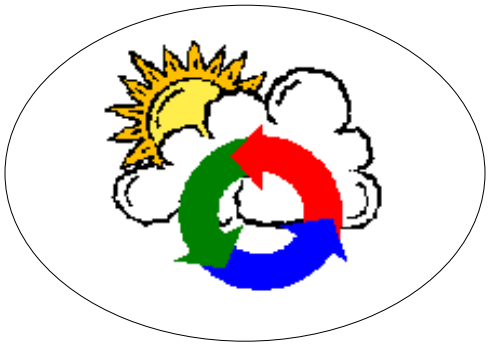
Atmospheric Composition Weather Brief

Linking Effect to Sources

Sources → Air Pollution → Mechanism → Effects

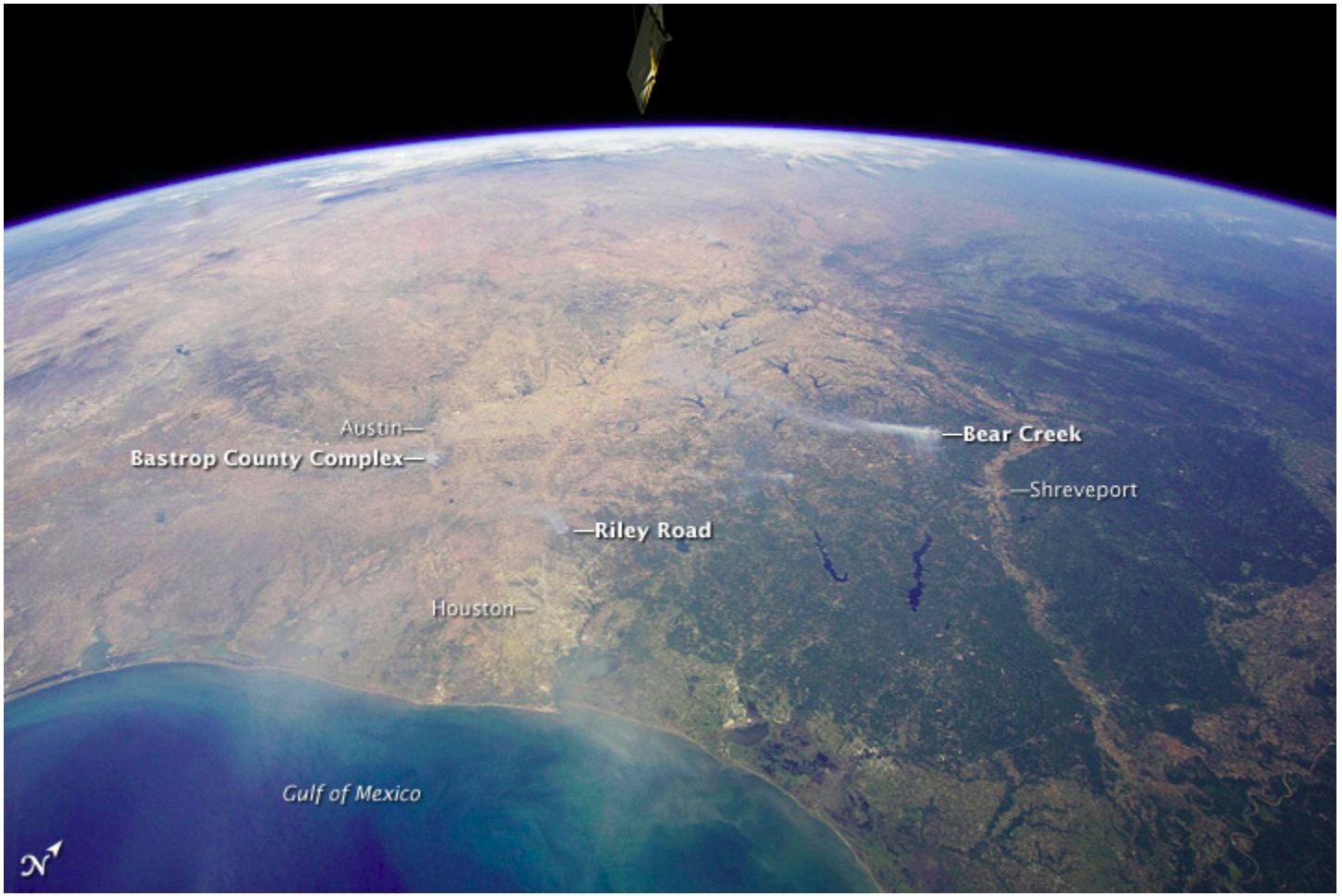


Focus

By David Delene

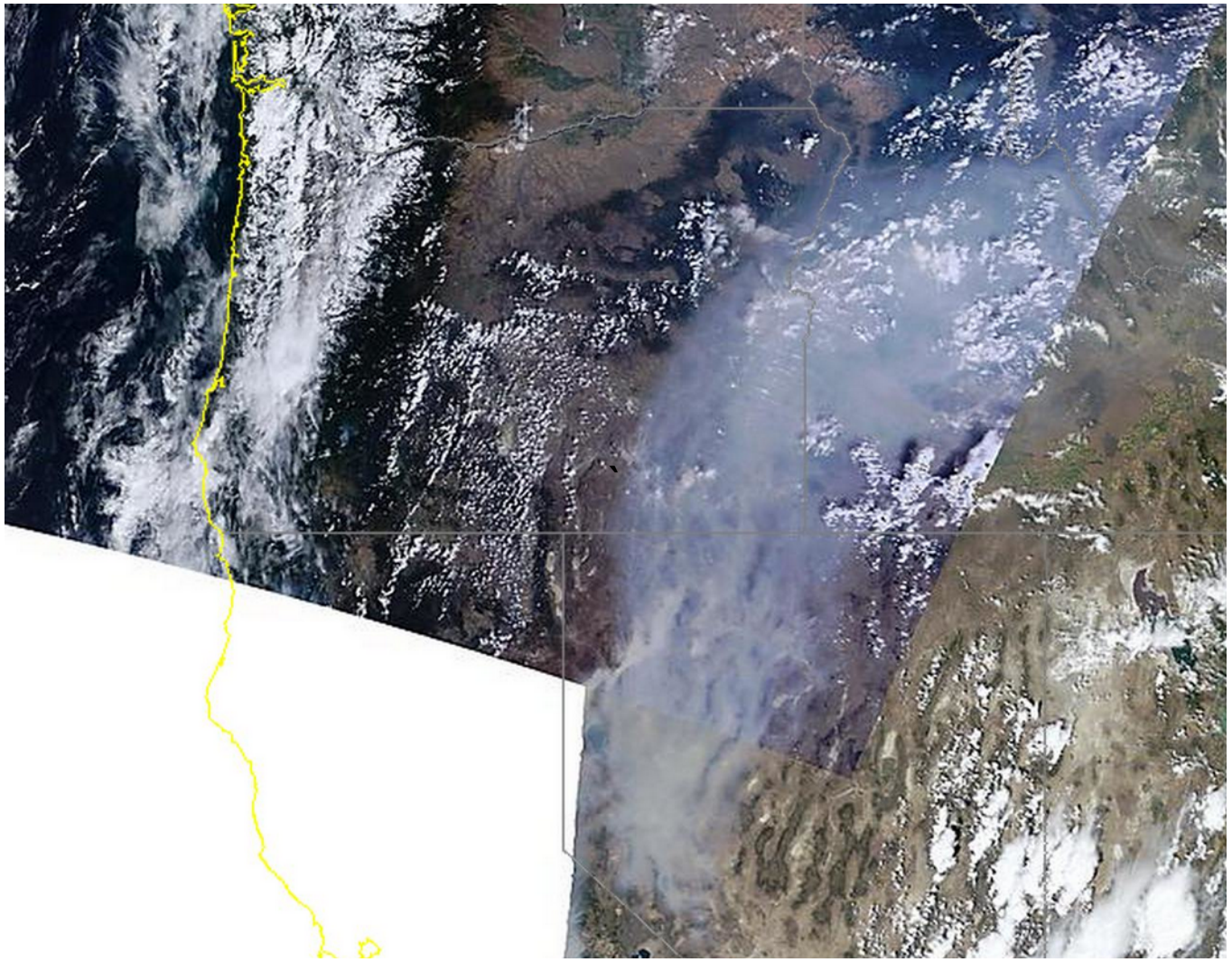
University of North Dakota

Smoke Plumes from Wildfires



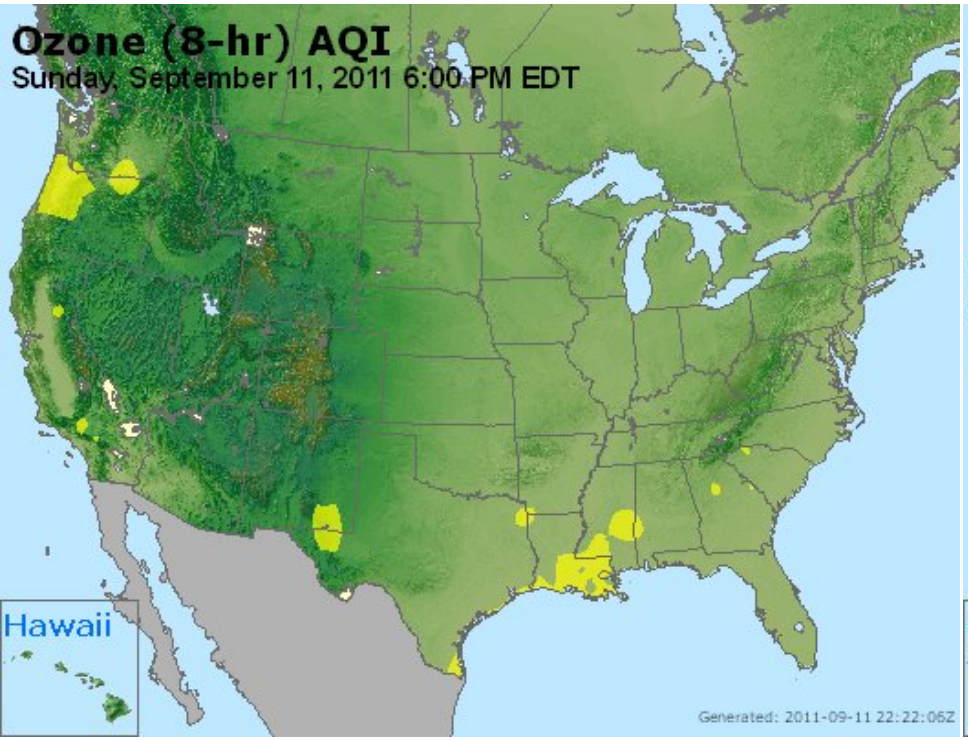
Panoramic view of east-central Texas on September 6, 2011, highlights numerous smoke plumes caused by wildfires burning across the state (bottom). The image was taken by astronauts aboard the International Space Station (ISS), who used a short focal-length lens (12 mm) to capture a wide field of view. Smoke plumes are clearly visible to the east of Austin; to the north of Houston.

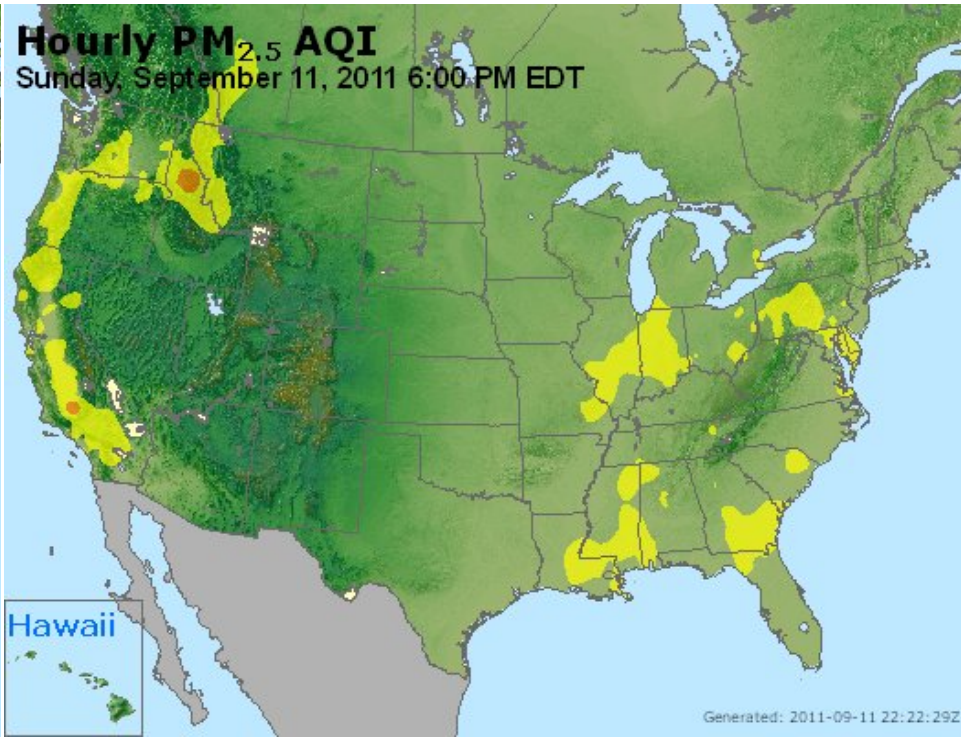
Smoke Plumes from Wildfires



August 24, 2013 MODIS Terra image showing an impressive thickness of the smoke from the Rim Fire in California but solar viewing angle and the smoke being on the eastern half of the swath may have exaggerated the optical thickness.

Air Now



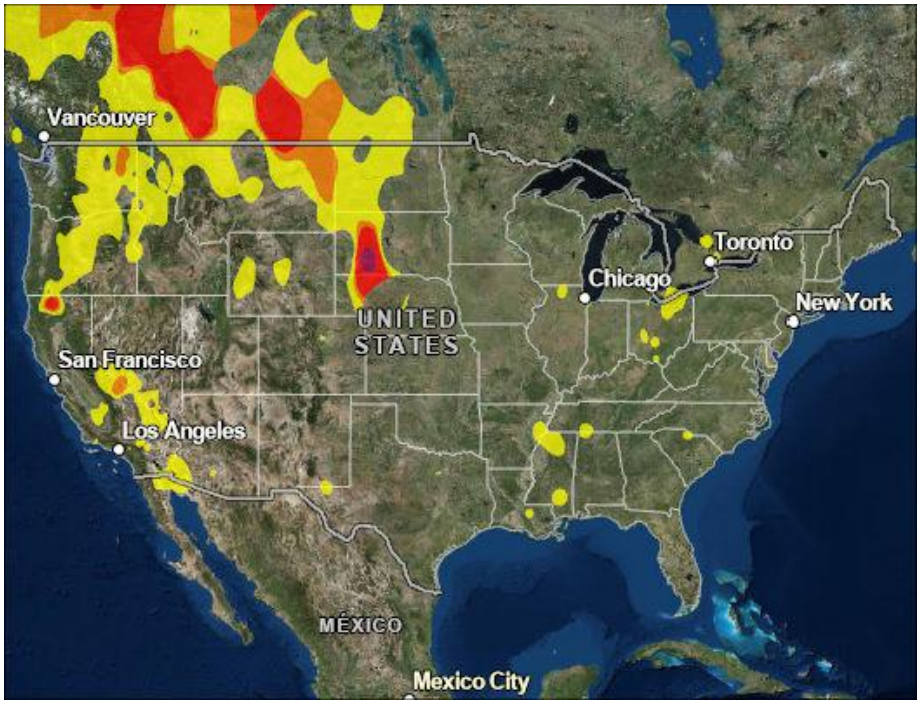


To estimate the 8-hr average based on the current 1-hr concentration, linear regression was performed on historical data to develop an equation for the relationship between the 1-hr and 8-hour concentrations. More information on EPA Web site.

A surrogate or estimation method was developed which uses a combination of hourly particle concentrations from previous hours to estimate the Mid-24 average. This surrogate method combines both the 4-hour average and the 12-hour average. More information is on the Web.

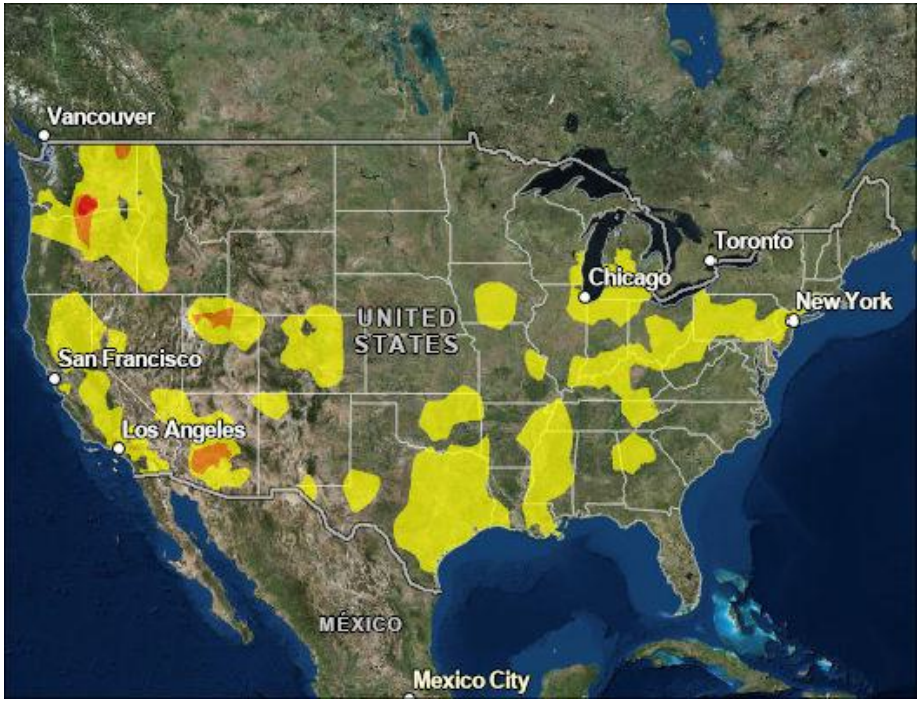
Air Now

Current Air Quality



Current Air Quality for the United States on September 02, 2025 at 10:00 AM CDT.

Air Quality Forecast



Air Quality forecase for the United States on September 02, 2025 at 10:00 AM CDT.

AQI Calculator

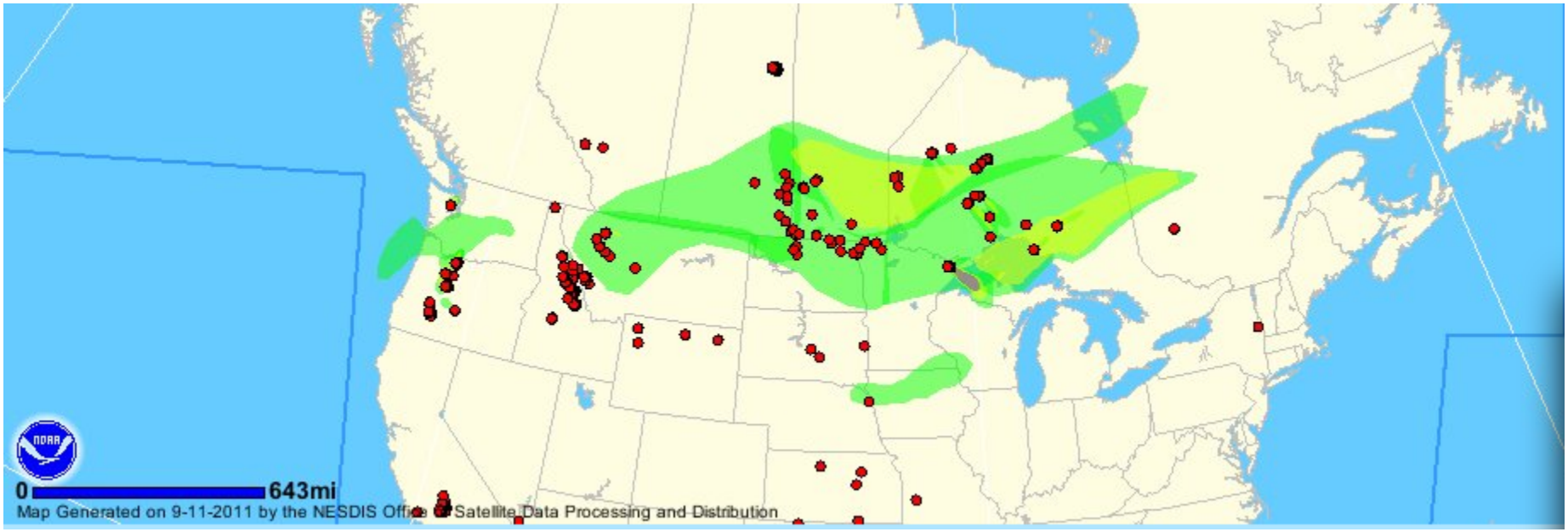
AQI	Concern	PM2.5 (24 hr avg)	PM10 (24 hr avg)	Ozone (8 hr avg)	Ozone (1 hr avg)
50	Good	9.0 µg/m^3	50.0 µg/m^3	54 ppb	Not Calculated
100	Moderate	34.4 µg/m^3	154 µg/m^3	70 ppb	Not Calculated
150	Unhealthy Sensitive	55.4 µg/m^3	254 µg/m^3	85 ppb	164 ppb
200	Unhealthy	125 µg/m^3	354 µg/m^3	105 ppb	204 ppb
300	Very Unhealthy	225 µg/m^3	424 µg/m^3	200 ppb	404 ppb
500	Hazardous	325 µg/m^3	604 µg/m^3	Not Calculated	604 ppb

The U.S. Air Quality Index, or AQI, is EPA's tool for communicating daily air quality. It uses color-coded categories and provides statements for each category that tell you about air quality in your area, which groups of people may be affected, and steps you can take to reduce your exposure to air pollution. It's also used as the basis for air quality forecasts and current air quality reporting.

EPA has issued a national index for air quality since 1976 to provide an easy-to-understand daily report on air quality in a format that's the same from state to state.

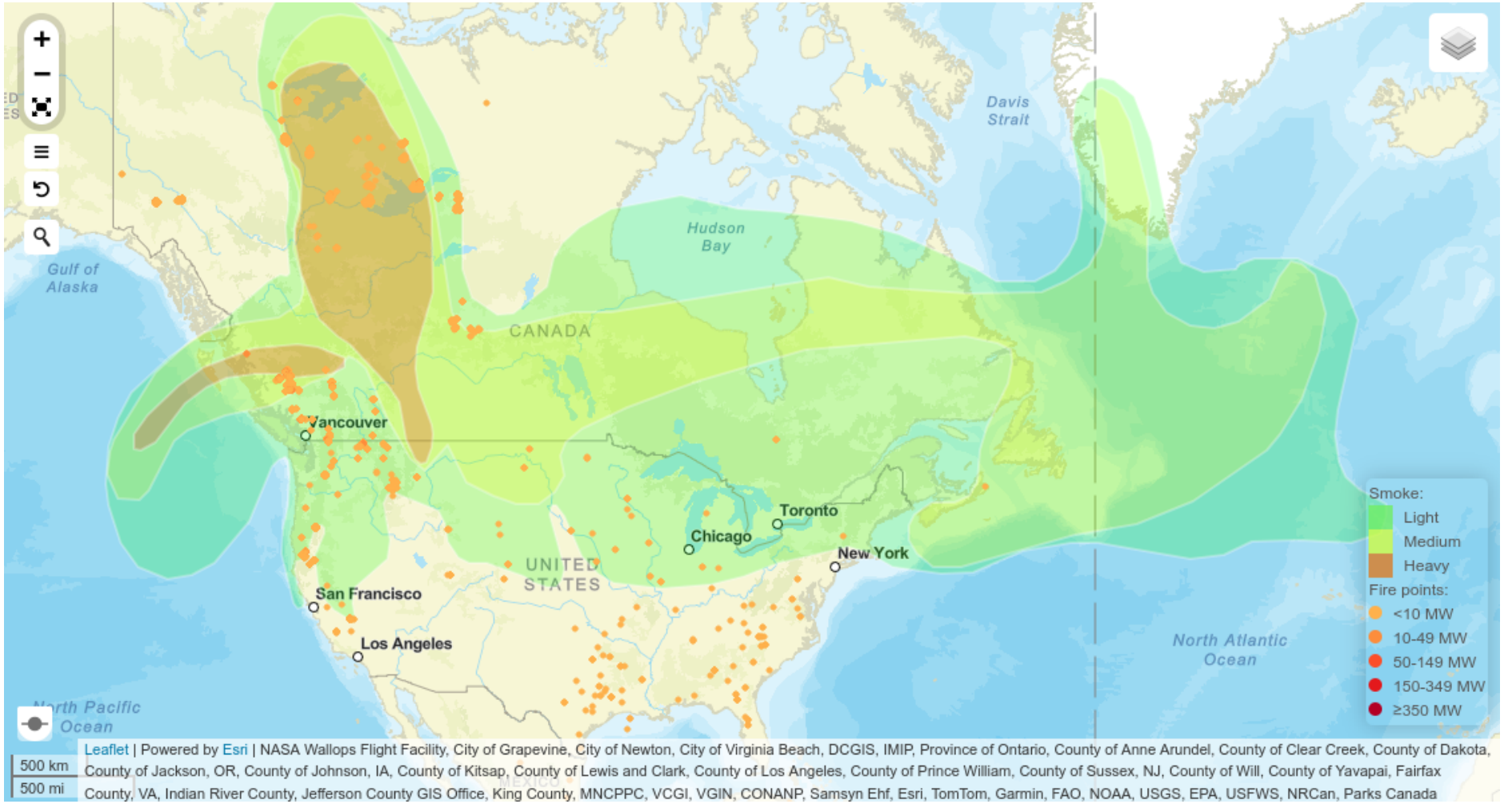
Hazard Mapping System Fire and Smoke Product

Current Analysis for 09/22/2011

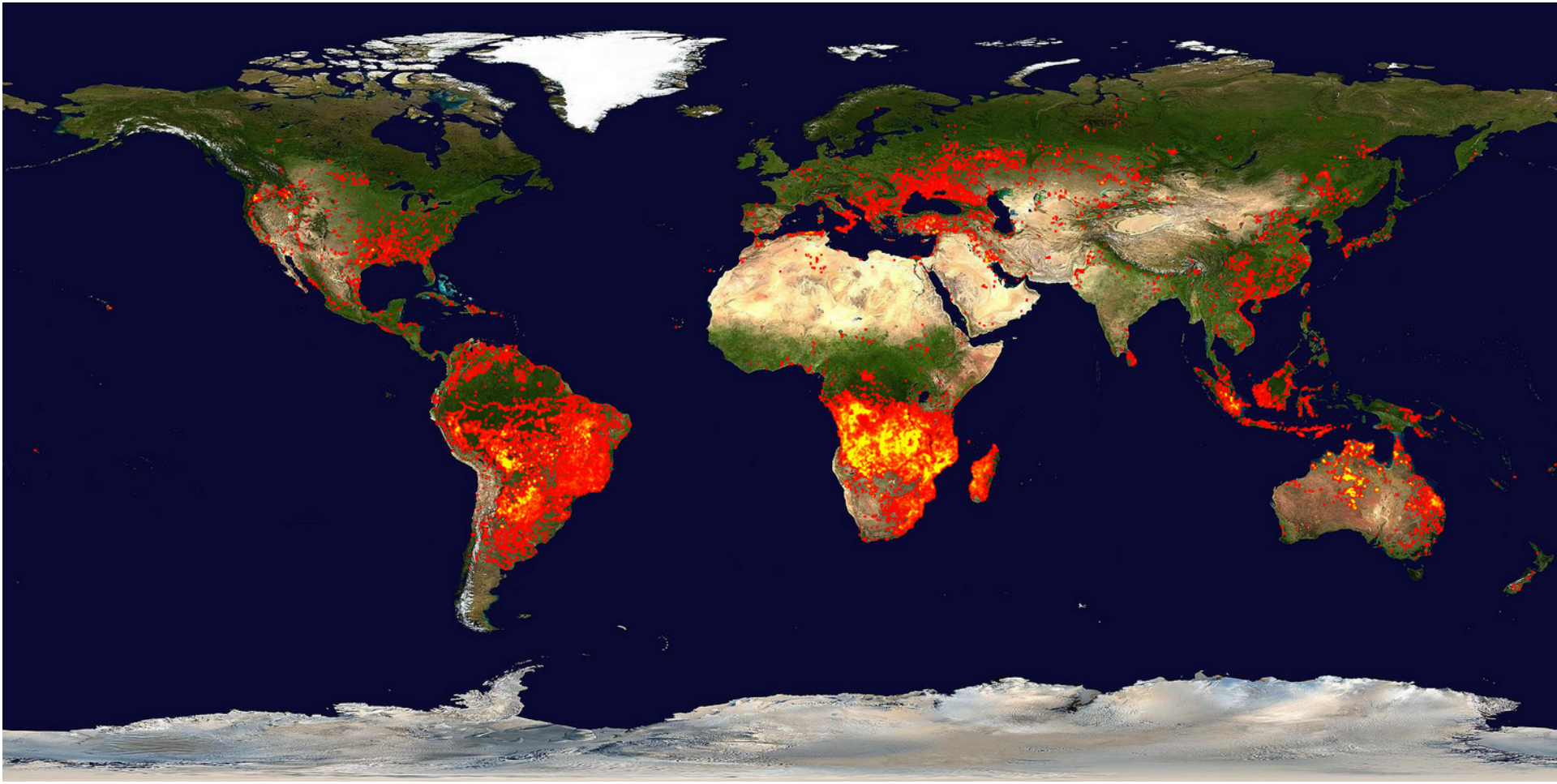


Hazard Mapping System Fire and Smoke Product

Current Analysis for 09/02/2025 Last Updated Sep 2, 2025 16:26:37 GMT

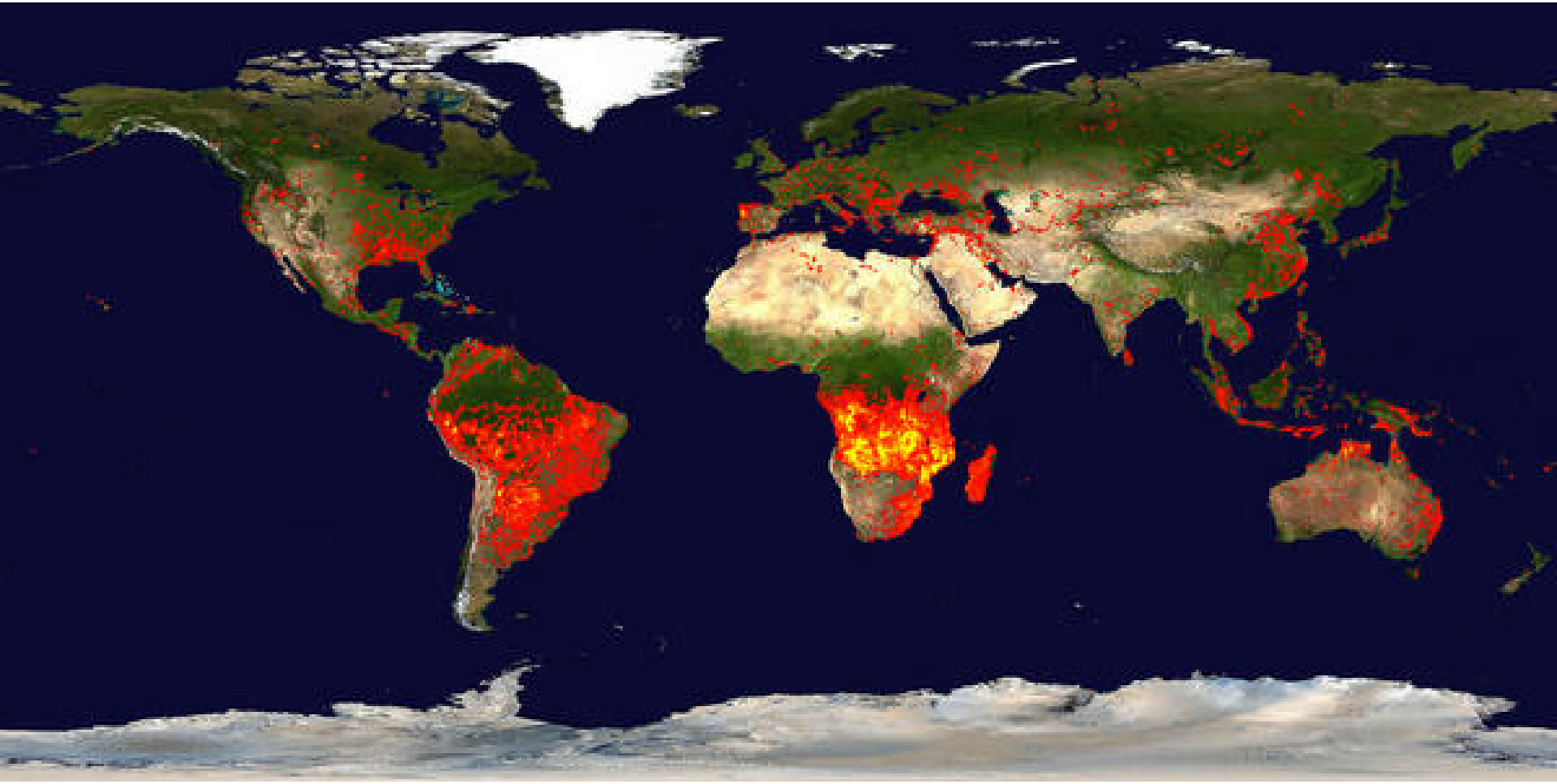


MODIS Fire Detection
September 11, 2011



Fire maps accumulates the locations of the fires detected by MODIS on board the Terra and Aqua satellites over a 10-day period. Each colored dot indicates a location where MODIS detected at least one fire during the compositing period.

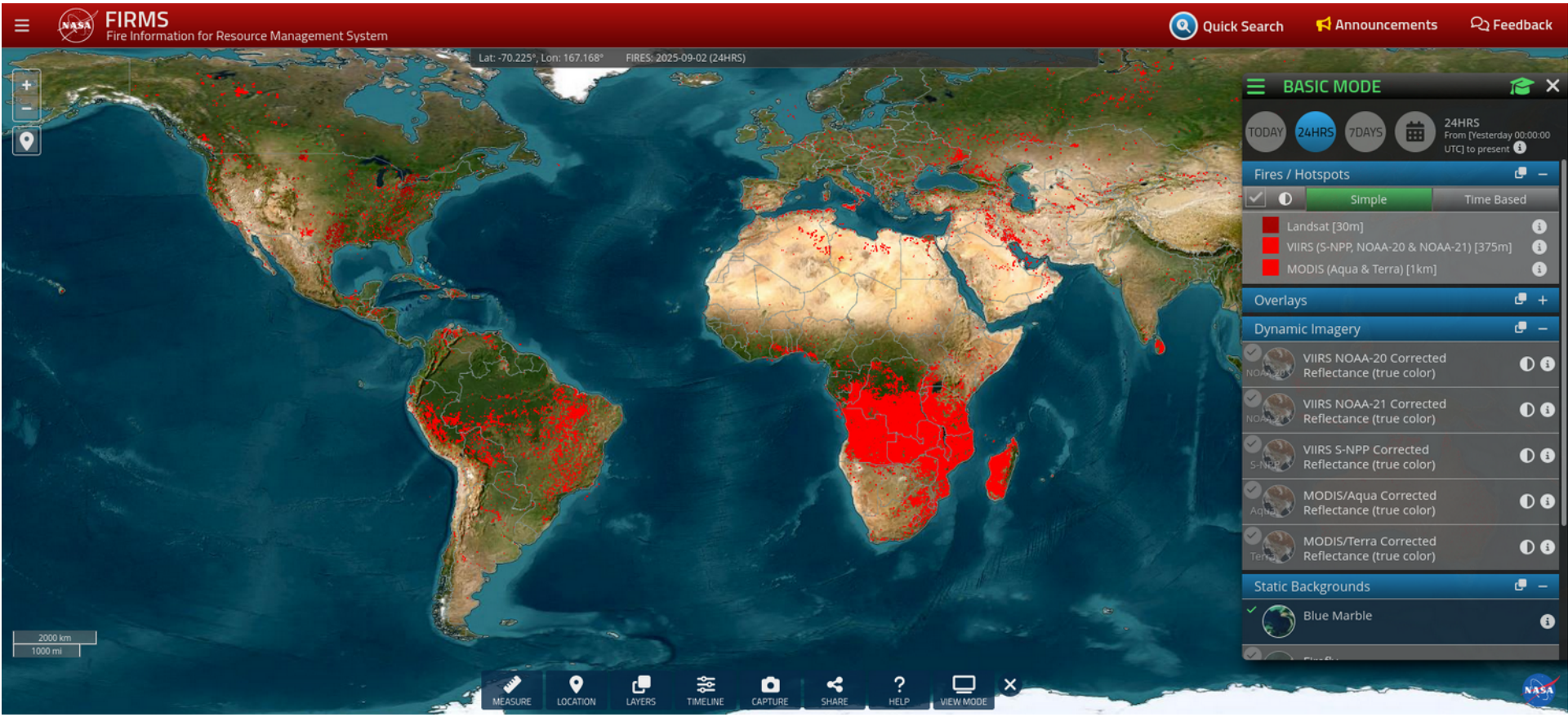
MODIS Fire Detection
08/29/2013 - 09/07/2013



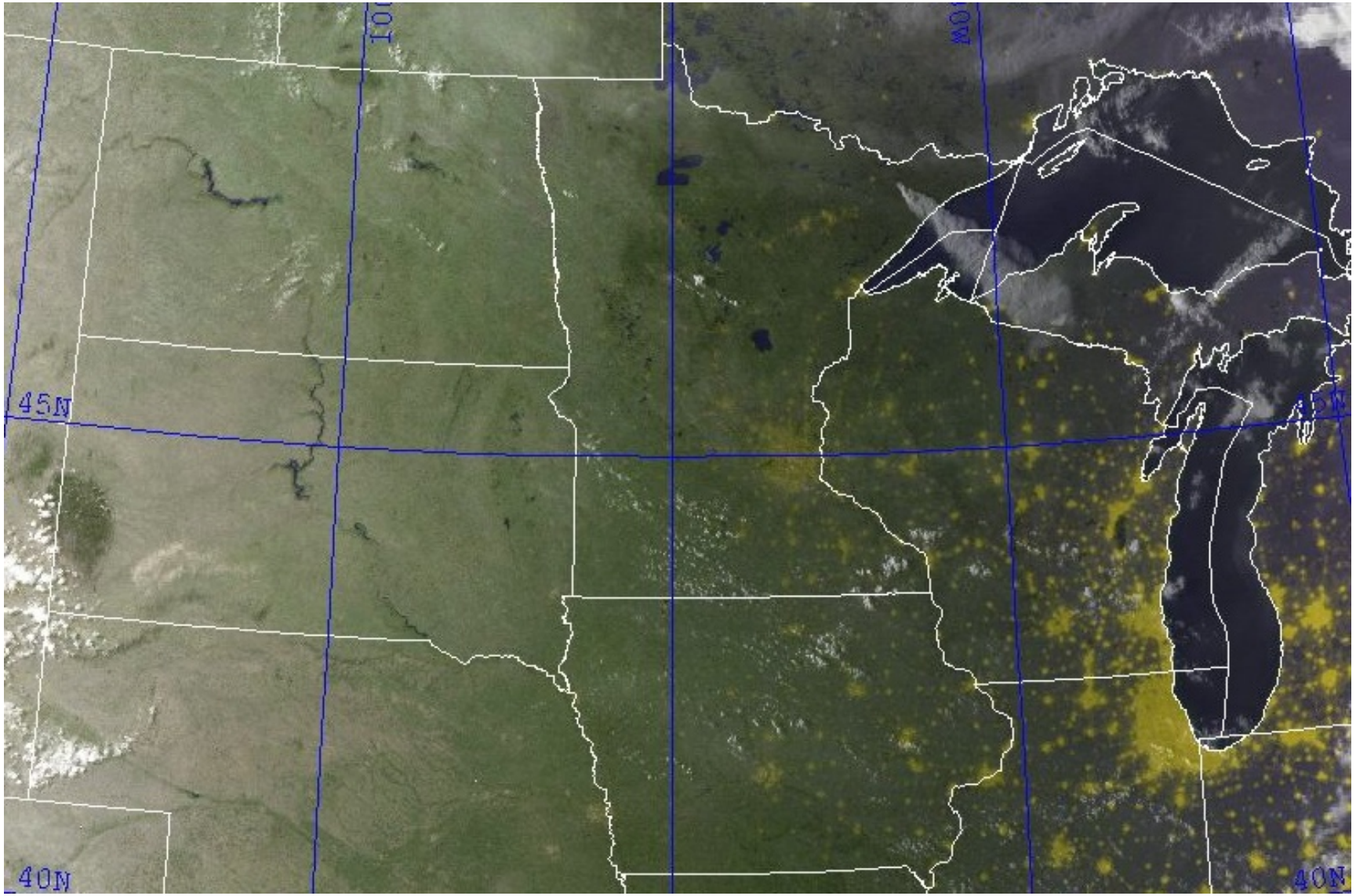
Fire maps accumulates the locations of the fires detected by MODIS on board the Terra and Aqua satellites over a 10-day period. Each colored dot indicates a location where MODIS detected at least one fire during the compositing period.

Fire Information for Resource Management System

2025-09-02 (24 HRS)



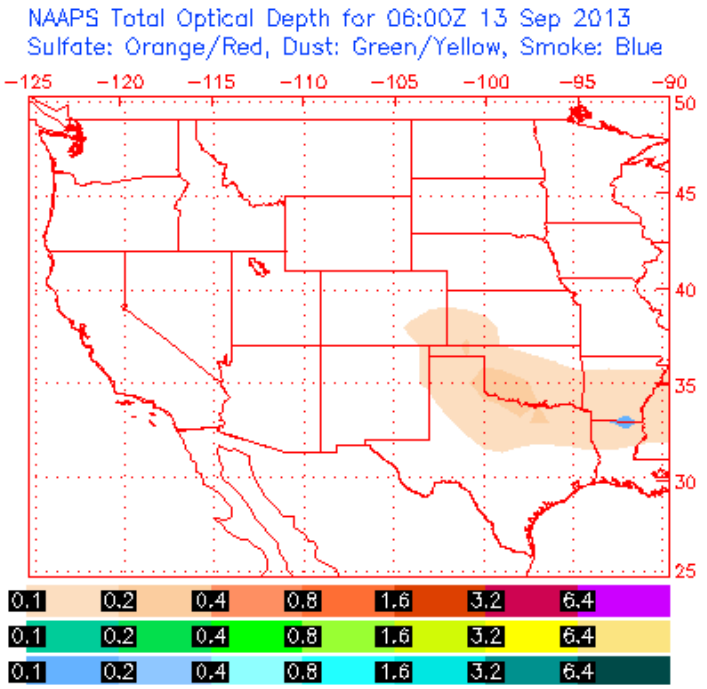
Naval Research Laboratory

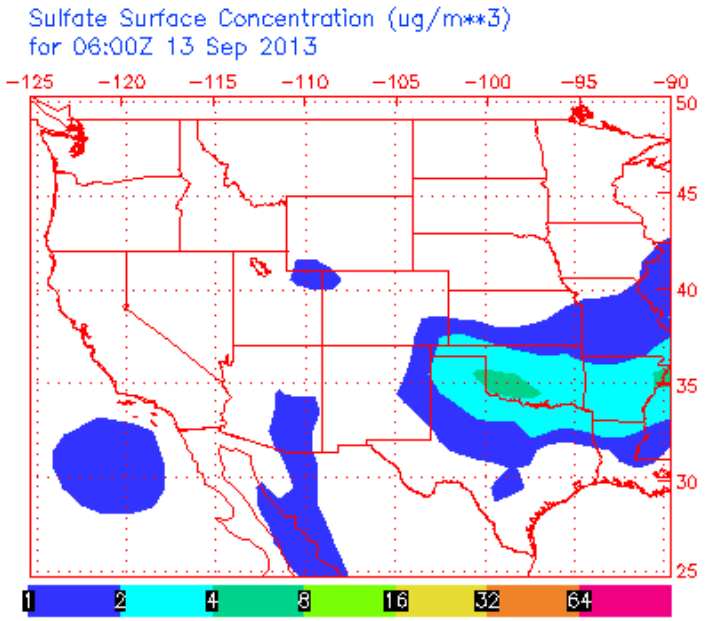


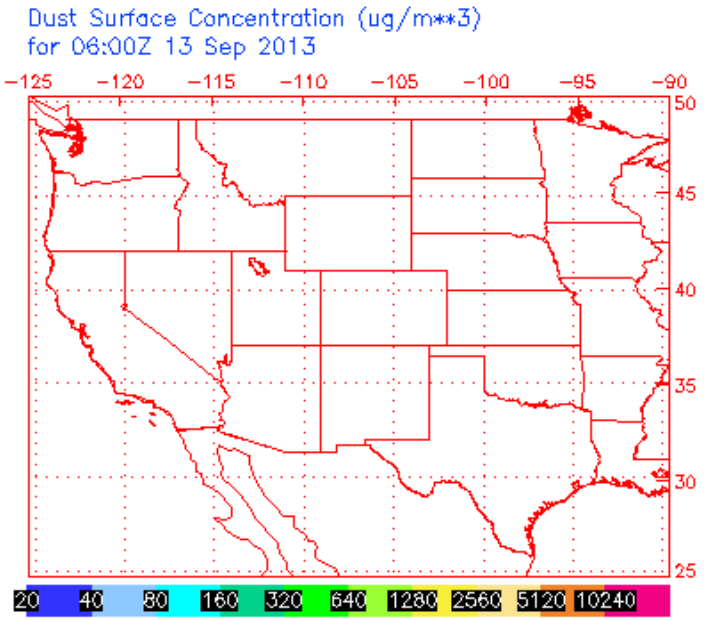
GOES East/West Composite Visible Satellite Image at 2300Z on 09/11/11. Note the smoke in North-East Minnesota that extents over Lake Superior.

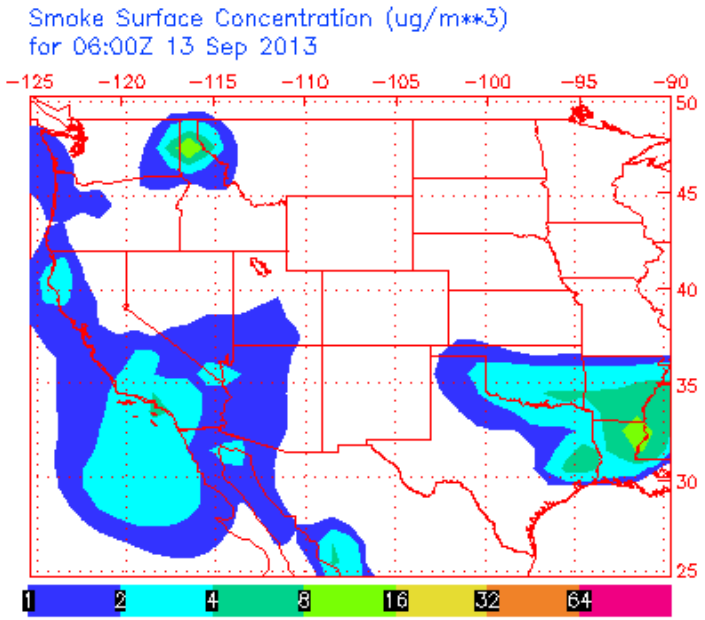
Naval Research Laboratory (NRL)

Navy Aerosol Analysis and Prediction System (NAAPS) Global Aerosol Model is a near-operational system for predicting the distribution of tropospheric aerosols. Forecasts are on a 1 X 1 degree grid, at 6-hour intervals and 24 vertical levels reaching 100 mb.





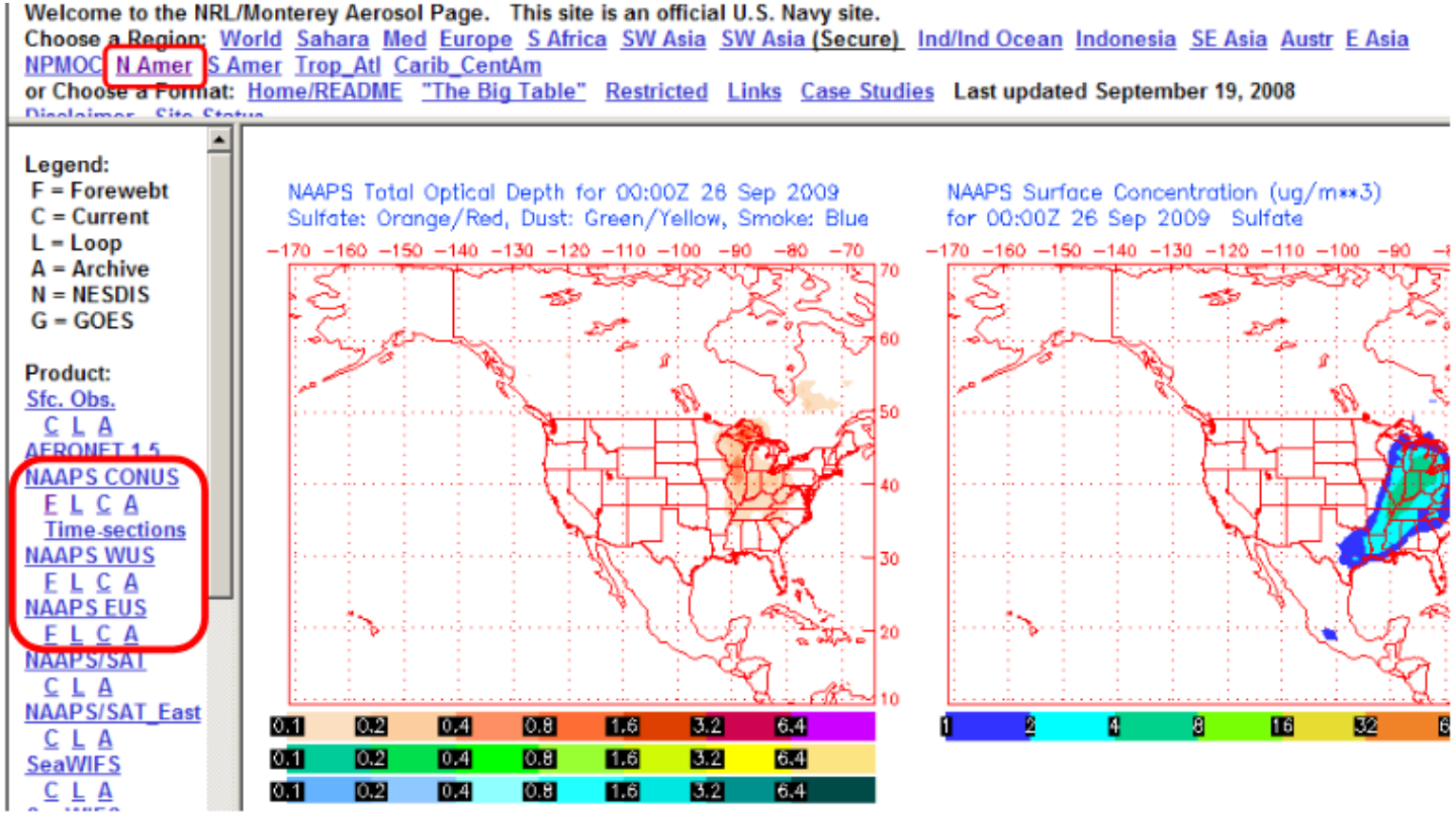




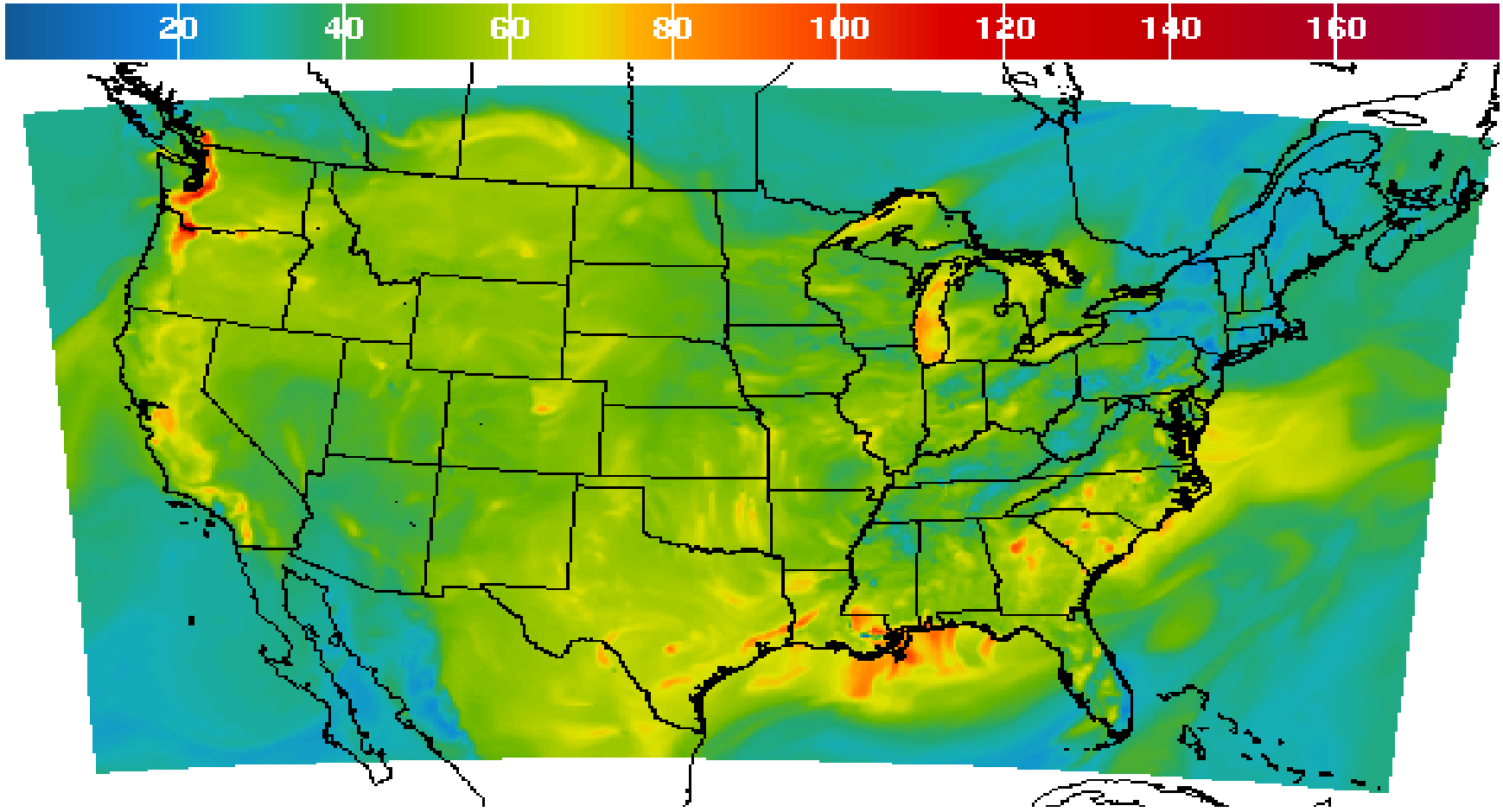
Fri Sep 13 21:06:03 2013 UTC NRL/Monterey Aerosol Modeling

NAAPS Aerosol Forecast Model Fire Information for Resource Management System

2025-09-02 (24 HRS)



National Weather Service
Air Quality Forecast Guidance



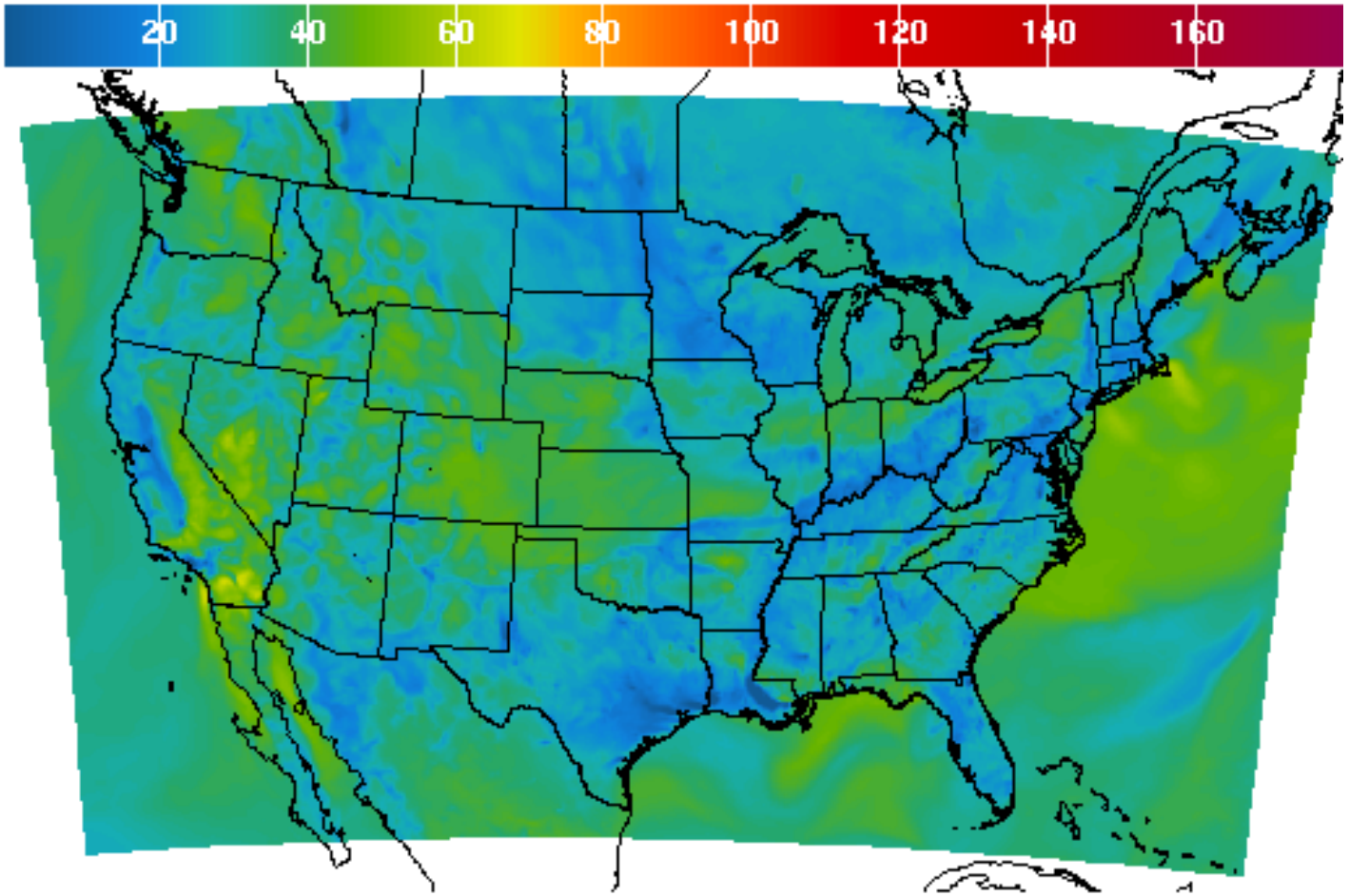
1Hr Avg Ozone Concentration(PPB) Ending Sun Sep 11 2011 7PM EDT

(Sun Sep 11 2011 23Z)

National Digital Guidance Database

12z model run Graphic created-Sep 11 12:20PM EDT

National Weather Service
Air Quality Forecast Guidance



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Air Quality Forecast Guidance