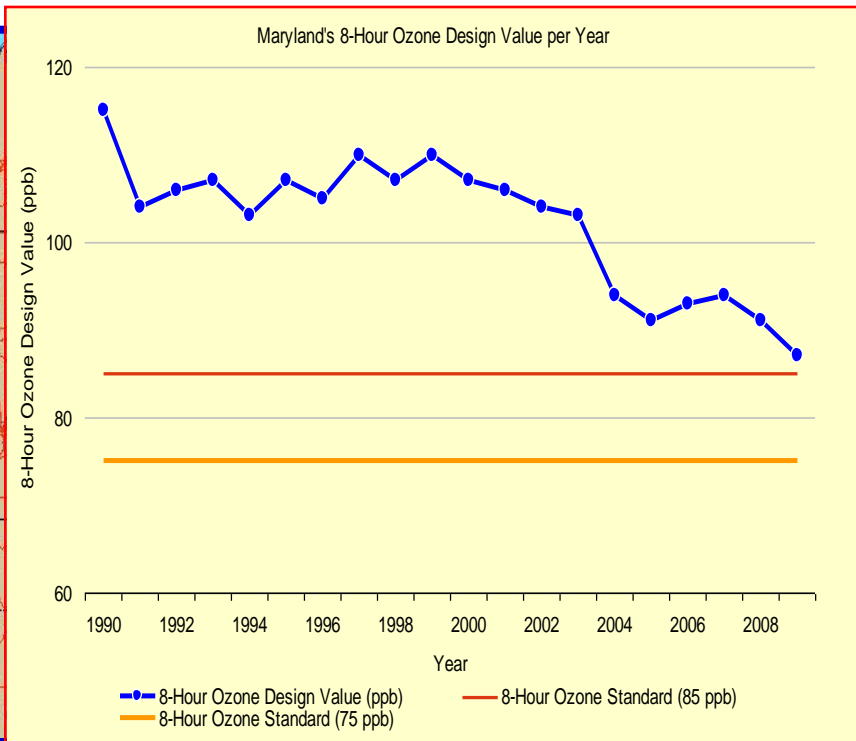
- Power Plants (EGUs)
- On-Road Vehicles – Cars and trucks
- ICI Boilers
- Cement Kilns –
- Marine Engines
- Locomotives

These represent ...

- 75 % of the NO_x left to regulate
- 85 % of the SO₂ left to regulate
- 75 % of the 2005 Hg emissions

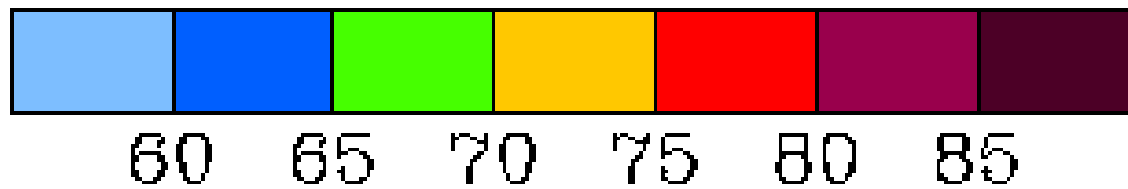
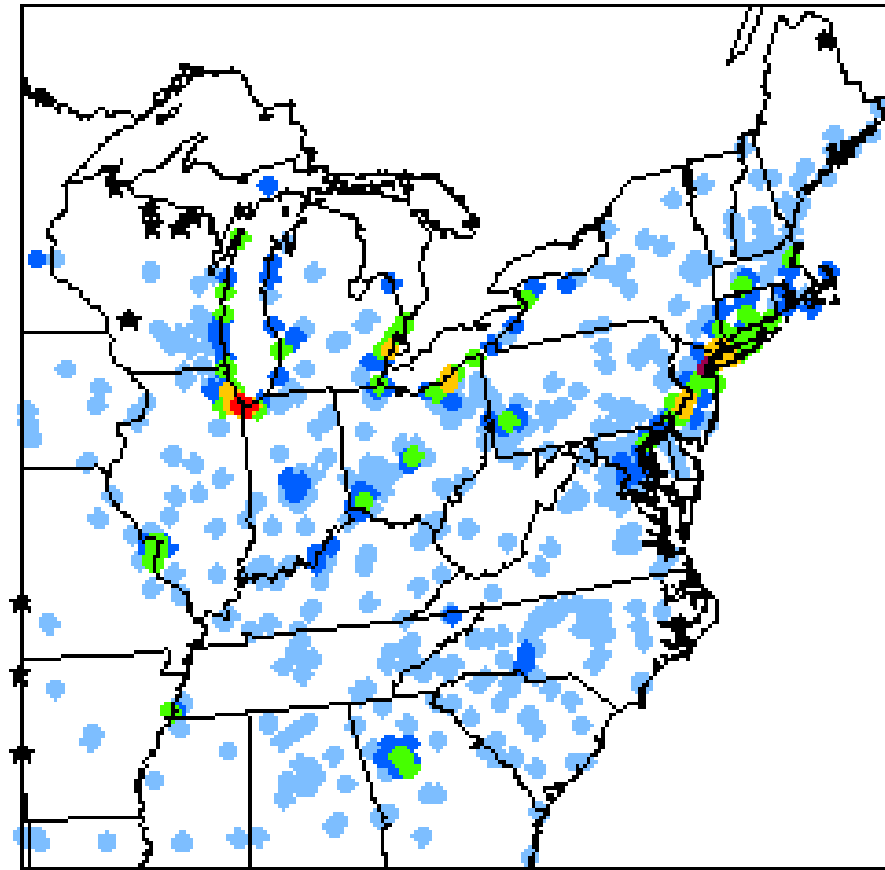
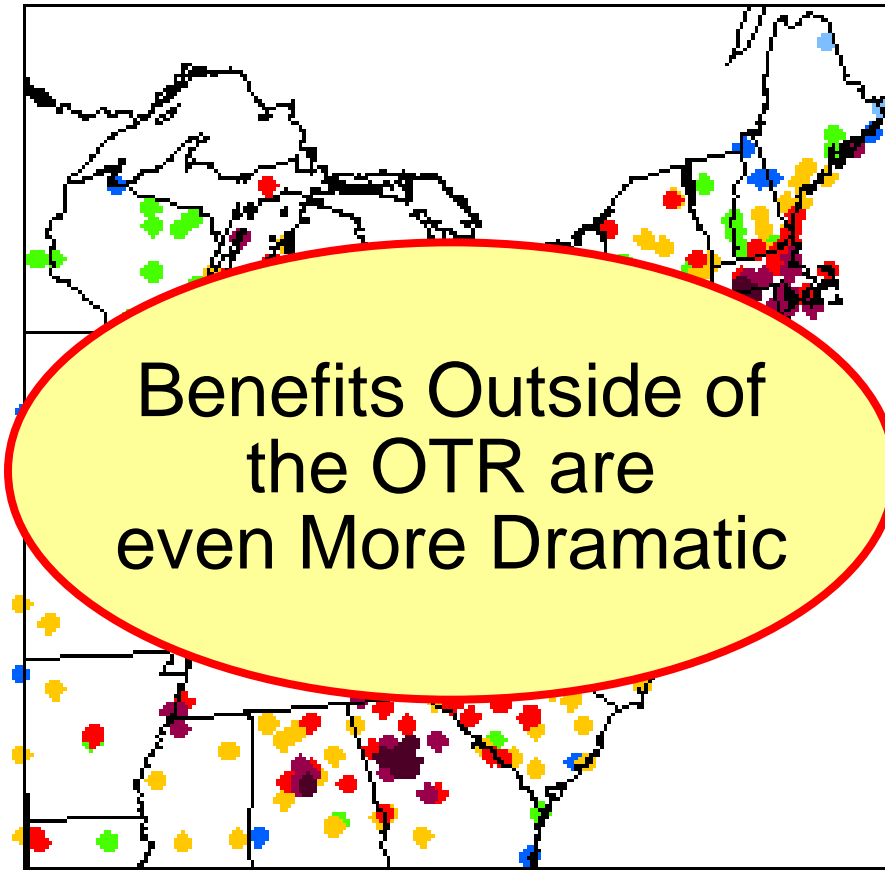


Ground Level Ozone Drops Dramatically in the Same Time Frame



- Because they work!
- The classic ozone transport story
 - Incoming ozone levels (as high as 80 ppb) collect in an elevated reservoir over night
 - Real world programs like the NOx SIP call have shown that
 - Adding regional controls ...
 - Results in regional NOx emission reductions ...
 - Which lead to reduced ozone in the elevated reservoir ...
 - Which lead to lower ozone at ground level and public health protection!

Will Federal Measures Get Us to 75 ppb?



Status of EPA's Federal Measures?

- Federal rules for all key categories in some stage of adoption or proposal
 - Kudos to EPA for trying
 - Tier 3/low sulfur fuel and CSAPR are two good examples of EPA's efforts on federal rules to reduce transport
 - That said ... many of EPA's current efforts fall short in reducing NO_x – the key to reducing ozone transport
 - For example, EPA has promised to do more with NO_x – in CSAPR “#2”
 - » CSAPR #1 just rejected by the Courts
 - Even worse – Most EPA rules that are being proposed are being challenged or delayed





Other CAA Transport Tools

- These are legal actions provided for under the CAA that an individual state or a group of states can initiate:

- Giant non-attainment areas
- Section 126 Petitions against stationary sources
- Section 110A2D “Good Neighbor” requirements
- Section 176A (or 184) Petition to create new, much larger “Ozone Transport Region”
- Another “state partnership” effort

- Daughter of OTAG
- One, none or some combination of above?
 - All under consideration by a group of states

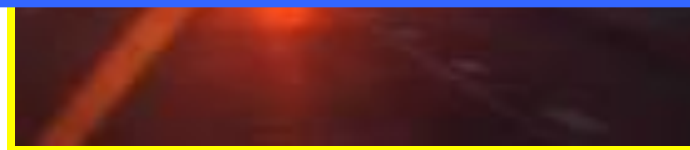


Regional planning committees – like MWAQC – could participate !!!



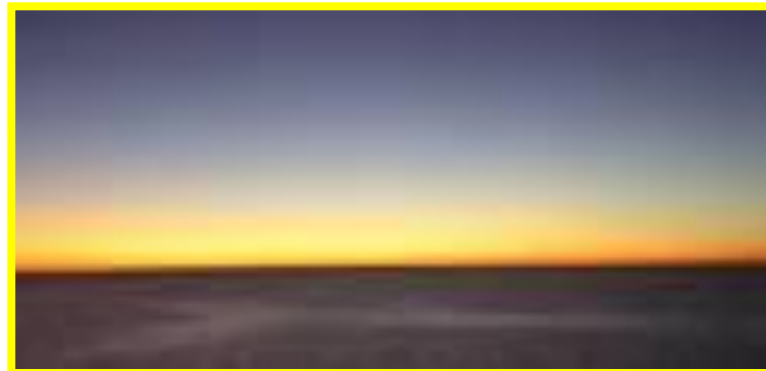
The Giant Nonattainment Area

- Would include all of the “contributing” areas in a large non-attainment area for the 75 ppb standard, and would be based on a “science” or “airshed” basis
 - A 15 to 20 state non-attainment area
- CT, DE, DC* and MD have moved forward with this option
 - EPA finalized designating traditional, small nonattainment areas in May
 - Legal challenge to EPA’s decision initiated by DE



Section 126 Petitions

- The classic upwind transport tool
- States can petition EPA to require controls on specific (or groups of) stationary sources that contribute to non-attainment in downwind areas
- Many OTC states have used Section 126 petitions in the past
- Presumes quick action by EPA if the Petition is successful



CAA “Good Neighbor” Provisions

- Section 110A2D requires upwind states to include control measures in their SIPs to address transport
- In the past, regional control programs like the NOx SIP Call and CAIR have allowed upwind states to easily comply with 110A2D
 - There is no such regional control program for the 75 ppb standard
- The 110 SIPs - for the 75 ppb standard - were due in early 2011
 - Legal challenges (by environmental groups) have already been initiated





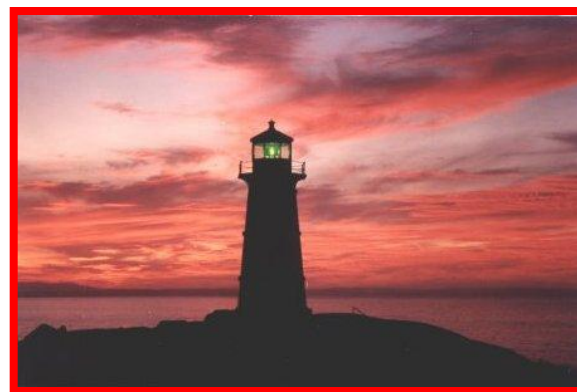
The Section 176A-184 Petition

- Allows a state – or a group of states – to petition EPA to expand the current Ozone Transport Region
 - Would result in a 20 to 30 state Transport Region
 - Works from same kind of significant contribution concept as CSAPR
 - Would require super-regional planning, New Source Review (NSR), conformity and RACT (Reasonably Available Control Technology) across the region



Another OTAG?

- OTAG – The Ozone Transport Assessment Group
 - An early 1990's, 38 state partnership that lead to the 2004 NOx SIP Call
- Success in distant past with OTAG and more recently with the Northeast/Mid-Atlantic/Midwest 17 State Collaborative
- Technical partnership between the Northeast, Midwest and Southern Regional Planning Organizations (RPOs) has been a major success



CT Governor Dan Malloy

- Description

- Much more

“Those of us in the Northeast have a simple message for our friends upwind: it is time for you to act. While we have invested heavily in cleaning up our power plants for too long, many states have failed to do the same. This failure threatens the health of our citizens, damages sensitive ecosystems, and distorts economic activity,” said Connecticut Gov. Dan Malloy (D) in an address at the meeting.

“Let me be clear about this -- our patience has run out. The time to curb these emissions is now. If necessary, the Northeast states will press this case at the highest levels of our federal government and the highest courts in our nation,” Malloy said.

ECOS Meeting - June 7, 2012

Questions?

