

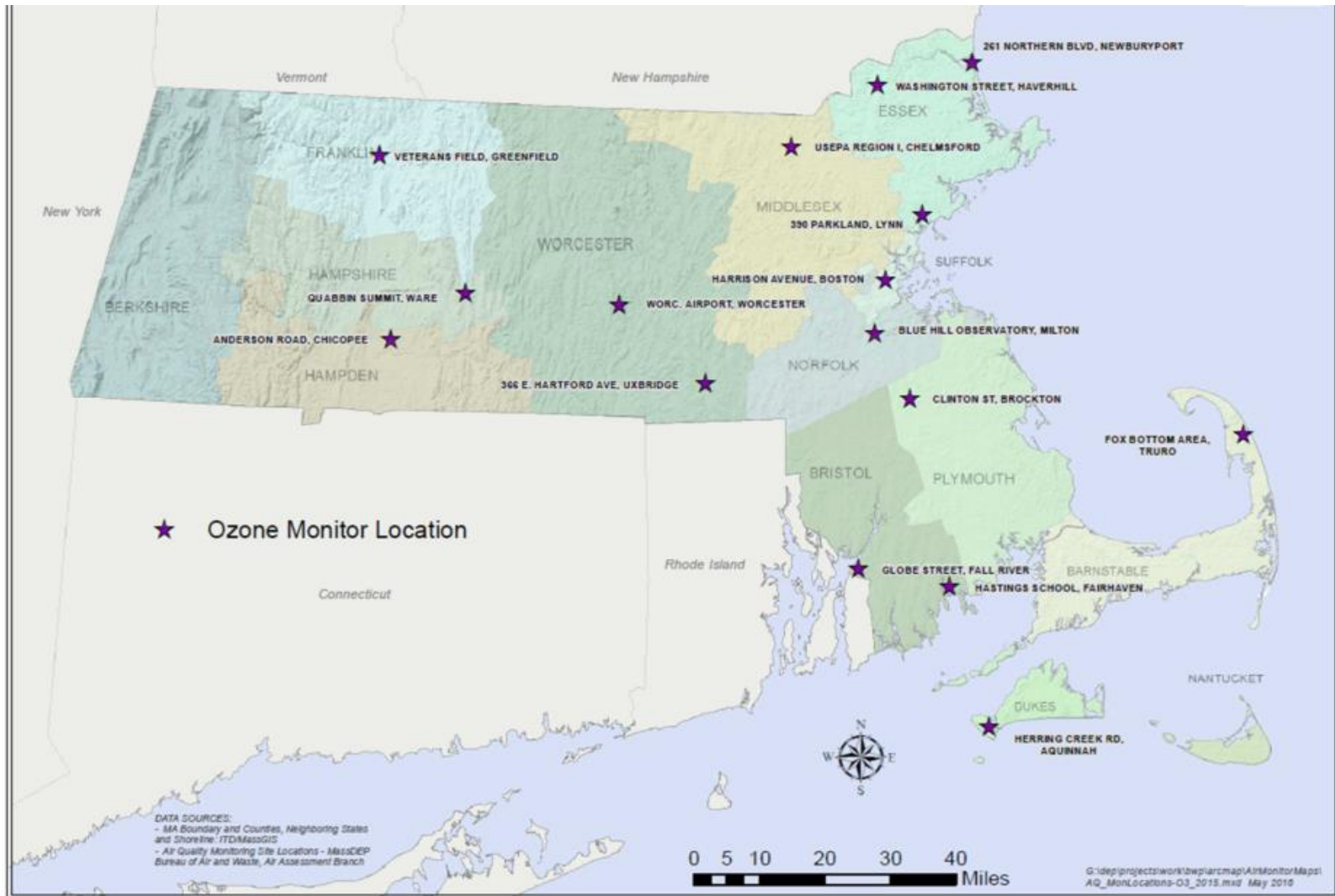
Massachusetts Exceptional Events Demonstration for May 2016



On May 1, 2016, a wildfire began southwest of Fort McMurray, Alberta, Canada. On May 3, it swept through the community, destroying approximately 2,400 homes and buildings and forcing the largest wildfire evacuation in Albertan history. The fire spread across approximately 590,000 hectares (1,500,000 acres) before it was declared to be under control on July 5, 2016.

Massachusetts

Ozone Monitoring Locations



Governor's Recommendation Letter

(submitted September 2016)

September 29, 2016

Attachment
Massachusetts Monitored Ozone Design Values

H. Curtis Spalding
Regional Administrator
U.S. Environmental Protection Agency, Region 1
5 Post Office Square - Suite 100
Boston, MA 02109-3912

Dear Administrator Spalding:

Pursuant to section 107(d)(1)(A) of the Clean Air Act, I am submitting initial designations for Massachusetts following EPA's promulgation of the 2015 ozone National Ambient Air Quality Standards (NAAQS). I have received from the Massachusetts Department of Environmental Protection the enclosed attachment showing ozone design values for monitors in Massachusetts based on certified 2013-2015 ozone monitoring data and preliminary 2016 data. I am submitting this list of areas and adopting the Department's recommendation that all areas be designated as "attainment."

If you need additional information regarding these initial designations or the underlying data, please contact Massachusetts Department of Environmental Protection Commissioner Martin Suuberg at 617-292-5856. An electronic copy of these recommendations also is being provided to your staff.

I look forward to continuing to work with EPA to improve environmental quality in Massachusetts.

Sincerely,



Charles D. Baker
Governor

The table below shows ozone design values for monitors in Massachusetts based on certified 2013-2015 ozone monitoring data and preliminary 2016 data. No design values exceed the 2015 ozone NAAQS of 0.070 ppm.

Monitor Site	AQS Code	Data Capture 2013-15	Design Value 2013-15	Design Value 2014-16 (preliminary)	Recommendation
Truro	250010002	84%	—	0.065	attainment
Fall River	250051004	97%	0.069	0.068	attainment
Fairhaven	250051006	—	—	0.065	attainment
Aquinnah*	250070001	—	—	—	attainment
Lynn	250092006	99%	0.067	0.065	attainment
Newburyport	250094005	97%	0.066	0.064	attainment
Haverhill	250095005	99%	0.063	0.062	attainment
Greenfield	250112005	—	—	0.063	attainment
Chicopee	250130008	98%	0.068	0.070	attainment
Ware	250154002	97%	0.069	0.070	attainment
Chelmsford	250170009	98%	0.064	0.063	attainment
E Milton (Blue Hill)	250213003	95%	0.067	0.067	attainment
Brockton	250230005	—	—	0.064	attainment
Boston-Roxbury	250250042	99%	0.056	0.056	attainment
Worcester	250270015	96%	0.066	0.064	attainment
Uxbridge	250270024	95%	0.063	0.064	attainment

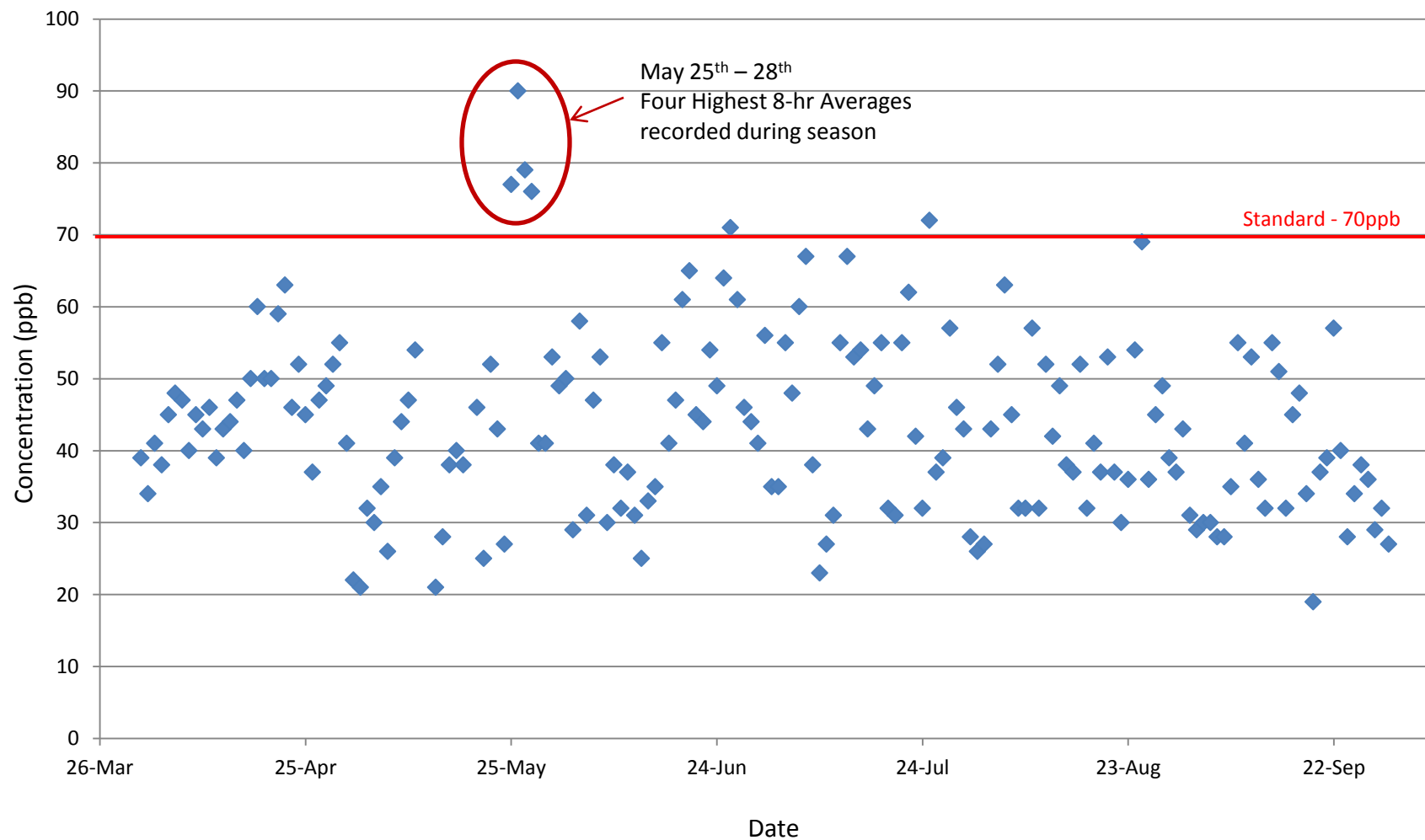
Design values in ppm.

Ozone Design Values for Chicopee Falls and Ware

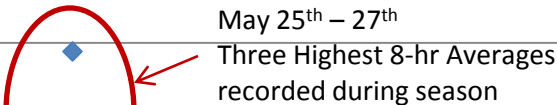
	Current Values					If May 25-26 Removed		
	2014	2015	2016	2014-16	2017	2016	2014-16	2017
	4 th High	4 th High	4 th High	Design Value	Critical Value*	4 th High	Design Value	Critical Value*
Chicopee	65	70	76	70	67	71	68	72
Ware	68	71	72	70	70	70	69	72

Chicopee Falls, MA - 2016

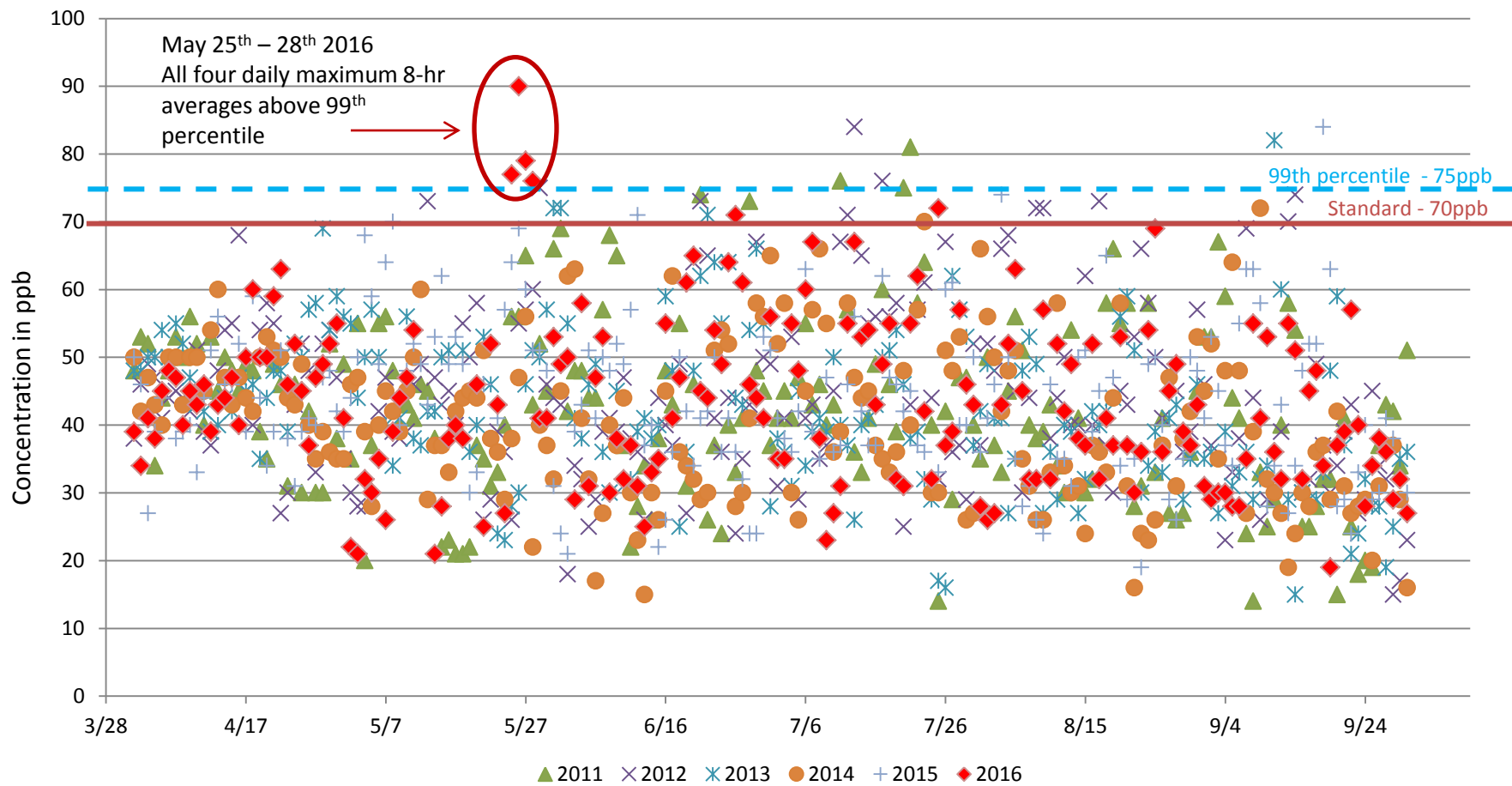
Recorded Daily Maximum 8-Hr Average Ozone Concentrations



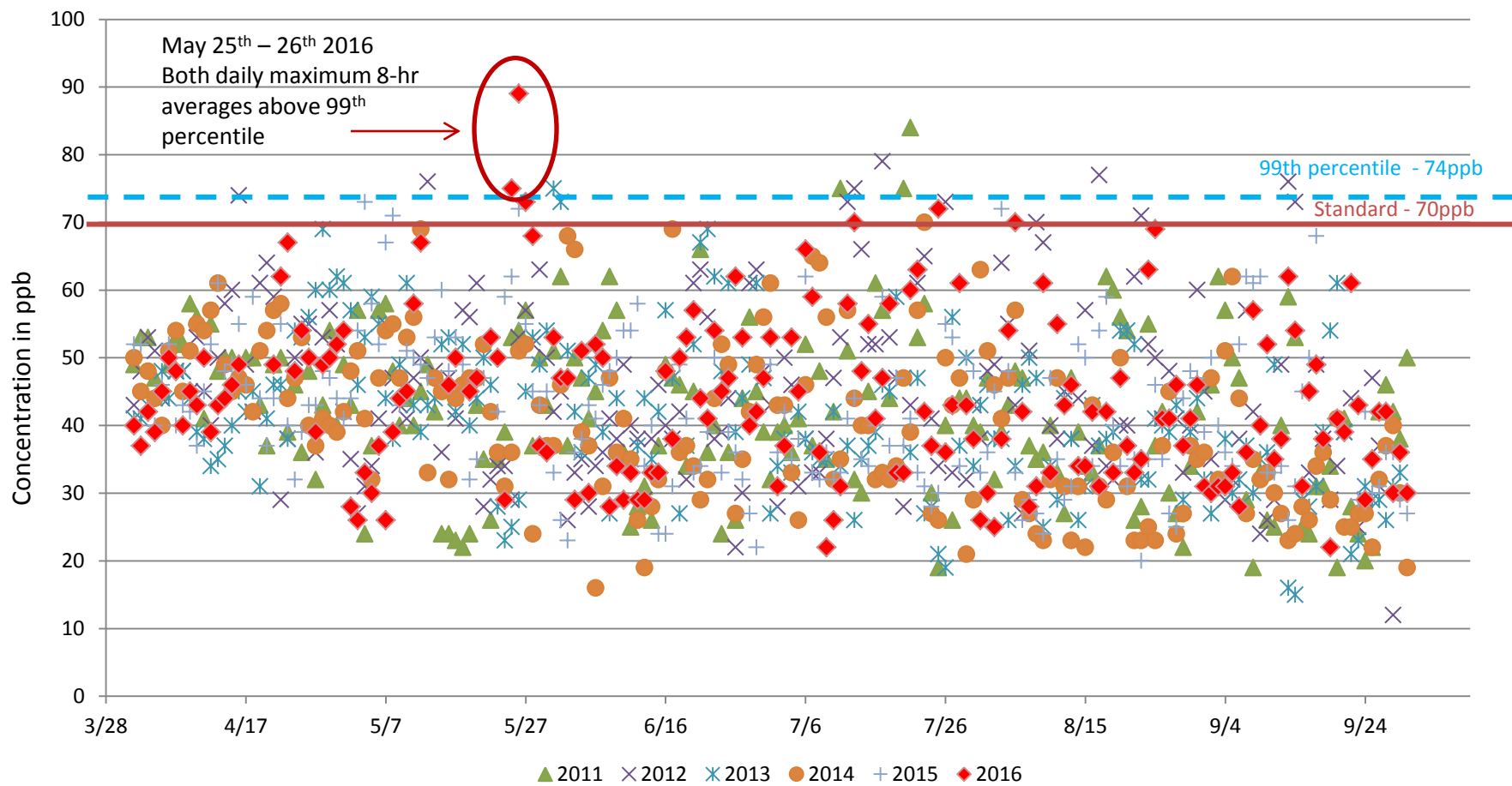
May 25th – 27th
Three Highest 8-hr Averages
recorded during season



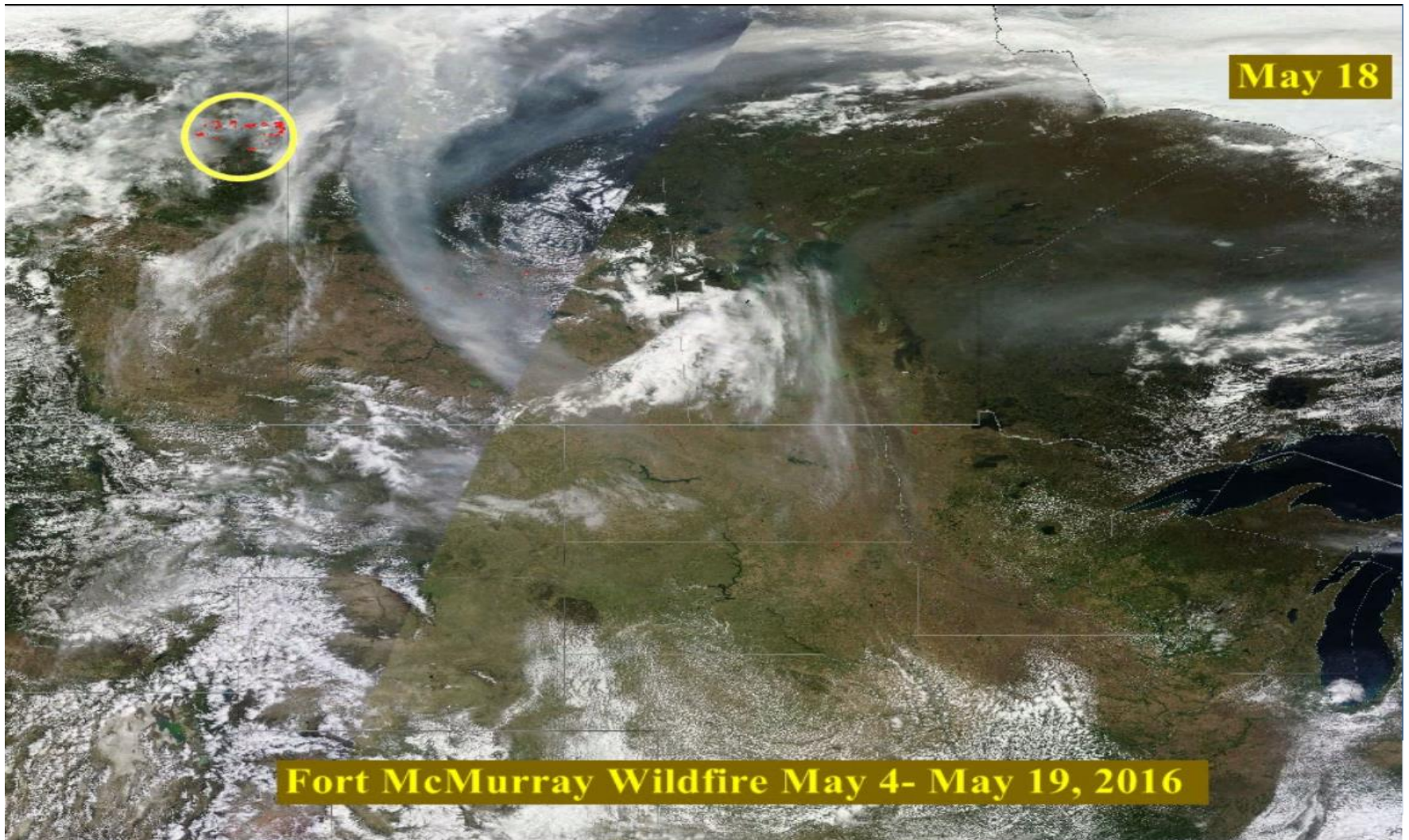
Chicopee Falls, MA
Daily Maximum 8-hr Average Ozone Concentration for April 1-Sep 30 Period
2011-2016



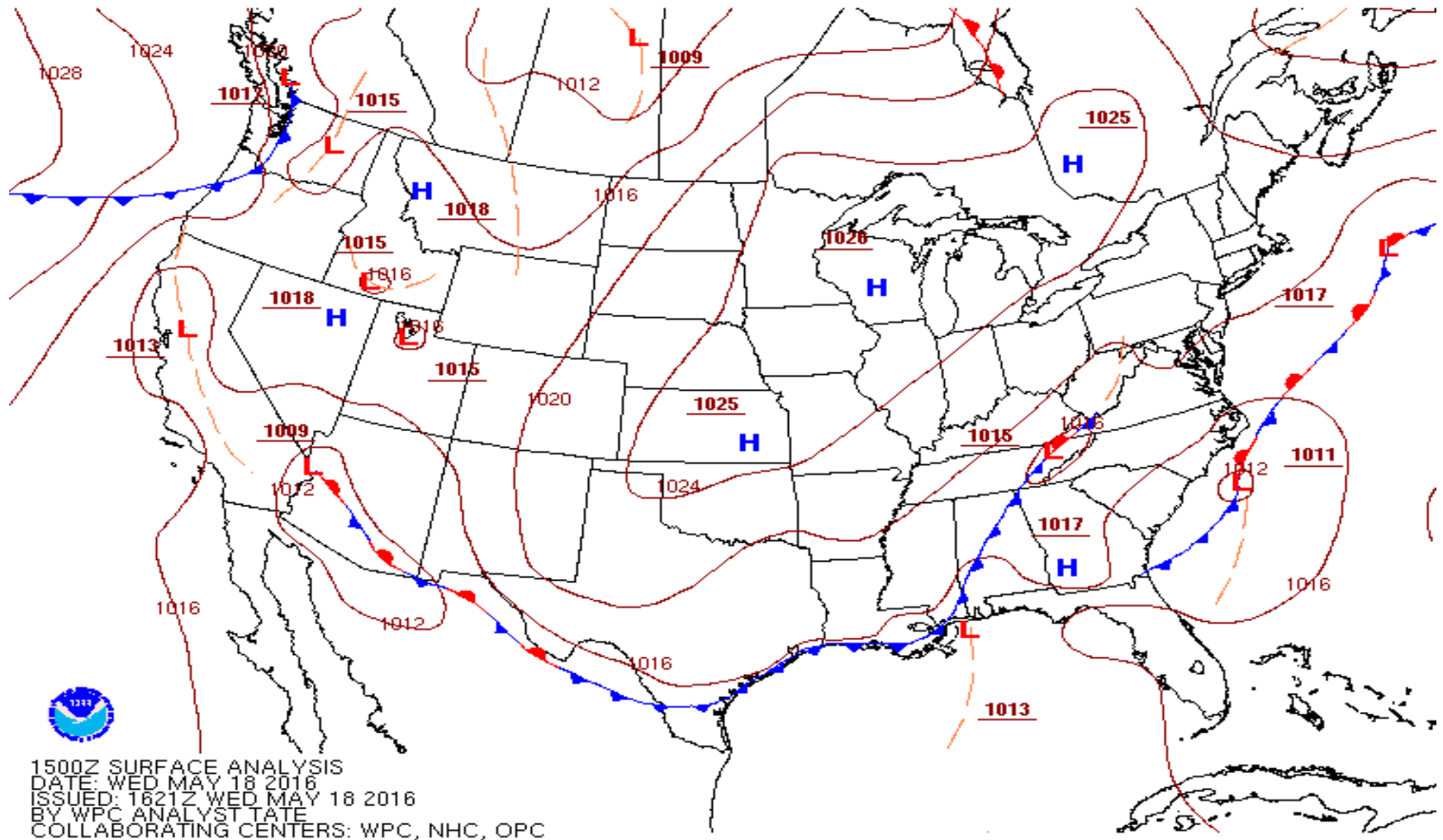
Ware, MA
Daily Maximum 8-hr Average Ozone Concentration for April 1-Sep 30 Period
2011-2016



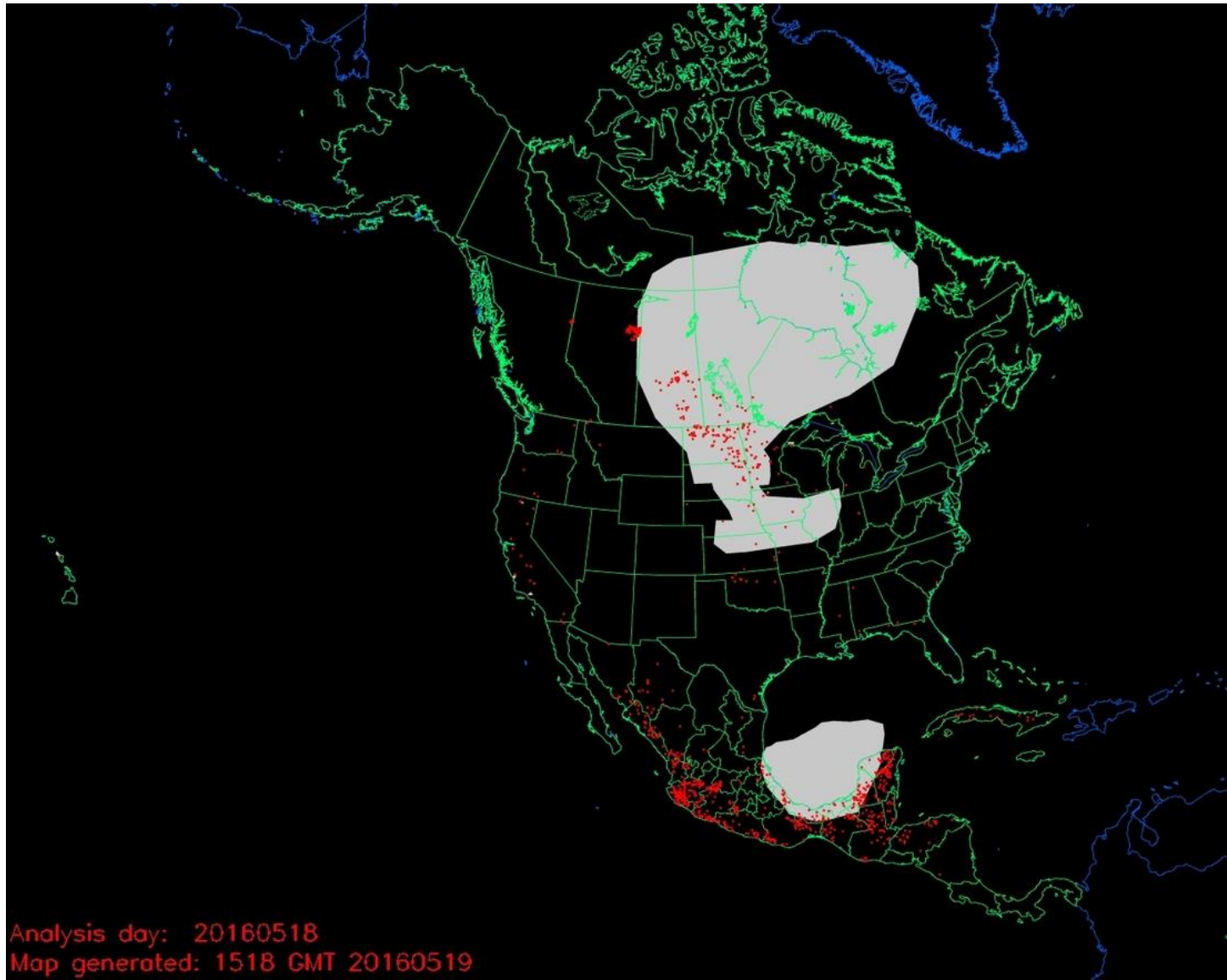
Visible Satellite Picture Showing Fort McMurray Wildfire Location and
Smoke Plume Across Southern Canada and North-Central US
May 18, 2016



Surface Weather Analysis Showing Large High Pressure System Across
Upper Midwest and Great Lakes Region of US
May 18, 2016

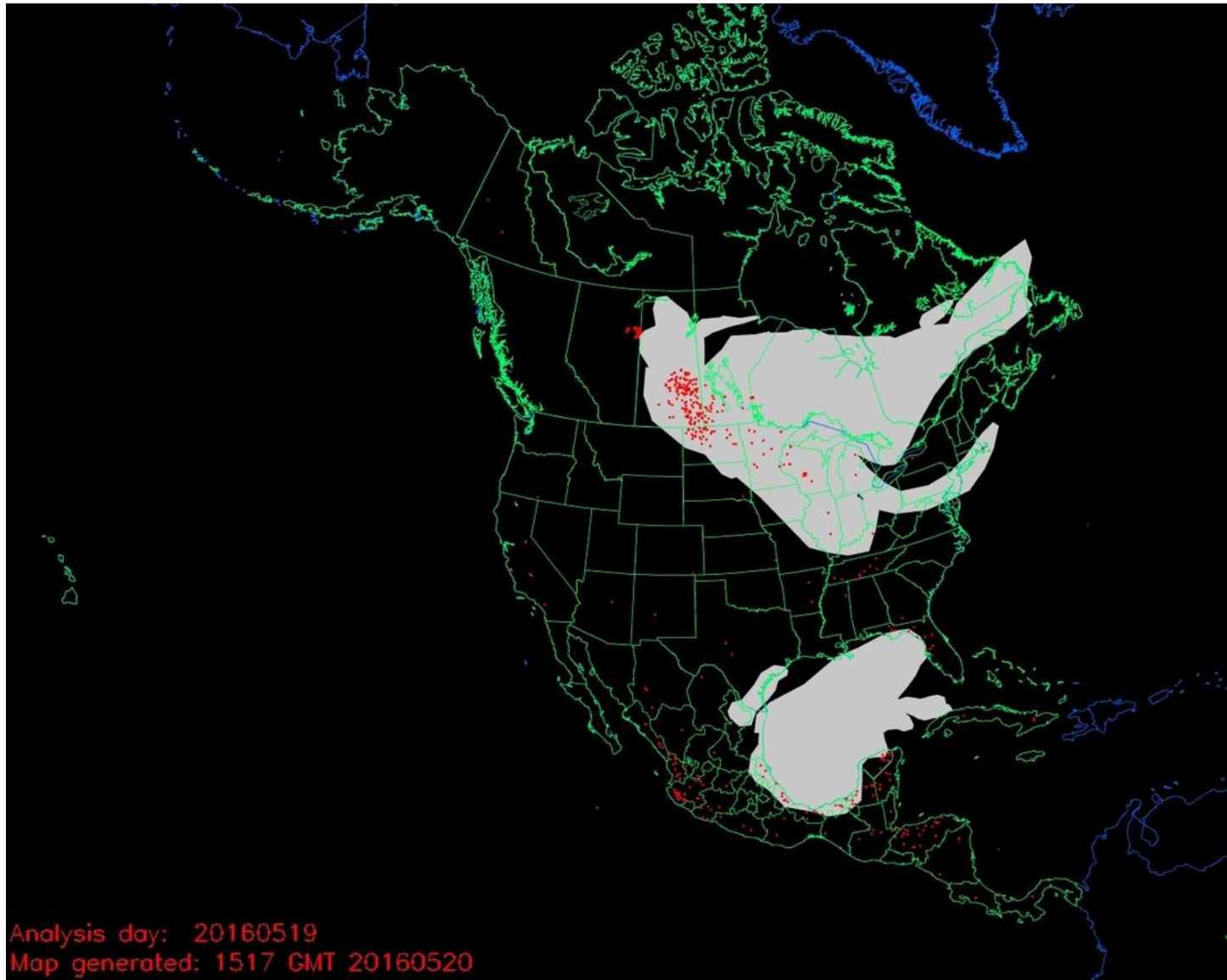


Location of Smoke Plume as Detected by HMS Satellite May 18, 2016



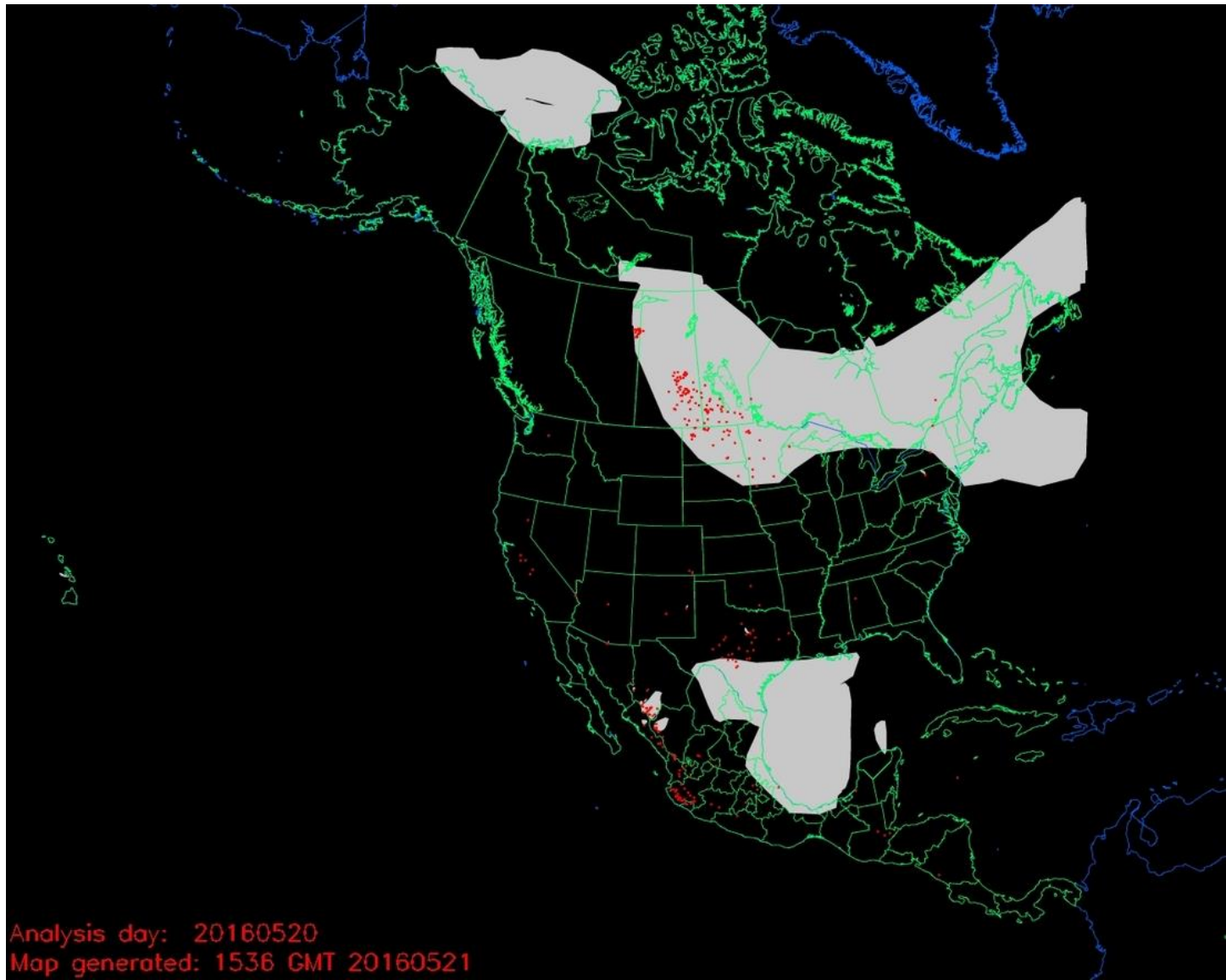
Location of Smoke Plume as Detected by HMS Satellite

May 19, 2016

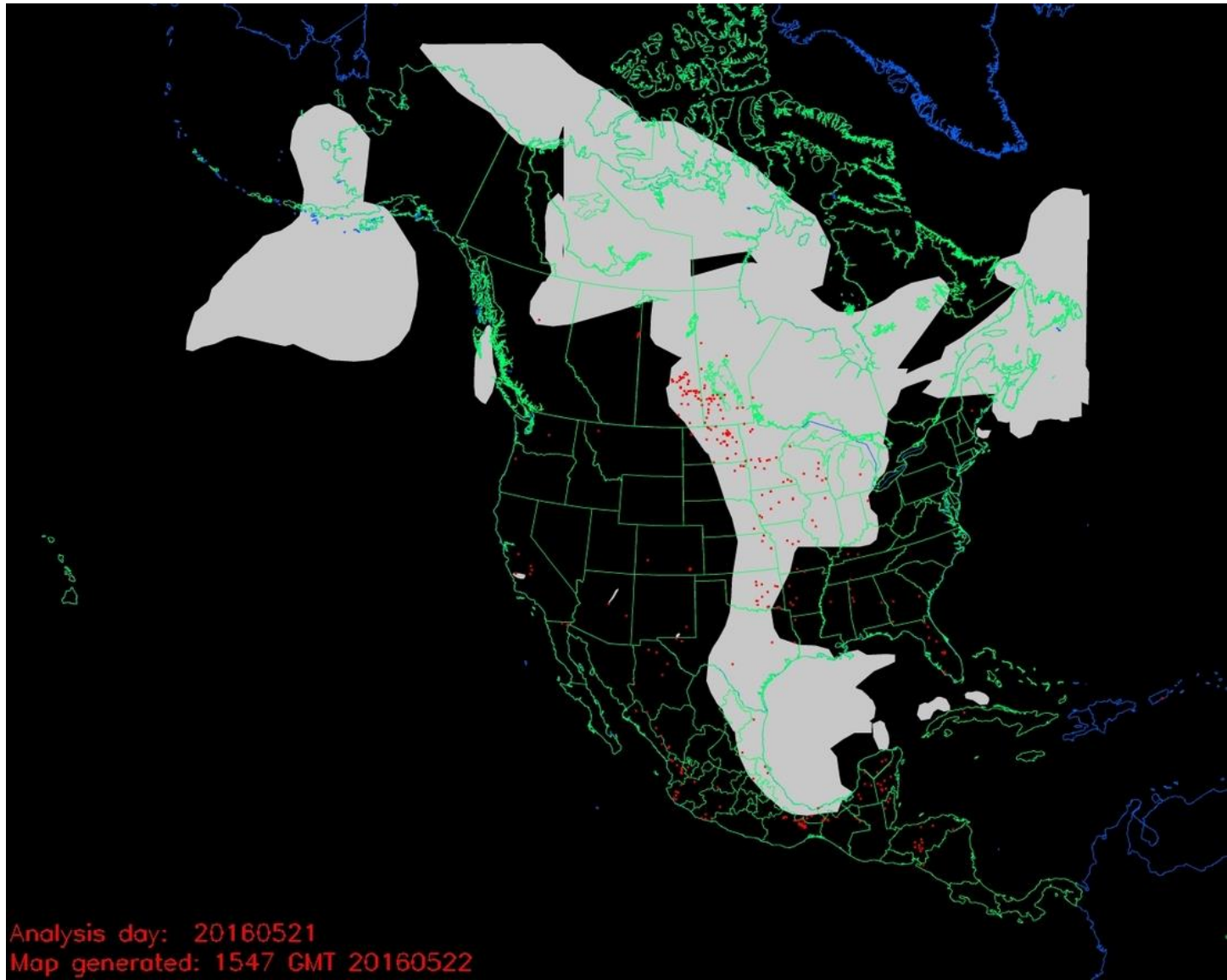


Location of Smoke Plume as Detected by HMS Satellite

May 20, 2016

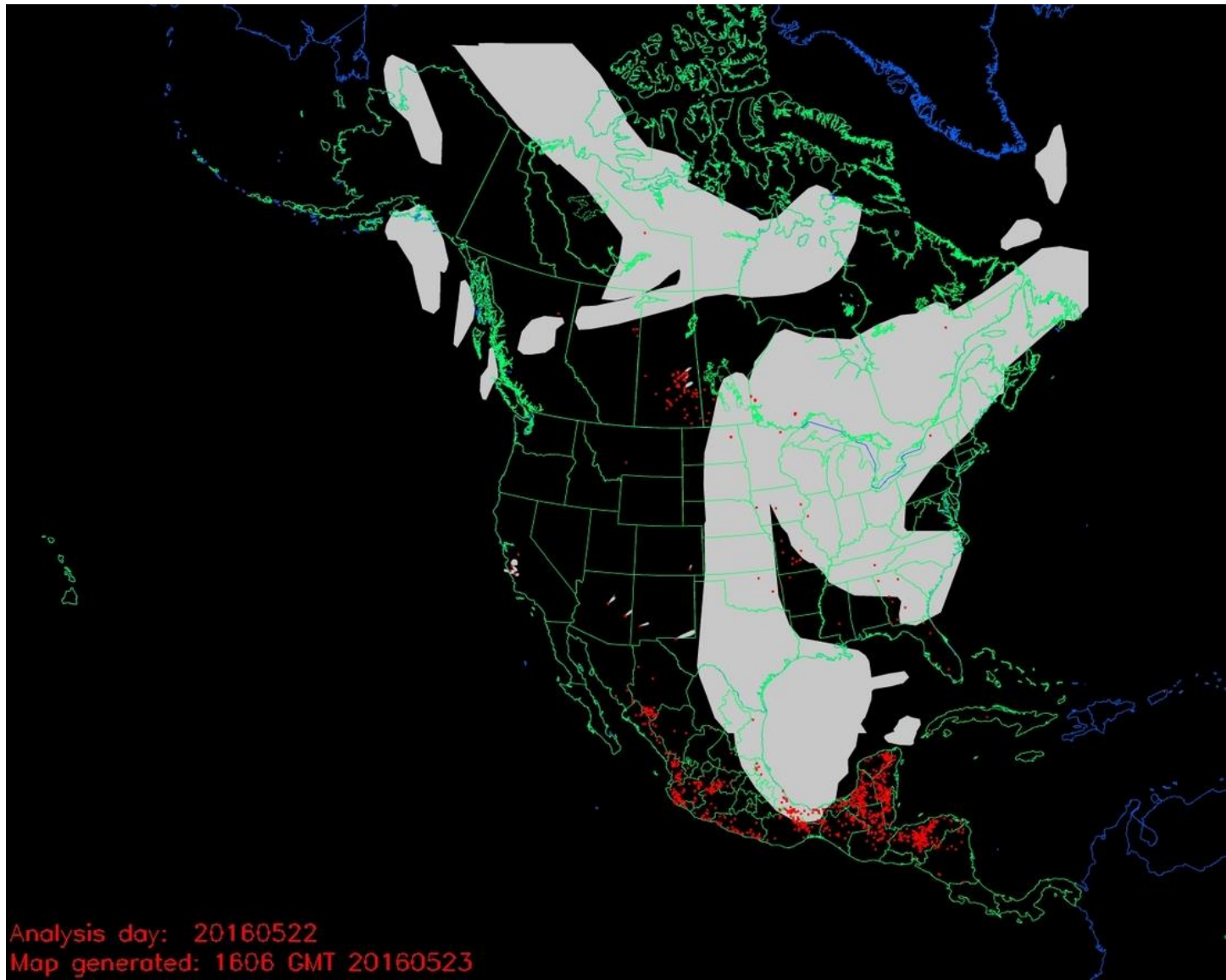


Location of Smoke Plume as Detected by HMS Satellite May 21, 2016

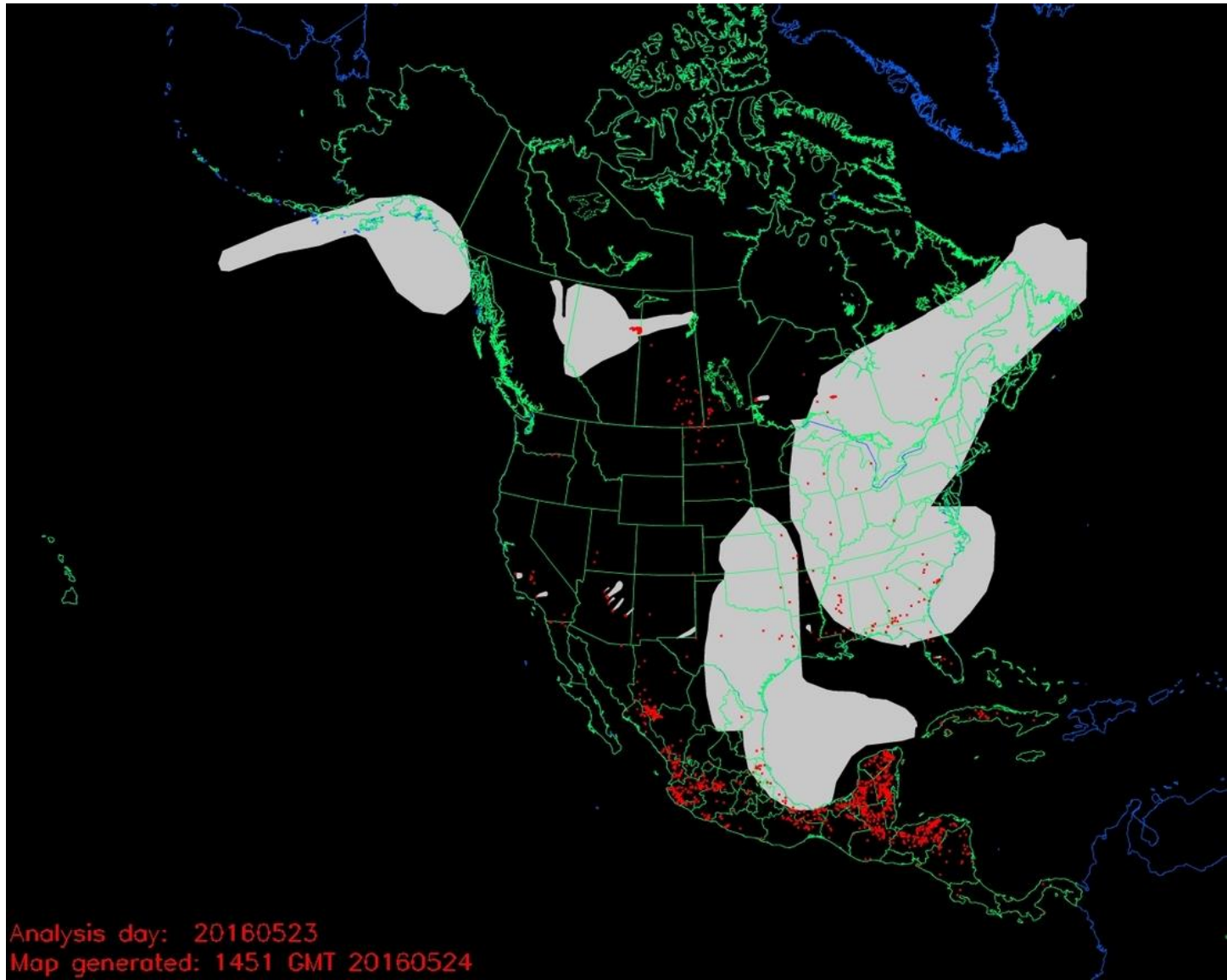


Location of Smoke Plume as Detected by HMS Satellite

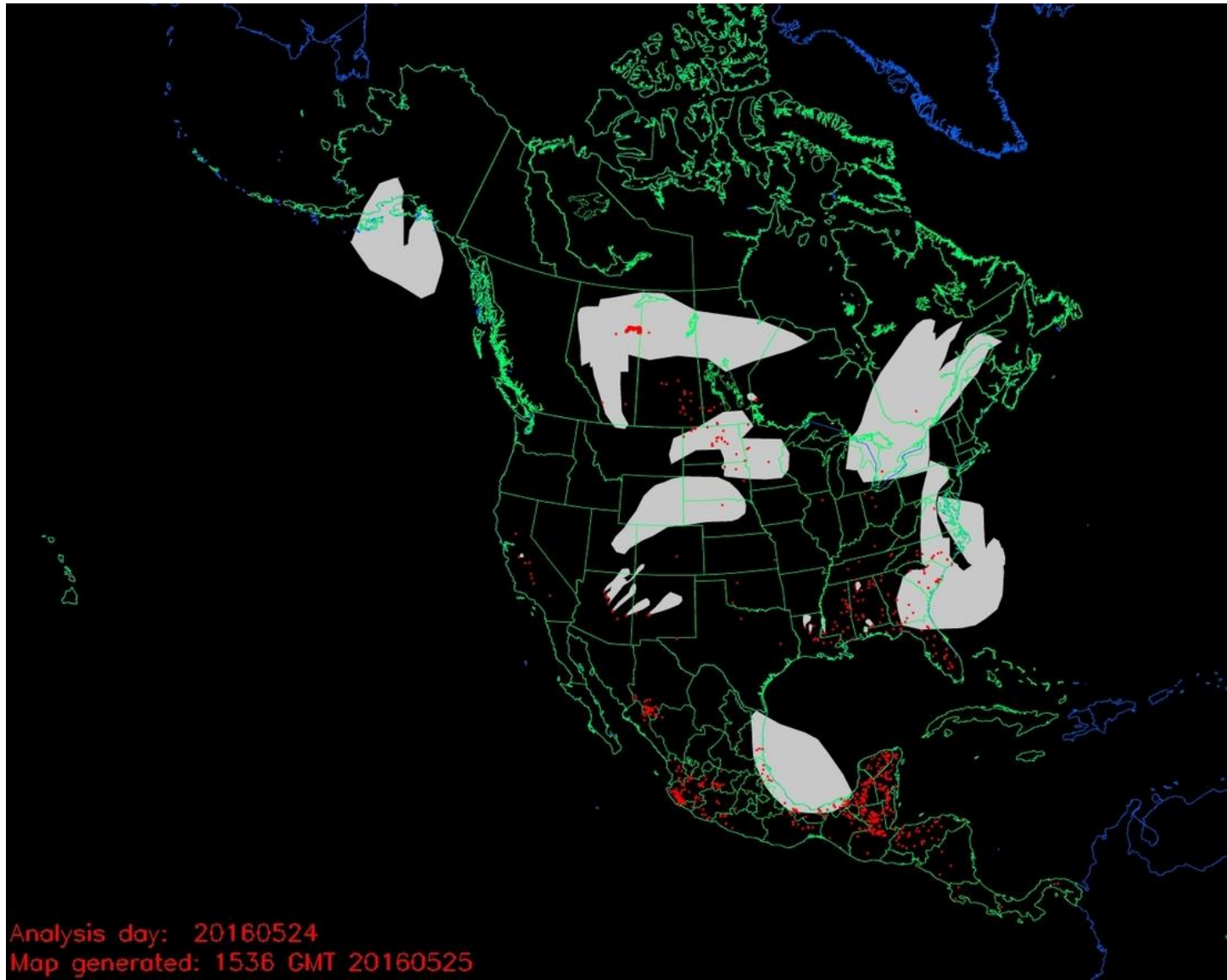
May 22, 2016



Location of Smoke Plume as Detected by HMS Satellite May 23, 2016



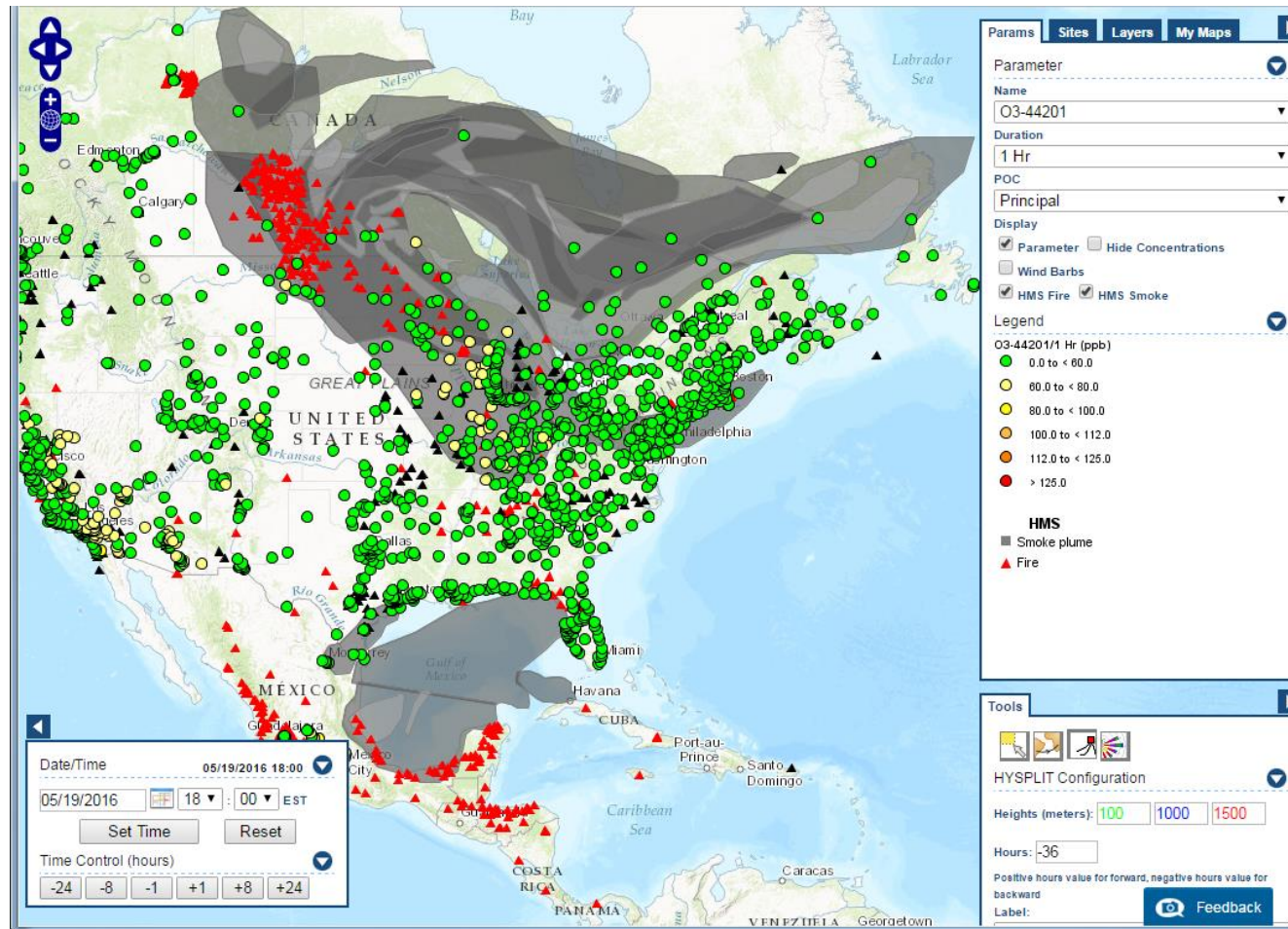
Location of Smoke Plume as Detected by HMS Satellite May 24, 2016



Late Afternoon/Early Evening Ozone Concentrations with Hazard Mapping System

Satellite Data Showing Wildfire Locations and Smoke Plumes

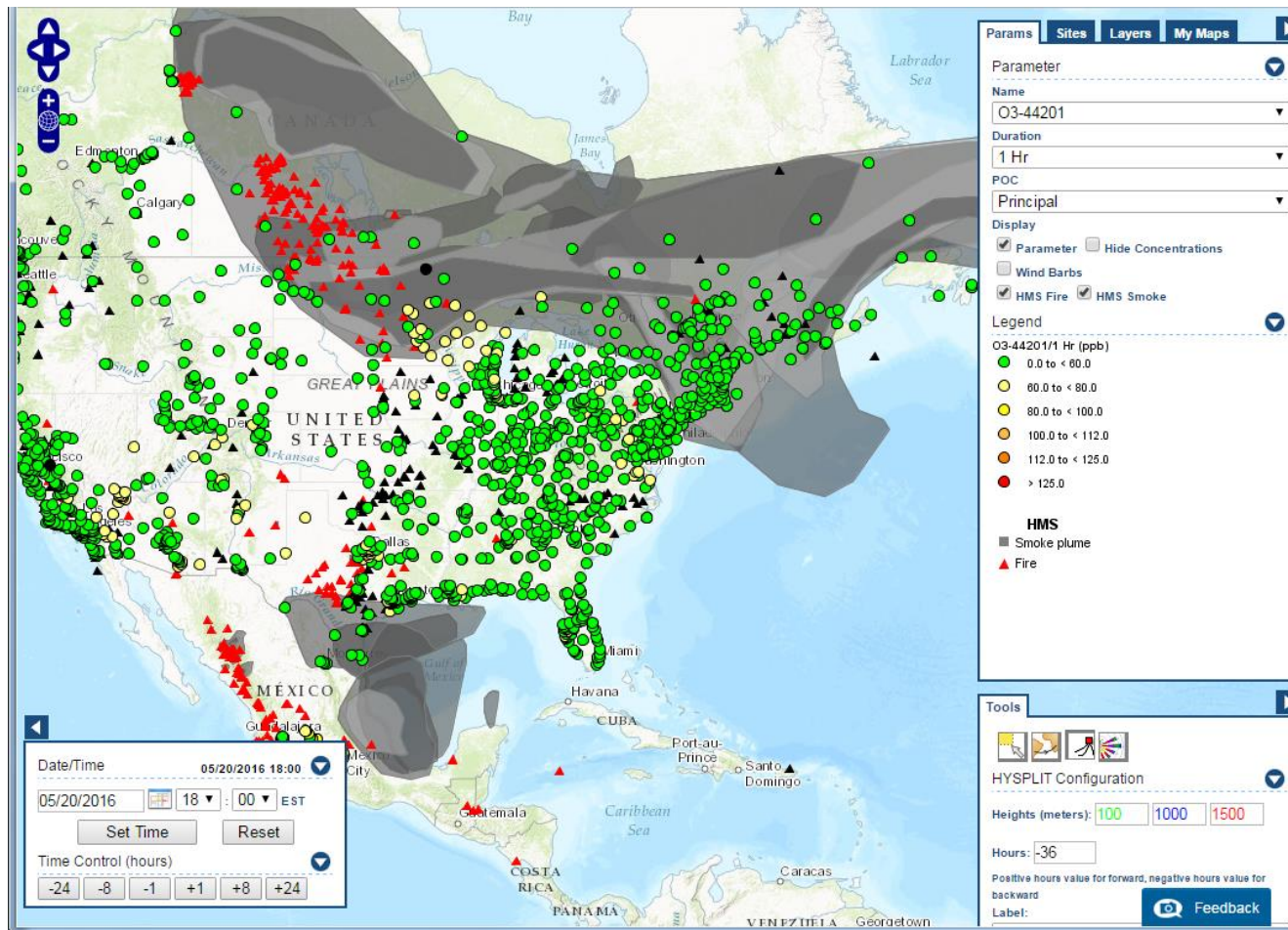
May 19, 2016



Late Afternoon/Early Evening Ozone Concentrations with Hazard Mapping System

Satellite Data Showing Wildfire Locations and Smoke Plumes

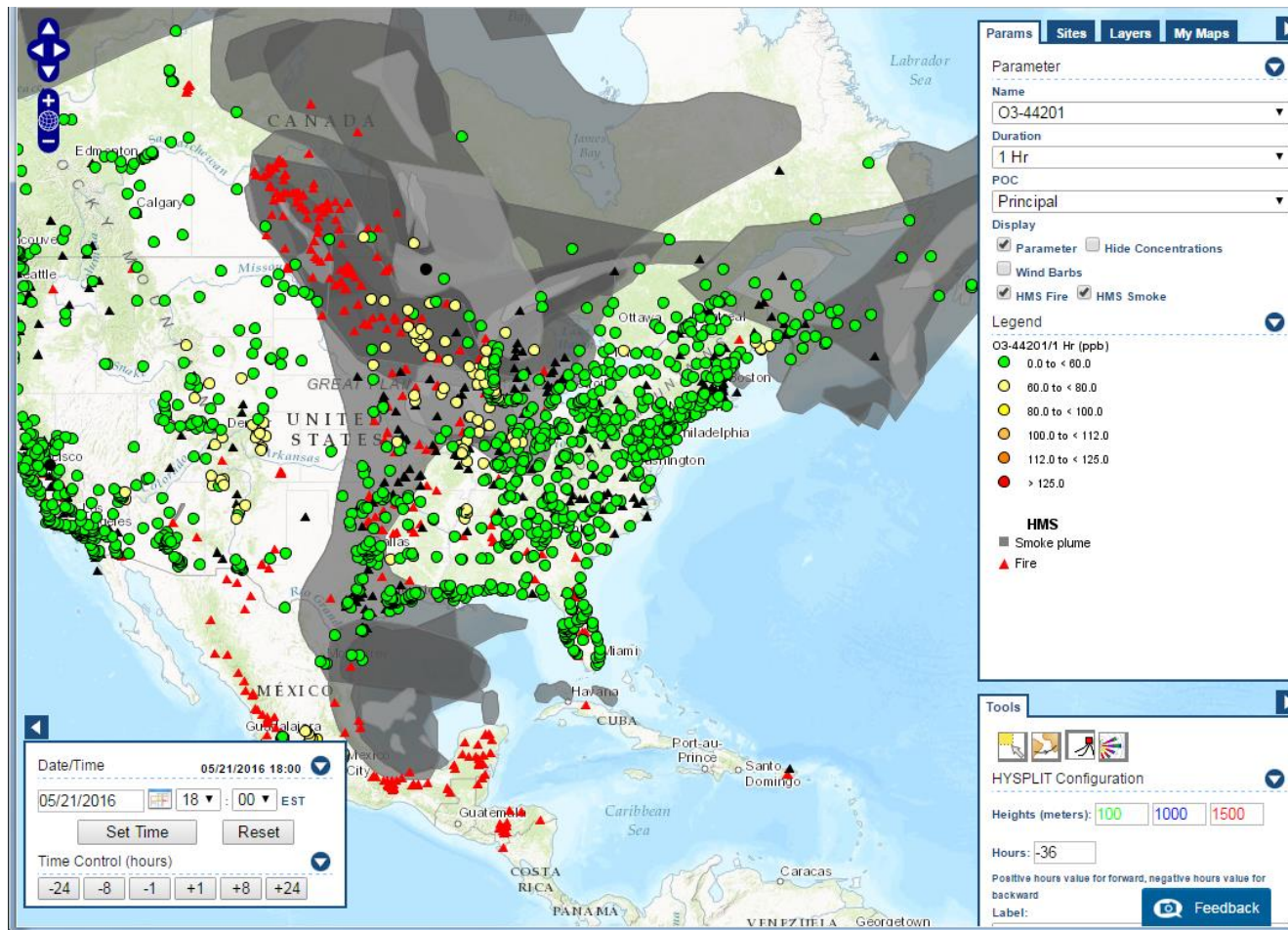
May 20, 2016



Late Afternoon/Early Evening Ozone Concentrations with Hazard Mapping System

Satellite Data Showing Wildfire Locations and Smoke Plumes

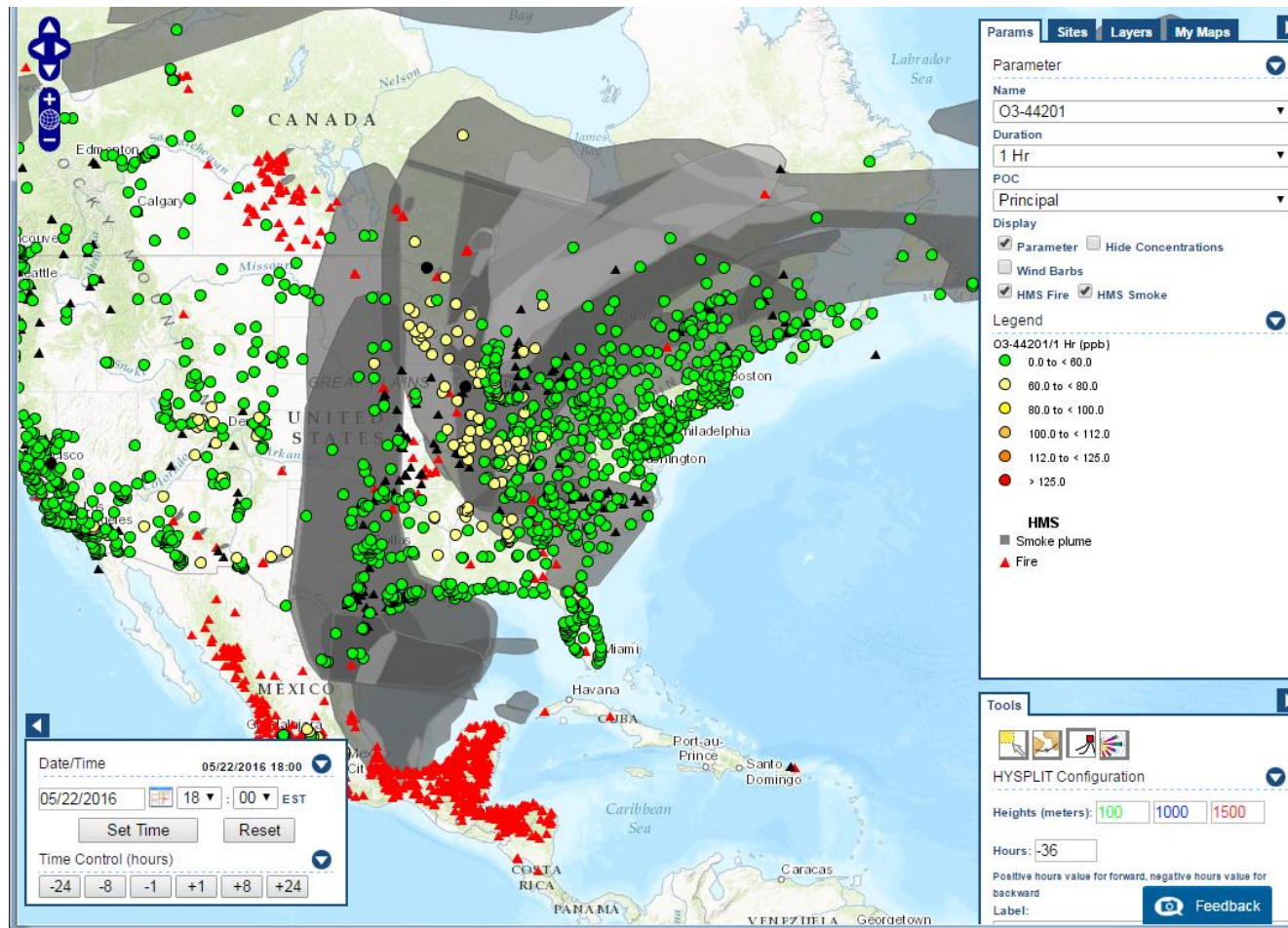
May 21, 2016



Late Afternoon/Early Evening Ozone Concentrations with Hazard Mapping System

Satellite Data Showing Wildfire Locations and Smoke Plumes

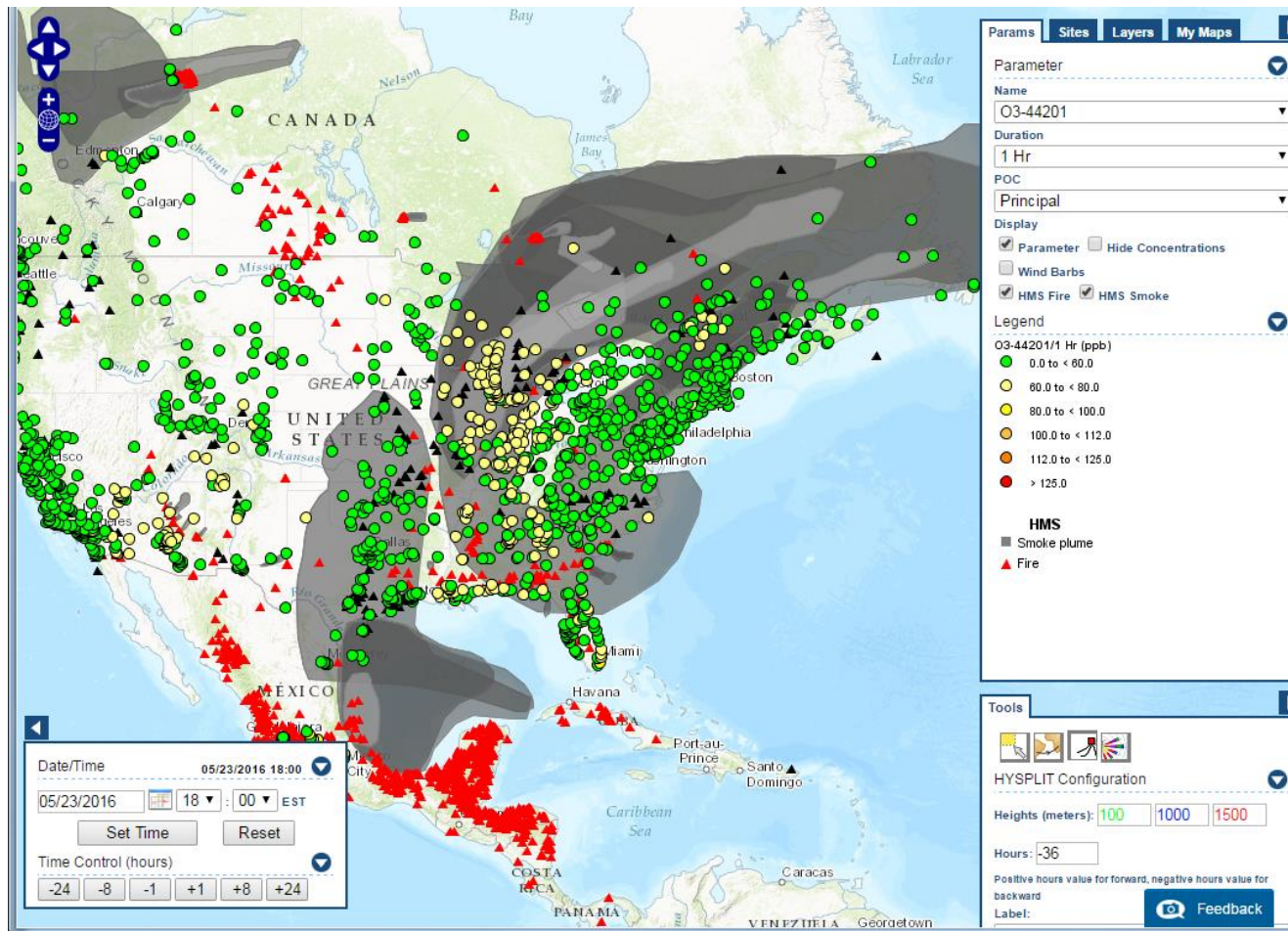
May 22, 2016



Late Afternoon/Early Evening Ozone Concentrations with Hazard Mapping System

Satellite Data Showing Wildfire Locations and Smoke Plumes

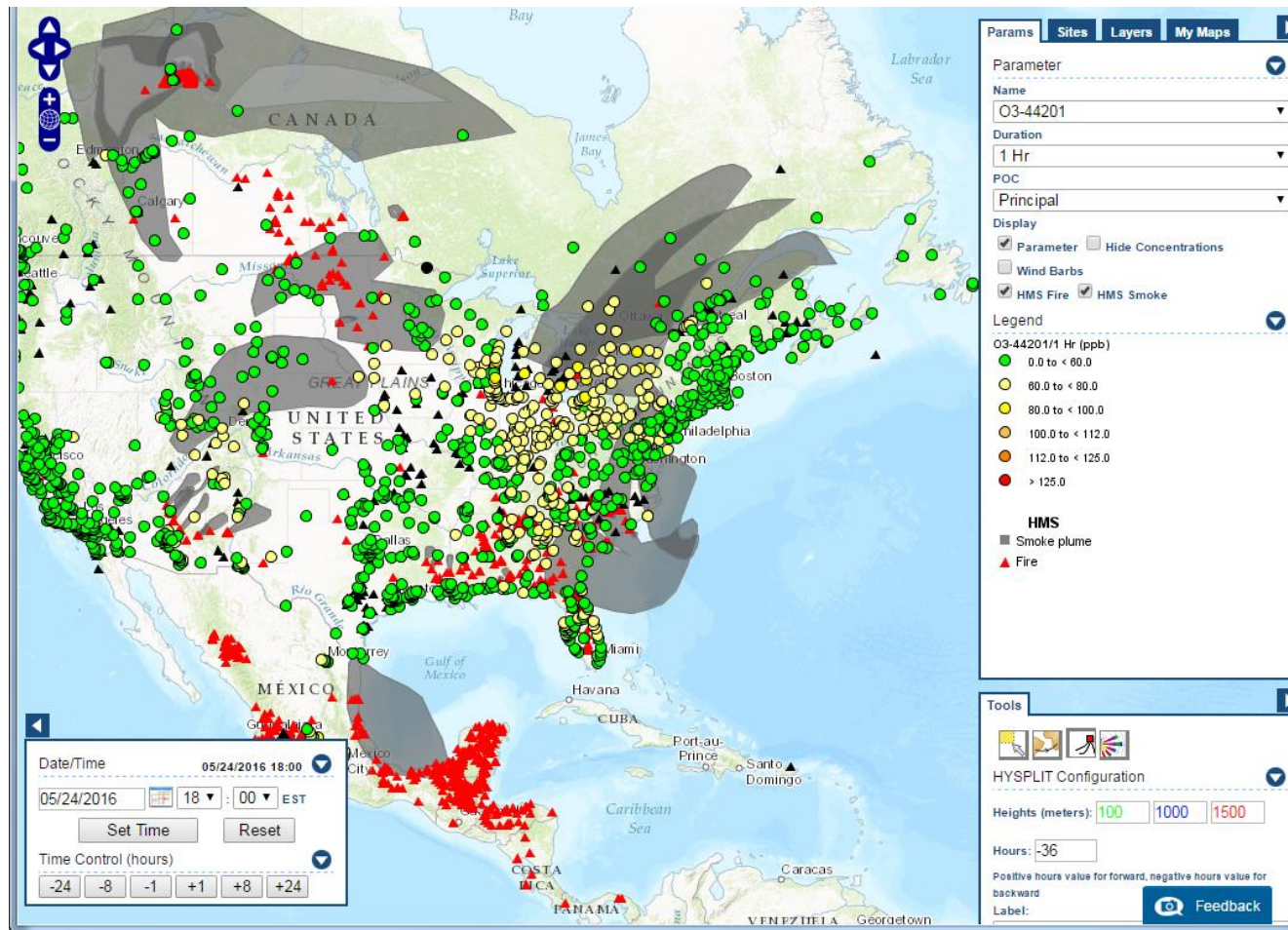
May 23, 2016



Late Afternoon/Early Evening Ozone Concentrations with Hazard Mapping System

Satellite Data Showing Wildfire Locations and Smoke Plumes

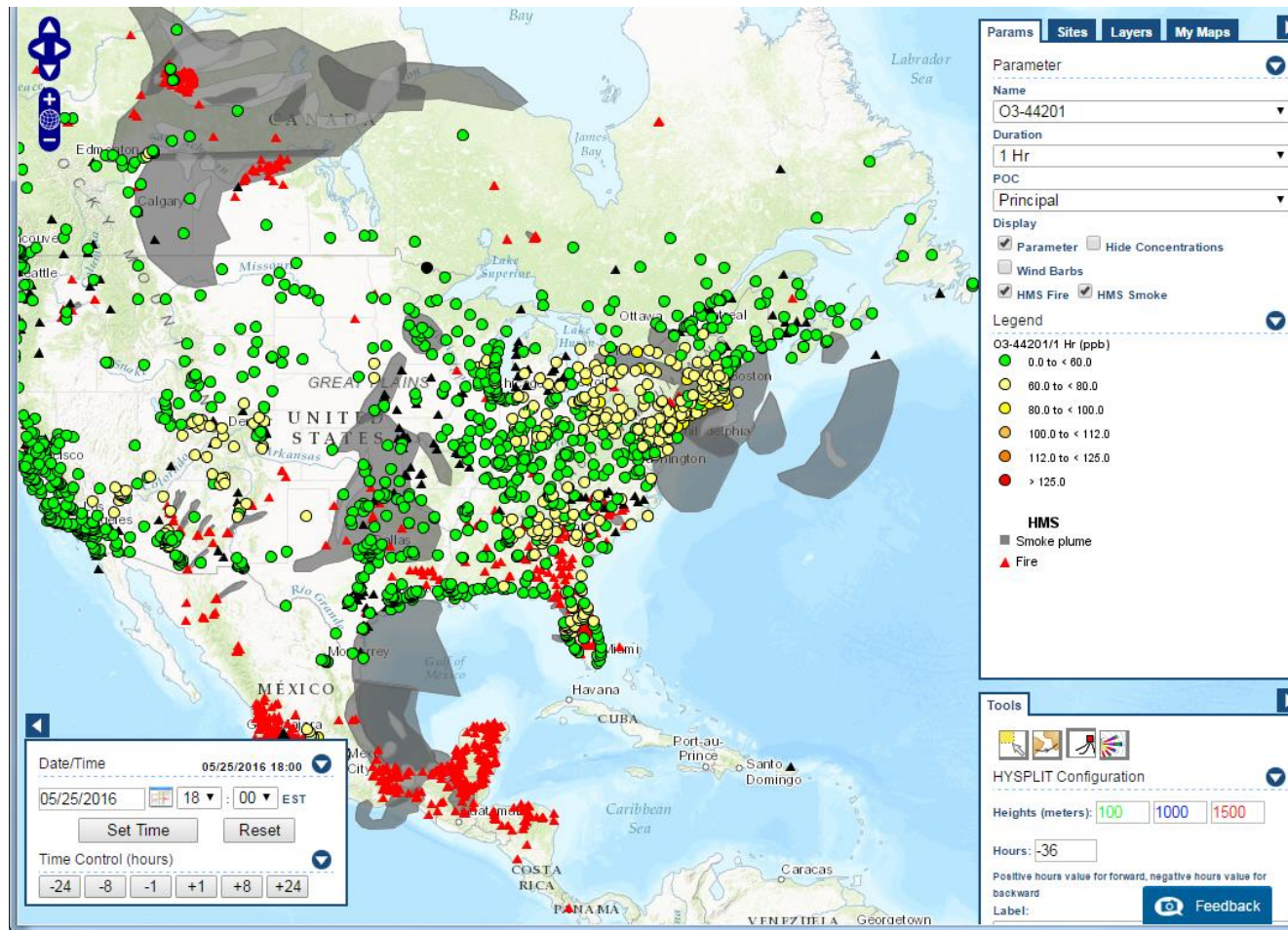
May 24, 2016



Late Afternoon/Early Evening Ozone Concentrations with Hazard Mapping System

Satellite Data Showing Wildfire Locations and Smoke Plumes

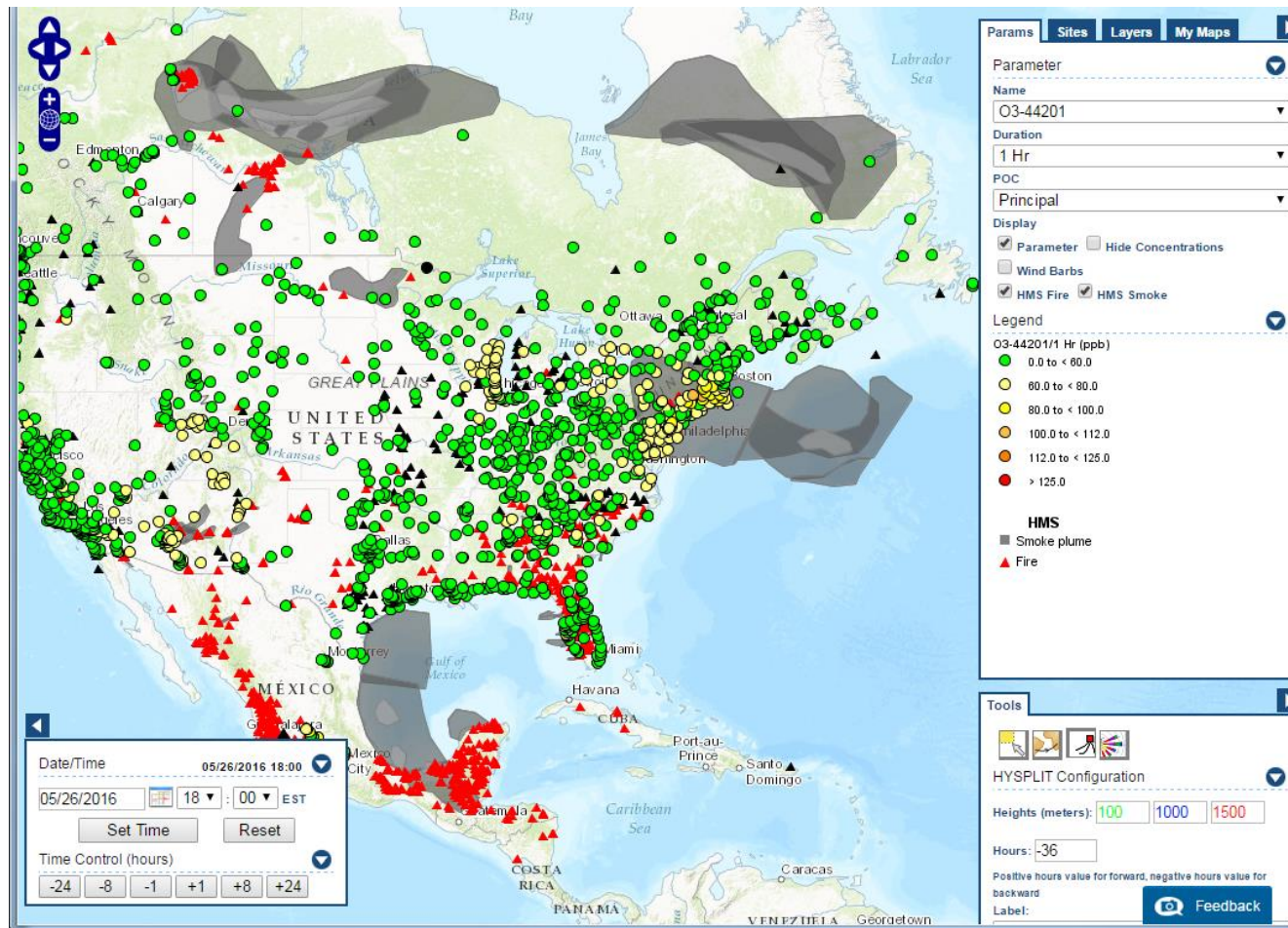
May 25, 2016



Late Afternoon/Early Evening Ozone Concentrations with Hazard Mapping System

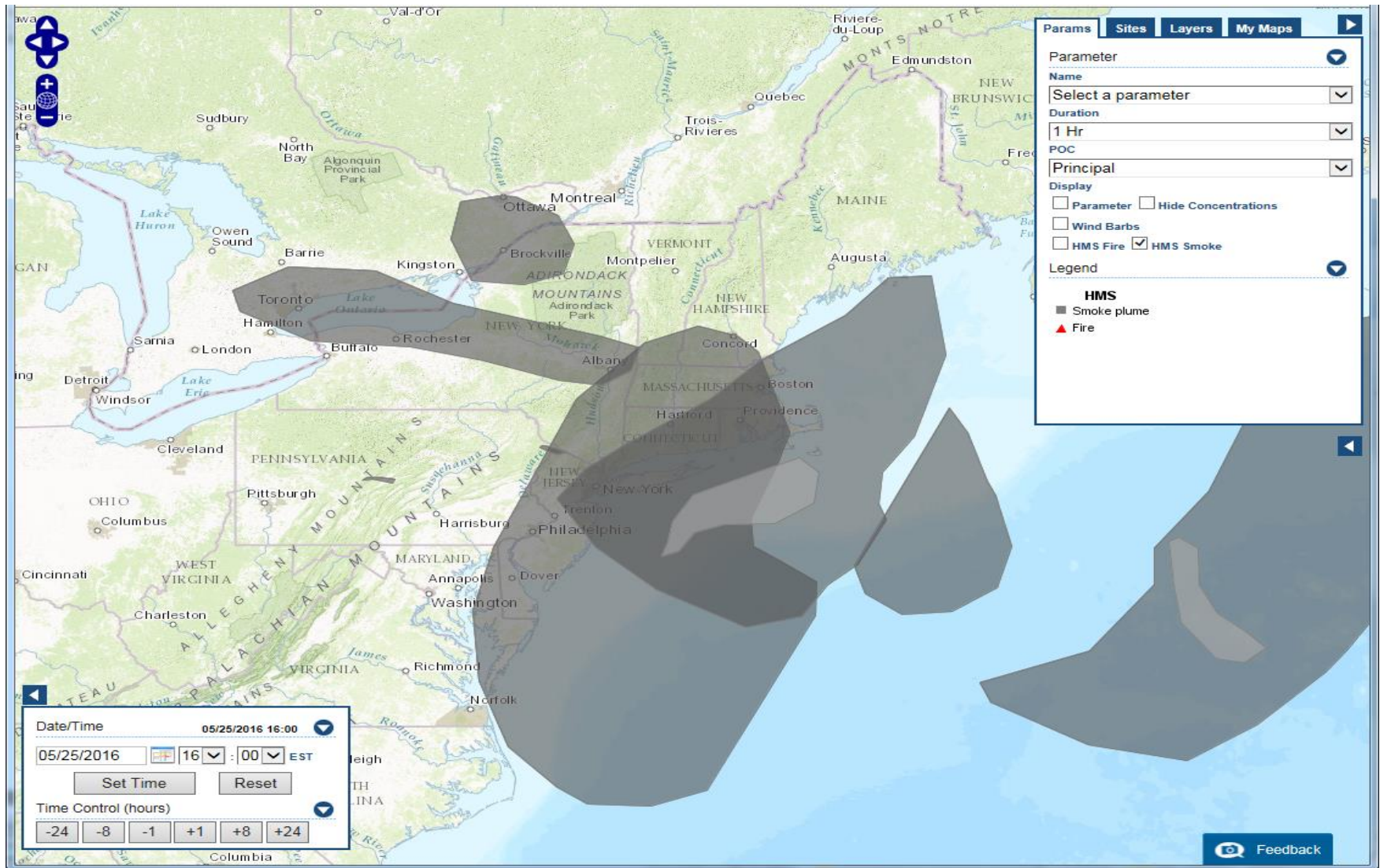
Satellite Data Showing Wildfire Locations and Smoke Plumes

May 26, 2016

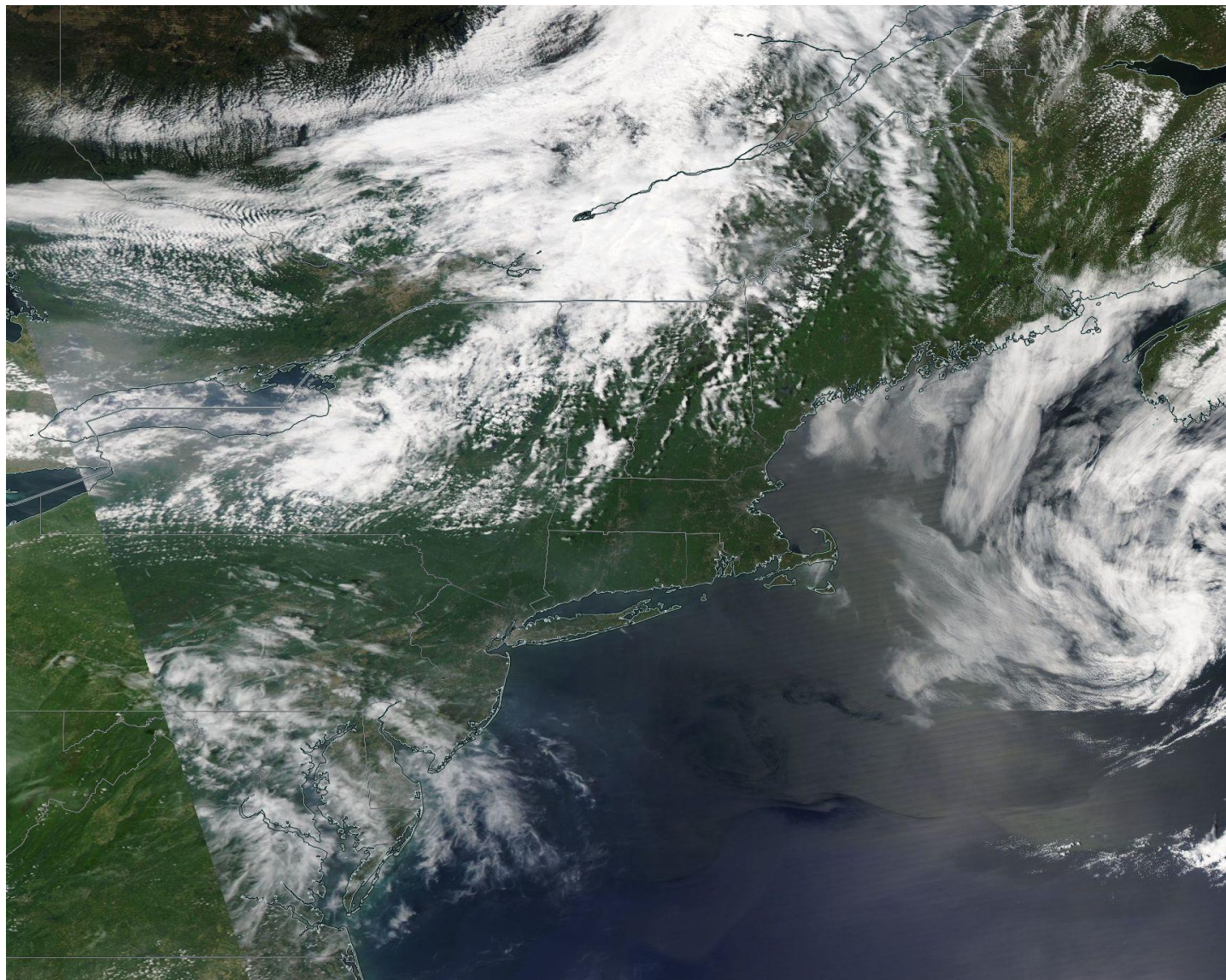


Hazard Mapping System (HMS) Satellite Smoke Data

May 25, 2016

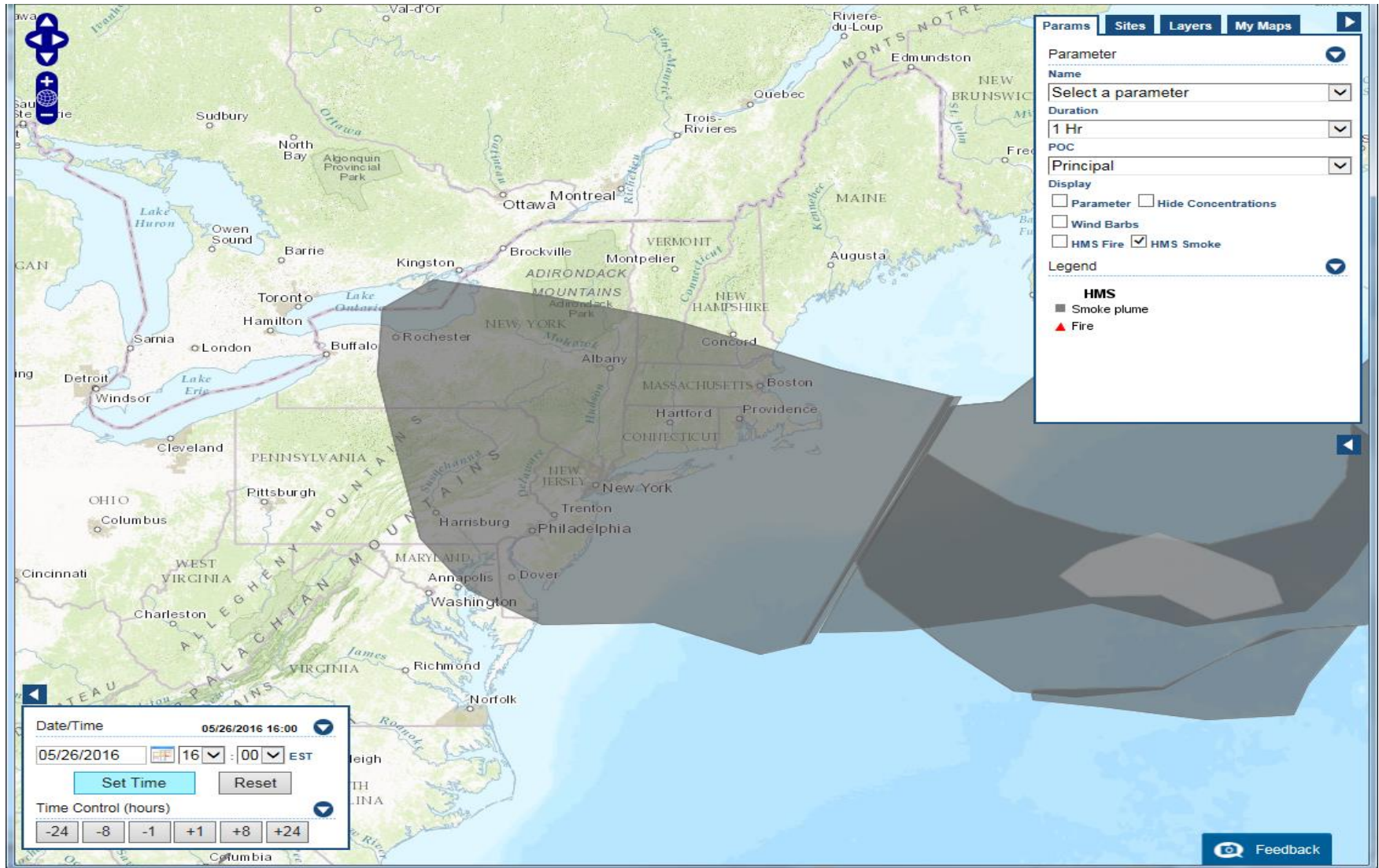


Visible Satellite Picture Showing Smoke Over Massachusetts and Surrounding Area May 25, 2016

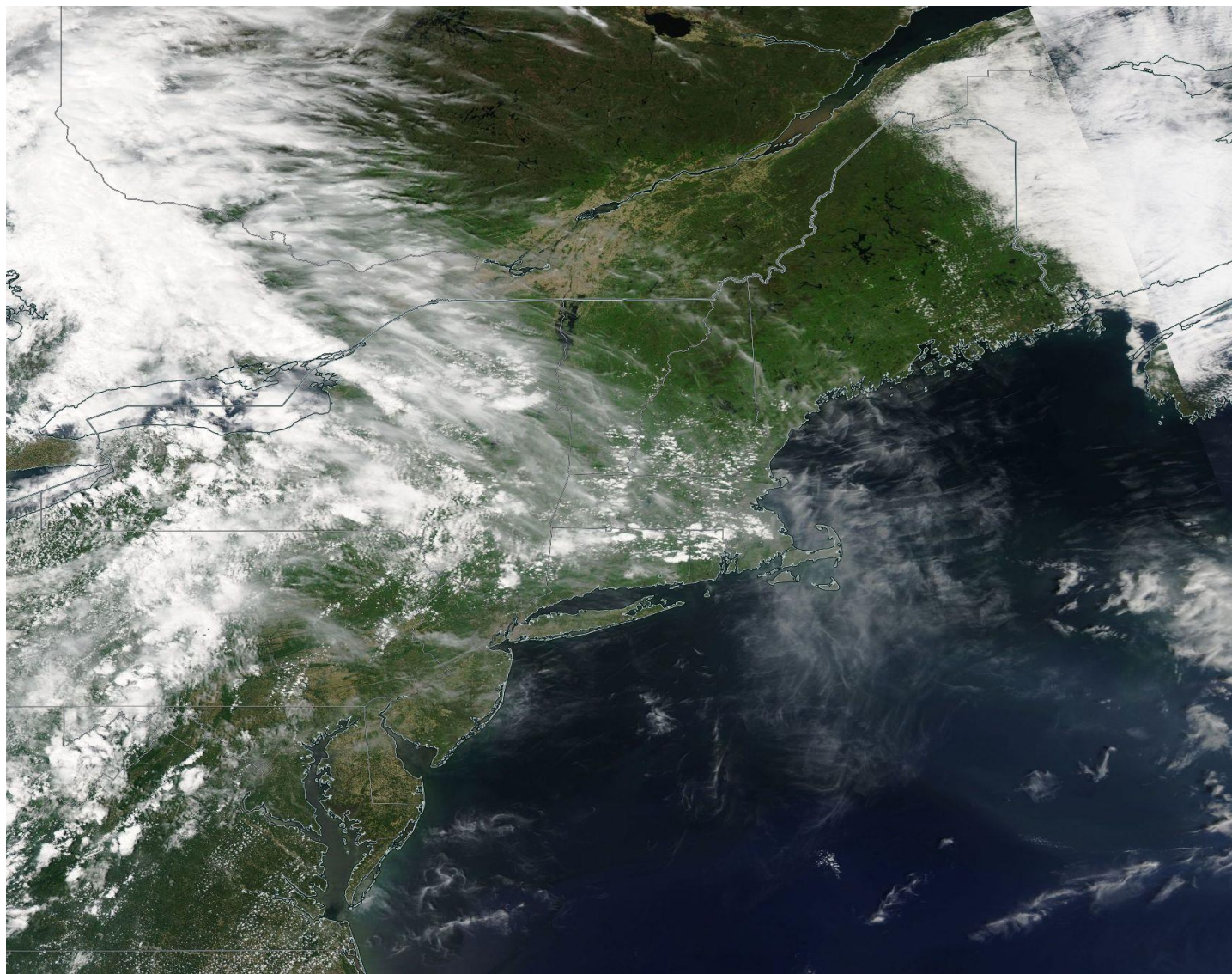


Hazard Mapping System (HMS) Satellite Smoke Data

May 26, 2016



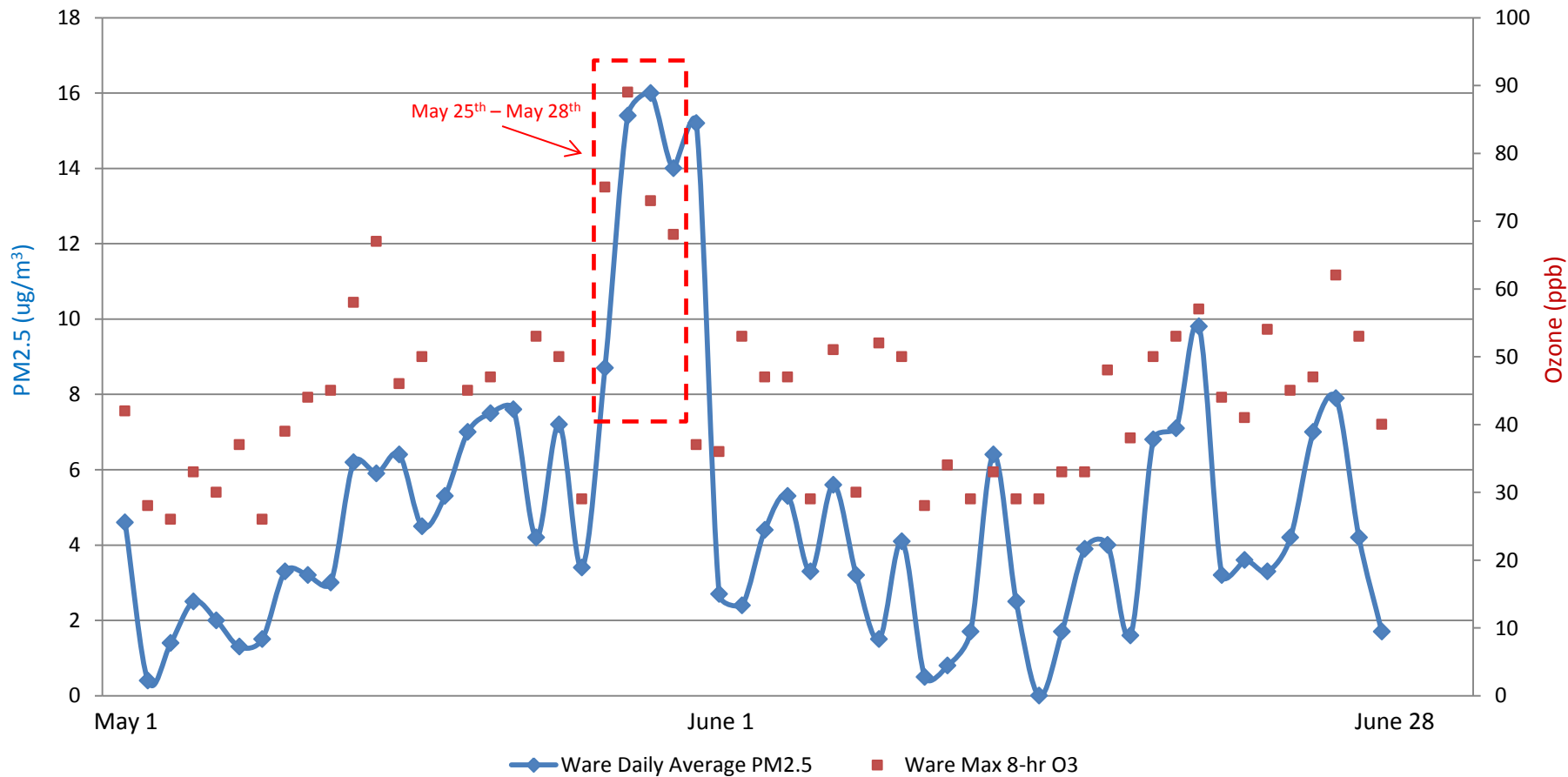
Visible Satellite Picture Showing Smoke Over Massachusetts and Surrounding Area May 26, 2016



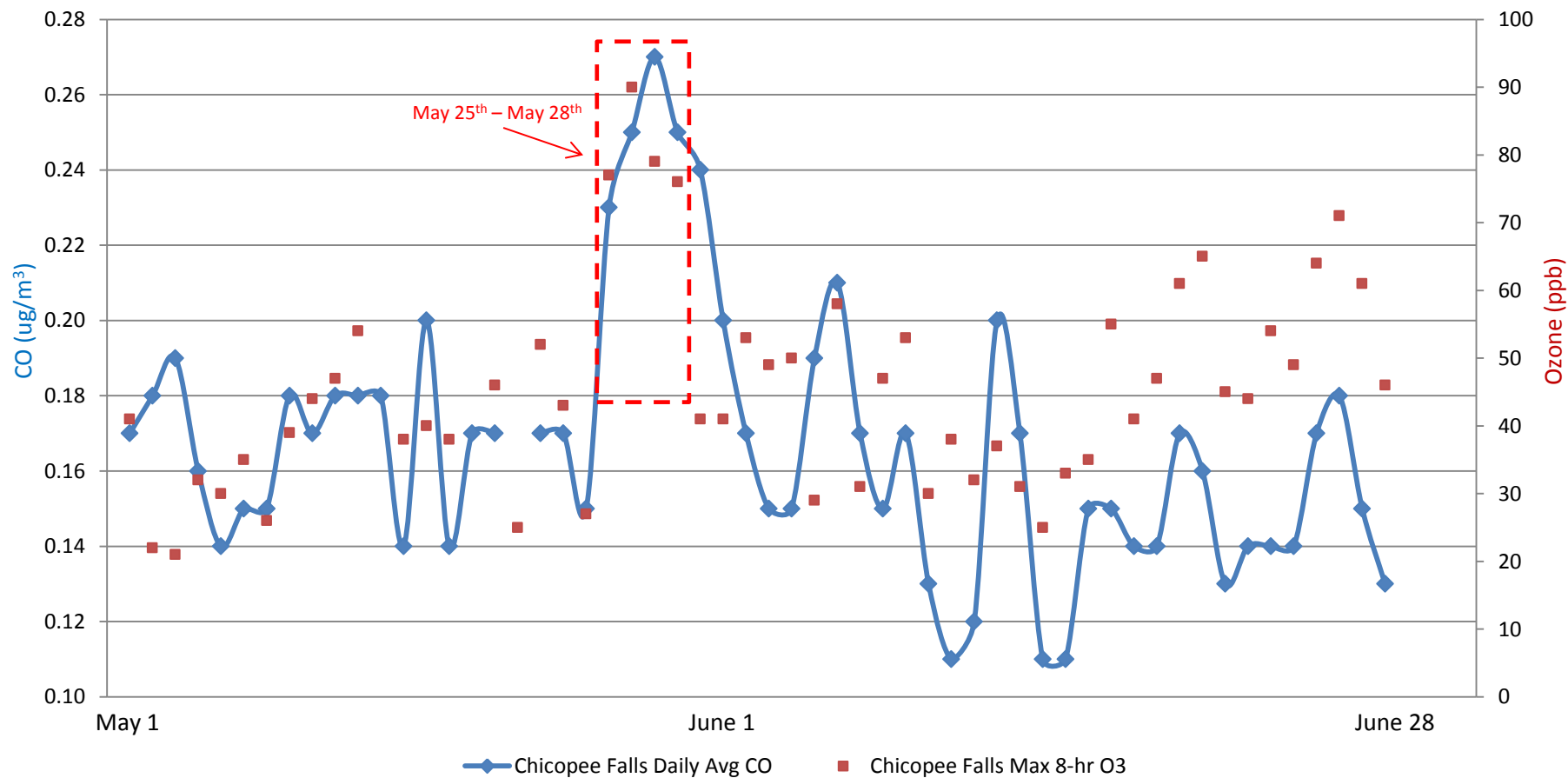
Webcam Views from Talcott Mountain (20 miles SSW of Springfield, MA)
Looking Toward Hartford, CT Showing Smoke at Ground Level on May 25 and May 26



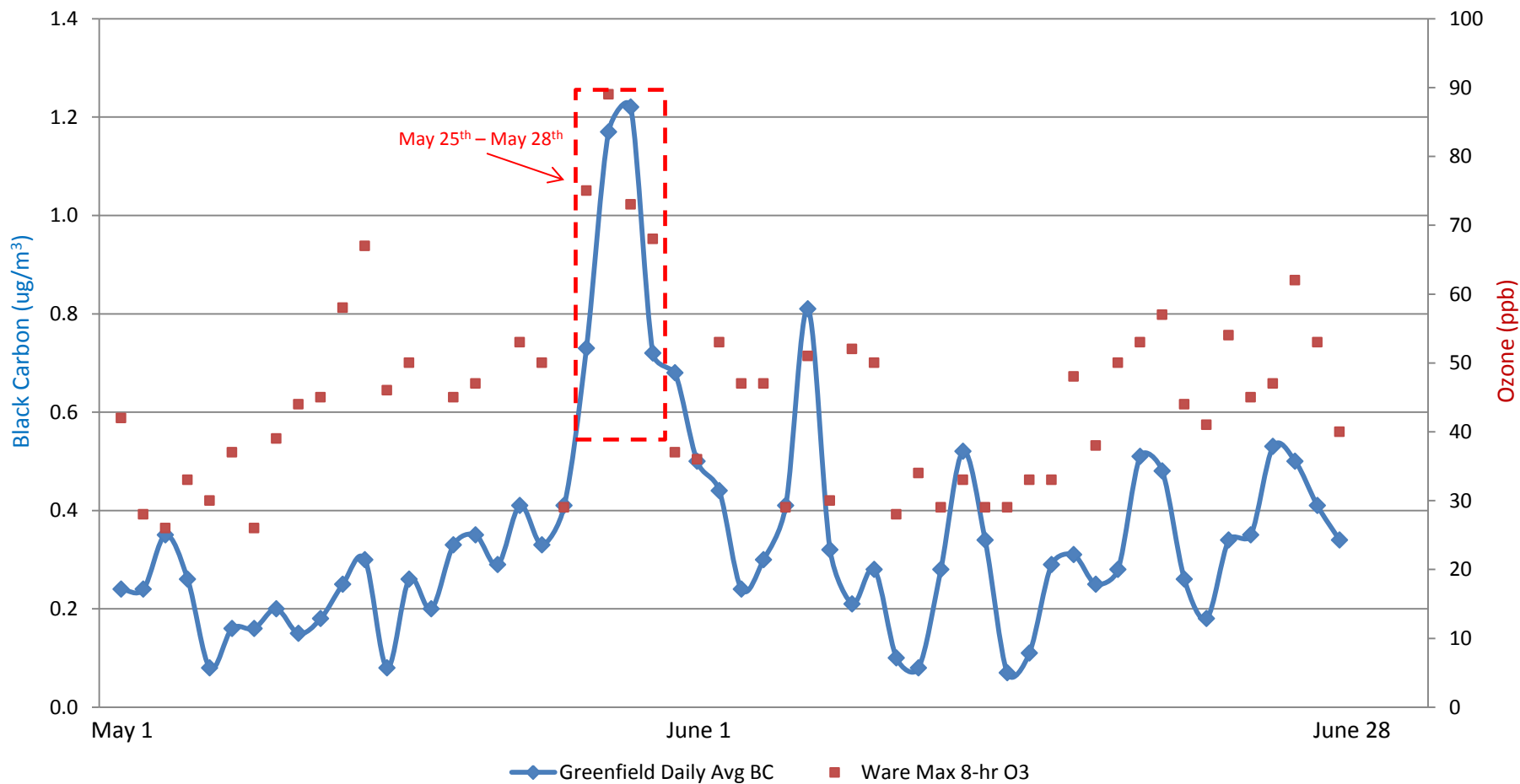
Comparison Trends of PM2.5 and Ozone as Recorded at Ware, MA May-June 2016



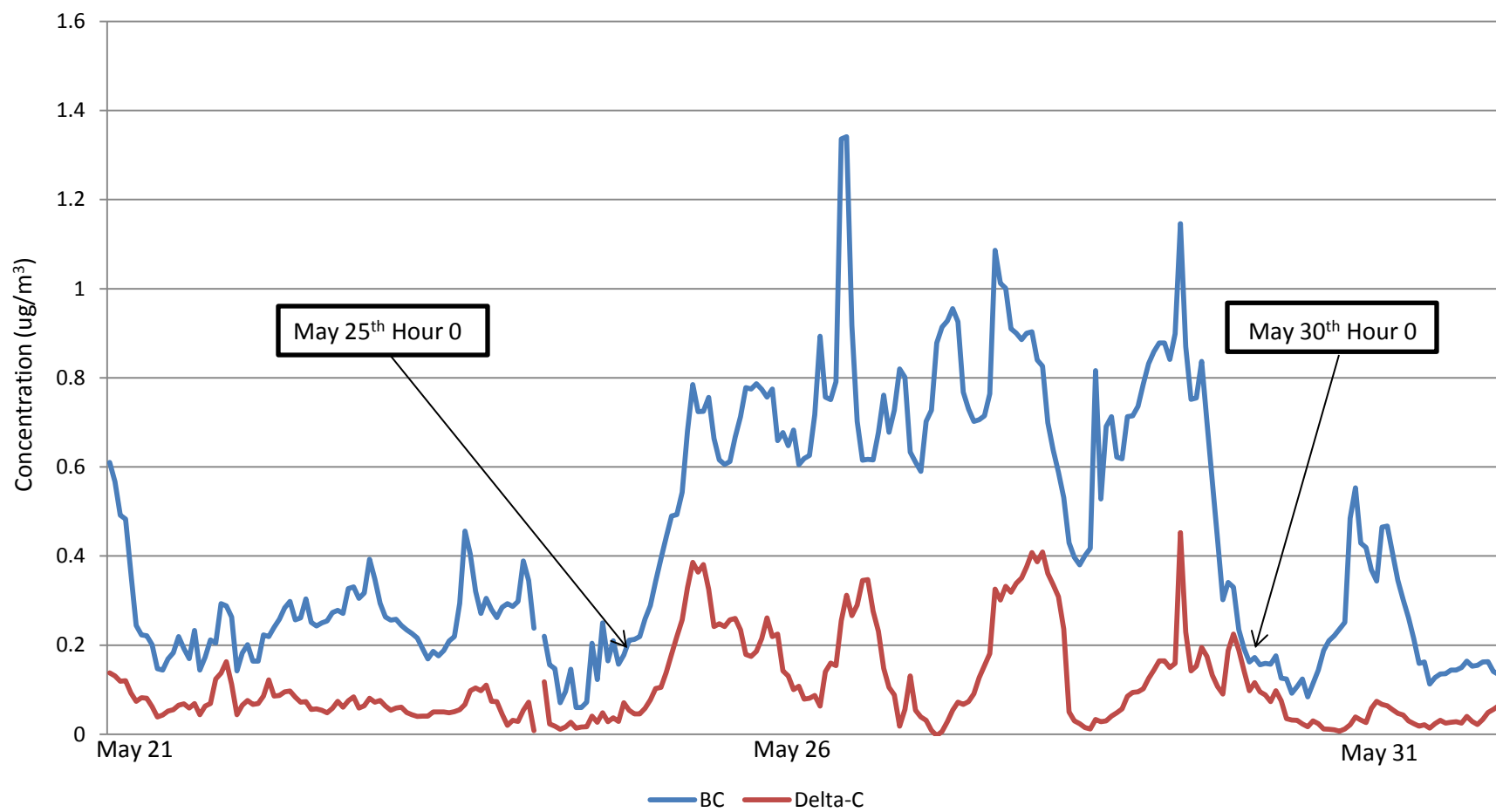
Comparison Trends of CO and Ozone as Recorded at Chicopee Falls, MA May-June 2016



Comparison Trends of Greenfield, MA Black Carbon and Ware, MA Ozone May-June 2016



Mohawk Mountain Cornwall, CT (Elev. 1683 feet) Hourly Black Carbon and 'Delta-C' May 21-31, 2016



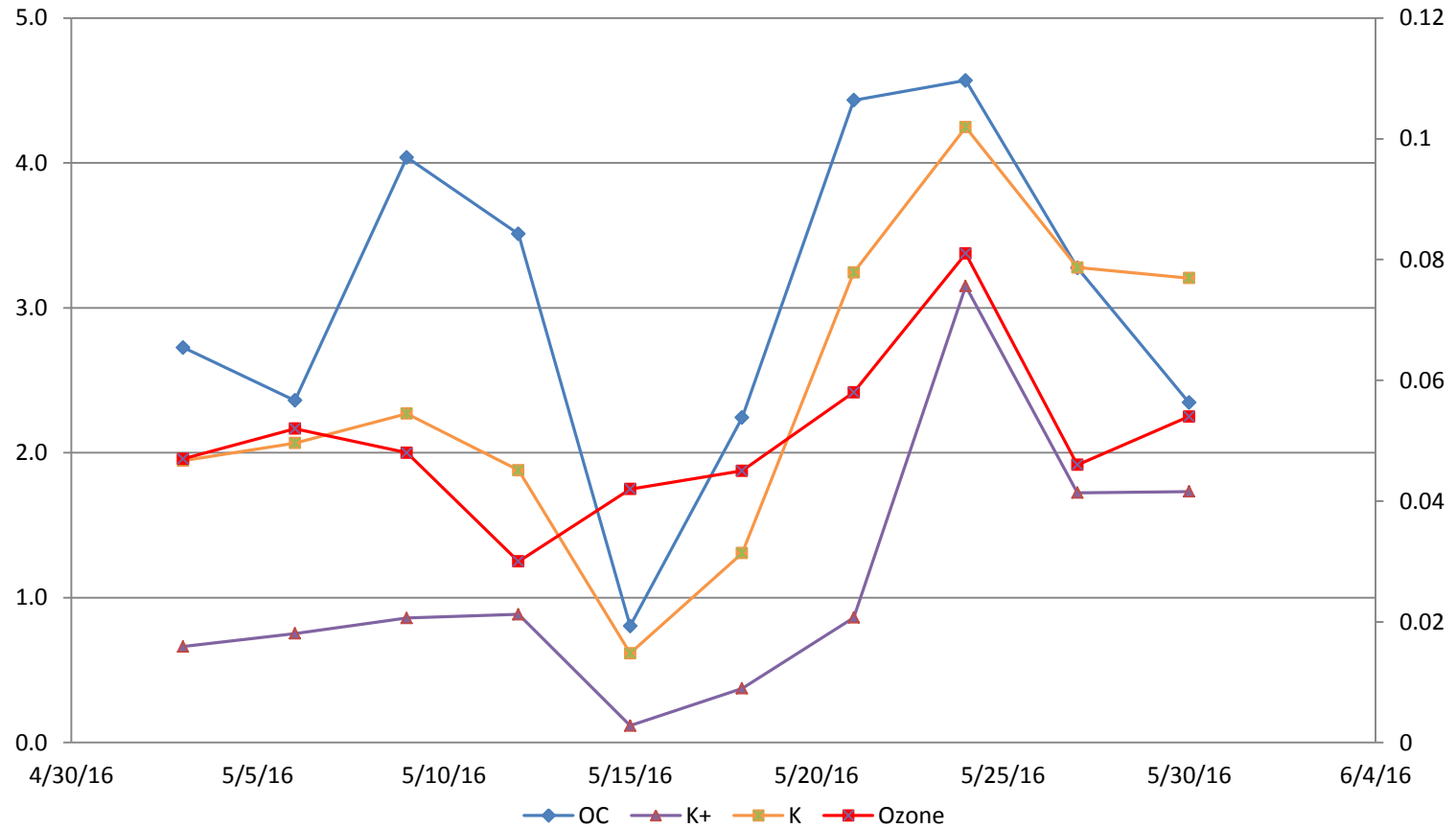
Chemical Speciation Network (CSN) Site Locations Analyzed for Organic Carbon (OC), Potassium (K/K+), and Ozone Data



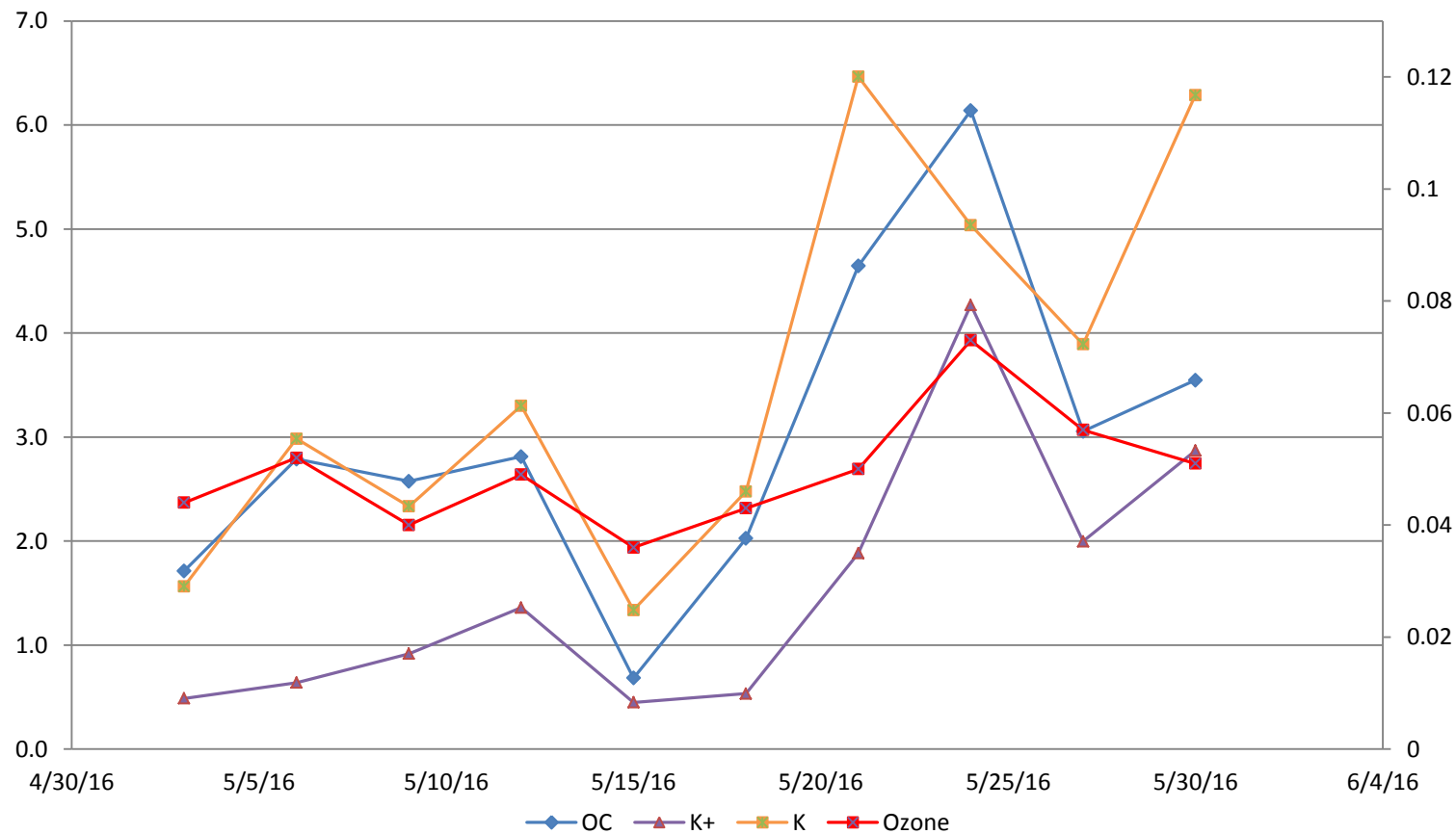
Grand Rapids, Michigan

Daily Organic Carbon (OC), Potassium (K/K+), and Max 8-hour Ozone

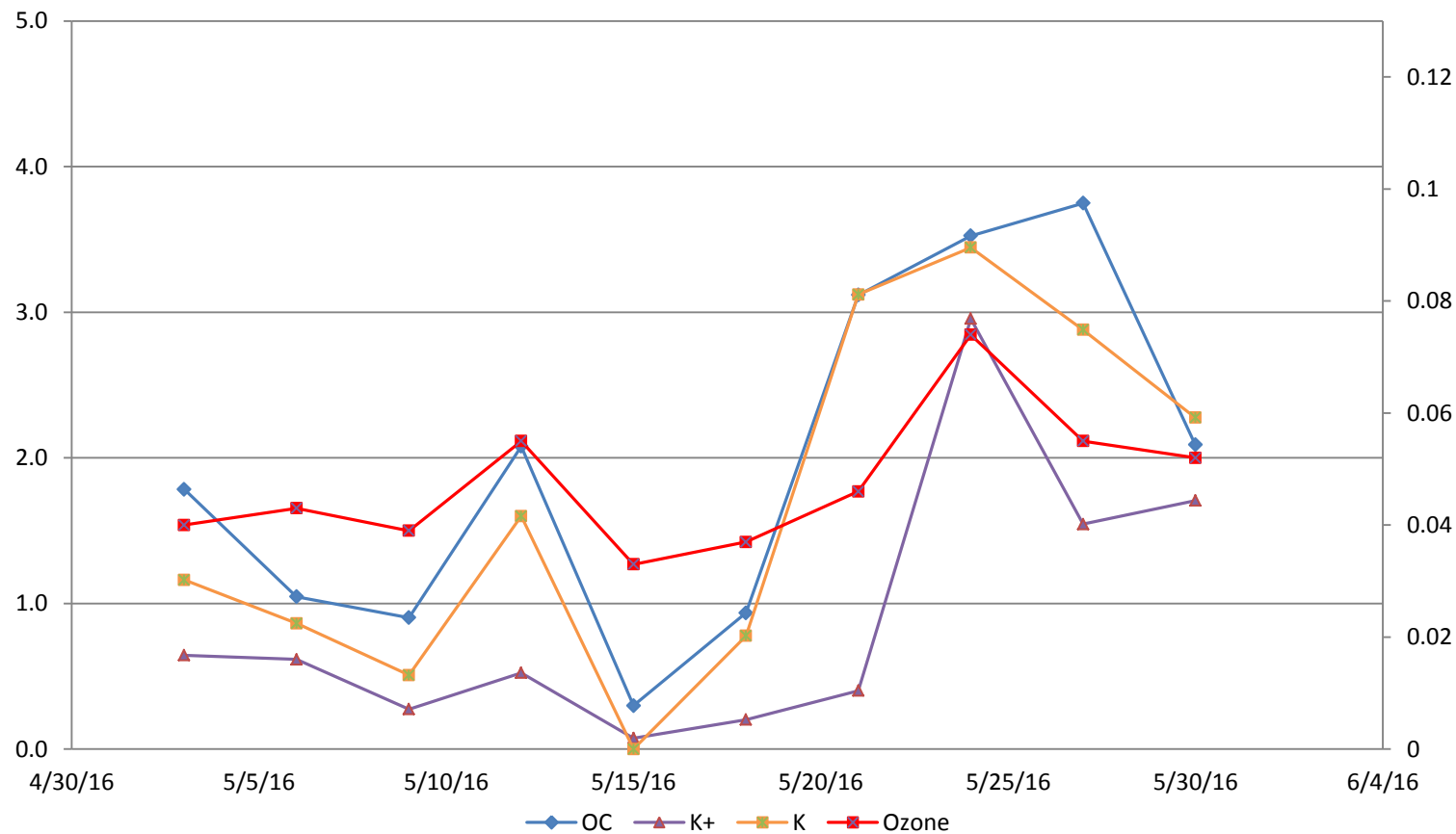
May 2016



Allen Park, Michigan
Daily Organic Carbon (OC), Potassium (K/K+), and Max 8-hour Ozone Data
May 2016

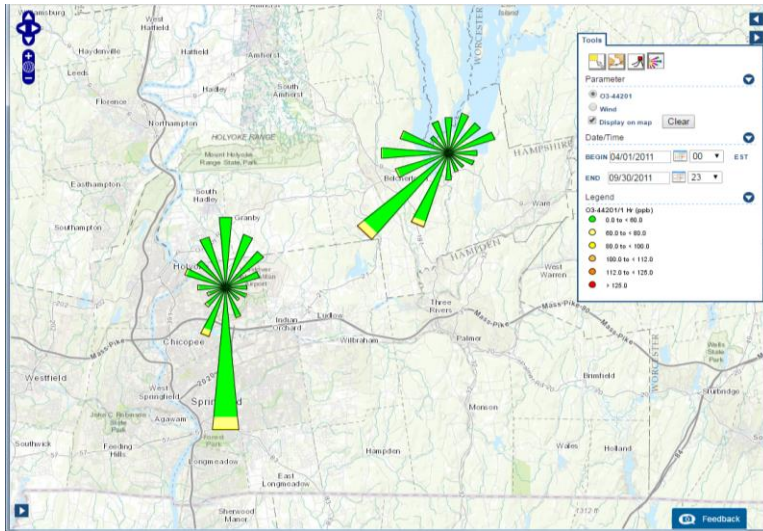


Rochester, NY
Daily Organic Carbon (OC), Potassium (K/K+), and Max 8-hour Ozone Data
May 2016

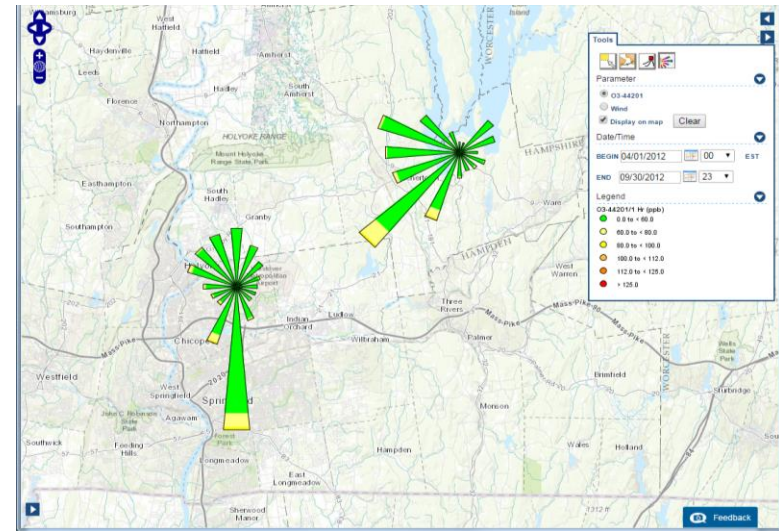


Ozone Concentration Wind Roses for Chicopee Falls, MA and Ware, MA Monitoring Locations

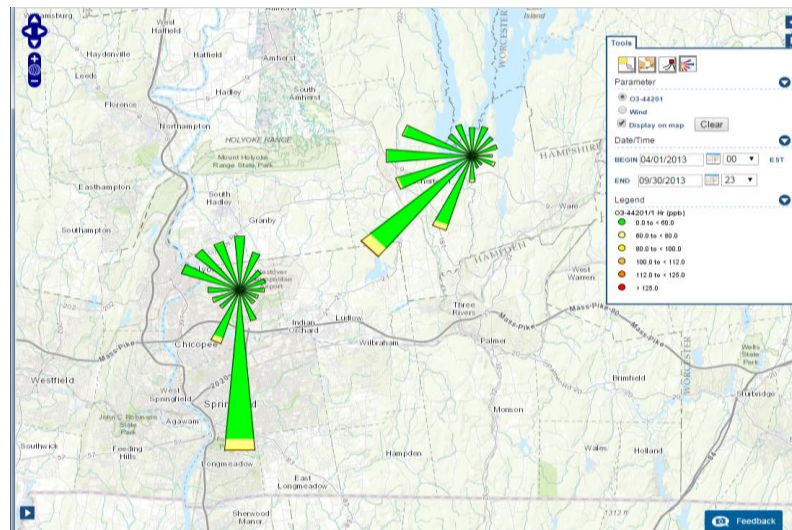
2011



2012

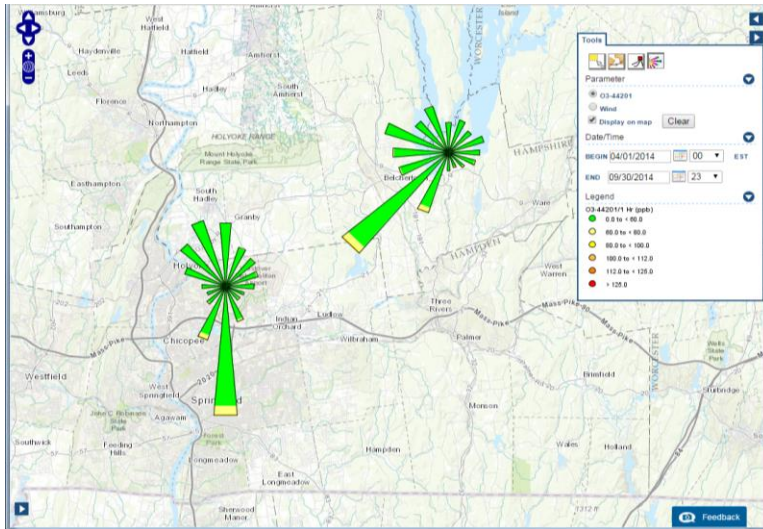


2013

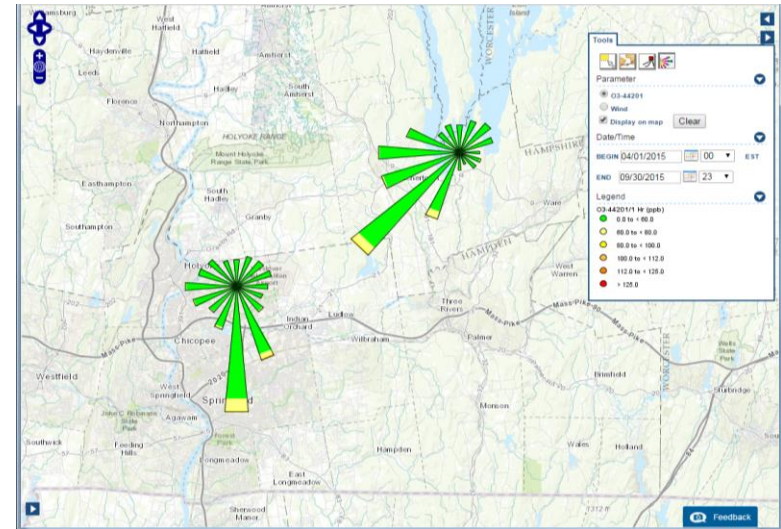


Ozone Concentration Wind Roses for Chicopee Falls, MA and Ware, MA Monitoring Locations

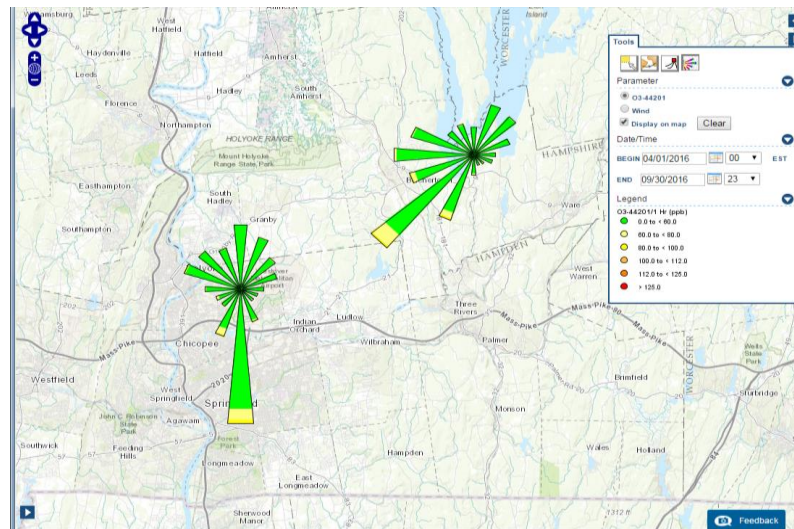
2014



2015

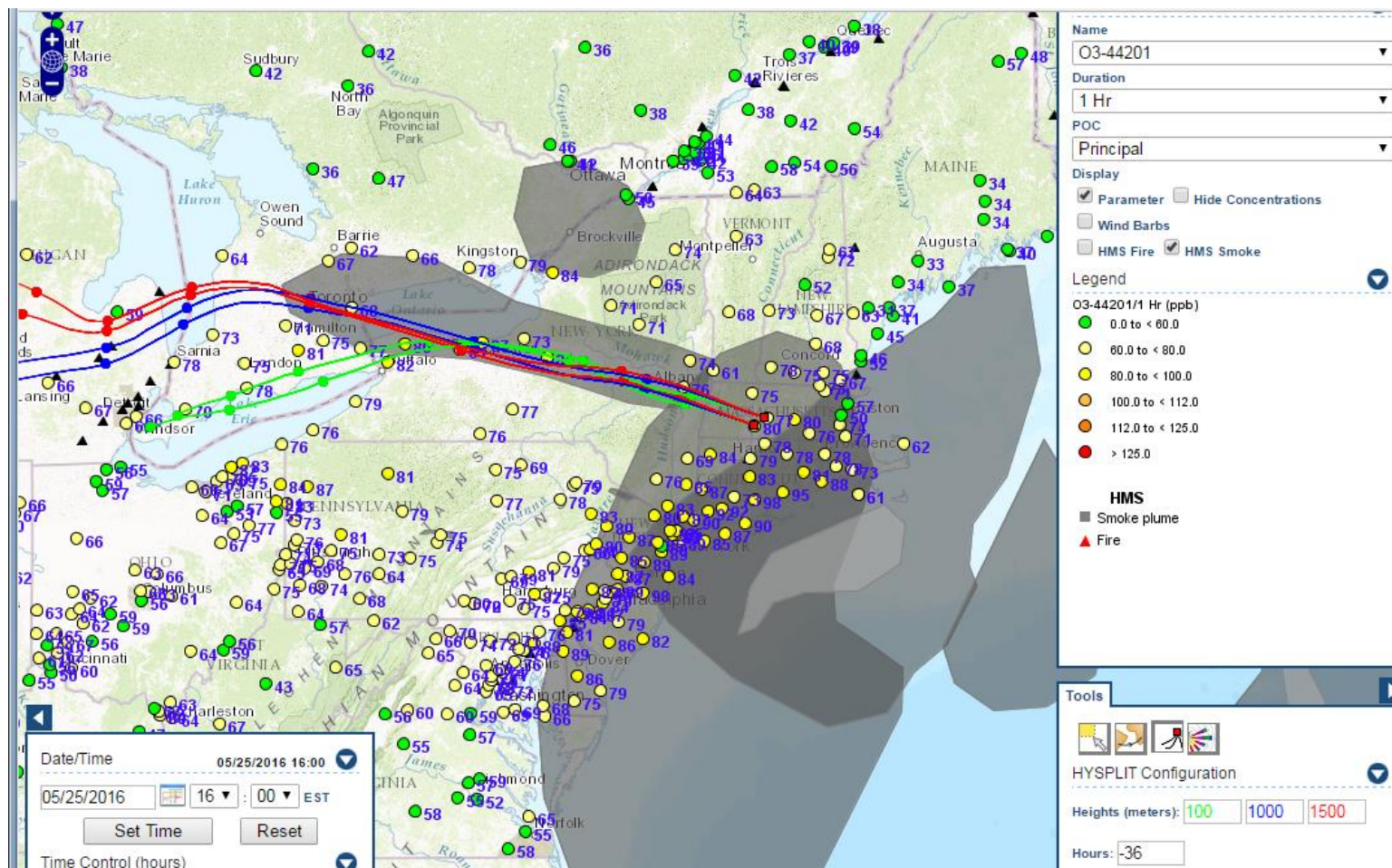


2016



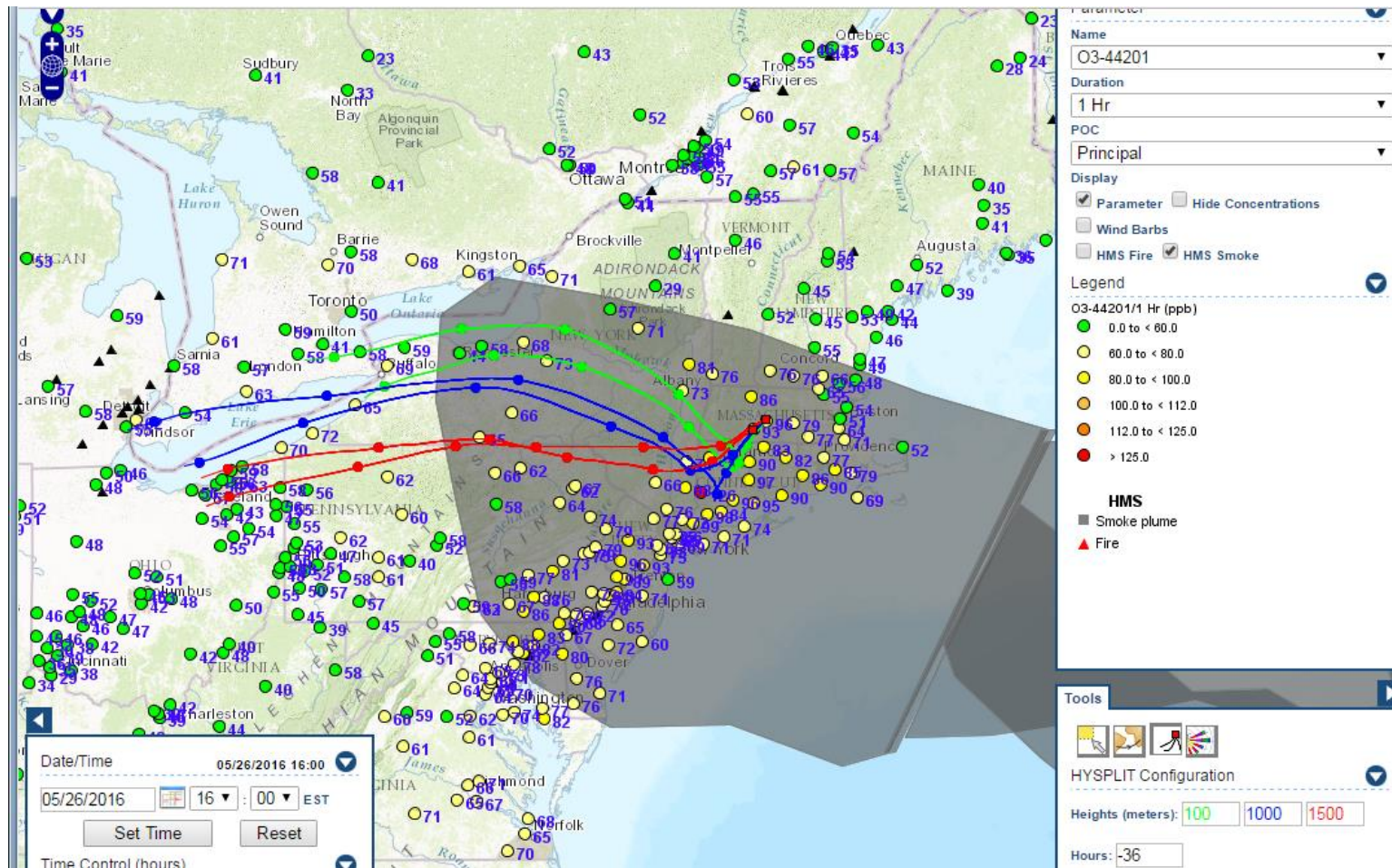
HYSPLIT 36-hour Back Trajectories for Chicopee Falls, MA and Ware, MA Monitoring Locations

May 25, 2016

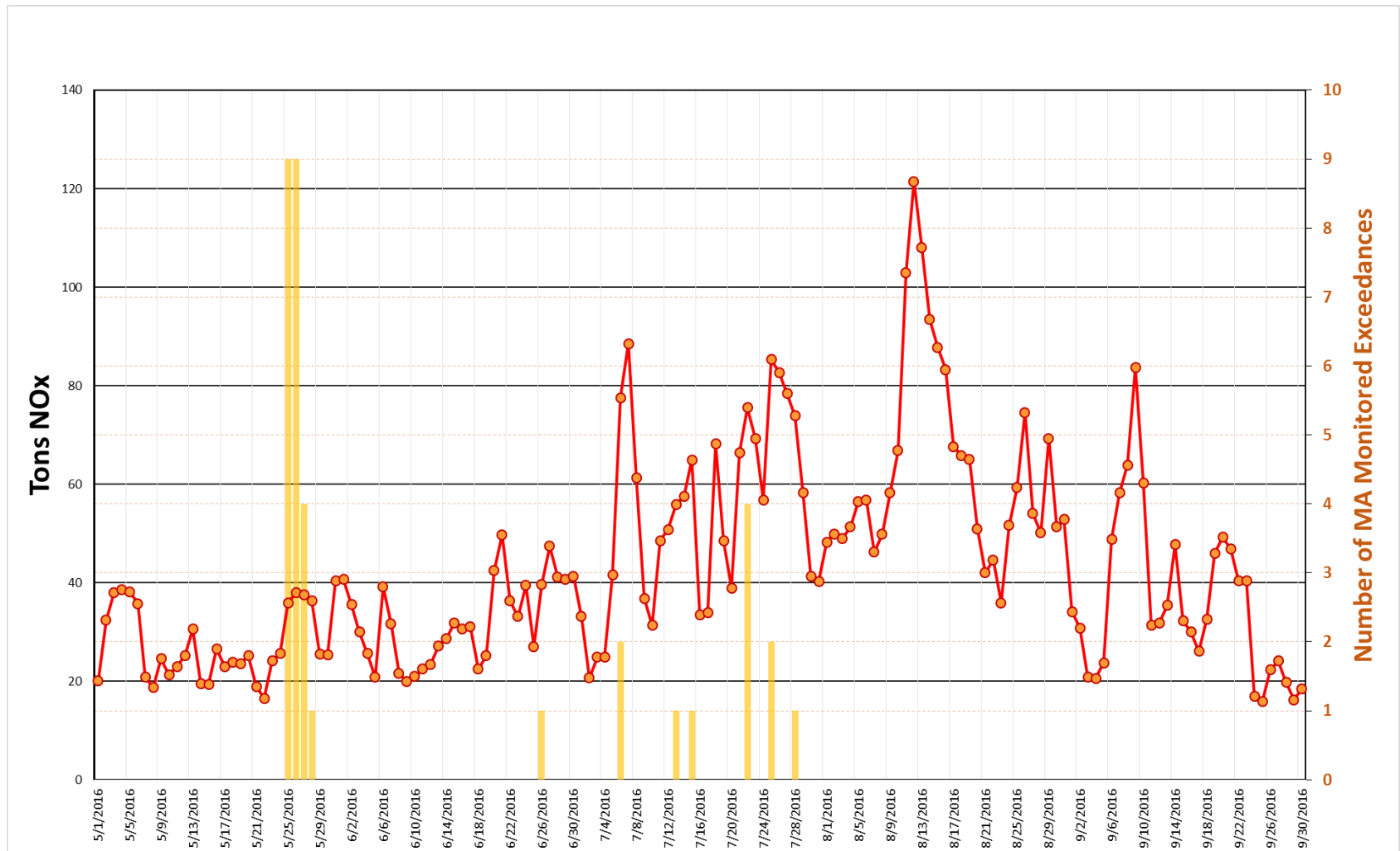


HYSPLIT 36-Hr Back Trajectories for Chicopee Falls, MA and Ware, MA Monitoring Locations

May 26, 2016



New York CSAPR Source Daily NOx Mass Tons and
Coinciding Number of Massachusetts Monitored Exceedances
May-September, 2016



Top 10 Highest Temperature with Mostly Sunny Conditions at Chicopee Falls - 2016

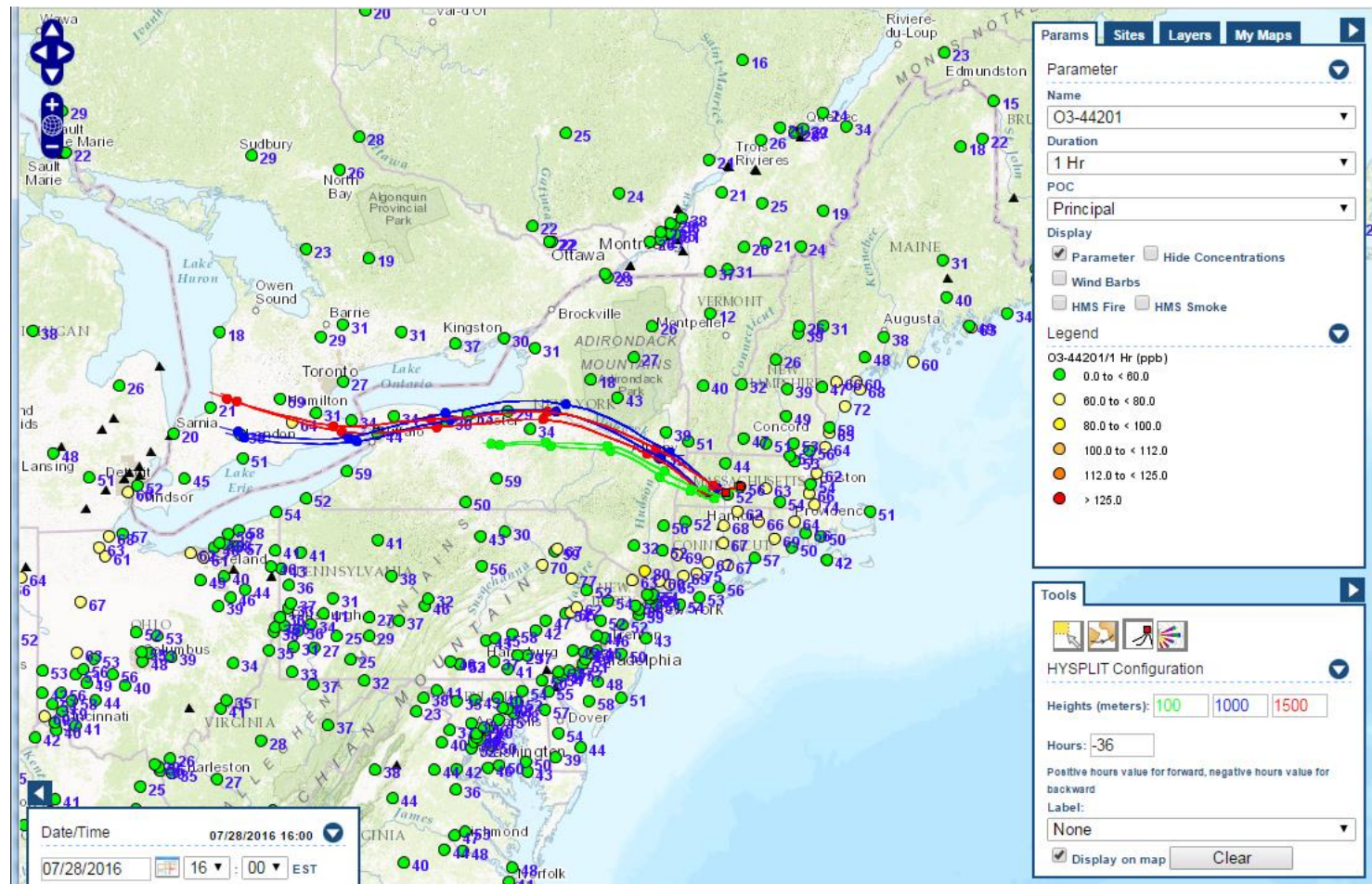
HYSPLIT 36-hour Back Trajectories

July 28, 2016

High Temp = 93F

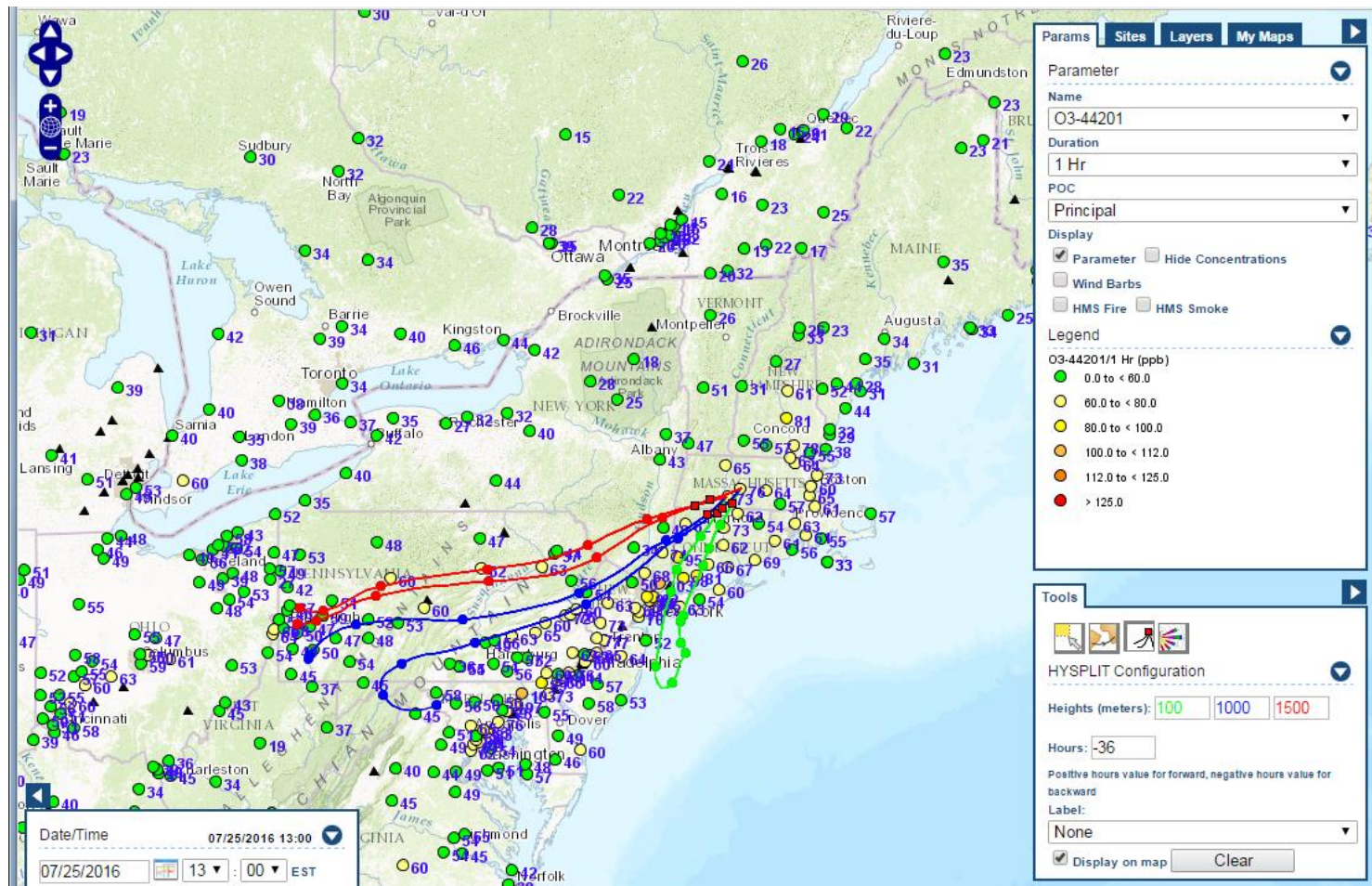
CEF max 8-hr O3 conc = 57ppb

Ware max 8-hr O3 conc = 61ppb



Relative to May 25-28 Event, Next Highest Max 8-Hour Ozone in 2016 at
Chicopee Falls and Ware, MA
with HYSPLIT 36-hour Back Trajectories
July 25, 2016

CEF max 8-hr O3 conc = 72ppb
Ware max 8-hr O3 conc = 72ppb



Next Steps

- 30-Day Public Comment Period ended on April 19

No Comments Received

- Demonstration to EPA by May 31
- Other States Submitting Demonstrations Include RI, CT, NJ, MD, and PA