



MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY

Exceptional Event Status – Wildfire Smoke Summer 2023

August 28, 2024
Air Advisory Council Meeting

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2021-2023 Annual PM_{2.5} Design Value (DV) by County/CBSA

County	CBSA	Site ID	Final DV
Wayne	Detroit-Warren-Dearborn	26-163-0100	13.0
Macomb	Detroit-Warren-Dearborn	26-099-0009	8.7
St. Clair	Detroit-Warren-Dearborn	26-147-0005	8.4
Kalamazoo	Kalamazoo-Portage	26-077-0008	10.4
Missaukee	Cadillac	26-113-0001	9.4
Kent	Grand Rapids – Wyoming	26-081-0020	9.3
Washtenaw	Ann Arbor	26-161-0008	9.3

EPA PM_{2.5} Tiering Tool

Determine the tiering threshold:

- Calculate the most recent 5-year month-specific 98th percentile for 24-hour PM_{2.5} data
- Calculate the minimum annual 98th percentile for 24-hour PM_{2.5} data for the most recent 5-year period
- Lesser of these values is the tiering threshold

Table 2. PM_{2.5} Exceptional Events Demonstration Tiers and Thresholds.

Tier	Measured Concentration of Event Day vs Tiering Threshold*
Tier 1	Measured value is greater than or equal to 1.5 times the tiering threshold
Tier 2	Measured value is greater than or equal to the tiering threshold and less than 1.5 times the tiering threshold
Tier 3	Measured value is less than the tiering threshold

* The tiering threshold is defined as the lesser value with all “Request Exclusion” (R) and fire-related “Informational Only” (I) qualifiers excluded of either (a) the most recent 5-year month-specific 98th percentile for 24-hour PM_{2.5} data, or (b) the minimum annual 98th percentile for 24-hour PM_{2.5} data for the most recent 5-year period.

EE Tiers

Tier 1 - Event clearly influences PM2.5 exceedances

- PM2.5 concentrations clearly higher than non-event related concentrations

Tier 2 - Event influence is higher than most or all non-event related concentrations

- Weight of evidence shows a clear causal relationship

Tier 3 - Event does not fall into scenarios that qualify for Tier 1 or Tier 2, but weight of evidence shows a clear causal relationship

Evaluation of smoke influence on 2021-2023 DV

CBSA	Site ID	Final DV	Total Tier 1 days w/smoke	Total Tier 2 days w/smoke
Detroit-Warren-Dearborn	26-163-0100	13.0	6	73
Kalamazoo-Portage	26-077-0008	10.4	18	42
Cadillac	26-113-0001	9.4	16	42
Grand Rapids – Wyoming	26-081-0020	9.3	15	37
Ann Arbor	26-161-0008	9.3	18	49

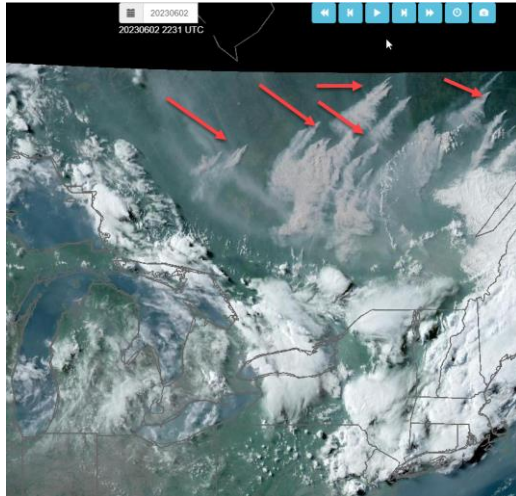
Adjusted DV's

CBSA	Site ID	Final DV	Est. Annual DV w/o Tier 1 days	Est. Annual DV w/o Tier 1 and Tier 2 days
Detroit-Warren-Dearborn	26-163-0100	13.0	11.6	11.0
Kalamazoo-Portage	26-077-0008	10.4	9.6	9.0
Cadillac	26-113-0001	9.4	9.0	8.7
Grand Rapids – Wyoming	26-081-0020	9.3	8.8	8.4
Ann Arbor	26-161-0008	9.3	8.8	8.2

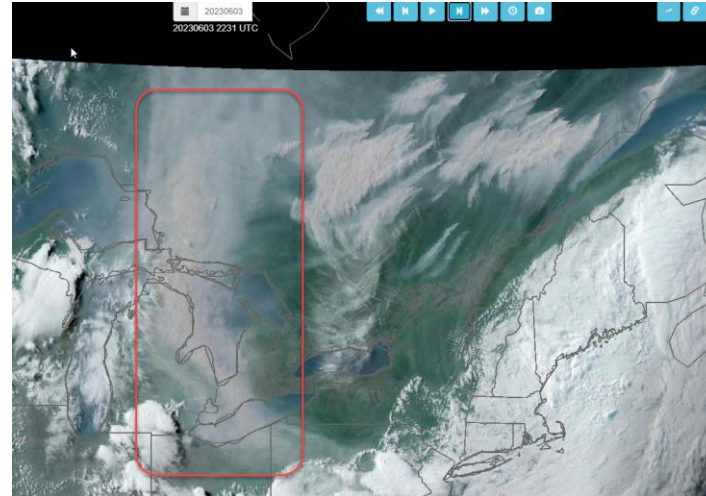
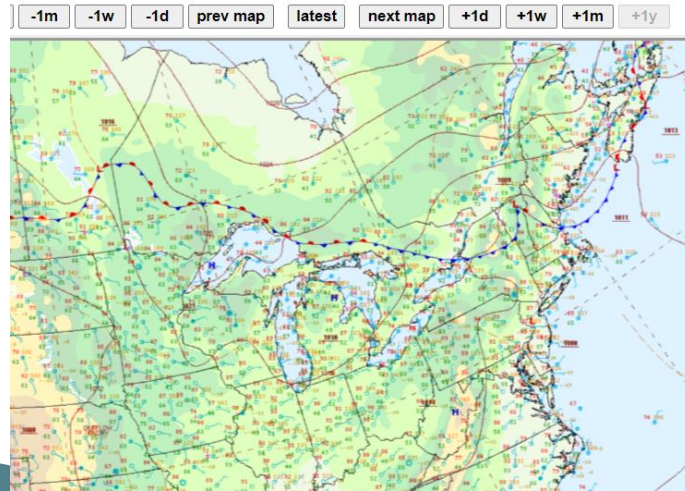
Potential EE Demonstrations

CBSA	# Days in EE's	Episode periods
Cadillac	15-20	June 3-9 June 22, 24-30 July 25-27
Grand Rapids-Wyoming	7-9	June 6-8 June 26-29 July 25-26
Ann Arbor	5	June 7-8 June 27-29

Evidence within EE's



Surface analysis 21Z Fri Jun 2 2023

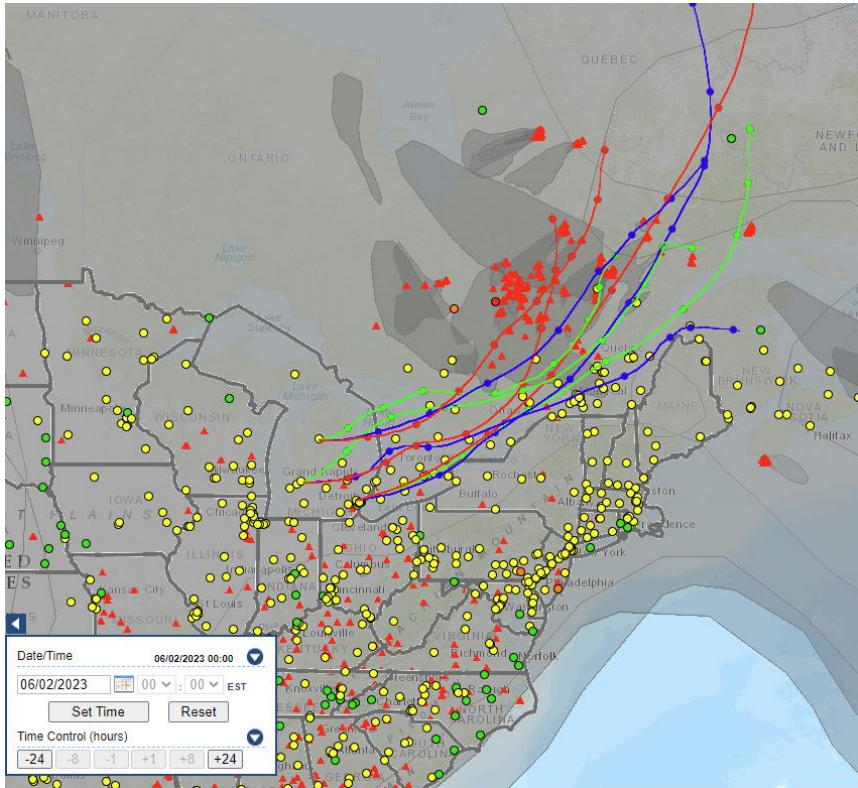


Surface analysis 21Z Sat Jun 3 2023

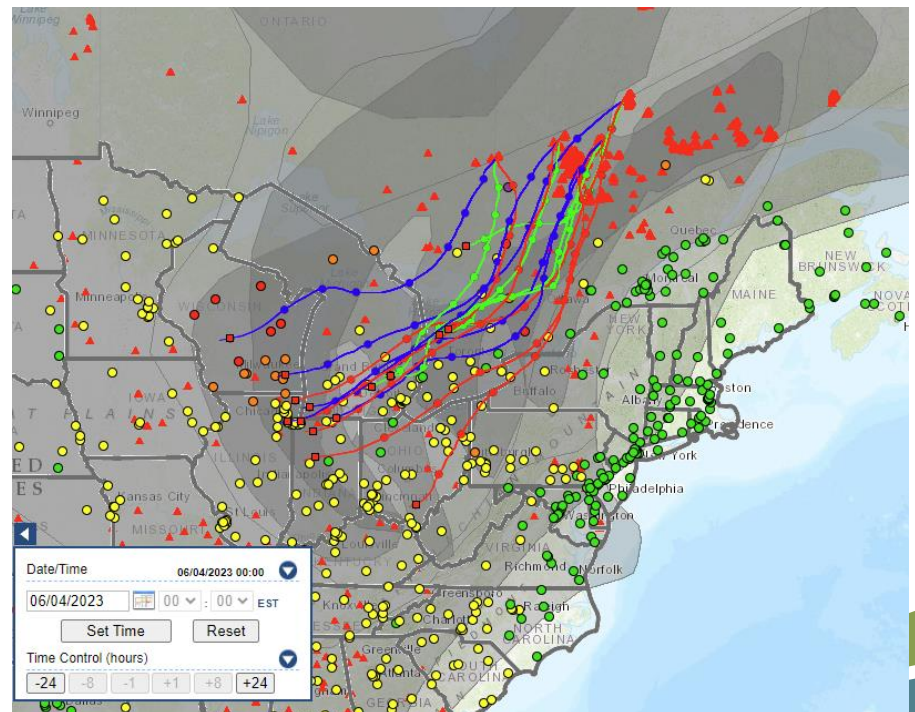


HYSPLIT Trajectories

48-hour Back-trajectory starting June 4th at monitor locations



48-hour Forward-trajectory starting June 2nd at fire locations



Questions?