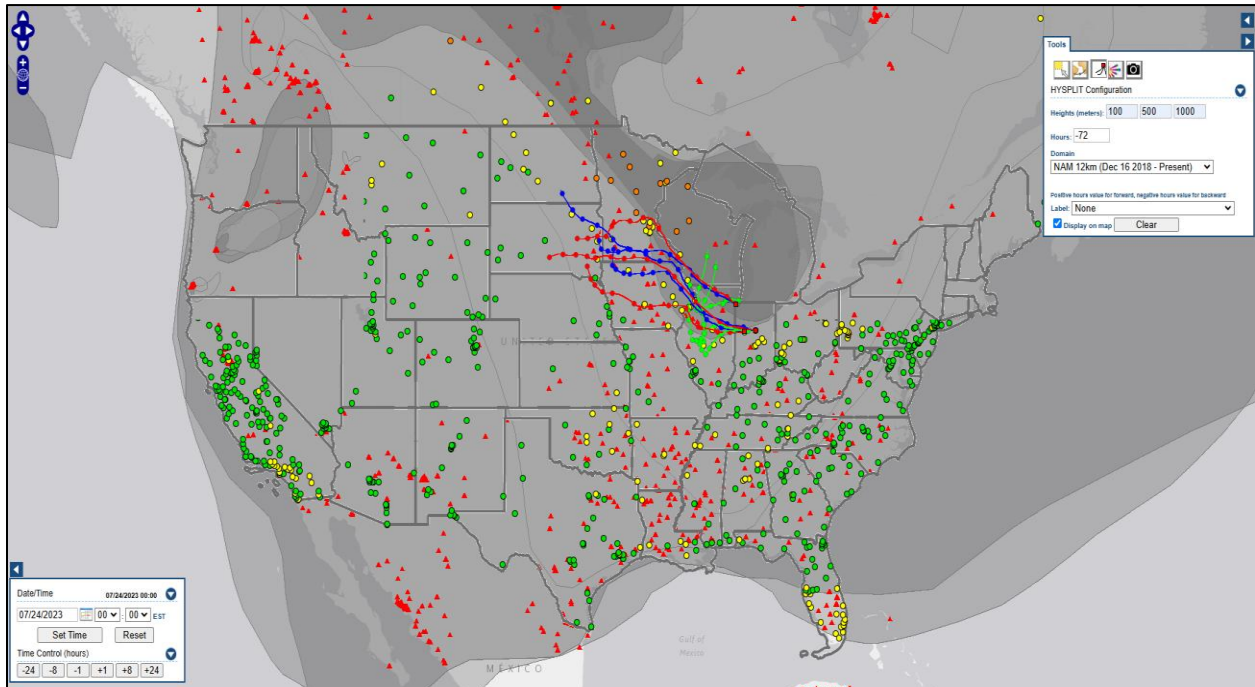


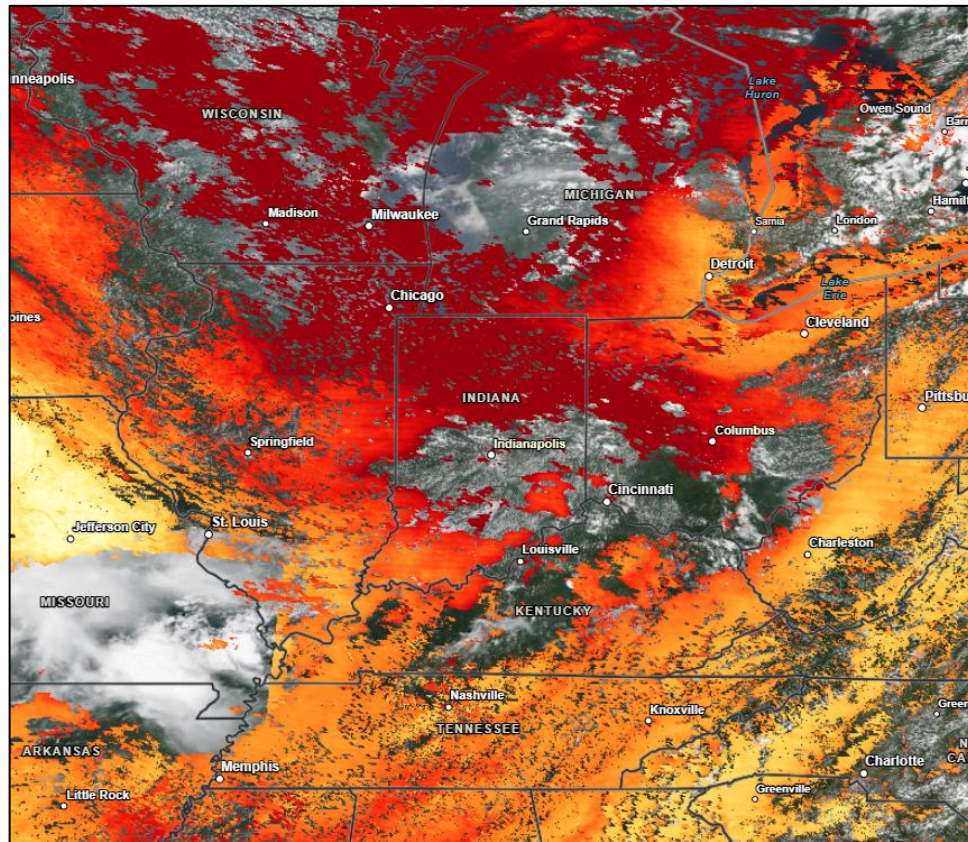
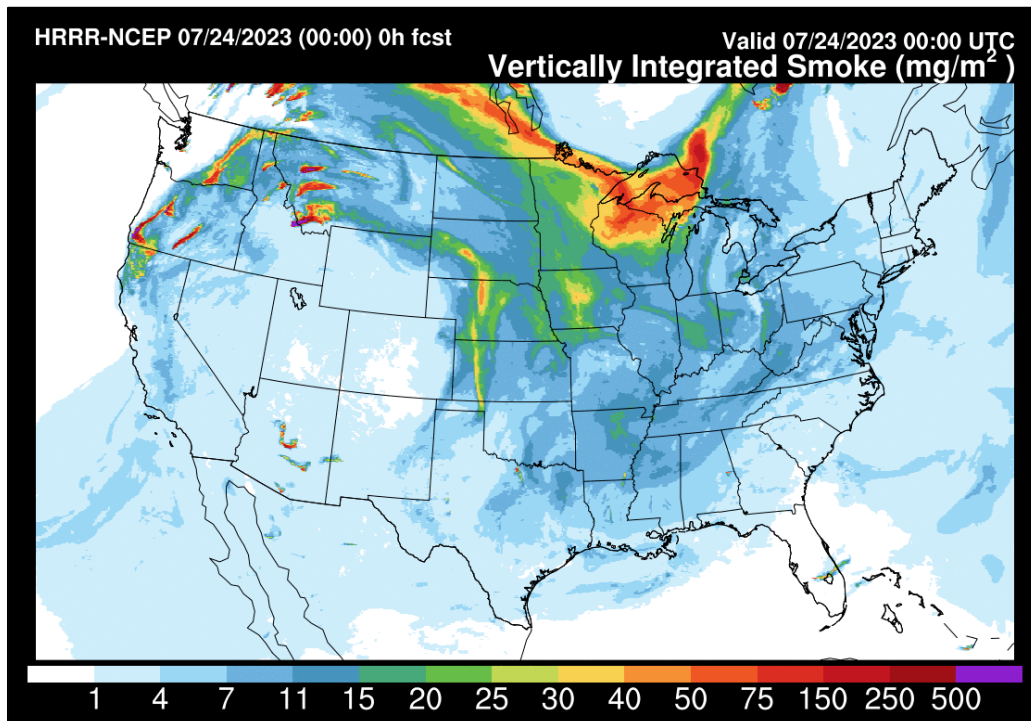
July 24, 2023

PM_{2.5} Monitoring Sites Impacted by Wildfire Smoke

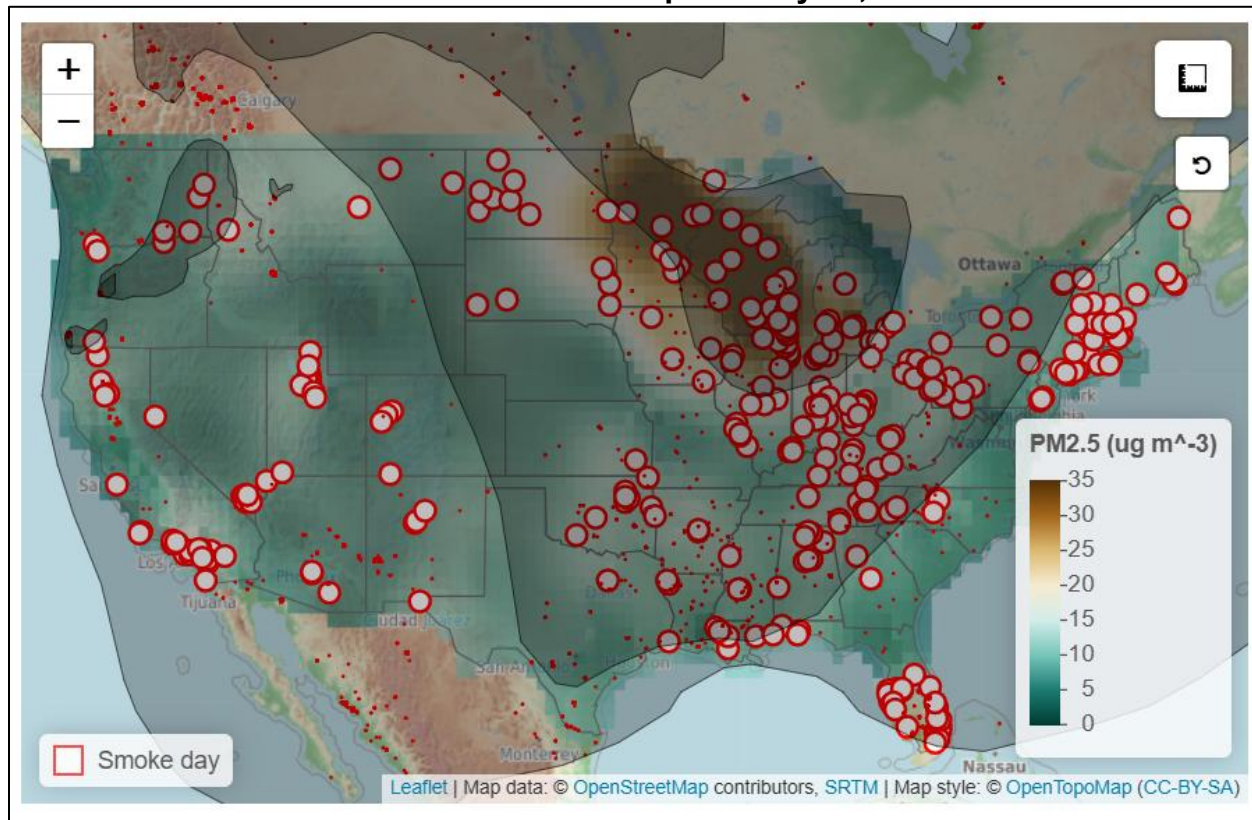
Monitor name	AQS	Date	Daily average ($\mu\text{g}/\text{m}^3$)	Tier 2 Threshold ($\mu\text{g}/\text{m}^3$)
Elkhart - Prairie St	180390008	7/24/2023	21.2	16.3
Kokomo - E. Vaile Ave	180670004	7/24/2023	15.1	14.7
East Chicago - Marina	180890034	7/24/2023	25.0	18
Hammond-167th St	180890036	7/24/2023	26.5	16.3
South Bend - Shields Dr.	181410015	7/24/2023	25.3	16.9
Lafayette - Greenbush St	181570008	7/24/2023	16.2	15.1
Larwill	181830003	7/24/2023	19.7	15

AirNow Tech Fire/HMS Smoke Map with Backward Trajectories – July 24, 2023



Satellite Imagery with MAIAC AOD – July 24, 2023**HRRR Smoke - Vertically Integrated Smoke – July 24, 2023**

GAM PMO3 Smoke Output – July 24, 2023



NOAA Satellite Smoke – 2023 Satellite Smoke Text Excerpts

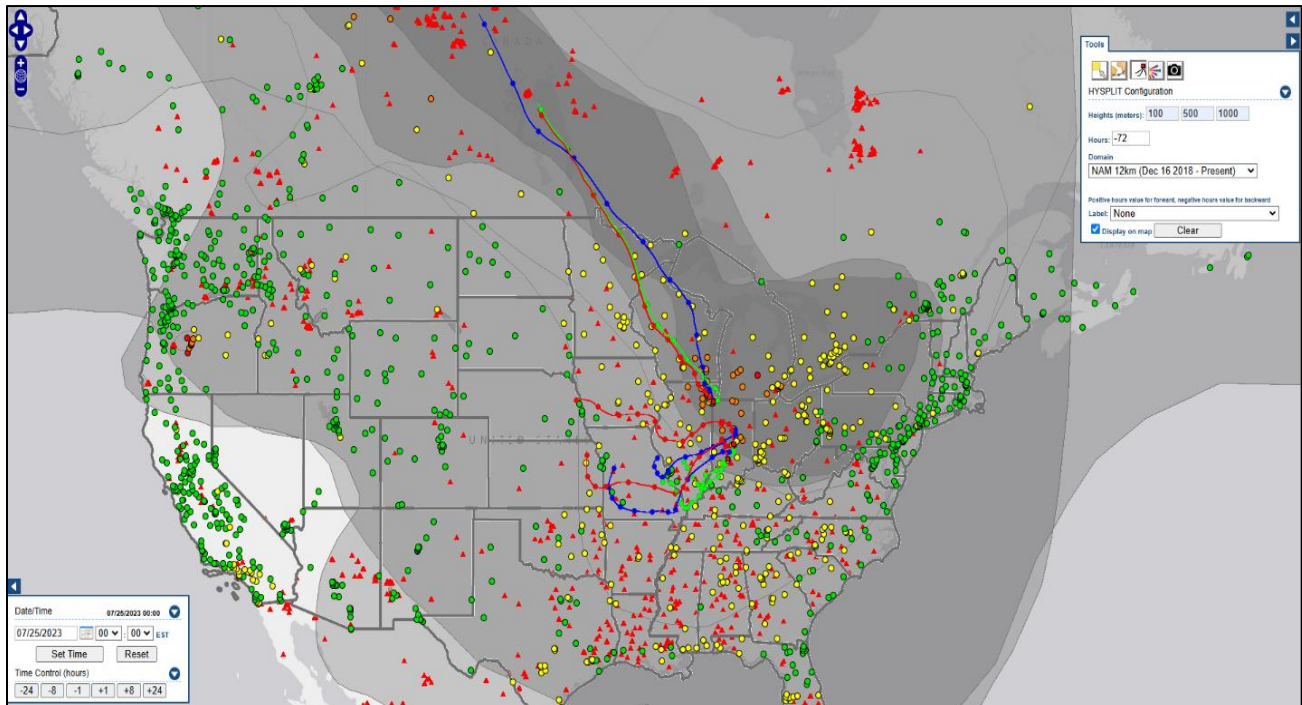
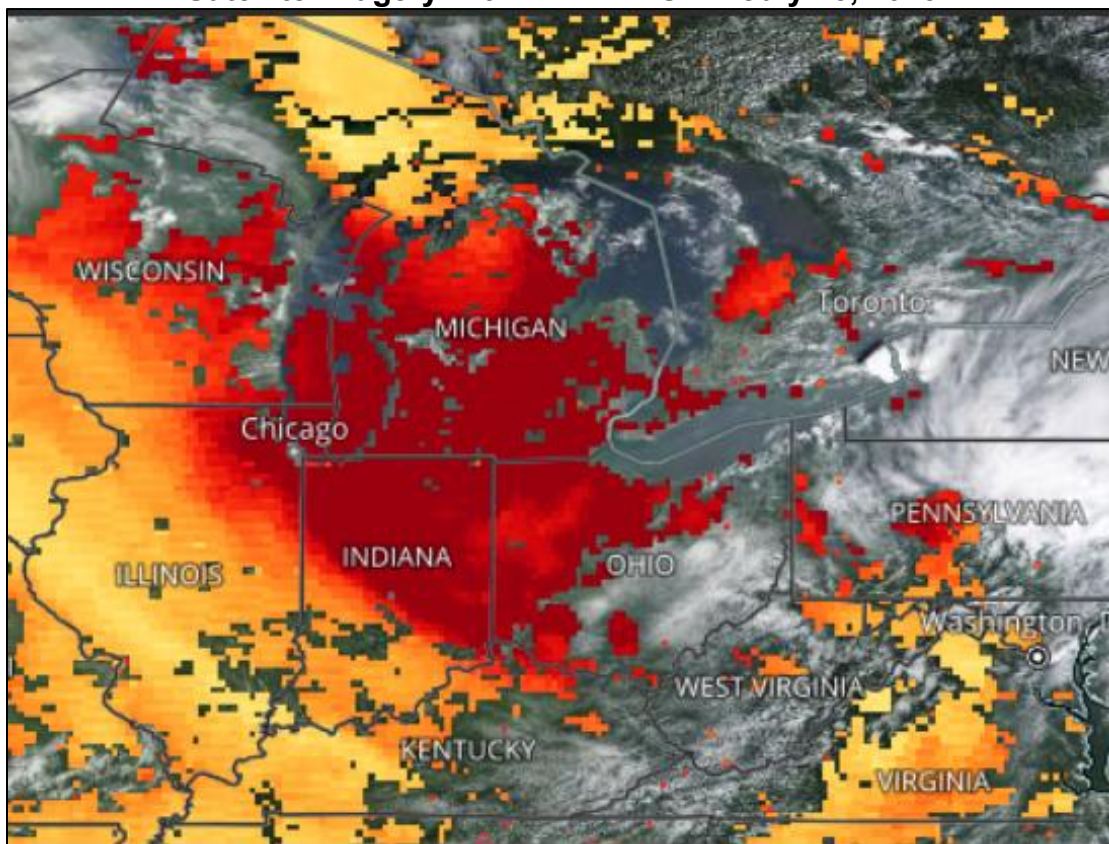
DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE
IMAGERY
THROUGH 1600Z July 24, 2023

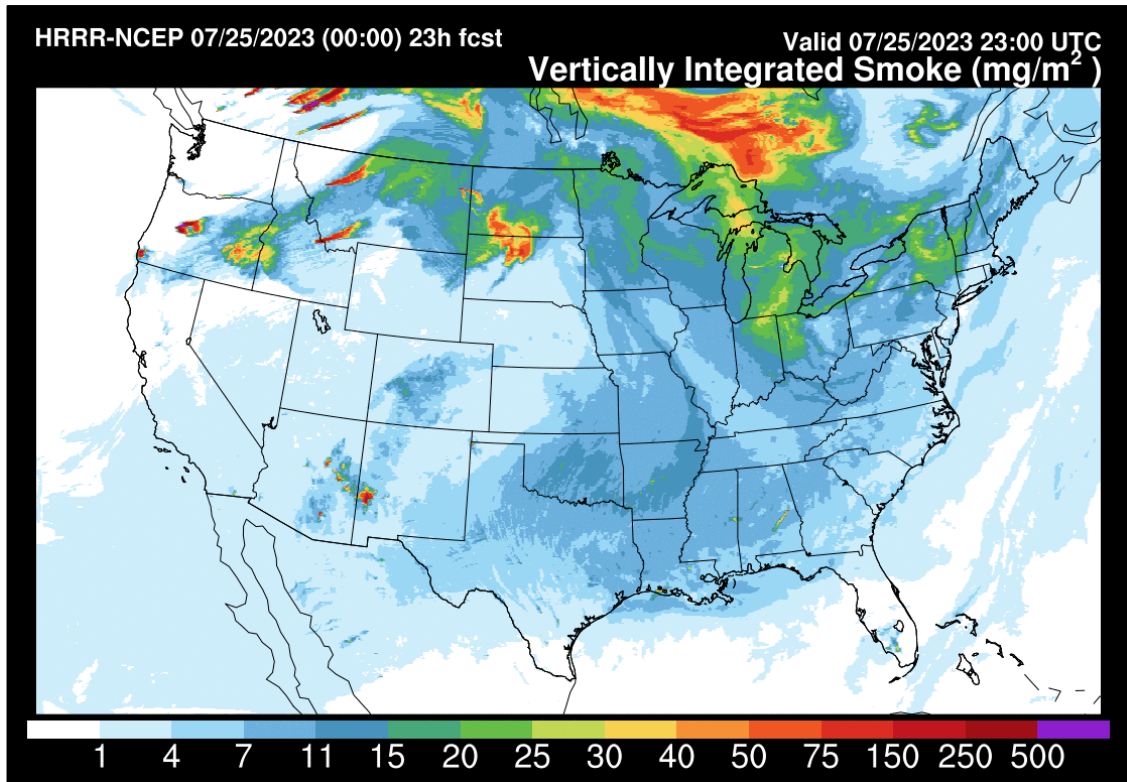
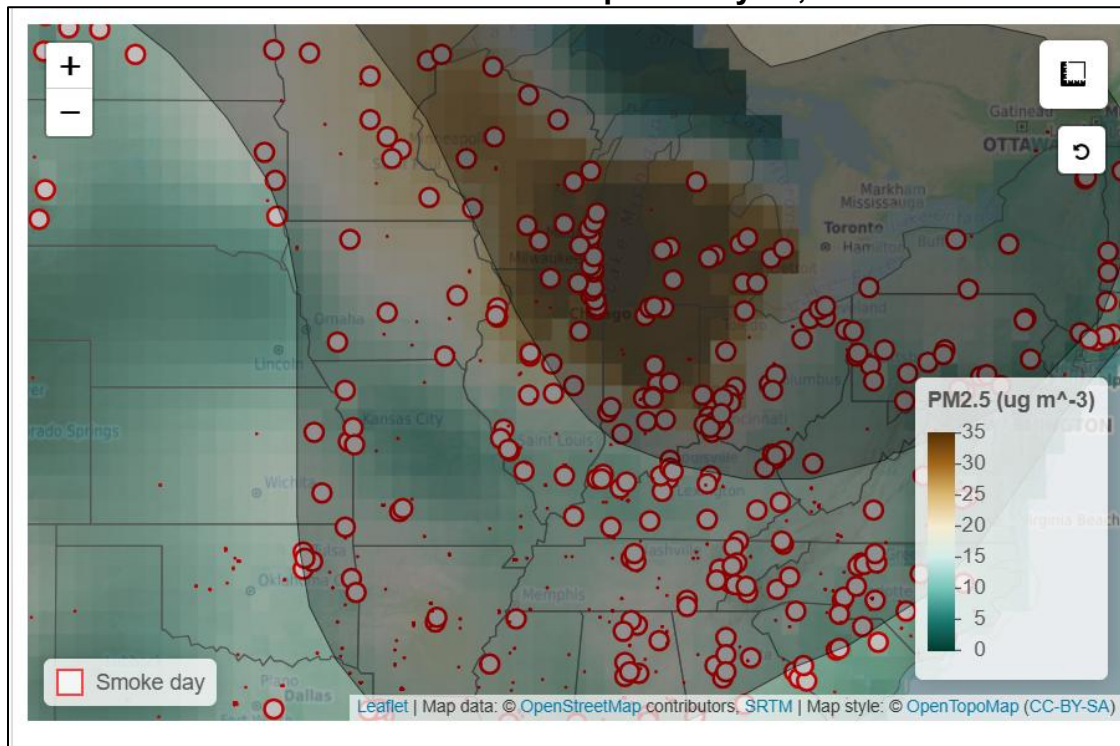
SMOKE:

Canada/United States/Atlantic Ocean/Northern Mexico/Pacific Ocean off the U.S. West Coast and south Mexico/Northern Gulf of Mexico...
The enormous area of smoke primarily from the Canadian wildfires continues to be seen covering virtually all of Canada and most of the U.S. including most of Alaska, along with the northern half of Mexico, much of the central and northern Atlantic, and the northeastern Pacific off southern Alaska and northwest coast of Canada. Within this larger area of thin density smoke were batches of moderate to thick density smoke. The thick to very thick smoke that covered eastern Alaska and much of northern Canada within the Northwestern Territories and extending southeast through central Canada and into the Midwestern states of Minnesota and Wisconsin was associated from numerous wildfires in western and northwestern Canada. The moderate smoke from these fires extended from Alaska and Pacific Ocean off of the southern Alaskan coast, through western/central Canada, and moving to the southeast/east where it eventually settled into eastern Canada, where fires in Quebec were previously seen producing localized moderate to thick smoke, but cloud cover precluded today's analysis in the region. This smoke also extended well over the northwestern and north central U.S., covering much of Mid-west and Mississippi valley region.

July 25, 2023**PM_{2.5} Monitoring Sites Impacted by Wildfire Smoke**

Monitor name	AQS	Date	Daily average (µg/m³)	Tier 2 Threshold (µg/m³)
Columbus - Rocky Ford Drive	180050008	7/25/2023	17.4	13.7
Elkhart - Prairie St	180390008	7/25/2023	43.7	16.3
Fishers	180570007	7/25/2023	31.0	13.8
Mechanicsburg	180650003	7/25/2023	30.0	15.5
Kokomo - E. Vaile Ave	180670004	7/25/2023	41.9	14.7
East Chicago - Marina	180890034	7/25/2023	50.5	18
Hammond-167th St	180890036	7/25/2023	44.7	16.3
Anderson - Eastside Elem	180950011	7/25/2023	38.8	15.4
Indianapolis - Washington Park	180970078	7/25/2023	33.3	17.8
Indianapolis - W. 18th St.	180970081	7/25/2023	34.9	20.9
Indianapolis- I-70 E	180970087	7/25/2023	33.8	20.5
Bloomington - Binford	181050003	7/25/2023	16.7	13.9
South Bend - Shields Dr.	181410015	7/25/2023	52.9	16.9
Lafayette - Greenbush St	181570008	7/25/2023	35.5	15.1
Terre Haute - Lafayette Ave	181670018	7/25/2023	18.8	18.8
Larwill	181830003	7/25/2023	45.7	15

AirNow Tech Fire/HMS Smoke Map with Backward Trajectories – July 25, 2023**Satellite Imagery with MAIAC AOD – July 25, 2023**

HRRR Smoke - Vertically Integrated Smoke – July 25, 2023**GAM PMO3 Smoke Output – July 25, 2023**

NOAA Satellite Smoke – 2023 Satellite Smoke Text Excerpts

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE
IMAGERY

THROUGH 1600Z July 25, 2023

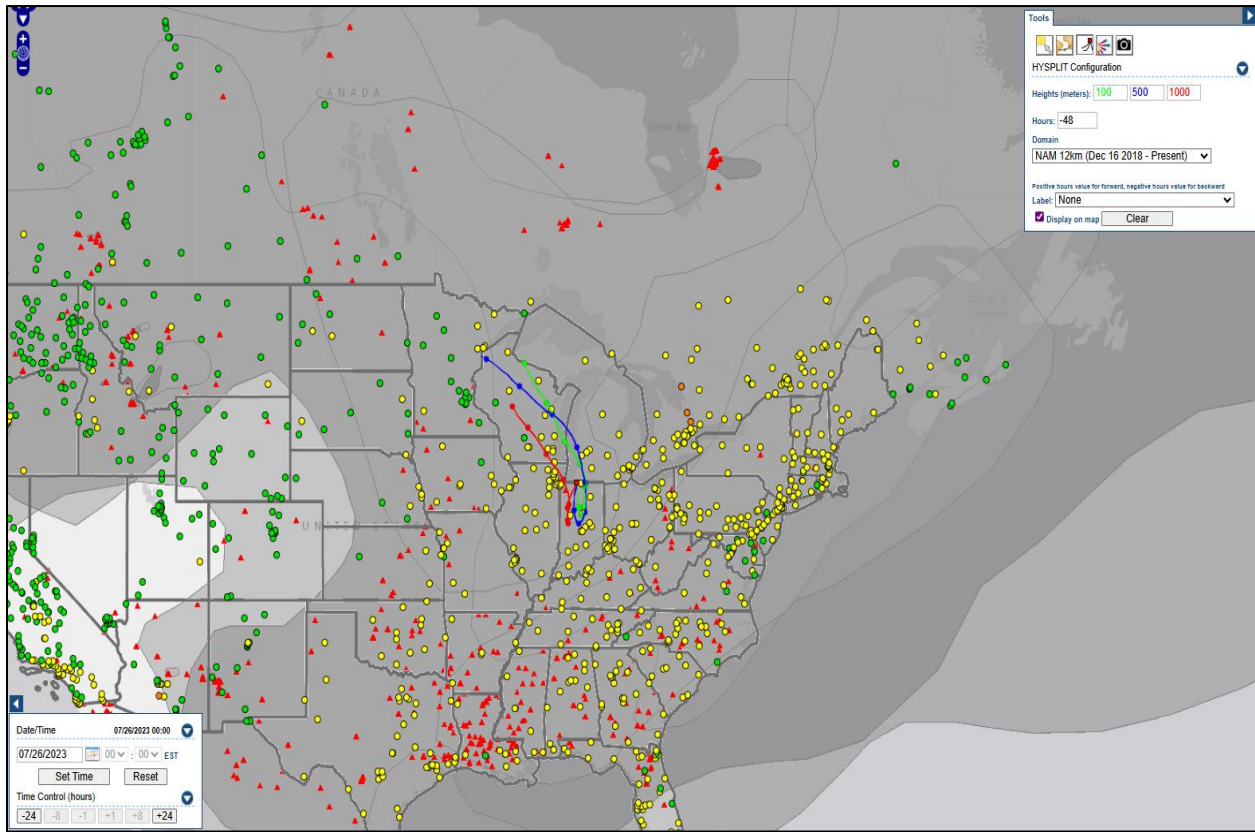
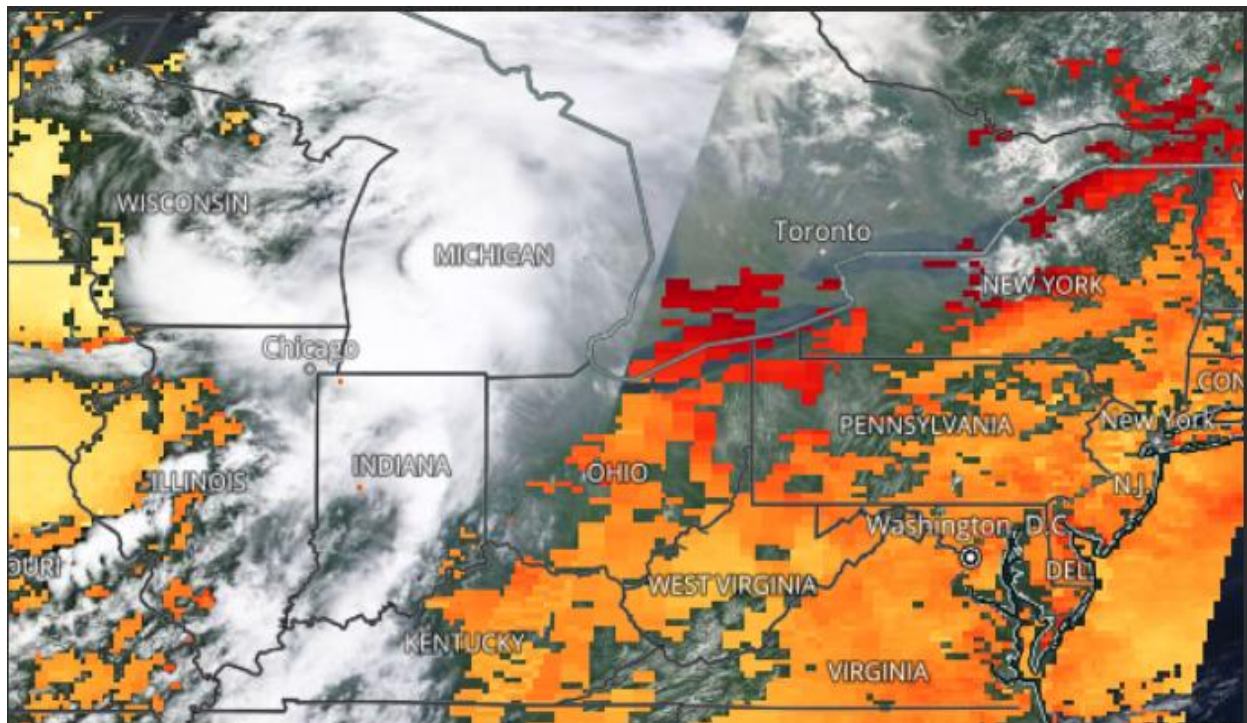
SMOKE:

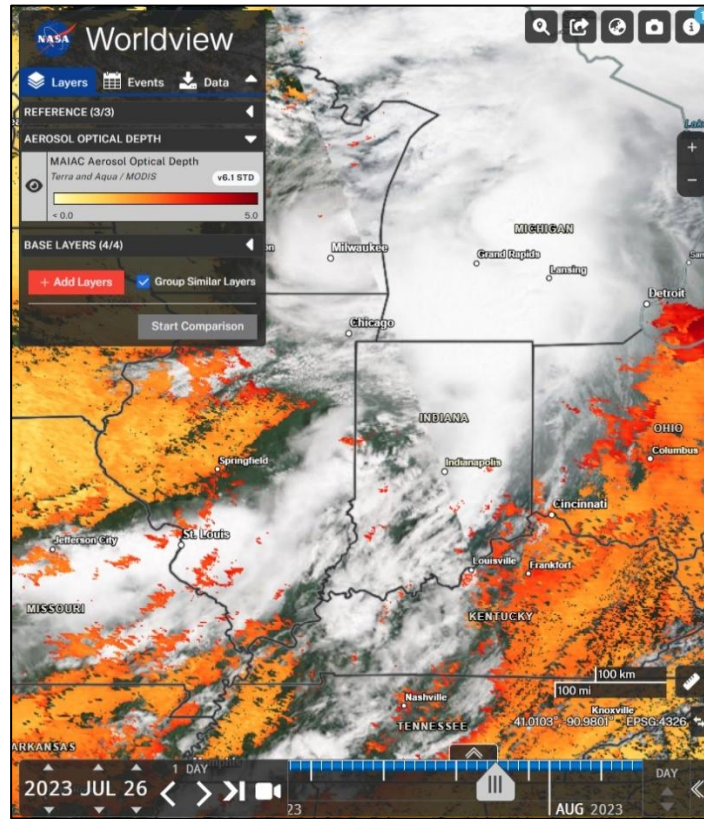
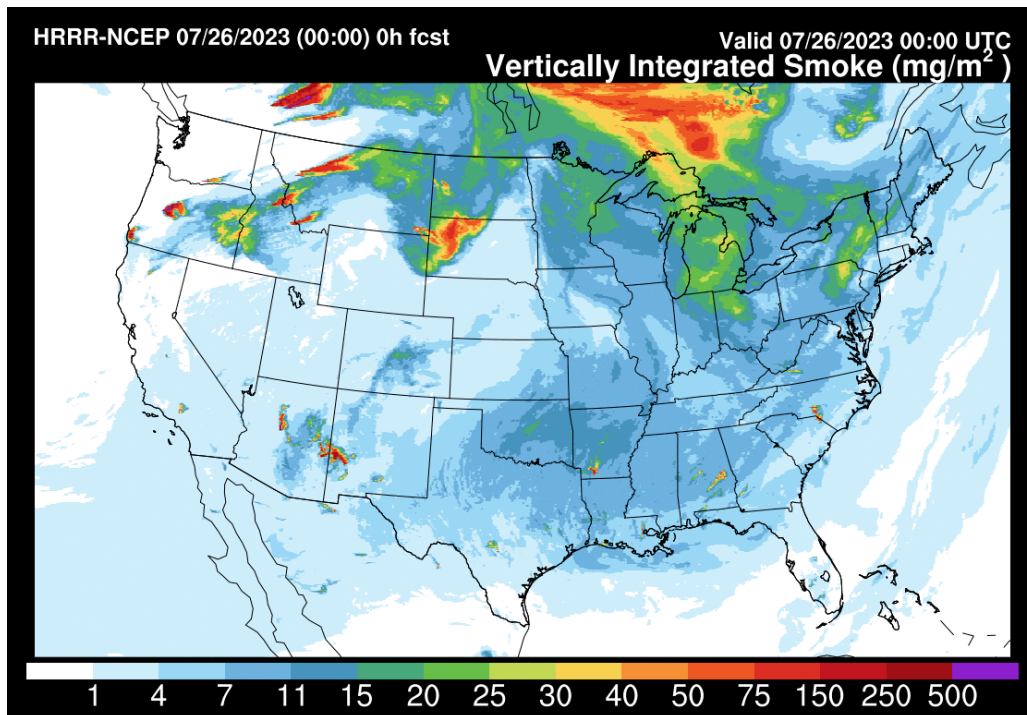
Canada/United States/Atlantic Ocean/Northern Mexico/Pacific Ocean off
the U.S. West Coast and south Mexico/Northern Gulf of Mexico...

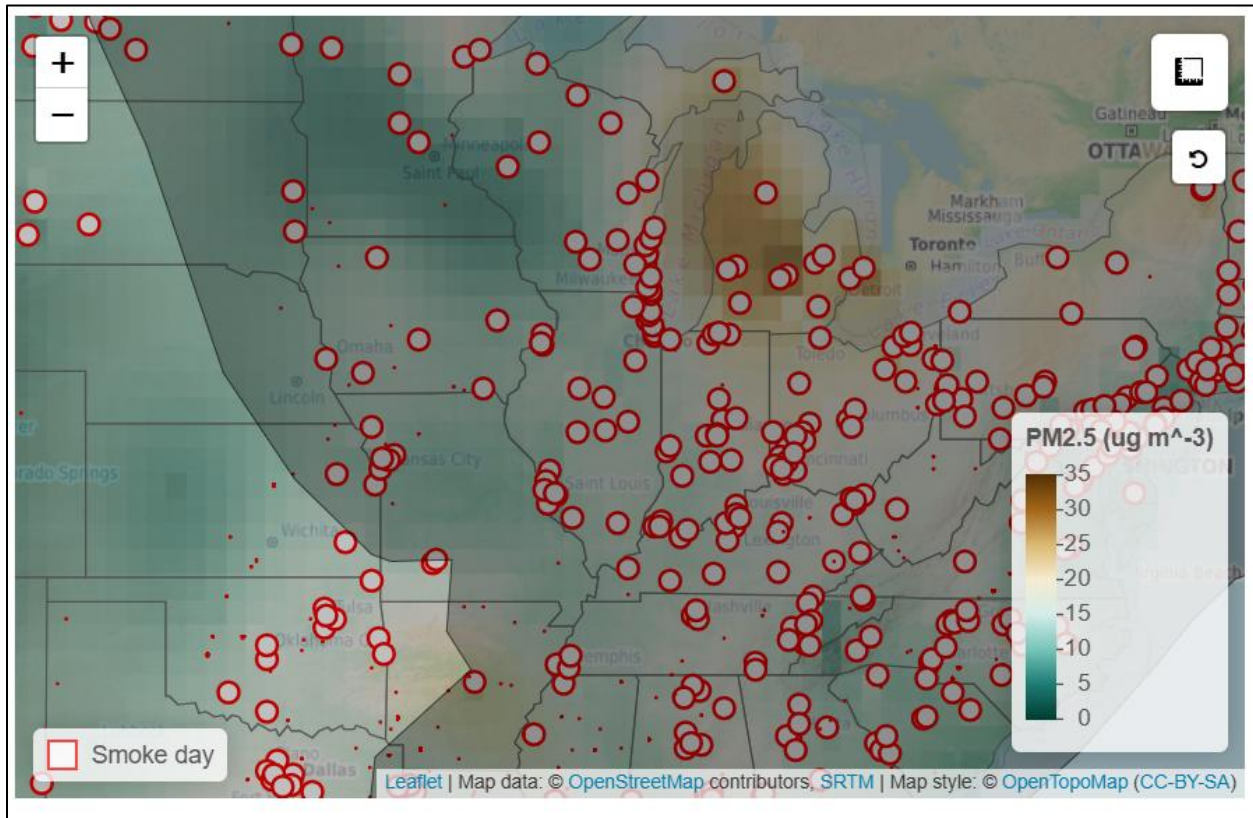
The enormous area of smoke primarily from the Canadian wildfires continues to be seen covering virtually all of Canada and most of the U.S. including most of Alaska, along with the northern half of Mexico and the northeastern Pacific off southern Alaska and southwest coast of Canada. Within this larger area of thin density smoke were batches of moderate to thick density smoke. The thick to very thick smoke that covered much of northern Canada within the Northwestern Territories and extending southeast through central Canada and into the Midwestern states and Great Lakes region was associated from numerous wildfires in western and northwestern Canada. The moderate smoke from these fires extended from Alaska and Pacific Ocean off of the southern Alaskan coast, through central Canada, and moving to the southeast/east where it eventually settled into eastern Canada, where fires in Quebec were previously seen producing localized moderate to thick smoke, but cloud cover precluded today's analysis in the region. This smoke also extended well over the northwestern and north central U.S., covering much of Mid-west, Mississippi valley region and northeastern U.S.

July 26, 2023**PM_{2.5} Monitoring Sites Impacted by Wildfire Smoke**

Monitor name	AQS	Date	Daily average (µg/m³)	Tier 2 Threshold (µg/m³)
Columbus - Rocky Ford Drive	180050009	7/26/2023	16.3	13.7
Muncie - Central HS	180350006	7/26/2023	19.0	13.2
Elkhart - Prairie St	180390008	7/26/2023	20.3	16.3
Plummer	180550001	7/26/2023	15.1	14.7
Fishers	180570007	7/26/2023	18.2	13.8
Mechanicsburg	180650003	7/26/2023	17.3	15.5
Kokomo - E. Vaile Ave	180670004	7/26/2023	18.0	14.7
East Chicago - Franklin/Washington Sch	180890006	7/26/2023	19.2	16.1
Gary - Madison St	180890031	7/26/2023	20.8	16
East Chicago - Marina	180890034	7/26/2023	21.3	18
Hammond-167th St	180890036	7/26/2023	17.6	16.3
Michigan City - Marsh Elem. Sch.	180910011	7/26/2023	18.3	15.9
Anderson - Eastside Elem	180950011	7/26/2023	17.9	15.4
Bloomington - Binford	181050003	7/26/2023	14.5	13.9
South Bend - Shields Dr.	181410015	7/26/2023	20.3	16.9
Evansville - U of E	181630016	7/26/2023	15.5	15.5
Evansville - Buena Vista	181630021	7/26/2023	17.0	15.1
Larwill	181830003	7/26/2023	24.8	15

AirNow Tech Fire/HMS Smoke Map with Backward Trajectories – July 26, 2023**Satellite Imagery with MAIAC AOD – July 26, 2023**

Satellite Imagery with MAIAC AOD – July 26, 2023**HRRR Smoke - Vertically Integrated Smoke – July 26, 2023**

GAM PMO3 Smoke Output – July 26, 2023**NOAA Satellite Smoke – 2023 Satellite Smoke Text Excerpts**

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE
IMAGERY
THROUGH 1700Z July 26, 2023

SMOKE:

Canada/United States/Atlantic Ocean/Northern Mexico/Pacific Ocean off the U.S. West Coast/Northern Gulf of Mexico...

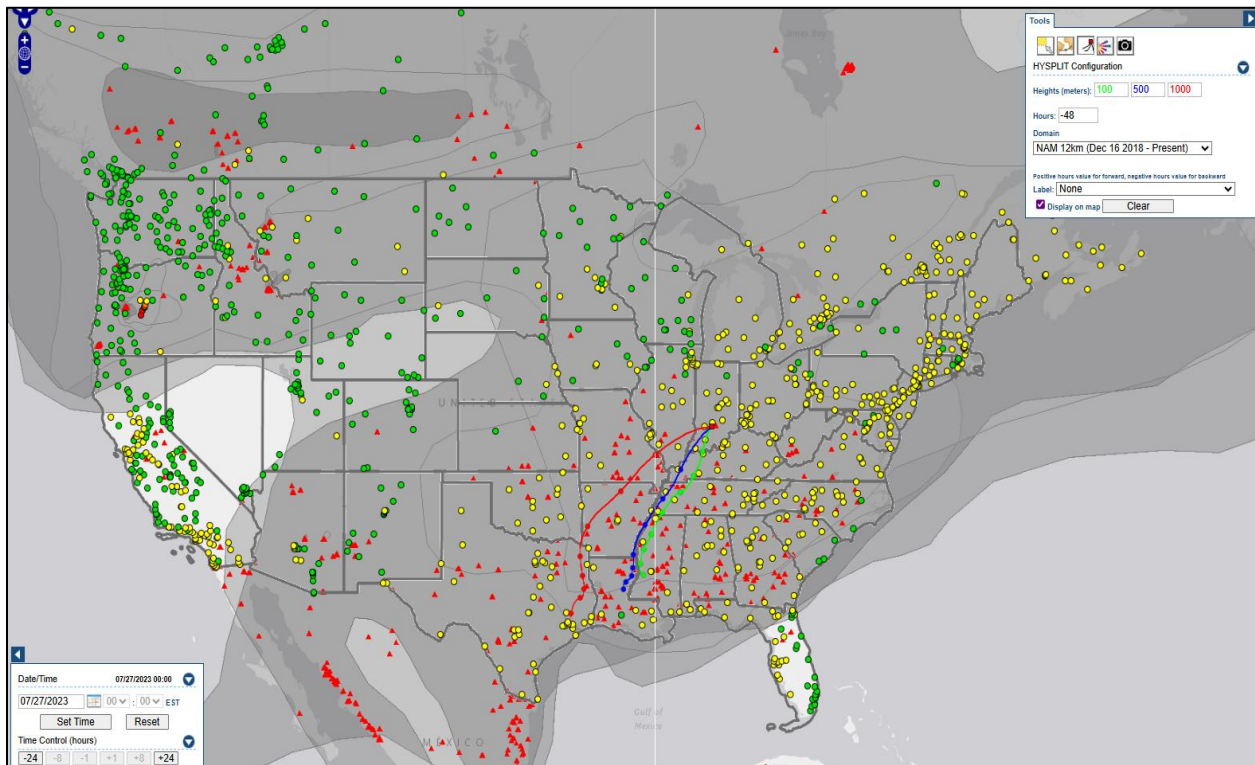
The large area of smoke primarily from the wildfires in western and northwestern Canada continues to be observed today. The light smoke blankets an area including much of Canada, a significant portion of the CONUS, eastern Alaska, the Gulf of Mexico, and the north Atlantic. Thicker smoke exists across northwestern Canada, where moderate to thick smoke emissions were seen emanating from persistent wildfire activity across eastern Northwest Territory and far northern Saskatchewan and moving mainly westward. Moderate density smoke was also noted emanating from the persistent fire activity in west-central Quebec. Remnant moderate density smoke was also observed across northeastern CONUS, Great Lakes, and into the Mid-Atlantic and Carolinas.

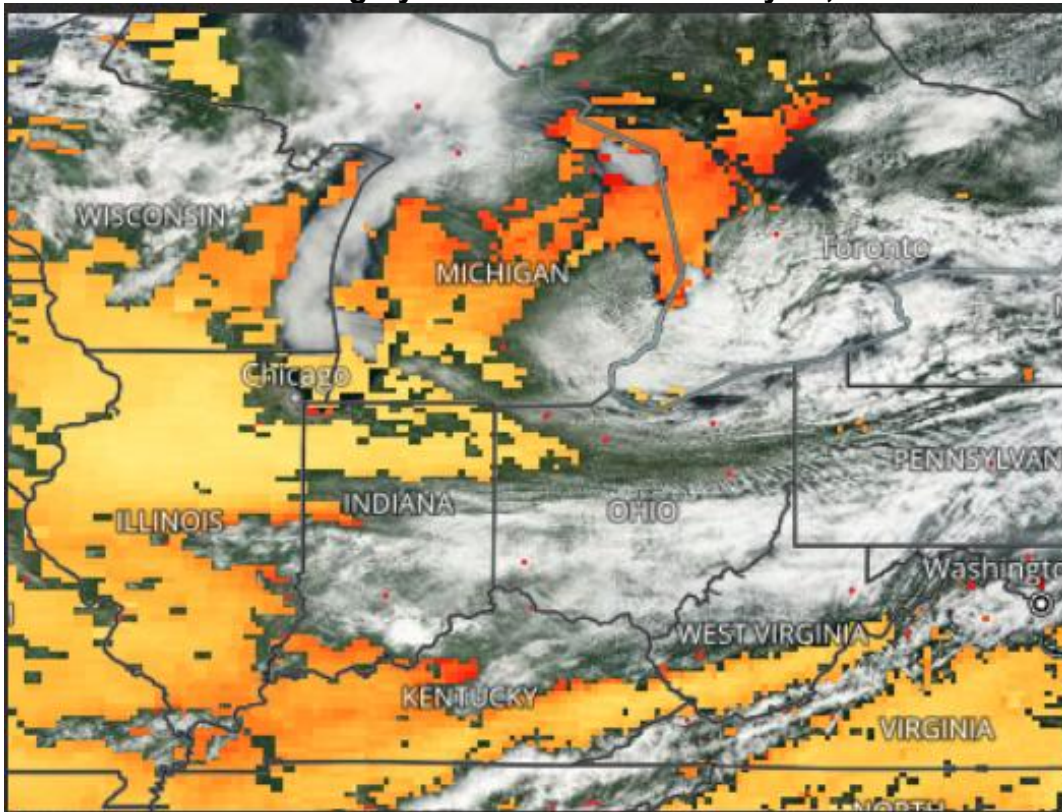
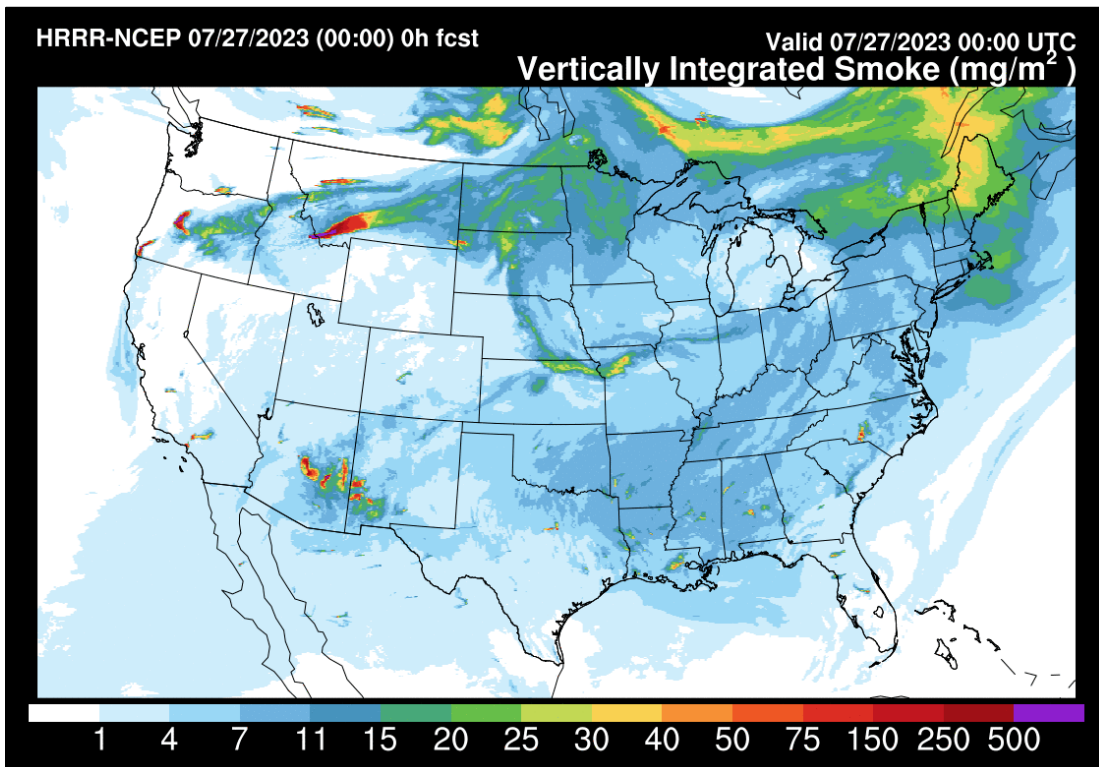
July 27, 2023

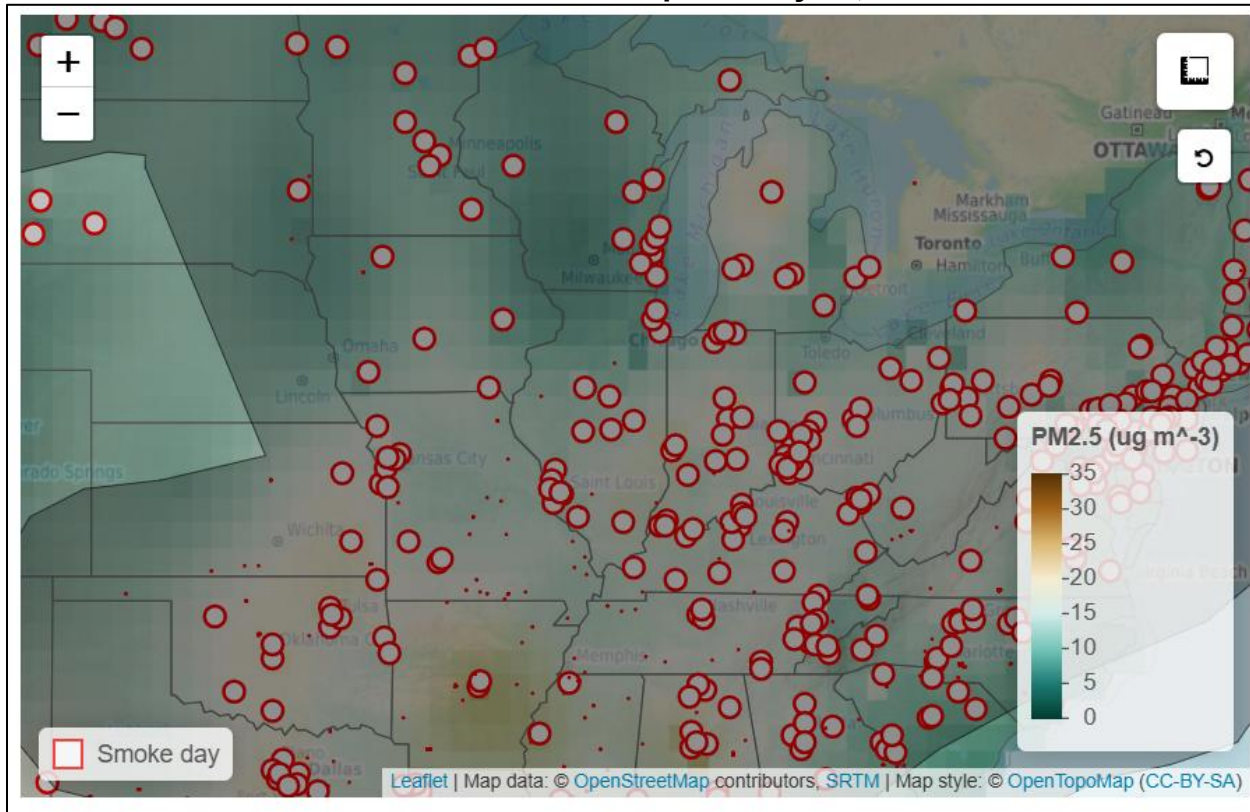
PM_{2.5} Monitoring Sites Impacted by Wildfire Smoke

Monitor name	AQS	Date	Daily average (µg/m ³)	Tier 2 Threshold (µg/m ³)
Columbus - Rocky Ford Drive	180050008	7/27/2023	21.1	13.7
Jeffersonville - Bates-Bowyer Ave	180190010	7/27/2023	19.4	17.0
Jasper - Post Office	180372001	7/27/2023	21.9	15.7
Plummer	180550001	7/27/2023	15.3	14.7
Fishers	180570007	7/27/2023	22.6	13.8
Kokomo - E. Vaile Ave	180670004	7/27/2023	18.5	14.7
Anderson - Eastside Elem	180950011	7/27/2023	19.5	15.4
Indianapolis - Washington Park	180970078	7/27/2023	18.9	17.8
Indianapolis - W. 18th St.	180970081	7/27/2023	21.8	20.9
Bloomington - Binford	181050003	7/27/2023	15.4	13.9
Lafayette - Greenbush St	181570008	7/27/2023	17.9	15.1
Evansville - Buena Vista	181630021	7/27/2023	19.3	15.1
Terre Haute - Lafayette Ave	181670018	7/27/2023	20.4	18.8

AirNow Tech Fire/HMS Smoke Map with Backward Trajectories - July 27, 2023



Satellite Imagery with MAIAC AOD – July 27, 2023**HRRR Smoke - Vertically Integrated Smoke – July 27, 2023**

GAM PMO3 Smoke Output – July 27, 2023**NOAA Satellite Smoke – 2023 Satellite Smoke Text Excerpts**

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE
IMAGERY
THROUGH 1700Z July 27, 2023

SMOKE:

Canada/United States/Atlantic Ocean/Northern Mexico/Pacific Ocean off the U.S. West Coast/Northern Gulf of Mexico...

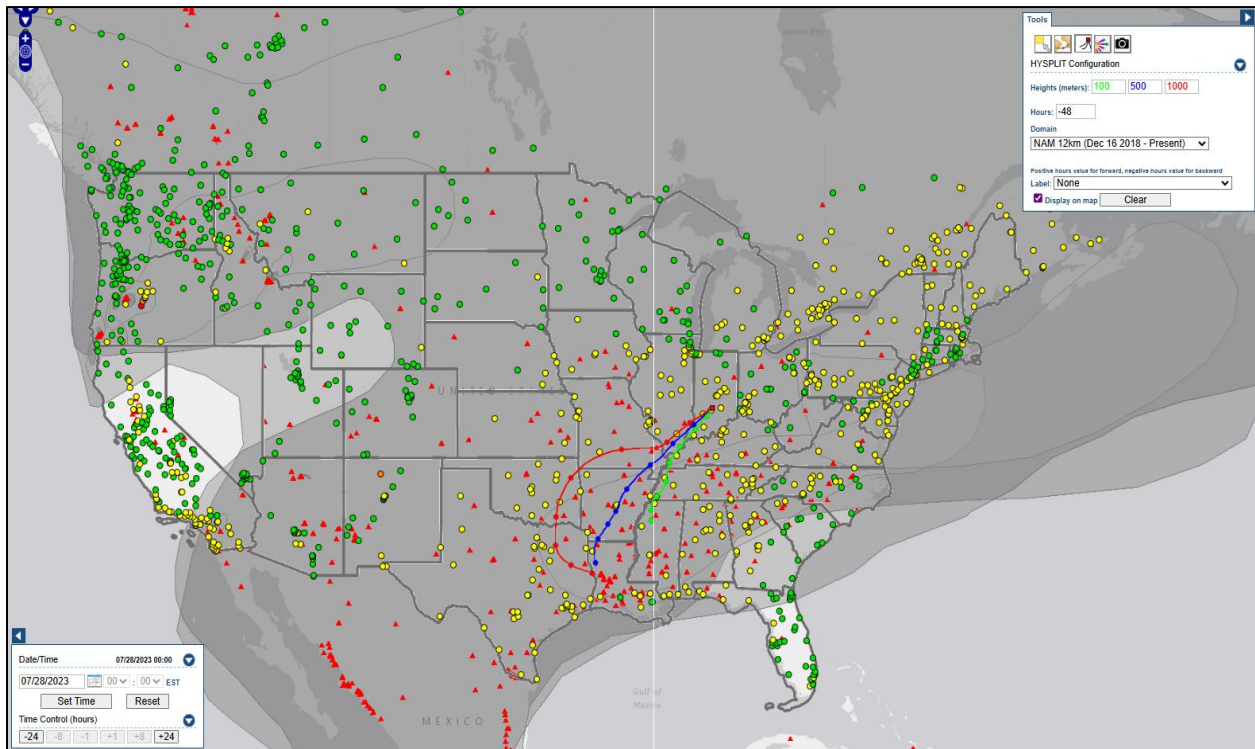
Heavy, dense smoke from fires in northwestern Canada was observed across northern Alberta and British Columbia, as well as much of Northwest Territory and the Yukon. Moderate smoke extended from eastern Alaska to northern Nunavut. Additional moderate smoke, presumed to be mostly from the same fires, also extended across the northwestern U.S. and border regions of Canada, extending eastward and southward across much of the eastern half of the U.S. except for Florida and New England. The area of light smoke extended from Eastern Alaska across the whole of Canada and much of the U.S. except California, Nevada, and smaller portions of the mountain west. This area also extended down across the coastal regions of northern Mexico, where it is presumed that it mixed with remnant smoke from local seasonal burning.

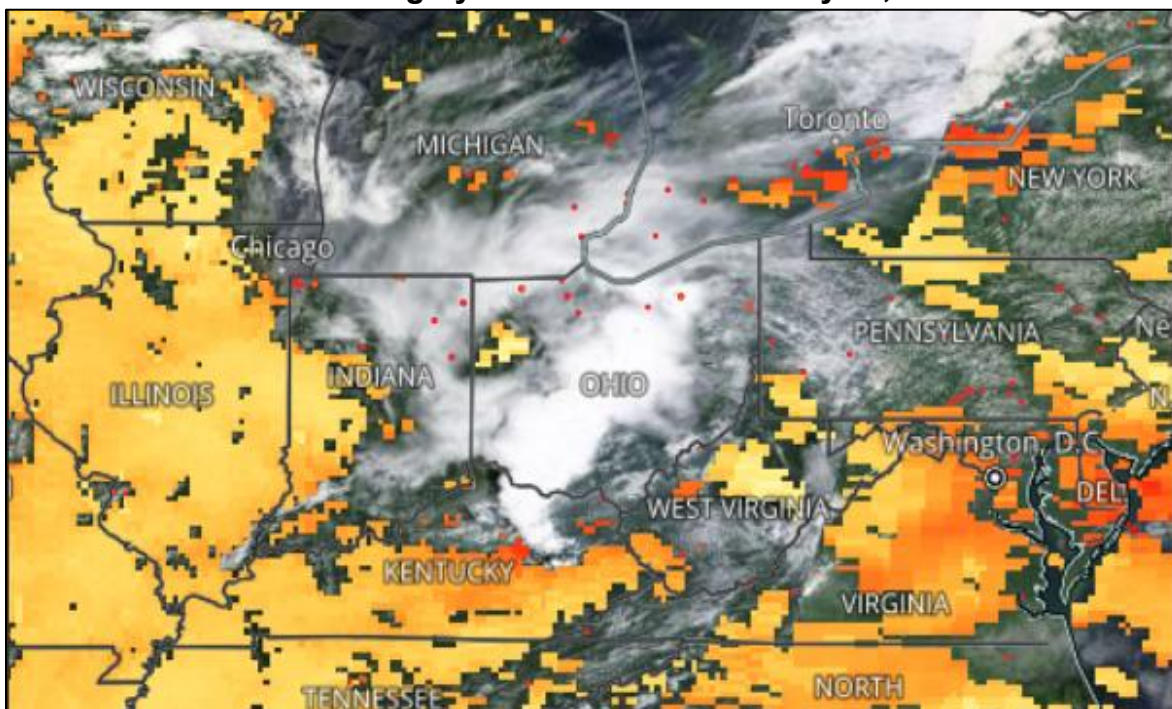
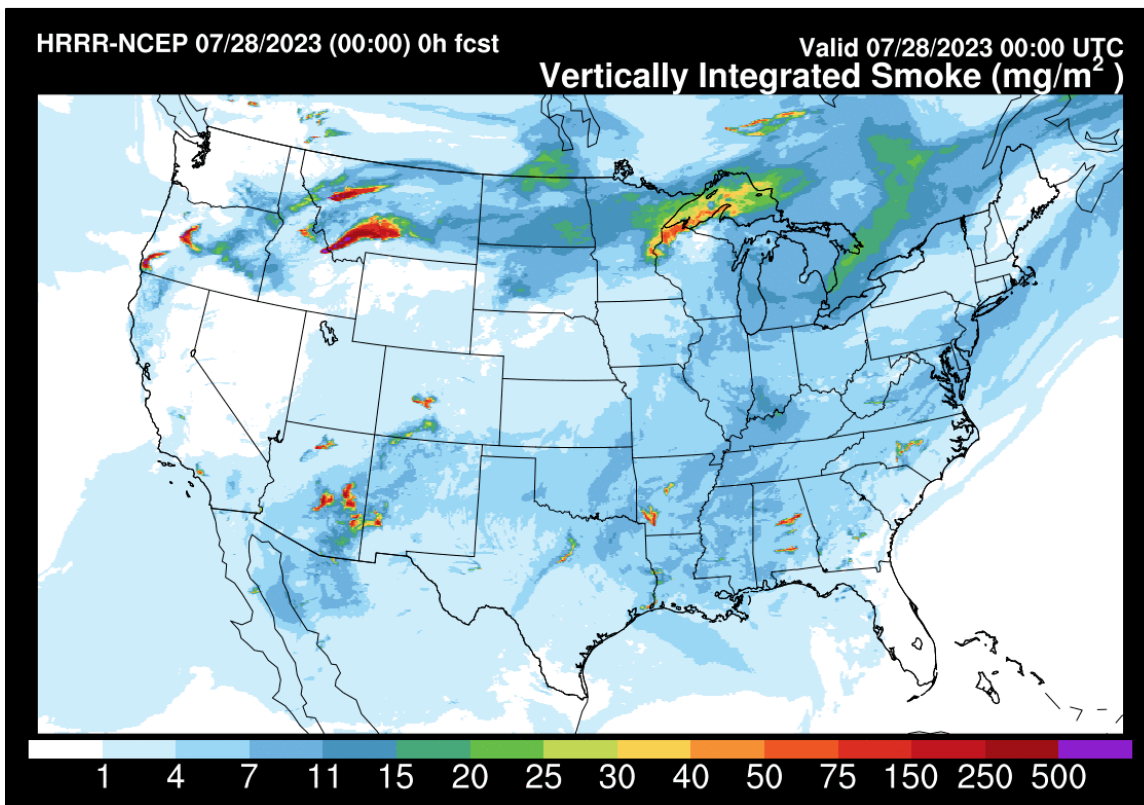
July 28, 2023

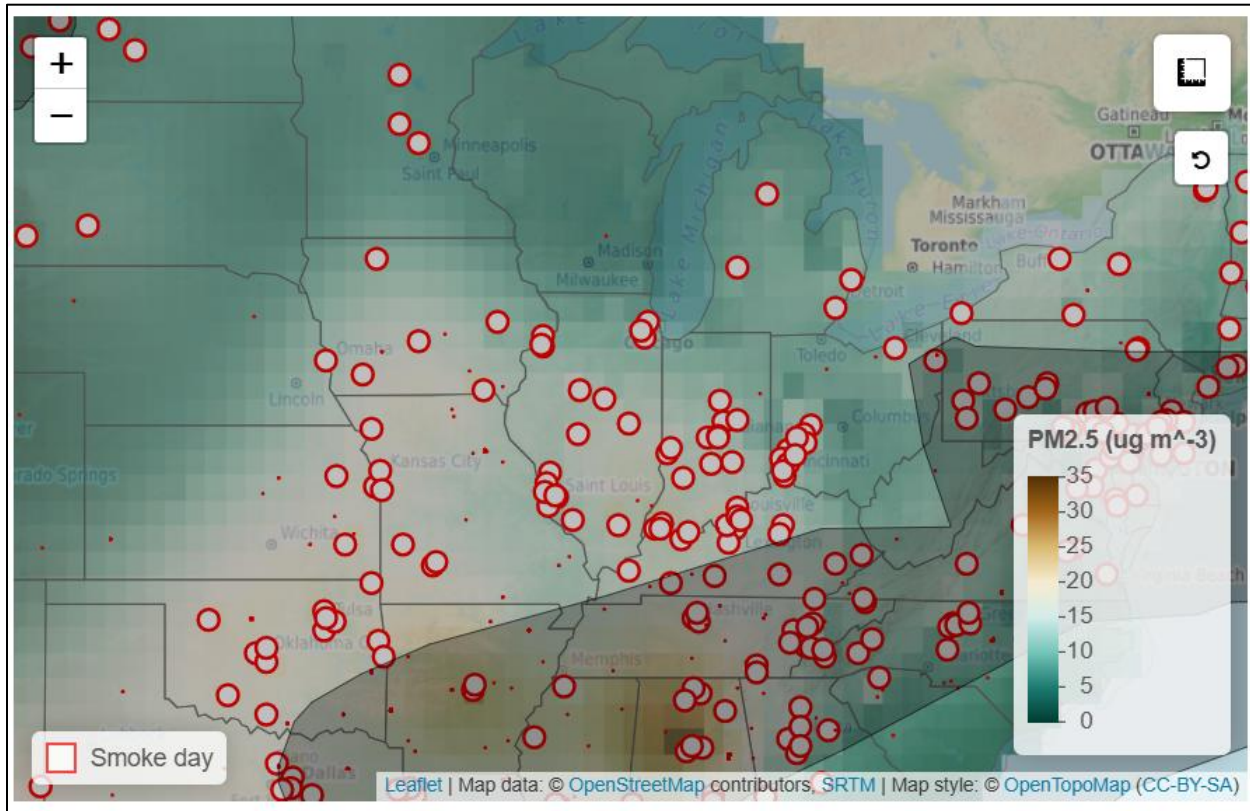
PM_{2.5} Monitoring Sites Impacted by Wildfire Smoke

Monitor name	AQS	Date	Daily average (µg/m ³)	Tier 2 Threshold (µg/m ³)
Columbus - Rocky Ford Drive	180050008	7/28/2023	17.4	13.7
Jeffersonville - Bates-Bowyer Ave	180190010	7/28/2023	20.5	17.0
Jasper - Post Office	180372001	7/28/2023	22.5	15.7
Plummer	180550001	7/28/2023	16.1	14.7
Fishers	180570007	7/28/2023	14.6	13.8
Bloomington - Binford	181050003	7/28/2023	13.9	13.9
Evansville - Buena Vista	181630021	7/28/2023	20.6	15.1

AirNow Tech Fire/HMS Smoke Map with Backward Trajectories – July 28, 2023



Satellite Imagery with MAIAC AOD – July 28, 2023**HRRR Smoke - Vertically Integrated Smoke – July 28, 2023**

GAM PMO3 Smoke Output – July 28, 2023**NOAA Satellite Smoke – 2023 Satellite Smoke Text Excerpts**

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE
IMAGERY
THROUGH 1700Z July 28, 2023

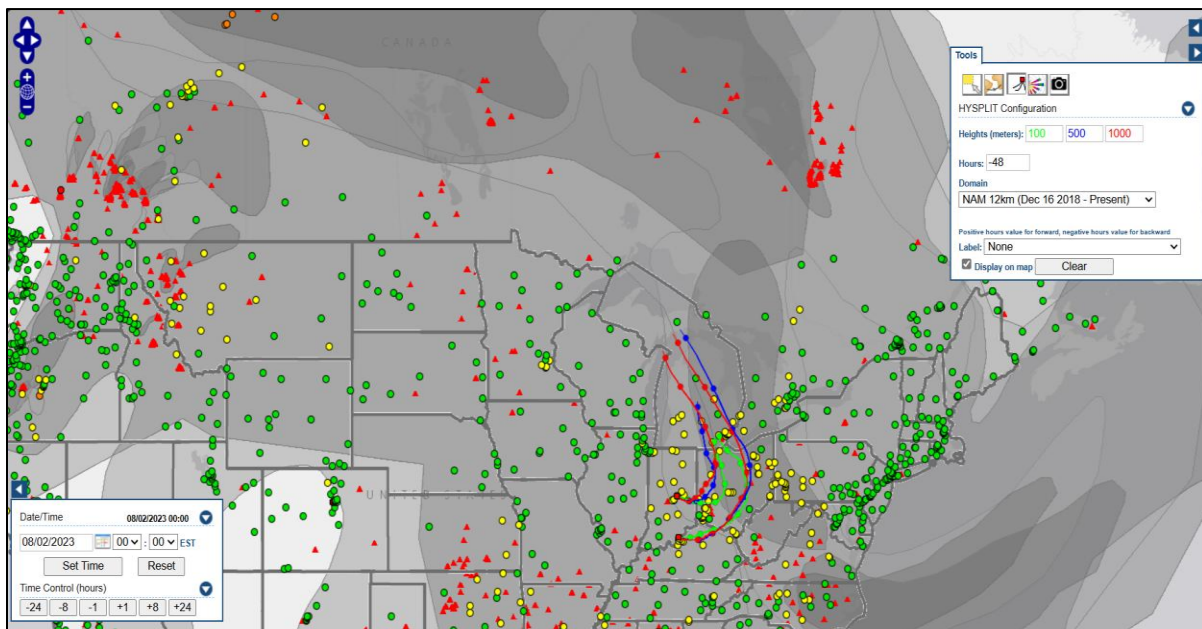
SMOKE:

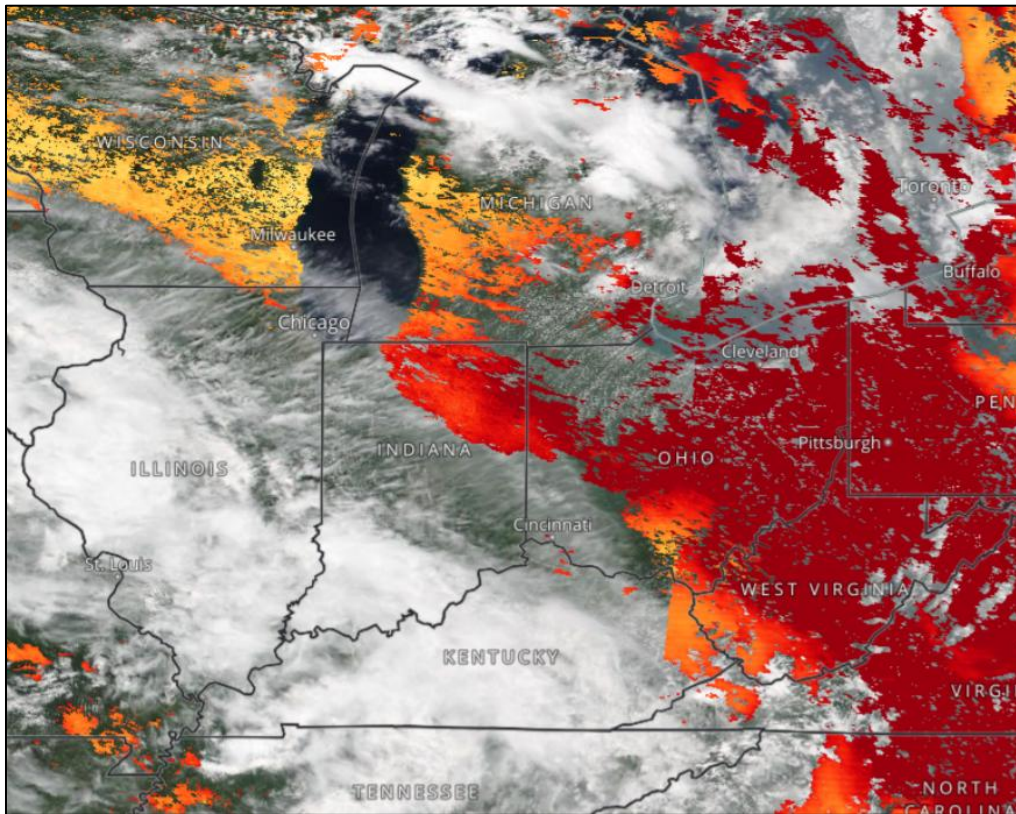
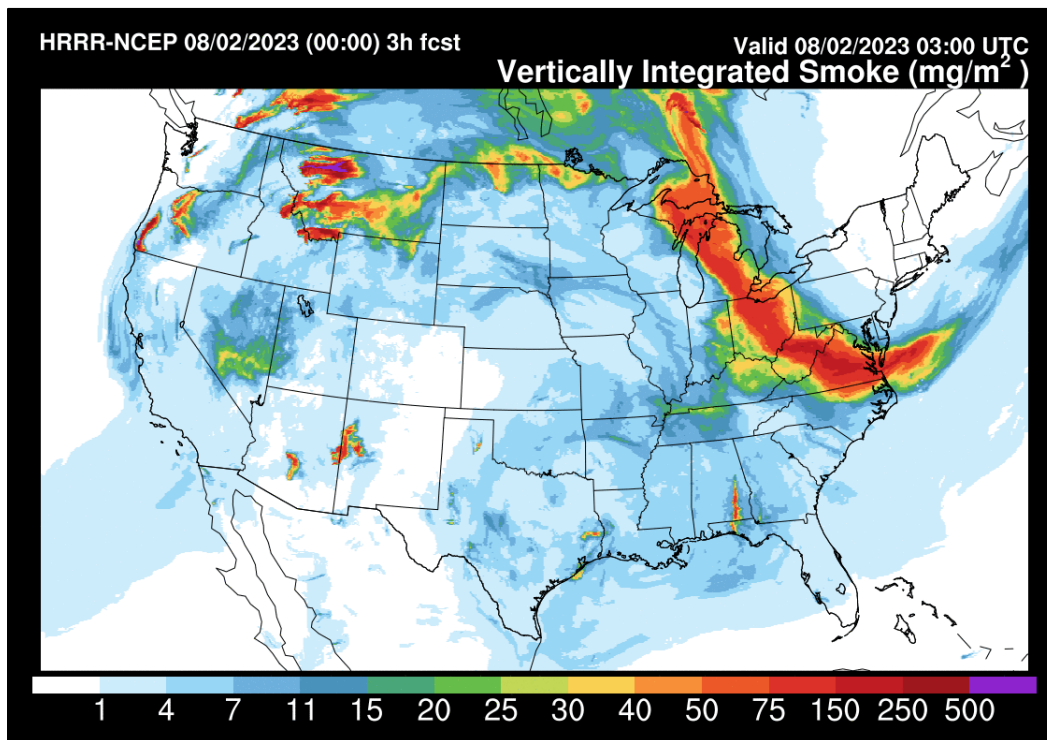
Canada/United States/Atlantic Ocean/Northern Mexico/Pacific Ocean off the U.S. West Coast/Northern Gulf of Mexico...

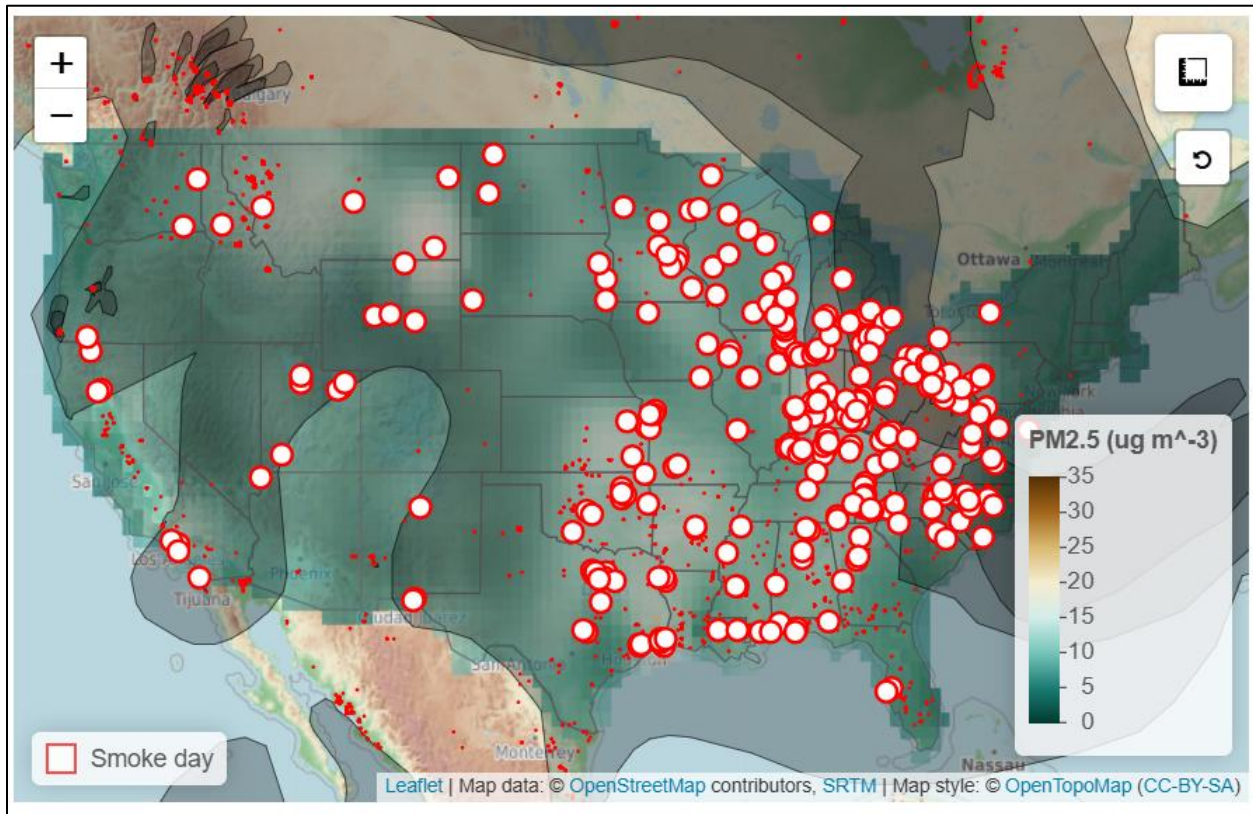
Heavy, dense smoke from fires in northwestern Canada was observed across northern Alberta and British Columbia, as well as much of Northwest Territory and the Yukon. Moderate smoke extended from eastern Alaska to northern Nunavut. Additional moderate smoke, presumed to be mostly from the same fires, was observed across the northwestern U.S. and border regions of Canada, as well as over southeastern U.S. The area of light smoke extended from Eastern Alaska across the whole of Canada and much of the U.S. except California, Nevada, and smaller portions of the mountain west.

August 2, 2023**PM_{2.5} Monitoring Sites Impacted by Wildfire Smoke**

Monitor name	AQS	Date	Daily average (µg/m ³)	Tier 2 Threshold (µg/m ³)
Columbus – Rocky Ford Drive	180050008	8/2/2023	13.6	13.4
Jeffersonville - Bates-Bowyer Ave	180190010	8/2/2023	17.3	17.0
Fishers	180570007	8/2/2023	14.8	13.8
Mechanicsburg	180650003	8/2/2023	17.4	15.5
Kokomo - E. Vaile Ave	180670004	8/2/2023	14.7	14.7
Anderson - Eastside Elem	180950011	8/2/2023	17.3	15.4
Larwill	181830003	8/2/2023	16.4	15

AirNow Tech Fire/HMS Smoke Map with Backward Trajectories – August 2, 2023

Satellite Imagery with MAIAC AOD – August 2, 2023**HRRR Smoke - Vertically Integrated Smoke – August 2, 2023**

GAM PMO3 Smoke Output – August 2, 2023**NOAA Satellite Smoke – 2023 Satellite Smoke Text Excerpts**

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY

THROUGH 0220Z August 2, 2023

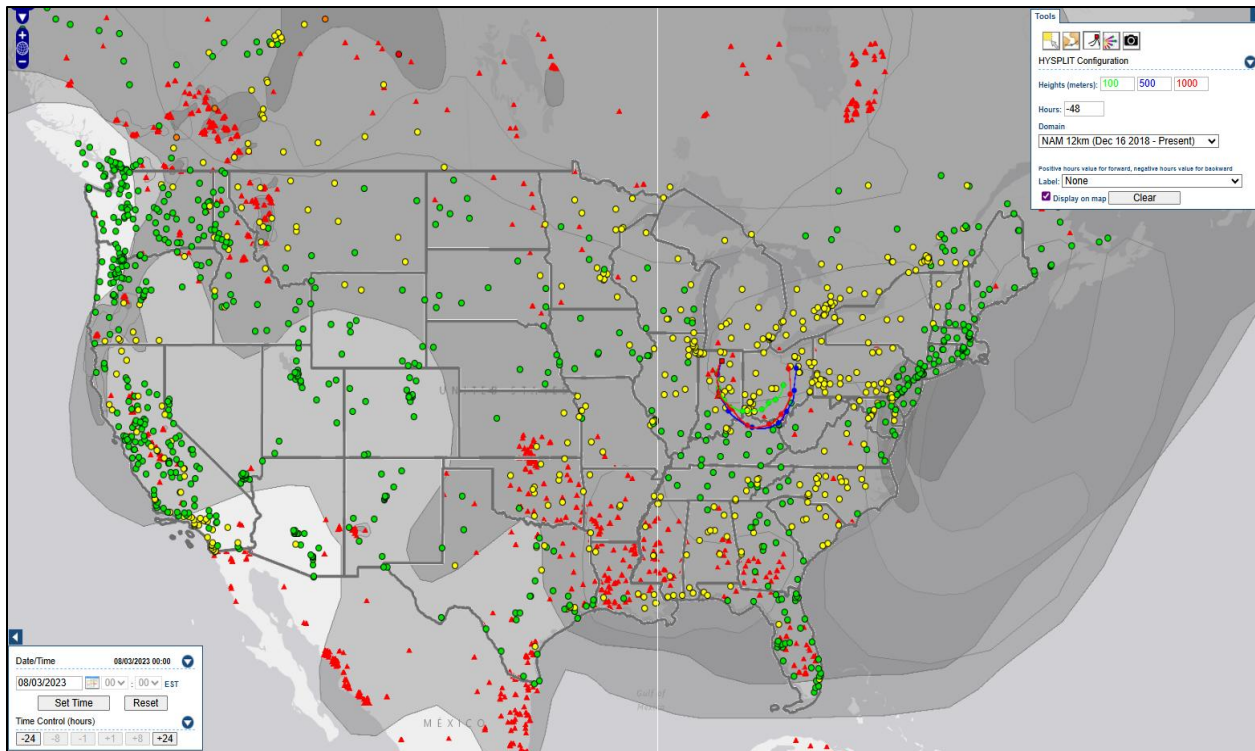
SMOKE:

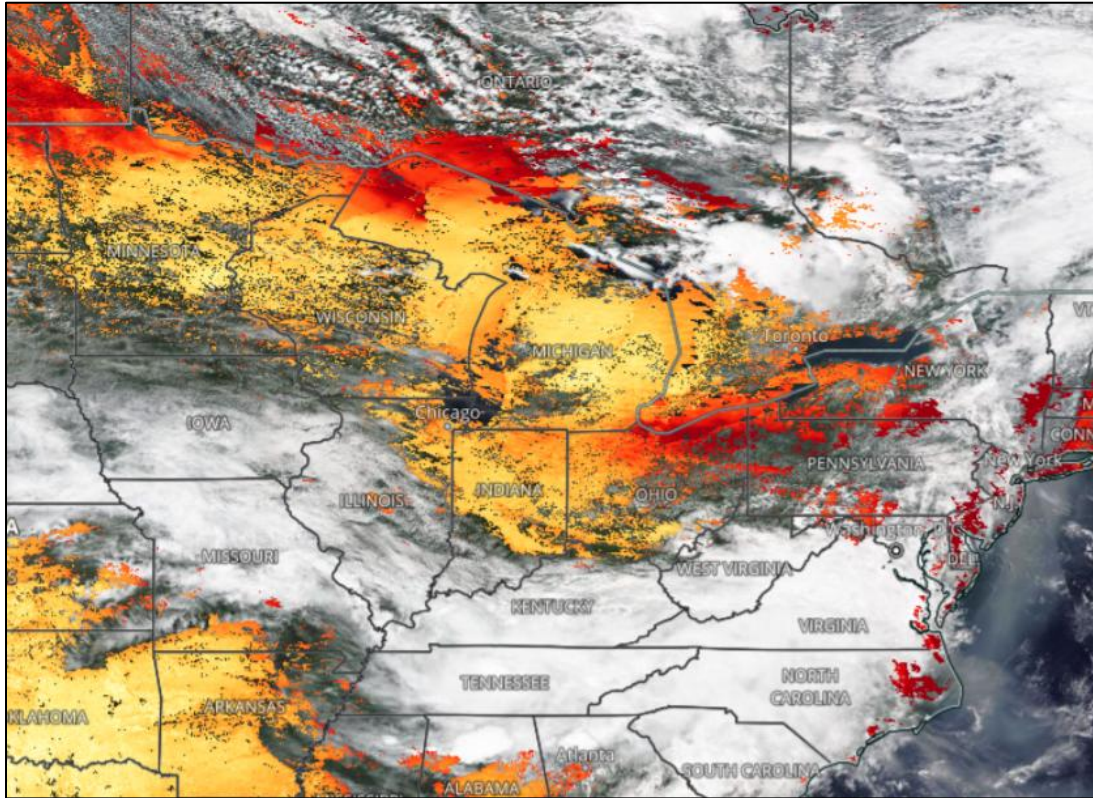
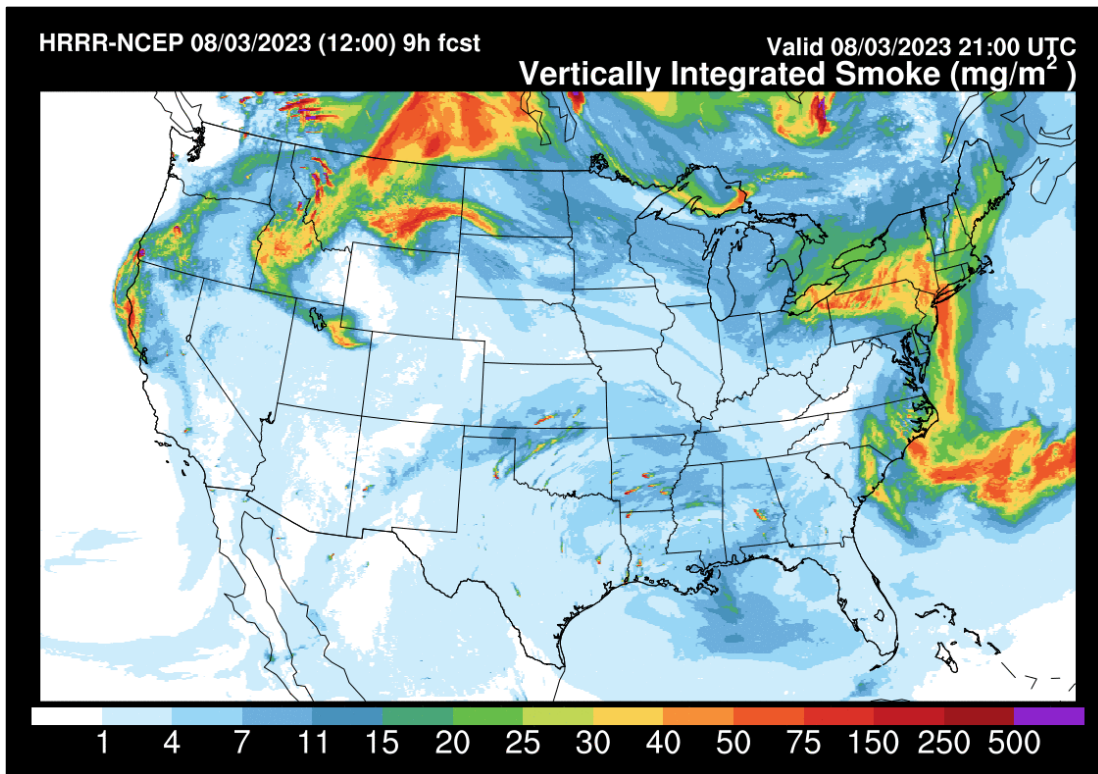
Northern U.S./Canada...

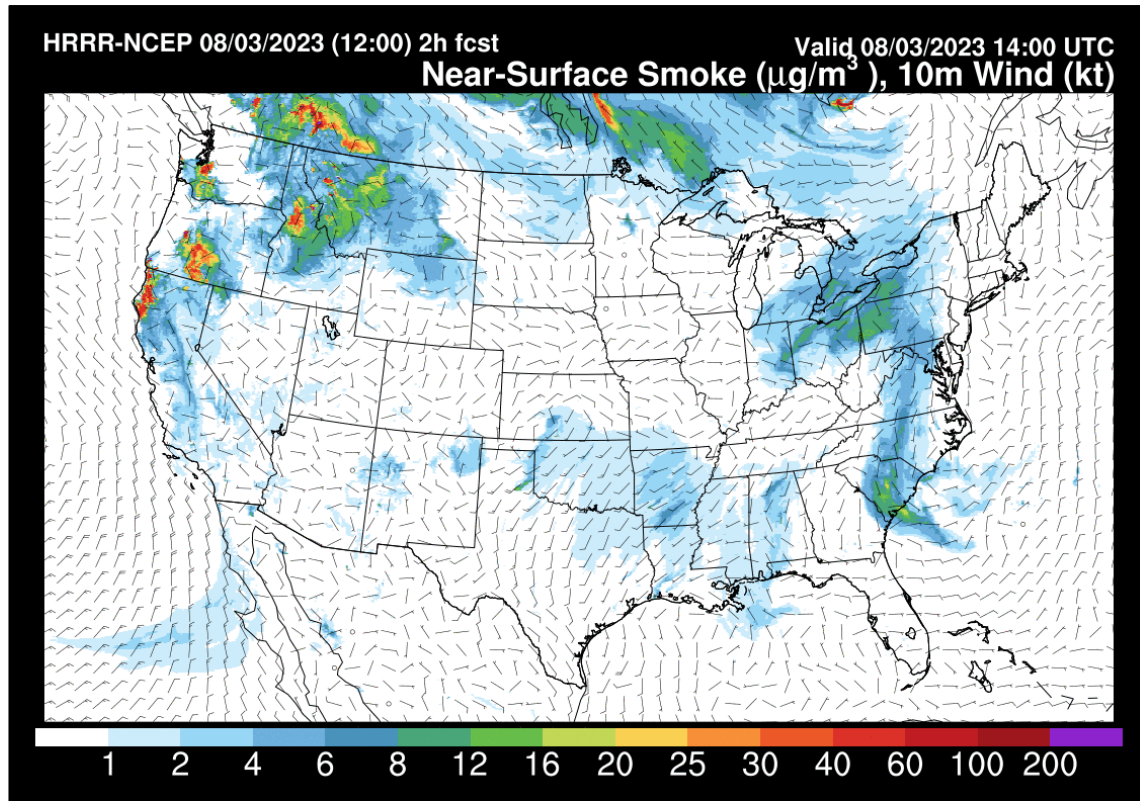
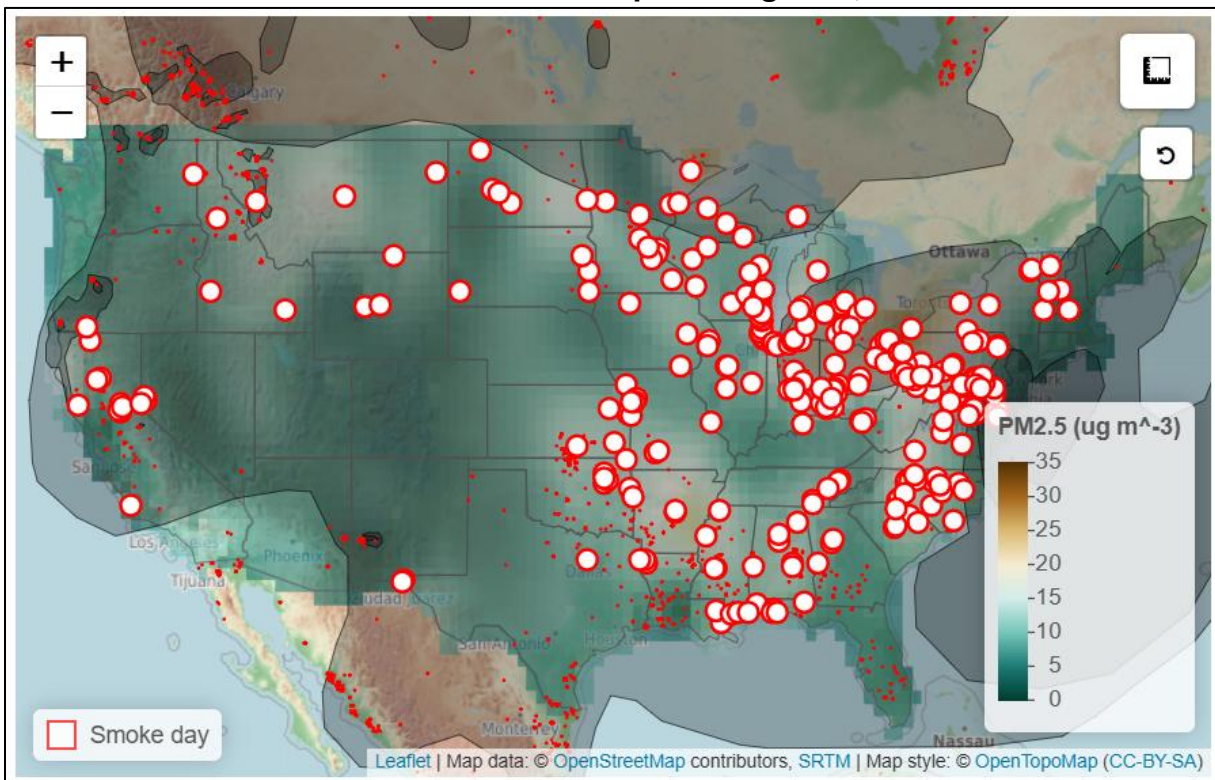
A very large thin density plume from ongoing wildfires over northwestern Canada covers eastern Alaska and large part of Canada from the Yukon southeast to central Ontario. This thin plume continues into the Lower 48 covering the Great Lakes, Ohio Valley, and Mid-Atlantic to offshore over the Atlantic southeast of New England. Within this thin density plume, a moderate density plume was detected over far northeastern British Columbia, northern Alberta/Saskatchewan/Manitoba, and western and central Ontario. This moderate plume continues southeast into parts of the Great Lakes, Ohio Valley, and Mid-Atlantic. A heavy density plume was observed over northeastern Manitoba, western Ontario, and in a narrow band across parts of the Great Lakes, Ohio Valley, and Mid-Atlantic.

August 3, 2023**PM_{2.5} Monitoring Sites Impacted by Wildfire Smoke**

Monitor name	AQS	Date	Daily average (µg/m ³)	Tier 2 Threshold (µg/m ³)
Elkhart - Prairie St	180390008	8/3/2023	19.0	16.3
Fishers	180570007	8/3/2023	14.2	13.8
Mechanicsburg	180650003	8/3/2023	16.8	15.5
Kokomo – E Vaile Ave	180670004	8/3/2023	14.3	13.9
Anderson - Eastside Elem	180950011	8/3/2023	17.7	15.4
Ogden Dunes	181270024	8/3/2023	20.4	15.3
South Bend - Shields Dr.	181410015	8/3/2023	21.1	16.9
Larwill	181830003	8/3/2023	22.3	15

AirNow Tech Fire/HMS Smoke Map with Backward Trajectories – August 3, 2023

Satellite Imagery with MAIAC AOD – August 3, 2023**HRRR Smoke - Vertically Integrated Smoke – August 3, 2023**

HRRR Smoke – Near-Surface Smoke – August 3, 2023**GAM PMO3 Smoke Output – August 3, 2023**

NOAA Satellite Smoke – 2023 Satellite Smoke Text Excerpts

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE
IMAGERY

THROUGH 0145Z August 3, 2023

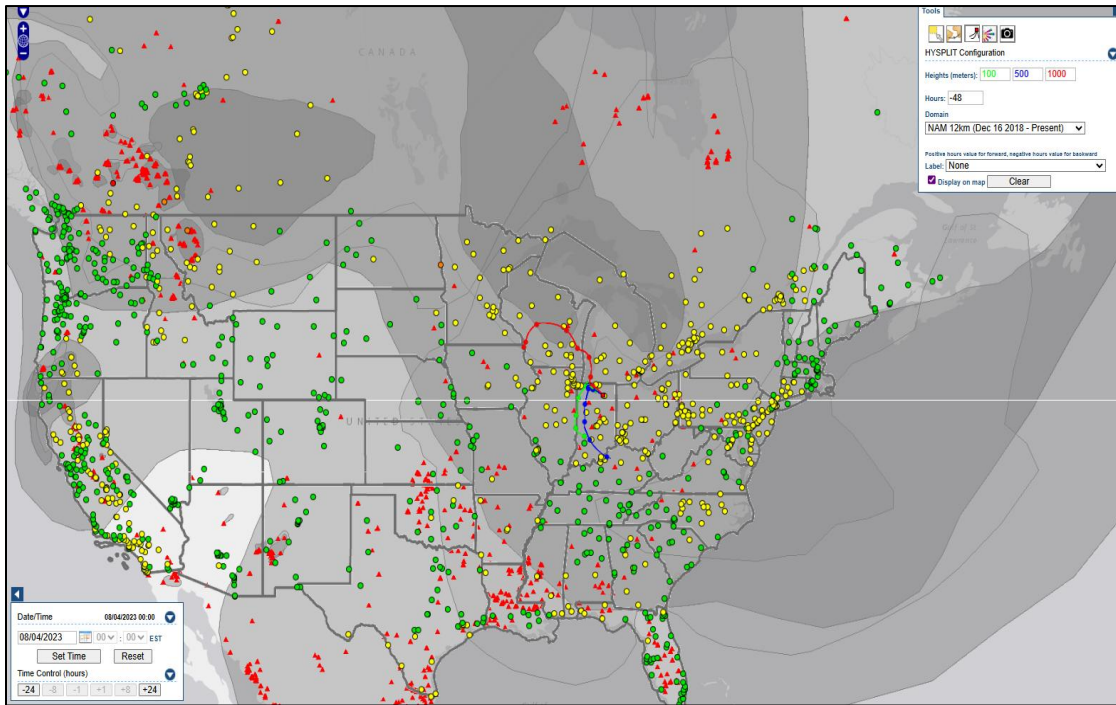
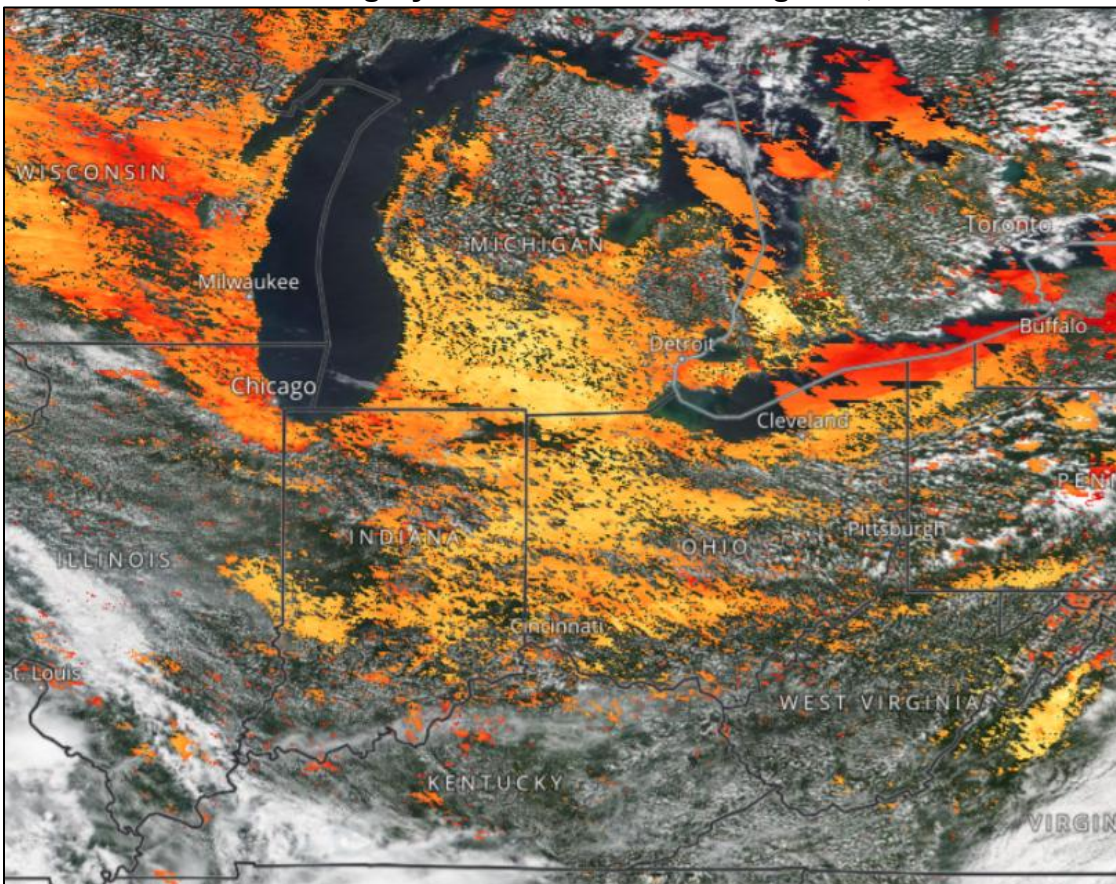
SMOKE:

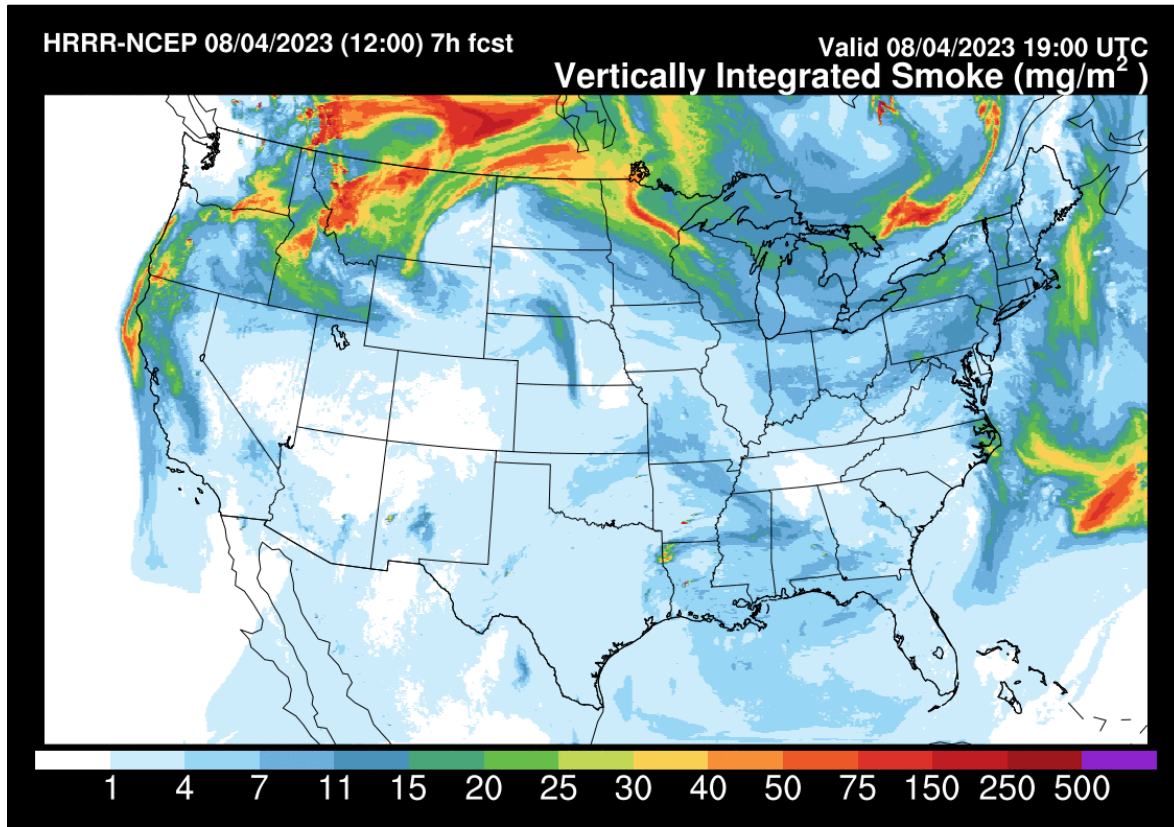
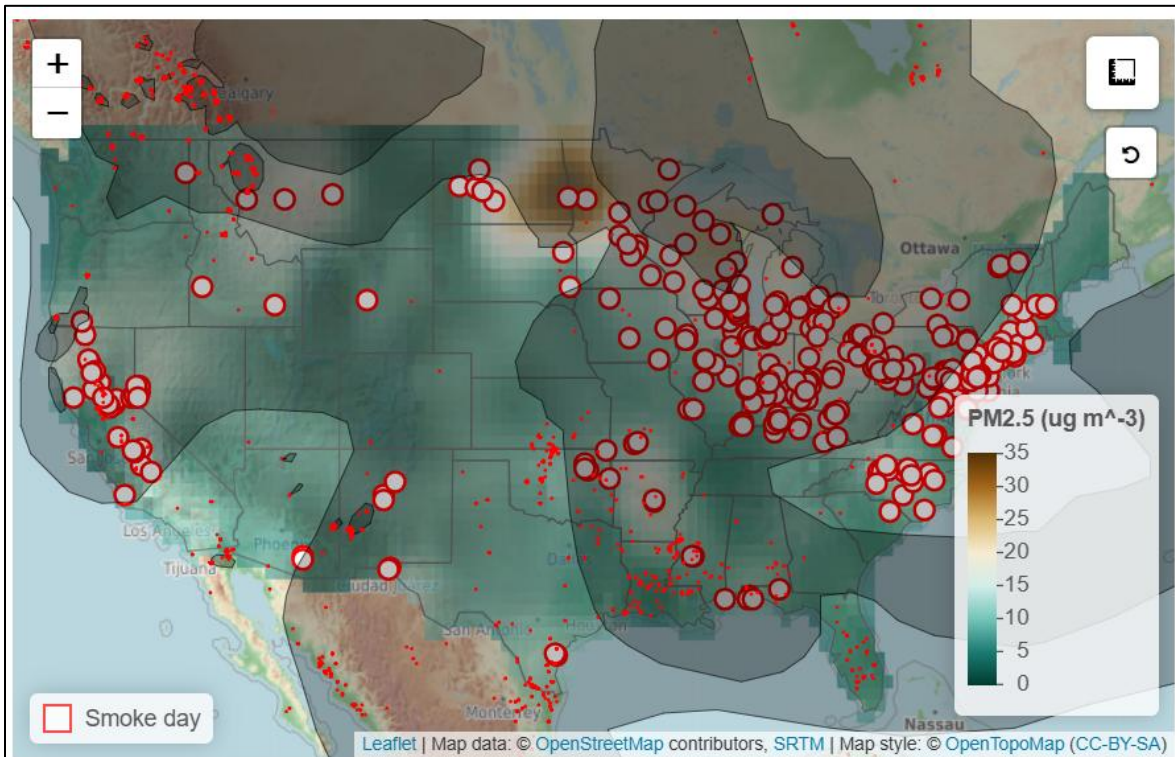
Northern and Eastern U.S./Canada/Atlantic Ocean...

The very large area of light density smoke continued to be seen across southern/central Alaska, most of Canada except for far northeast sections, the central and eastern US, and portions of the western Atlantic. The medium to high density smoke is seen from the western sections of the Yukon Territory through northwest Territory, Nunavut, northern British Columbia, northern/central Alberta and Saskatchewan, most of Manitoba and Ontario, and into western sections of Quebec. Then, the highest density smoke extends south through the Great Lakes region, Ohio Valley and parts of the Mid-Atlantic and central/eastern sections of North Carolina and South Carolina and then into the western Atlantic.

August 4, 2023**PM_{2.5} Monitoring Sites Impacted by Wildfire Smoke**

Monitor name	AQS	Date	Daily average (µg/m³)	Tier 2 Threshold (µg/m³)
Columbus - Rocky Ford Drive	180050008	8/4/2023	16.0	13.7
Muncie - Central HS	180350006	8/4/2023	16.2	13.2
Elkhart - Prairie St	180390008	8/4/2023	17.5	16.3
Jeffersonville – Bates-Bowyer Ave	180190010	8/4/2023	16.7	16.6
Fishers	180570007	8/4/2023	14.5	13.8
Carmel - Hazel Dell Parkway	180570008	8/4/2023	16.5	16.5
Kokomo - E. Vaile Ave	180670004	8/4/2023	15.7	14.7
Gary - Madison St	180890031	8/4/2023	23.8	16
Michigan City - Marsh Elem. Sch.	180910011	8/4/2023	15.9	15.9
Anderson - Eastside Elem	180950011	8/4/2023	15.5	15.4
Indianapolis - Washington Park	180970078	8/4/2023	18.9	17.8
Indianapolis - School 21	180970084	8/4/2023	19.2	15.5
Indianapolis- I-70 E	180970087	8/4/2023	23.6	20.5
Bloomington - Binford	181050003	8/4/2023	13.9	13.9
South Bend - Shields Dr.	181410015	8/4/2023	18.1	16.9
Larwill	181830003	8/4/2023	16.5	15

AirNow Tech Fire/HMS Smoke Map with Backward Trajectories – August 4, 2023**Satellite Imagery with MAIAC AOD – August 4, 2023**

HRRR Smoke - Vertically Integrated Smoke – August 4, 2023**GAM PMO3 Smoke Output – August 4, 2023**

NOAA Satellite Smoke – 2023 Satellite Smoke Text Excerpts

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE
IMAGERY

THROUGH 0218Z August 4, 2023

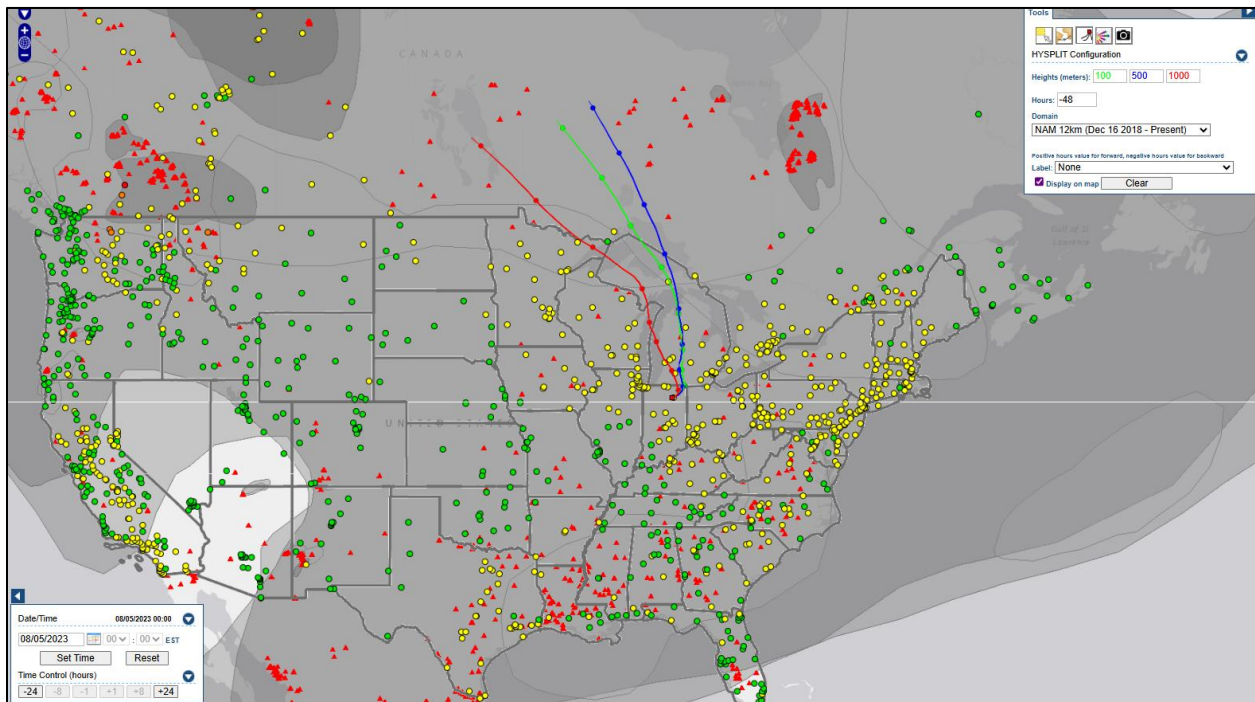
SMOKE:

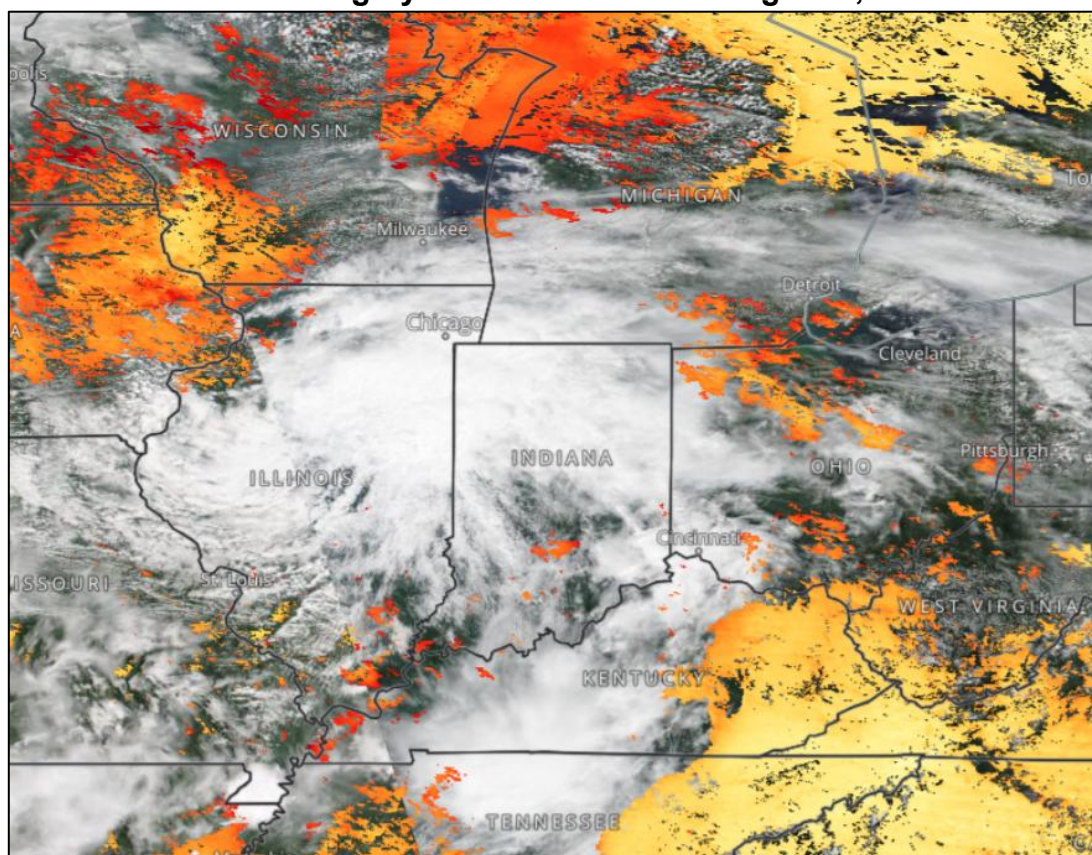
United States, including Alaska, Canada, Atlantic Ocean and North
Pacific Ocean....

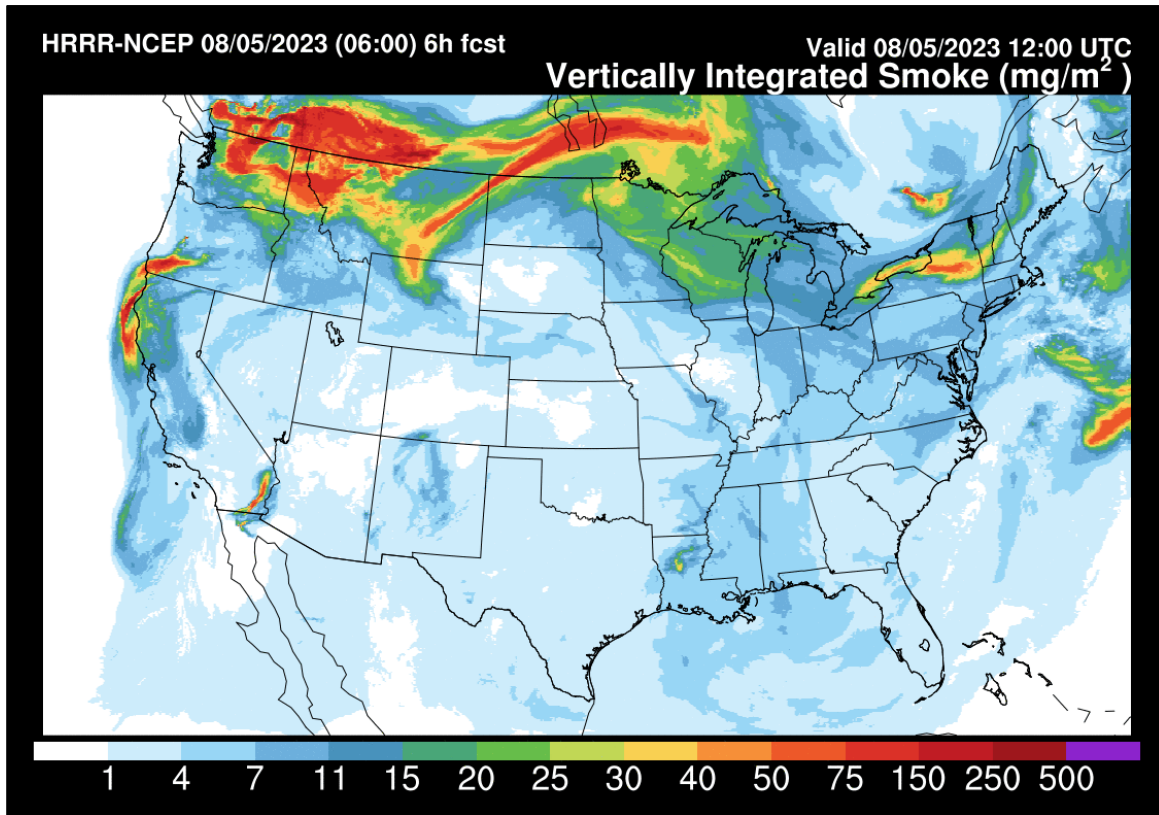
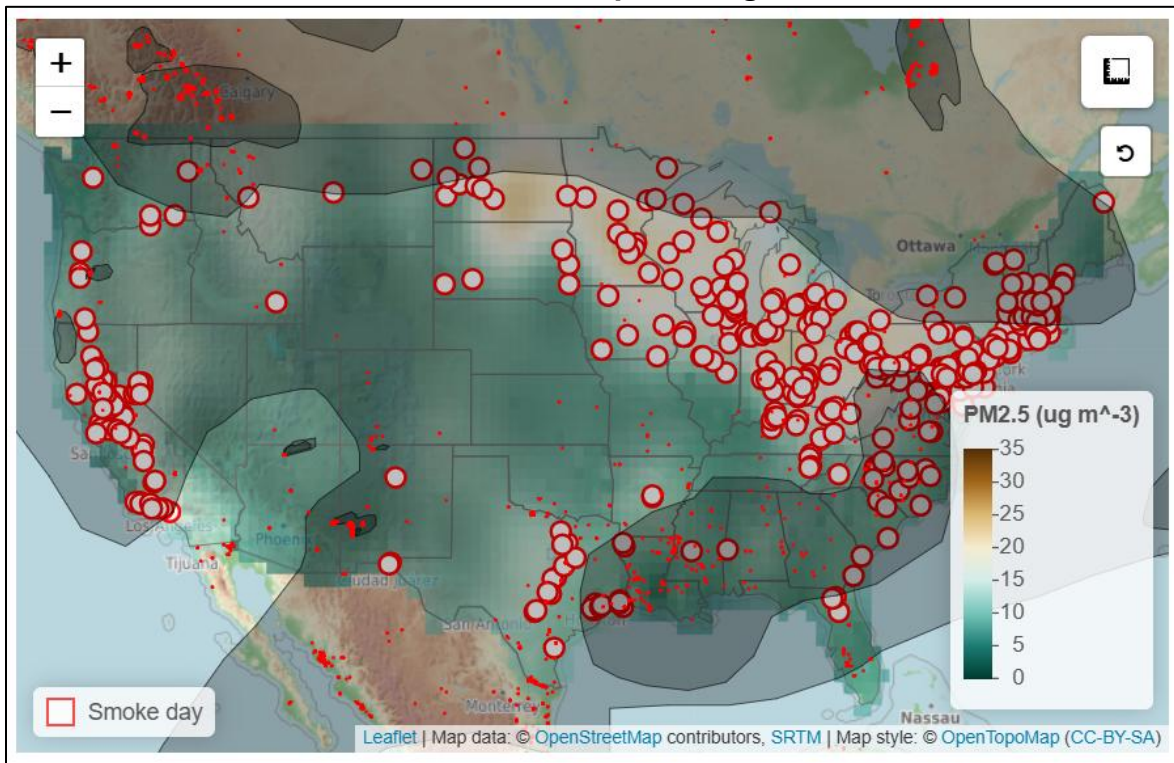
Fires over western Canada, the Pacific Northwest of the United States and Alaska were producing a very large area of smoke that continues to be seen over most of the Eastern, Central and Northwest portions of the United States, most of Canada, eastern Alaska, the Atlantic Ocean, northern Gulf of Mexico and portions of the North Pacific Ocean. Within this area a very large area of moderate density smoke was seen over much of northwestern, southwestern, and central Canada to as far east as western Quebec and the southeastern United States. Areas of the highest density smoke were seen along the coastline of the Eastern United States extending from the New York City area south off the coast of Virginia and North Carolina, over southern Alberta and central Saskatchewan, southwestern British Columbia and also over northern portions of the Northwest Territories.

August 5, 2023**PM_{2.5} Monitoring Sites Impacted by Wildfire Smoke**

Monitor Name	AQS	Date	Daily Average ($\mu\text{g}/\text{m}^3$)	Tier 2 Threshold ($\mu\text{g}/\text{m}^3$)
Elkhart - Prairie St	180390008	8/5/2023	20.4	16.3
Fishers	180570007	8/5/2023	15.7	13.8
Mechanicsburg	180650003	8/5/2023	21.6	15.5
Kokomo - E. Vaile Ave	180670004	8/5/2023	16.8	14.7
Hammond-167th St	180890036	8/5/2023	17.5	16.3
Anderson - Eastside Elem	180950011	8/5/2023	20.4	15.4
Ogden Dunes	181270024	8/5/2023	19.3	15.3
South Bend - Shields Dr.	181410015	8/5/2023	21.1	16.9
Larwill	181830003	8/5/2023	20.8	15

AirNow Tech Fire/HMS Smoke Map with Backward Trajectories – August 5, 2023

Satellite Imagery with MAIAC AOD – August 5, 2023

HRRR Smoke - Vertically Integrated Smoke – August 5, 2023**GAM PMO3 Smoke Output – August 5, 2023**

NOAA Satellite Smoke – 2023 Satellite Smoke Text Excerpts

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY

THROUGH 0106Z August 5, 2023

SMOKE:

United States, including Alaska, Canada, Atlantic Ocean and North Pacific Ocean...

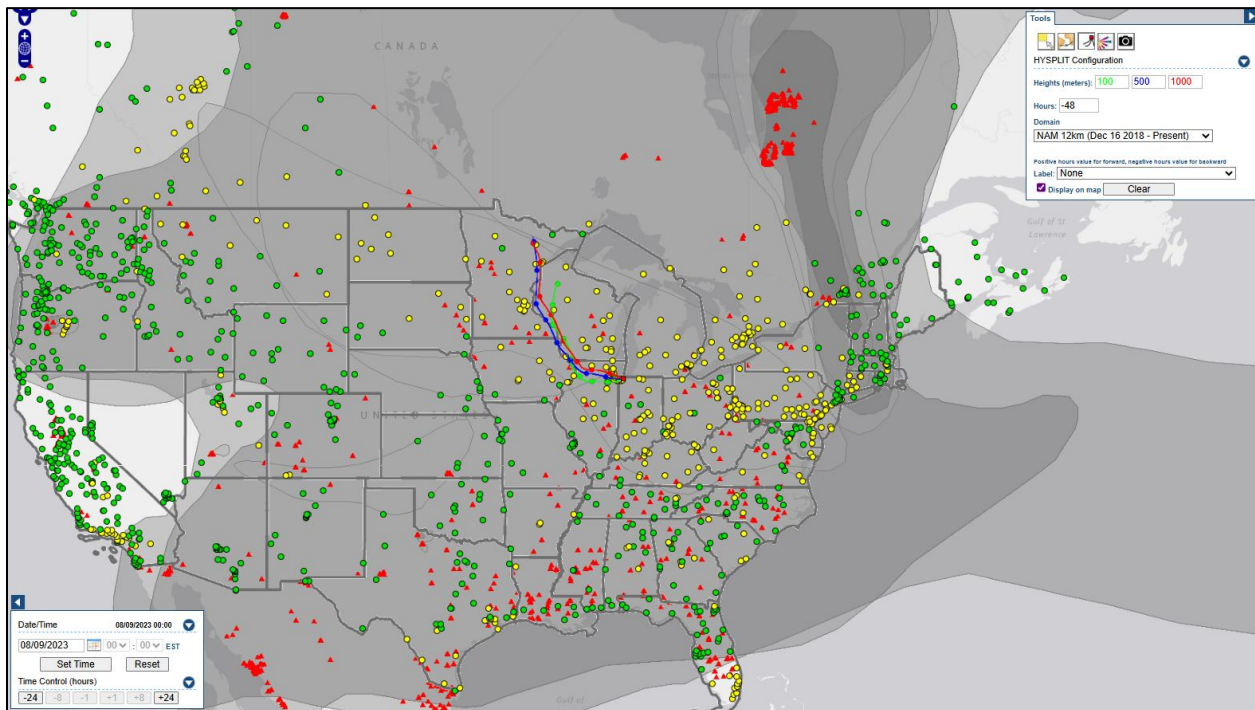
Wildfires over Alaska, western Canada, the Pacific Northwest of U.S. continued to produce a very large area of smoke that extends from Alaska through Yukon and Northwest Territories and over most of Canada. In the U.S. moderate smoke was seen over sections of northwest California, northern Oregon, most of Washington state, northern/central sections of Montana, Idaho and through parts of the Northern and Central Plains and then to the east coast into the Atlantic ocean, the southeastern U.S. and Gulf of Mexico. Denser smoke is seen from eastern Alaska, through the territories and across most of northern British Columbia, northern/central Alberta, Saskatchewan, Manitoba, Ontario and western Quebec before spreading south into Great Lakes region. This smoke is mostly from the Alaska, northern Canada wildfires.

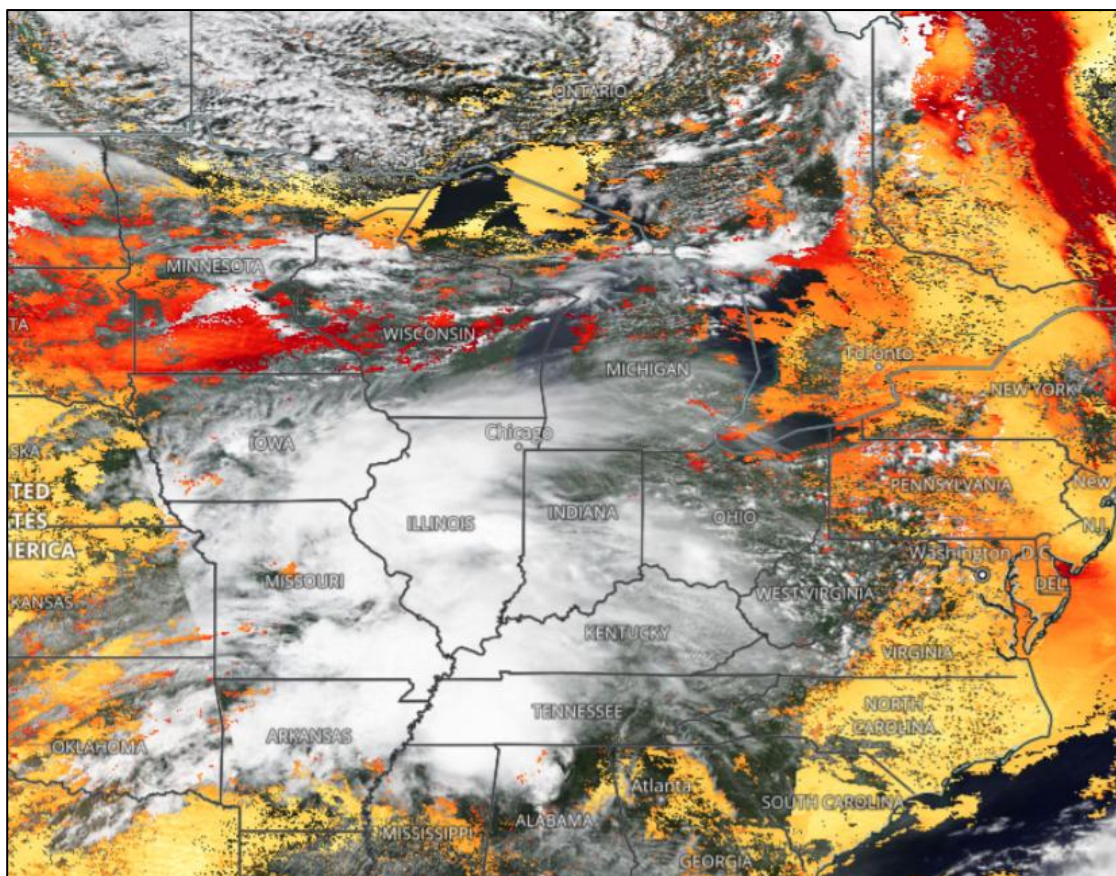
August 9, 2023

PM_{2.5} Monitoring Sites Impacted by Wildfire Smoke

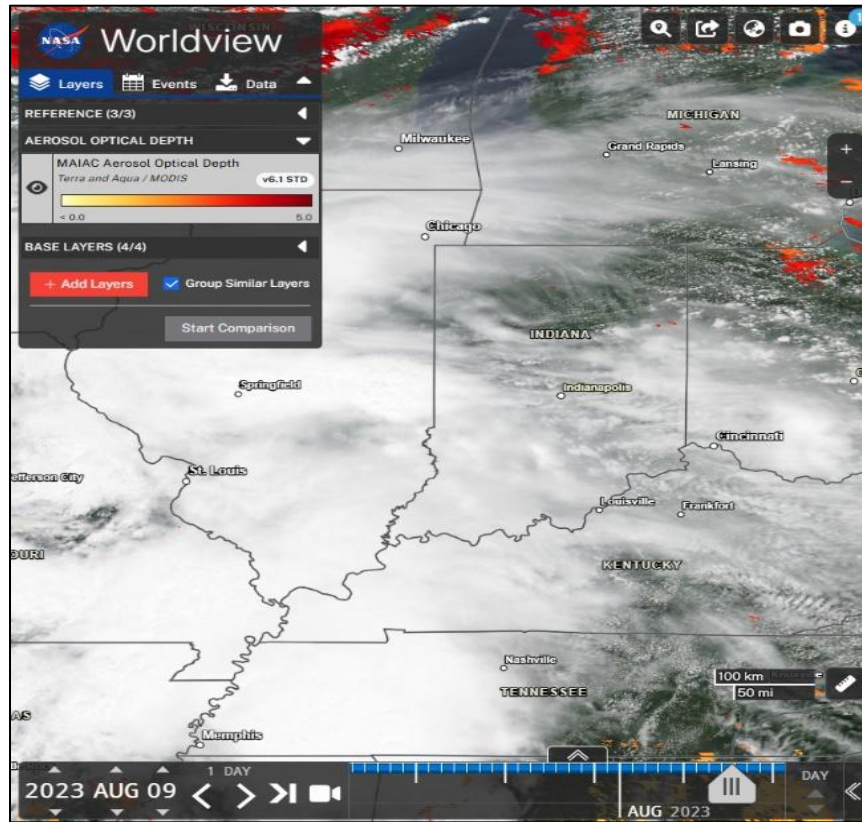
Monitor name	AQS	Date	Daily average ($\mu\text{g}/\text{m}^3$)	Tier 2 Threshold ($\mu\text{g}/\text{m}^3$)
Ogden Dunes	181270024	8/9/2023	15.5	15.3

AirNow Tech Fire/HMS Smoke Map with Backward Trajectories – August 9, 2023

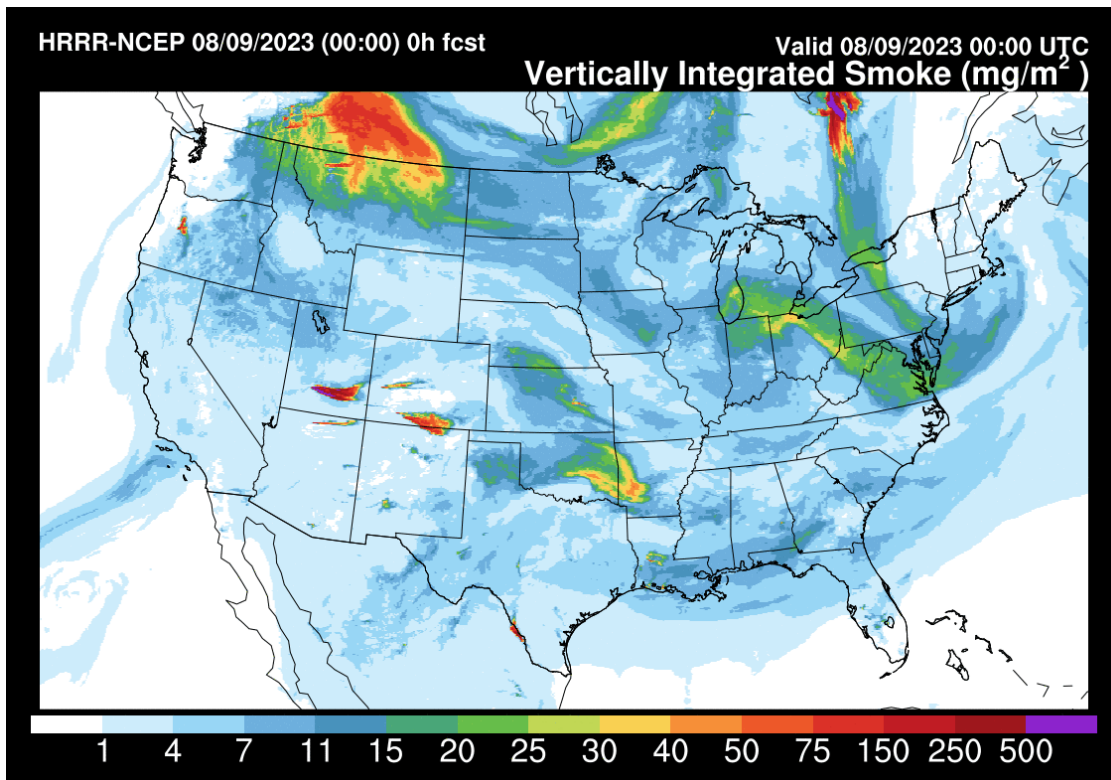


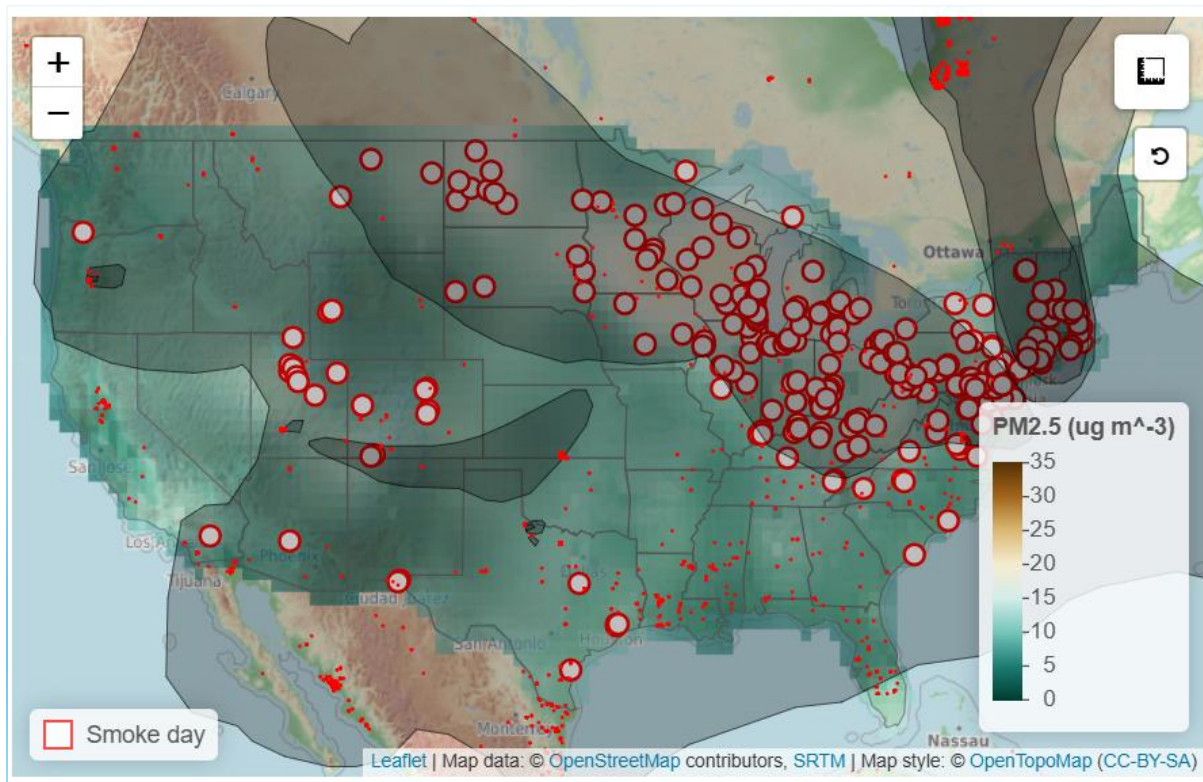
Satellite Imagery with MAIAC AOD – August 9, 2023

Satellite Imagery with MAIAC AOD – August 9, 2023



HRRR Smoke - Vertically Integrated Smoke – August 9, 2023



GAM PMO3 Smoke Output – August 9, 2023**NOAA Satellite Smoke – 2023 Satellite Smoke Text Excerpts**

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY

THROUGH 0224Z August 9, 2023

SMOKE:

United States/Alaska/Canada/Northwestern Atlantic Ocean/Northern and Western Gulf of Mexico/

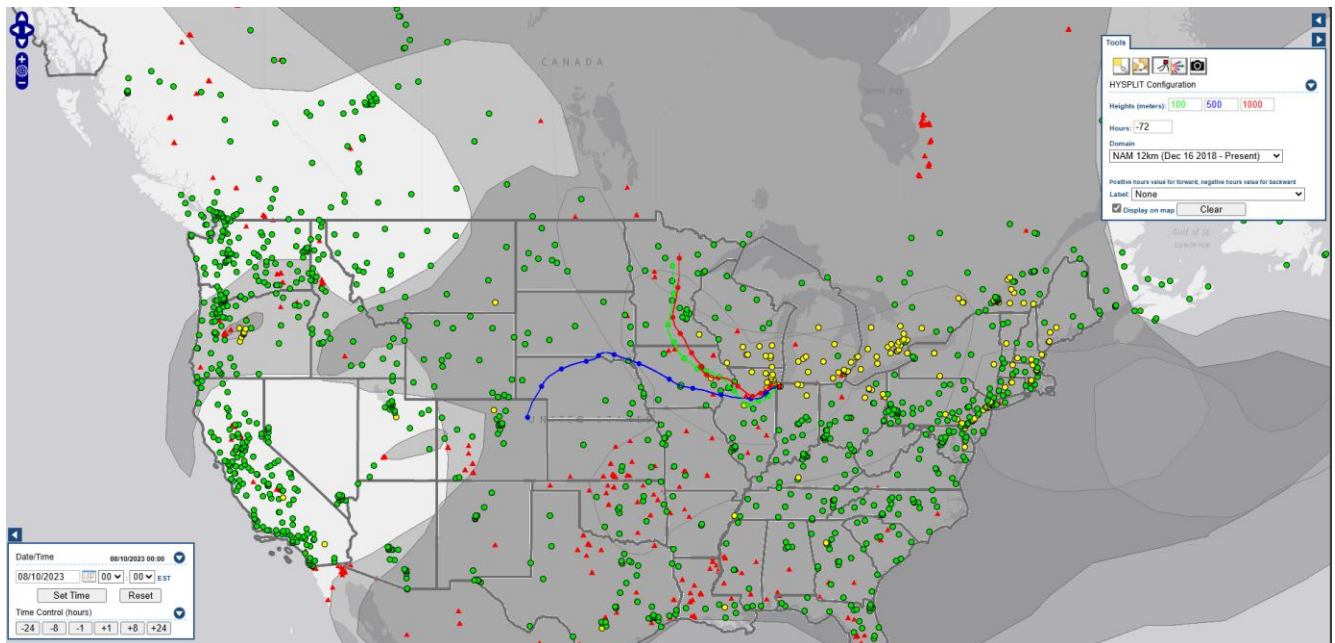
Major widespread wildfire activity continues especially across western and northwestern Canada along with central and east central Alaska. Another significant cluster of wildfires was present over west central Quebec to the southeast of Hudson Bay. All of these wildfires were primarily responsible for a massive area of smoke which covered much of Canada, the northern half of Alaska, as well as much of the U.S., some of the western Atlantic, the northern Gulf of Mexico, and northern Mexico. Within the much larger area of thinner density smoke were thicker batches. The largest of these, attributed to the significant number of wildfires in northwestern Canada and Alaska blanketed the northern half of Alaska and much of northwestern Canada. Additional moderate to thick smoke primarily from these fires was seen over southwestern and south central Canada, and the northern tier of the U.S. from Washington to the Great Lakes region. Cloud cover over far western and southwestern Canada though did interfere with some information on the extent and density of any smoke which might be present there. The denser smoke from the fires in Quebec was confined to western Quebec and far eastern Ontario throughout today's analysis.

August 10, 2023

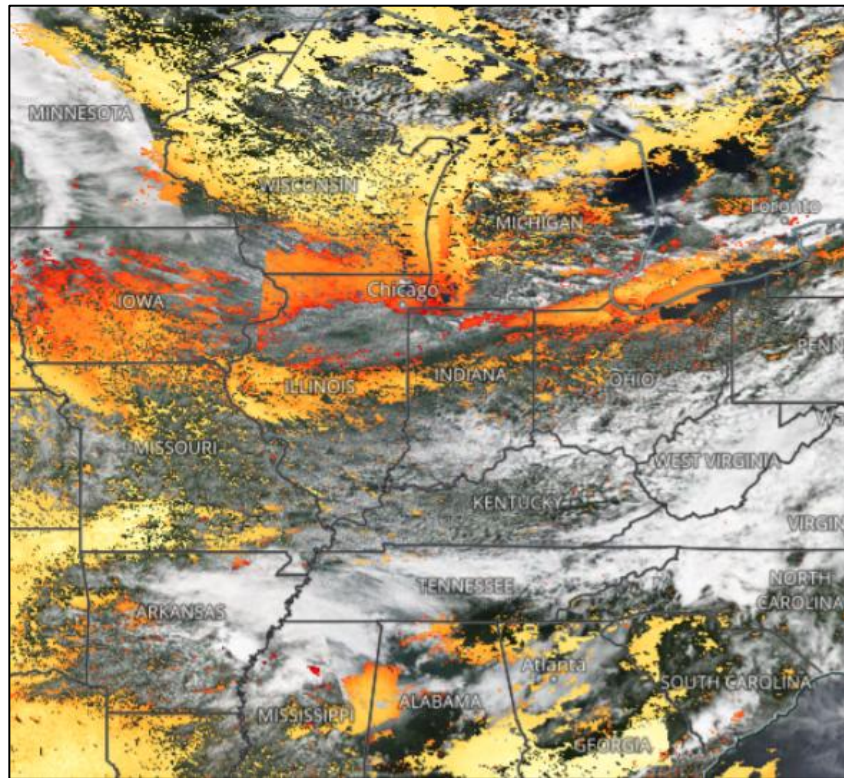
PM_{2.5} Monitoring Sites Impacted by Wildfire Smoke

Monitor name	AQS	Date	Daily average ($\mu\text{g}/\text{m}^3$)	Tier 2 Threshold ($\mu\text{g}/\text{m}^3$)
Michigan City - Marsh Elem. Sch.	180910011	8/10/202	16.6	15.9
Ogden Dunes	181270024	8/10/202	16.0	15.3

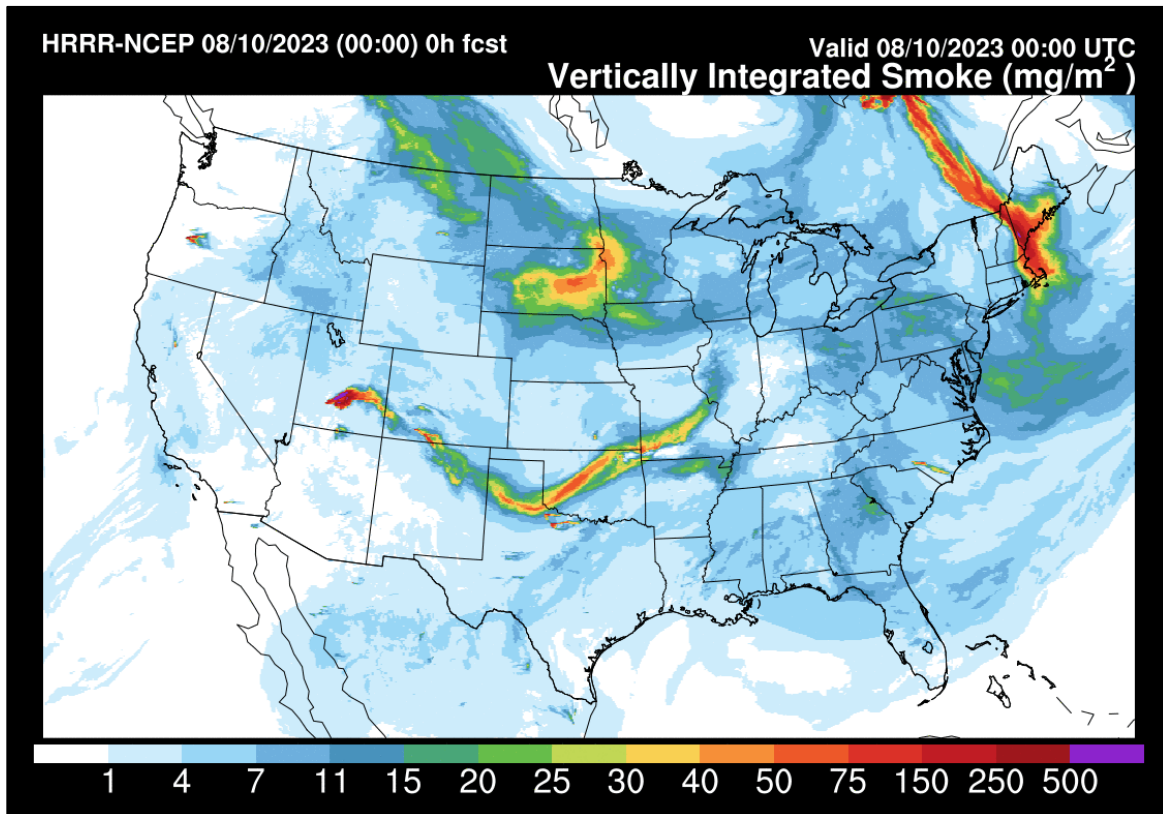
AirNow Tech Fire/HMS Smoke Map with Backward Trajectories – August 10, 2023

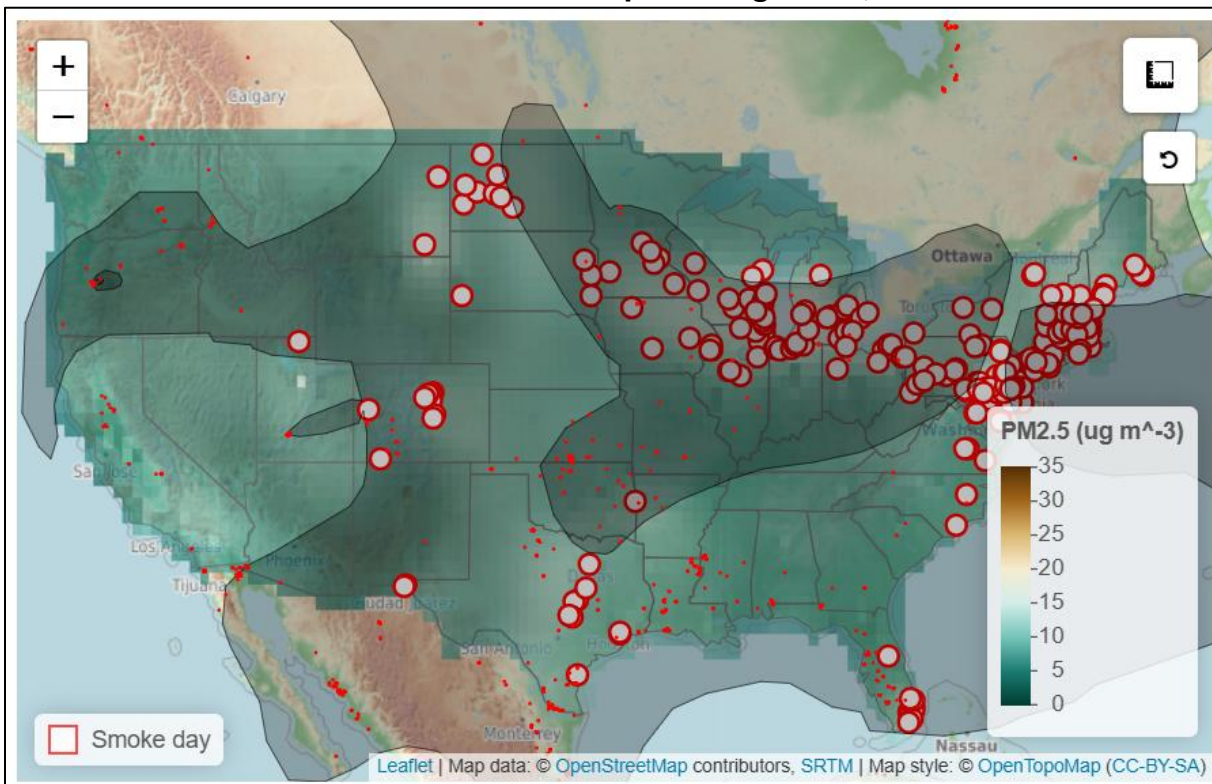


Satellite Imagery with MAIAC AOD – August 10, 2023



HRRR Smoke - Vertically Integrated Smoke – August 10, 2023



GAM PMO3 Smoke Output – August 10, 2023**NOAA Satellite Smoke – 2023 Satellite Smoke Text Excerpts**

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY

THROUGH 1700Z August 9, 2023

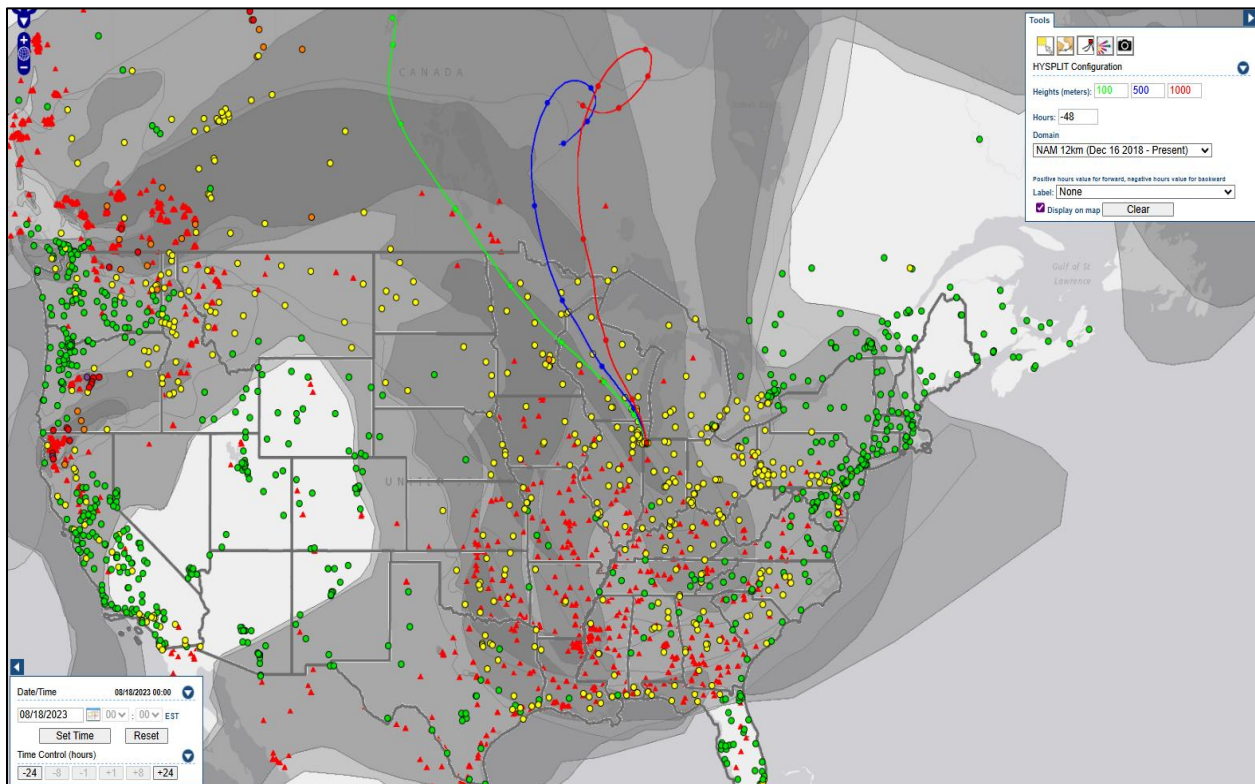
SMOKE:

United States/Alaska/Canada/

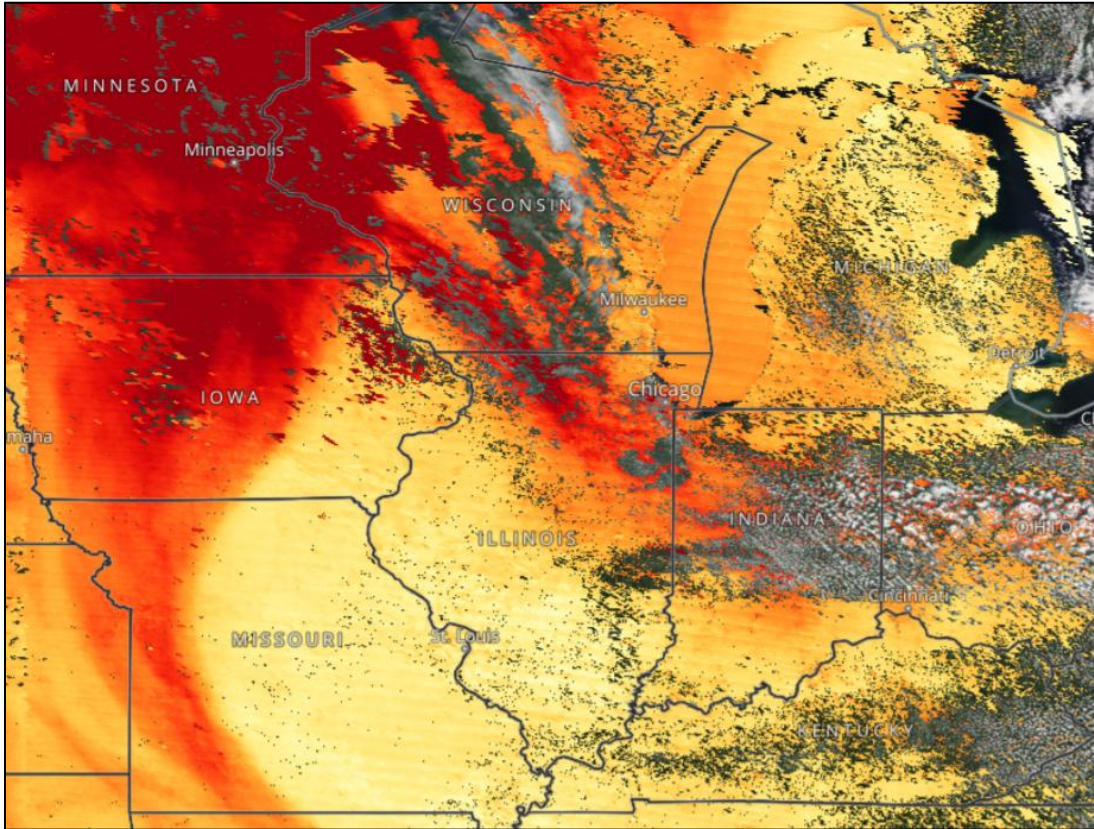
Major widespread wildfire activity continues especially across western and northwestern Canada along with most of Alaska. Another significant cluster of wildfires was present over west central Quebec to the southeast of Hudson Bay. All of these wildfires were primarily responsible for a massive area of smoke which covered much of Canada, the northern half of Alaska, as well as much of the U.S., parts of the western Atlantic, the northern Gulf of Mexico, and northern Mexico. Within the much larger area of thinner density smoke were thicker batches. The largest of these, attributed to the significant number of wildfires in northwestern Canada and Alaska blanketed the northern half of Alaska and much of northern Canada. Additional moderate to thick smoke primarily from these fires was seen over the northern half of the U.S. from Montana through the Ohio Valley/Great Lakes region and finally into eastern U.S. Cloud cover over much of the western and southwestern Canada prevented further smoke analysis in these regions. The denser smoke from the fires in Quebec was confined to western Quebec and far eastern Ontario.

August 18, 2023**PM_{2.5} Monitoring Sites Impacted by Wildfire Smoke**

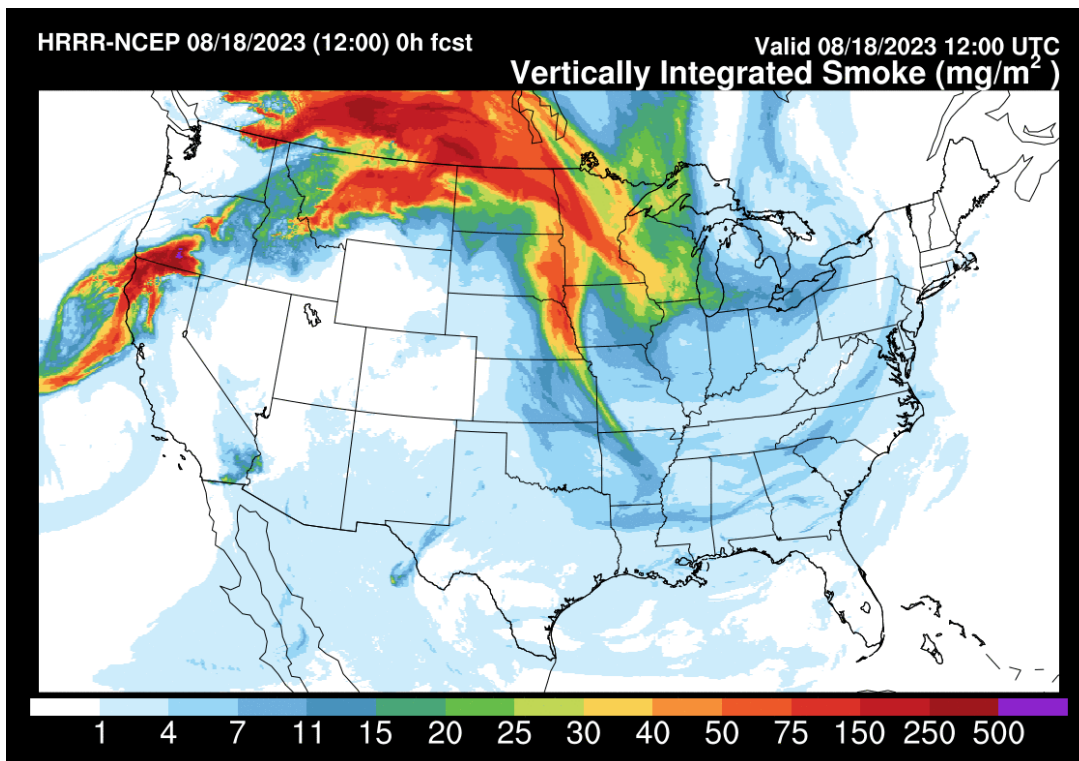
Monitor name	AQS	Date	Daily average (µg/m ³)	Tier 2 Threshold (µg/m ³)
Fishers	180570007	8/18/2023	15.4	13.8
East Chicago - Marina	180890034	8/18/2023	20.4	18
Hammond-167th St	180890036	8/18/2023	17.6	16.3
Anderson - Eastside Elem	180950011	8/18/2023	15.9	15.4
Indianapolis - Washington Park	180970078	8/18/2023	19.6	17.8
Ogden Dunes	181270024	8/18/2023	18.0	15.3
South Bend - Shields Dr.	181410015	8/18/2023	18.0	16.9
Larwill	181830003	8/18/2023	15.8	15

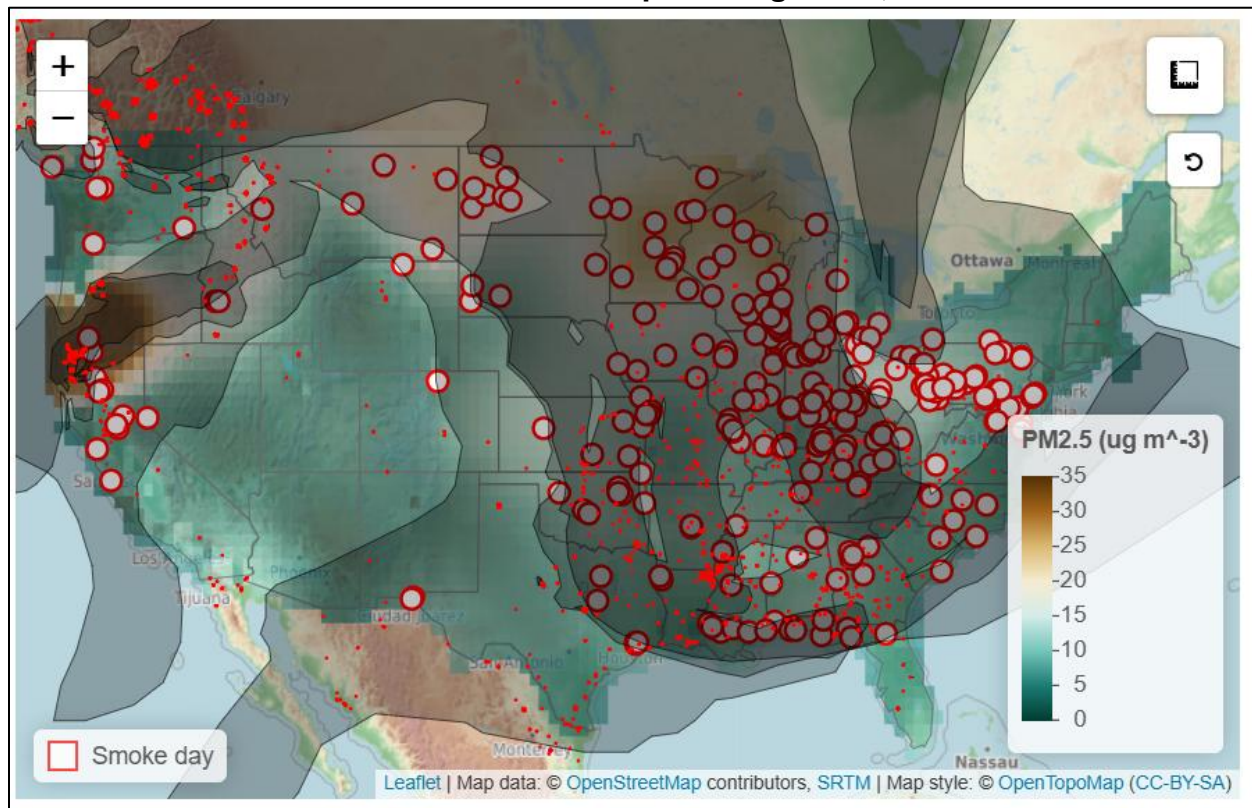
AirNow Tech Fire/HMS Smoke Map with Backward Trajectories – August 18, 2023

Satellite Imagery with MAIAC AOD – August 18, 2023



HRRR Smoke - Vertically Integrated Smoke – August 18, 2023



GAM PMO3 Smoke Output – August 18, 2023**NOAA Satellite Smoke – 2023 Satellite Smoke Text Excerpts**

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY

THROUGH 1645Z August 18, 2023

SMOKE:

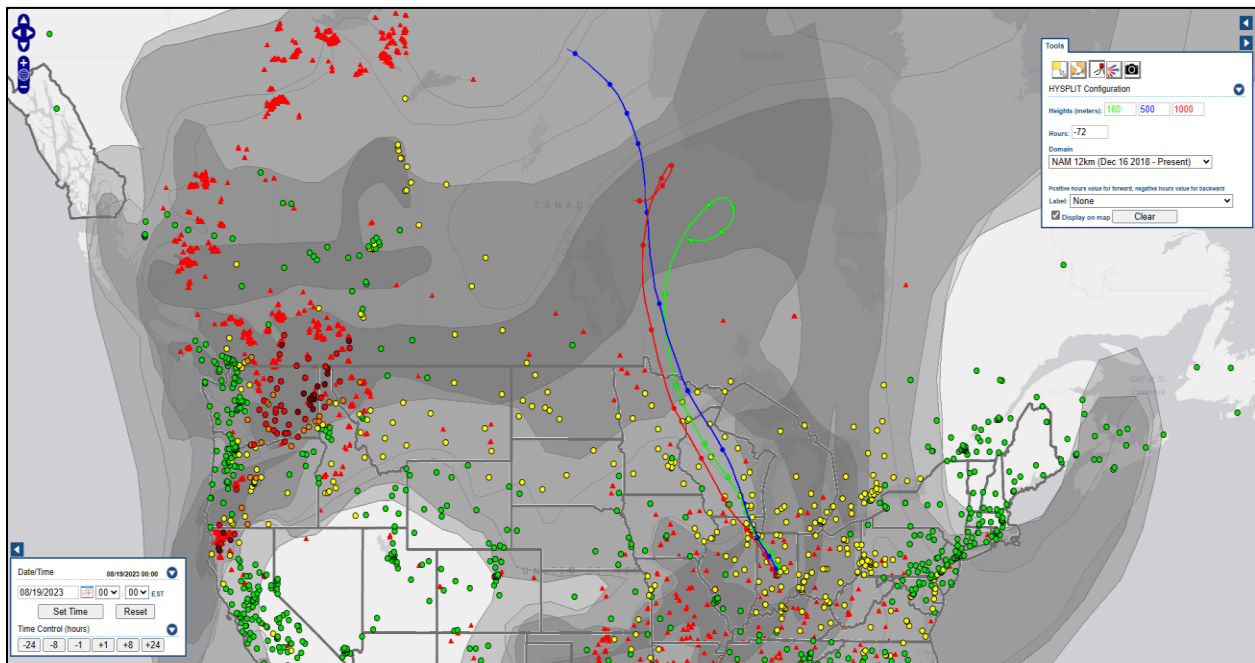
United States/Canada/Northern Mexico/Atlantic Ocean/Far Eastern Pacific Ocean...

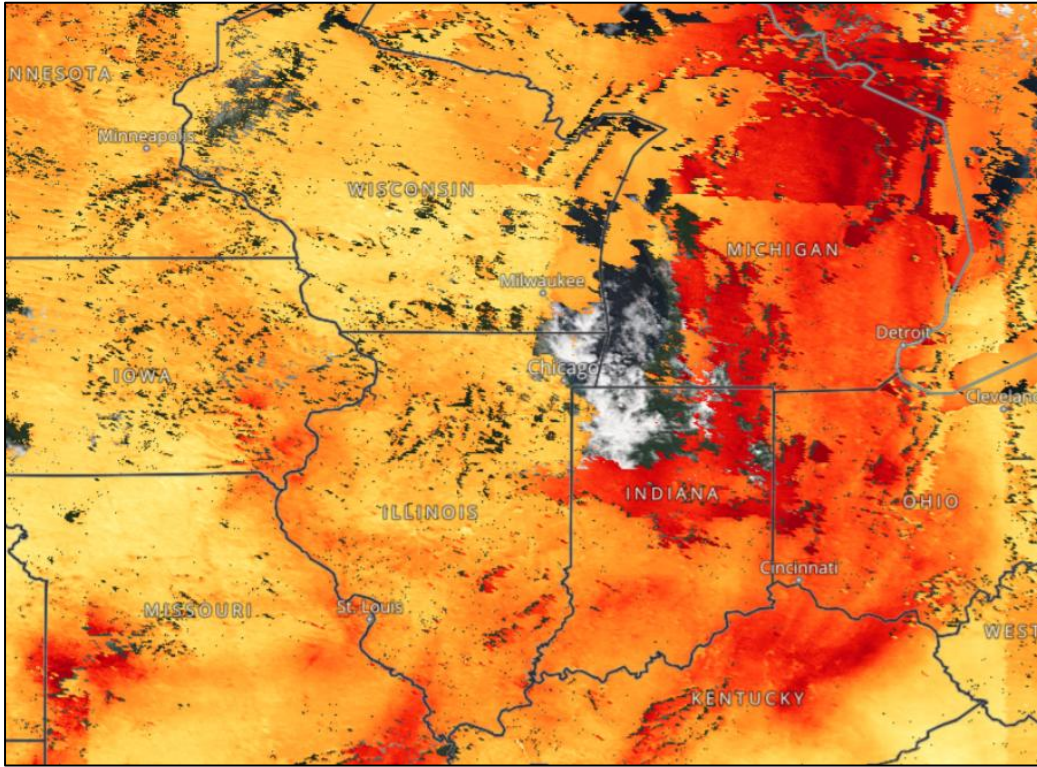
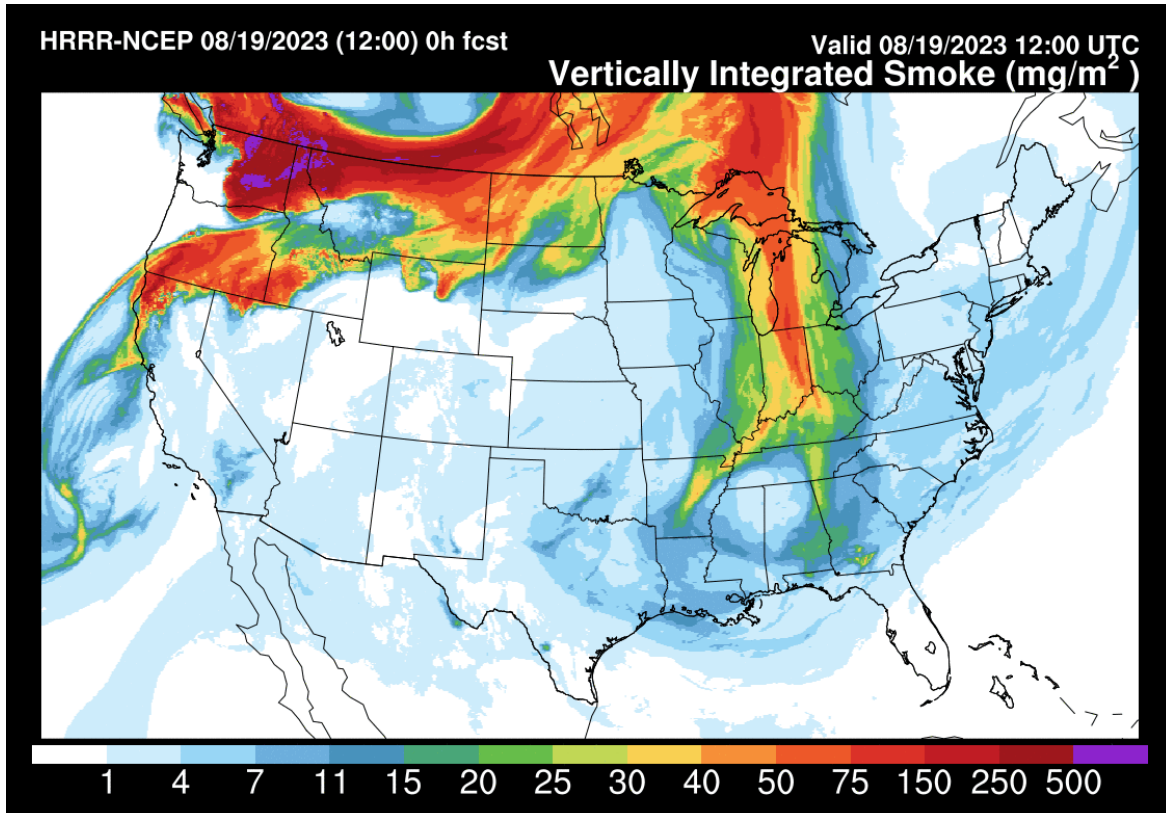
Rather widespread cloud cover was noted across portions of Alaska and northwestern Canada which also limited information on some of the recent wildfires and smoke impacting those regions. Despite the clouds, much of the enormous area of smoke attributed primarily to the numerous wildfires in western and northwestern Canada was seen this morning covering much of Canada and the U.S. including far eastern Alaska, a portion of the Atlantic just off the U.S. east coast, the Labrador Sea, some of the north Atlantic, the northern Gulf of Mexico, northern Mexico, and a small part of the east Pacific off the Baja coast. Embedded areas of thicker smoke were seen over some of northwestern and far north central Canada through breaks in the clouds. Thicker smoke was present over southwestern Canada along with the far northern parts of northeastern Washington, northern Idaho, and northwestern Montana, and extending to the east from there to south central Canada.

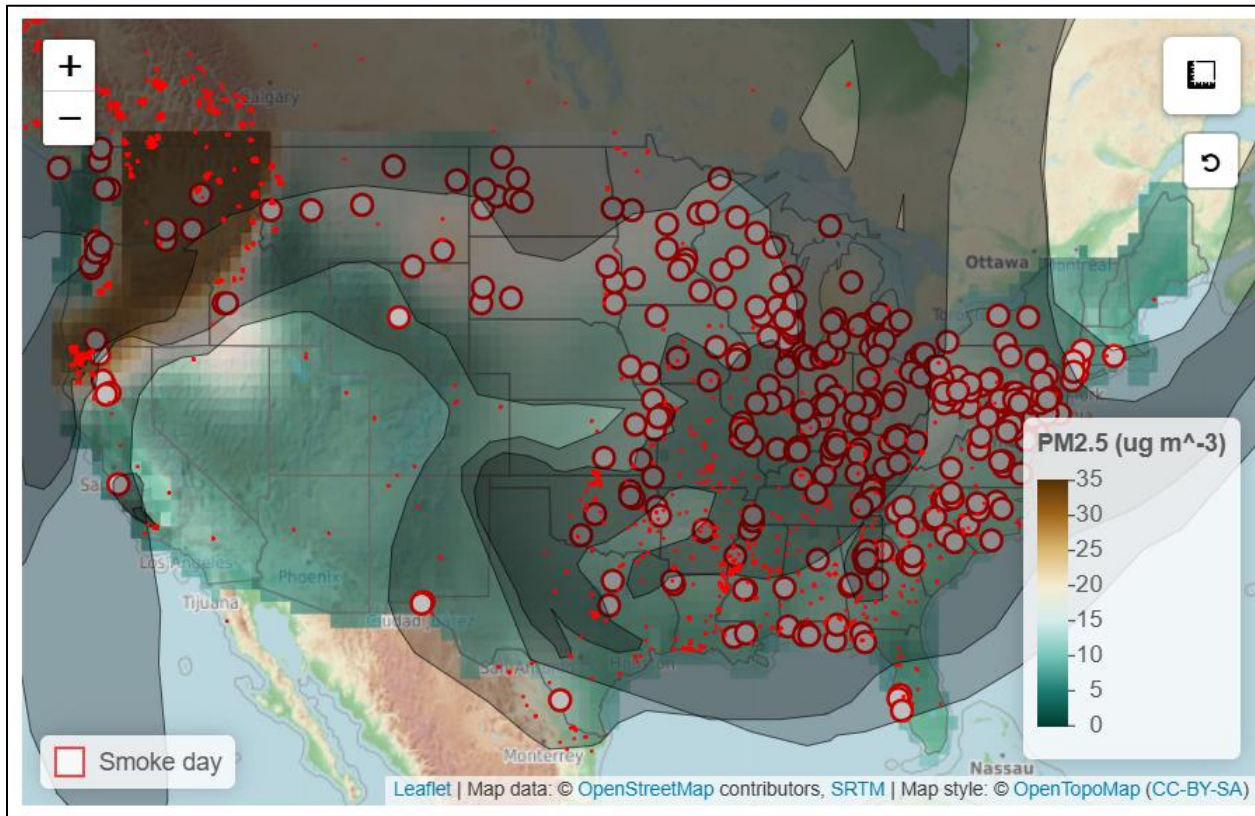
Patches of thicker smoke had also spread to the south and southeast over some of the central U.S. A relatively narrow band of moderately dense smoke was visible across the southeastern U.S. to the Mid-Atlantic coast.

August 19, 2023**PM_{2.5} Monitoring Sites Impacted by Wildfire Smoke**

Monitor name	AQS	Date	Daily average (µg/m ³)	Tier 2 Threshold (µg/m ³)
Columbus - Rocky Ford Drive	180050008	8/19/2023	14.0	13.7
Jeffersonville – Bates-Bowyer Ave	180190010	8/19/2023	16.9	16.6
Muncie - Central HS	180350006	8/19/2023	17.8	13.2
Elkhart - Prairie St	180390008	8/19/2023	19.1	16.3
Fishers	180570007	8/19/2023	18.8	13.8
Carmel - Hazel Dell Parkway	180570008	8/19/2023	17.8	16.5
Kokomo - E. Vaile Ave	180670004	8/19/2023	15.9	14.7
Anderson - Eastside Elem	180950011	8/19/2023	20.8	15.4
Indianapolis - Washington Park	180970078	8/19/2023	25.4	17.8
Indianapolis - School 21	180970084	8/19/2023	19.5	15.5
Indianapolis- I-70 E	180970087	8/19/2023	29.2	20.5
Ogden Dunes	181270024	8/19/2023	16.4	15.3
South Bend - Shields Dr.	181410015	8/19/2023	18.8	16.9
Lafayette - Greenbush St	181570008	8/19/2023	16.0	15.1
Larwill	181830003	8/19/2023	16.1	15

AirNow Tech Fire/HMS Smoke Map with Backward Trajectories – August 19, 2023

Satellite Imagery with MAIAC AOD – August 19, 2023**HRRR Smoke - Vertically Integrated Smoke – August 19, 2023**

GAM PMO3 Smoke Output – August 19, 2023**NOAA Satellite Smoke – 2023 Satellite Smoke Text Excerpts**

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY

THROUGH 0145Z August 19, 2023

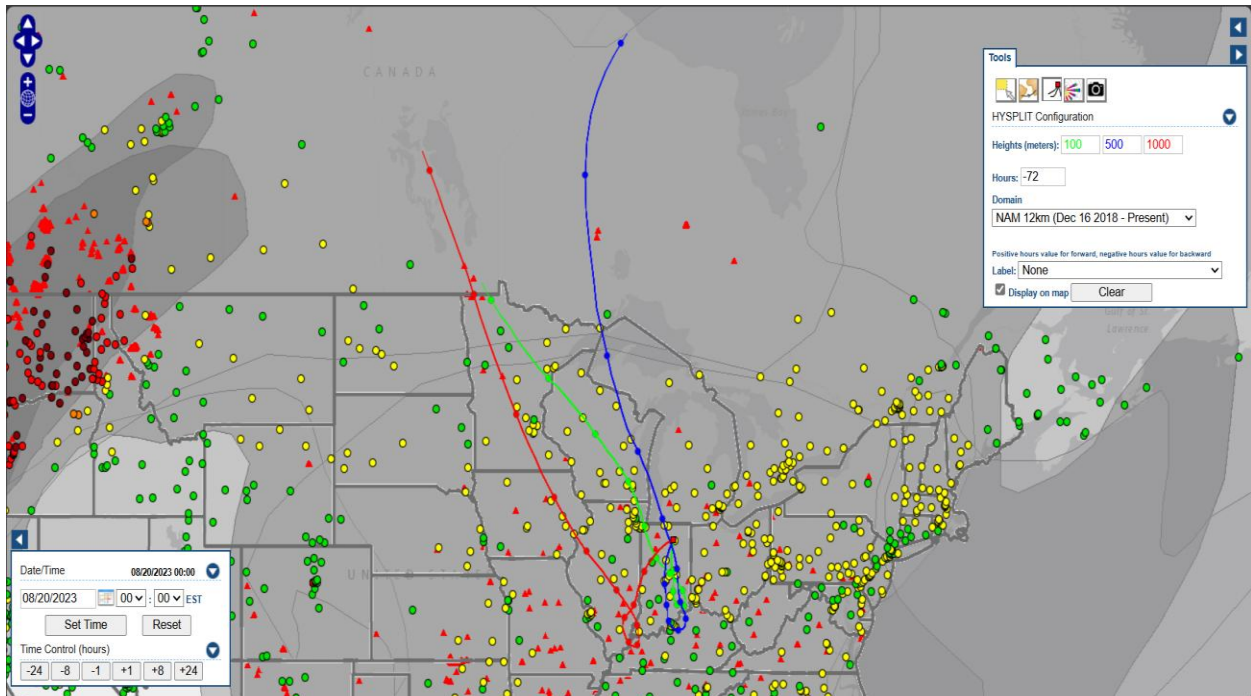
SMOKE:

United States/Canada/Northern Mexico/Atlantic Ocean

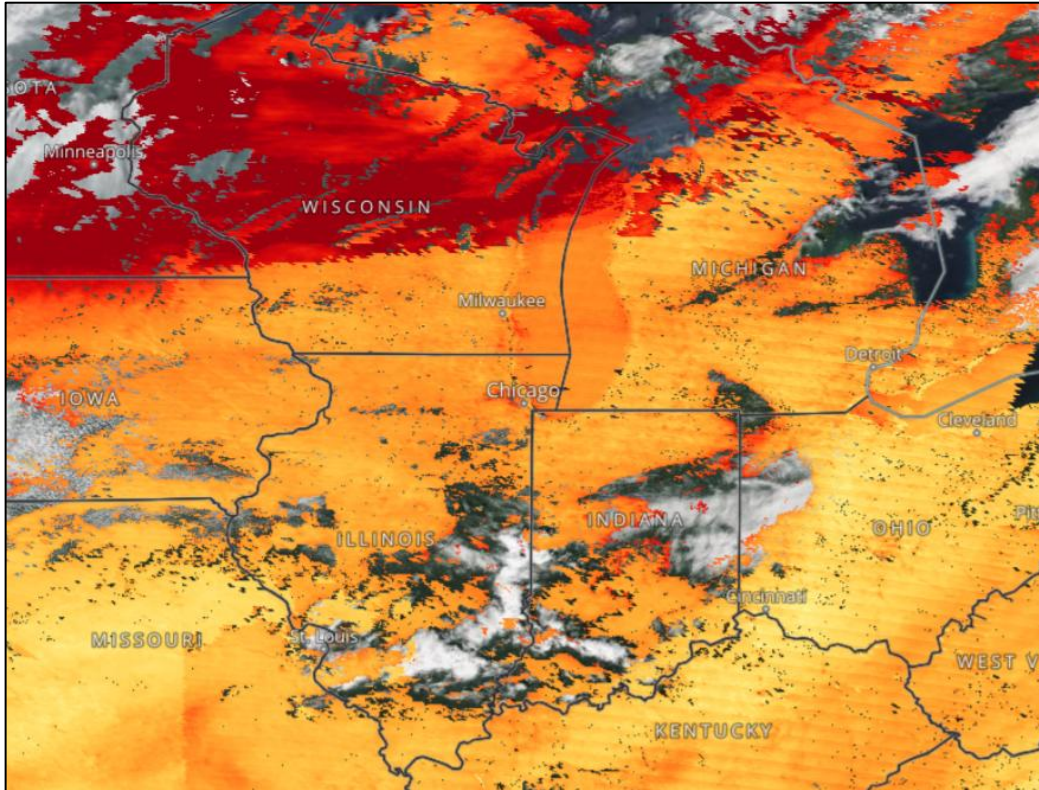
Rather widespread cloud cover was noted across portions of Alaska and northwestern Canada which also limited information on some of the recent wildfires and smoke impacting those regions. A large area of smoke attributed primarily to the numerous wildfires in western and northwestern Canada was seen this afternoon and evening covering much of Canada and the U.S. including far eastern Alaska, a portion of the Atlantic just off the U.S. east coast, the Labrador Sea, some of the north Atlantic, the northern Gulf of Mexico, northern Mexico, and a small part of the east Pacific off the Baja coast. Areas of moderate to high density smoke was seen across parts of northwestern and far north central Canada through breaks in the clouds. Higher density smoke was present over southwestern Canada along with the far northern parts of northeastern Washington, northern Idaho, and northwestern Montana, and extending to the east from there to south central Canada. Patches of thicker smoke had also spread to the south and southeast over some of the central U.S. A relatively narrow band of moderately dense smoke was visible across the Mississippi Valley, southeastern U.S. and along/off the Mid-Atlantic coast and along the northeast US coast.

August 20, 2023**PM_{2.5} Monitoring Sites Impacted by Wildfire Smoke**

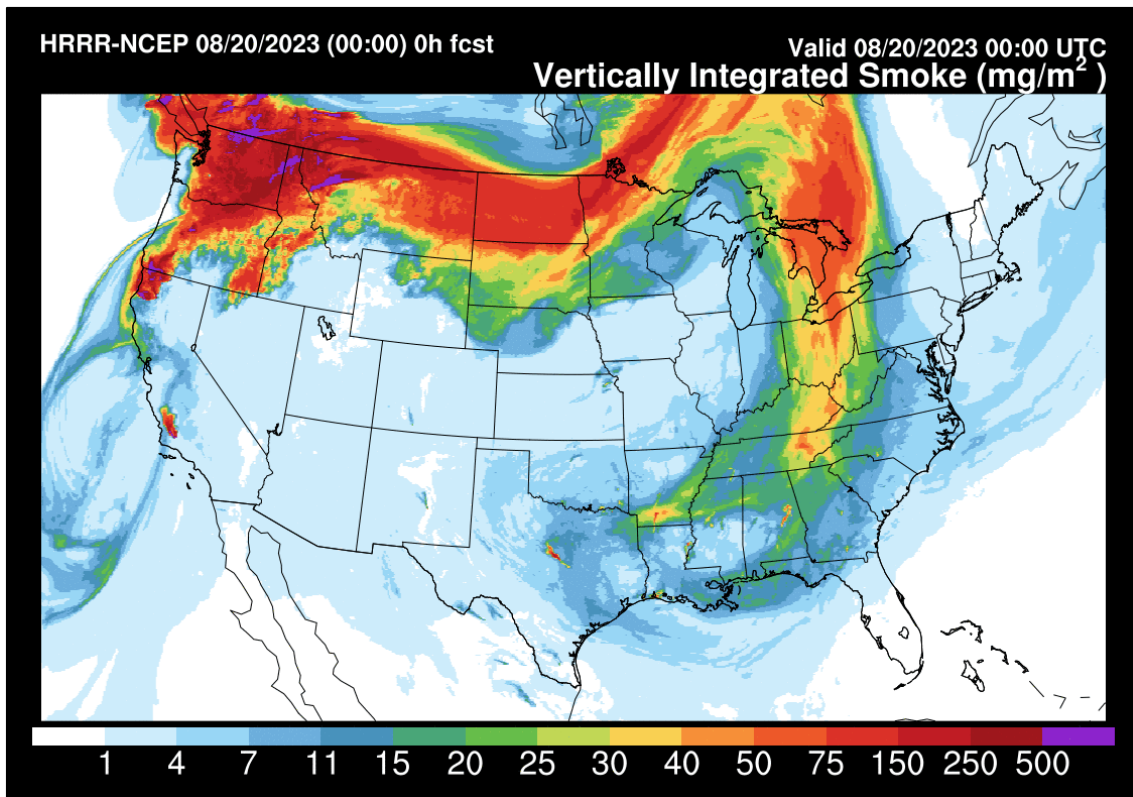
Monitor name	AQS	Date	Daily average ($\mu\text{g}/\text{m}^3$)	Tier 2 Threshold ($\mu\text{g}/\text{m}^3$)
Fishers	180570007	8/20/2023	13.8	13.8
Larwill	181830003	8/20/2023	15.0	15

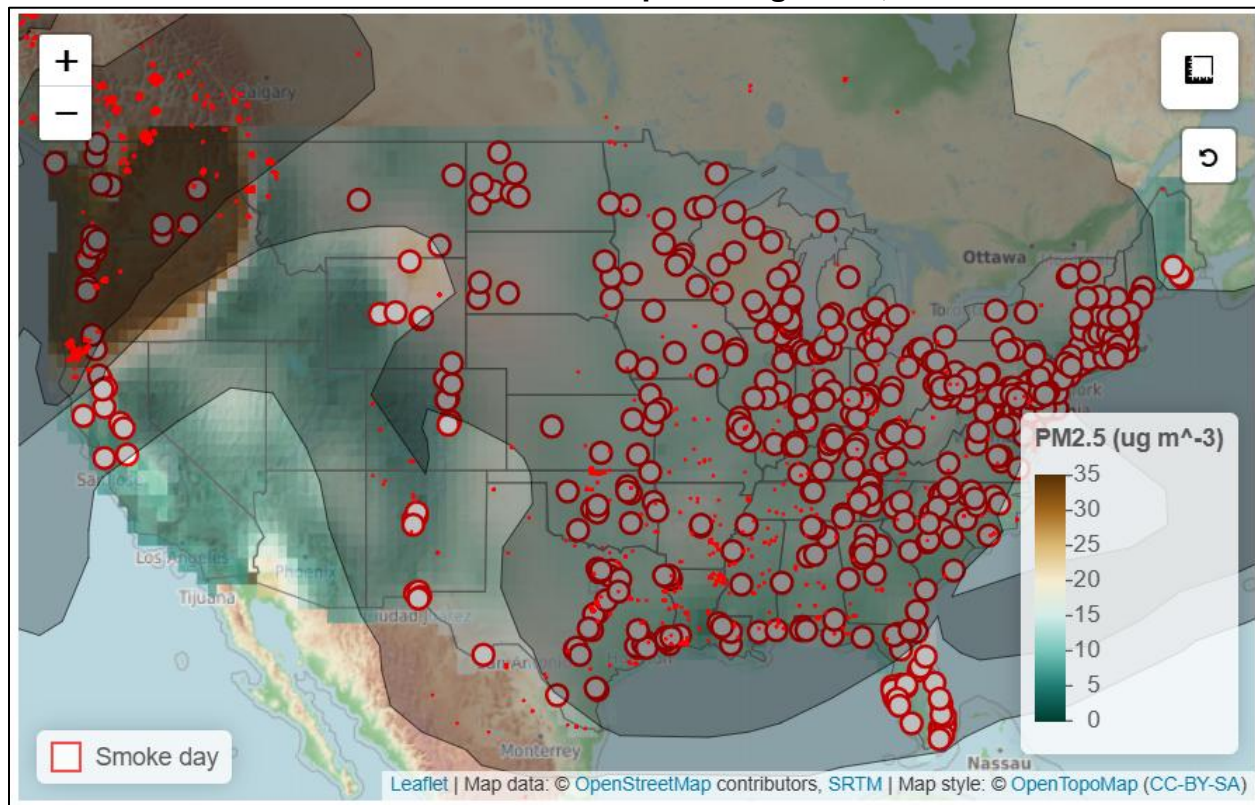
AirNow Tech Fire/HMS Smoke Map with Backward Trajectories – August 20, 2023

Satellite Imagery with MAIAC AOD – August 20, 2023



HRRR Smoke - Vertically Integrated Smoke – August 20, 2023



GAM PMO3 Smoke Output – August 20, 2023**NOAA Satellite Smoke – 2023 Satellite Smoke Text Excerpts**

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY

THROUGH 0130Z August 20, 2023

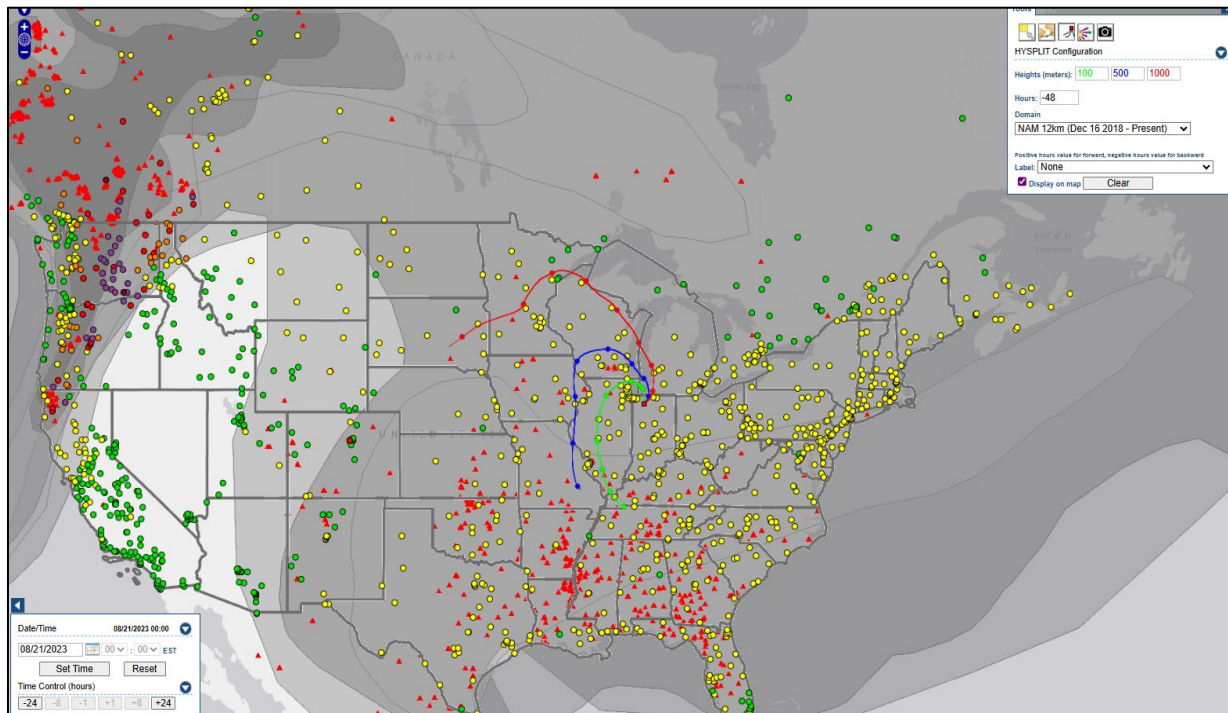
SMOKE:

United States/Canada/Northern Mexico/Atlantic Ocean

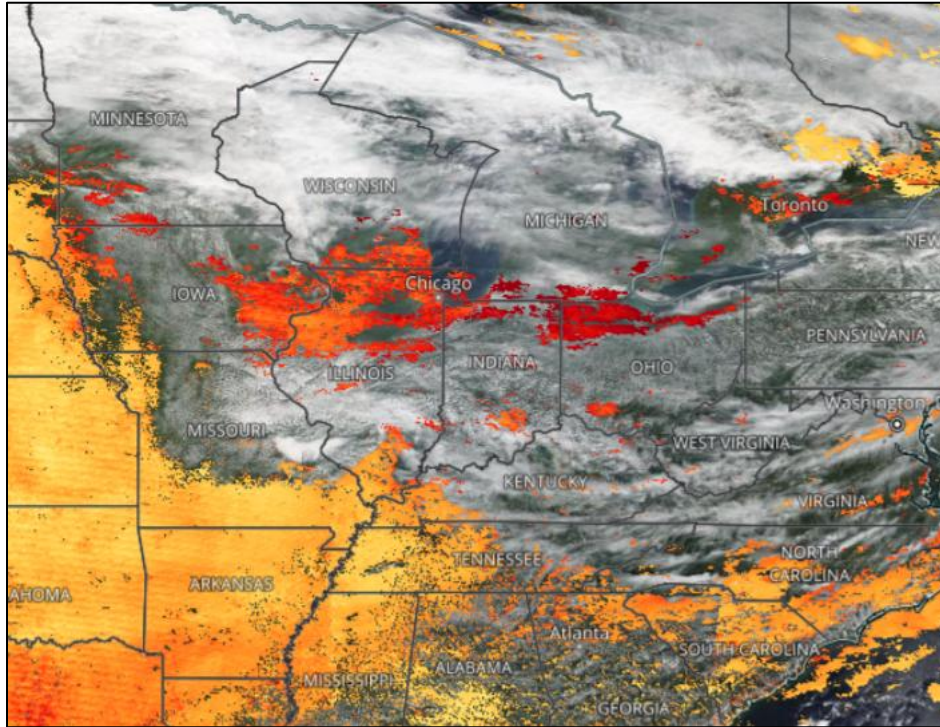
Widespread cloud cover continued across portions of Alaska and northwestern Canada which also limited on some of the recent wildfires and smoke impacting those regions. Numerous wildfires were still seen over a portion of the Northwest Territories, northern Alberta, and scattered across British Columbia in Canada. Also wildfires continued to burn in parts of Washington, Idaho, western Montana, western Oregon, and northwestern California. For the smoke, western Canadian wildfires and northwestern U.S. wildfires were responsible for a very large area of moderate to thick density smoke which was seen from off the west coast of California/Oregon/Washington through the Pacific Northwest across the northern US and into the Great Lakes region then south through the Ohio Valley, Mississippi Valley, southeast, Mid Atlantic US and back into the Southern and Central Plains. In Canada the smoke extended from off the Pacific coast through most of western and central Canada and into parts of eastern Canada. The larger surrounding area of thinner density smoke was seen over much of Canada and the U.S., northern Mexico, the northern Gulf of Mexico, and a relatively small part of the far eastern Pacific off the U.S. west coast and portions of the western and northern Atlantic.

August 21, 2023**PM_{2.5} Monitoring Sites Impacted by Wildfire Smoke**

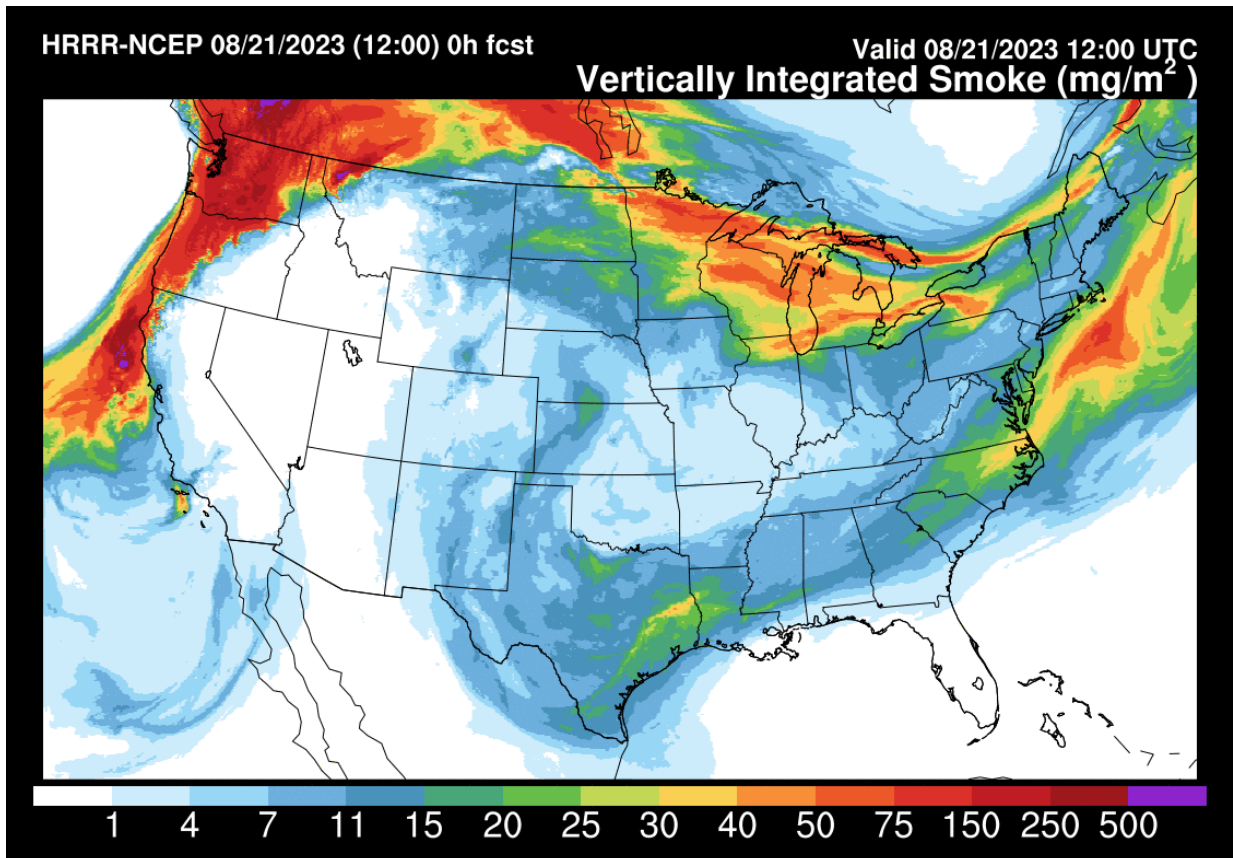
Monitor name	AQS	Date	Daily average (µg/m ³)	Tier 2 Threshold (µg/m ³)
Columbus - Rocky Ford Drive	180050008	8/21/2023	14.1	13.7
Jeffersonville - Bates-Bowyer Ave	180190010	8/21/2023	17.1	17.0
Jasper - Post Office	180372001	8/21/2023	18.1	15.7
Elkhart - Prairie St	180390008	8/21/2023	18.8	16.3
Fishers	180570007	8/21/2023	14.9	13.8
Mechanicsburg	180650003	8/21/2023	15.5	15.5
East Chicago - Marina	180890034	8/21/2023	23.2	18
Hammond-167th St	180890036	8/21/2023	20.5	16.3
Ogden Dunes	181270024	8/21/2023	19.3	15.3
South Bend - Shields Dr.	181410015	8/21/2023	21.0	16.9
Evansville - Buena Vista	181630021	8/21/2023	17.9	15.1
Terre Haute - Lafayette Ave	181670018	8/21/2023	18.9	18.8
Larwill	181830003	8/21/2023	17.6	15

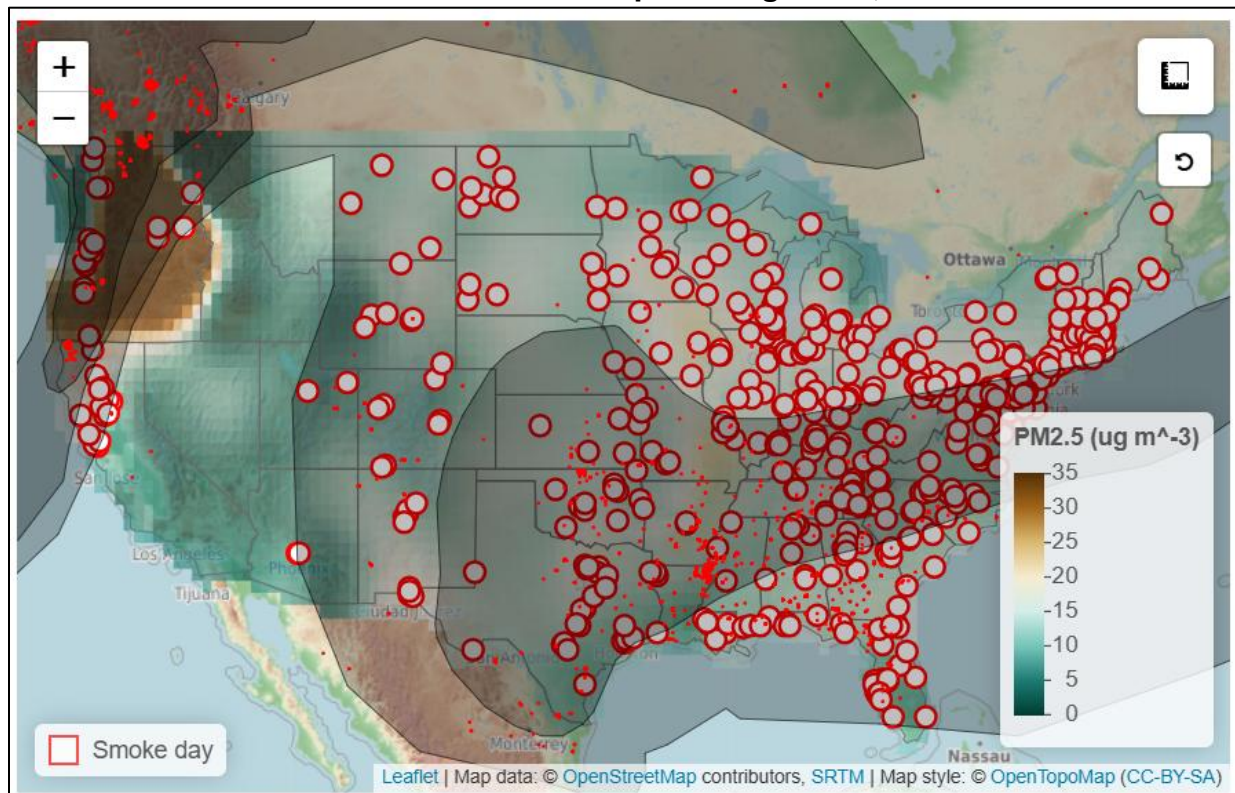
AirNow Tech Fire/HMS Smoke Map with Backward Trajectories – August 21, 2023

Satellite Imagery with MAIAC AOD – August 21, 2023



HRRR Smoke - Vertically Integrated Smoke – August 21, 2023



GAM PMO3 Smoke Output – August 21, 2023**NOAA Satellite Smoke – 2023 Satellite Smoke Text Excerpts**

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY

THROUGH 1700Z August 21, 2023

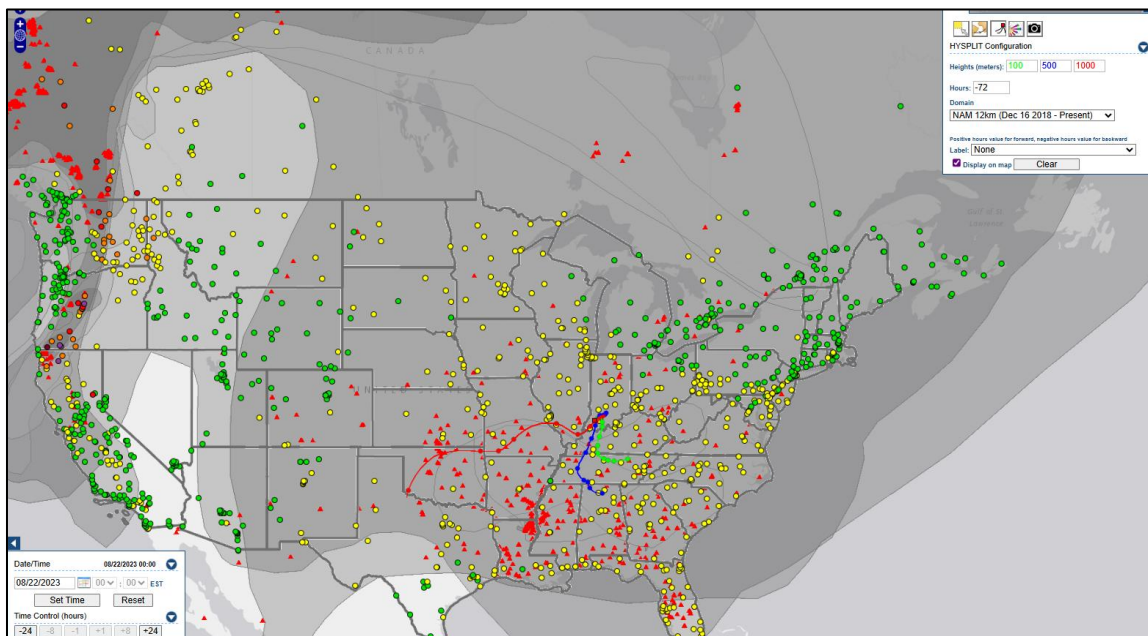
SMOKE:

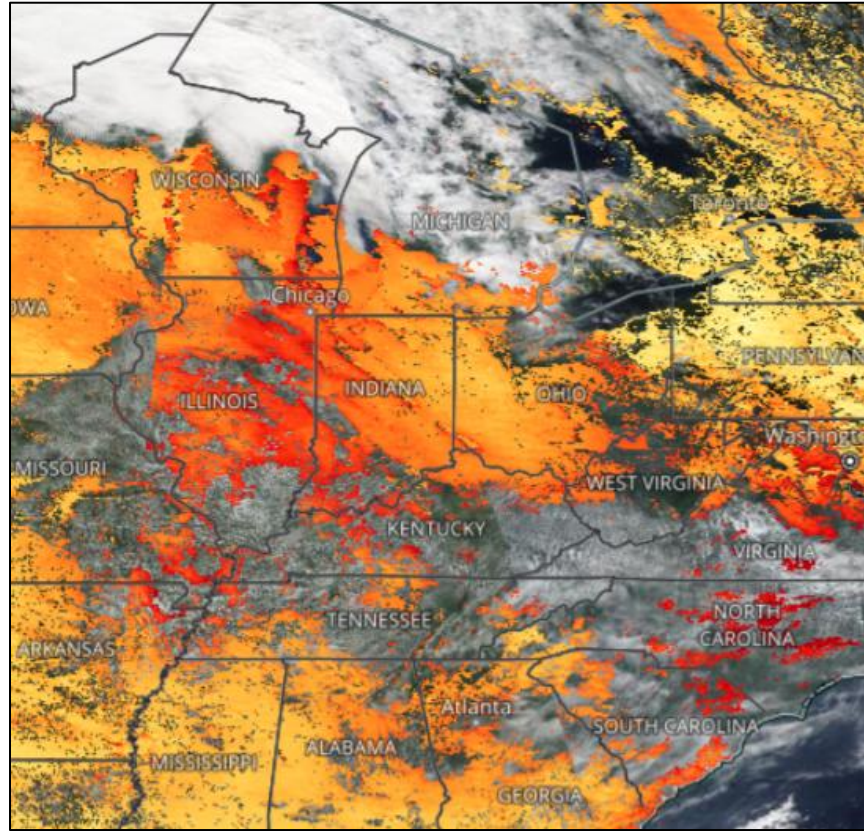
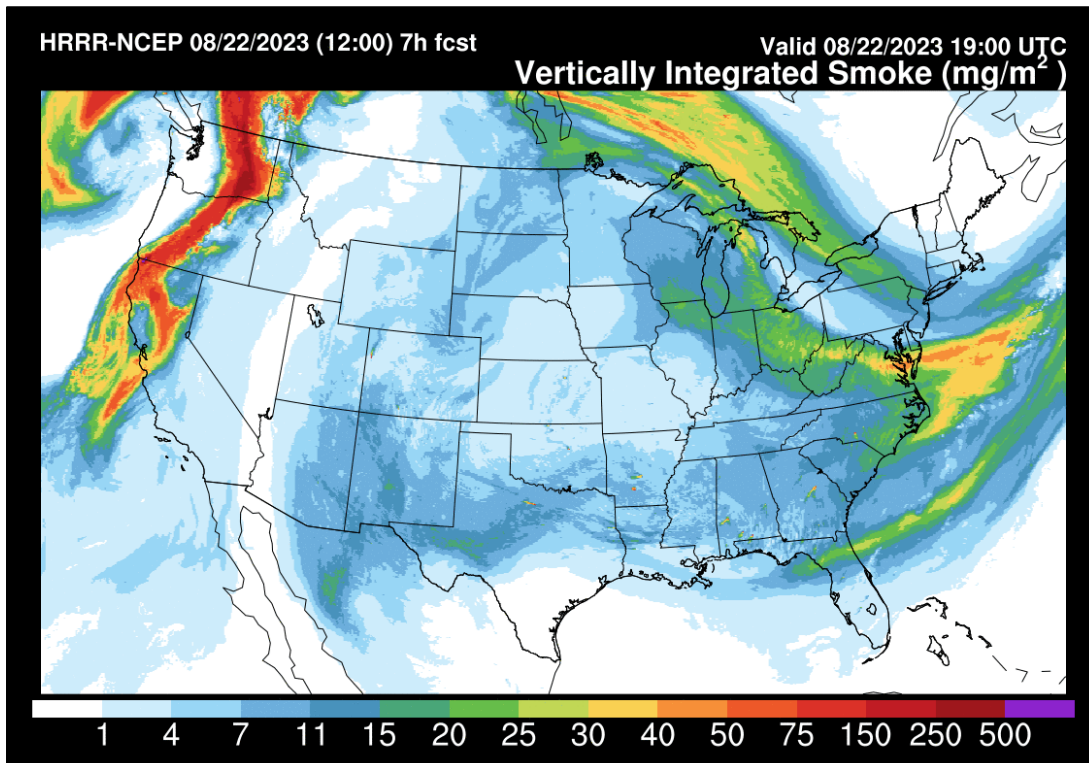
United States/Canada/Northern Mexico/Atlantic Ocean

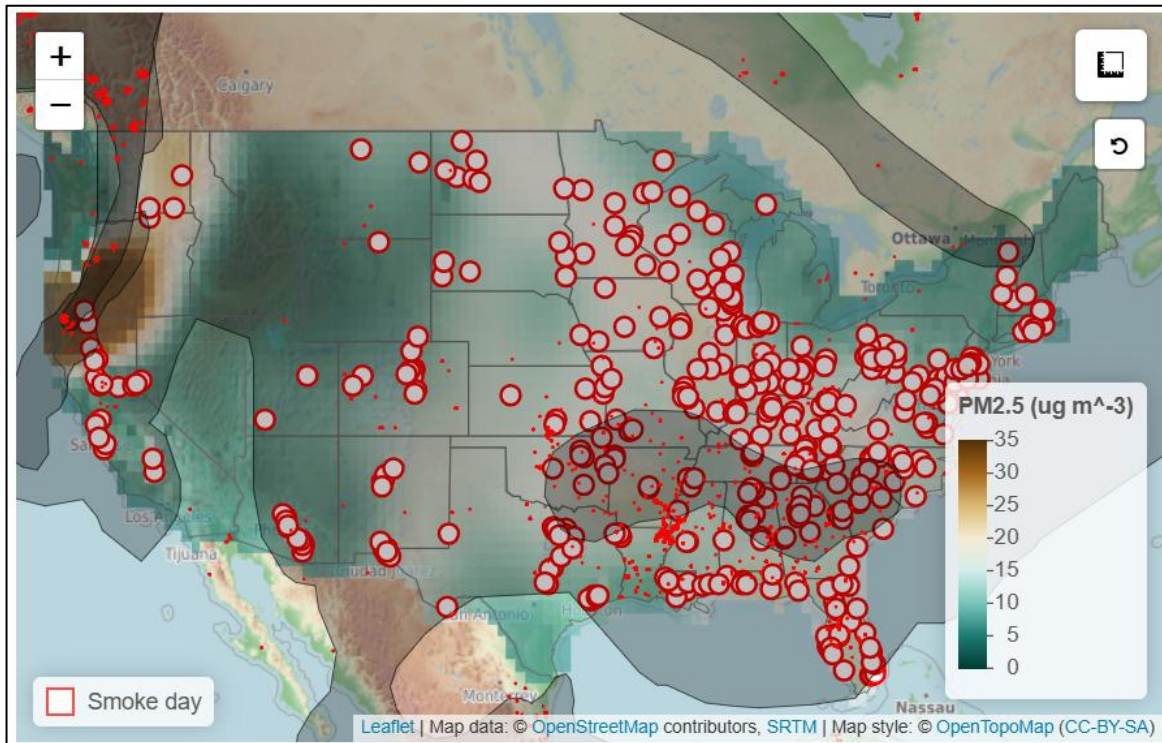
Widespread cloud cover continued to cover regions of Alaska, northern Canada, and western/northern U.S., which limits the visibility on some of the recent wildfires and smoke impacting those regions. Numerous wildfires were still seen over a portion of the Northwest Territories, northern Alberta, and scattered across British Columbia in Canada. Wildfires in the U.S. continued to burn in parts of Washington, Idaho, western Montana, western Oregon, and northwestern California, however heavy cloud cover from the recent Hurricane Hilary has made it difficult to analyze over in the western U.S. For the smoke, western Canadian wildfires and northwestern U.S. wildfires were responsible for a very large area of moderate density smoke which was seen extending into Pacific Ocean off the coast southwestern Oregon and northwestern California. From here, the moderate density smoke extended northeast through Canada and extended off the Pacific coast through most of western, central Canada and eastern parts of Canada. **In addition, moderate remnant density smoke was seen over most of southern U.S., parts of the eastern U.S., and the Atlantic ocean off of southeastern Canada, with it likely from the same wildfires.**

August 22, 2023**PM_{2.5} Monitoring Sites Impacted by Wildfire Smoke**

Monitor name	AQS	Date	Daily average (µg/m ³)	Tier 2 Threshold (µg/m ³)
Columbus - Rocky Ford Drive	180050008	8/22/2023	17.5	13.7
Jeffersonville - Bates-Bowyer Ave	180190010	8/22/2023	20.7	17.0
Jasper - Post Office	180372001	8/22/2023	17.6	15.7
New Albany	180430008	8/22/2023	21.3	20.9
Plummer	180550001	8/22/2023	16.7	14.7
Fishers	180570007	8/22/2023	14.3	13.8
East Chicago - Franklin/Washington Sch	180890006	8/22/2023	17.6	16.1
Gary - Madison St	180890031	8/22/2023	16.2	16
Hammond – 167 th Street	180890036	8/22/2023	16.2	16.2
Indianapolis - Washington Park	180970078	8/22/2023	17.9	17.8
Indianapolis - School 21	180970084	8/22/2023	17.1	15.5
Indianapolis- I-70 E	180970087	8/22/2023	20.7	20.5
Bloomington - Binford	181050003	8/22/2023	18.5	13.9
Ogden Dunes	181270024	8/22/2023	16.1	15.3
Dale	181470009	8/22/2023	17.3	13.9
Evansville - Buena Vista	181630021	8/22/2023	19.9	15.1

AirNow Tech Fire/HMS Smoke Map with Backward Trajectories – August 22, 2023

Satellite Imagery with MAIAC AOD – August 22, 2023**HRRR Smoke - Vertically Integrated Smoke – August 22, 2023**

GAM PMO3 Smoke Output – August 22, 2023**NOAA Satellite Smoke – 2023 Satellite Smoke Text Excerpts**

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY

THROUGH 0143Z August 22, 2023

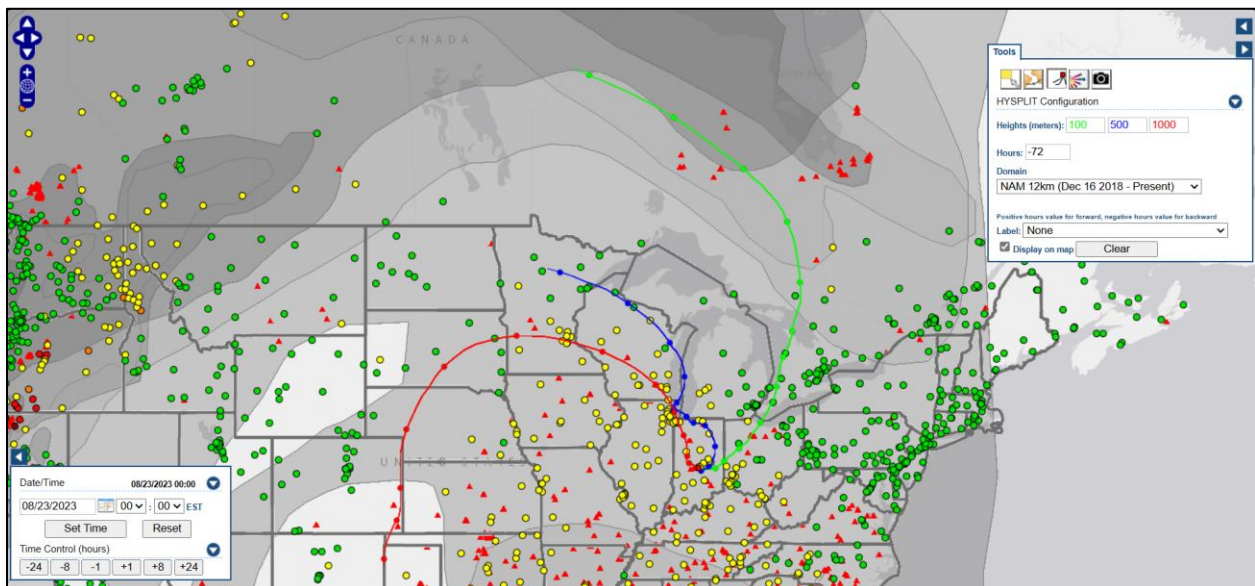
SMOKE:

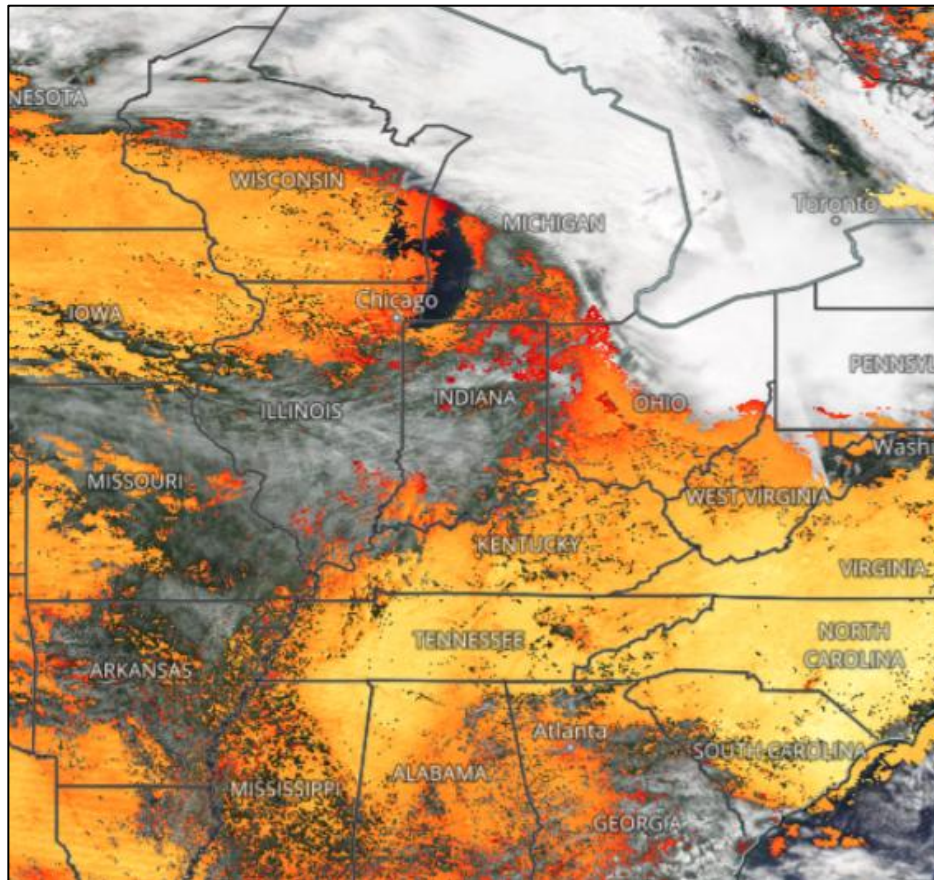
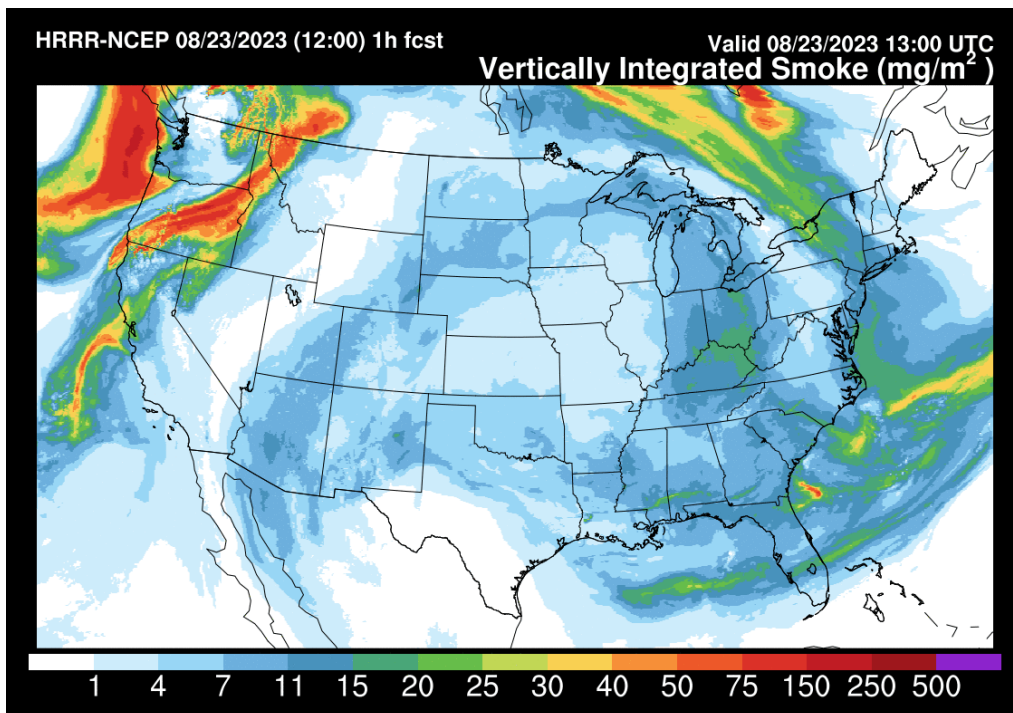
United States/Canada/Northern Mexico/Atlantic Ocean

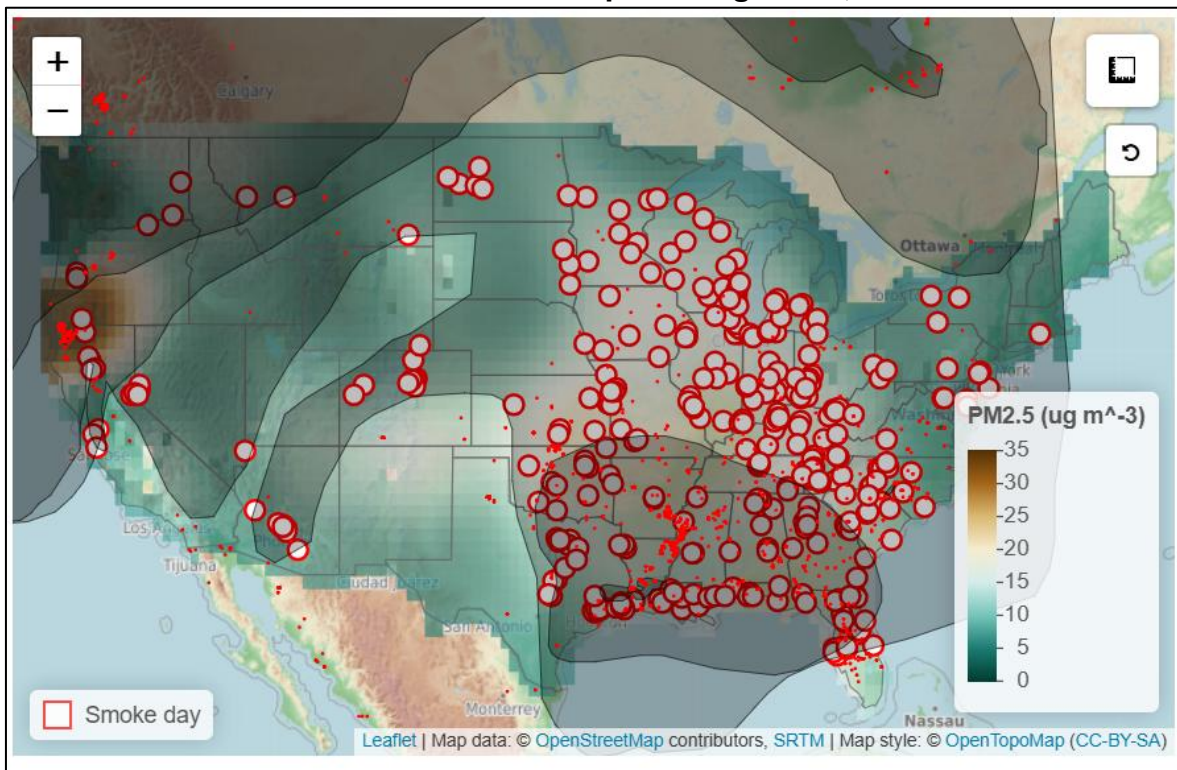
Widespread cloud cover continued to cover regions of Alaska, northern Canada, and western/northern U.S, which limits the visibility on some of the recent wildfires and smoke impacting those regions. Numerous wildfires were still seen over a portion of the Northwest Territories, northern Alberta, and scattered across British Columbia in Canada. Wildfires in the U.S continued to burn in parts of Washington, Idaho, western Montana, western Oregon, and northwestern California, however heavy cloud cover the recent Hurricane Hilary has it made it difficult to analyze over in the western U.S. For the smoke, western Canadian wildfires and northwestern U.S. wildfires were responsible for a very large area of moderate density smoke which was seen extending into Pacific Ocean off the coast southwestern Oregon and northwestern California. From here, the moderate density smoke extended northeast through Canada and extended off the Pacific coast through most of western, central Canada and eastern parts of Canada. In addition, moderate remnant density smoke was seen over most of southern U.S, parts of the eastern U.S, and the Atlantic ocean off of southeastern Canada. Thick density smoke from both the wildfires in California and western Canada was seen engulfing parts of the northwestern U.S, British Columbia, Alberta and a portion of Saskatchewan. The larger surrounding area of thinner density smoke was seen over much of Canada and the U.S.

August 23, 2023**PM_{2.5} Monitoring Sites Impacted by Wildfire Smoke**

Monitor name	AQS	Date	Daily average (µg/m ³)	Tier 2 Threshold (µg/m ³)
Columbus - Rocky Ford Drive	180050008	8/23/2023	15.6	13.7
Jeffersonville - Bates-Bowyer Ave	180190010	8/23/2023	21.1	17.0
Jasper - Post Office	180372001	8/23/2023	23.9	15.7
Plummer	180550001	8/23/2023	18.1	14.7
Fishers	180570007	8/23/2023	19.0	13.8
Mechanicsburg	180650003	8/23/2023	18.6	15.5
Kokomo - E. Vaile Ave	180670004	8/23/2023	15.6	14.7
Anderson - Eastside Elem	180950011	8/23/2023	18.0	15.4
Indianapolis - Washington Park	180970078	8/23/2023	18.1	17.8
Indianapolis - W. 18th St.	180970081	8/23/2023	21.6	20.9
Indianapolis- I-70 E	180970087	8/23/2023	20.5	20.5
Bloomington - Binford	181050003	8/23/2023	16.7	13.9
Ogden Dunes	181270024	8/23/2023	18.4	15.3
Lafayette - Greenbush St	181570008	8/23/2023	17.6	15.1
Evansville - Buena Vista	181630021	8/23/2023	23.9	15.1
Terre Haute - Lafayette Ave	181670018	8/23/2023	18.8	18.8
Larwill	181830003	8/23/2023	15.9	15

AirNow Tech Fire/HMS Smoke Map with Backward Trajectories – August 23, 2023

Satellite Imagery with MAIAC AOD – August 23, 2023**HRRR Smoke - Vertically Integrated Smoke – August 23, 2023**

GAM PMO3 Smoke Output – August 23, 2023**NOAA Satellite Smoke – 2023 Satellite Smoke Text Excerpts**

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY

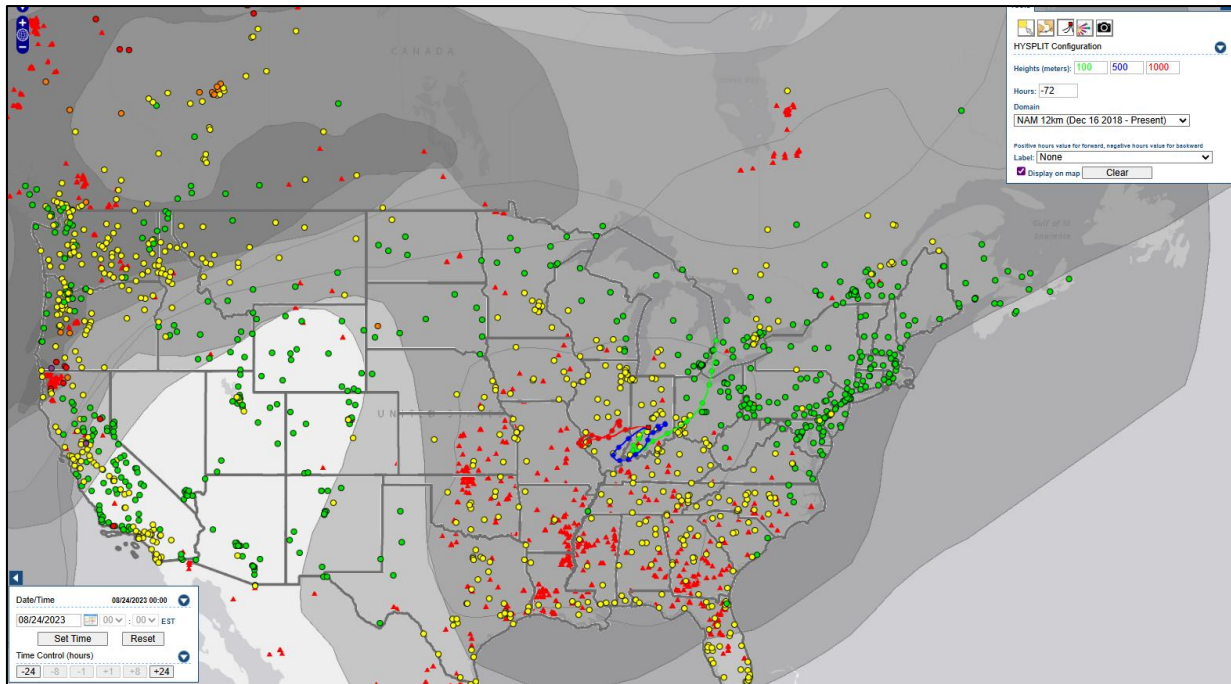
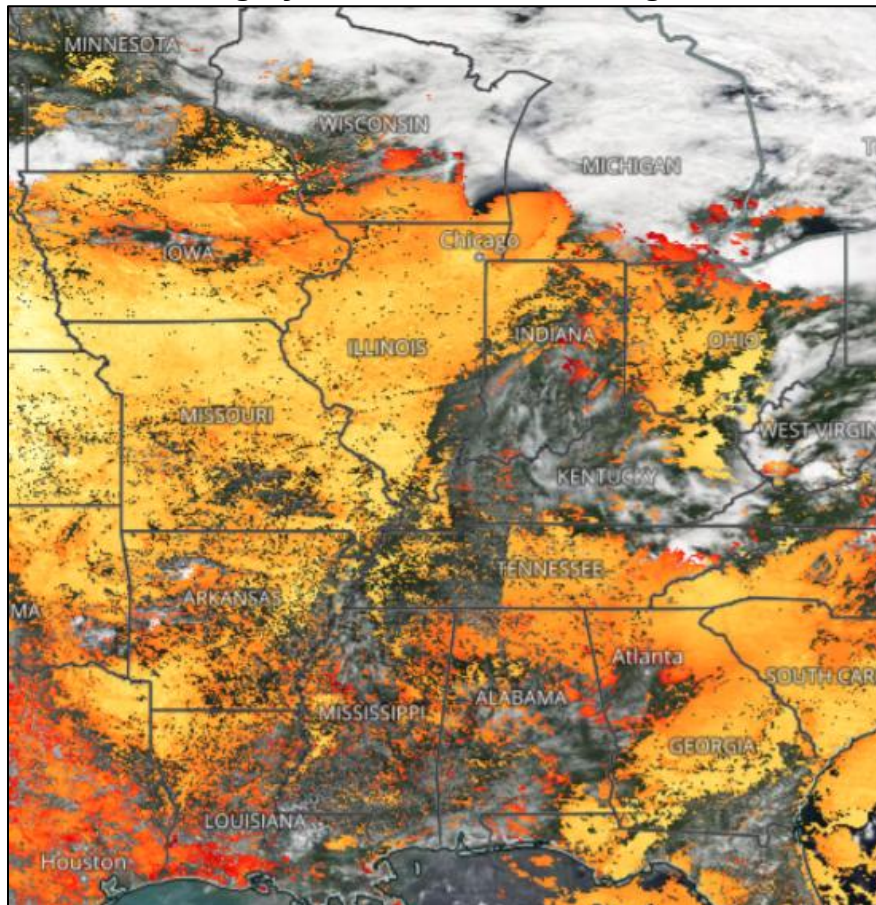
SMOKE:

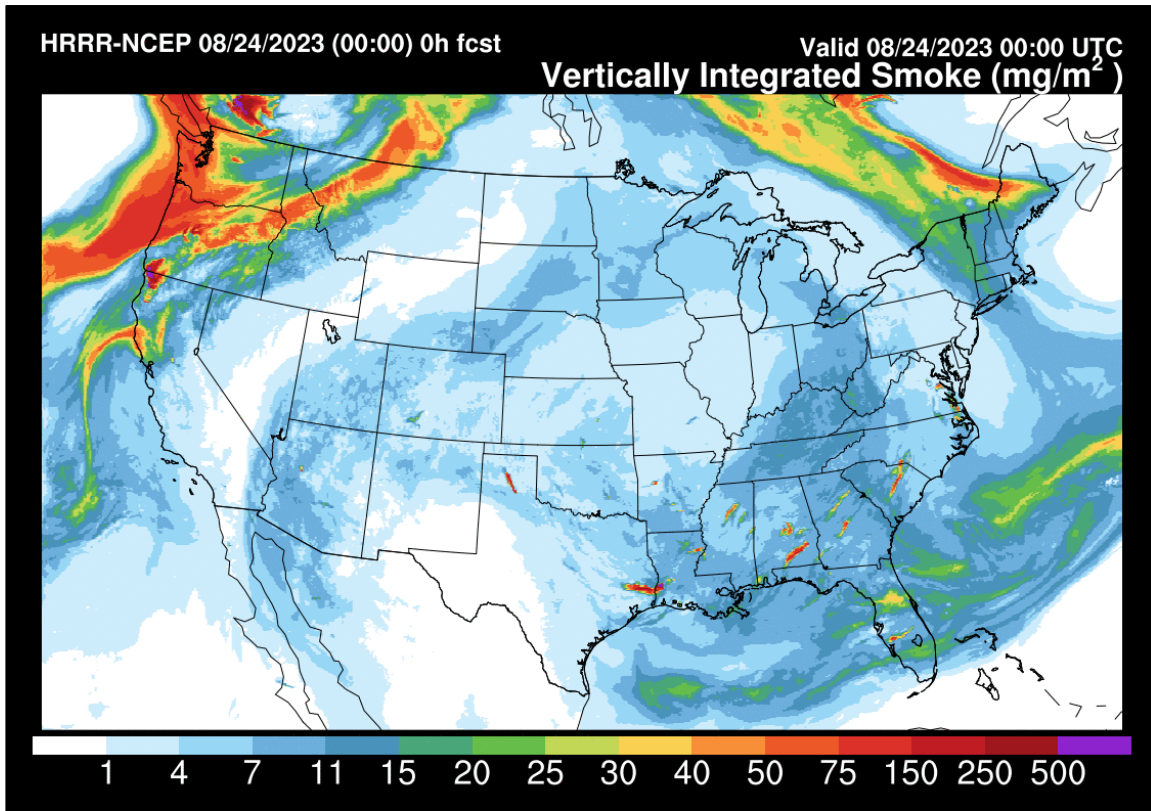
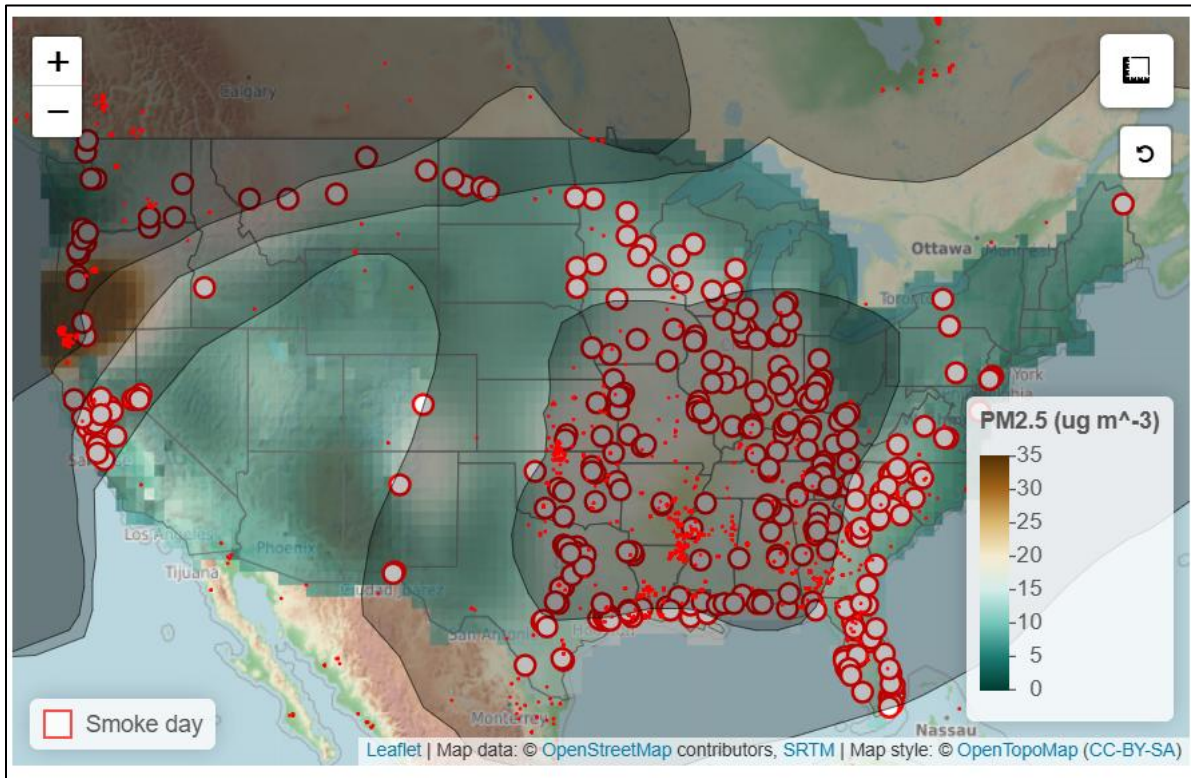
United States/Canada/Mexico/Northwestern Atlantic Ocean/Northeastern Pacific Ocean...

Dense smoke from numerous wildfires across western Canada extended eastward over northern Alberta, Saskatchewan, and Manitoba, as well as southern Northwest Territories. Dense smoke also covered much of central and southwestern British Columbia, extending out over the adjacent Pacific Ocean and curling around a low-pressure system near Vancouver Island. Additional dense smoke extended north-northeastward from a fire near Eureka, California, along a frontal boundary reaching up into British Columbia. Moderate smoke also covered much of northern British Columbia and extended southwestward from the fire near Eureka over the Pacific Ocean there. Additional streaks of moderate smoke extended eastward over northern Canada and southeastward over portions of Quebec and Ontario. Yet another mass of moderate remnant smoke with the help of seasonal fires and small embedded wildfires, was observed over portions of the and southeastern U.S. Light smoke covered much of North America except for most of Alaska and the Intermountain West region of the U.S., extending over the western Atlantic Ocean.

August 24, 2023**PM_{2.5} Monitoring Sites Impacted by Wildfire Smoke**

Monitor name	AQS	Date	Daily average (µg/m³)	Tier 2 Threshold (µg/m³)
Columbus - Rocky Ford Drive	180050008	8/24/2023	22.0	13.7
Jeffersonville - Bates-Bowyer Ave	180190010	8/24/2023	25.2	17.0
Jasper - Post Office	180372001	8/24/2023	27.6	15.7
New Albany	180430008	8/24/2023	20.9	20.9
Plummer	180550001	8/24/2023	17.3	14.7
Fishers	180570007	8/24/2023	22.4	13.8
Mechanicsburg	180650003	8/24/2023	18.1	15.5
Kokomo - E. Vaile Ave	180670004	8/24/2023	19.0	14.7
Anderson - Eastside Elem	180950011	8/24/2023	17.4	15.4
Indianapolis - Washington Park	180970078	8/24/2023	21.2	17.8
Indianapolis - W. 18th St.	180970081	8/24/2023	25.1	20.9
Indianapolis- I-70 E	180970087	8/24/2023	24.6	20.5
Bloomington - Binford	181050003	8/24/2023	17.3	13.9
South Bend - Shields Dr.	181410015	8/24/2023	16.9	16.9
Lafayette - Greenbush St	181570008	8/24/2023	17.7	15.1
Evansville - U of E	181630016	8/24/2023	21.7	15.5
Evansville - Buena Vista	181630021	8/24/2023	23.9	15.1
Terre Haute - Lafayette Ave	181670018	8/24/2023	21.3	18.8

AirNow Tech Fire/HMS Smoke Map with Backward Trajectories – August 24, 2023**Satellite Imagery with MAIAC AOD – August 24, 2023**

HRRR Smoke - Vertically Integrated Smoke – August 24, 2023**GAM PMO3 Smoke Output – August 24, 2023**

NOAA Satellite Smoke – 2023 Satellite Smoke Text Excerpts

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE
IMAGERY

THROUGH 0100Z August 24, 2023

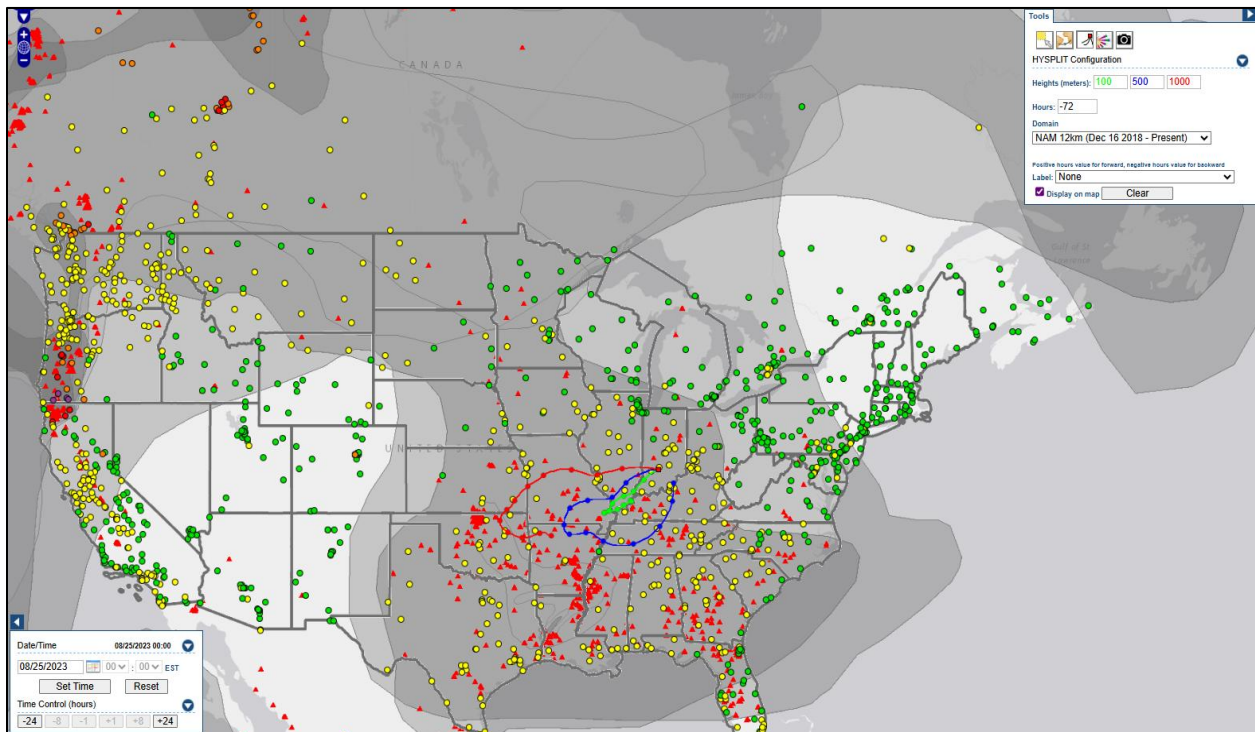
SMOKE:

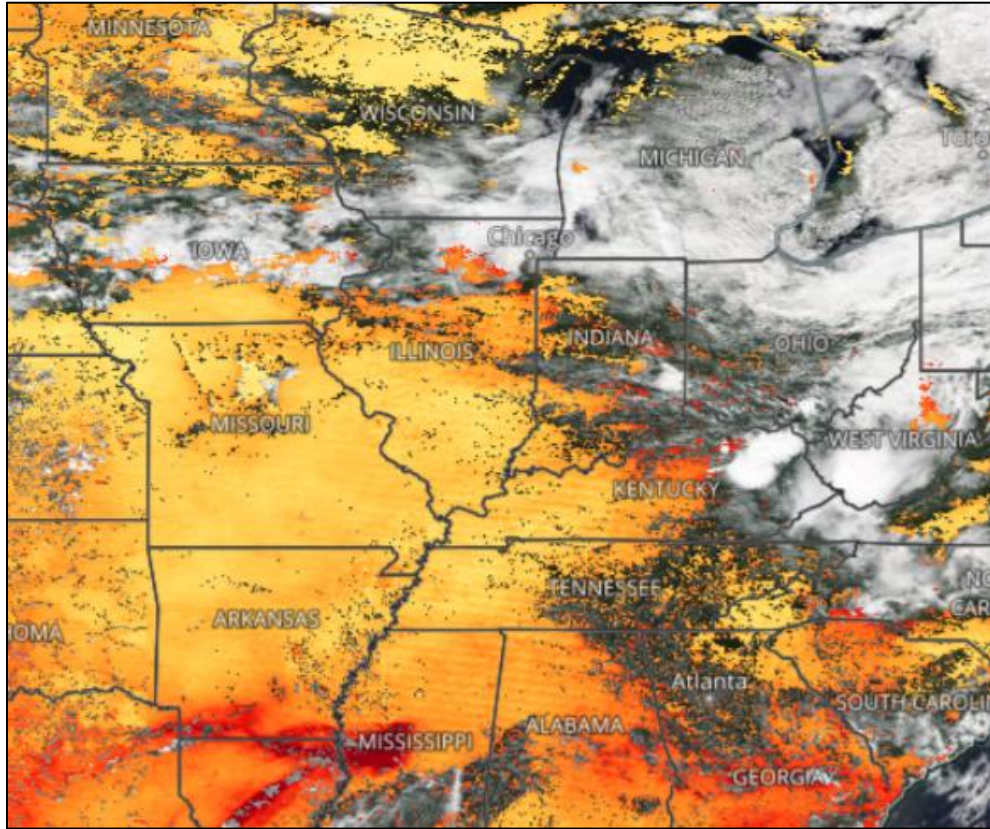
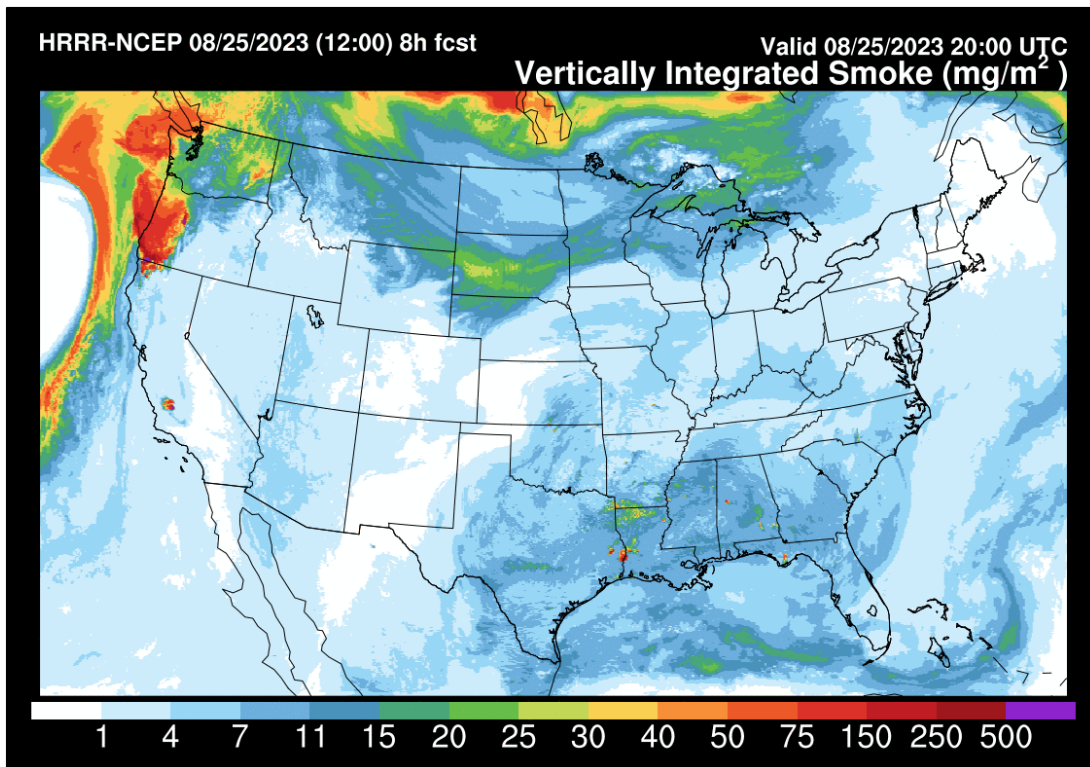
United States/Canada/Mexico/Northwestern Atlantic Ocean/Northeastern
Pacific Ocean...

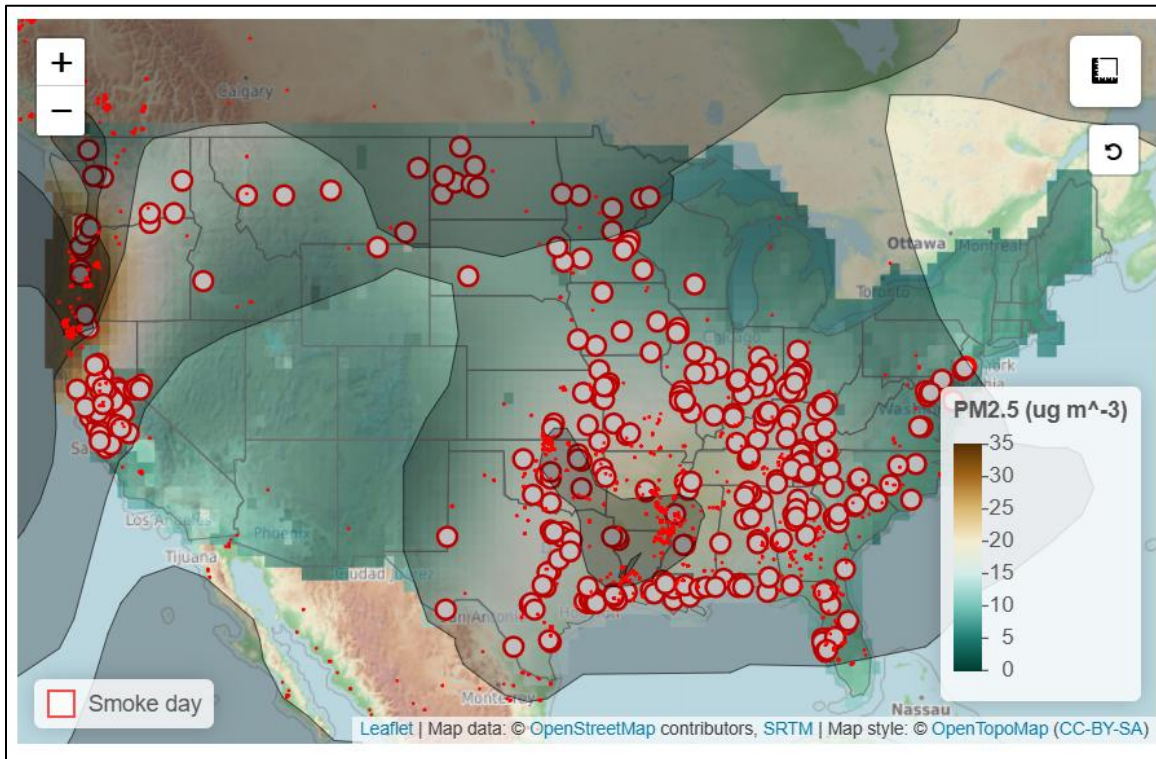
Smoke from the numerous wildfires burning across western Canada continued to produce a large area of dense to very dense smoke that extended over southern sections of the Northwest Territories, central/northeastern sections of British Columbia, most of western Canada, and northern regions of eastern Canada such as Ontario, Manitoba, and Hudson Bay. This thick smoke also engulfed much of the northwestern U.S and extended through this region into the Pacific Ocean. Additional thick smoke from several large wildfires in Oregon and California also contributed to large area of thick smoke, with the large wildfire near Eureka, California producing a large area of thick smoke plume that extended along the western coast and into the Pacific. Moderate smoke encompassed the same regions while extending a bit further east within Canada. The overall large area of light density smoke from the wildfires in western Canada, Northwest US, northern California extended across Canada, most of the US, northern/central Gulf of Mexico, and northern Mexico. In addition, a large patch of remnant moderate dense smoke was seen over southeastern U.S and northern Gulf of Mexico, likely due to the same large wildfires mentioned in the prior as well as some small contribution from the scattered fires within the southern Mississippi valley region.

August 25, 2023**PM_{2.5} Monitoring Sites Impacted by Wildfire Smoke**

Monitor name	AQS	Date	Daily average (µg/m ³)	Tier 2 Threshold (µg/m ³)
Columbus - Rocky Ford Drive	180050008	8/25/2023	14.6	13.7
Jeffersonville - Bates-Bowyer Ave	180190010	8/25/2023	18.5	17.0
Jasper - Post Office	180372001	8/25/2023	18.0	15.7
Plummer	180550001	8/25/2023	15.3	14.7
Fishers	180570007	8/25/2023	15.5	13.8
Bloomington - Binford	181050003	8/25/2023	16.6	13.9
Dale	181470009	8/25/2023	17.9	13.9
Evansville - U of E	181630016	8/25/2023	18.2	15.5
Evansville - Buena Vista	181630021	8/25/2023	19.9	15.1

AirNow Tech Fire/HMS Smoke Map with Backward Trajectories – August 25, 2023

Satellite Imagery with MAIAC AOD – August 25, 2023**HRRR Smoke - Vertically Integrated Smoke – August 25, 2023**

GAM PMO3 Smoke Output – August 25, 2023**NOAA Satellite Smoke – 2023 Satellite Smoke Text Excerpts**

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY

THROUGH 0100Z August 25, 2023

SMOKE:

United States/Canada/Mexico/Northwestern Atlantic Ocean/Northeastern Pacific Ocean...

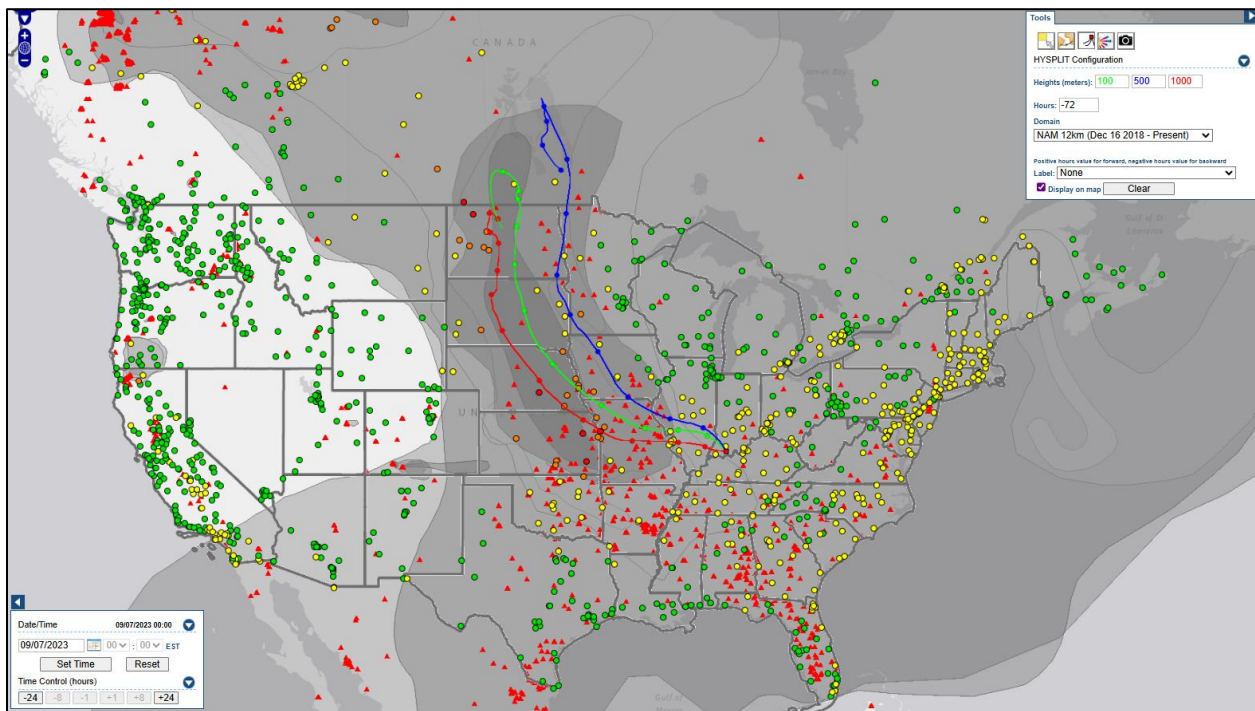
Smoke from the numerous wildfires burning across western Canada continued to produce a large area of moderate to very thick smoke that extended over southern sections of the Northwest Territories, British Columbia, Alberta, Saskatchewan, and Manitoba. The smoke likely extended over into eastern Canada, but heavy cloud cover covered the region. The thick density smoke also extending out over the adjacent Pacific Ocean, along southwestern Canada and further south along the western U.S coast. Additional thick smoke extended along the California, Oregon, Washington coast and into the Pacific and north/northeast across northwestern Oregon, Washington into northern Idaho, northwestern Montana, southeastern Alberta, and southern Saskatchewan/Manitoba. This smoke was from wildfire near Eureka, California. Moderate density smoke encompassed the same regions while extending further east within Canada. The overall large area of light density smoke from the wildfires in western Canada, Northwest US, northern California extended across Canada, most of the US, and northern/central Gulf of Mexico. In addition, moderate smoke over much of central-eastern U.S, with contributions coming the wildfires in Canada and western U.S as well as the wildfires in the southeastern U.S.

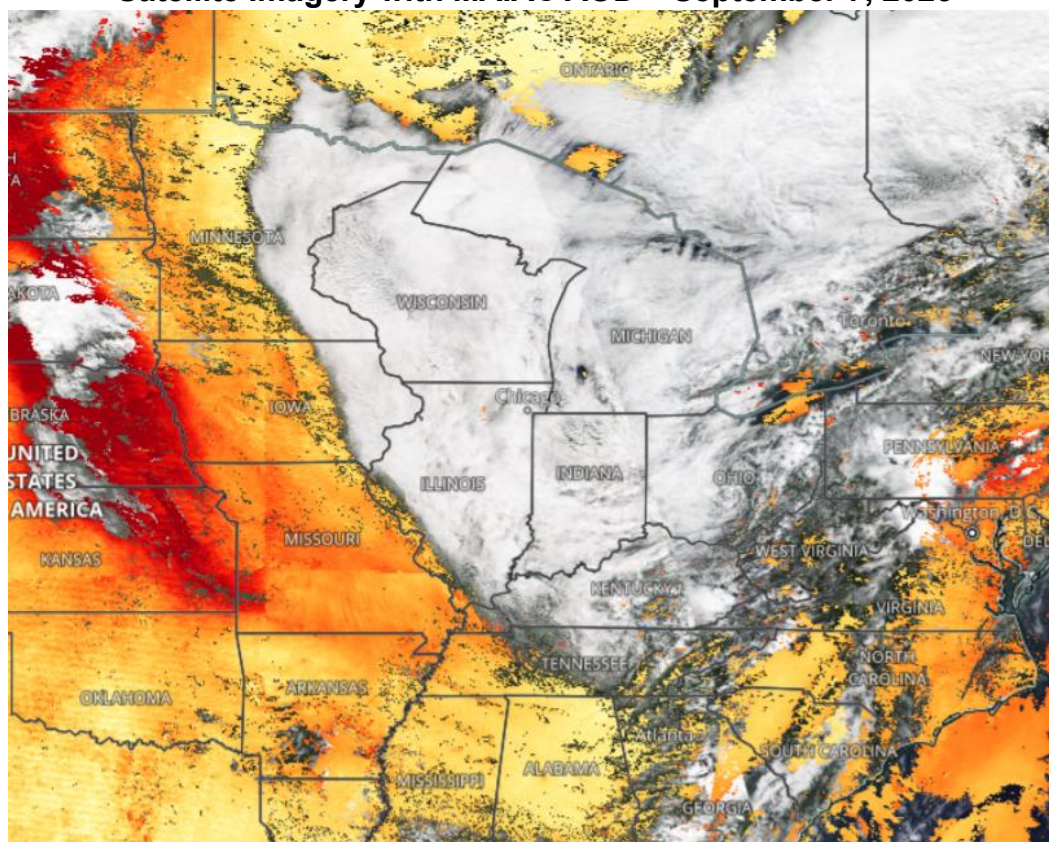
September 7, 2023

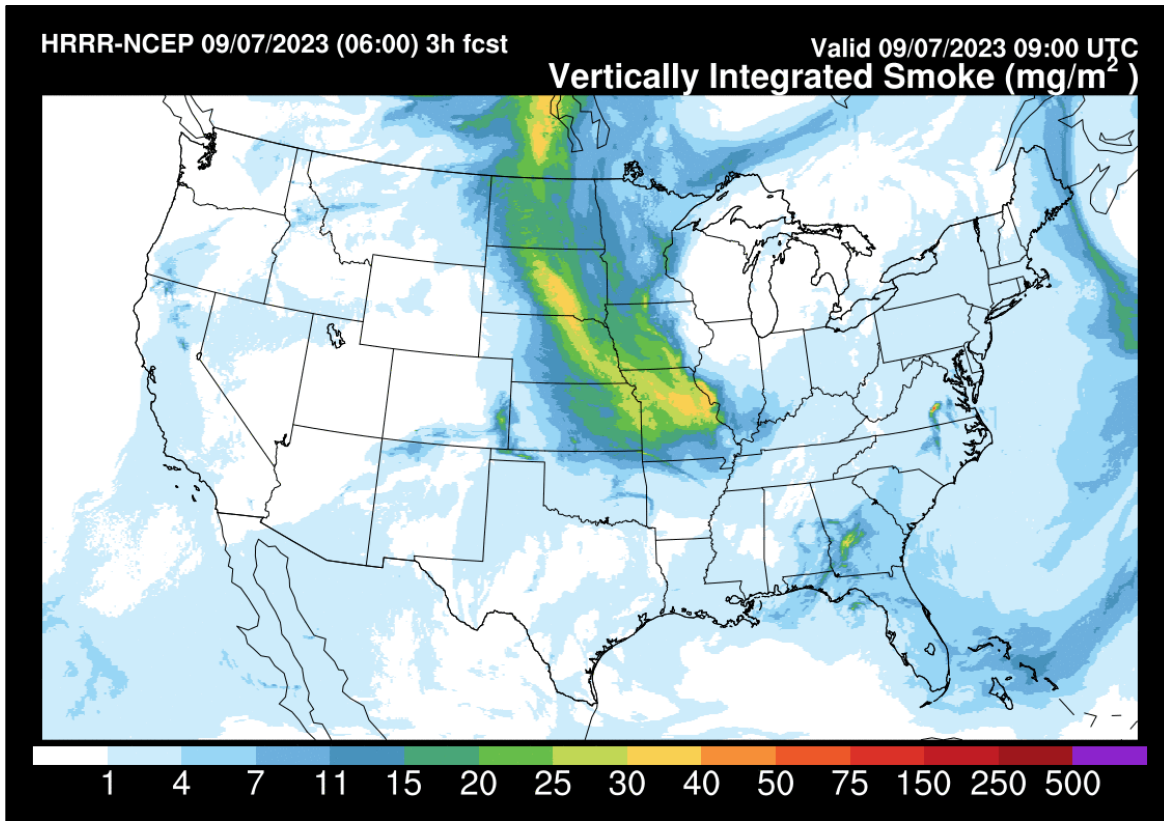
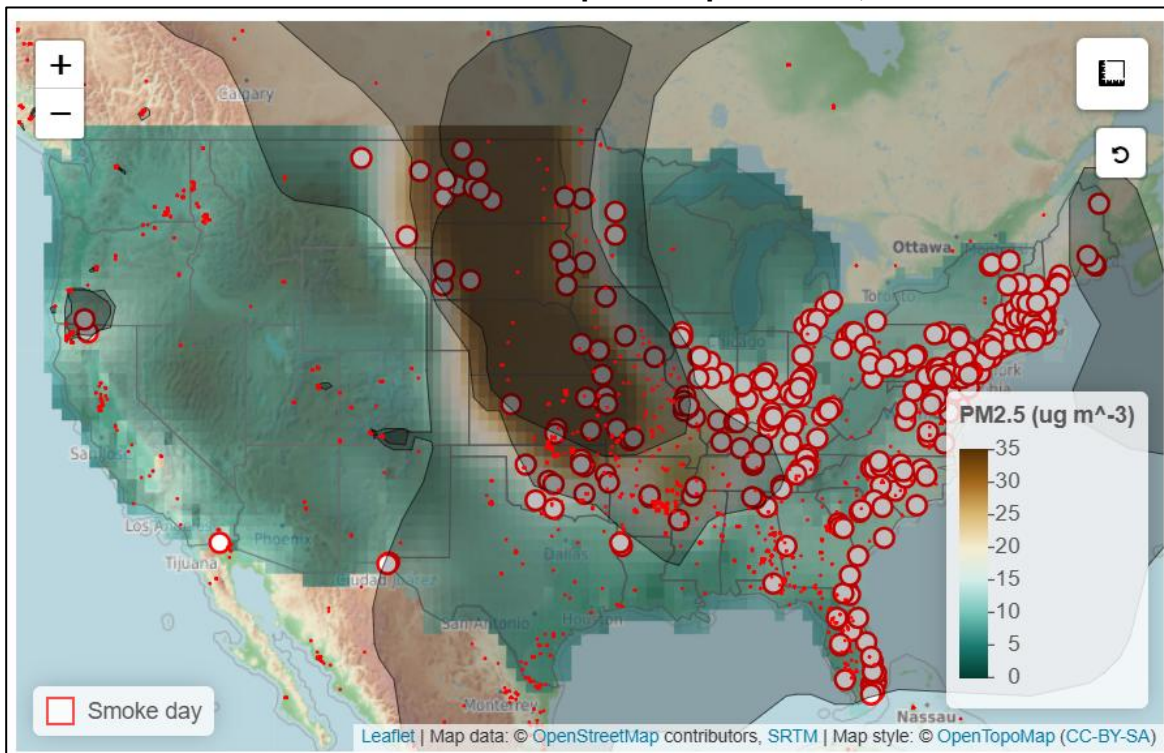
PM_{2.5} Monitoring Sites Impacted by Wildfire Smoke

Monitor name	AQS	Date	Daily average (µg/m ³)	Tier 2 Threshold (µg/m ³)
Columbus - Rocky Ford Drive	180050008	9/7/2023	15.3	13.7
Jeffersonville - Bates-Bowyer Ave	180190010	9/7/2023	21.0	17.0
Jasper - Post Office	180372001	9/7/2023	22.5	15.7
Plummer	180550001	9/7/2023	19.6	14.7
Bloomington - Binford	181050003	9/7/2023	18.7	13.9
Evansville - Buena Vista	181630021	9/7/2023	23.1	15.1

AirNow Tech Fire/HMS Smoke Map with Backward Trajectories – September 7, 2023



Satellite Imagery with MAIAC AOD – September 7, 2023

HRRR Smoke - Vertically Integrated Smoke – September 7, 2023**GAM PMO3 Smoke Output – September 7, 2023**

NOAA Satellite Smoke – 2023 Satellite Smoke Text Excerpts

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY

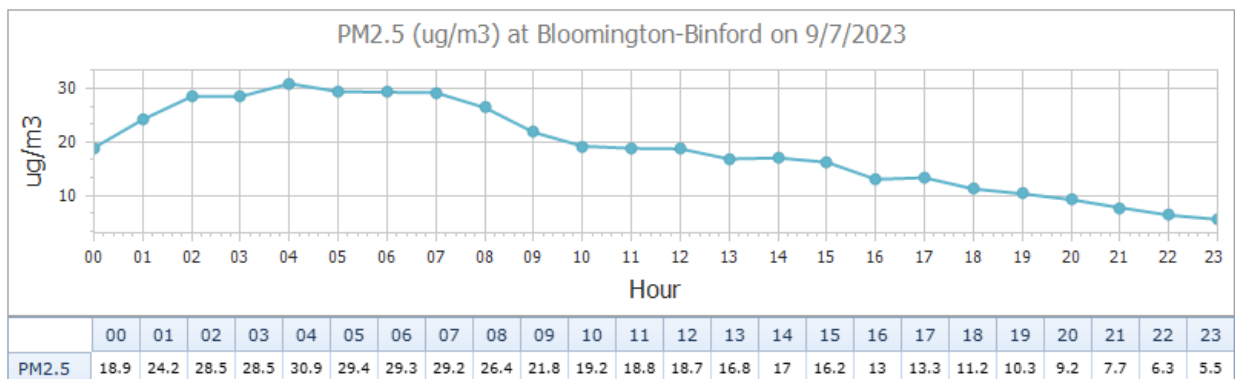
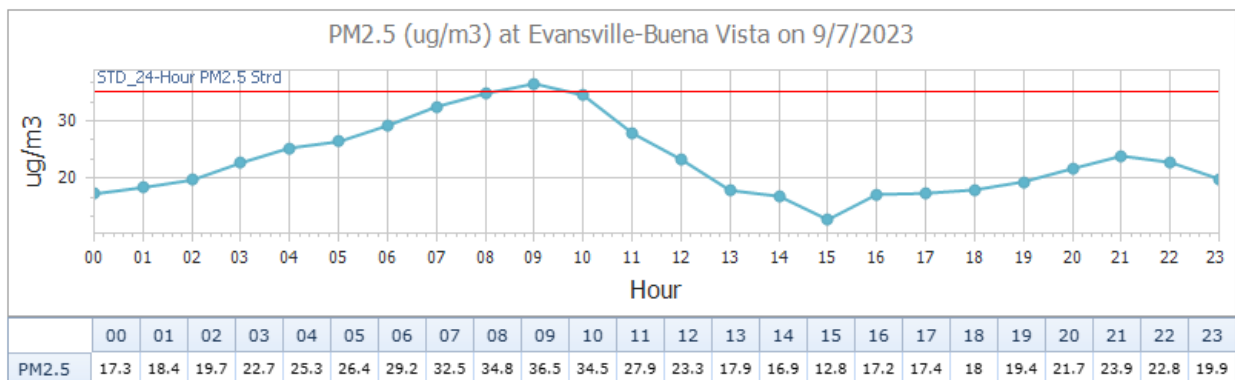
THROUGH 0152Z September 7, 2023

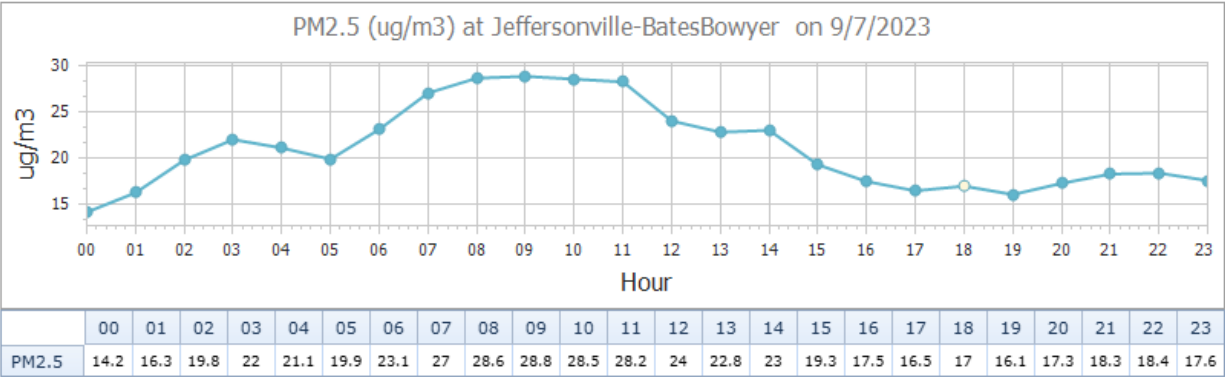
SMOKE:

Canada/U.S./Mexico/Gulf of Mexico/Atlantic Ocean off the U.S. and Canada East Coast...

Numerous large wildfires continue to burn especially in portions of British Columbia, northern Alberta, and the southern part of the Northwest Territories this morning. This has been the case for weeks now and the resulting mass of smoke mainly attributed to these fires covers virtually all of Canada, the eastern two-thirds of the U.S., much of the Gulf of Mexico and Mexico, as well as some of the far eastern Pacific off the coast of western Mexico and Baja.

Hourly PM_{2.5} Concentrations for Southern Indiana Monitors – September 7, 2023



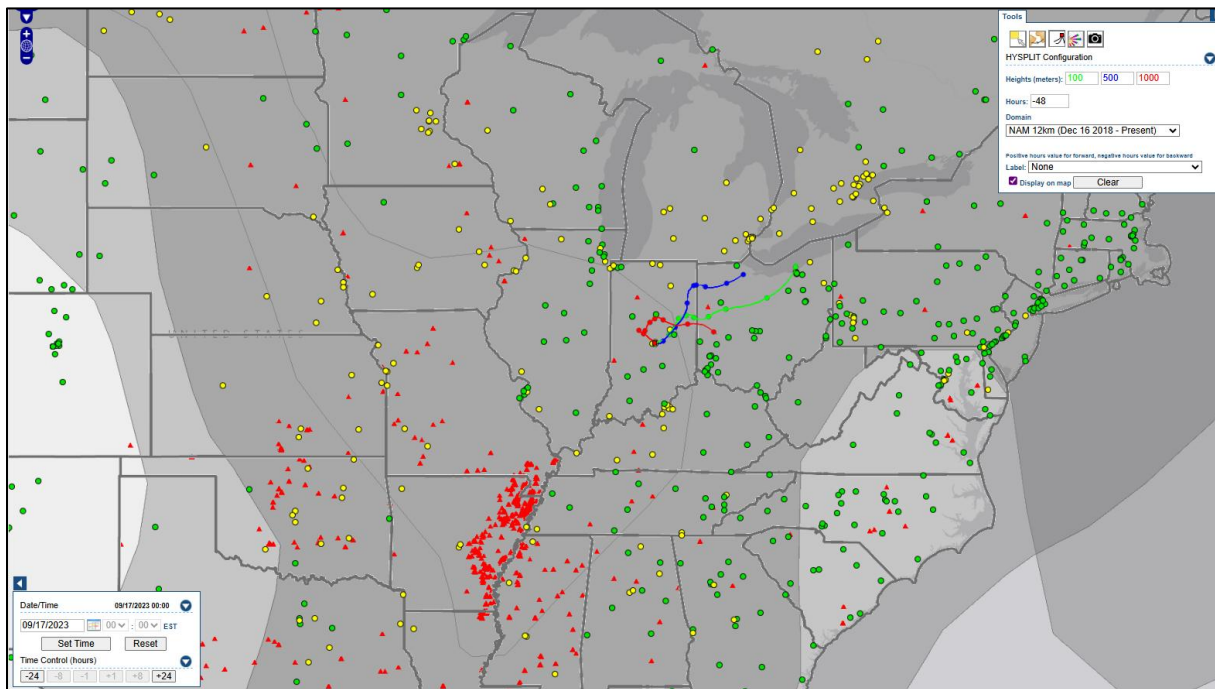


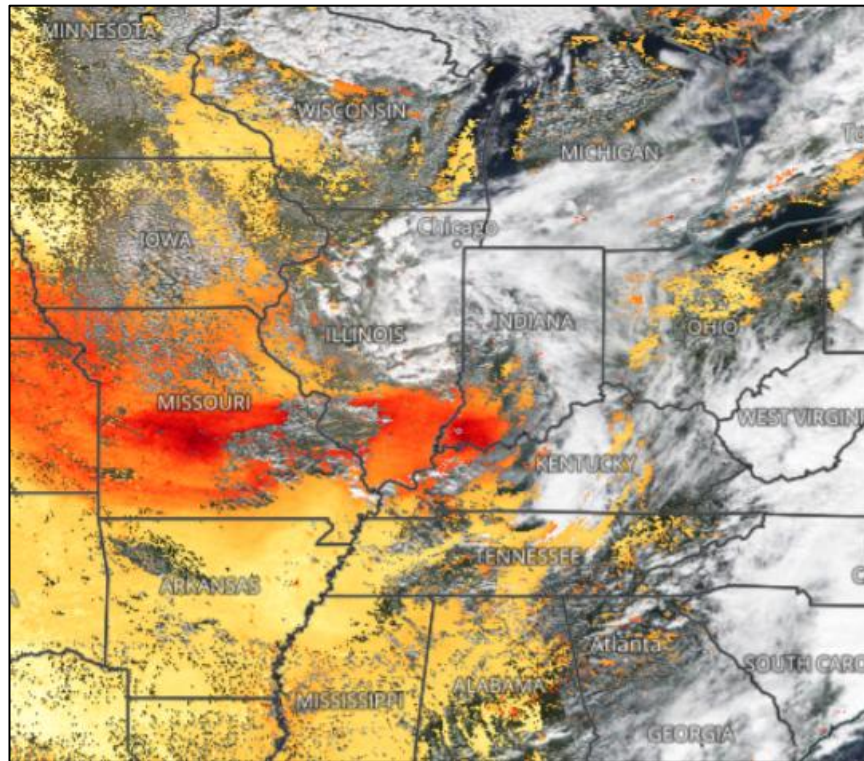
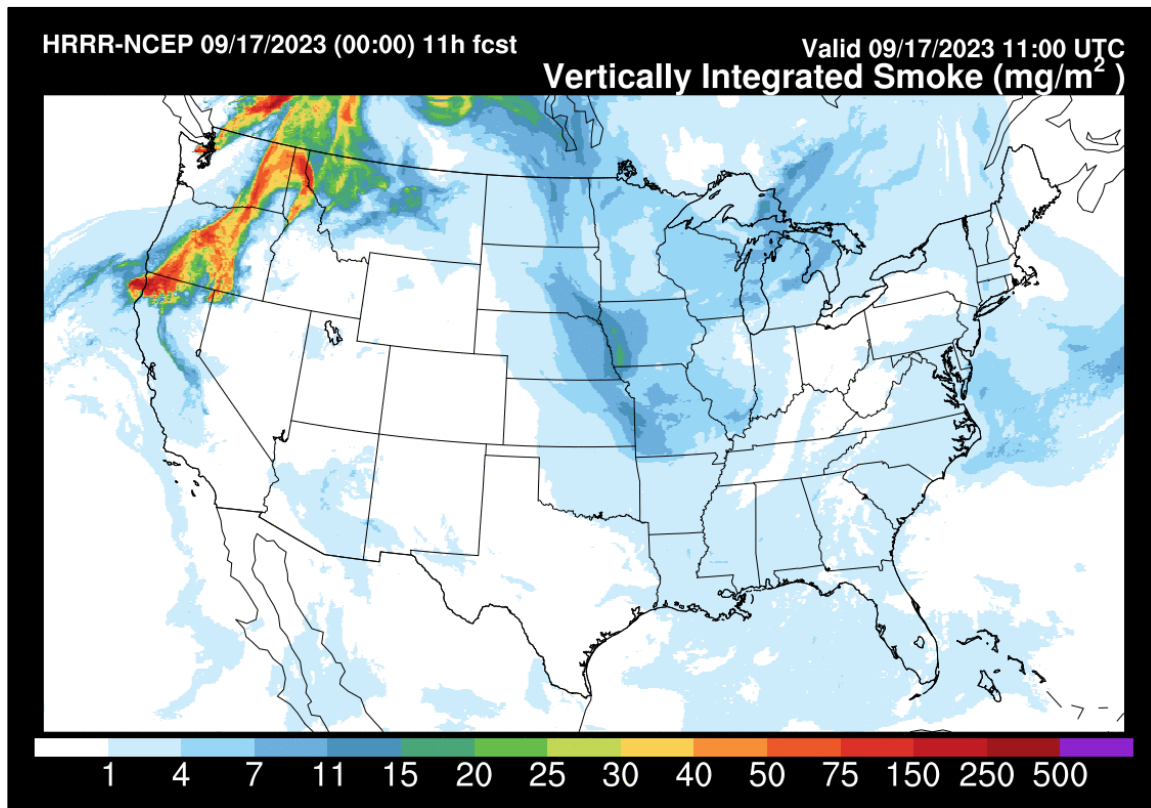
September 17, 2023

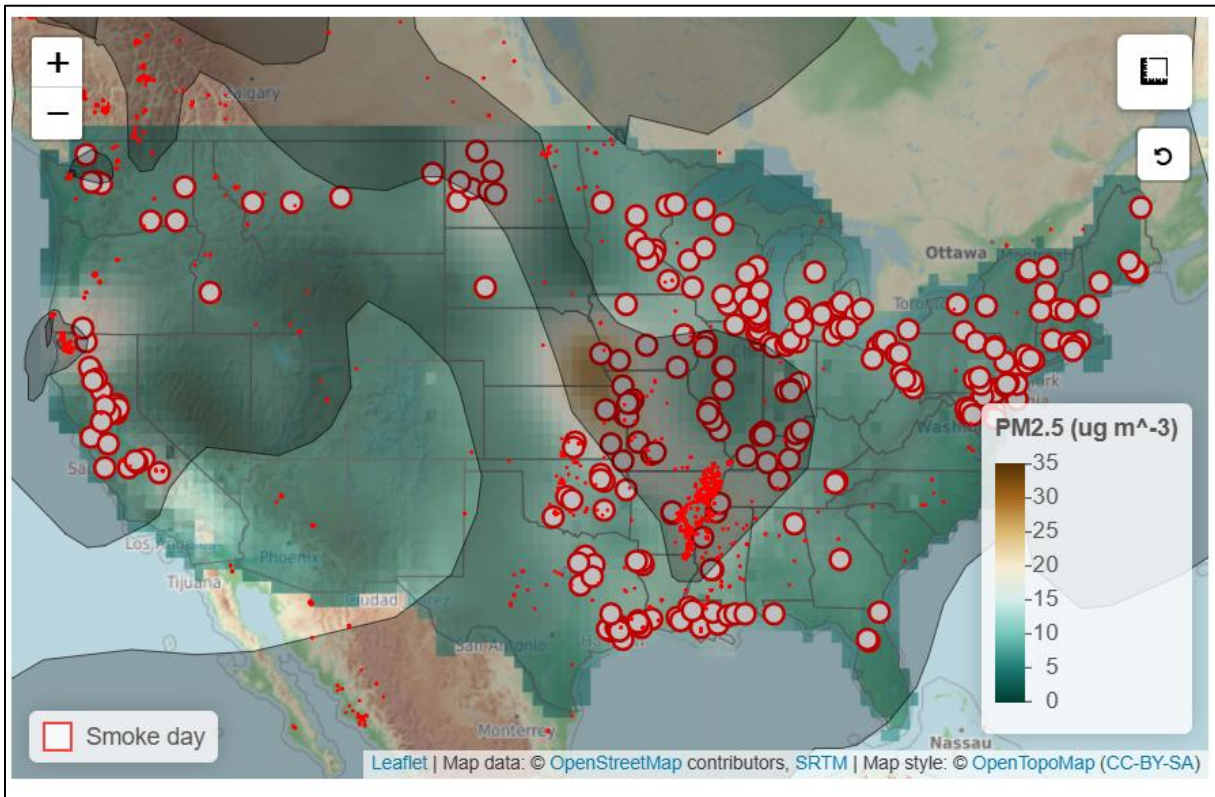
PM_{2.5} Monitoring Sites Impacted by Wildfire Smoke

Monitor name	AQS	Date	Daily average (µg/m ³)	Tier 2 Threshold (µg/m ³)
Indianapolis - Washington Park	180970078	9/17/2023	20.4	17.8
Indianapolis - W. 18th St.	180970081	9/17/2023	24.0	20.9
Indianapolis- I-70 E	180970087	9/17/2023	27.9	20.5

AirNow Tech Fire/HMS Smoke Map with Backward Trajectories – September 17, 2023



Satellite Imagery with MAIAC AOD – September 17, 2023**HRRR Smoke - Vertically Integrated Smoke – September 17, 2023**

GAM PMO3 Smoke Output – September 17, 2023**NOAA Satellite Smoke – 2023 Satellite Smoke Text Excerpts**

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY

THROUGH 1550Z September 17, 2023

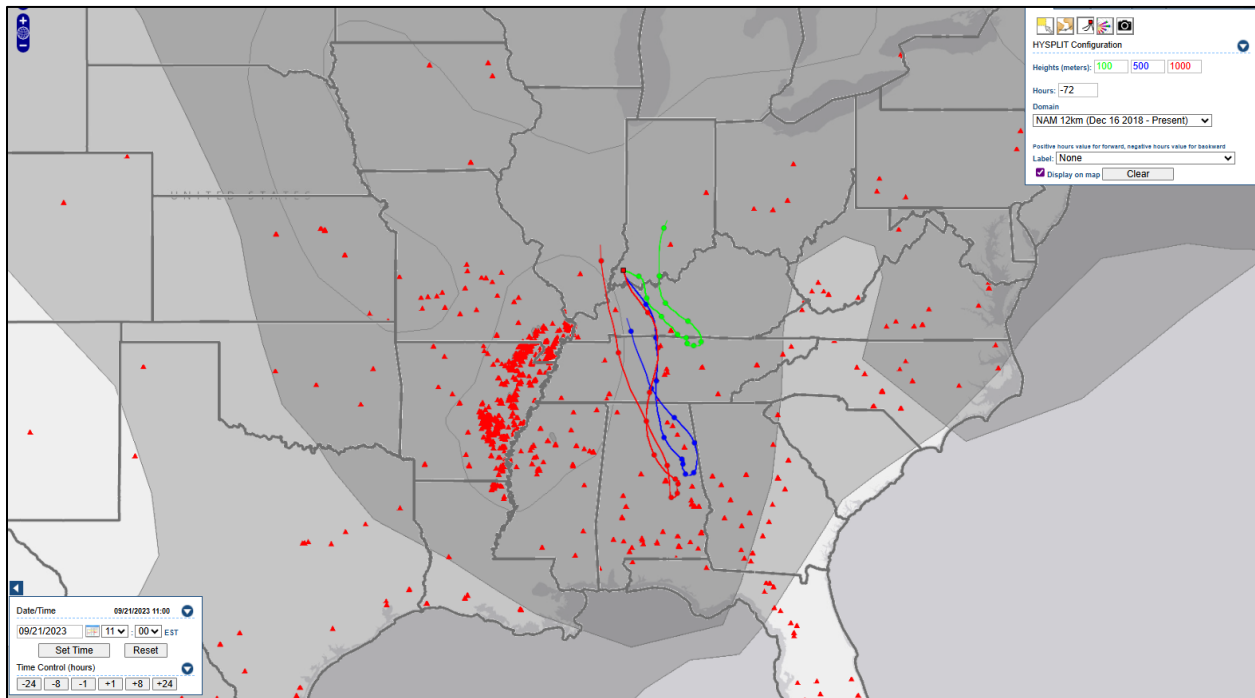
SMOKE:

Canada, Central United States, Eastern United States, Pacific Northwest United States, North Atlantic Ocean, northern Gulf of Mexico and Pacific Ocean off of Oregon and northern California...

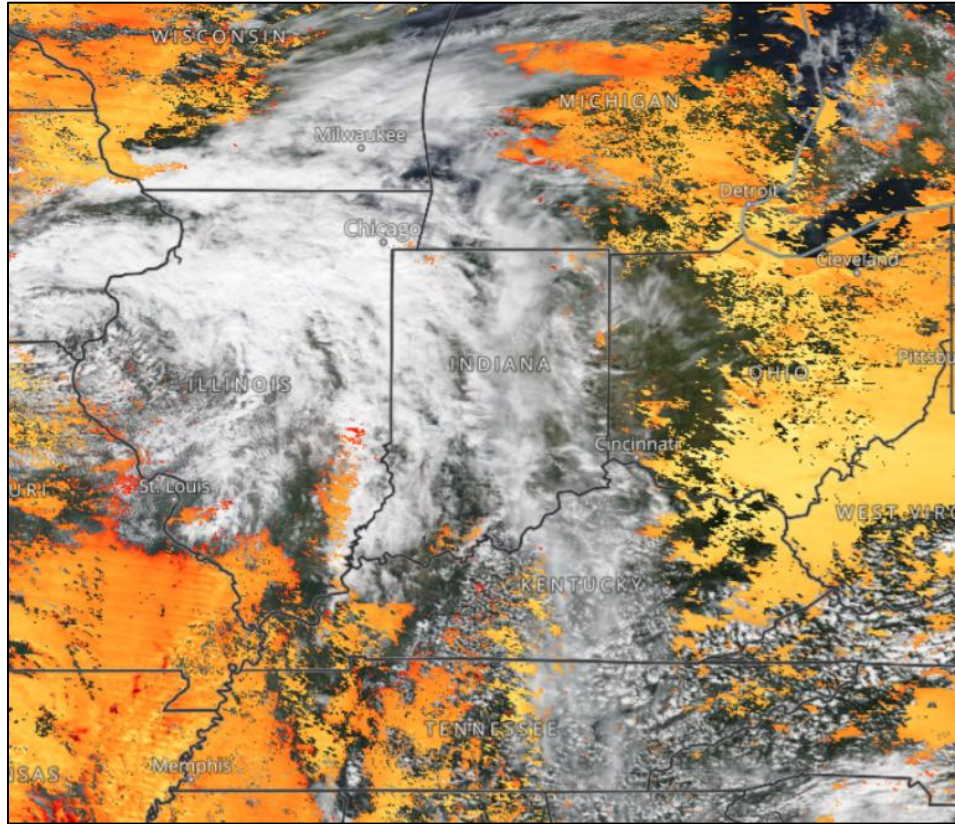
Persistent and ongoing wildfire activity across western Canada is continuing to produce a large amount of moderate and high density smoke that extends from eastern British Columbia eastward across northern Alberta and Saskatchewan into the eastern Northwest Territories and extending northeast from there across much of northern Canada to northern portions of Baffin Bay. A larger area of thin density smoke, from the Canadian fires, was seen over most of Canada, much of the Central and Eastern United States, over a portion of the North Atlantic Ocean and over portions of the northern Gulf of Mexico. Fire activity over northern California and the Pacific Northwest was also producing an area of mostly light density smoke that was seen over much of the Pacific Northwest and merged with the larger area of smoke over portions of southern Canada. Some higher density smoke was seen with this along coastal locations of southwest Oregon and extending south along coastal locations of northwest California.

September 21, 2023**PM_{2.5} Monitoring Sites Impacted by Wildfire Smoke**

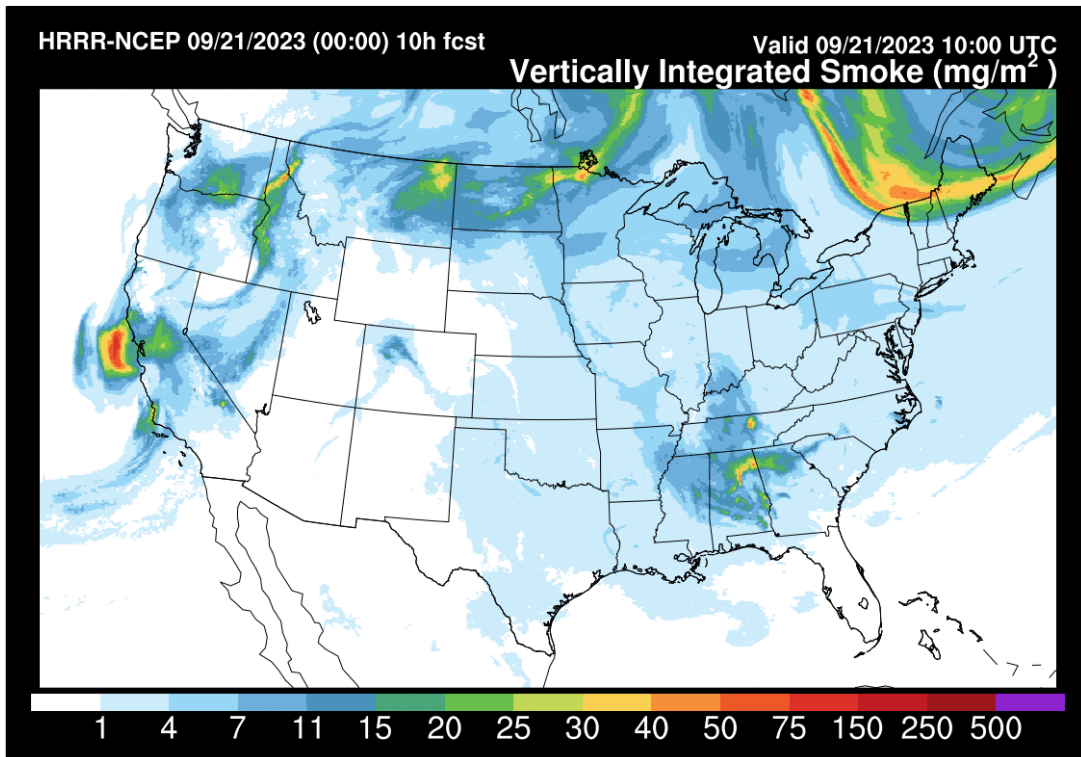
Monitor name	AQS	Date	Daily average ($\mu\text{g}/\text{m}^3$)	Tier 2 Threshold ($\mu\text{g}/\text{m}^3$)
Evansville - Buena Vista	181630021	9/21/2023	16.8	15.1

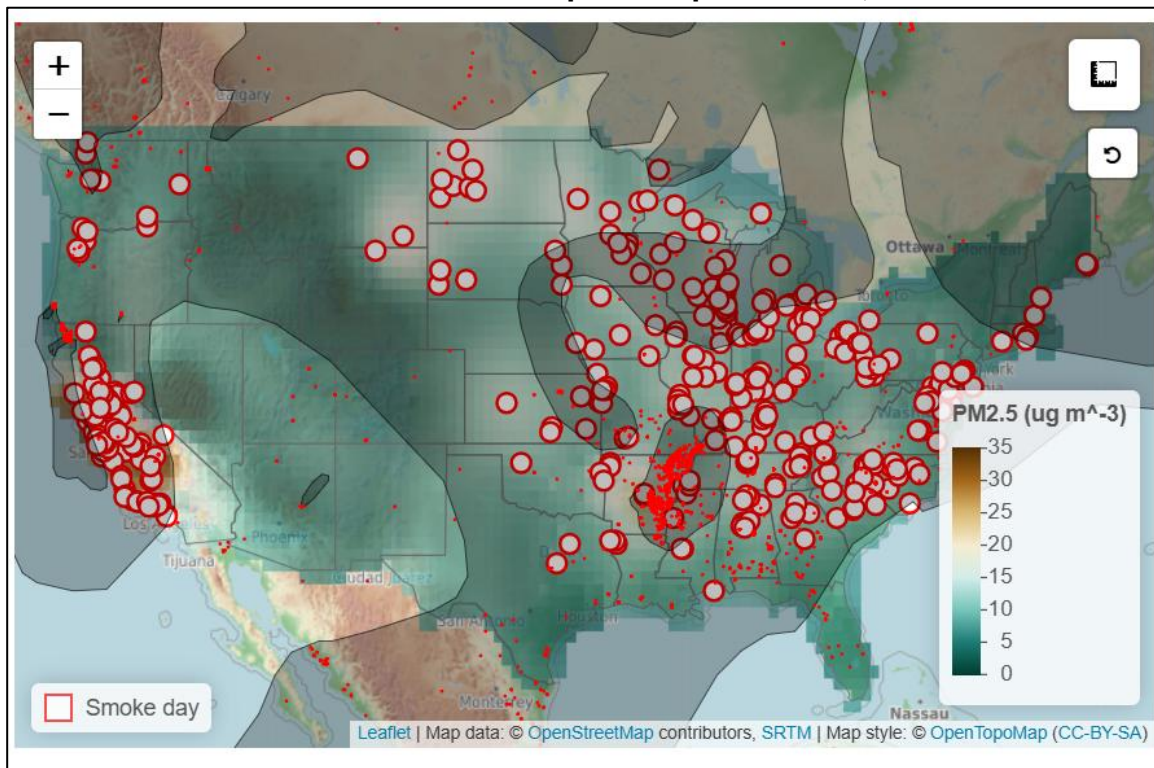
AirNow Tech Fire/HMS Smoke Map with Backward Trajectories – September 21, 2023

Satellite Imagery with MAIAC AOD – September 21, 2023



HRRR Smoke - Vertically Integrated Smoke – September 21, 2023



GAM PMO3 Smoke Output – September 21, 2023**NOAA Satellite Smoke – 2023 Satellite Smoke Text Excerpts**

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY

THROUGH 0113Z September 21, 2023

SMOKE:

Canada, Central United States, Eastern United States, Pacific Northwest United States, North Atlantic Ocean, Gulf of Mexico, and Pacific Ocean off of Oregon and northern California and Mexico...

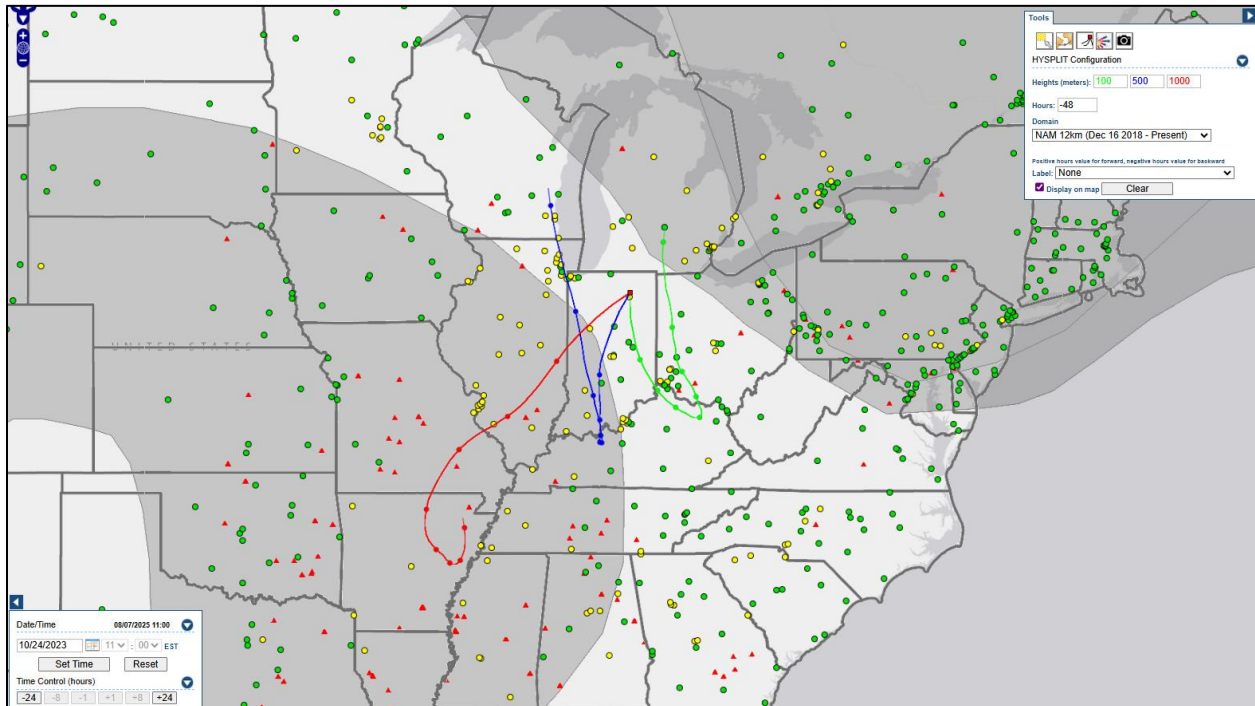
Persistent and ongoing wildfire activity across western Canada is continuing to produce a large amount of moderate and high density smoke that extends from northern British Columbia and northern Alberta into the eastern Northwest Territories and extending east and northeast from there across much of northern and central Canada to portions of Baffin Bay. A larger area of thin density smoke, from the Canadian fires, was seen over most of Canada, much of the Central and Eastern United States, parts of the western U.S through the central region of the Rocky mountains region, over a portion of the North Atlantic Ocean, much of the Gulf of Mexico, most of southern Mexico and the eastern Pacific Ocean.

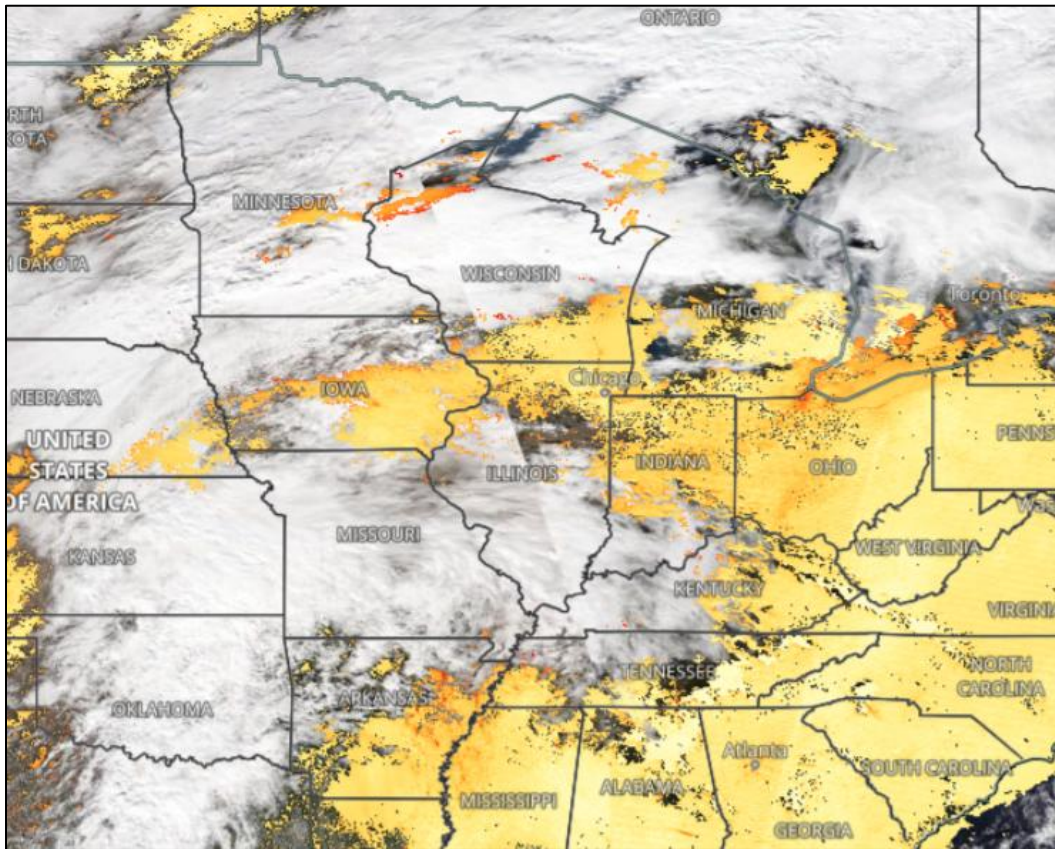
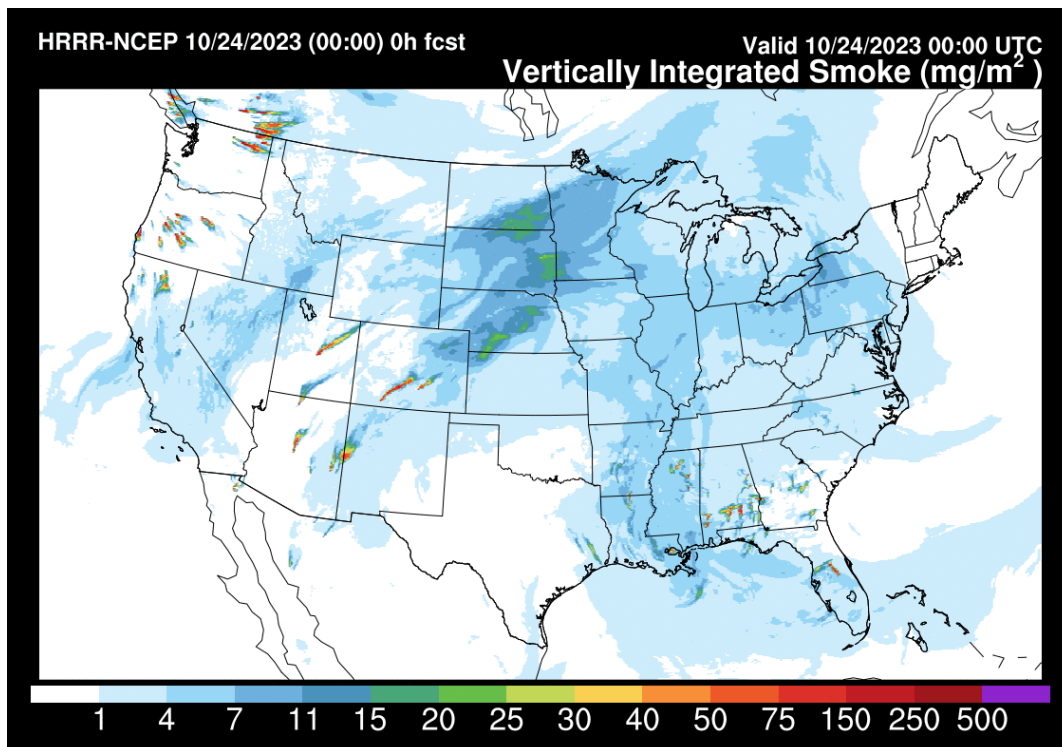
October 24, 2023

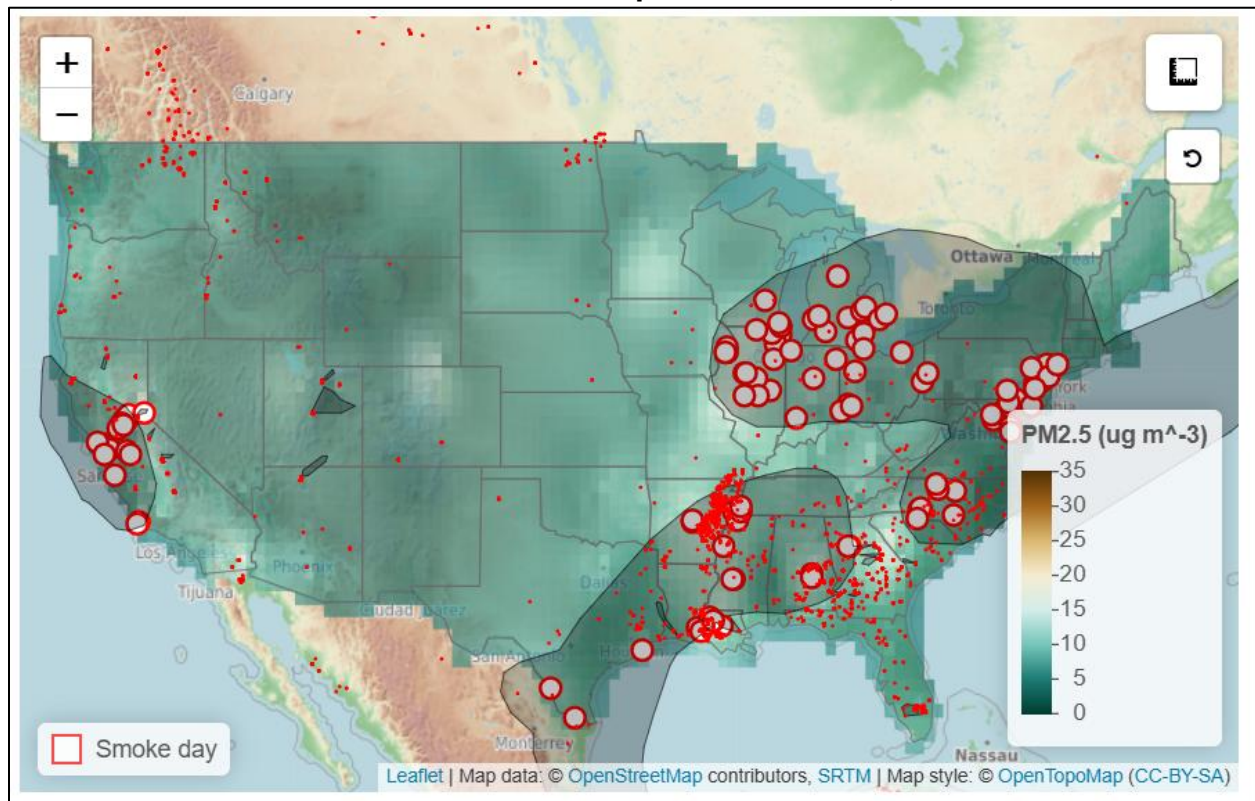
PM_{2.5} Monitoring Sites Impacted by Wildfire Smoke

Monitor name	AQS	Date	Daily average (µg/m ³)	Tier 2 Threshold (µg/m ³)
Larwill	181830003	10/24/2023	15.1	15

AirNow Tech Fire/HMS Smoke Map with Backward Trajectories – October 24, 2023



Satellite Imagery with MAIAC AOD – October 24, 2023**HRRR Smoke - Vertically Integrated Smoke – October 24, 2023**

GAM PMO3 Smoke Output – October 24, 2023**NOAA Satellite Smoke – 2023 Satellite Smoke Text Excerpts**

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY

THROUGH 0100Z October 24, 2023

SMOKE:

Southwestern U.S/Central United States/Mid-West....

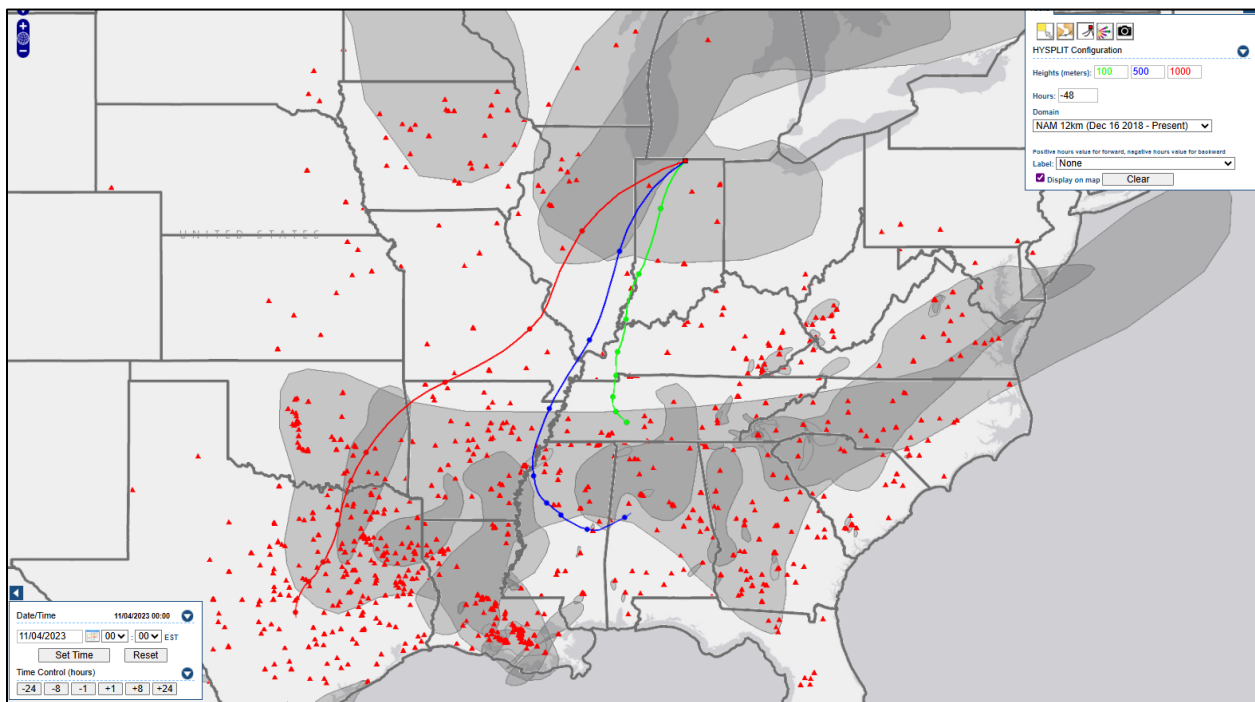
An area of mostly light density smoke, from fire activity over the Southwestern United States as well as contribution from seasonal burning in the Mississippi Valley was seen extending from portions of Arizona from the large wildfires, through most of the central U.S, the Mid-west states, and portions of the upper Mississippi valley, Over in the Mississippi valley region as well as southeastern U.S, numerous smoke plumes that may be visible were cover by heavy cloud cover. The large area of light density smoke may extend further south into the Mississippi Valley; but cloud cover precluded further analysis.

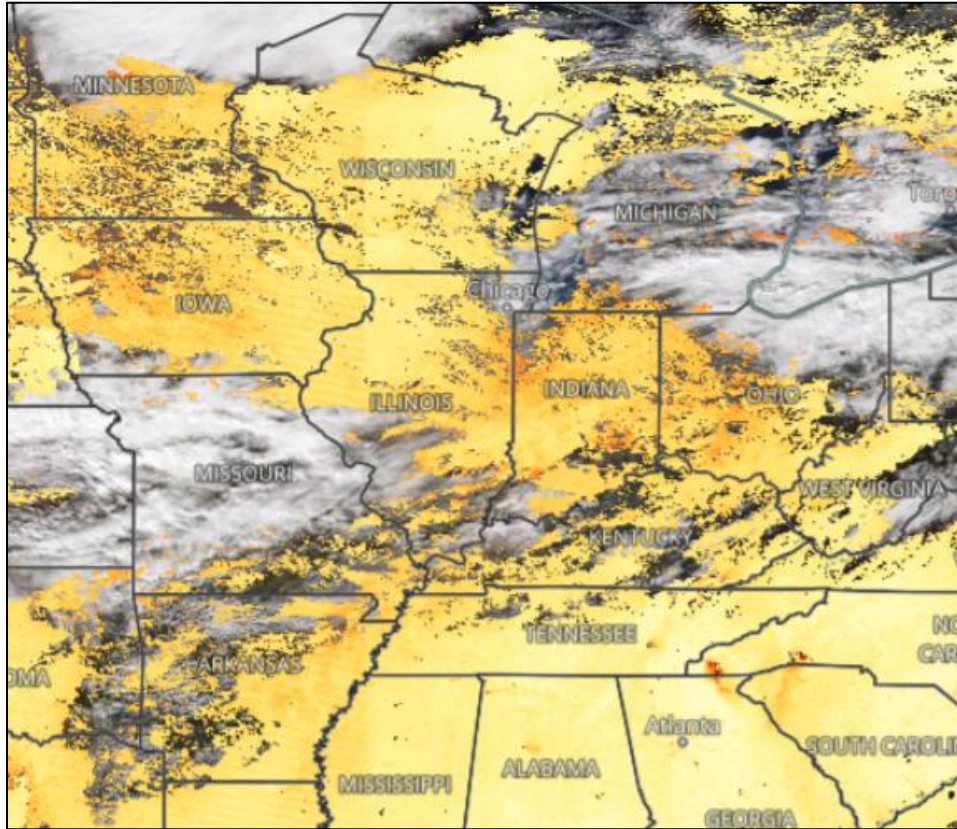
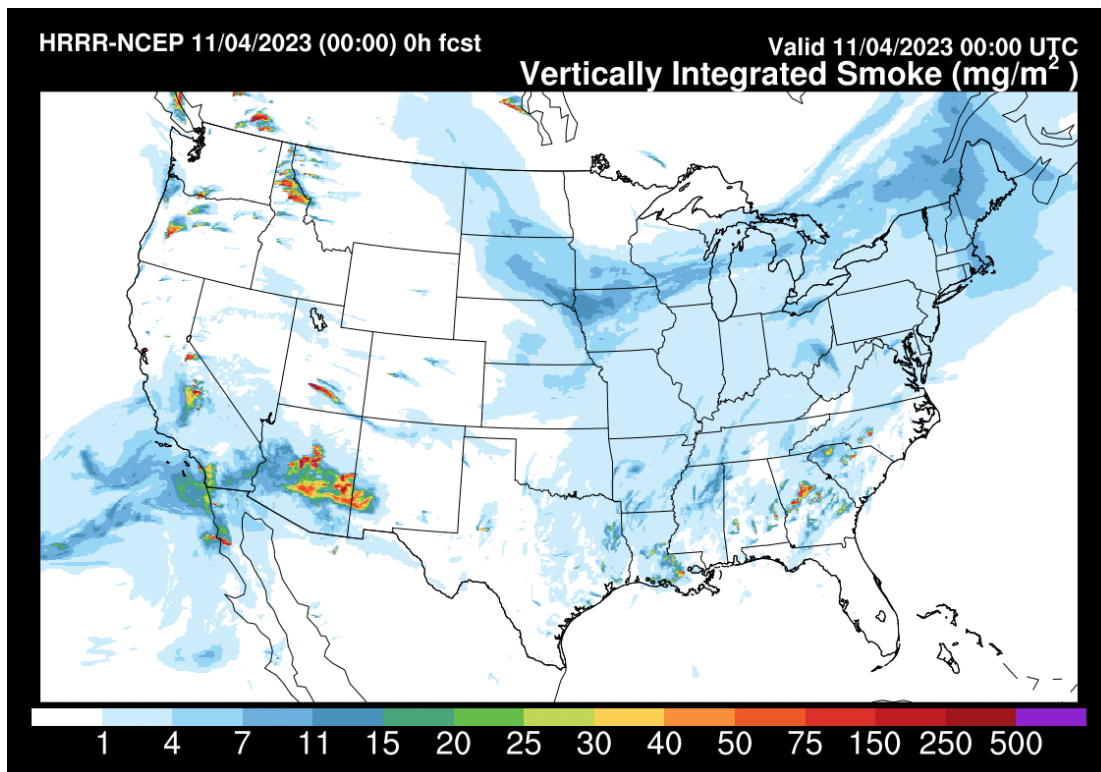
November 4, 2023

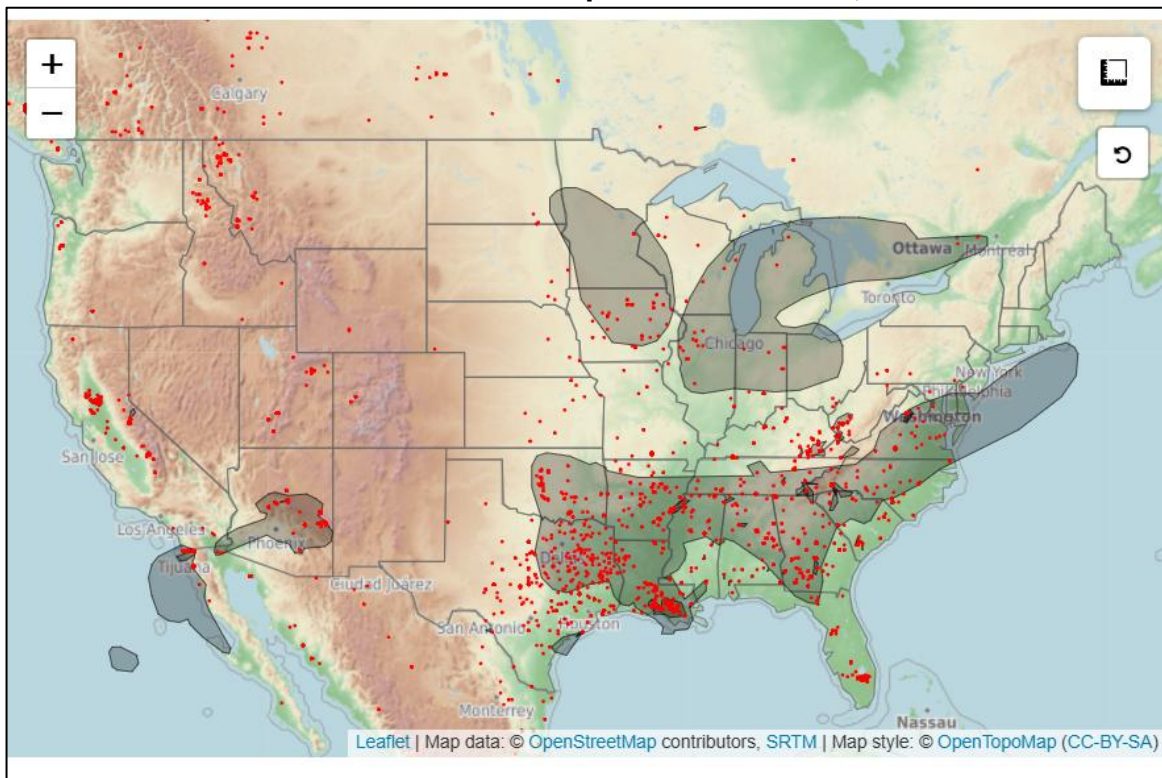
PM_{2.5} Monitoring Sites Impacted by Wildfire Smoke

Monitor name	AQS	Date	Daily average (µg/m ³)	Tier 2 Threshold (µg/m ³)
Elkhart - Prairie St	180390008	11/4/2023	19.2	16.3

AirNow Tech Fire/HMS Smoke Map with Backward Trajectories – November 4, 2023



Satellite Imagery with MAIAC AOD – November 4, 2023**HRRR Smoke - Vertically Integrated Smoke – November 4, 2023**

GAM PMO3 Smoke Output – November 4, 2023**NOAA Satellite Smoke – 2023 Satellite Smoke Text Excerpts**

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY

THROUGH 1645Z November 4, 2023

SMOKE:

South Central and Southeastern U.S./Mid-Atlantic Region...

Numerous fires from seasonal burning along with a few wildfires were seen across the southeastern U.S, producing varying density smoke plumes. Many leftover patches of thin density smoke were noted across some of the south central and southeastern U.S. as well as the Mid-Atlantic region. A few thicker smoke plumes associated with wildfires burning in the forested areas primarily in the central and southern Appalachians were seen as well.

Great Lakes Region...

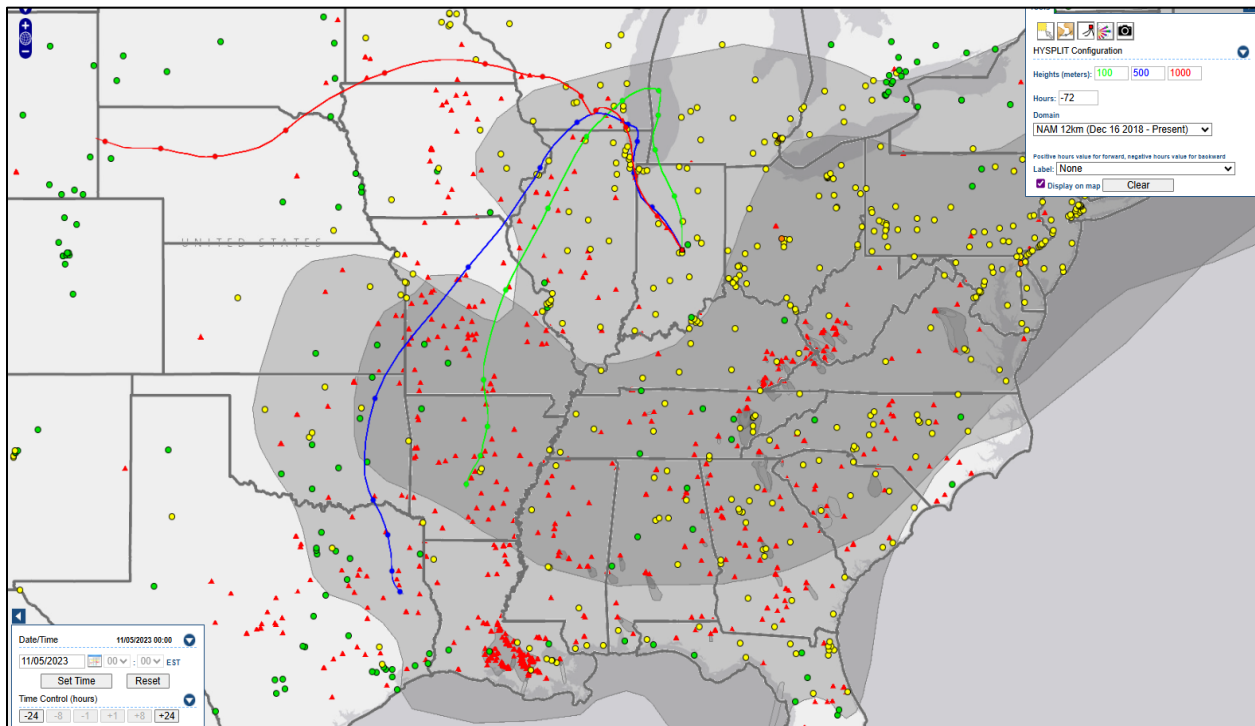
A swath of remnant thin density smoke likely from seasonal fire activity over the central U.S. was seen this morning stretching from Illinois and southeastern Wisconsin to the east and northeast across some of lower Michigan to the southeastern part of Ontario.

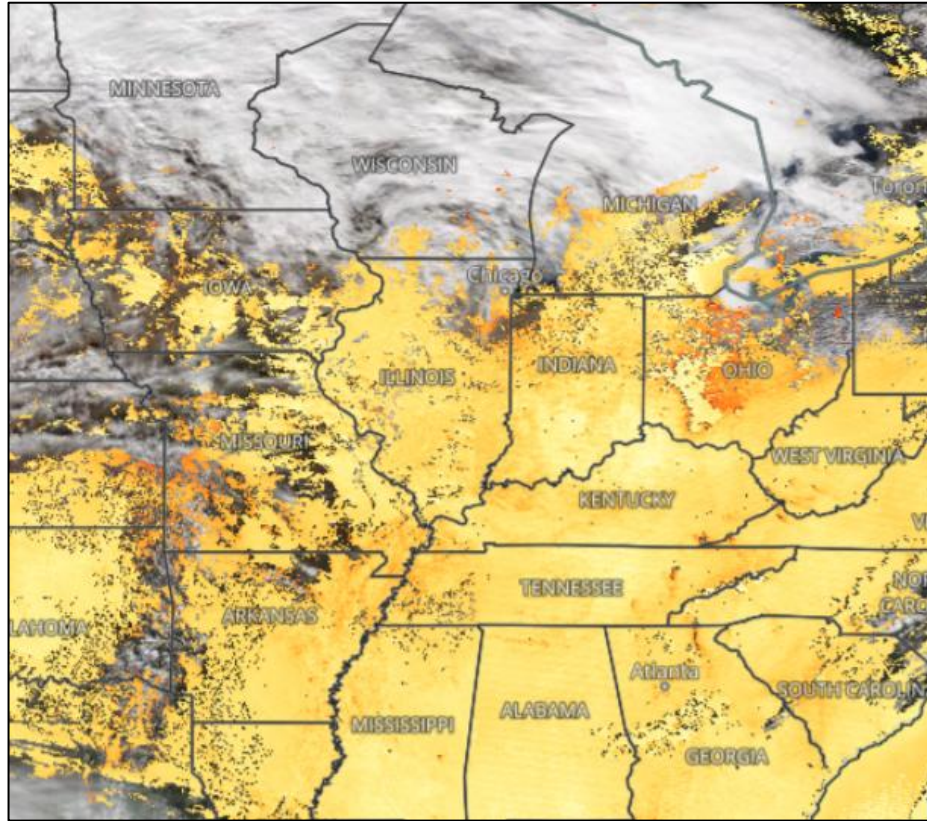
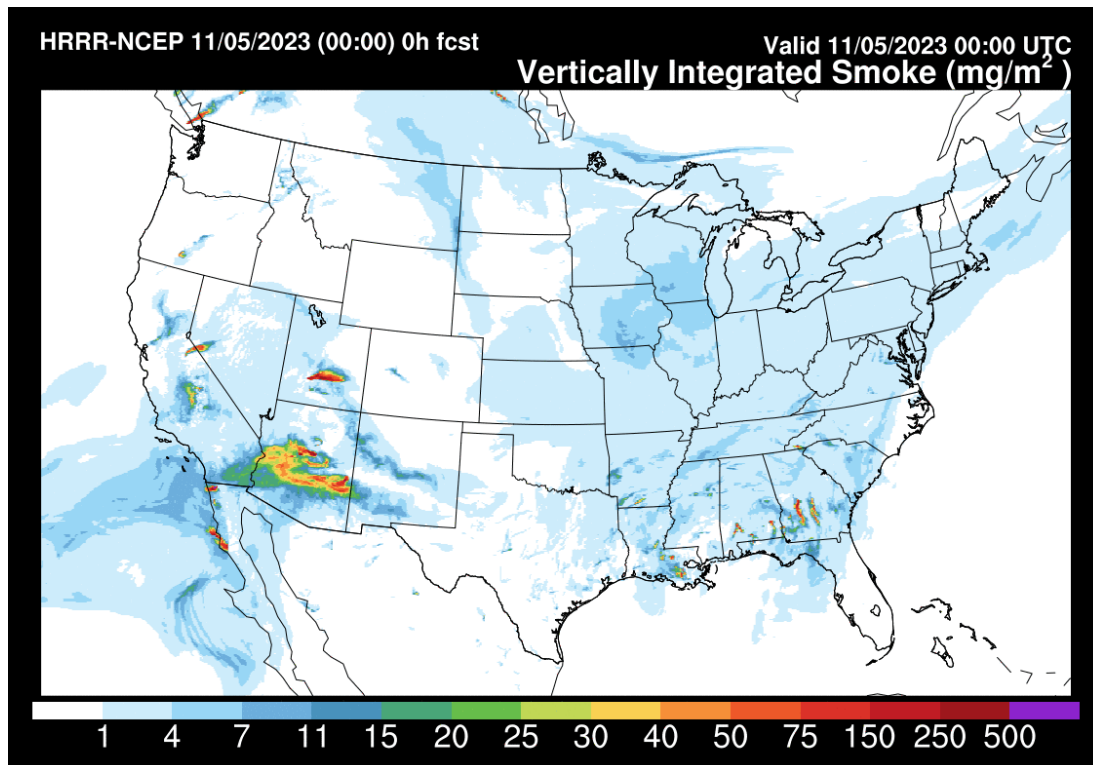
November 5, 2023

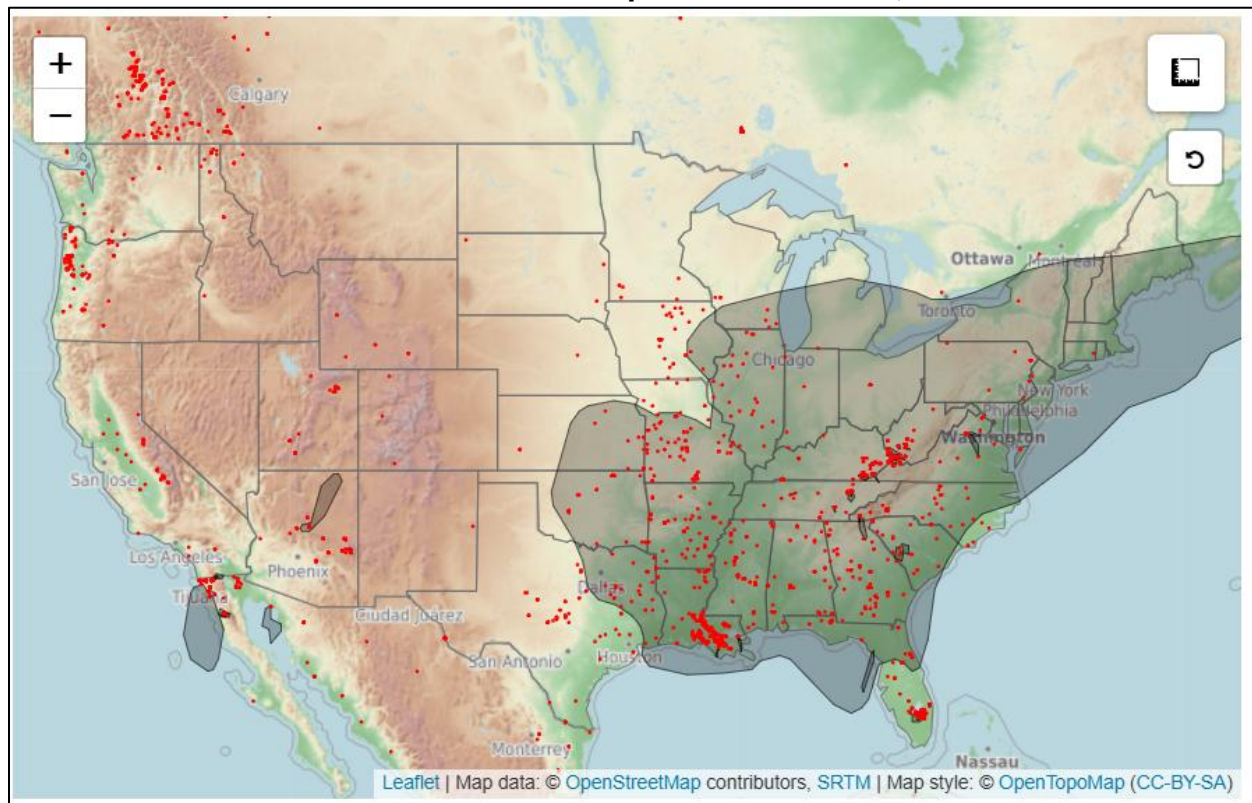
PM_{2.5} Monitoring Sites Impacted by Wildfire Smoke

Monitor name	AQS	Date	Daily average (µg/m ³)	Tier 2 Threshold (µg/m ³)
Elkhart - Prairie St	180390008	11/5/2023	19.2	16.3
Hammond-167th St	180890036	11/5/2023	16.6	16.3
Indianapolis - Washington Park	180970078	11/5/2023	22.2	17.8
Indianapolis - W. 18th St.	180970081	11/5/2023	24.1	20.9
Indianapolis - School 21	180970084	11/5/2023	15.8	15.5
Indianapolis- I-70 E	180970087	11/5/2023	28.6	20.5
Ogden Dunes	181270024	11/5/2023	16.5	15.3
Lafayette - Greenbush St	181570008	11/5/2023	15.1	15.1
Terre Haute - Lafayette Ave	181670018	11/5/2023	25.0	18.8

AirNow Tech Fire/HMS Smoke Map with Backward Trajectories – November 5, 2023



Satellite Imagery with MAIAC AOD – November 5, 2023**HRRR Smoke - Vertically Integrated Smoke – November 5, 2023**

GAM PMO3 Smoke Output – November 5, 2023**NOAA Satellite Smoke – 2023 Satellite Smoke Text Excerpts**

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY

THROUGH 0028Z November 5, 2023

SMOKE:

South Central and Southeastern U.S./Mid-Atlantic Region...

Numerous fires from seasonal burning along with a few wildfires were seen across the southeastern U.S., producing varying density smoke plumes. Many patches of thin to moderate density smoke were noted across some of the south central and southeastern U.S. as well as the Mid-Atlantic region. A few thicker smoke plumes associated with wildfires burning in the forested areas primarily in the central and southern Appalachians were seen as well. A few thicker smoke plumes associated with seasonal burning were noted in southern Louisiana with the smoke generally moving southwest

Great Lakes Region...

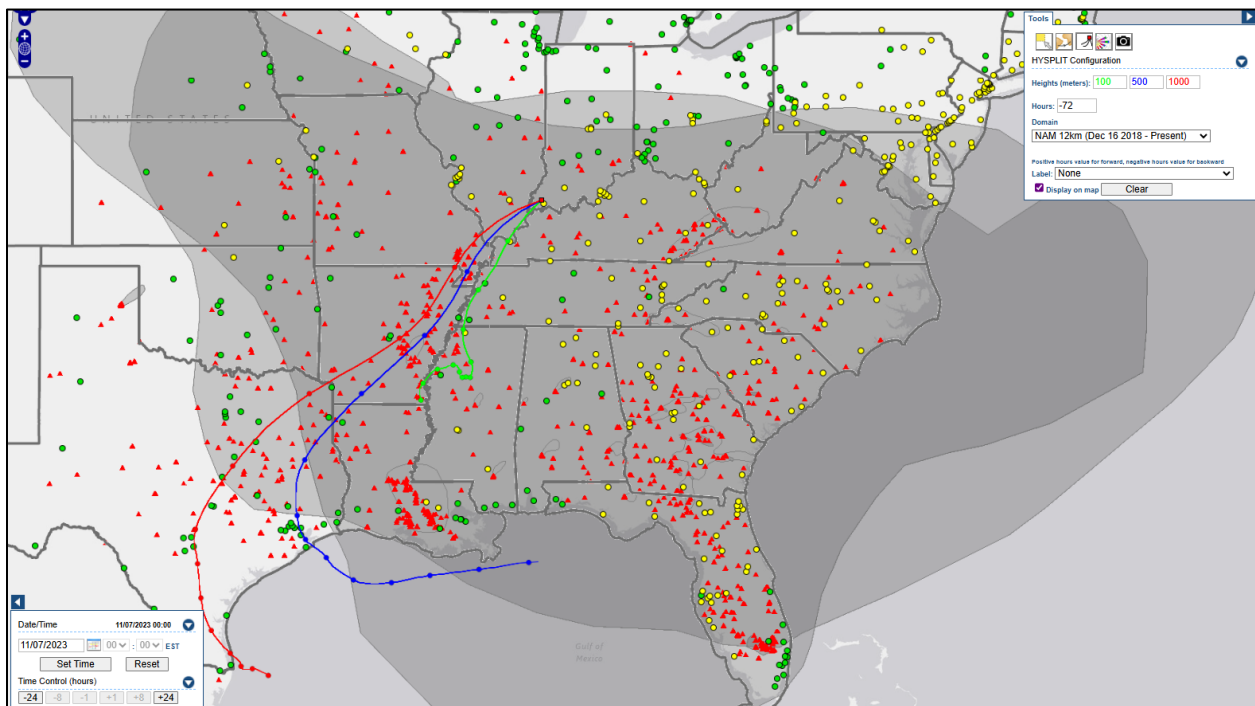
A swath of remnant thin density smoke likely from seasonal fire activity over the central U.S. was seen today stretching from Illinois and eastern Wisconsin to the east and northeast across the northern Great Lakes region to the southeastern part of Ontario. Another area of light smoke was noted mostly over Minnesota and Iowa.

November 7, 2023

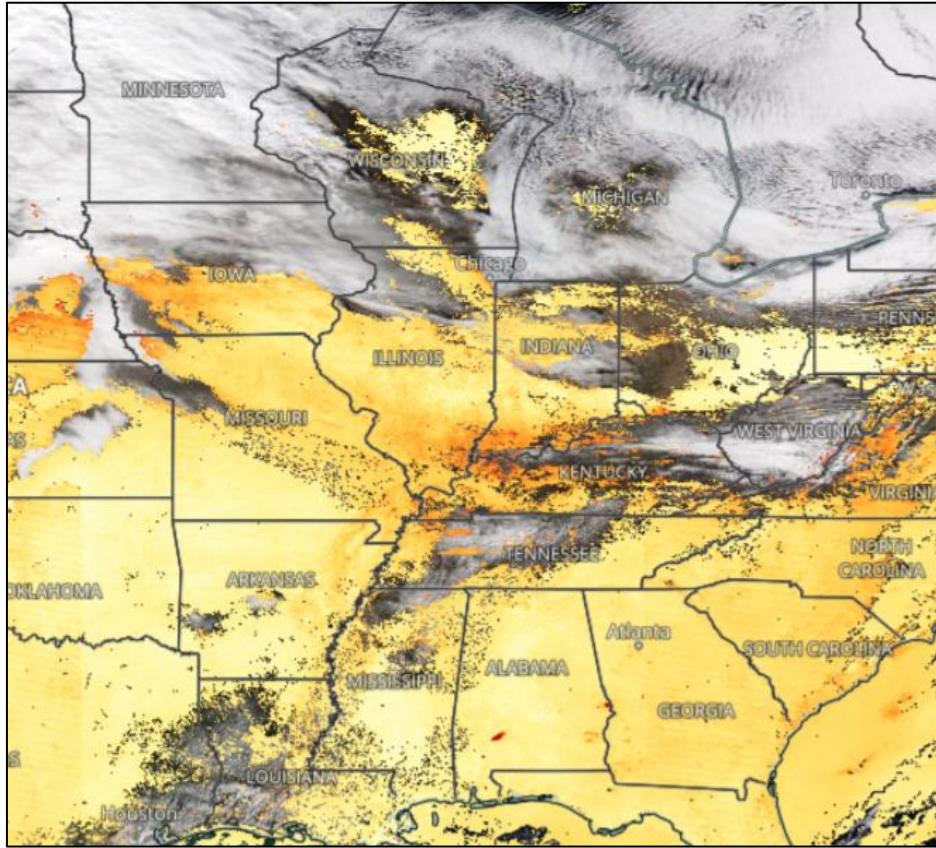
PM_{2.5} Monitoring Sites Impacted by Wildfire Smoke

Monitor name	AQS	Date	Daily average (µg/m ³)	Tier 2 Threshold (µg/m ³)
Evansville - Buena Vista	181630021	11/7/2023	16.4	15.1

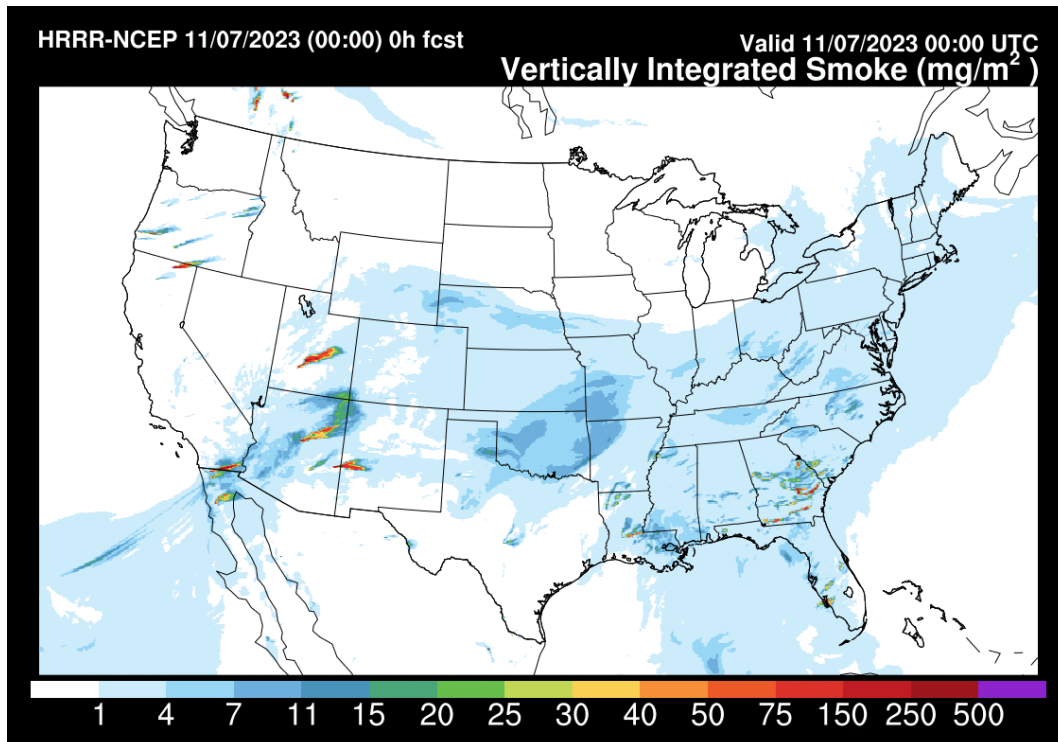
AirNow Tech Fire/HMS Smoke Map with Backward Trajectories – November 7, 2023

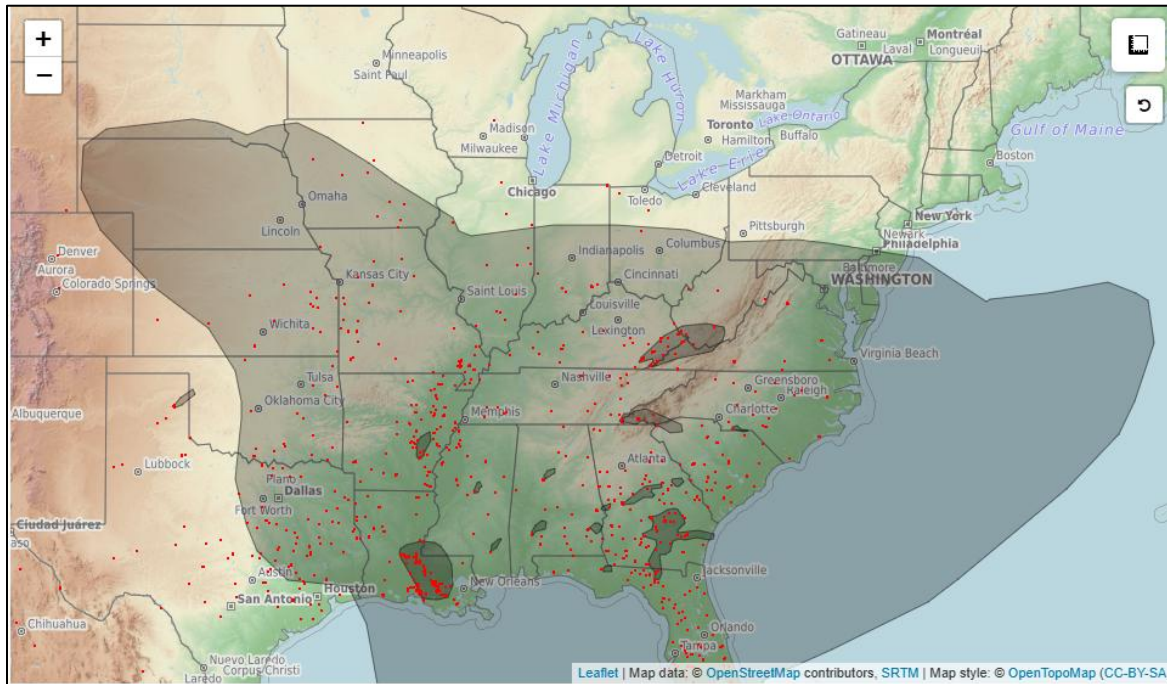


Satellite Imagery with MAIAC AOD – November 7, 2023



HRRR Smoke - Vertically Integrated Smoke – November 7, 2023



GAM PMO3 Smoke Output – November 5, 2023**DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY**

THROUGH 1700Z November 7, 2023

SMOKE:

Central and Eastern U.S./Northern and Eastern Gulf of Mexico/Atlantic Ocean off the U.S. East Coast...

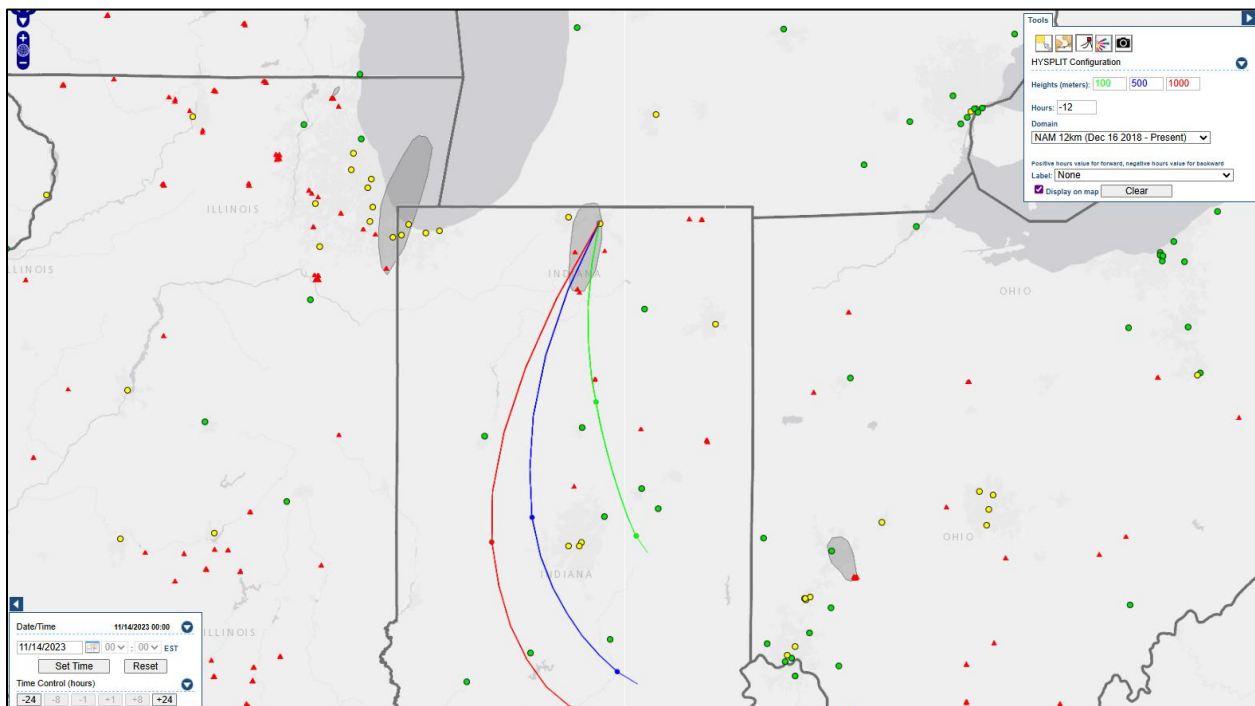
A broad area of thin density smoke linked to daily seasonal fire activity in the central, south central, and southeastern U.S. along with a few wildfires especially in the forested areas in and around the central and southern Appalachians, was seen today covering much of the eastern half of the U.S. with the exception of the far north central U.S. and some of the Northeast. Within the region, several thin density smoke plumes were seen mainly in Alabama, moving eastward.

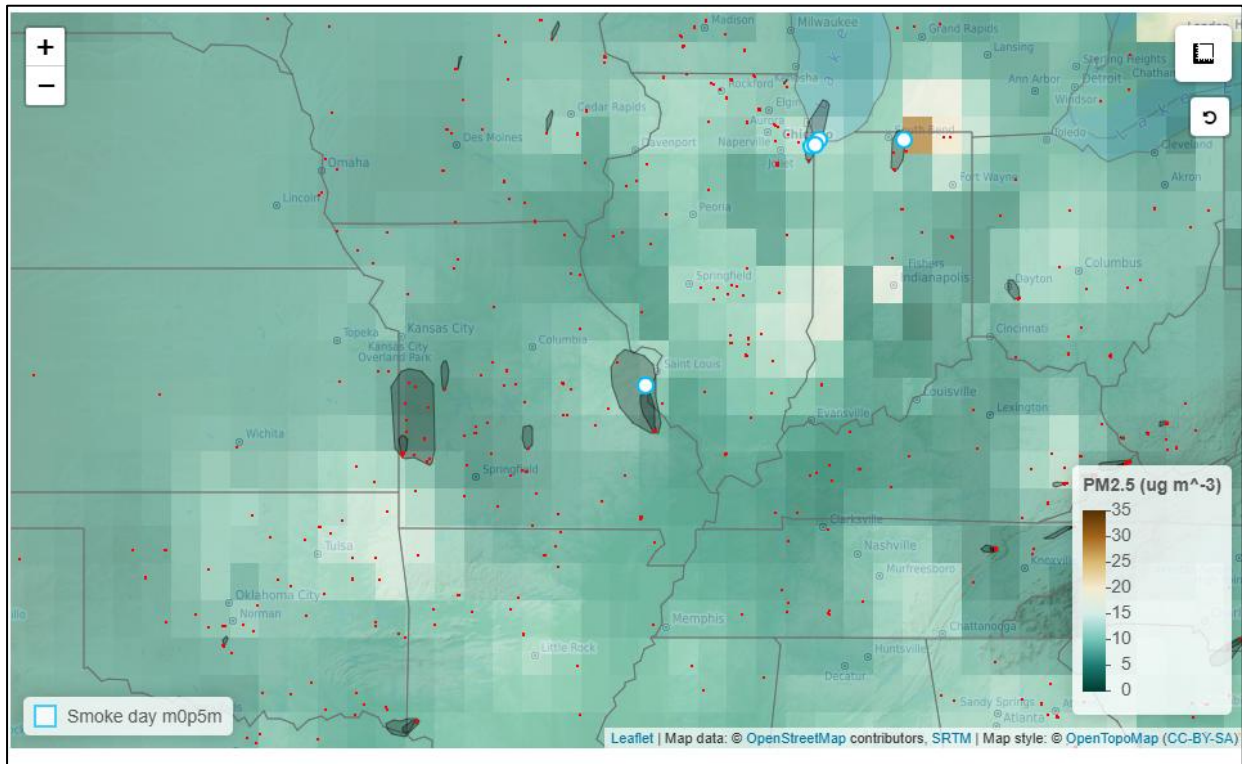
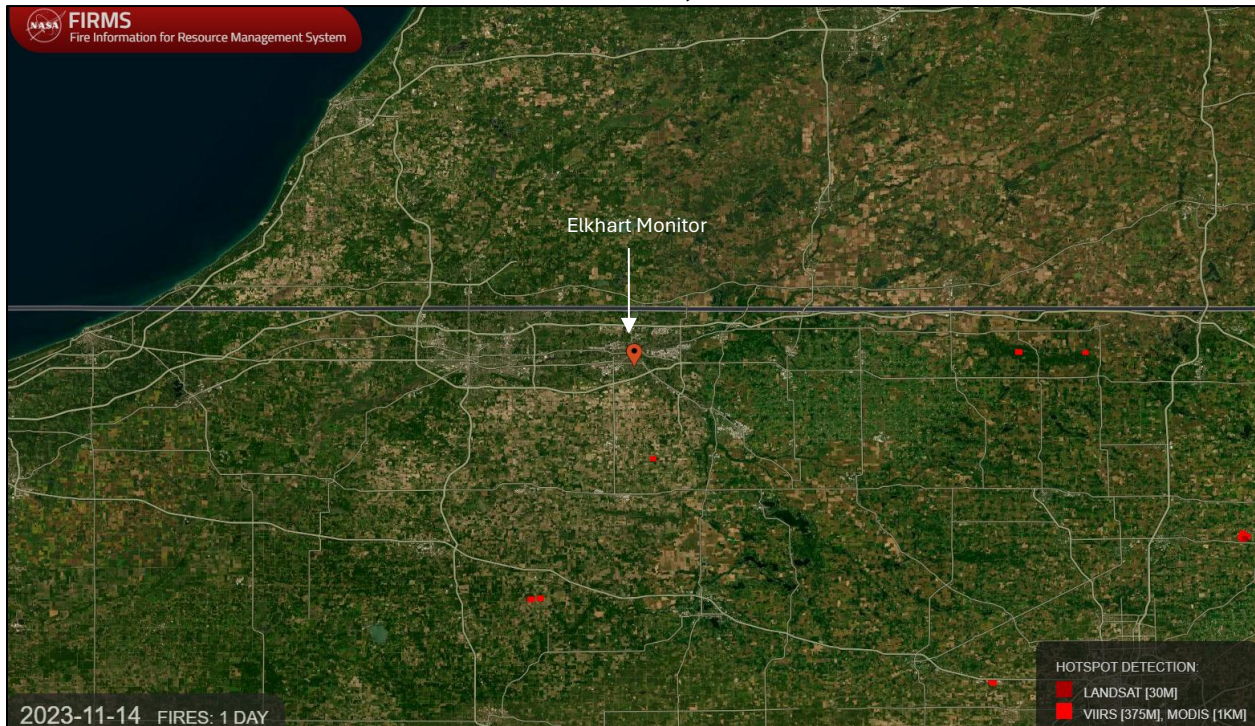
November 14, 2023

PM_{2.5} Monitoring Sites Impacted by Local Fire and Smoke

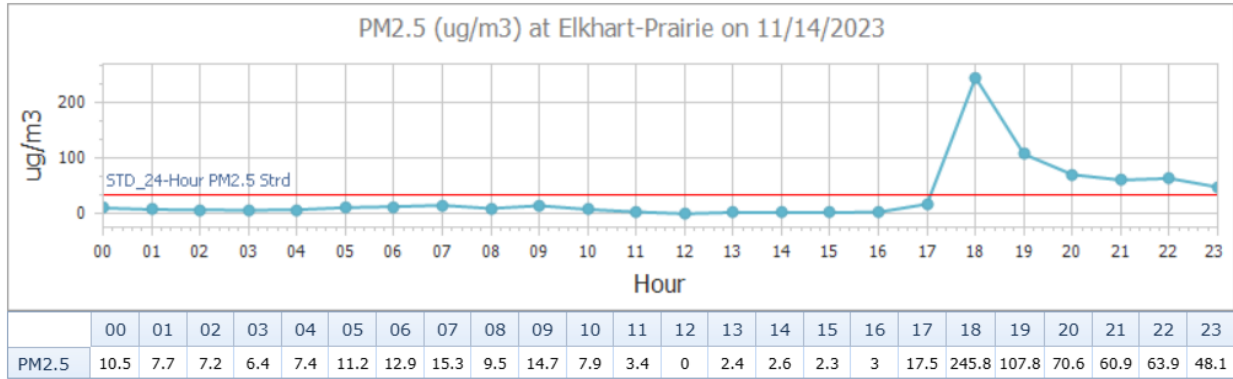
Monitor name	AQS	Date	Daily average (µg/m ³)	Tier 2 Threshold (µg/m ³)
Elkhart - Prairie St	180390008	11/14/2023	30.7	16.3

AirNow Tech Fire/HMS Smoke Map with Backward Trajectories – November 14, 2023



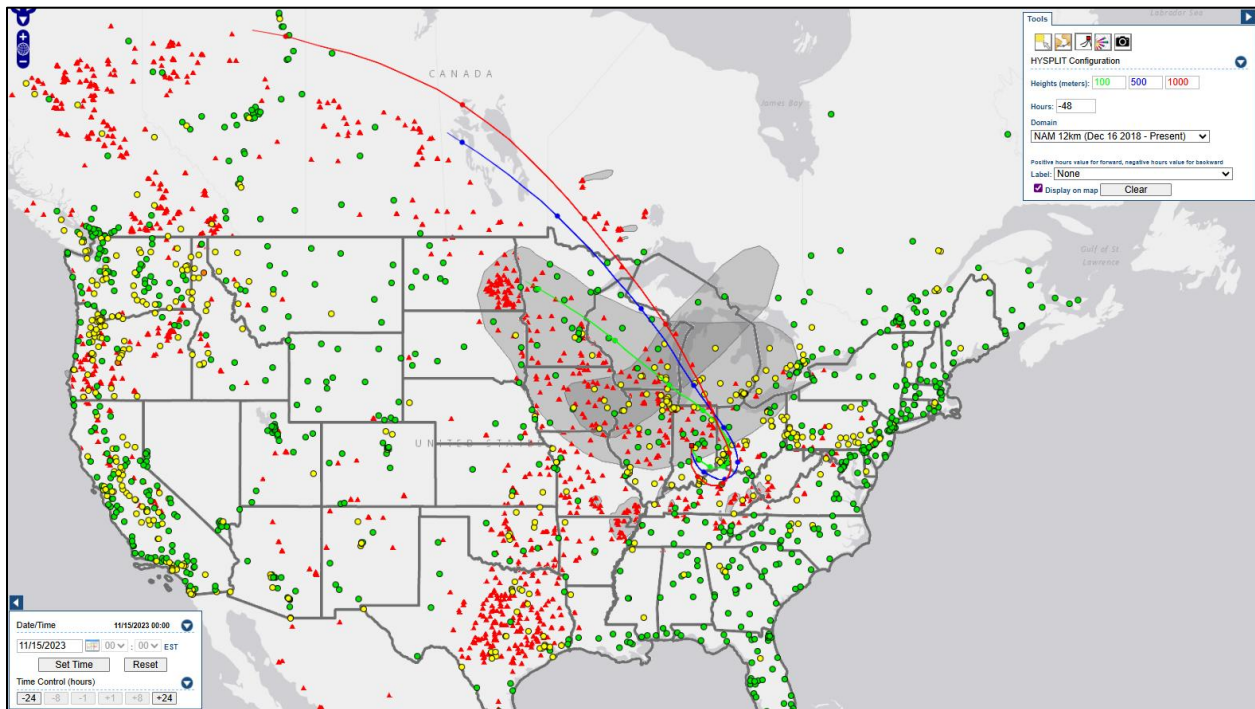
GAM PMO3 Smoke Output – November 14, 2023**FIRMS MAP with Elkhart PM_{2.5} Monitor and Nearby Prescribed Fire
November 14, 2023**

NOAA Satellite Smoke – 2023 Satellite Smoke Text Excerpts
Hourly PM_{2.5} Concentrations for Elkhart – November 14, 2023

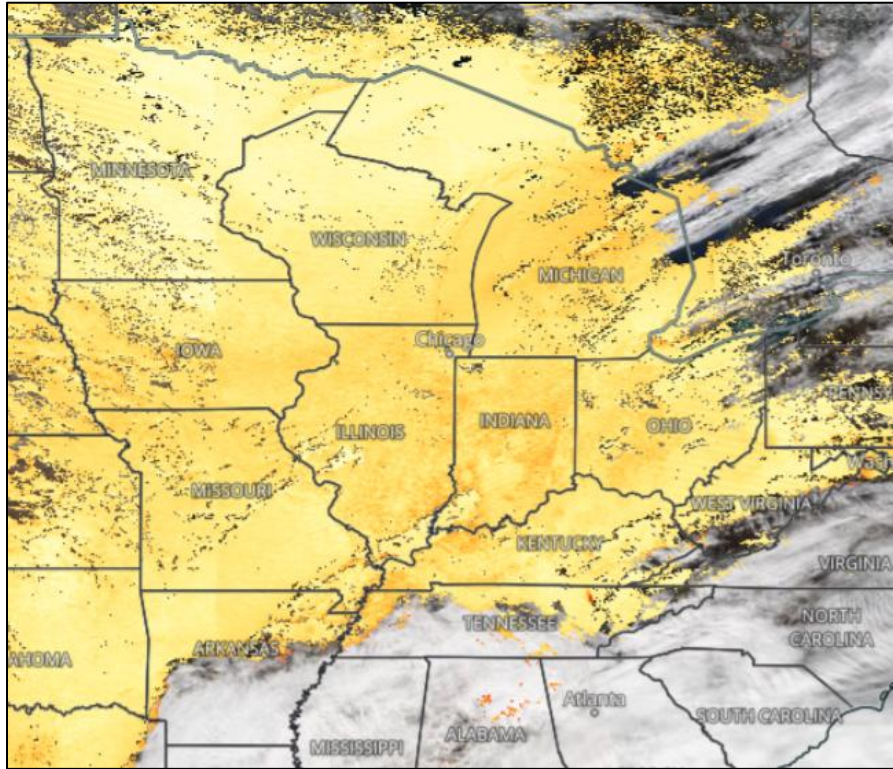


November 15, 2023**PM_{2.5} Monitoring Sites Impacted by Wildfire Smoke**

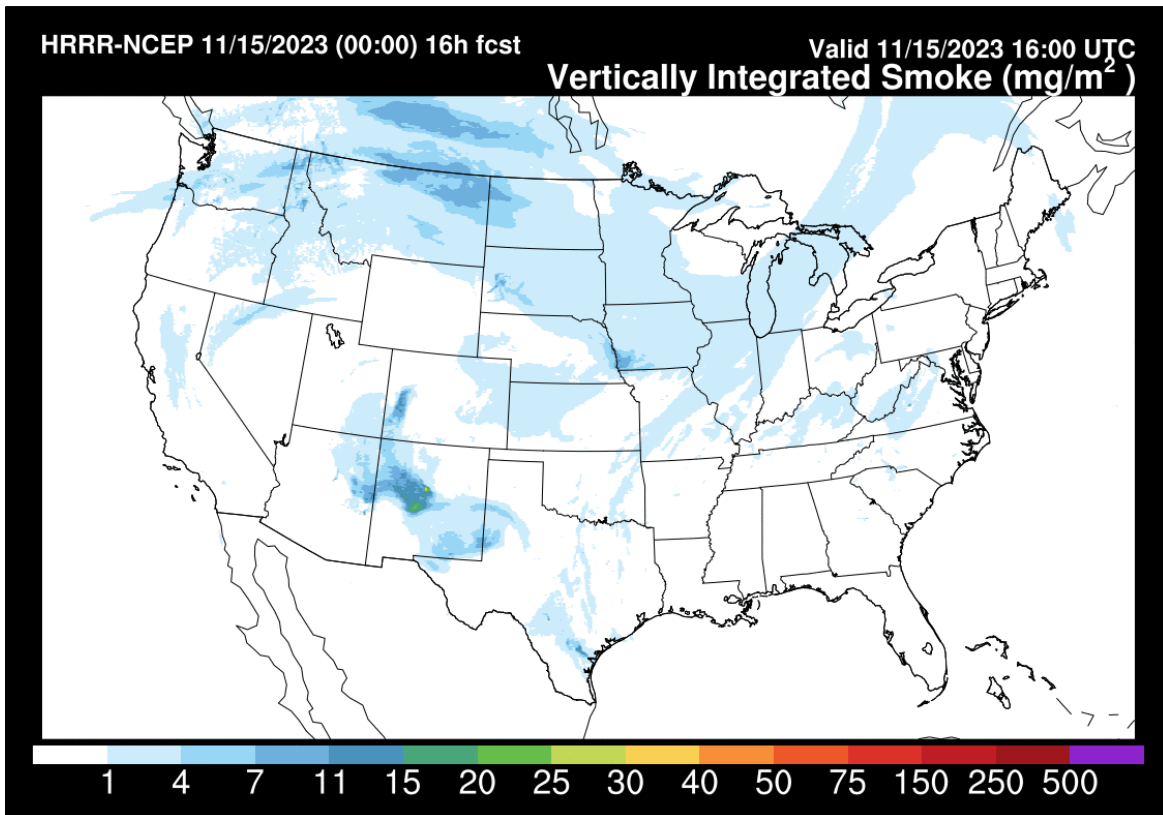
Monitor name	AQS	Date	Daily average ($\mu\text{g}/\text{m}^3$)	Tier 2 Threshold ($\mu\text{g}/\text{m}^3$)
Elkhart - Prairie St	180390008	11/15/2023	18.4	16.3
Indianapolis - Washington Park	180970078	11/15/2023	18.4	17.8
Indianapolis - W. 18th St.	180970081	11/15/2023	50.7	20.9
Indianapolis- I-70 E	180970087	11/15/2023	32.7	20.5
Terre Haute - Lafayette Ave	181670018	11/15/2023	19.2	18.8

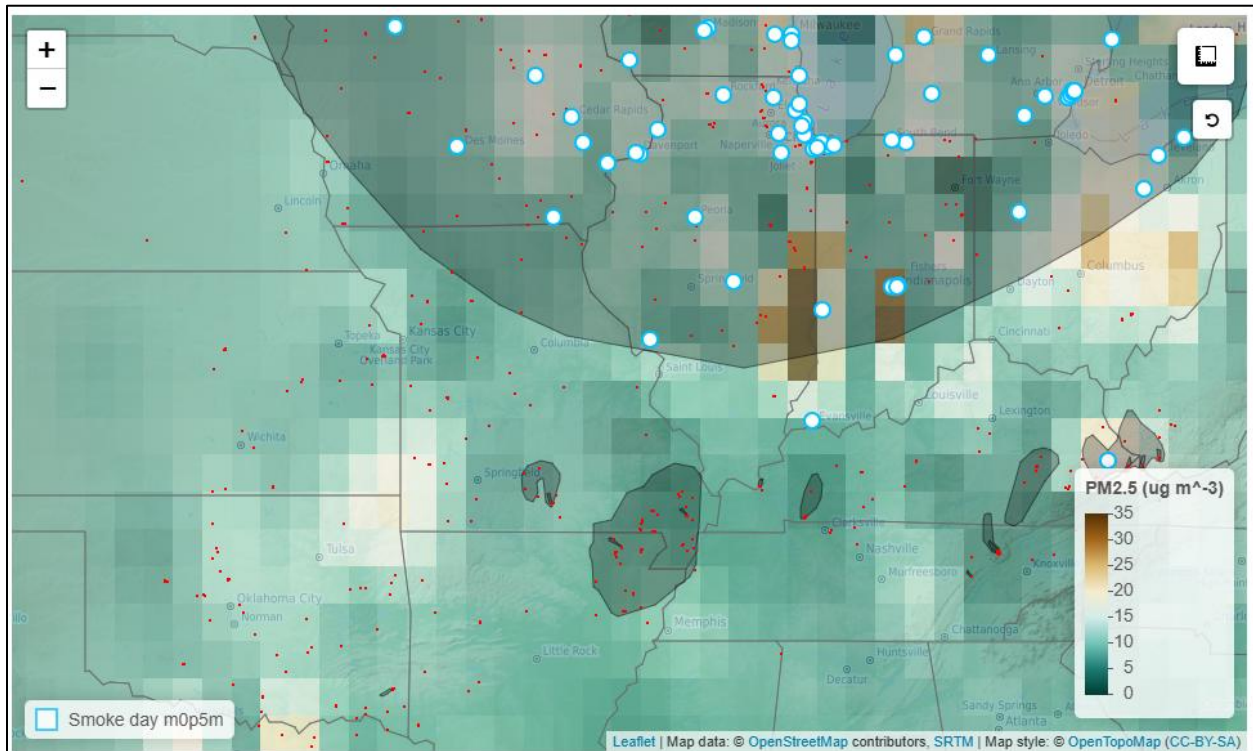
AirNow Tech Fire/HMS Smoke Map with Backward Trajectories – November 15, 2023

Satellite Imagery with MAIAC AOD – November 15, 2023



HRRR Smoke - Vertically Integrated Smoke – November 15, 2023



GAM PMO3 Smoke Output – November 15, 2023**NOAA Satellite Smoke – 2023 Satellite Smoke Text Excerpts**

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY

THROUGH 1640Z November 15, 2023

SMOKE:

Midwestern United States to Southern Ontario...

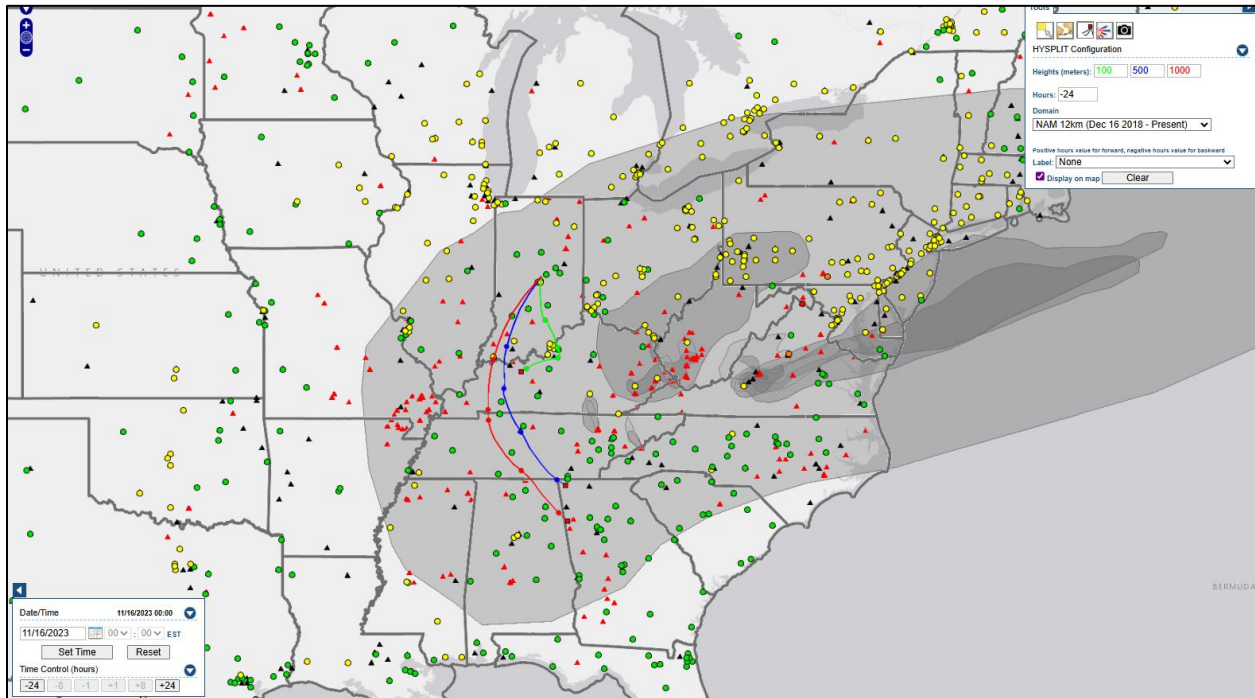
An area of light density smoke, from fire activity over much of the Central United States, was seen extending from portions of the Midwestern United States east and northeast from eastern Iowa through northern Illinois, southern Wisconsin, Michigan and into southern Ontario.

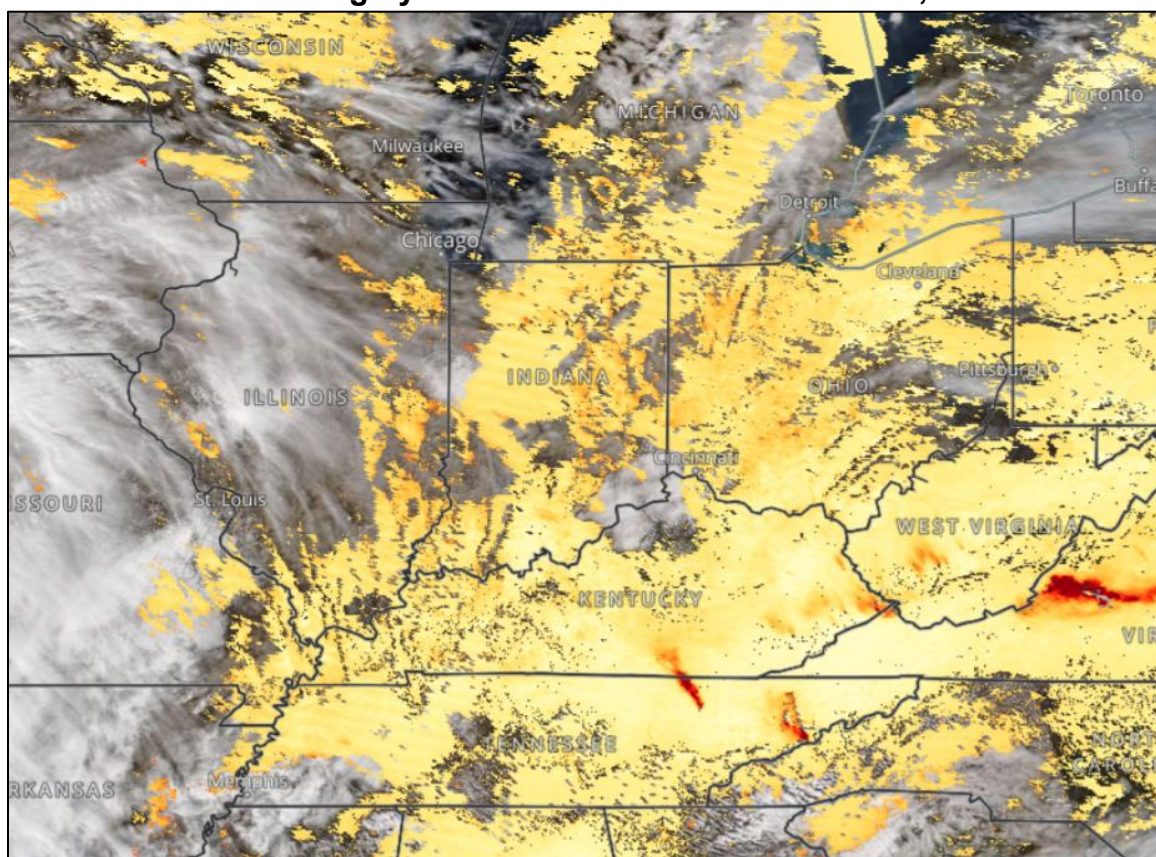
November 16, 2023

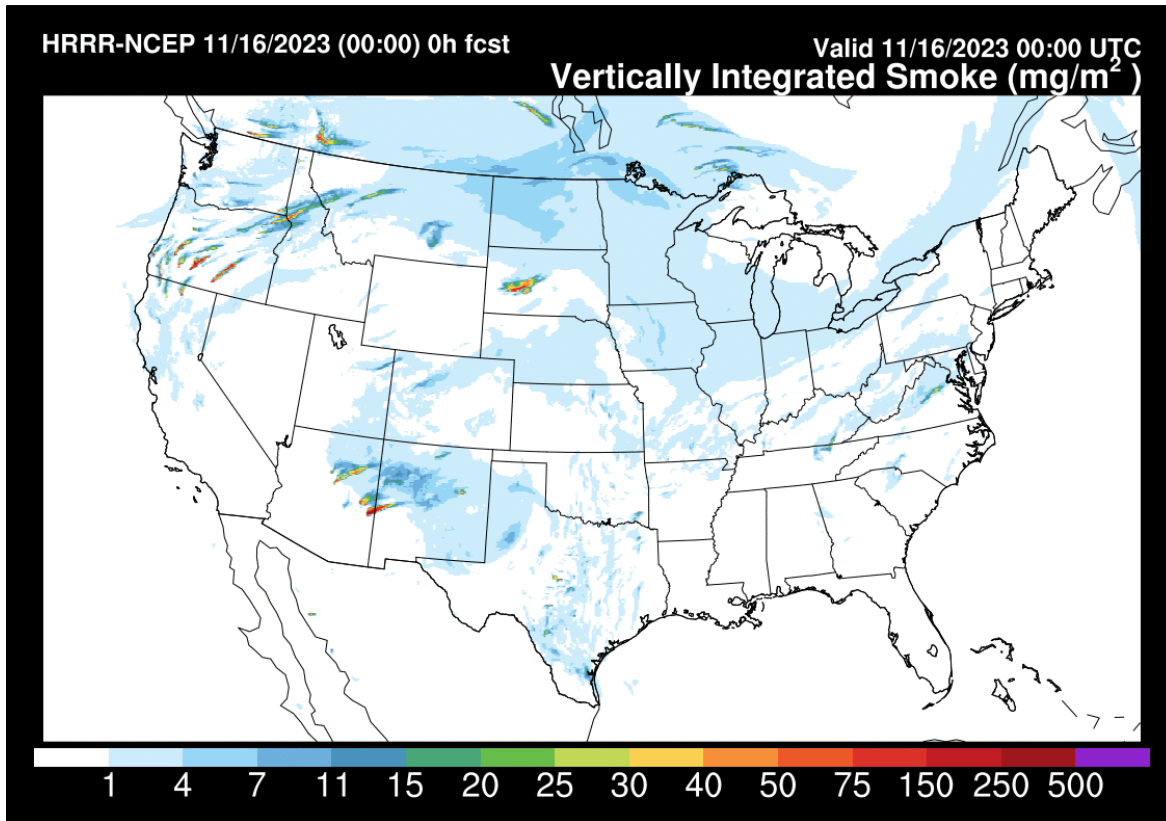
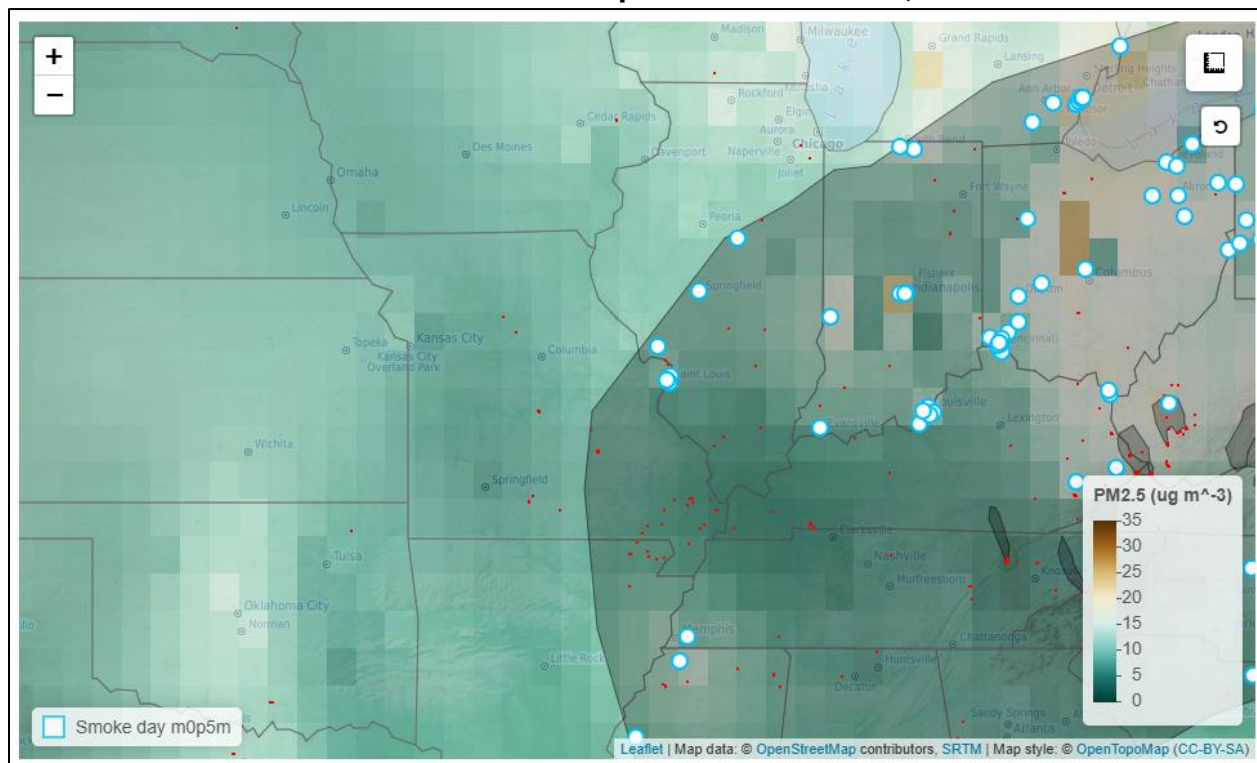
PM_{2.5} Monitoring Sites Impacted by Wildfire Smoke

Monitor name	AQS	Date	Daily average (µg/m ³)	Tier 2 Threshold (µg/m ³)
Elkhart - Prairie St	180390008	11/16/2023	16.3	16.3
Indianapolis - W. 18th St.	180970081	11/16/2023	45.9	20.9
Indianapolis- I-70 E	180970087	11/16/2023	21.5	20.5

AirNow Tech Fire/HMS Smoke Map with Backward Trajectories – November 16, 2023



Satellite Imagery with MAIAC AOD – November 16, 2023

HRRR Smoke - Vertically Integrated Smoke – November 16, 2023**GAM PMO3 Smoke Output – November 16, 2023**

NOAA Satellite Smoke – 2023 Satellite Smoke Text Excerpts

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE
IMAGERY

THROUGH 0147Z November 16, 2023

SMOKE:

Midwestern United States to Southern Ontario...

An area of light density smoke, from fire activity over much of the Central United States, was seen extending from portions of the Midwestern United States south through Minnesota and Iowa than east through parts of Illinois, Wisconsin, Michigan, Indiana, Ohio, and into southern Ontario.

Kentucky/West Virginia/Arkansas/Missouri...

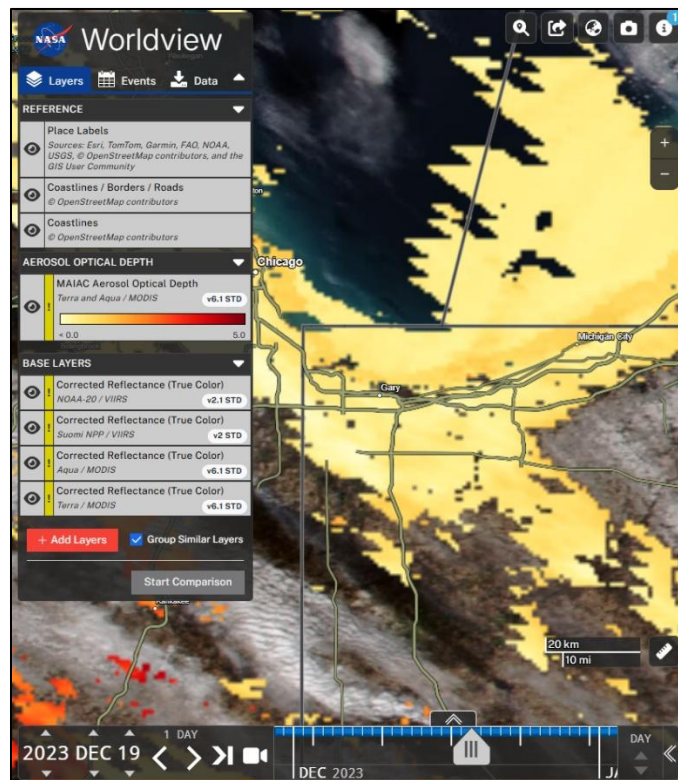
Seasonal burning could be seen producing areas and plumes of mostly light density smoke through parts of Kentucky, West Virginia, eastern Arkansas, eastern and central Missouri.

December 19, 2023

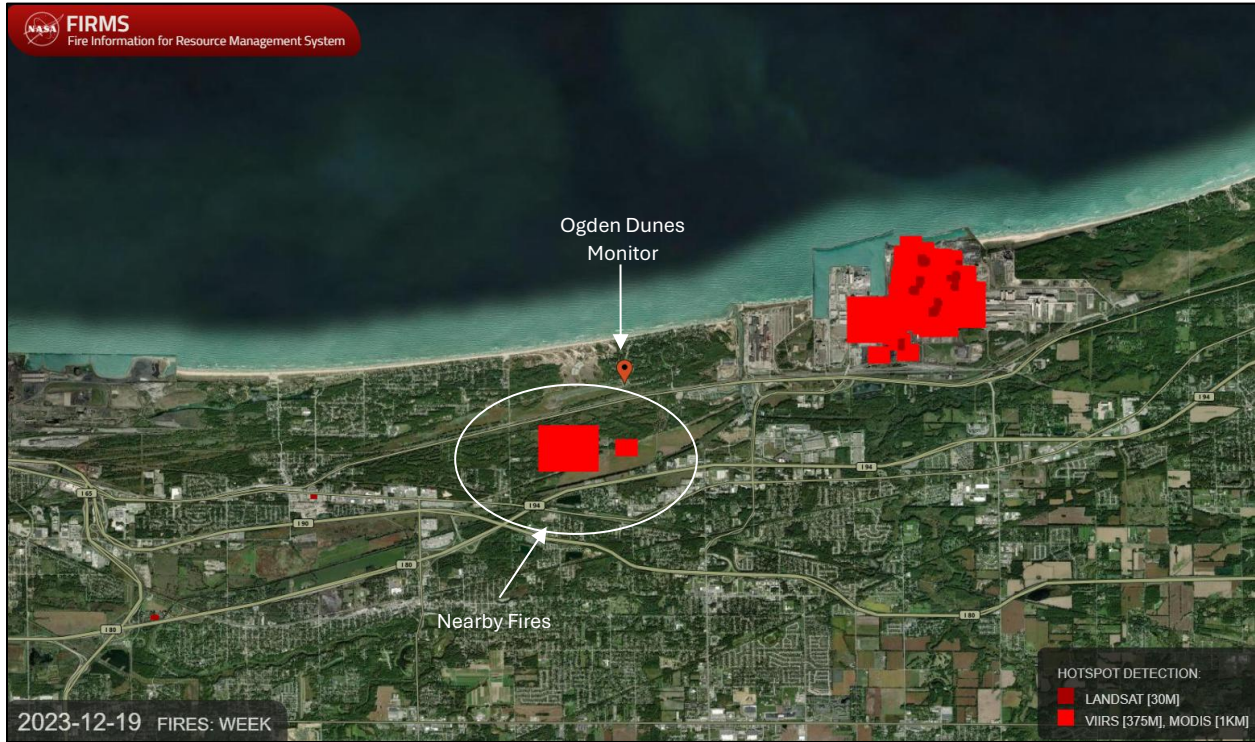
PM_{2.5} Monitoring Sites Impacted by Wildfire Smoke

Monitor name	AQS	Date	Daily average ($\mu\text{g}/\text{m}^3$)	Tier 2 Threshold ($\mu\text{g}/\text{m}^3$)
Ogden Dunes	181270024	12/19/2023	45.4	15.3

Satellite Imagery with MAIAC AOD for Ogden Dunes lakeshore – December 19, 2023



FIRMS MAP with Ogden Dunes PM_{2.5} Monitor and Nearby Prescribed Fire December 19, 2023



Hourly PM_{2.5} Concentrations for Ogden Dunes – December 19, 2023

