The 2008 Northern California Lightning Siege and Decision Support

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Photo courtesy A. Fuhrmann/Redding Record Searchlight

Not Technically “Severe” Except in Impact:

12 Fatalities 298 Buildings (158 residential) $ 1.2 Billion

- Storm losses in California from the 1997-98 El Nino:

  $ 1.1 Billion

- Average annual storm losses nationwide from all tornadoes:

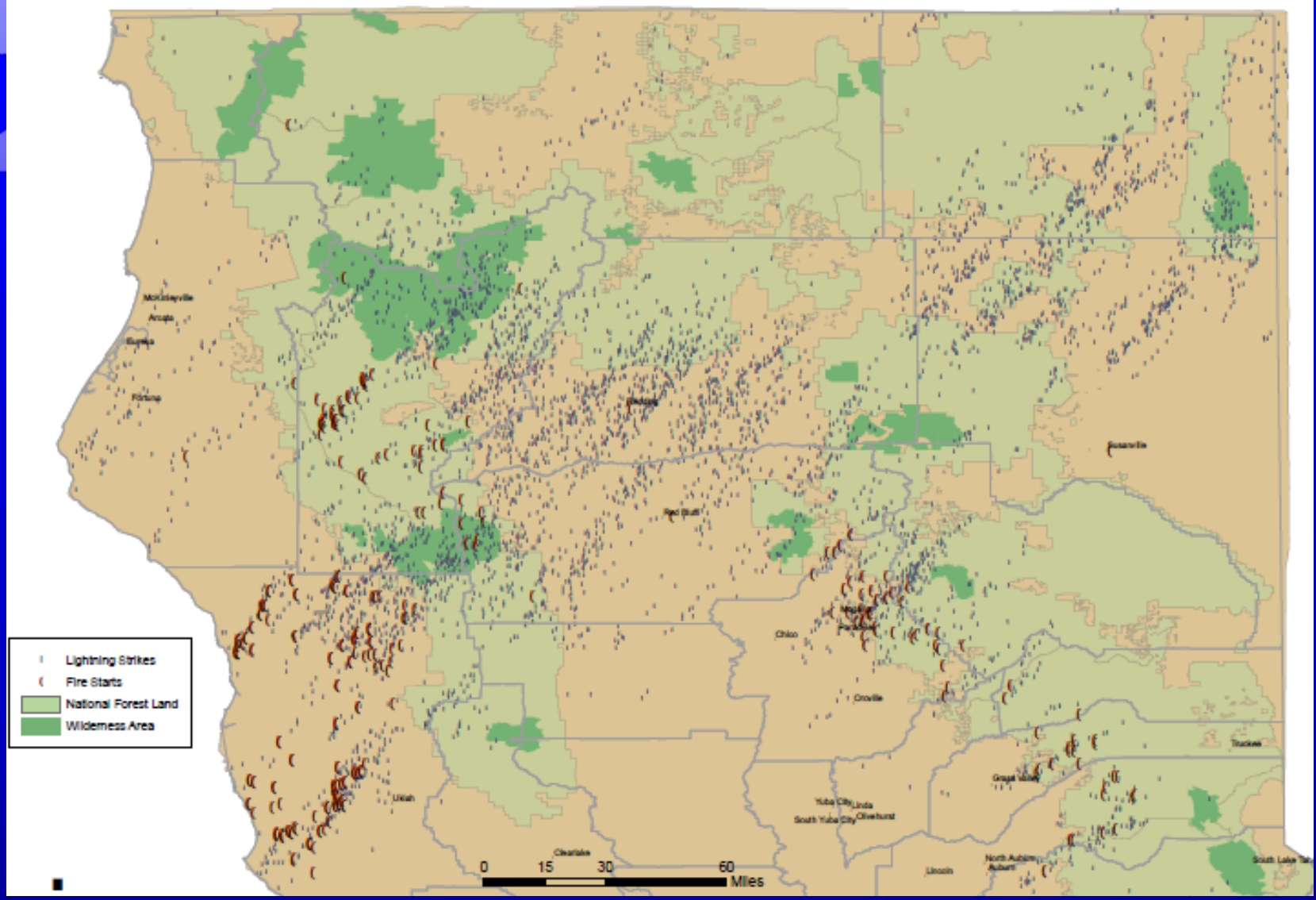
  $ 1.1 Billion

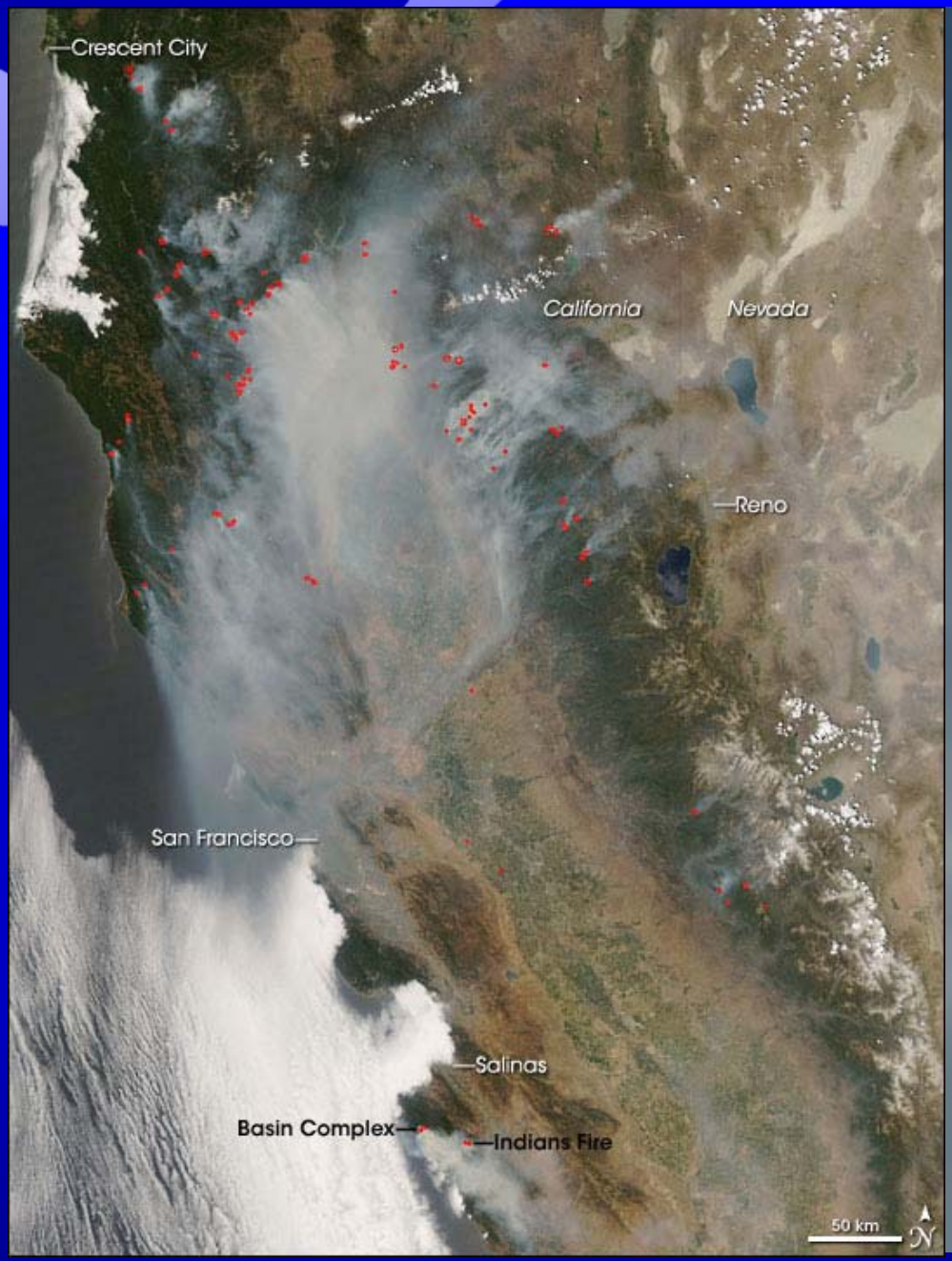
Sources: Cal Fire, 2009; Changnon, 2000; NCAR, 2001

Event Review

- >6,000 C-G lightning strikes June 20-21, 2008
- Unseasonably dry fuels
- 2,093 fire starts
- 25,000 firefighters committed (18,000 concurrently)
- 1,130,000 acres burned (1,765 square miles)
- Significant air quality deterioration
- Over one month to contain larger fires

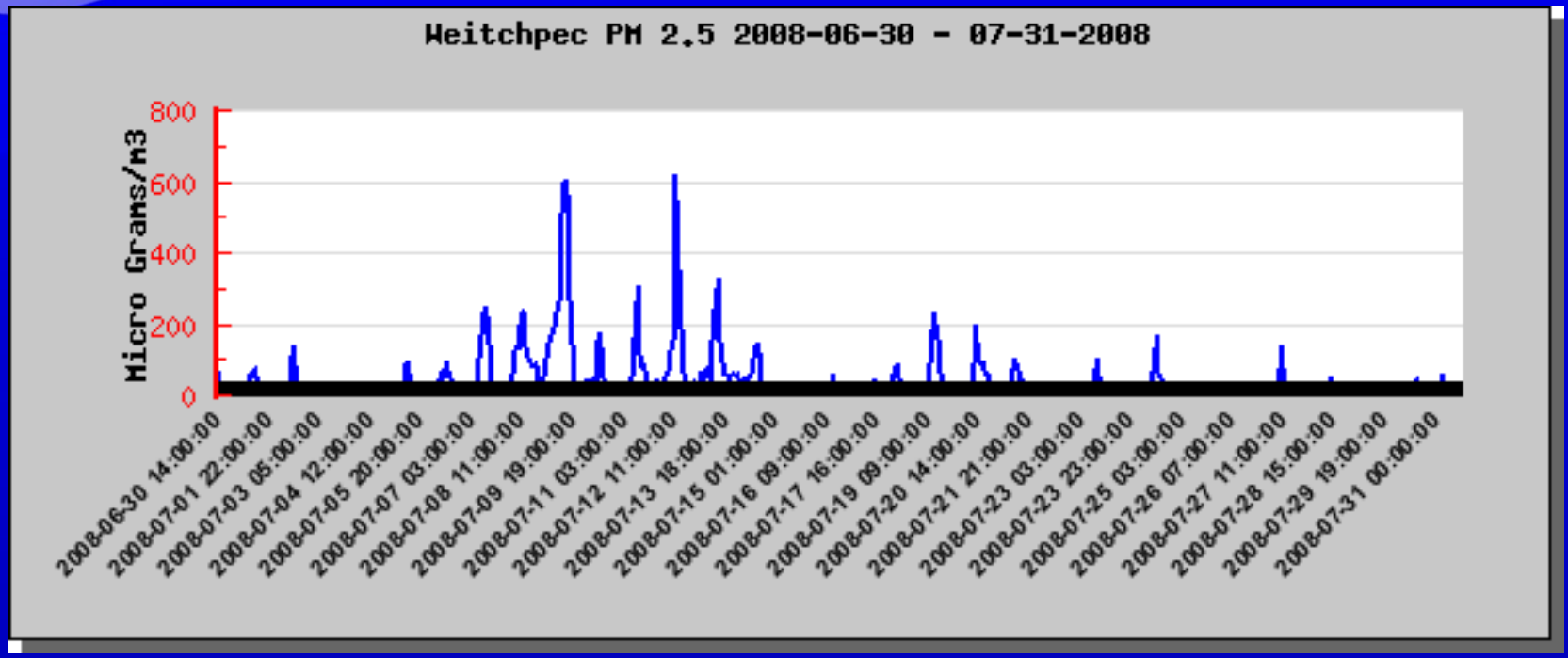
Northern California
Lightning Strikes and Fire Starts June 20-21, 2008





Photos courtesy NASA

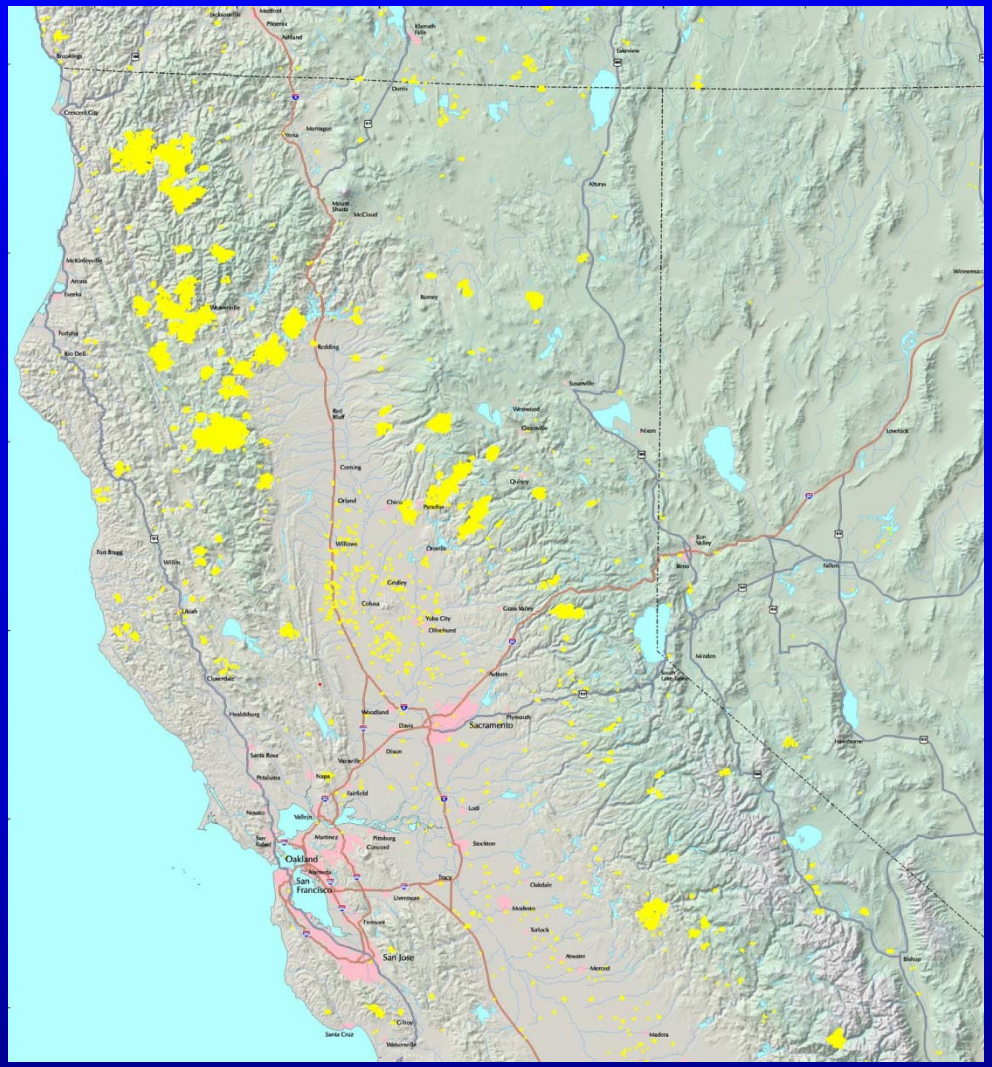
Impact: Air Quality



Average daily PM2.5 of 200+ compared to EPA standard of 35
Hourly concentrations exceeded 600 on two days

Data/graph courtesy Yurok CA tribe

Changed Landscape



Courtesy USDA/MODIS

Other Chronic Impacts Not Quantified

- Doctor visits and emphysema/bronchitis
- Burn scars/future flash flooding
- Secondary and tertiary economic from recreation
- Environmental – land and water

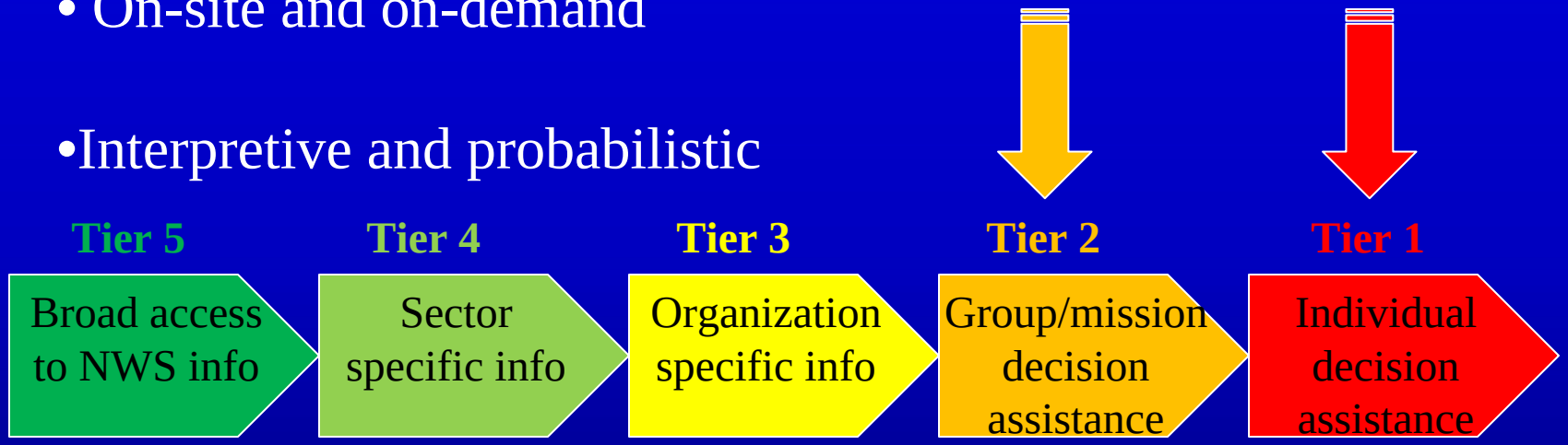
Decision Support: What Does It Mean?

- Much more than forecast accuracy; effectiveness of how information is applied (behavioral/response)

- Adjustments and updates evolve in real-time; particularly relevant for critical and changing situations

- On-site and on-demand

- Interpretive and probabilistic



Adapted from *NWS Science and Technology Roadmap – Decision Support Services*, 2009

IMET: Pioneers of Decision Support

IMET: Decision Support Examples

"I need forward visibility of at least one mile. Can I fly today?"

"When is the inversion going to break up?"

"How bad is smoke going to be tomorrow for Sacramento? Will it require a 'spare the air' day?"

"Fire is spreading…should we evacuate the community of Hyampom?"

"How many offshore wind events will occur at Brush Mountain between now and November?"

"What are the chances of a season-ending [rain] event by October 20?"

"We've got a chlorine spill on Route 299. I need to know how much area to evacuate!"

"Where is this bunker oil slick going? Will it impact Humboldt Bay?"

"Where is the most likely debris swath from Columbia?"

"Can we conduct burnout operations to button up this fire?"

"We'd like to distribute Katrina relief supplies. What are the chances for tidal flooding?"

Conclusion