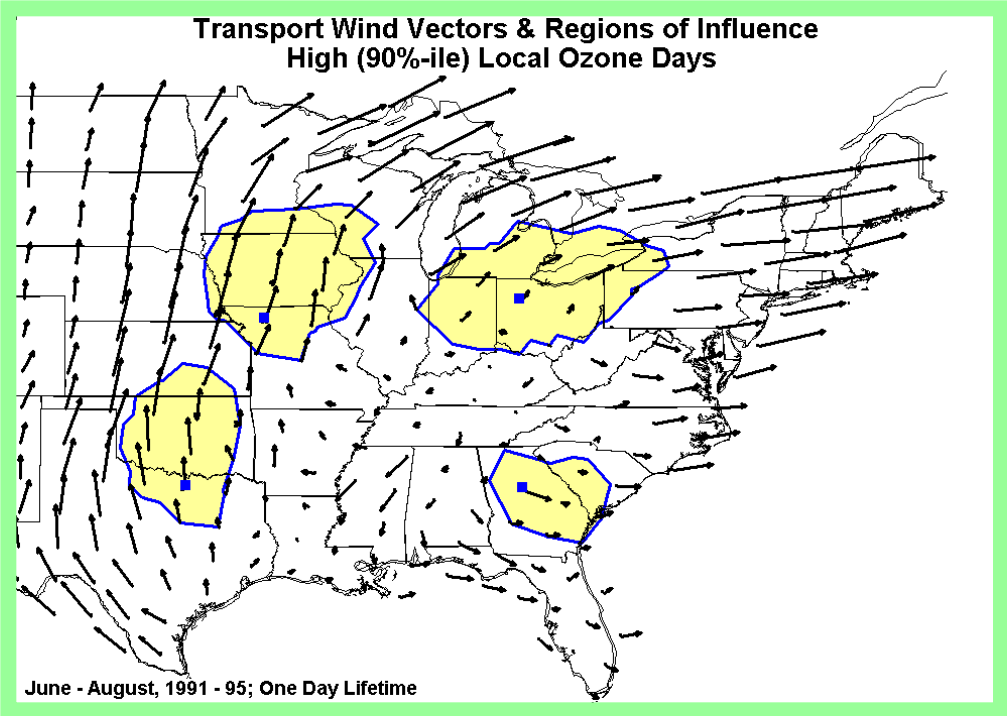
Item 4

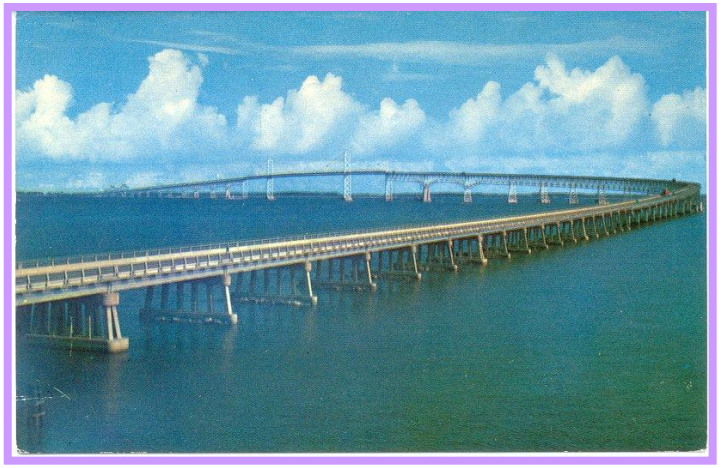
Legal Options to Address Ozone Pollution from Upwind States



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

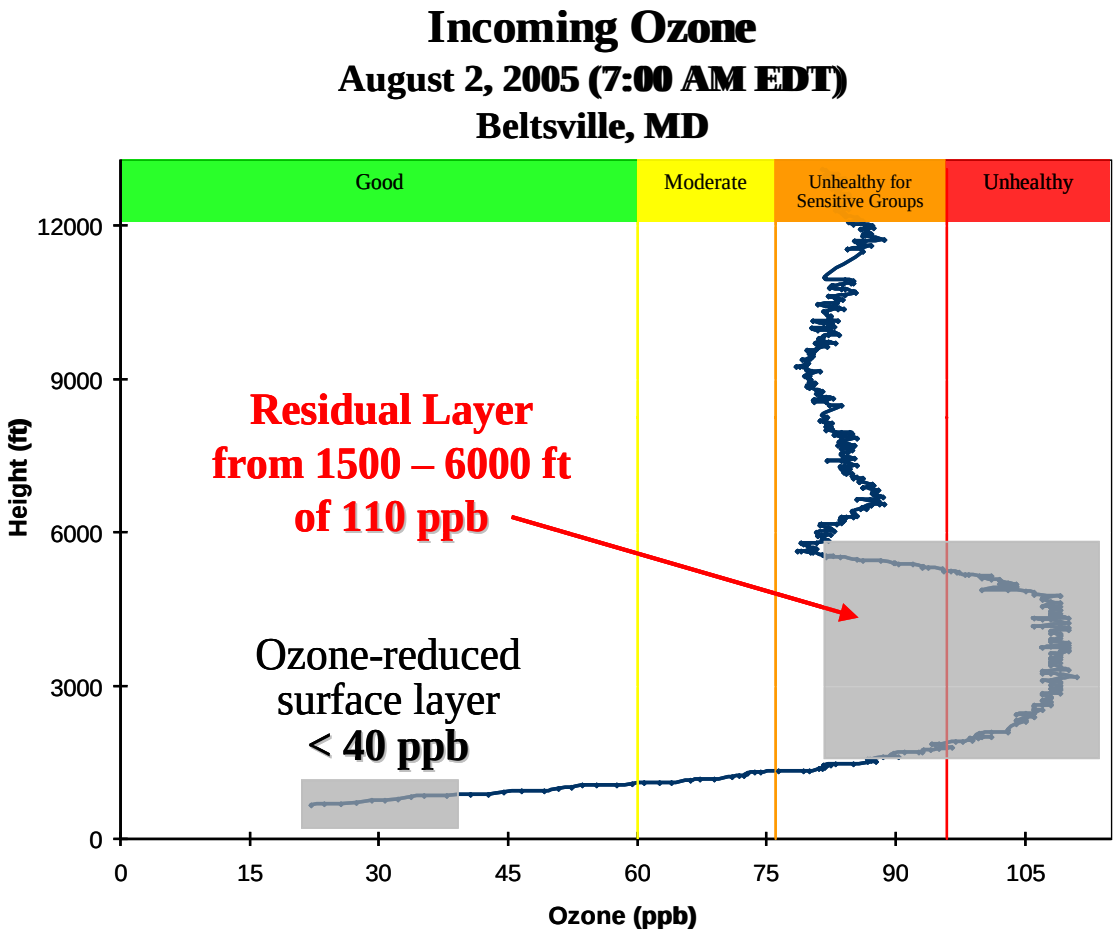
Topics

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



So What the Heck is Going On?

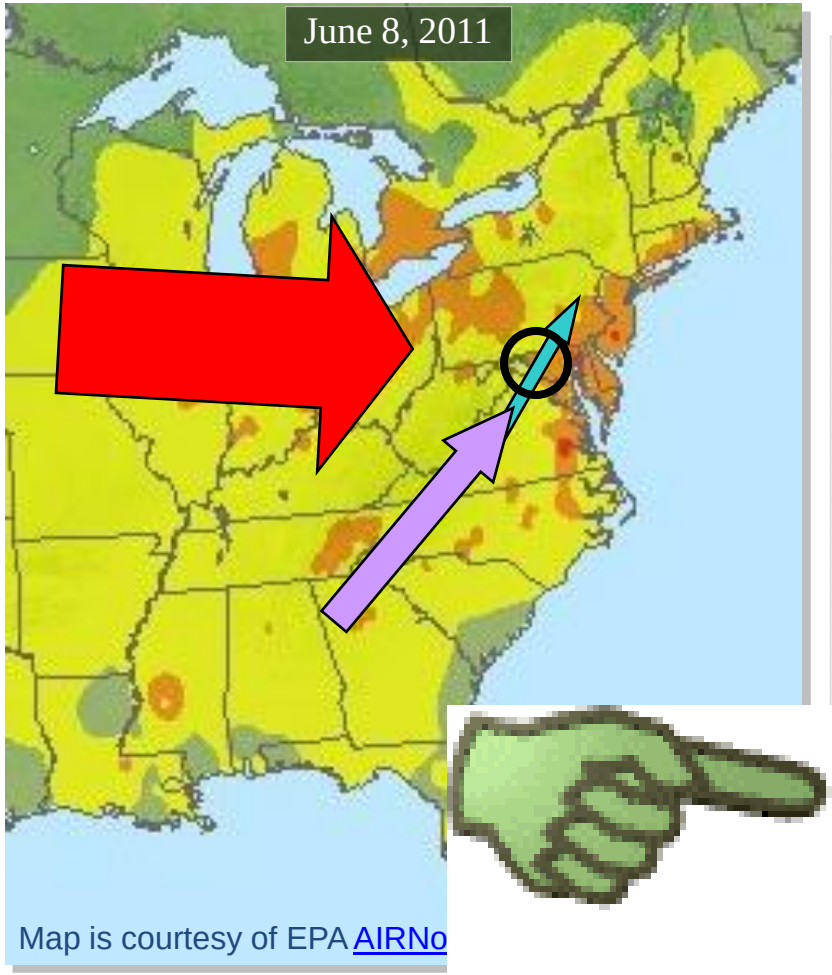
… Why does Baltimore measure the worst ozone in the East?



Source: Maryland Department of the Environment & Howard University

A Simplified Conceptual Model

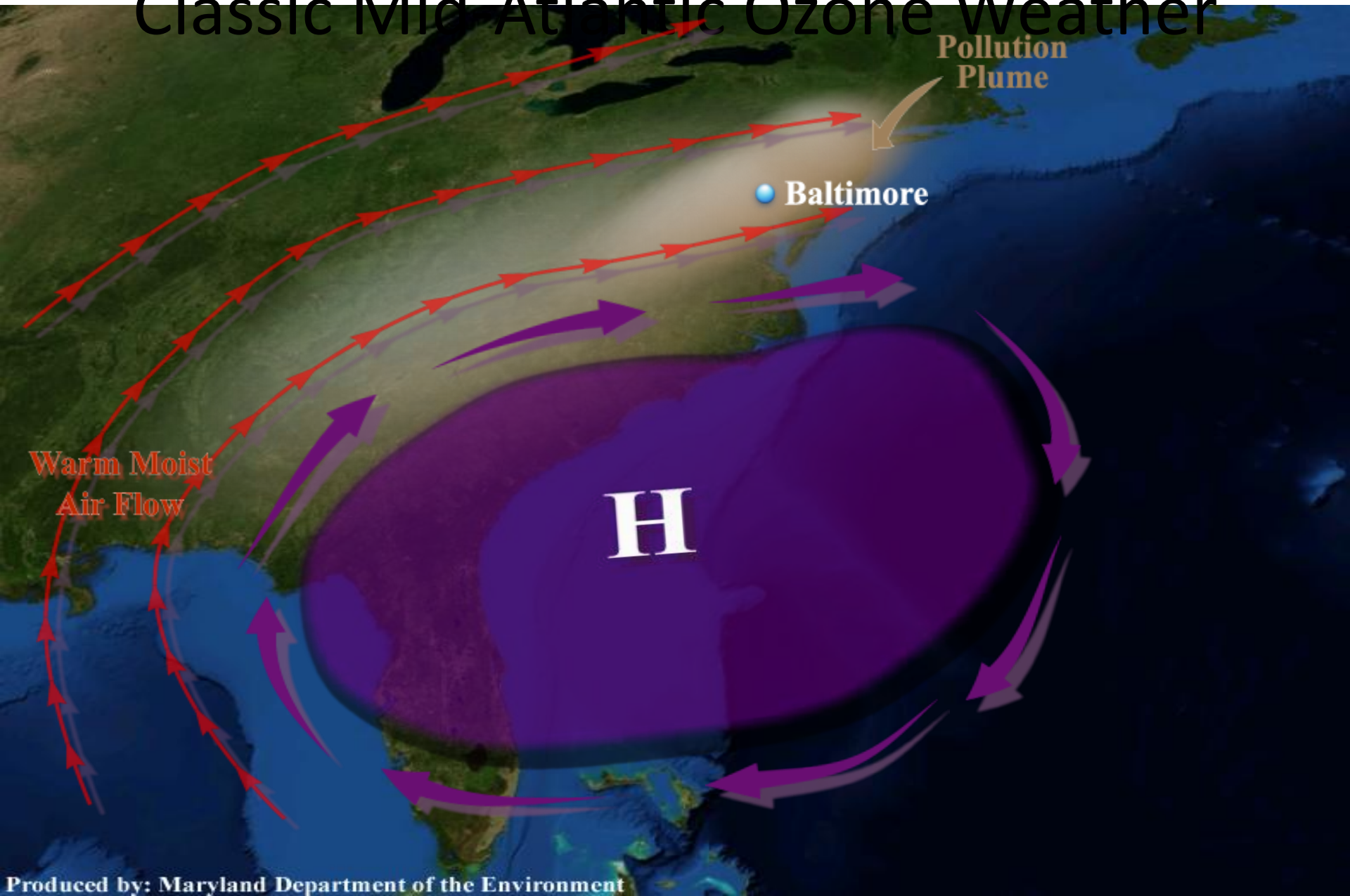
Four Distinct Parts



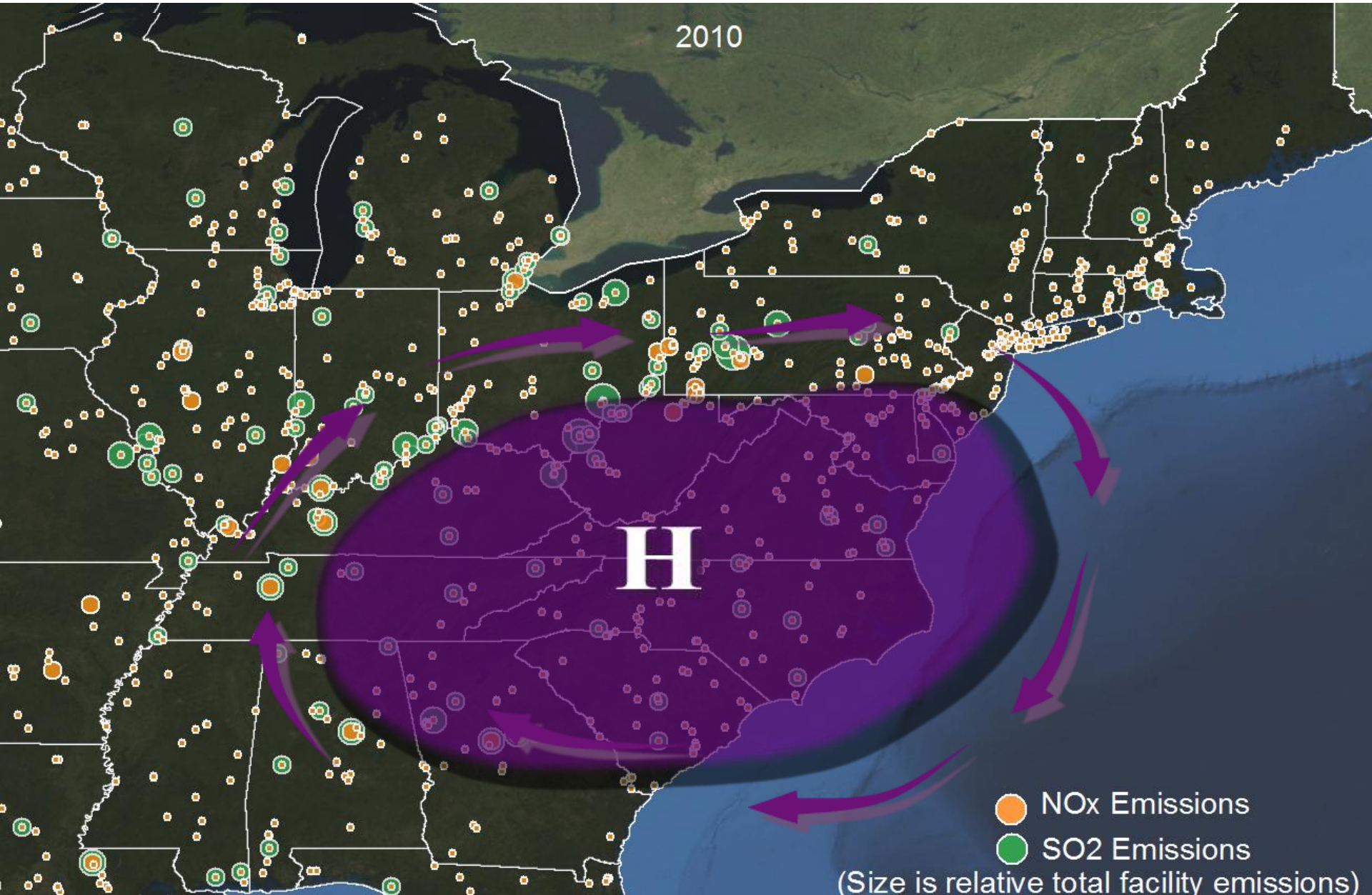
Map is courtesy of EPA AIRNo

- **Local emissions in Cities (nonattainment areas)**
  - **Reducing local emissions can be important**
    - **If you're smart**
- **Three distinct types of transport**
  - **Short range - City to city**
    - **"Ground level" transport**
    - **Washington to Baltimore, Baltimore to Philadelphia, etc.**
  - **Westerly, Long range (up-over-and-down)**
    - **"Aloft" transport - 100s of miles**
    - **Generally from W or NW**
  - **Southerly, Nocturnal Low Level Jet (NLLJ)**
    - **"Aloft" transport at night !!!**
    - **100s of miles**
    - **SW to NE along the Atlantic**

Classic Mid-Atlantic Ozone Weather

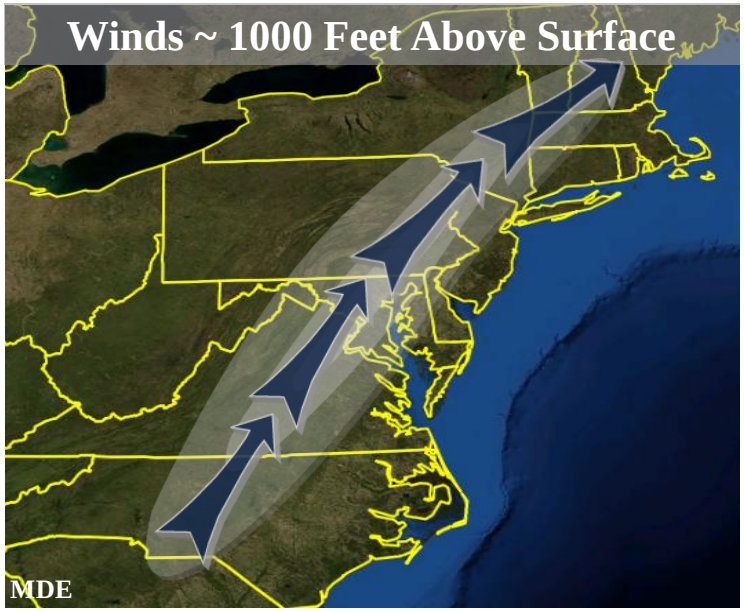


Westerly Transport



Southerly Transport at Night

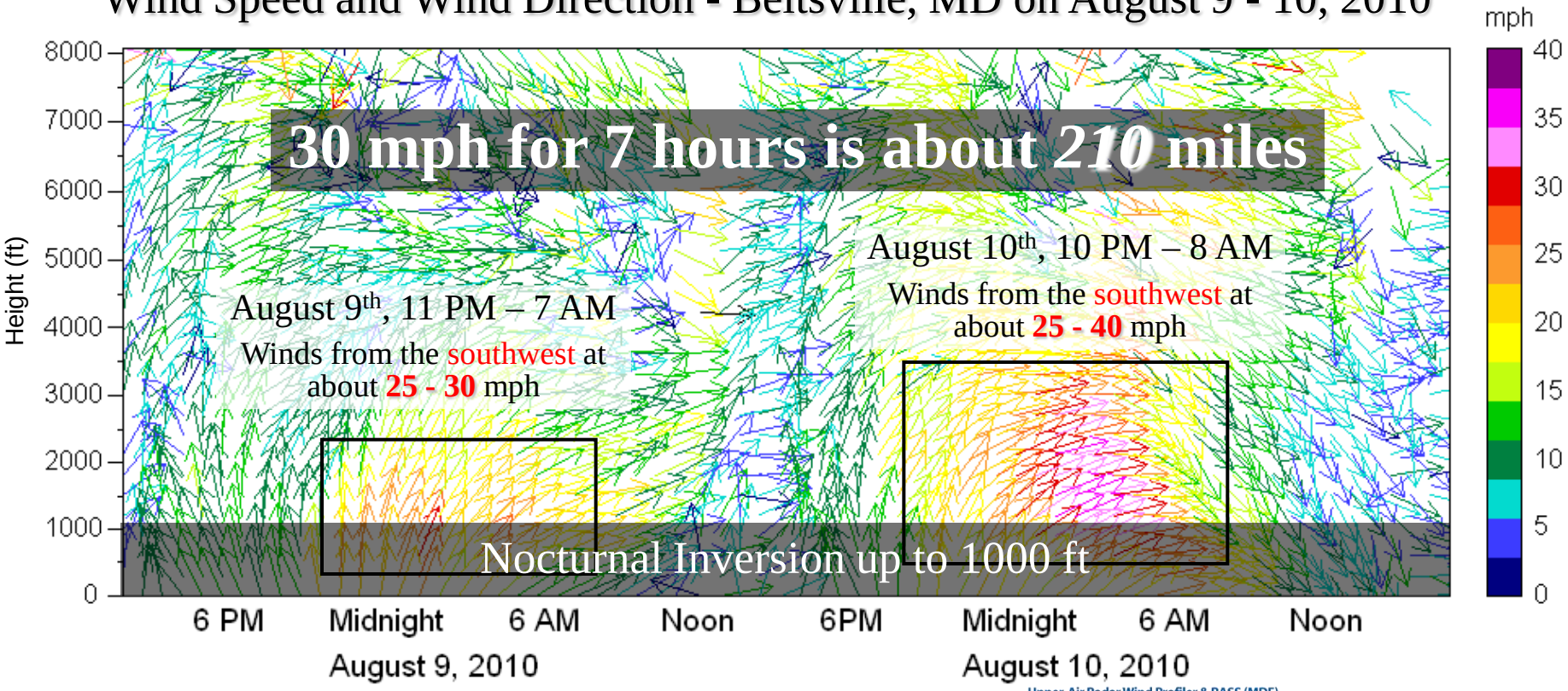
The Nocturnal Low Level Jet (NLLJ)



- 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 Baltimore maximum ozone by 7 ppb.
  - Ozone concentrations of 90 – 100 ppb have been measured in the NLLJ.

Measuring the NLLJ

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

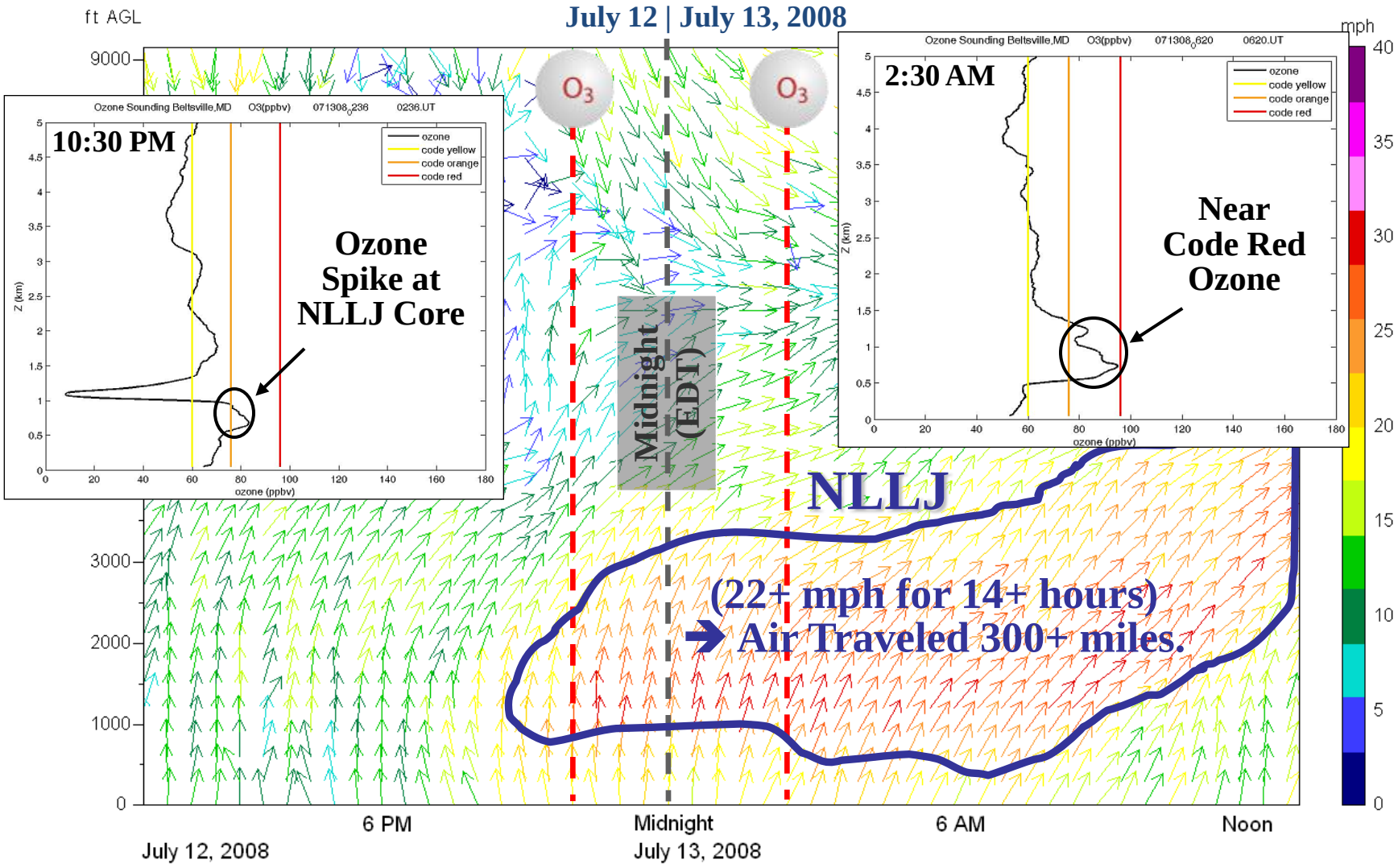


What does this graph tell us?

- Wind direction
- Wind speed
- From the ground up

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.



Background

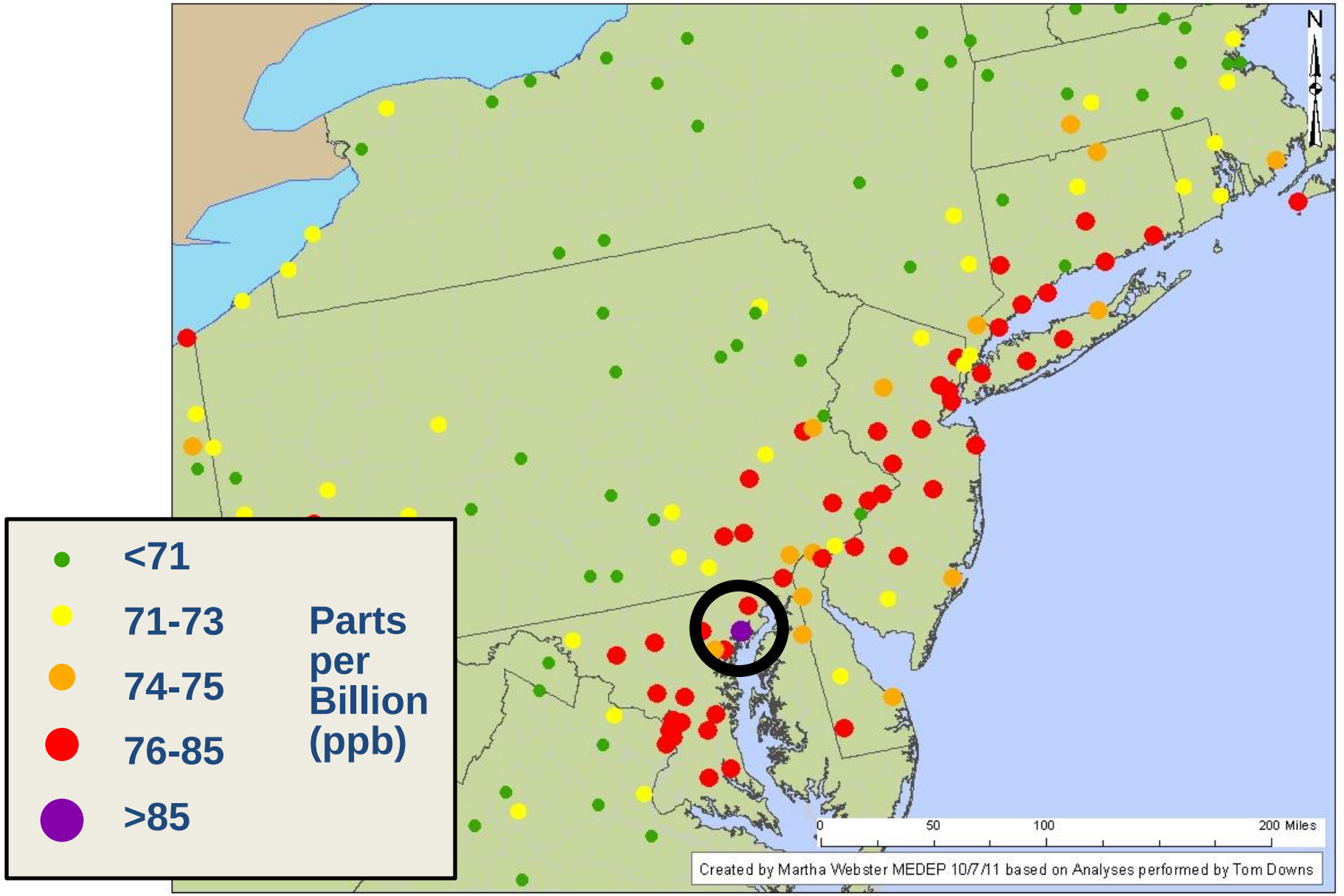
- At it's November 10, 2011 meeting the OTC charged the Air Directors to develop a technical and legal strategy to better address regional transport
  - Some areas of the OTR continue to measure "incoming" ozone levels that are already above the new 75 ppb standard.
- A Transport Workgroup is now in place to coordinate this effort
  - Looking at both technical analyses and legal tools

The Current “Big” Picture

- The White House delayed the Ozone NAAQS Reconsideration in September, of 2011 and decided to implement the 2008 ozone NAAQS of 75ppb
  - Scientific community still recommends 60 to 70 ppb
- EPA’s recent Cross-State Air Pollution Rule (CSAPR) does not address the 2008 ozone NAAQS of 75 ppb, and is being challenged in court.
  - Decision expected soon
- Transport still dominant - Measured, “incoming” ozone routinely exceeds 75 ppb

Who's Above 75 ppb?

Data through 9/28/2011



Pushing Federal Measures

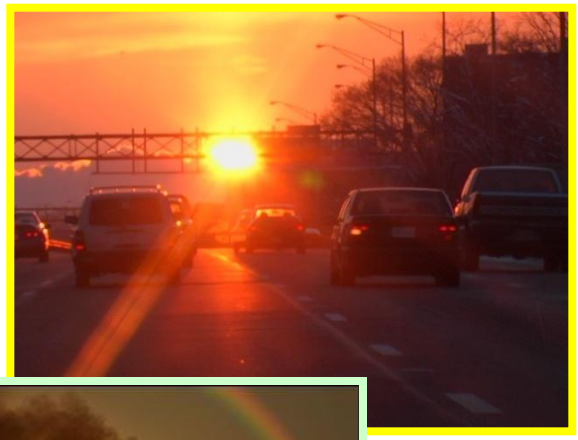
… as the best tool to address transport

- Multiple OTC actions on federal measures over the past 2 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

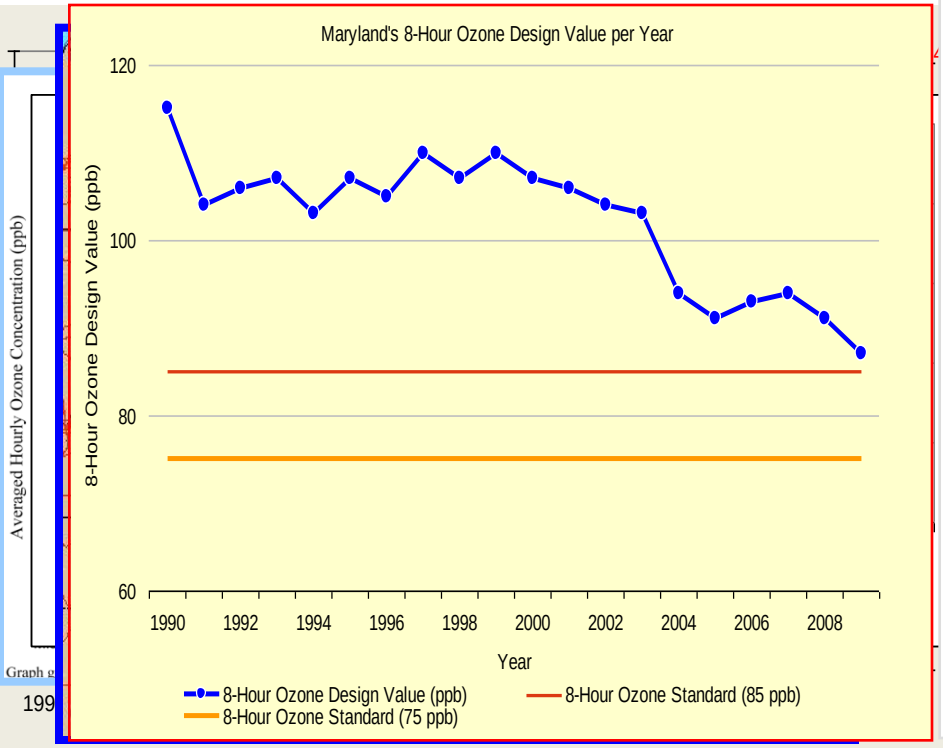


These represent …

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

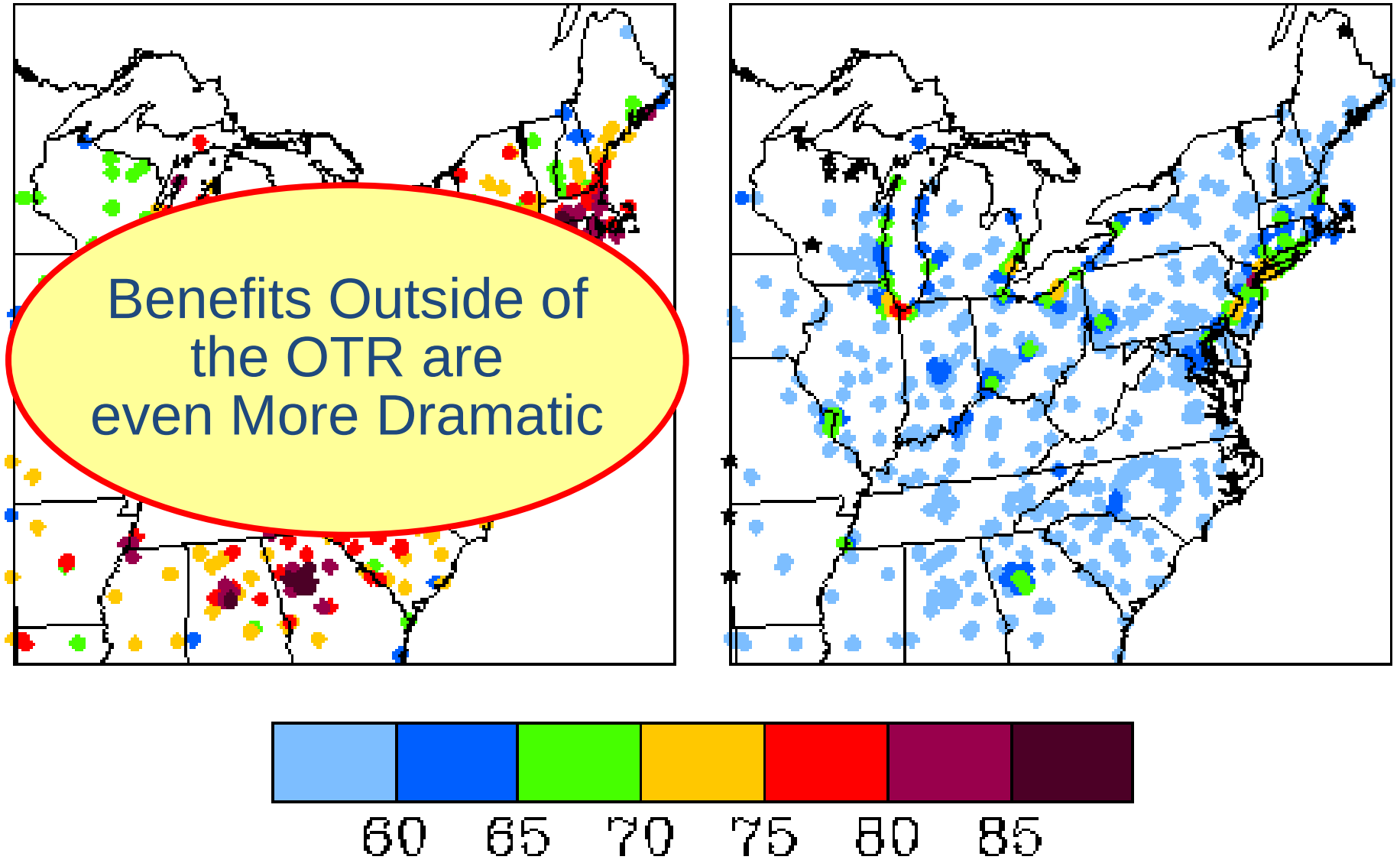
Why Are Federal Measures Important?

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 proposal
  - Tier 3/low sulfur fuel and CSAPR are two good examples of EPA's efforts on federal rules to reduce transport
  - Many of EPA's current efforts fall short in reducing NOx – the key to reducing ozone transport
    - For example, EPA has promised to do more with NOx – in CSAPR "2"
  - Some final rules and rules that are being proposed are likely to be litigated and delayed

CAA Transport Tools

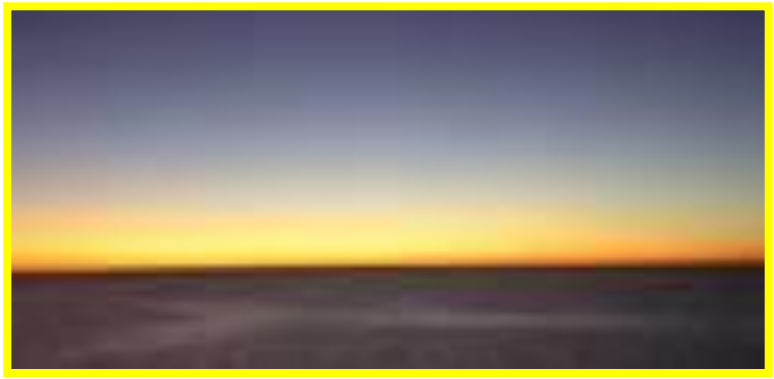
- Giant non-attainment areas
- Section 126 Petitions against stationary sources
- Section 110A2D “Good Neighbor” requirements
- Section 176A (or 184) Petition to create a new, much larger “Eastern Transport Region”
- Another “state partnership” effort
  - Daughter of OTAG
- One, none or some combination of above?

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 "science" or "airshed" based
  - A 15 to 20 state non-attainment area
- CT, DE and MD have moved forward with this option
  - EPA finalized designations for traditional, small nonattainment areas in May
  - Ongoing discussion with EPA and these three states

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



Section 110A2D “Good Neighbor” Provisions

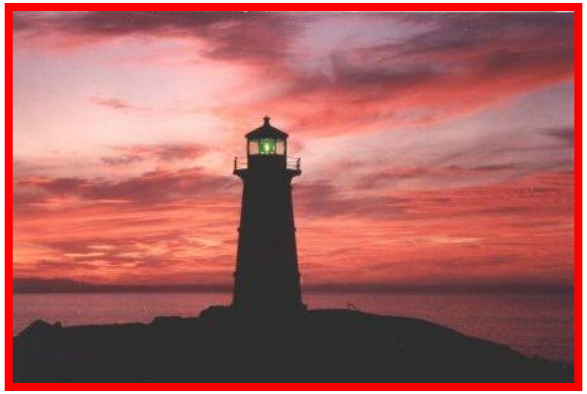
- Section 110A2D requires upwind states to include control measures in their SIPs to address transport
- In the past, regional control programs like the NOx SIP Call and CAIR have allowed upwind states to easily comply with 110A2D
  - There is no such regional control program for the 75 ppb standard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

The Section 176A or 184 Petition

- Option 1 - Petition EPA to establish a new very large "Eastern States" Ozone Transport Region
  - A 20 to 30 state Transport Region
- Option 2 - Petition EPA to expand the current Ozone Transport Region
- Works from same kind of significant contribution concept as CSAPR

Another OTAG?

- OTAG – The Ozone Transport Assessment Group
  - An early 1990's, 38 state partnership that lead to the 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



Schedule

- Designations finalized in May 2012
- Much of the OTR will be marginal nonattainment
  - 2015 Attainment Date
  - Clean air in monitors by 2013
- The last purple dot … will be a moderate nonattainment area
  - 2018 Attainment Date – Clean monitors 2015 to 2018
- Timeframe to act is short