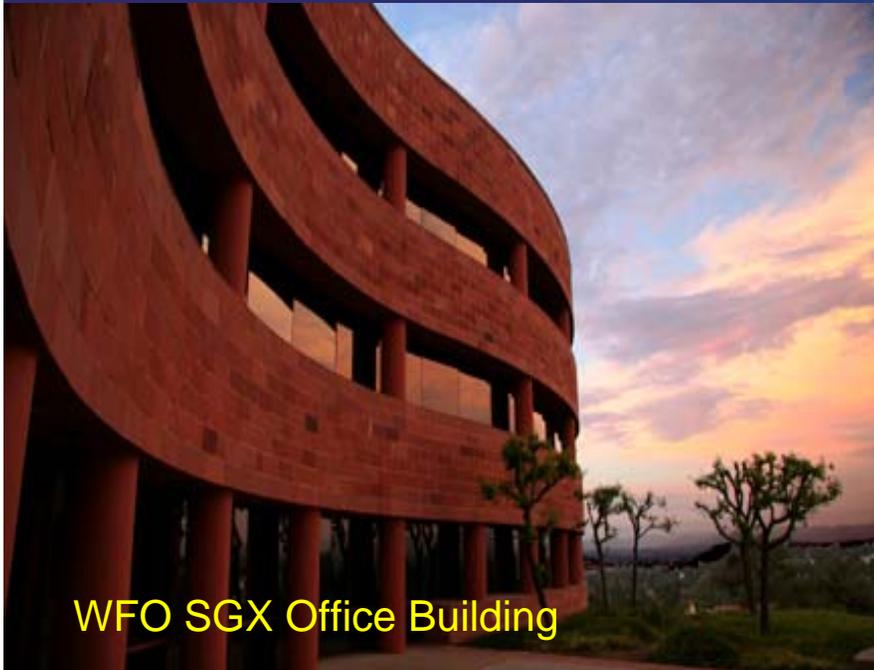




# Southern California Firestorm 2007



WFO SGX Office Building



Home burning in Rancho Bernardo



**James K. Purpura**  
**Meteorologist-In-Charge**  
**National Weather Service**  
**San Diego, California**

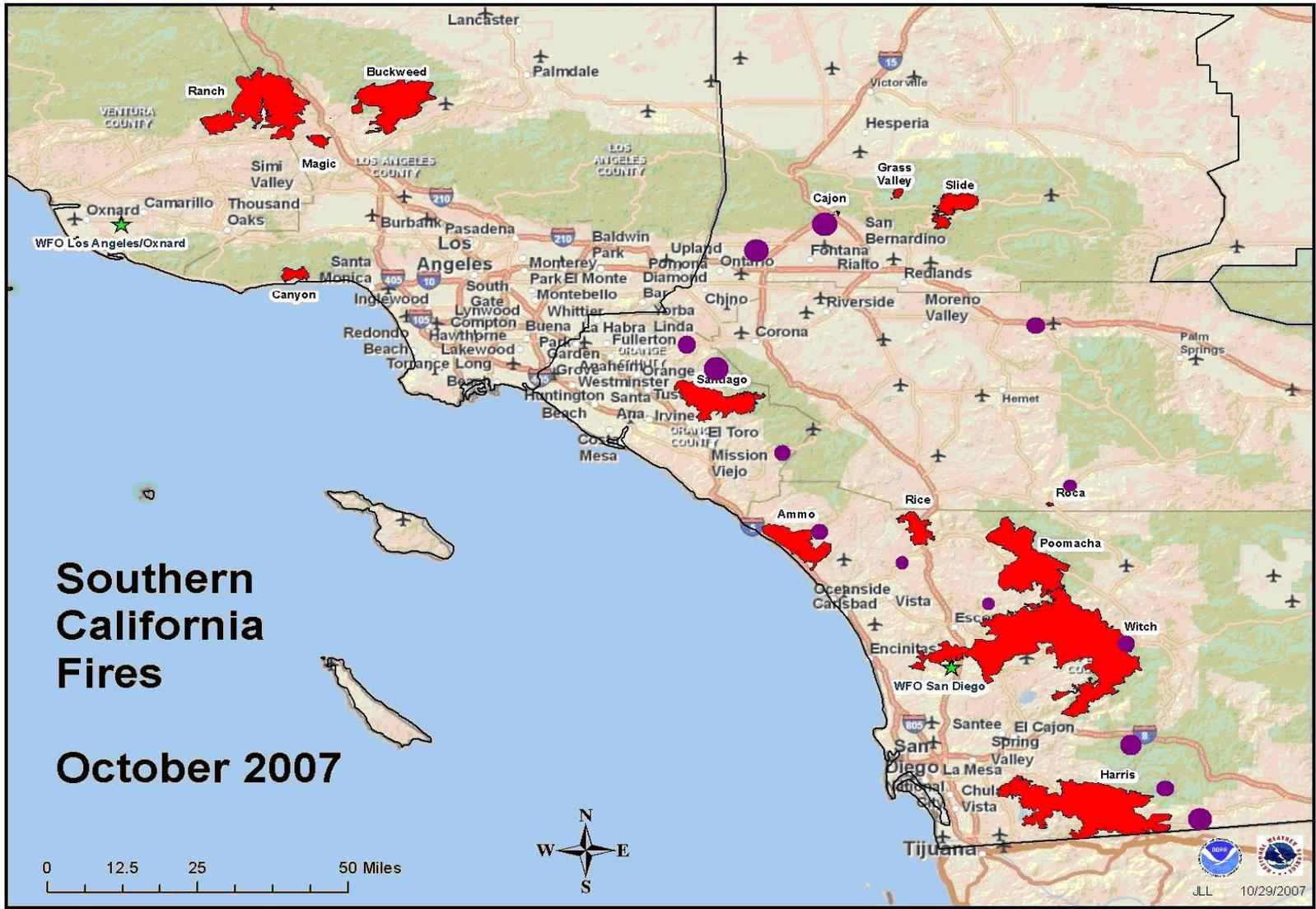
[weather.gov/sandiego](http://weather.gov/sandiego)

NOAA National Weather Service



# Larry Himmel Video

- Larry Himmel is a reporter at KFMB-TV in San Diego
- Larry was providing TV news coverage of the Witch Creek fire in Rancho Bernardo and the 4-S Ranch neighborhood
- Little did he know that he was about to become personally involved in the story...





# Major Fires (SGX) October 21 -23

- **Witch Creek (S.D. County)**
  - *197,990 acres*
  - *1125 homes, 509 outbuildings, 239 vehicles destroyed*
  - *2 deaths, 40 firefighters and 2 civilians injured*
- **Harris (S.D. County)**
  - *90,440 acres*
  - *253 homes, 293 outbuildings destroyed*
  - *7 deaths, 40 firefighters and 21 civilians injured*
- **Poomacha (S.D. County)**
  - *50,176 acres*
  - *138 homes, 78 outbuildings destroyed*
  - *21 firefighters injured*



# Major Fires (SGX) October 21 -23

- **Rice (S.D. County)**
  - *9,472 acres*
  - *206 homes, 40 outbuildings destroyed*
  - *5 firefighters injured*
- **Slide (S.B. County)**
  - *12,789 acres*
  - *272 homes, 3 outbuildings destroyed*
  - *9 firefighters injured*
- **Grass Valley (S.B. County)**
  - *1,247 acres*
  - *174 homes, 2 outbuildings destroyed*
  - *1 firefighter injured*



# Major Fires (SGX) October 21 -23

- **Santiago (Orange County)**
  - *28,400 acres*
  - *15 homes, 9 outbuildings destroyed*
  - *16 firefighters injured*
  - *Fire threatened large areas of highly populated Orange County*
    - *~ 3,000,000 population*
  - *Debris Flow threat prompted numerous evacuations of Santiago and Modjeska Canyons Fall/ Winter 2007/08*



# Setting the stage

- A strong, persistent “Santa Ana” event continued from October 21<sup>st</sup> to October 24<sup>th</sup>
- Persistent, severe drought for two years meant fuel moistures were already below critical levels
  - *Some areas only received 25% to 40% of annual precipitation*
- In some places peak gusts were greater than 70 mph, with humidities below 10%, for 23 hours during the event.



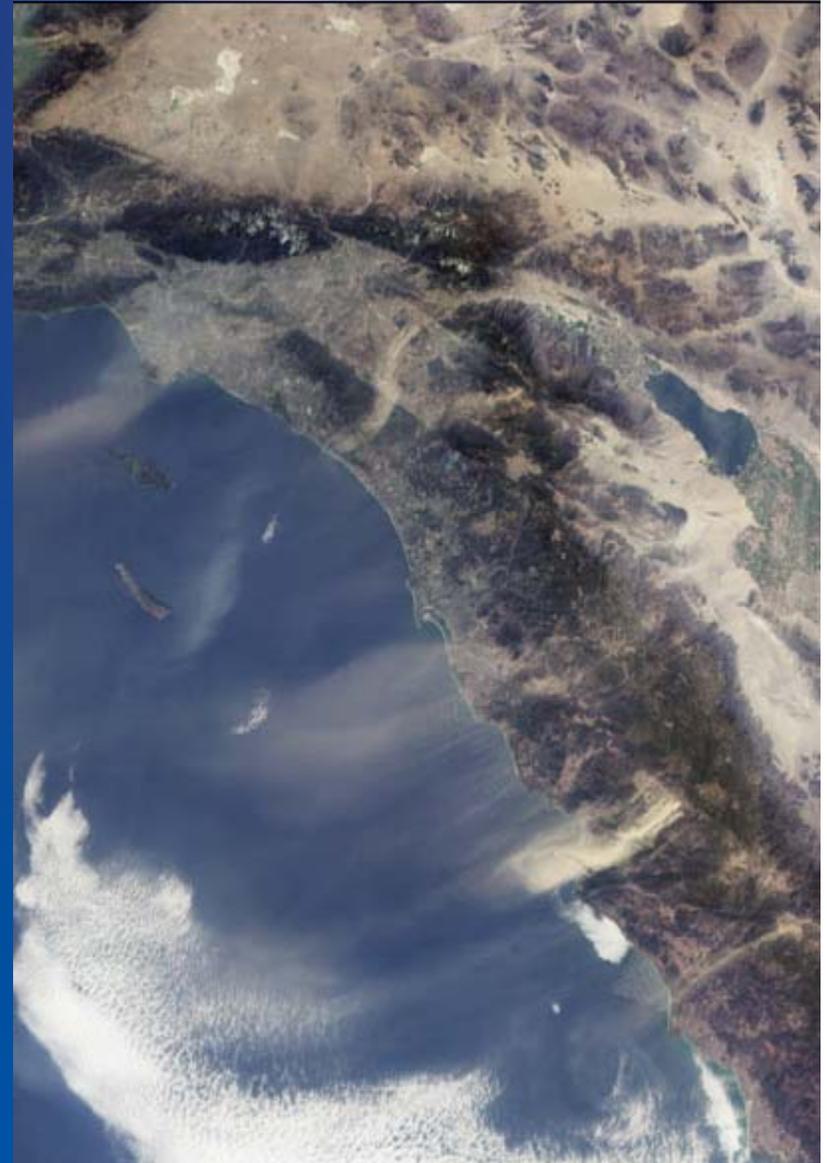
# Santa Ana Winds

## What leads to a Santa Ana Wind Event?

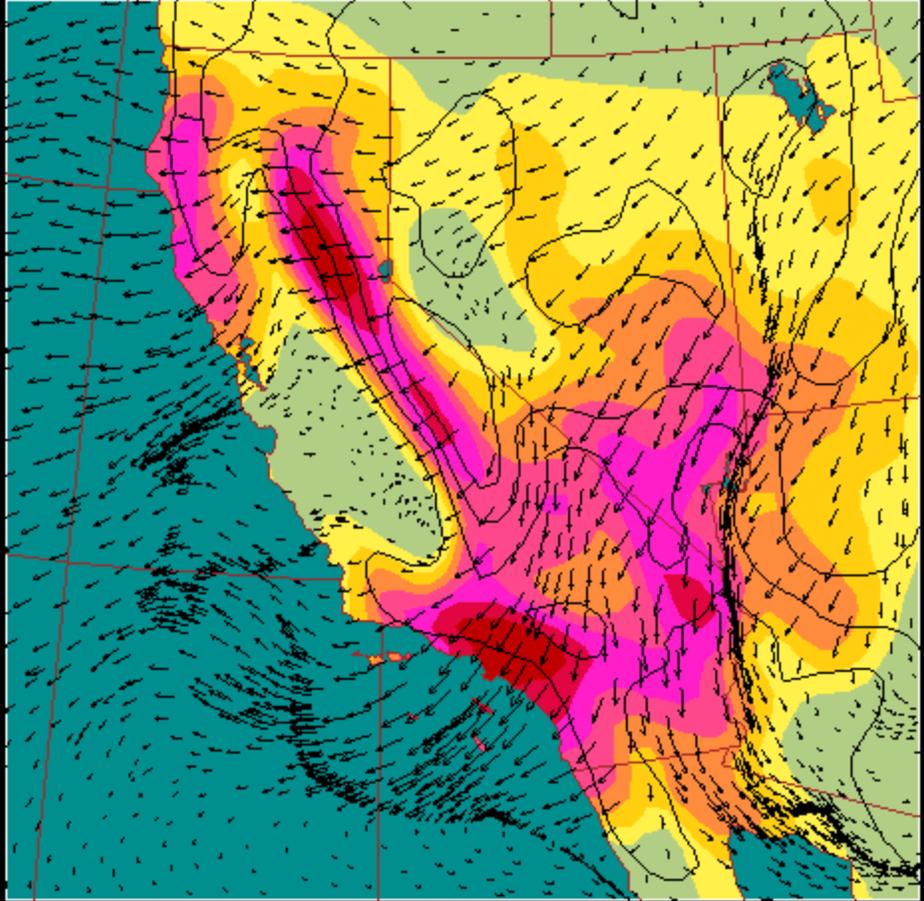
- **Strong surface high pressure over the Great Basin (Nevada), and lower pressure off the coast**
- **Strong winds aloft coming from the northeast quadrant (downward motion behind an upper trough)**
- **Strong temperature difference aloft, i.e. cold air in the Great Basin and warm air near the coast**

September through January

[weather.gov/sandiego](http://weather.gov/sandiego)



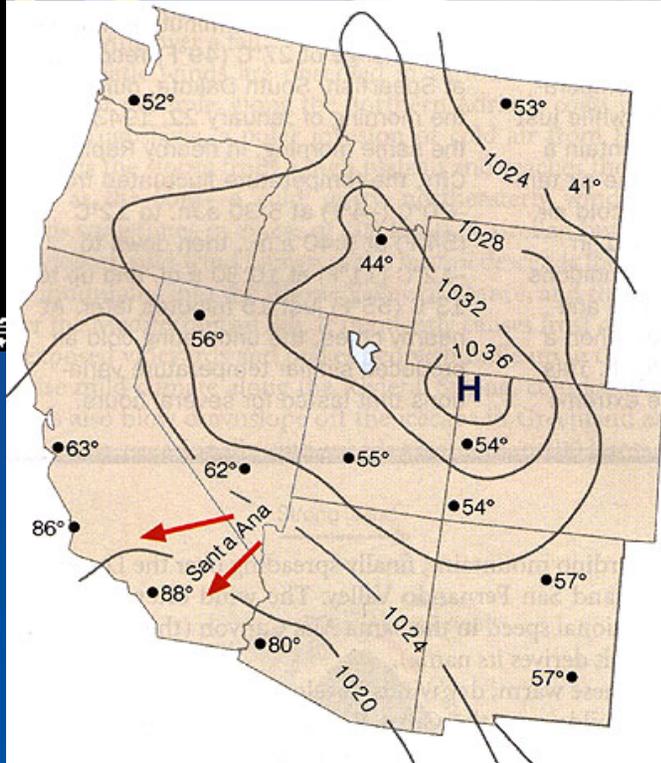
1993 SANTA ANA WIND AND FWI



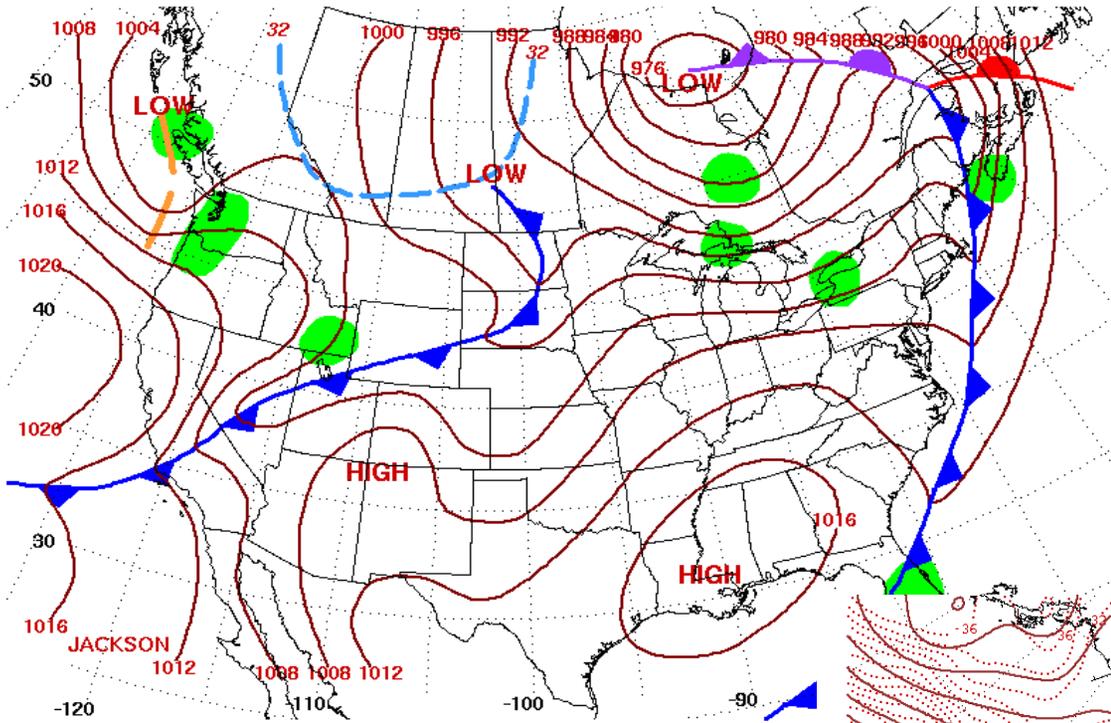
24 25 26 27 28 29



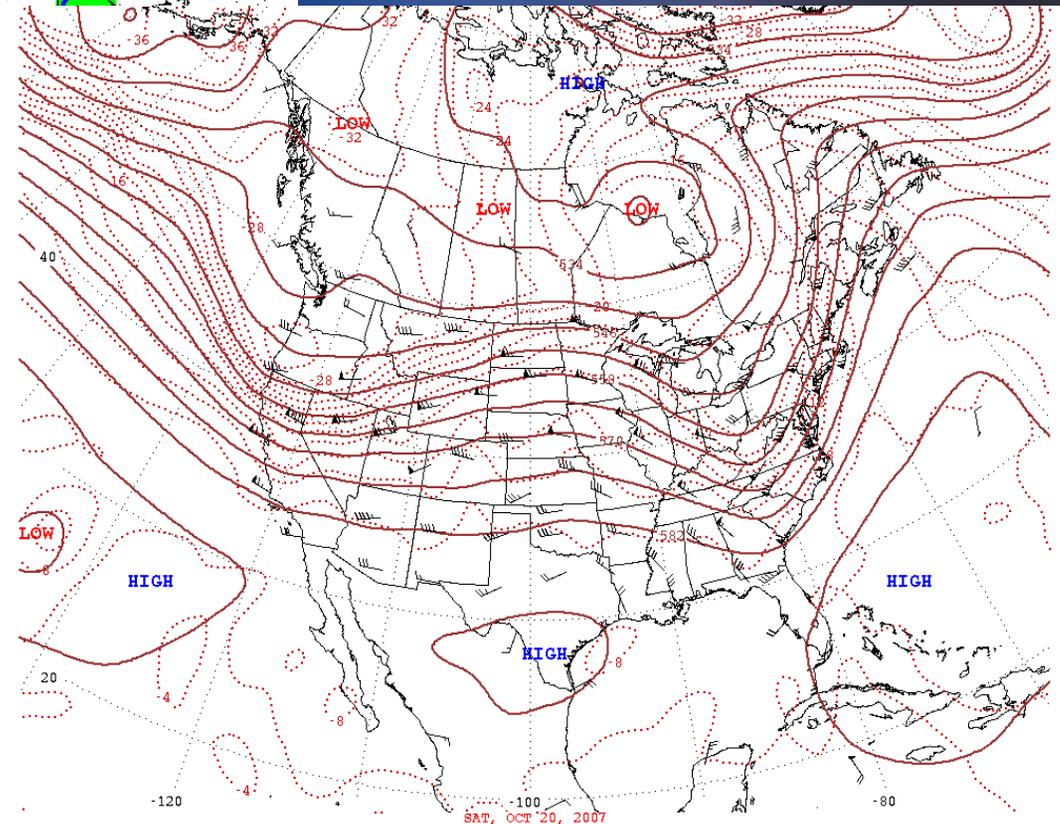
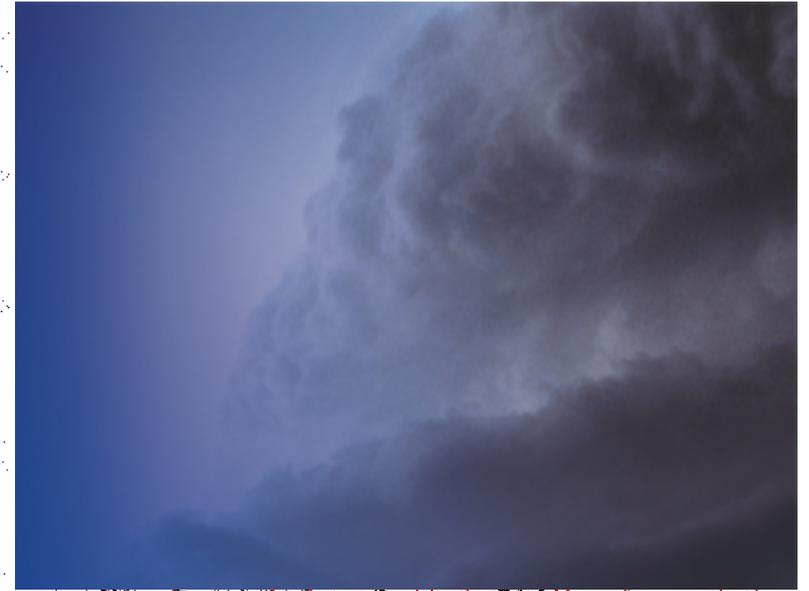
[weather.gov/sandiego](http://weather.gov/sandiego)



Weather Service



Surface Weather Map at 7:00 A.M. E.S.T.

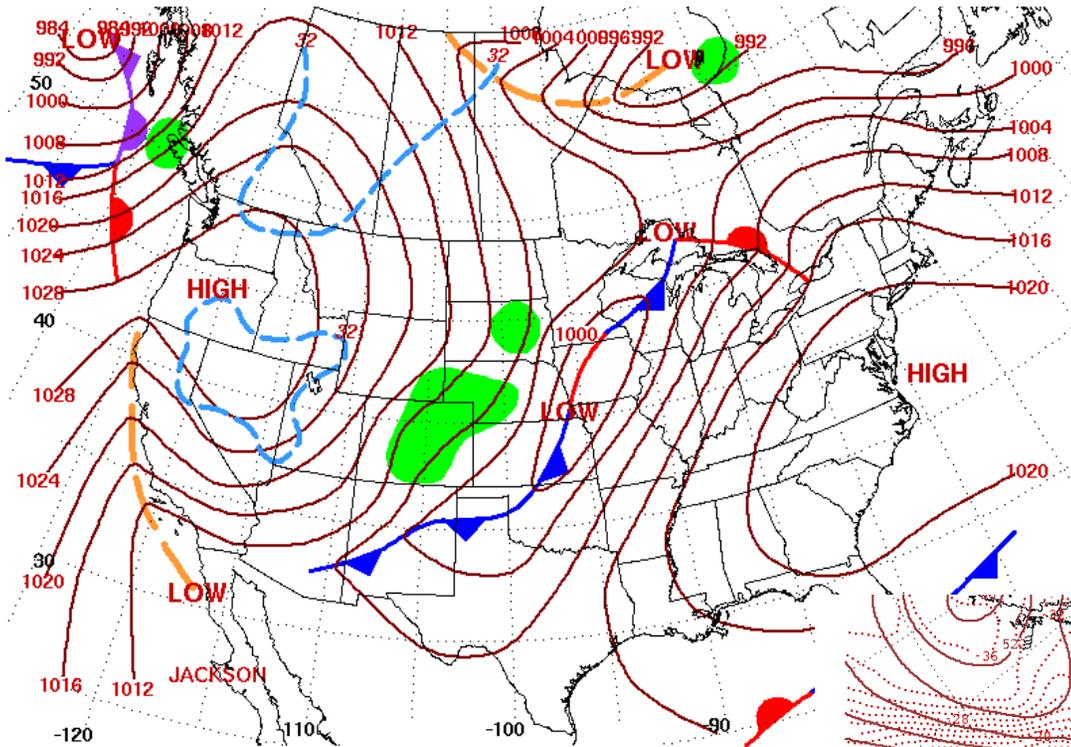


500-Millibar Height Contours at 7:00 A.M. E.S.T.

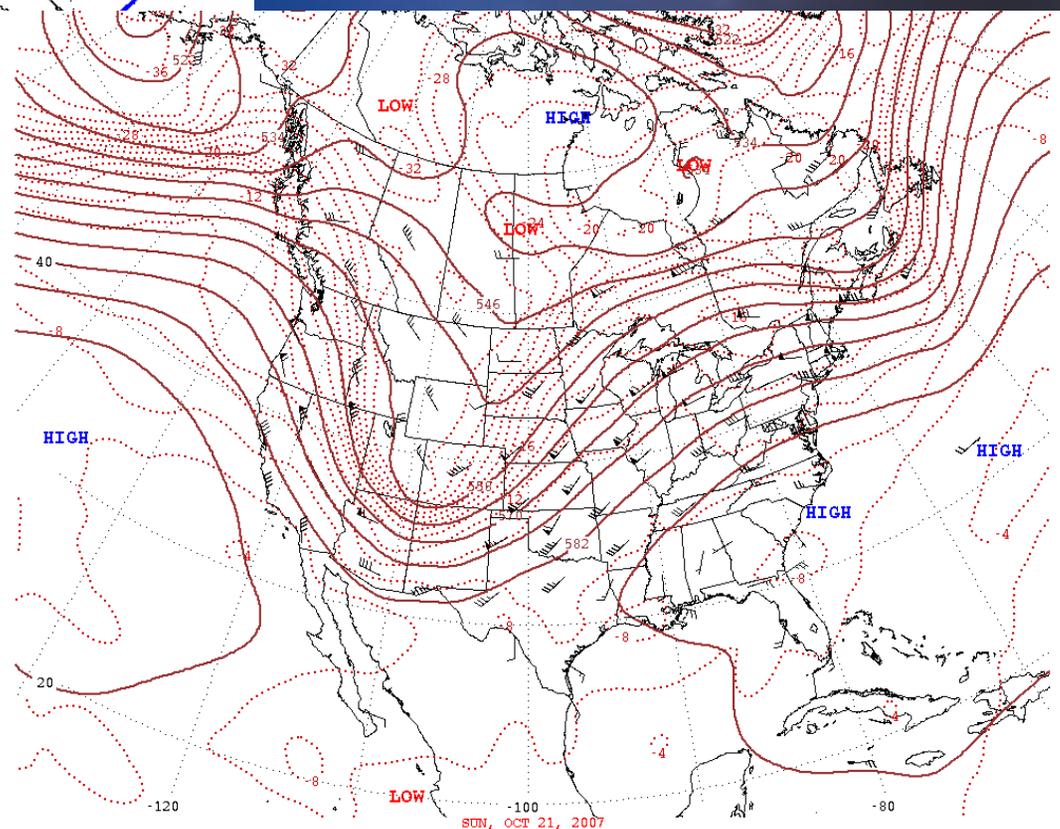
Sat. Oct 20, 2007



[weather.gov/sandiego](http://weather.gov/sandiego)



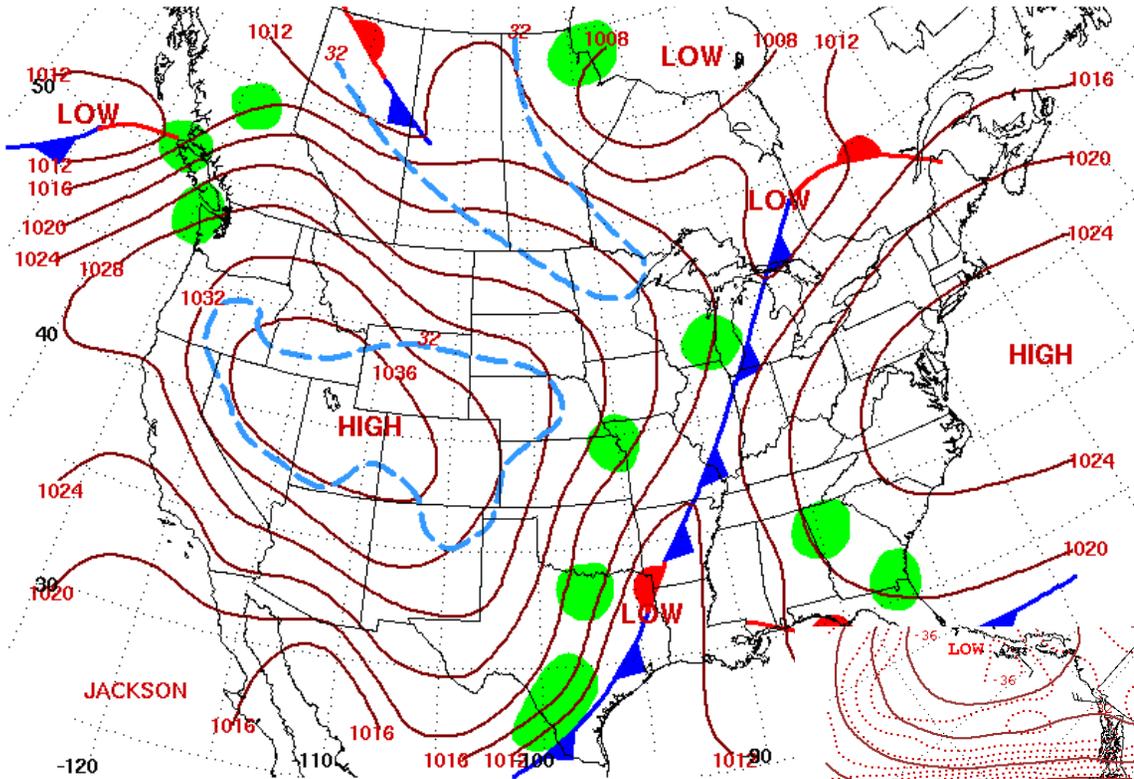
Surface Weather Map at 7:00 A.M. E.S.T.



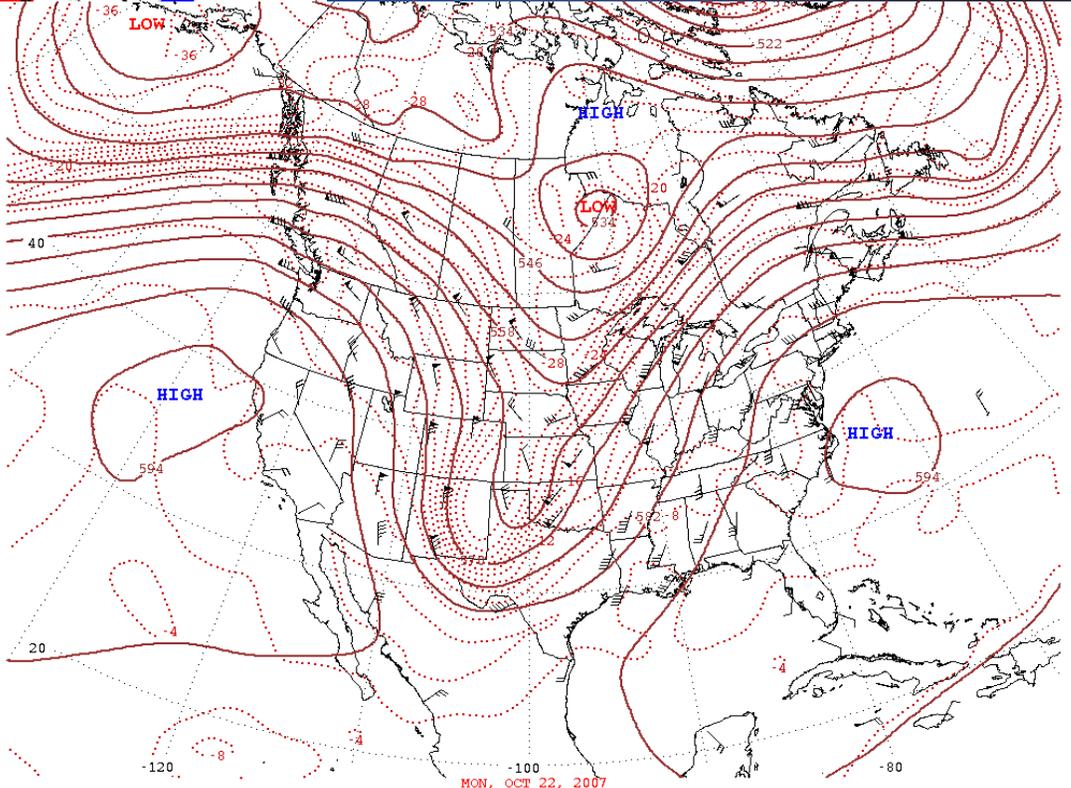
500-Millibar Height Contours at 7:00 A.M. E.S.T.

Sun. Oct. 21, 2007

weather.gov/sandiego



Surface Weather Map at 7:00 A.M. E.S.T.



500-Millibar Height Contours at 7:00 A.M. E.S.T.

Mon. Oct. 22, 2007

weather.gov/sandiego



# Event was well advertised...

- **Wed, Oct 17**
  - ***SPC: "...offshore Santa Ana wind event may become well established across southern California by late Saturday and Sunday into Monday..."***
  - ***SGX: "...possible explosive wildfire potential in San Diego County Mountains and valleys Monday afternoon..."***



# Event was well advertised...

- **Friday, Oct 19**
  - ***SPC: “...dry windy conditions along with extreme drought suggest that a considerable fire danger will exist across southern California early Sunday into Tuesday.”***
  - ***SGX: “...Gusts to 80 mph Sunday morning through Tuesday morning. Strongest winds Sunday evening through Monday morning. Monday the most critical fire weather day...”***



Poomacha Fire 10-23-07 (Steve Vanderburg)

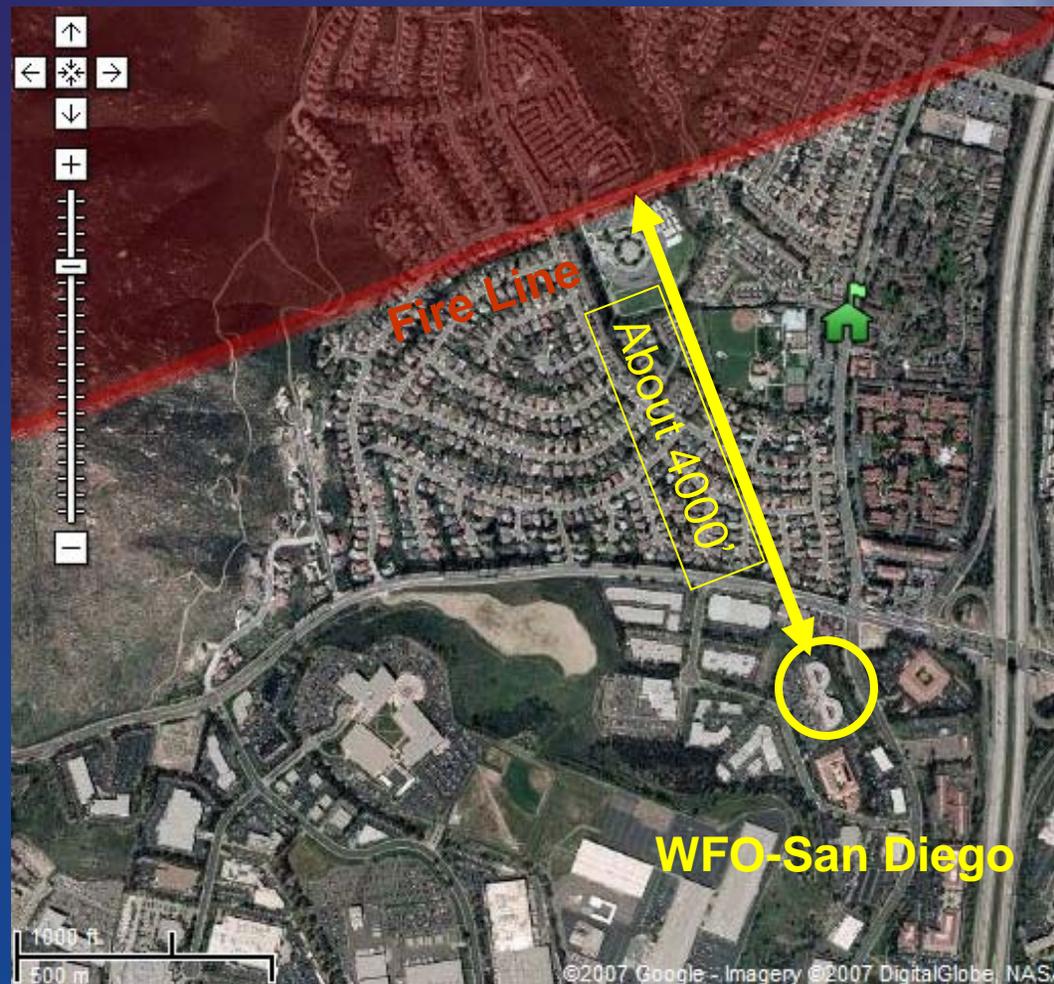


# We went through Cedar Fire 2003... but this fire was different

- It touched us in a more personal way
- Smoke began to enter the building threatening an office evac on Sunday
- About 40% of staff lived within in a Mandatory Evacuation area.
- Admin Assistant called me at home, evacuating her home while a neighbor's home was burning
- Some didn't know for three days if they still had a home
- Staff was counseled for Post-Traumatic Stress
  - *Employee Assistance Plan*



## How close were the fires to the office?



4000 feet...or less

[weather.gov/sandiego](http://weather.gov/sandiego)

NOAA National Weather Service



# Office Timeline

- **Sunday October 21**
  - *Most large fires begin*
  - *Smoke from Witch Creek Fire is visible to the east*
  - *By mid afternoon, smoke is noticeable in the office*
    - Concerns for possible evacuation
- **Monday October 22**
  - *Some staff manage to make it in before I-15 is closed.*
  - *Mandatory evacuation declared for Rancho Bernardo*
    - Office evacuated by 9:45 am
    - MIC and ITO travel to Oxnard WFO (Backup Office)
    - WCM and two forecaster head to SD County EOC
      - *Provide support for 24 + hours*



# Office Timeline

- **Tuesday October 23**
  - *Office is reopened at 5:00 am*
  - *Most staff returns by mid morning*
  - *MIC and ITO return by mid-late afternoon*
  - *SD EOC support continues until Wednesday (8 hr/day)*



# Staff Meeting on Wednesday, October 23





# October 29 and 30

- Jack Hayes visits San Diego
  - Visits Forecast Office
  - Visits SD County EOC
  - Visits IMET Fire Camp
  - Tours burn areas by helicopter





# What worked?

- **Heads up to critical customers**
  - *No one who was paying attention could say they didn't see this coming*
- **Service Backup went well**
  - *SGX ITO helped solve a grid issue with WR after the LOX IT had left for the day*
- **Office Evac went well**
  - *WCM ran evac, sent himself and 2 forecasters to SD EOC*
- **Evac Pay**
  - *Took a few extra days to make work, but NWS employees in Mandatory Evac did not have to sit in shelters*



# What didn't work?

- **Continuity of Operations (COOP)**
  - *Office backup plan worked well, but there was no plan for how to get from evac to backup*
    - Accounting for a few people was difficult
    - How to track people down in evac and shelters to give them work status?
  - *Office will have a Continuity of Operations Plan by the end of March*



## After the Fires...the next risk is Debris Flows!



Greenwood Avenue, Devore 12/25/03



# Quiz Time!

- According to the USGS, how much rainfall can start a debris flow in mountainous terrain, after a “fresh burn” (ash still in basin)?
  - A. 3 inches/hour
  - B. 2 inch/hour
  - C. 1/2 inch/ 30 minutes
  - D. 2/10 inch / 20 minutes



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# NWS/USGS Debris Flow Program

- With such minimal rainfall potentially causing devastating debris flows, Flash Flood Watches and Warnings are tied to USGS thresholds.
- Watches and Warnings mention debris flows in specific burn areas.
- Public Information Statements from USGS and issued by NWS highlight specific areas (streets, etc) potentially affected
- For details see [weather.gov/sandiego](https://weather.gov/sandiego) , scroll to link on “Debris Flows”



Questions??

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[weather.gov/sandiego](https://weather.gov/sandiego)

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