



MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY

Air Quality Forecasting

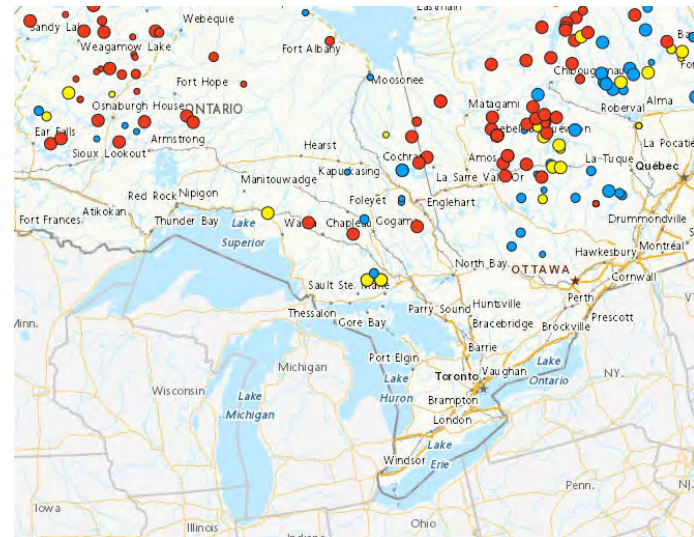
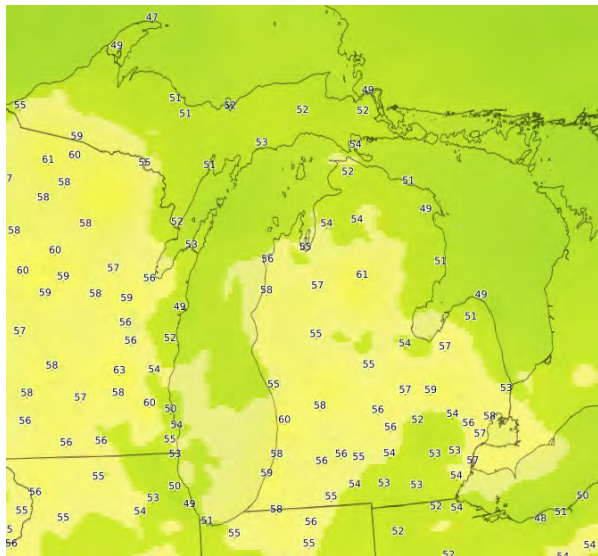
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Air Quality Forecasting

- Forecast surface-level Ozone (O₃) and PM-2.5 concentrations across the state
- Ozone forecasting takes place March through October
- PM-2.5 forecasting is year-round
- Forecasting air pollution is “weather forecasting meets chemistry”—especially for Ozone



Air Quality Index

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.

- Ozone is forecasted on an 8-hour average standard
- PM-2.5 is forecasted on a 24-hour average standard

Forecast Breakpoints for Ozone and Fine Particulate		
Category	Ozone 8-hour (ppb)	PM2.5 24-hour (ug/m ³)
Good	0 - 54	0.0 - 12.0
Moderate	55 - 70	12.1 - 35.4
Unhealthy for Sensitive Groups (USG)	71 - 85	35.5 - 55.4
Unhealthy	86 - 105	55.5 - 150.4
Very Unhealthy	106 - 200	150.5 - 250.4
Hazardous	201 - 600	250.5 - 500.4

Air Quality Advisory/Alert

- Clean Air Action Day or Air Quality Action Day in the past
- Advisory and Alert provides more consistency and more efficient overall messaging
- Advisory
 - Unhealthy for Sensitive Groups range **only**
- Alert
 - Unhealthy range and **above**
 - Helps to highlight very poor air quality where everyone is impacted
- Will follow existing protocol to issue these Advisories and/or Alerts

Air Quality Advisory		Air Quality Alert	
Ozone	USG , 71-85 ppb	Ozone	Unhealthy and up , 86+ ppb
PM-2.5	USG , 35.5-55.4 ugm-3	PM-2.5	Unhealthy and up , 55.5+ ugm-3

- Will forecast day-to-day when poor air quality is expected
- Day before advisory or alert issuance is the standard



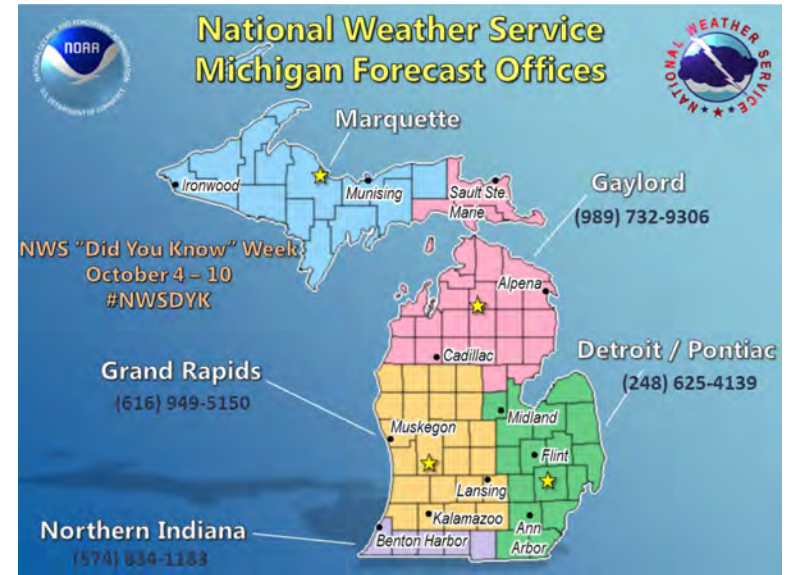
June 27, 2023

- However, there are cases where same-day issuances need to occur
- Forecast first, then send out advisory or alert messaging to outreach partners
- Currently in discussion with NWS to create an “Air Quality Advisory” product



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Agency Collaboration



Thank you!

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