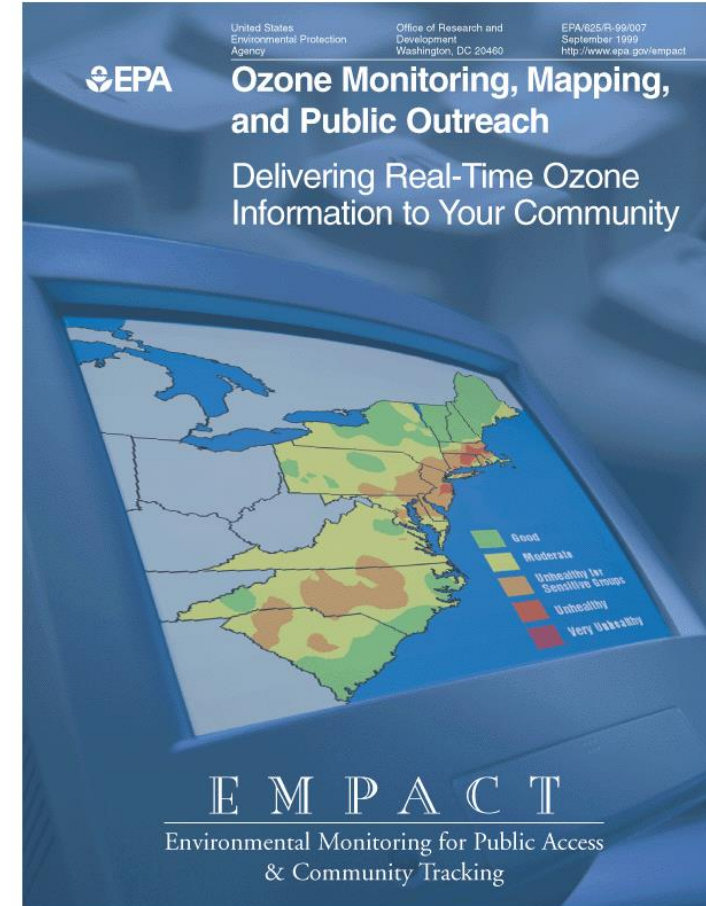


PROPOSED REVISIONS TO AIR QUALITY INDEX AND APPENDIX G FOR PM_{2.5}

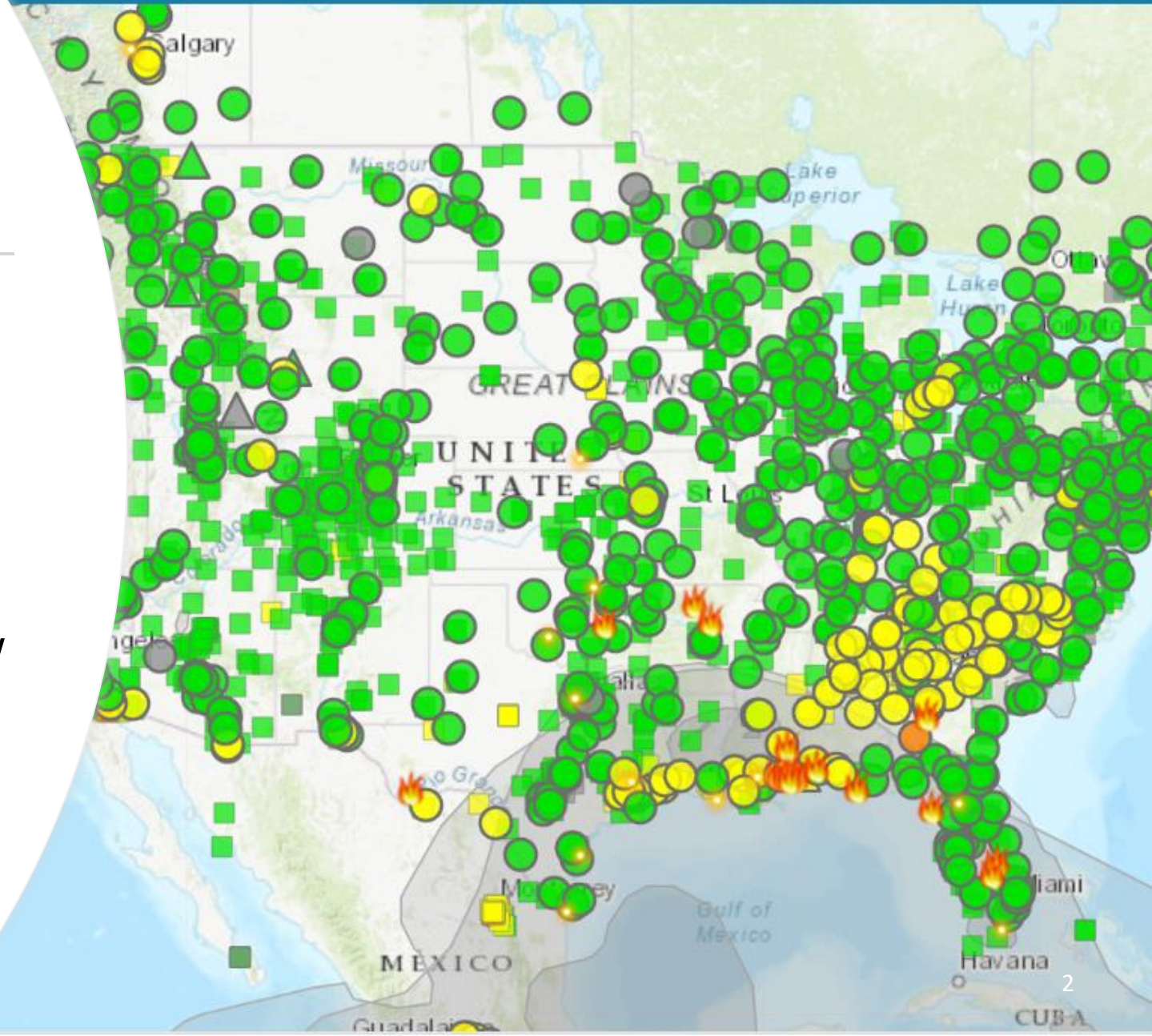


NACAA Public Outreach Committee
March 14, 2023

Introduction

EPA is proposing

- updates to the Air Quality Index (AQI) breakpoints for $PM_{2.5}$
- revisions to Appendix G, last updated in 1999
 - to match current practice on AirNow
 - to clean up Appendix G and move some information to the AQI Technical Assistance Document



Background Information: Pollutant Standards Index (PSI)

Created in 1976

Category	Index Value
Good	0-50
Moderate	51-100
Unhealthy	101-200
Very Unhealthy	201-300
Hazardous	301-400
	401-500

- ← Annual Standard
- ← Short-term Standard
Emergency Episode Plans
- ← Alert Level
- ← Warning Level
- ← Emergency Level
- ← Significant Harm Level (SHL)

- PSI was a report about yesterday's local air quality relative to the air quality standards
- Often a line in the newspaper
- No cautionary language
- No color

Air Quality Index

Created in 1999

AQI Basics for Ozone and Particle Pollution

Daily AQI Color	Levels of Concern	Values of Index	Description of Air Quality
Green	Good	0 to 50	Air quality is satisfactory, and air pollution poses little or no risk.
Yellow	Moderate	51 to 100	Air quality is acceptable. However, there may be a risk for some people, particularly those who are unusually sensitive to air pollution.
Orange	Unhealthy for Sensitive Groups	101 to 150	Members of sensitive groups may experience health effects. The general public is less likely to be affected.
Red	Unhealthy	151 to 200	Some members of the general public may experience health effects; members of sensitive groups may experience more serious health effects.
Purple	Very Unhealthy	201 to 300	Health alert: The risk of health effects is increased for everyone.
Maroon	Hazardous	301 and higher	Health warning of emergency conditions: everyone is more likely to be affected.

§ 58.50 Index reporting. <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-58>

- (a) The State or where applicable, local agency shall report to the general public on a daily basis through prominent notice an air quality index that **complies with the requirements of appendix G** to this part.
- (b) Reporting is required for all individual MSA with a population exceeding 350,000.
- (c) The population of a metropolitan statistical area for purposes of index reporting is the latest available U.S. census population.

Appendix G

- Contains a table with the breakpoints for use with the AQI; the table has been updated whenever the AQI breakpoints change.
- Contains instructions for reporting the AQI, but these are out-of-date, for example:
 - Daily is defined as reporting at least 5 times a week.
 - Report must be provided to the local media (newspaper, radio and television).
 - Report must be available on at least one place of public access (recorded telephone message, facsimile transmission or web page on the Internet).
- Instructions have not been updated since 1999 and do not include discussion of real-time AQI reporting or submission of data to EPA to be used to create products, for example, Fire and Smoke Map.

AQI Technical Assistance Document for Reporting Daily Air Quality: the Air Quality Index

- Information about reporting the AQI, updated regularly

<https://www.airnow.gov/publications/air-quality-index/technical-assistance-document-for-reporting-the-daily-aqi/>

Proposed Revisions to the Air Quality Index (AQI)

- EPA is proposing updates to the AQI for PM_{2.5}; the AQI:
 - EPA’s color-coded tool used by state and local governments to help inform the public about current and daily air quality and recommends steps that individuals can take to reduce their exposure to air pollution
 - Converts PM_{2.5} concentrations to an AQI value
- Consistent with the approach of previous NAAQS reviews, EPA is proposing to update the lower breakpoints (50, 100, 150) based on the proposed levels of the primary standards and related health evidence
- EPA is also proposing to update the upper breakpoints (200+) to reflect the newest scientific information (see next slide)
- EPA is soliciting comments on these proposed revisions and the approach to establishing breakpoints

Proposed Revisions to AQI for PM_{2.5}

AQI Value	Current [$\mu\text{g}/\text{m}^3$]	Proposed Revisions [$\mu\text{g}/\text{m}^3$]
0, Good	0	0
50, Moderate	12	Annual Standard (e.g., 9-10)
100, USG	35	Daily Standard
150, Unhealthy	55	Change with Daily Standard
200, Very Unhealthy	150	125
300, Hazardous	250	225
500, Hazardous*	500	325

*The 500 breakpoint is used in conjunction with the 300 breakpoint to calculate AQI values within the hazardous category. The proposed approach does not use the 500 breakpoint to determine other breakpoints values.

Proposed Revisions to the Air Quality Index (AQI): Upper breakpoints

- AQI breakpoints of 200 and 300
 - These breakpoints were established in 1999 and based on a linear relationship of increased concentrations between lower breakpoints and 500 level
 - EPA is proposing an approach for revising the upper AQI breakpoints that takes into consideration the recently available epidemiologic and controlled human exposure studies in reaching proposed decisions regarding the upper AQI breakpoints.
 - Though the exact PM_{2.5} concentration at which specific effects occur remains unclear, the more recent scientific evidence provide more refined information about the concentration range at which these effects might occur.
 - Recent epidemiologic studies provide information about exposures during high pollution events, such as wildfires, and multiple controlled human exposure studies provide information about health effects across a range of concentrations.
- AQI breakpoint of 500
 - Was based on increased mortality during the 1952 London Fog episodes but these studies lacked actual measurements of the PM_{2.5} size fraction; newer health evidence supports revising to a lower concentration
 - Proposed approach does not use the 500 breakpoint to establish other breakpoints; would continue to use this breakpoint to calculate AQI values within the Hazardous category

Proposed Revisions to Appendix G to Part 58: Uniform Air Quality Index (AQI) and Daily Reporting

- Proposed revisions to Appendix G
 - Changes to PM_{2.5} breakpoints just discussed
- Proposed revisions to match current practice on AirNow – Appendix G last updated in 1999
 - Require daily reporting, defined as 7 days per week
 - Recommend, but not require, reporting the real-time AQI
 - Recommend, but not require, hourly data submission to EPA for use on AirNow and other data products
- General clean up
 - Modernize Appendix G format
 - Remove 400 breakpoint from table
 - Move technical information that is regularly updated to the AQI Technical Assistance Document, for example, data calculation methods or definitions of at-risk populations

Additional Resources

- Information on particulate matter (PM) pollution: <https://www.epa.gov/pm-pollution>
- Information on the Reconsideration of the PM NAAQS, including fact sheets: <https://www.epa.gov/pm-pollution/national-ambient-air-quality-standards-naaqs-pm>
- Information on the PM NAAQS review process and other related documents: <https://www.epa.gov/naaqs/particulate-matter-pm-air-quality-standards>