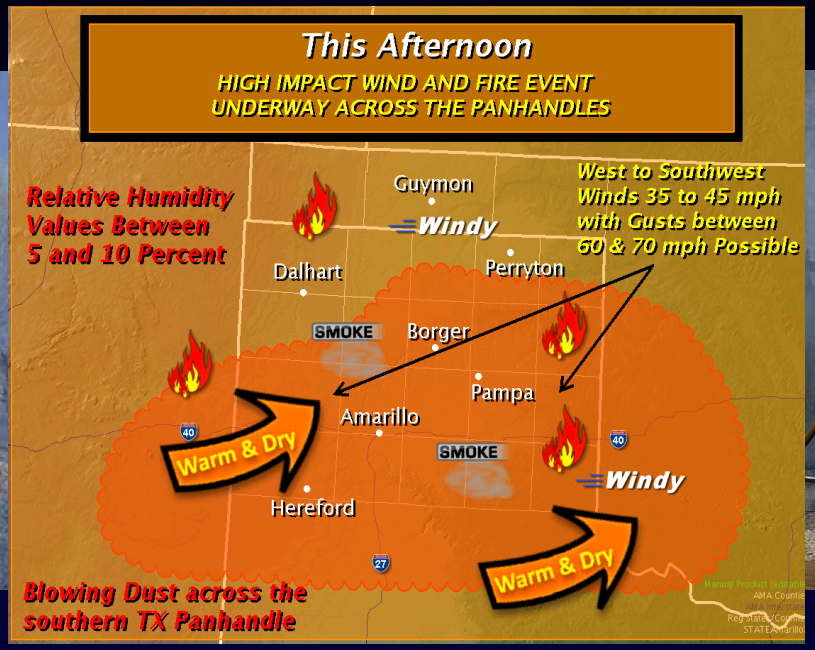
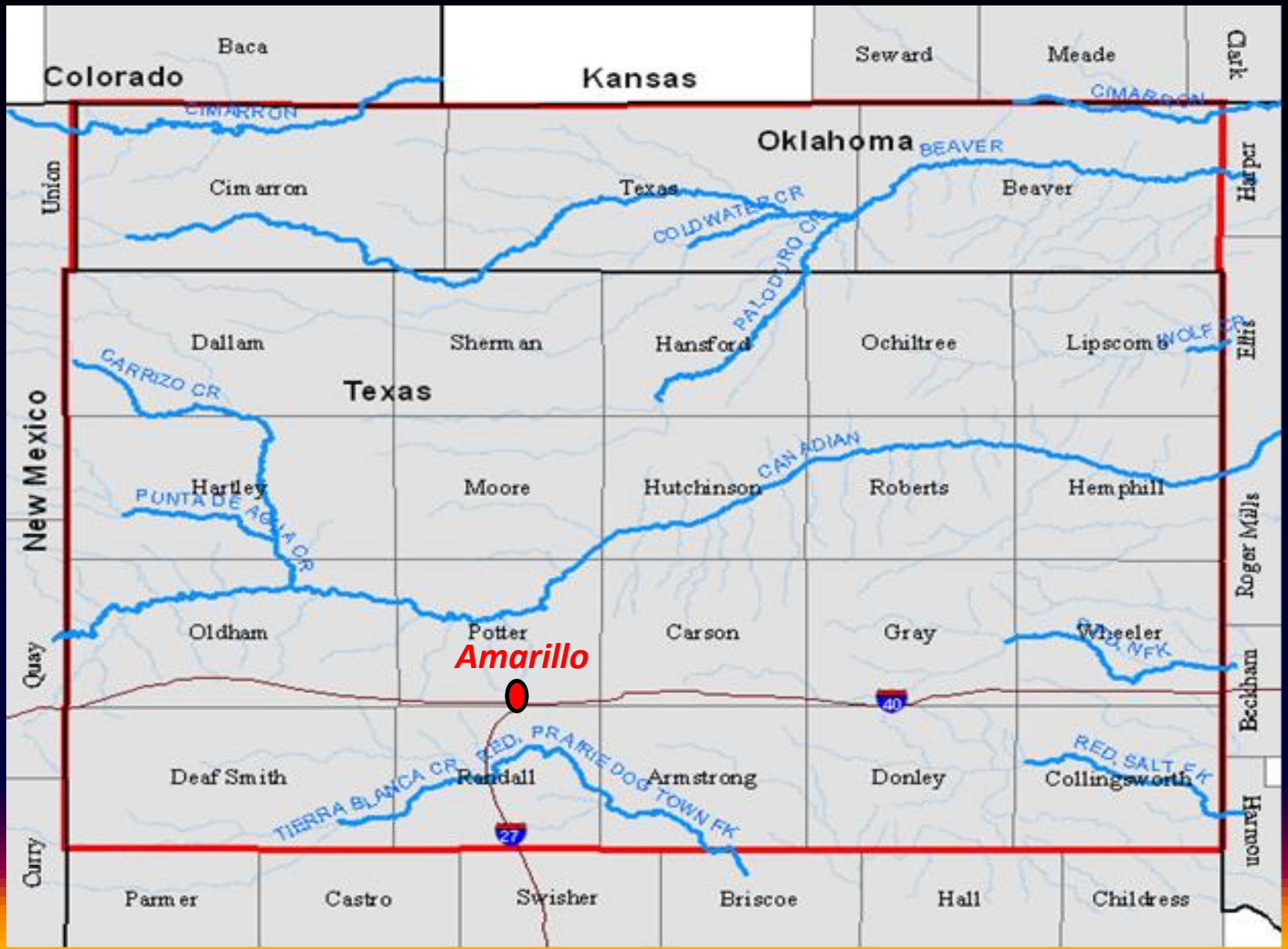
Innovative Decision Support Services for the 27 February 2011 Wildfire Outbreak Across the Texas Panhandle

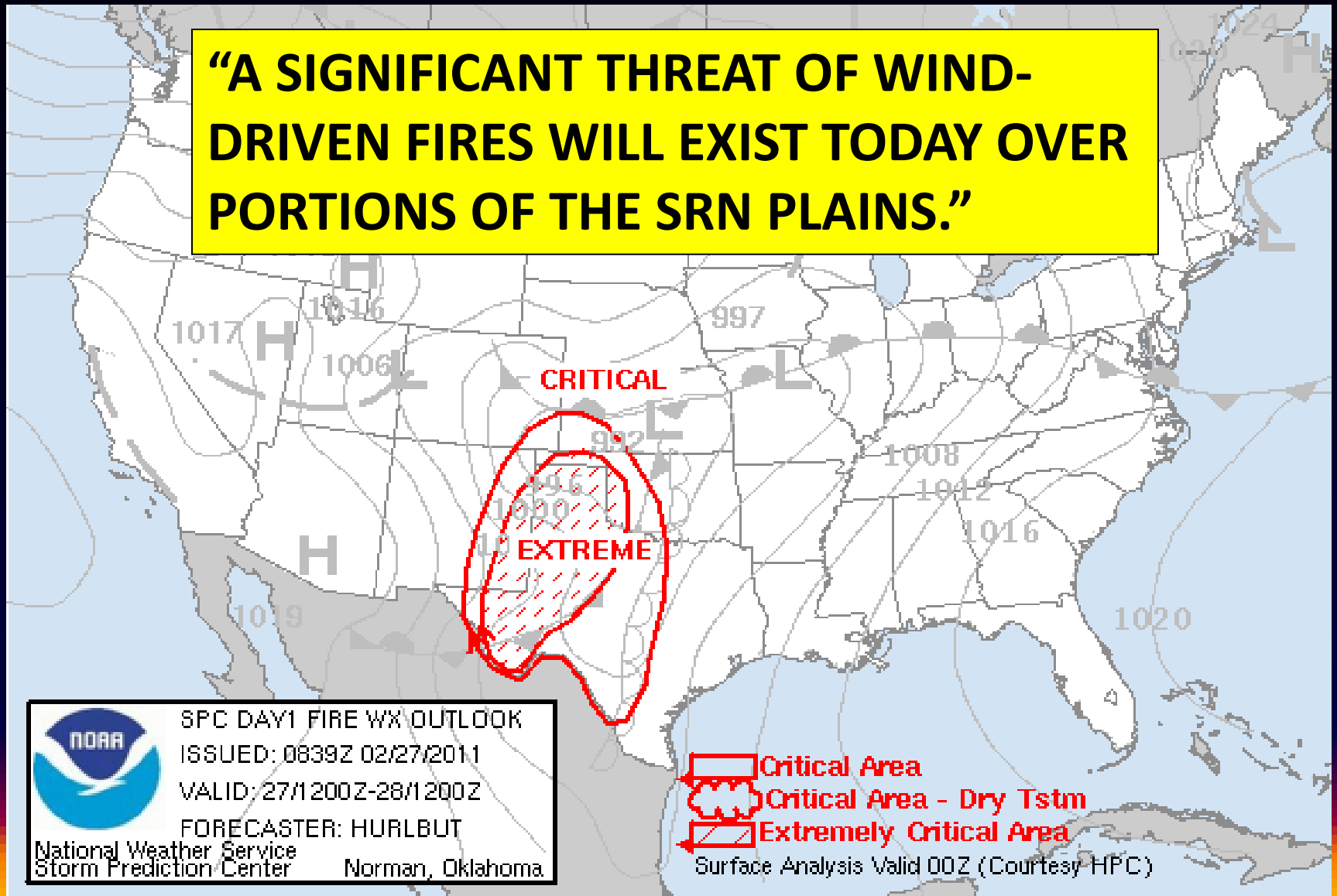


Michael Scotten
NOAA/NWS Amarillo, Texas

NWS Amarillo's County Warning Area (CWA)



NWS Storm Prediction Center's Day 1 Fire Weather Outlook 27 February 2011



Main Ingredients for the 27 February 2011 Wildfire Outbreak

- **Dry air & abnormally dry fuels**
  - surface dewpoints 0 to 20°F
  - 1-hr & 10-hr fuel moisture 2-3% from lack of recent precipitation
- **Dynamic system with very strong atmospheric winds**
  - intense 500 mb low ejected out of the southwest U.S.
  - 990 mb MSLP low developed over east Colorado with a dryline south from the low which quickly moved into west Oklahoma by early afternoon
  - 250 mb jet streak around 125 kt, 500 mb jet streak around 100 kt & 700 mb winds around 40 kt
  - cold air advection & sunny skies resulted in deep boundary layer mixing up to 550 mb & steep lapse rates which allowed very strong winds aloft to reach the ground

Meteorological Overview of the 27 February 2011 Wildfire Outbreak Across the Texas Panhandle

- Very strong downsloping west to southwest surface winds increased to around 40 mph with gusts 60-70 mph during the afternoon hours.
- Relative humidity levels dropped to 5-20% with surface temperatures 68-80°F.
- Blowing dust and smoke from developing fires with visibilities less than one mile in a few locations occurred and caused hazardous driving conditions.
- A strong cold front moved through the area during the late evening hours and caused an abrupt shift of the surface winds to the north and northwest.

KAMA Observations for 27 February 2011

Time (CST)	Wind (mph)	Vis (mi)	Wx	Sky Cover	Temp (°F)	Td (°F)	RH (%)	Alt (in Hg)
11 am	SW 23 G29	10		CLR	69	23	17	29.55
Noon	SW 30 G36	10		CLR	72	14	**11**	29.53
1 pm	**SW 41 G51**	**3**	**BLDU**	**CLR**	**74**	**8**	**8**	**29.49**
2 pm	**SW 48 G68**	**1 1/2**	**BLDU**	**CLR**	**71**	**0**	**6**	**29.46**
3 pm	**SW 40 G58**	**3**	**BLDU**	**CLR**	**70**	**5**	**8**	**29.45**
4 pm	**SW 41 G52**	**4**	**BLDU**	**CLR**	**67**	**10**	**11**	**29.48**
5 pm	**SW 35 G46**	**6**	**BLDU**	**CLR**	**64**	**17**	**16**	**29.51**
6 pm	SW 32 G41	10		FEW100	60	21	22	29.54
7 pm	SW 31 G45	10		FEW110	54	19	25	29.57
8 pm	SW 30 G37	10		CLR	50	17	27	29.62
9 pm	SW 23 G32	10		CLR	47	16	28	29.63
10 pm	SW 20 G26	10		CLR	45	14	28	29.64
11 pm	W 17	10		FEW110	44	18	35	29.68
Midnight	**N 25 G40**	**10**		**CLR**	**34**	**27**	**75**	**29.80**

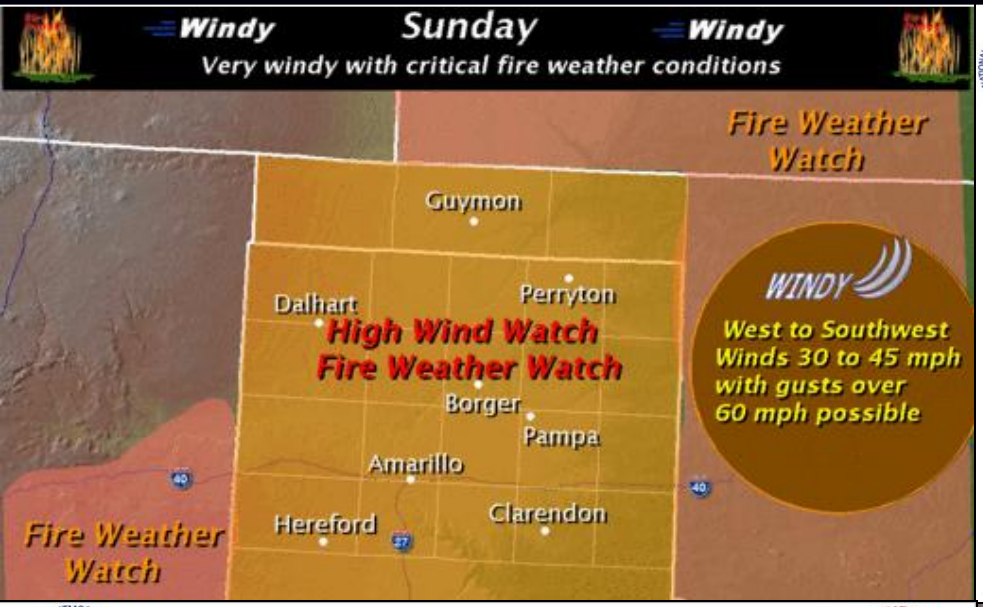
Prior to the Wildfire Outbreak

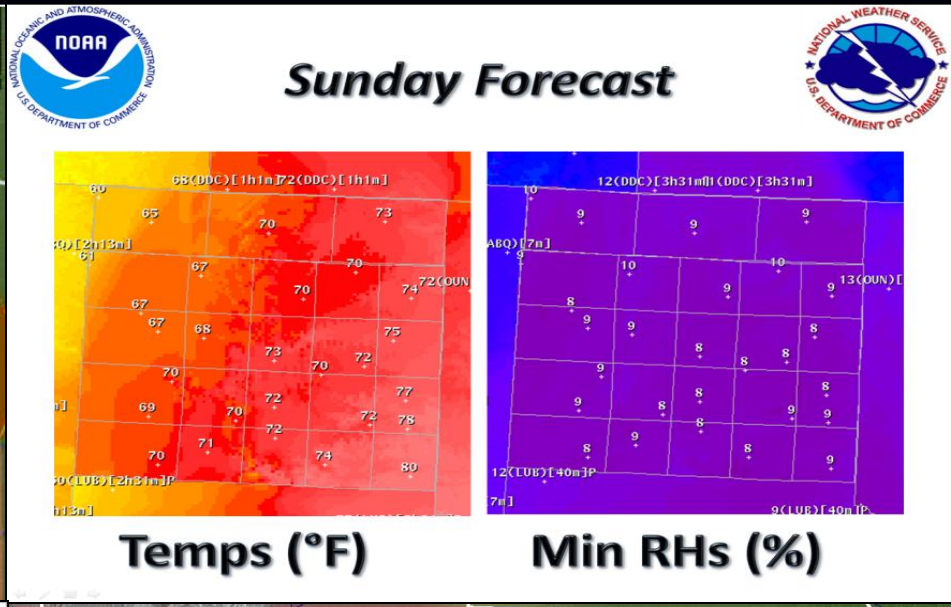
- A Fire Weather Watch was issued for the Texas and Oklahoma Panhandles three days prior the outbreak highlighting ***"critical fire weather conditions are likely…with very windy conditions possible."***

- GoToWebinar briefings began two days prior to the outbreak and were continued once daily at 10 am CDT, illustrating the threat for high impact fire weather conditions on 27 February. Briefing slides were continuously updated and published on the front page of NWS Amarillo's website.

- NWS Amarillo participated in daily Texas Forest Service conference calls which discussed weather forecasts and fire resources across the state.

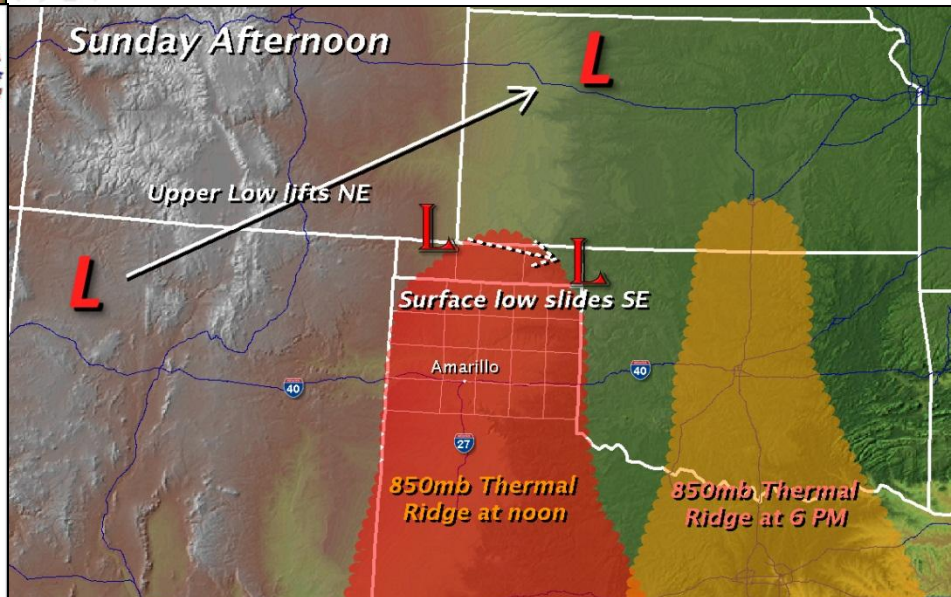
GoToWebinar Briefing Slide Examples Utilized Prior to the Wildfire Outbreak





Impacts

- **Fire Weather**
  - Extremely Critical Conditions on Sunday
- **High Winds**
  - 30 to 45 mph with gusts near 60 mph on Sunday, mainly between 10 am and 8 pm
- **Travel**
  - High profile vehicles vulnerable on Sunday
  - Blowing Dust on Sunday?



During the Wildfire Outbreak

- **Extra staffing was used at NWS Amarillo to focus on decision support services.**
  - An extra forecaster was used to handle the higher volume of phone calls, give briefings, issue non-routine products, and assist with updating briefing slides and Graphicasts.
  - Two forecasters were deployed outside the office for onsite support at the Mobile Operations Center at the Northeast Amarillo/Willow Creek Fire as well as the Amarillo/Potter/Randall Office of Emergency Management's (OEM) Emergency Operation Center.

- **GoToWebinar briefing slides and Graphicasts were constantly updated and uploaded to the front page of NWS Amarillo's website.**

- **Numerous briefings were given to first responders, media, and the public by using the phone and NWSChat.**

Onsite Support – Mobile Operations Center at the Northeast Amarillo/Willow Creek Fire

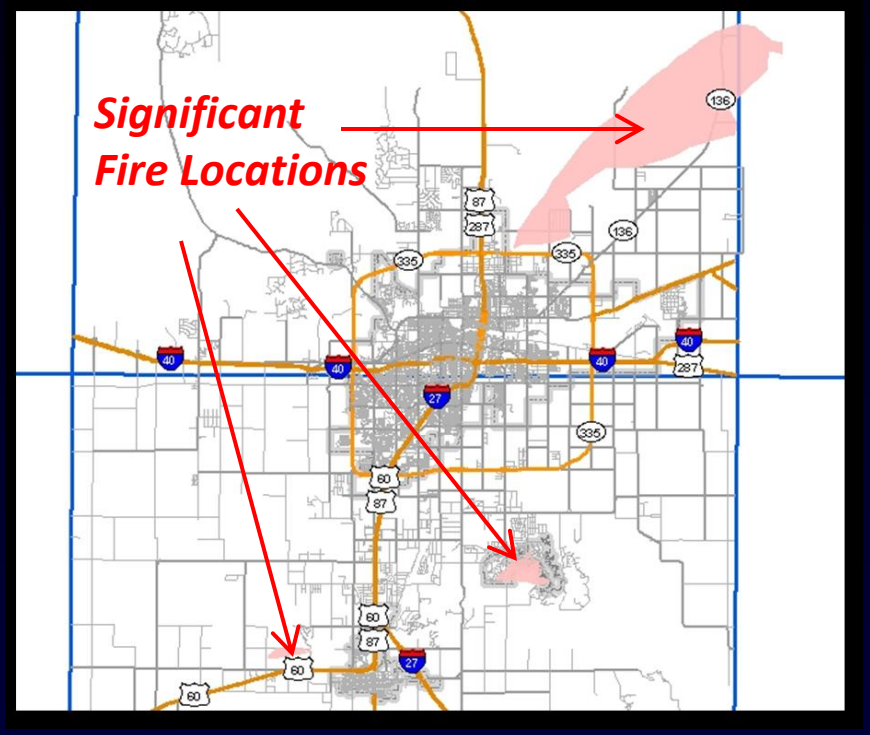
- A forecaster who is an IMET was dispatched for direct onsite support at the Northeast Amarillo/Willow Creek Fire as this fire was especially large and was moving towards Pantex which is a nuclear weapons facility.
- The Mobile Operations Center is a trailer from the Amarillo/Potter/Randall OEM to deal with hazards in a centralized location near the incident.
- Specific wind and humidity forecasts were given which were most critical during the late evening hours when a cold front approached from the north.

Northeast Amarillo/Willow Creek Fire from Rick Husband Amarillo International Airport

Onsite Support – Amarillo/Potter/Randall Office of Emergency Management (OEM) at the Emergency Operations Center (EOC)

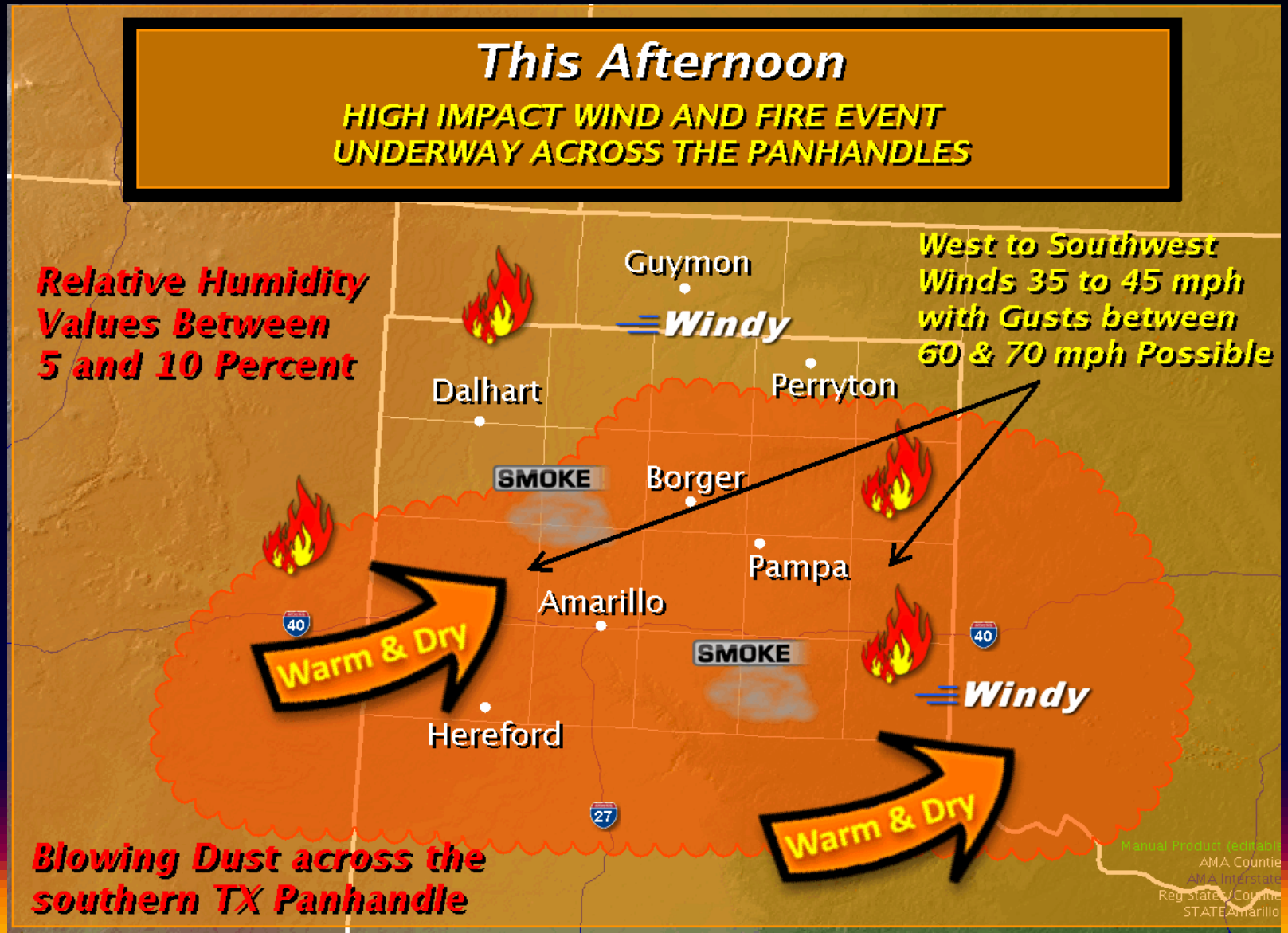
- A forecaster was dispatched to support the Amarillo/Potter/Randall OEM at the EOC by being placed in the Planning Section in an Incident Command System that was dealing with the fires.

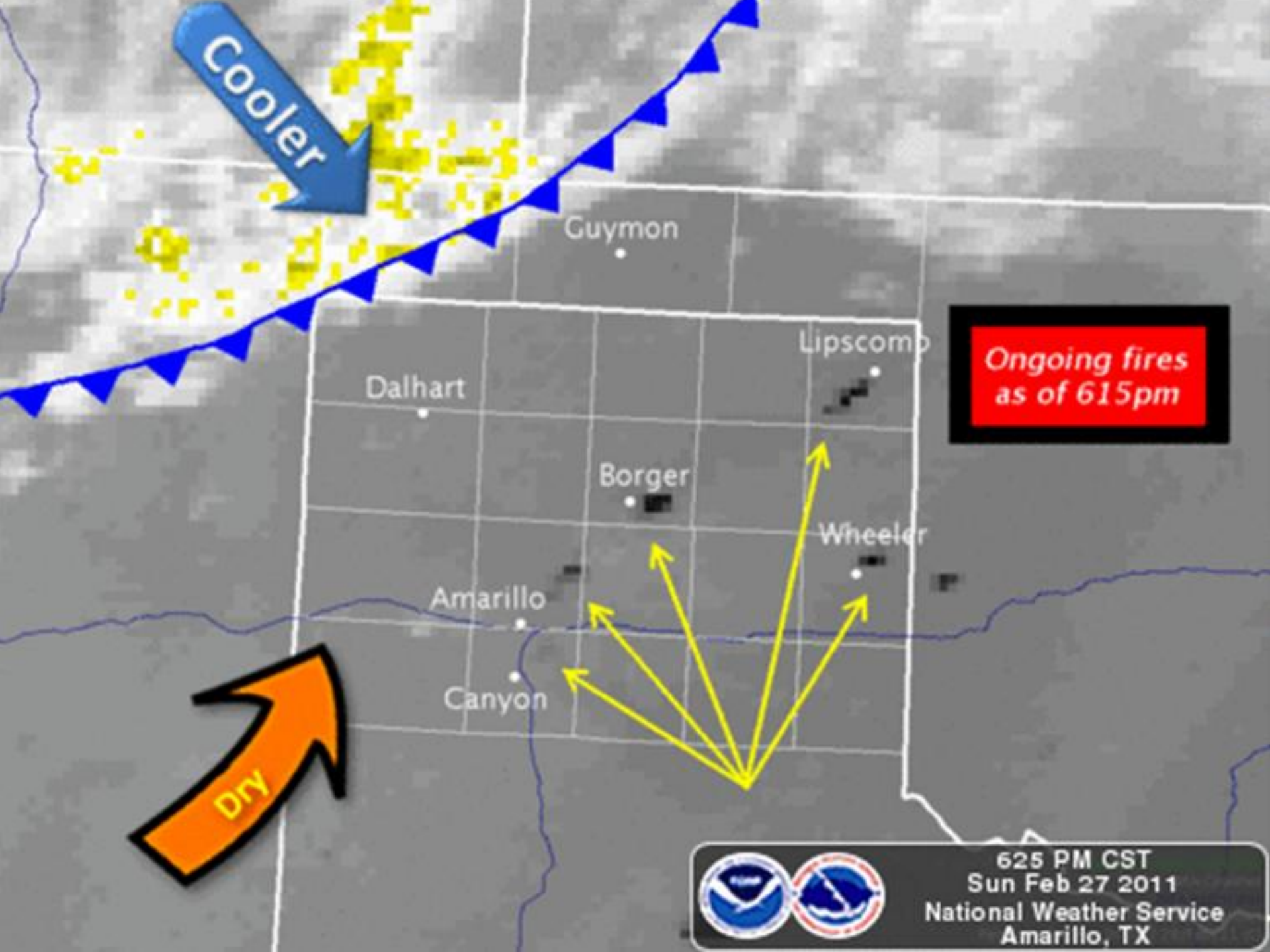
- By using an office laptop computer and local Internet access, weather information including wind and humidity were retrieved and relayed to planning personnel to help firefighters and police officers work together to put out fires and evacuate persons.

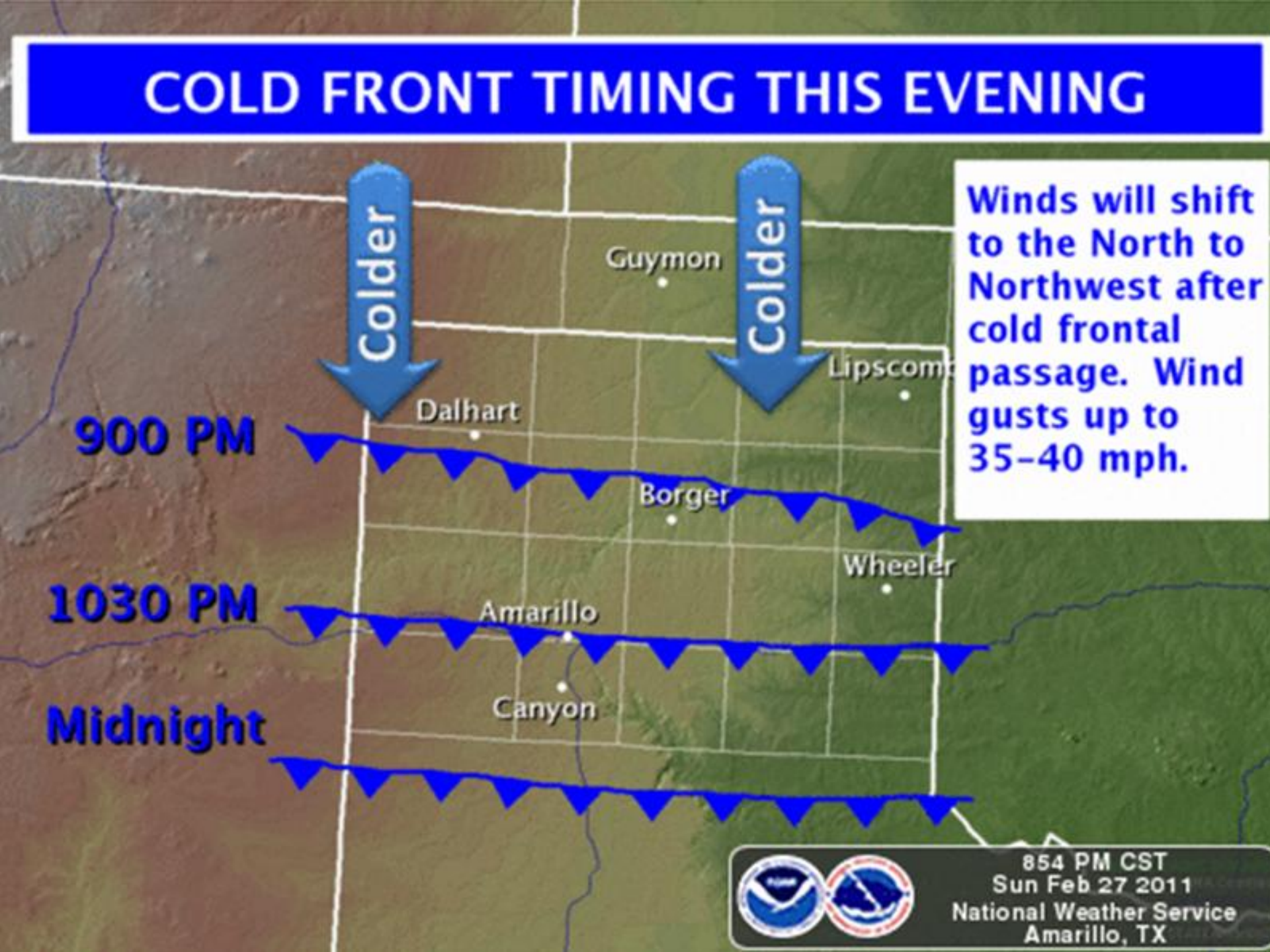


Significant Fires from 27 February 2011 across Potter & Randall counties

Graphicast Examples During the Wildfire Outbreak




Cooler
Guymon
Lipscomb
Dalhart
Ongoing fires
as of 615pm
Borger
Wheeler
Amarillo
Canyon
DRY
625 PM CST
Sun Feb 27 2011
National Weather Service
Amarillo, TX


COLD FRONT TIMING THIS EVENING
Colder
Colder
Guymon
Lipscomb
Dalhart
900 PM
Borger
Wheeler
1030 PM
Amarillo
Canyon
Midnight
Winds will shift to the North to Northwest after cold frontal passage. Wind gusts up to 35-40 mph.
854 PM CST
Sun Feb 27 2011
National Weather Service
Amarillo, TX

Key Products Issued – Fire Warning

BULLETIN - EAS ACTIVATION REQUESTED
FIRE WARNING
AMARILLO/POTTER/RANDALL OFFICE OF EMERGENCY MANAGEMENT
RELAYED BY NATIONAL WEATHER SERVICE AMARILLO TX
456 PM CST SUN FEB 27 2011

THE FOLLOWING MESSAGE IS TRANSMITTED AT THE REQUEST OF THE AMARILLO...POTTER AND RANDALL OFFICE OF EMERGENCY MANAGEMENT.

SEVERAL WILDFIRES ARE THREATENING THE FOLLOWING LOCATIONS: RICHLAND ACRES AND RANCH ACRES...AND THEN ALSO FOR TIMBERCREEK CANYON... PALISADES...TANGLE AIRE...AND LAKE TANGLEWOOD. IT IS RECOMMENDED THAT RESIDENTS EVACUATE THE RIVER FALLS AREA OF RANDALL COUNTY. RESIDENTS SHOULD EVACUATE IMMEDIATELY.

RESIDENTS EVACUATING THE WILDFIRES IN THE WILLOW CREEK AREA SHOULD REPORT TO THE RECEIVING POINT AT THE PLEASANT VALLEY METHODIST CHURCH AT 316 VALLEY. THE RECEIVING POINT FOR THOSE RESIDENTS EVACUATING FROM THE SOUTH WILDFIRES IS THE COWBOY CHURCH AT WASHINGTON STREET AND LOOP 35...HOLLYWOOD ROAD.

$$

Key Products Issued – Local Area Emergency

LBBLAEAMA
WOUS44 KAMA 280236
LAEAMA
TXC375-280500-

BULLETIN - EAS ACTIVATION REQUESTED
LOCAL AREA EMERGENCY
AMARILLO POTTER RANDALL OFFICE OF EMERGENCY MANAGEMENT
RELAYED BY NATIONAL WEATHER SERVICE AMARILLO TX
836 PM CST SUN FEB 27 2011

THE FOLLOWING MESSAGE IS TRANSMITTED AT THE REQUEST OF THE AMARILLO...
POTTER...RANDALL OFFICE OF EMERGENCY MANAGEMENT.

THE NORTHEAST AMARILLO FIRE WILL SHIFT DIRECTIONS AS A COLD FRONT MOVES THROUGH THE AREA. THIS CHANGE IN DIRECTION WILL THREATEN THE AREAS BETWEEN STATE HIGHWAY 136 AND INTERSTATE 40 IN EASTERN PORTIONS OF POTTER COUNTY BETWEEN 930 PM AND 1100 PM. RESIDENTS LOCATED IN THIS AREA ARE URGED TO BE PREPARED FOR QUICK ACTION IF THIS FIRE THREATENS YOUR LOCATION.

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Additional Products Issued

- **4 Spot Forecasts for the Texas Forest Service** at various wildfires including Rosita Flats, Lake Tanglewood/Palisades, Timbercreek Canyon, and Mesilla Park

- **Red Flag Warnings**

  Criteria: relative humidity equal or less than 15%, average sustained 20 foot wind speeds of 20 mph or higher and/or wind gusts to 35 mph or higher for 3 hours or longer, and "HIGH" or greater fire danger rating

- **Non Precipitation Products**
  - **Blowing Dust Advisories**

    Criteria: widespread or localized blowing dust due to surface winds of 25 mph or greater reducing visibilities to 1 mile or less, but greater than ¼ mile
  - **High Wind Warnings**

    Criteria: sustained non-convective surface wind speeds of 40 mph or greater lasting for one hour or longer, or 58 mph or greater for any duration
  - **Wind Advisories**

    Criteria: sustained surface winds equal to or greater than 35 mph for 2 hours or more

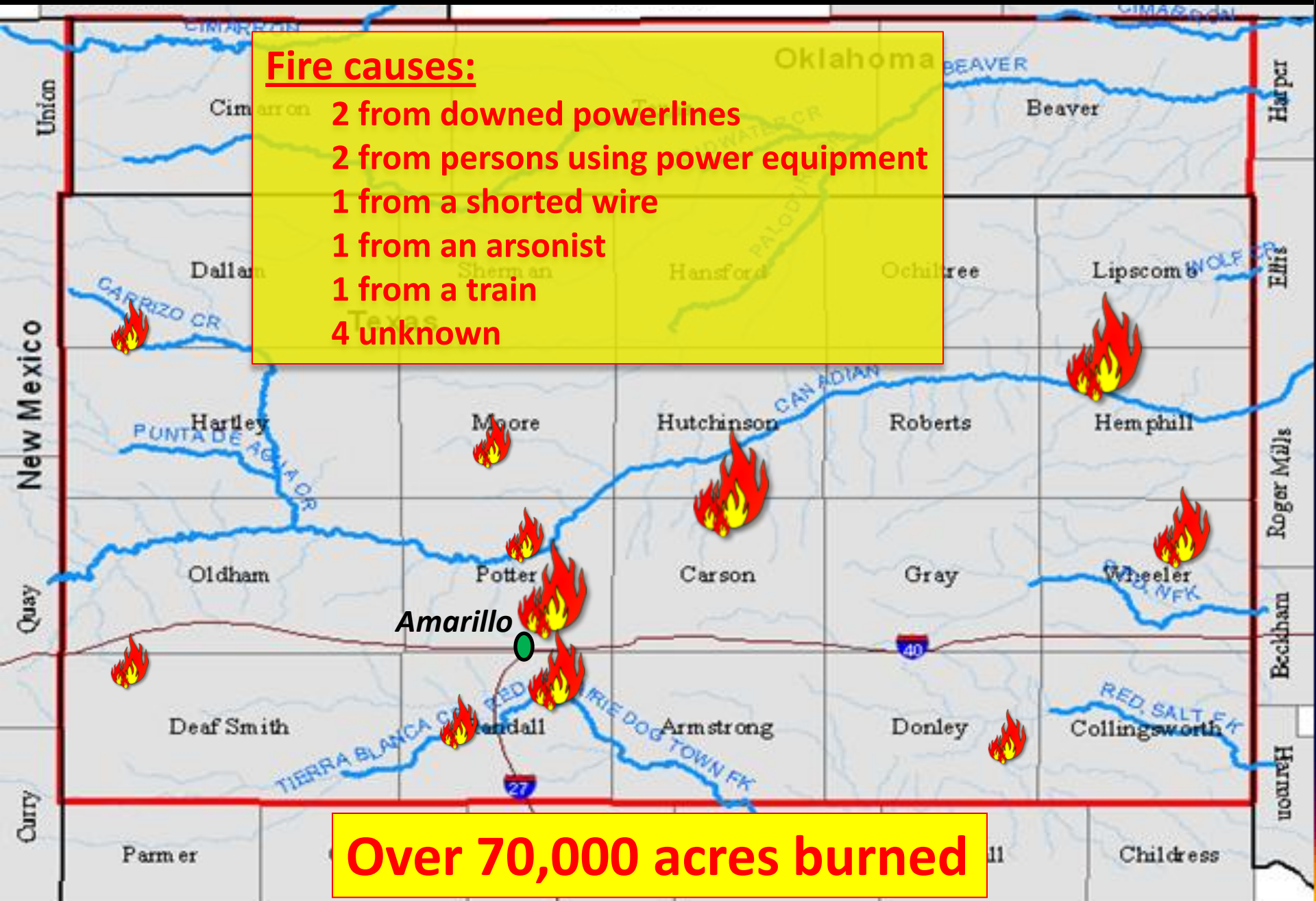
Aftermath of the Wildfire Outbreak in NWS Amarillo's CWA

- Over 70,000 acres were burned from 11 fires.
- Total damages were around $35 million.
- Around 80 homes and structures were damaged or destroyed.
- All fires began between 1106 am and 618 pm CST on 27 February 2011.
- The average fire lasted about 16 hours.
- The Tanglewood Complex Fire just south of Amarillo caused the most damage of $25.5 million and lasted longest, nearly three days.

8 Total Injuries

0 Total Deaths

11 Total Fires in NWS Amarillo's CWA



Burn Scars From The Wildfires

After the Outbreak

- Briefings were needed for cleanup and to suppress fires as a few fires smoldered for a few days.
- A Disaster Declaration was declared for Potter and Randall counties including the Amarillo metropolitan area.
- NWS Amarillo participated in a Texas Department of Public Safety Resources Meeting on 28 February 2011 to provide forecasts to assist with cleanup efforts.
- Ideas were shared between NWS Amarillo staff members to give better customer service. They included:
  - **improved communication with emergency management regarding Fire Warnings and evacuation orders**
  - **possible mandatory conference calls for all "extremely critical fire weather conditions" due to positive feedback from external customers**

Customer Feedback

- **"The early issuance of the Fire Weather Watch on Thursday (24 February) and the Friday (25 February) Conference Call for Sunday (27 February) no doubt saved lives with these fires. The difference between 2011 and the 2006 fires...your (decision support) services and the preparations we were able to make because of them."**
  - David Solis, Regional Liaison Officer for Texas Department of Public Safety

- **"You guys once again did a fantastic job with the timing of the cold front and the heads up with the fire weather forecasts. Thank you!"**
  - Keith Shadden, Emergency Manager for Beaver County, Oklahoma

- **"Thank you NWS!! You all were awesome this whole event!"**
  - Maribel Martinez, PhD, Assistant Emergency Management Coordinator for the Amarillo/Potter/Randall OEM

Conclusion/Final Thoughts

- A wildfire outbreak with 11 fires occurred across the Texas Panhandle on 27 February 2011 due to the combination of very dry fuels, dry and warm air, and strong winds.
- The potential for a high impact fire weather event was forecast by the NWS several days before the outbreak.
- NWS Amarillo used innovative decision support services before, during, and after the outbreak including having GoToWebinar briefings, using Graphicasts to convey hazards, utilizing forecasters for onsite decision support, and issuing non-routine products.
- **Although there was nearly $35 million in damages across NWS Amarillo's CWA and eight minor injuries, no fatalities resulted from the outbreak.**

Contact

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