

Smoke Challenges 2011/2012

New Mexico Annual Smoke Meeting

Josh Hall/Claudia Standish

February 15, 2012

Santa Fe, NM

Arizona

New Mexico



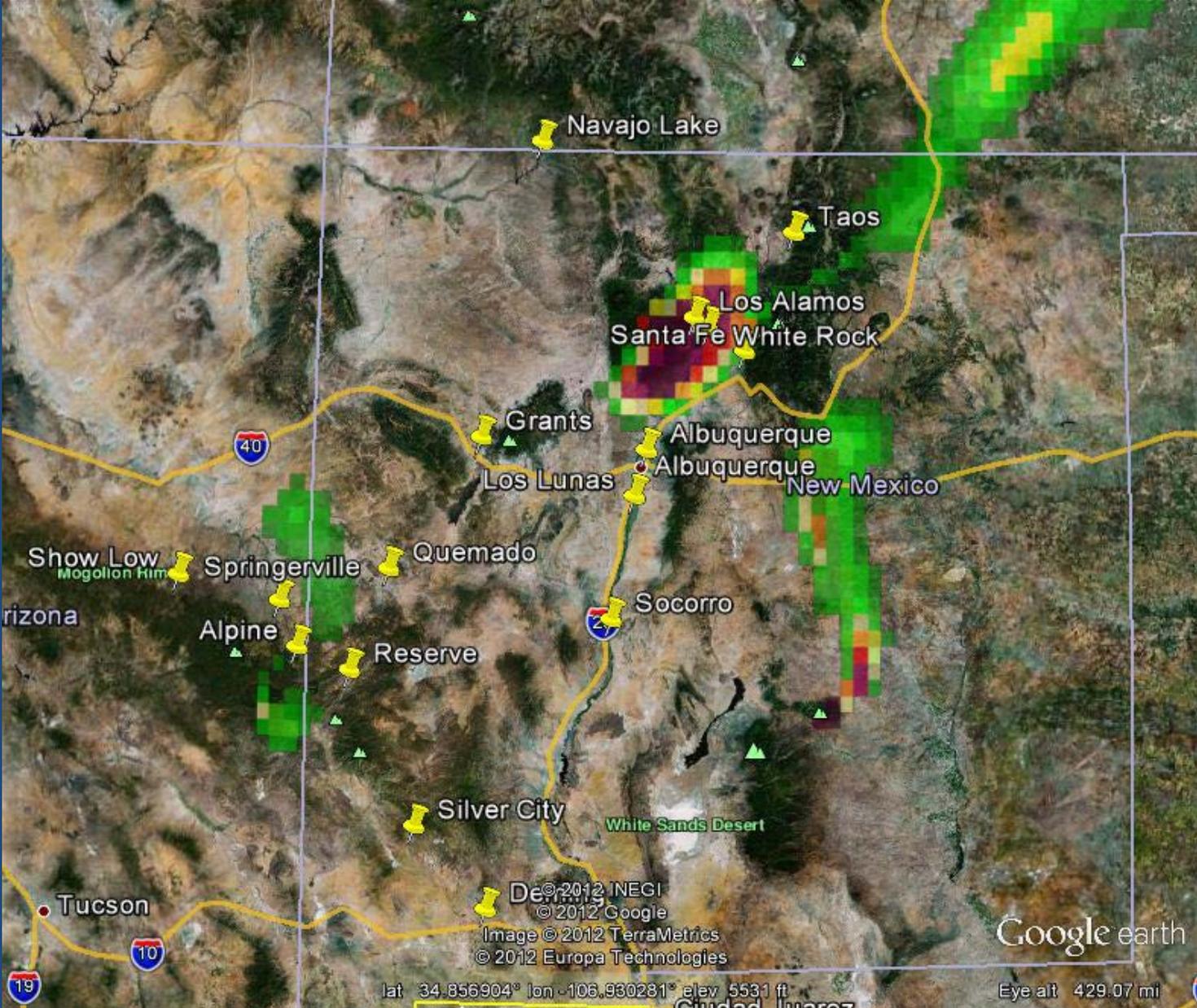
Outline

- I. 2011 Wildfires
 - I. Coordinated Response
 - II. Impacts
- II. New Tools for Planning
 - I. NWS Hysplit Modeling – Spot Weather Forecasts
- III. Discussion of Feedback from the Field

2011 Wildfires- Coordination

- Level of Coordination unprecedented.
 - Past summer had daily calls, with up to 75 individuals (AZ DEQ, CABQ, NMED, NWS, NM DOH, EPA, USFS, BLM, PNW, DHS, WFDSS Support, Predictive Services, etc)
- Key elements
 - Monitoring
 - Modeling
 - Messaging

Monitoring & Modeling



Air Quality Guide for Particle Pollution

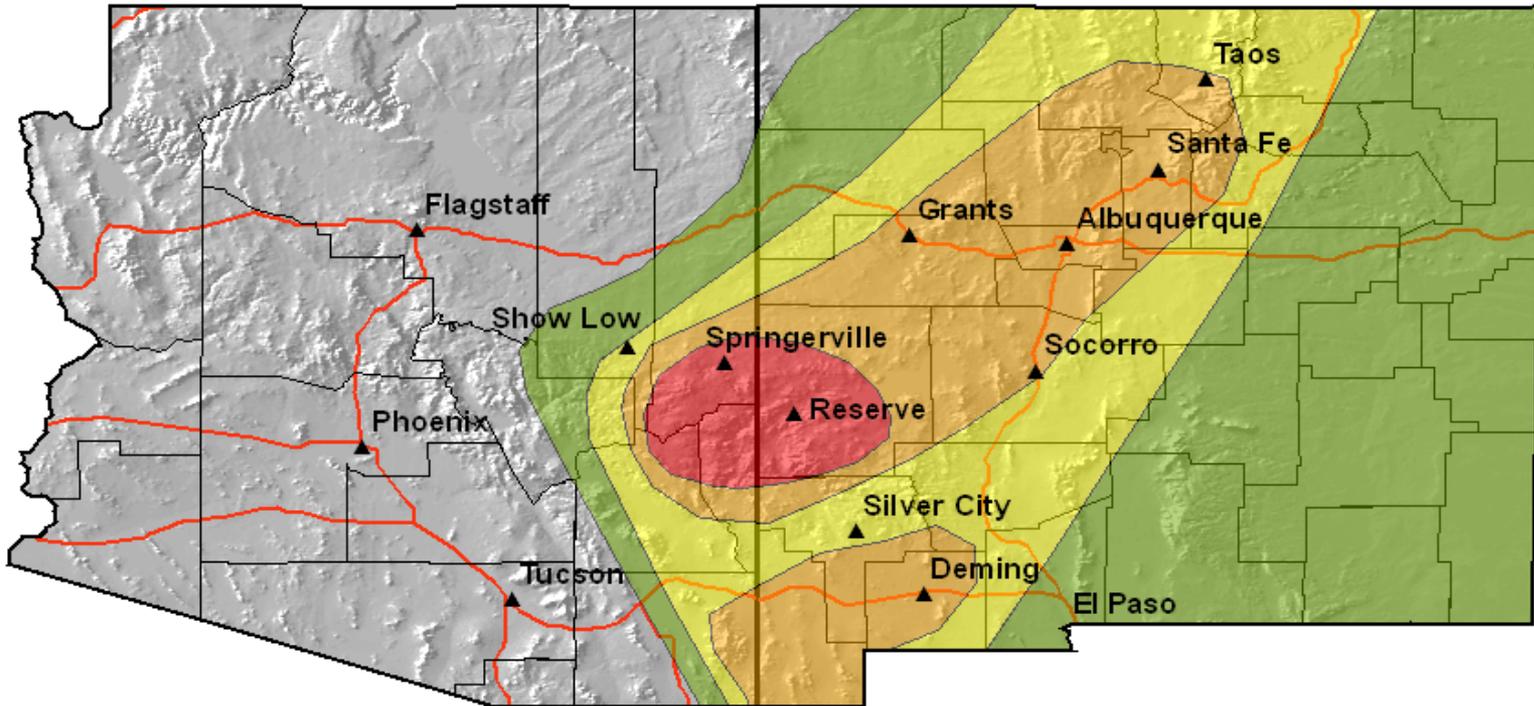
Adjective	Air Quality Index (AQI)	Concentration PM 2.5 (ug/m ³ - 1 hr. avg.)	Concentration PM 2.5 (ug/m ³ - 24 hr. avg.)	Visibility (miles)
Good	0-50	0-38	0-15	>10
Moderate	51-100	39-88	16-35	6-10
Unhealthy for Sensitive Groups	101-150	89-138	36-65	3-5
Unhealthy	151-200	139-351	66-150	1.5-2.75
Very Unhealthy Alert	201-300	352-526	151-250	1.25-1
Hazardous	300+	526+	250+	<1



Projected Wildfire Air Quality Impacts

Valid: June 11-12, 2011

Updated: 1500 MDT 6/11/11



Air Quality Index (AQI) Adjective Rating

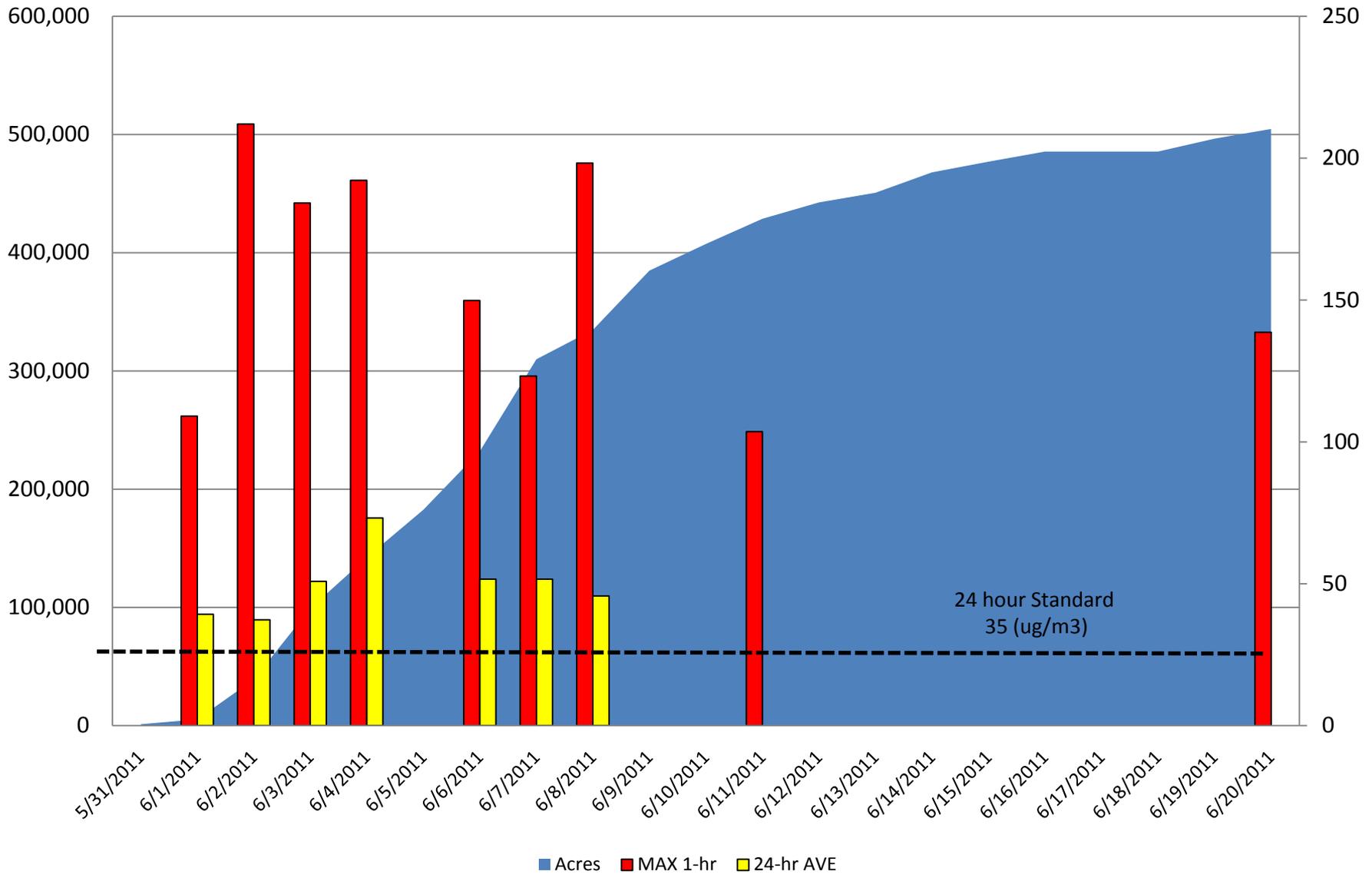
- | | |
|---|--|
|  LIMITED IMPACT (AQI = GOOD) |  UNHEALTHY FOR SENSITIVE GROUPS |
|  MODERATE |  UNHEALTHY / VERY UNHEALTHY / HAZARDOUS |

Public Notification

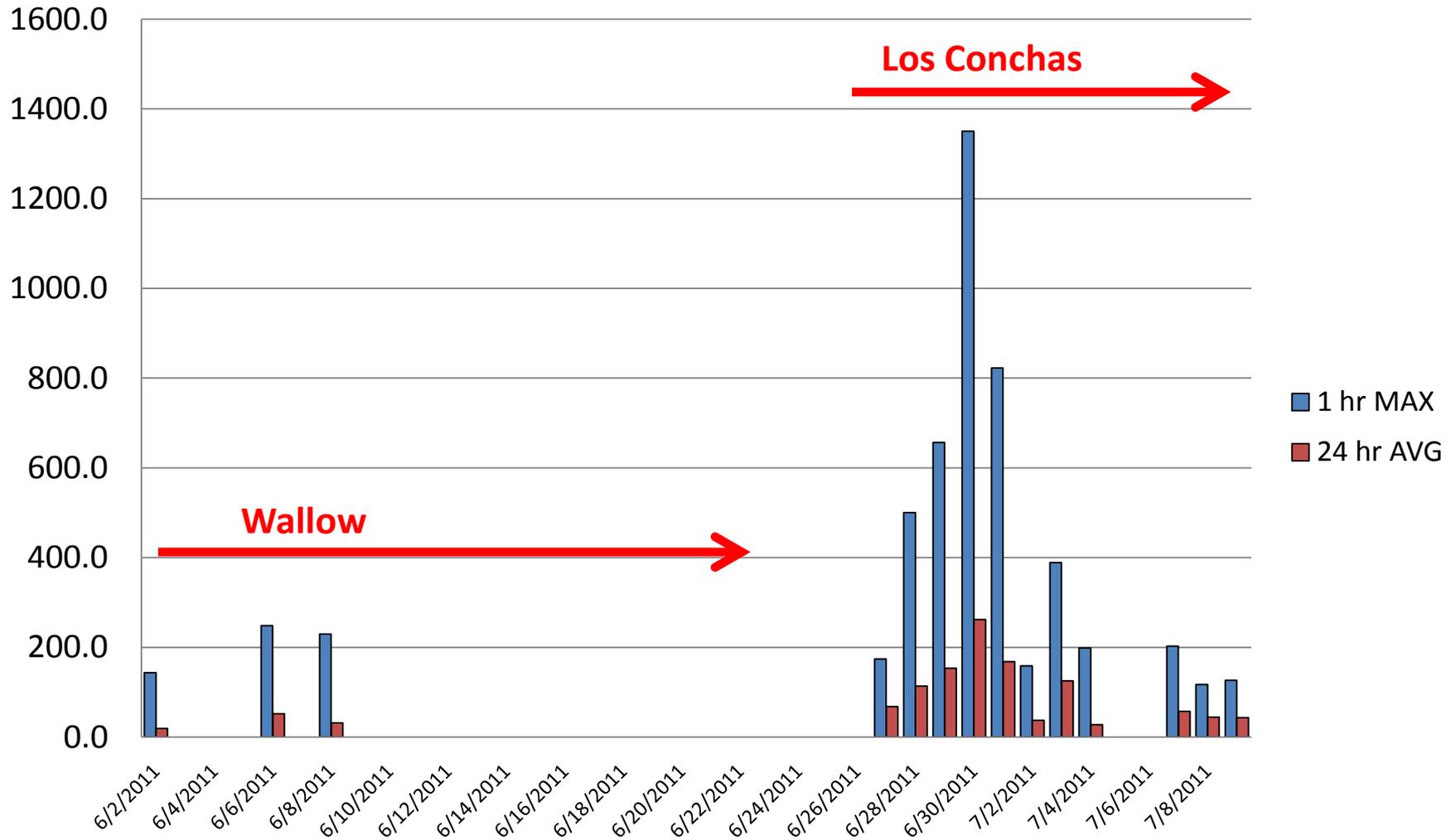
- Critical Element in minimizing risks to the public!
- One Message, Many Voices
- Key Elements to Include:
 - Statement of expected impacts linked to AQI
 - Smoke levels vary both temporally and spatially
 - Exercise caution driving with limited visibility
 - Emphasize personal responsibility
 - Forecasts have uncertainty associated with them- conditions change
- Without monitors use visibility!

Your eyes are your best tools to determine if it's safe to be outside.

Wallow fire growth and PM 2.5 (ug/m3) concentrations in Albuquerque Max and 24 Average



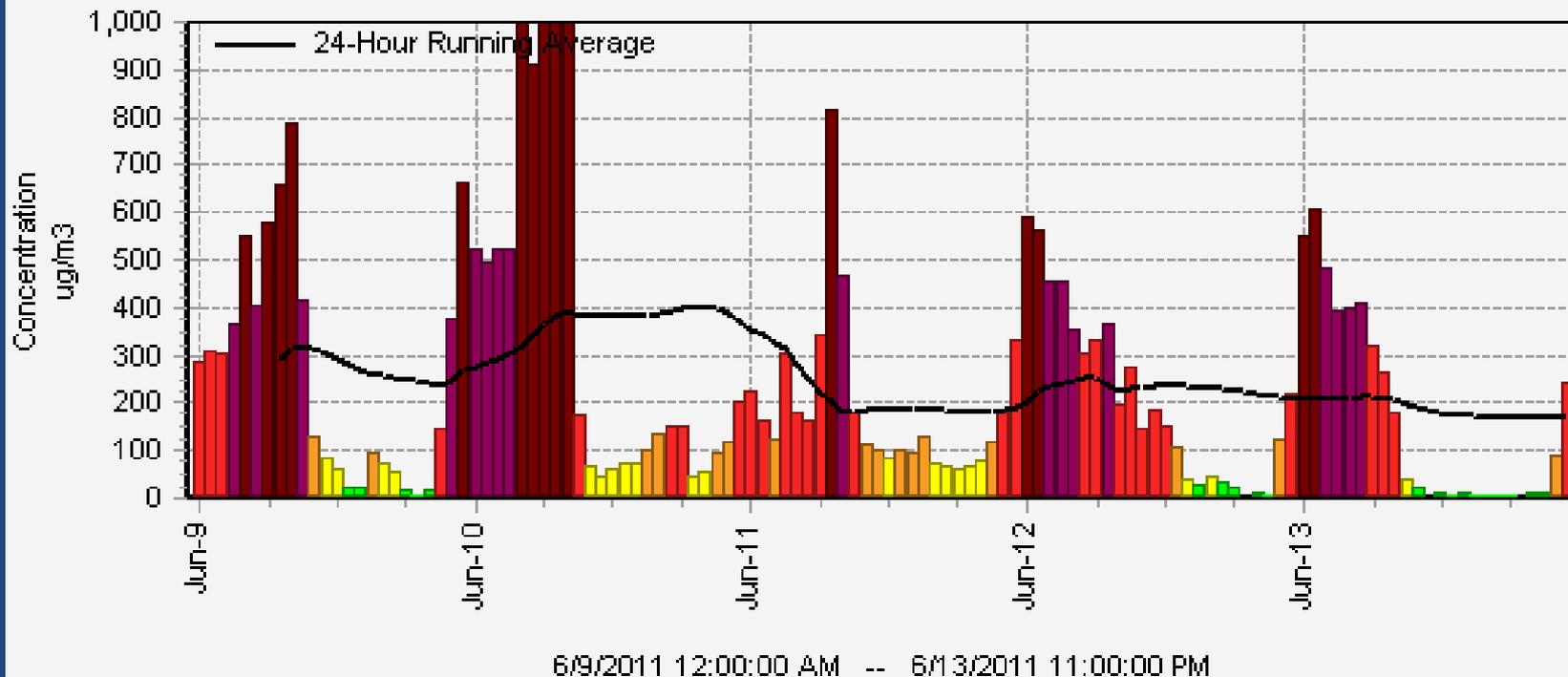
PM 2.5 concentrations (ug/m³), Los Alamos, NM June 2-July 8, 2011. 1 hr maximum & 24 hr average



1 hr MAX represents values greater than 139 ug/m³ (Unhealthy 1-hr)
24 hr average exceed NAAQS for PM_{2.5} at 35 ug/m³)

Springerville PM_{2.5}
400 Mountain Ave S. Springerville
Latitude: 34 deg 7 min 42 sec Longitude: 109 deg 17 min 21 sec

PM2.5 Concentration for Springerville



Air Quality Index (AQI)

1-Hour ($\mu\text{g}/\text{m}^3$)^{*}

0-38

39-88

89-138

139-351

352-526

>526

Good

Moderate

Unhealthy for
Sensitive
Groups

Unhealthy

Very
Unhealthy

Hazardous

24-Hour ($\mu\text{g}/\text{m}^3$)^{**}

0-15

16-35

36-65

66-150

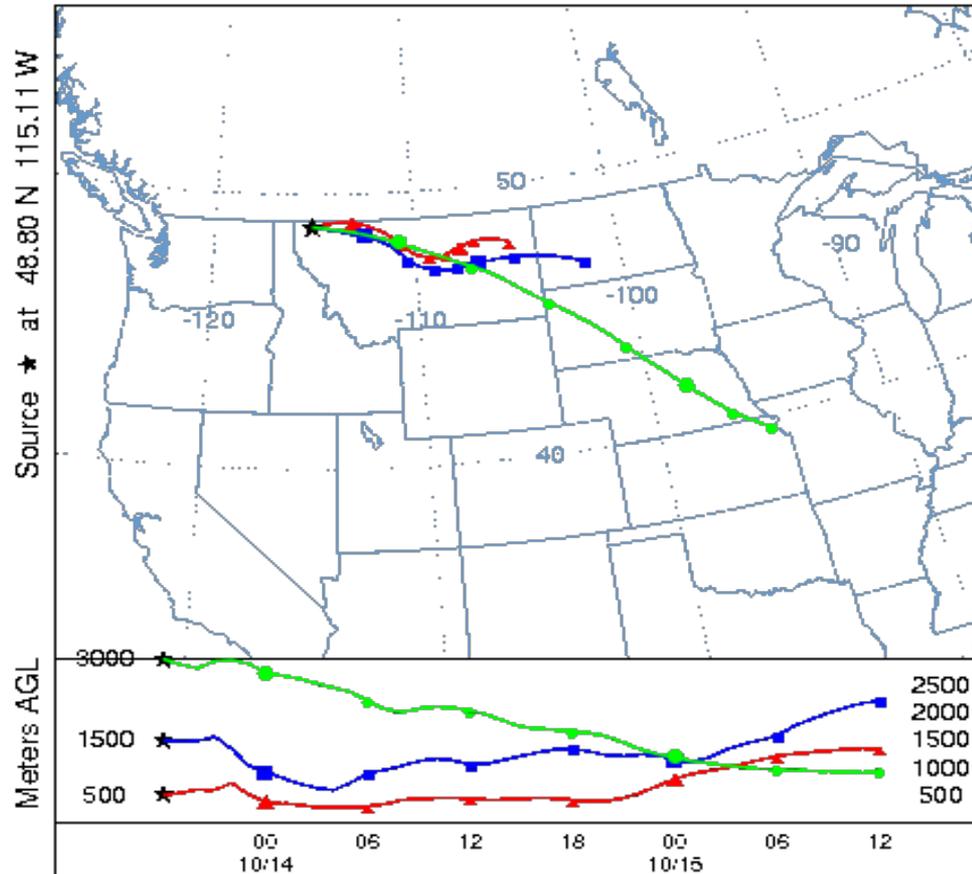
151-250

>250

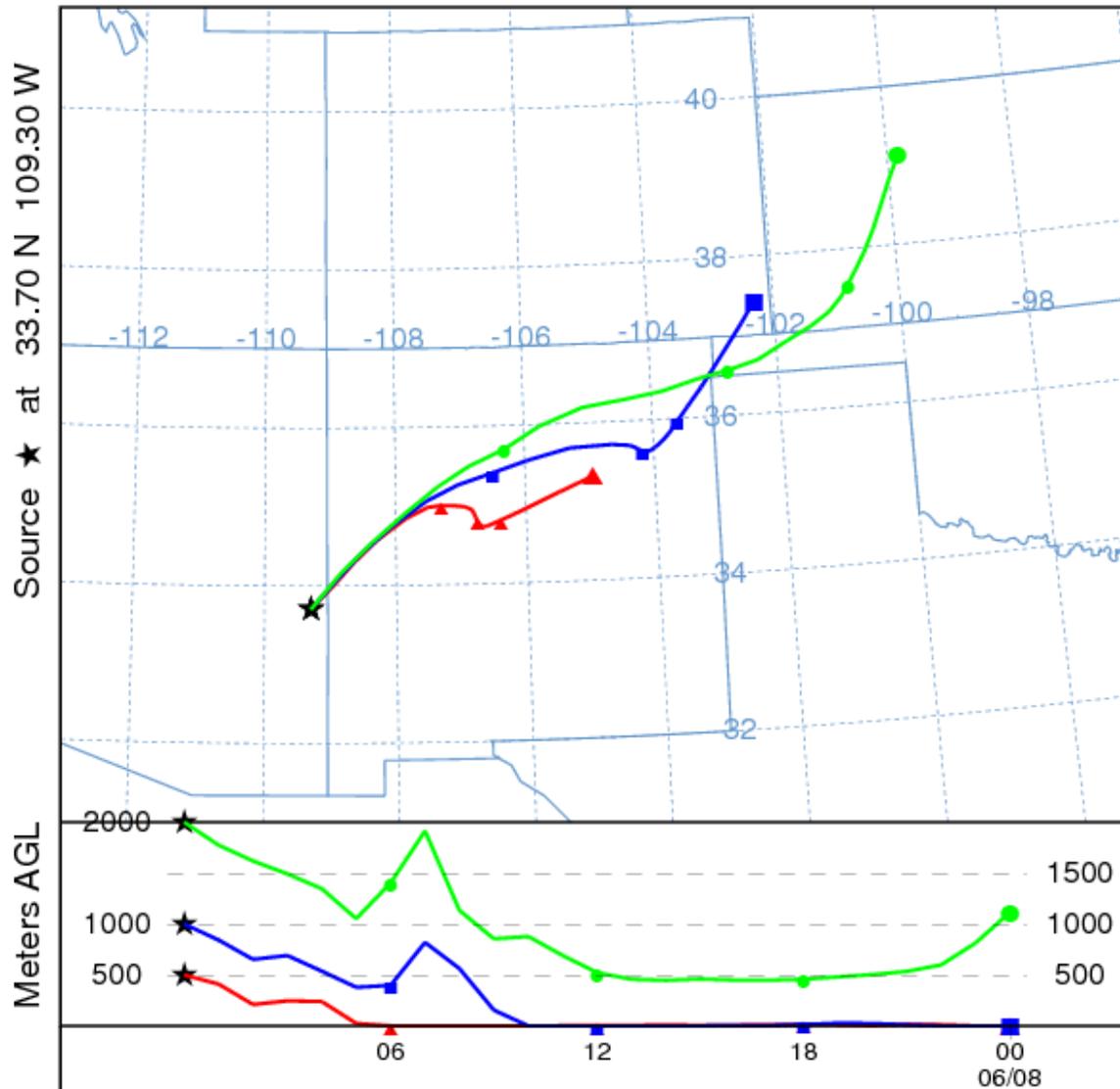
NWS- Hysplit Runs

Can be requested on Spot Weather Forecasts

NOAA HYSPLIT MODEL
Forward trajectories starting at 1800 UTC 13 Oct 11
12 UTC 13 Oct NAM Forecast Initialization

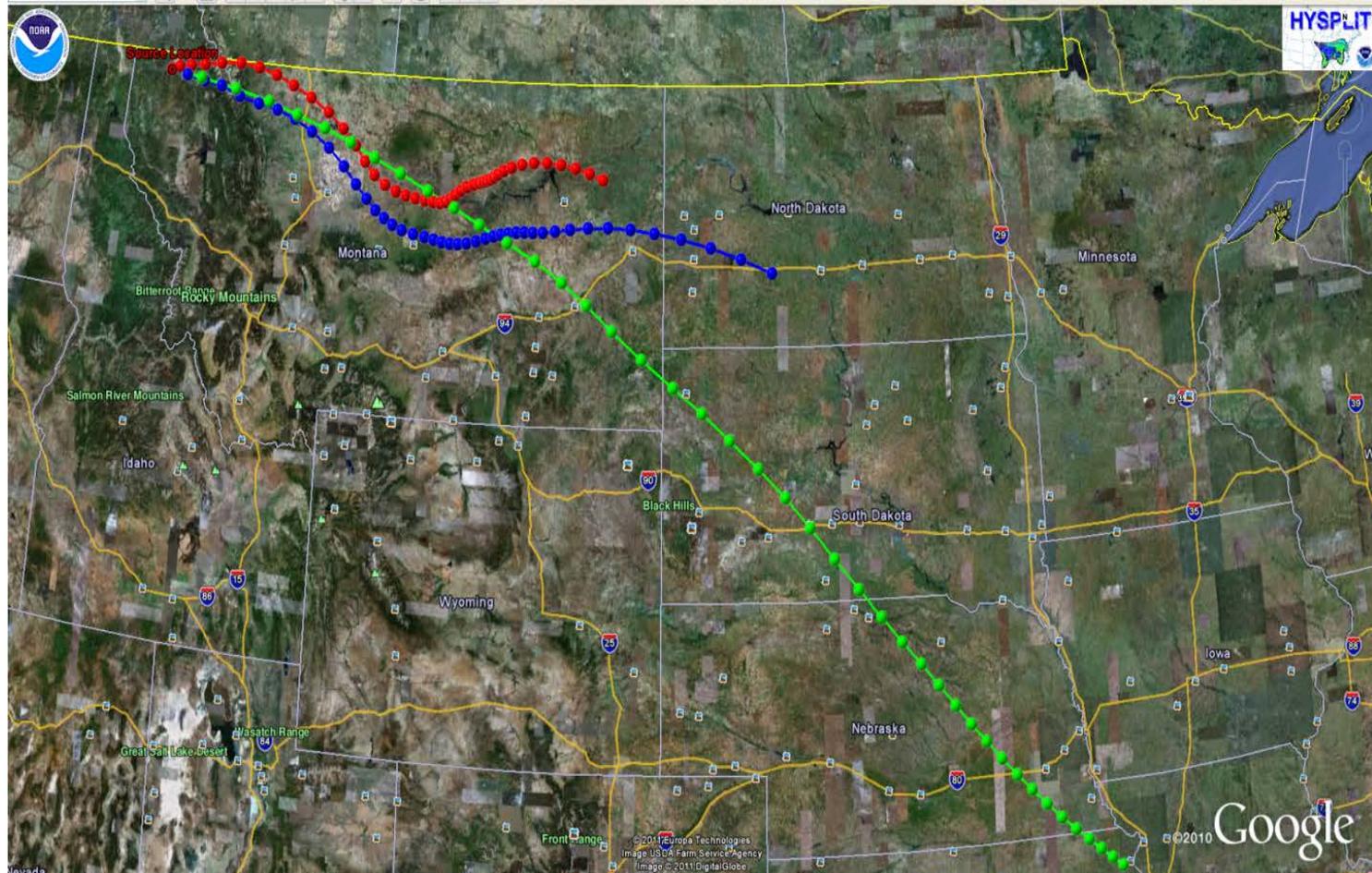


NOAA HYSPLIT MODEL
 Forward trajectories starting at 0000 UTC 07 Jun 11
 00 UTC 07 Jun NAM Forecast Initialization



This is not a NOAA product. It was produced by a web user.
 Job ID: 11972 Job Start: Tue Jun 7 02:32:43 UTC 2011
 Source 1 lat.: 33.7 lon.: -109.3 hgts: 500, 1000, 2000 m AGL
 Trajectory Direction: Forward Duration: 24 hrs
 Vertical Motion Calculation Method: Model Vertical Velocity
 Meteorology: 0000Z 7 Jun 2011 - NAM 12 km

Hysplit output to Google Earth



Limitations

- Timing
- No concentration at surface
- Model based on meteorological inputs

Considerations:

- Contact Chuck Maxwell/Josh Hall
- Consider:
 - Hysplit : <http://ready.arl.noaa.gov/HYSPLIT.php>; or
 - Bluesky: <http://firesmoke.us/wfdss/> .

Questions?

