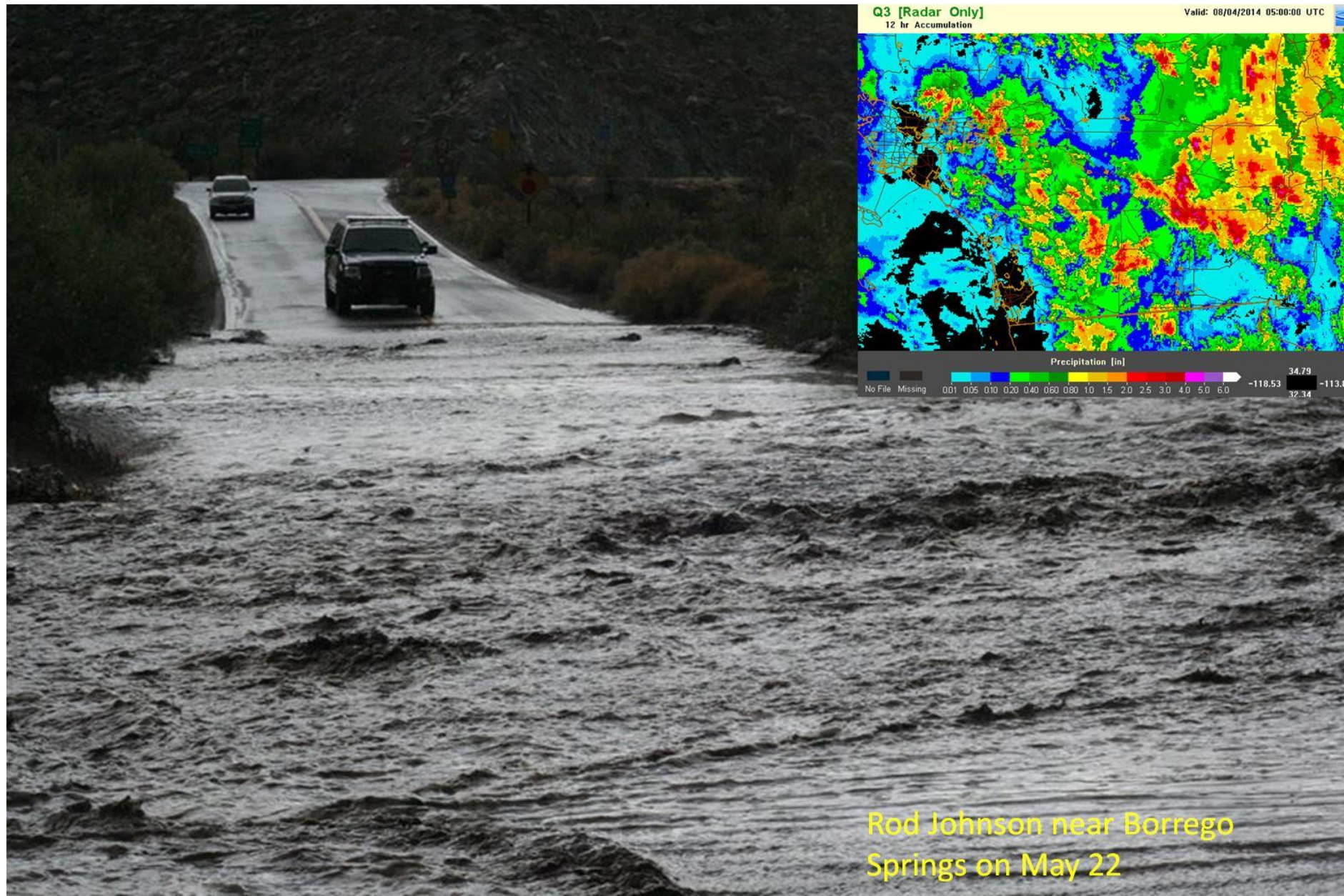


The 2014 weather year in review

Southern California by Alex Tardy



Rod Johnson near Borrego Springs on May 22

California

Intensity:

- D0 - Abnormally Dry
- D1 - Moderate Drought
- D2 - Severe Drought

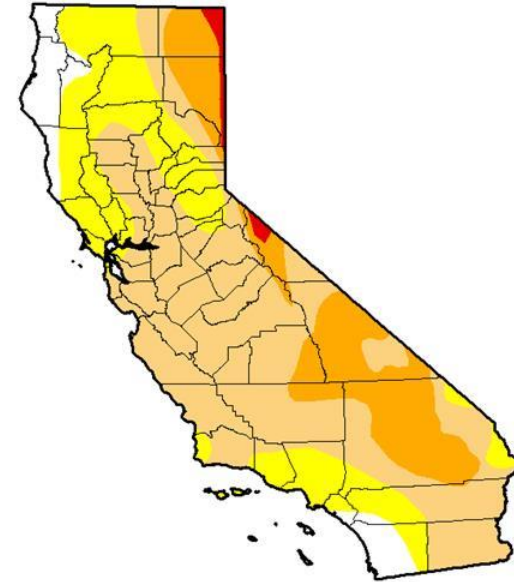
October
2011



October
2012

California

- D3 - Extreme Drought
- D4 - Exceptional Drought

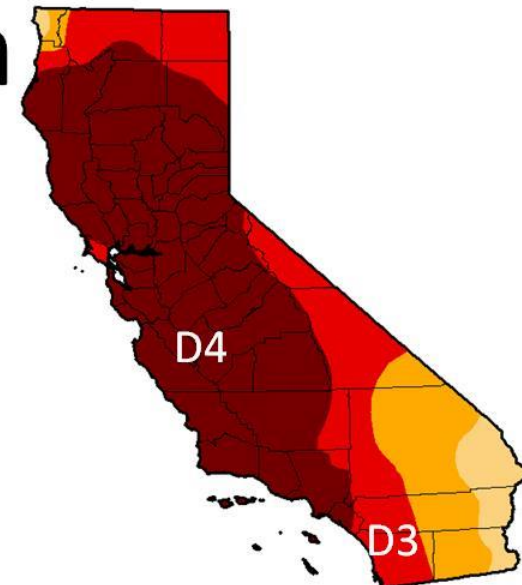


Drought Growth

October
2013



October
2014



4 year precipitation since January 2011

December 31, 2014

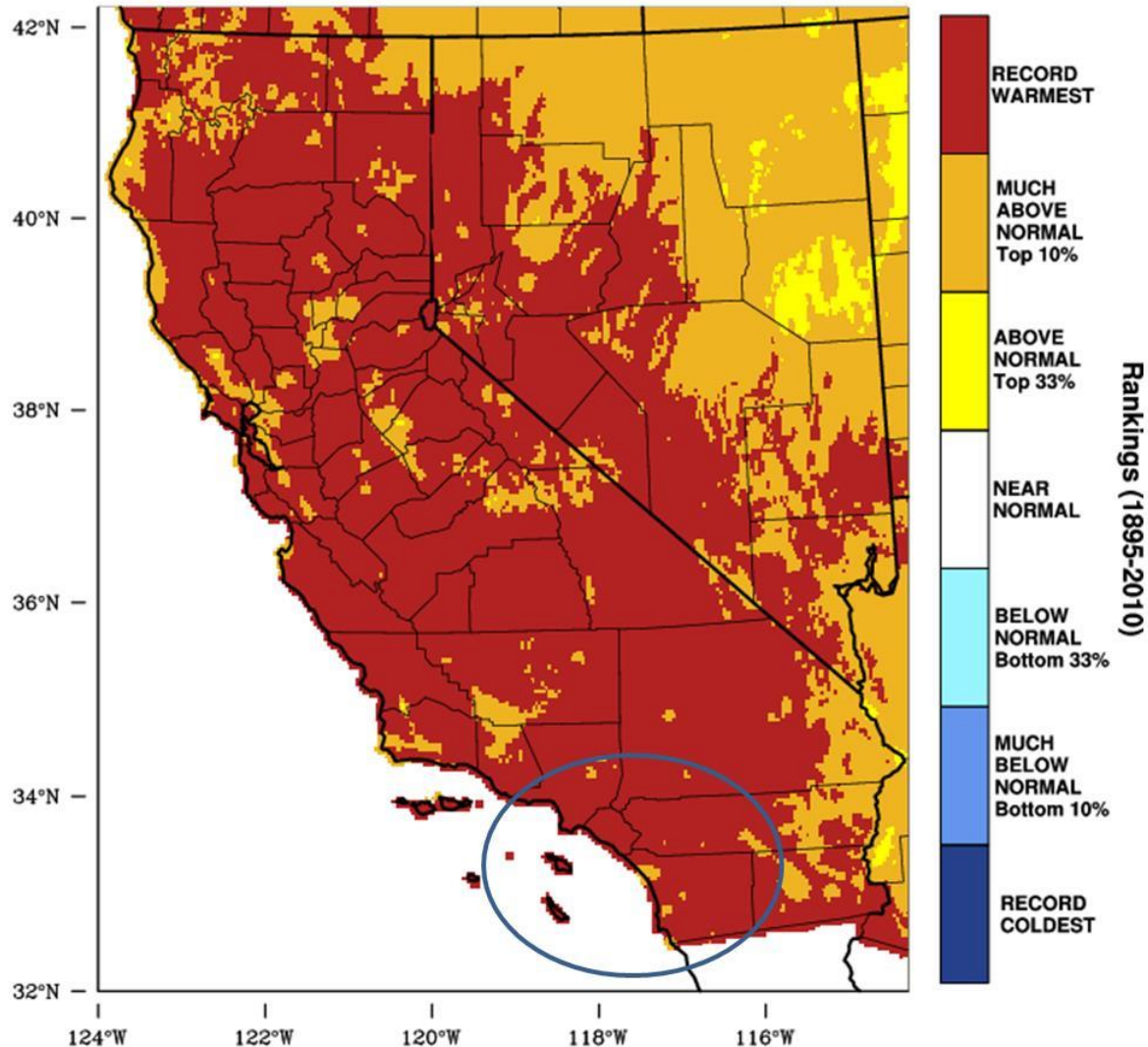
Station 4 year precipitation at Nov 1	4 year deficit At November 1	2014-15 Season %	Annual average	Lost precipitation
San Diego (SAN)				
24.52	14.30 inches	4.87 or 46%	10.34	1 ½ season
Santa Ana (Fire stn)				
24.29	26.98 inches	3.85 or 27%	13.63	2 seasons
Riverside (Fire stn)				
21.88	17.22 inches	3.57 or 35%	10.33	1 ½ season
Palomar Mtn				
76.60	36.75 inches	8.37 or 28%	30.20	1+ season
Idyllwild				
67.15	30.85 inches	6.57 or 25%	26.18	1+ season
Palm Springs				
8.58	9.72 inches	0.81 or 17%	4.83	2 seasons

January to November 2014

Record Warmest

California - Mean Temperature

January-November 2014 Percentile



WestWide Drought Tracker - WRCC/UI Data Source - PRISM (Prelim), created 7 DEC 2014

AVERAGE temperature Since January 2014

as of December 30, 2014* **rankings in red**

Location	Temperature Ranking	Next warmest
Riverside (Fire stn)	69.2 – 2006**	68.1 – 2013
San Diego (SAN)**	1st – 67.6	67.2 - 1984
Santa Ana (Fire stn)	1st – 69.4**	67.1 – 2009
Big Bear	51.5***	51.9 – 2008 (missing data)
Idyllwild	58.1***	61.5 – 1951 (missing data)
Palm Springs	1st – 77.3 **	76.1 – 1995/2003
El Cajon (1979)	1st - 68.0	68.0 - 2003
Chula Vista	1st - 66.5	66.4 - 1992
Palomar Mtn	1st – 61.3 - 2008	59.4 - 2014 and 2000
Vista	1st – 65.8 – 1992	65.7 -2014

* Preliminary numbers, visit weather.gov/SanDiego climate for final numbers

** Santa Ana. Riverside and Palm Springs have missing monthly records

*** Idyllwild and Big Bear have missing data

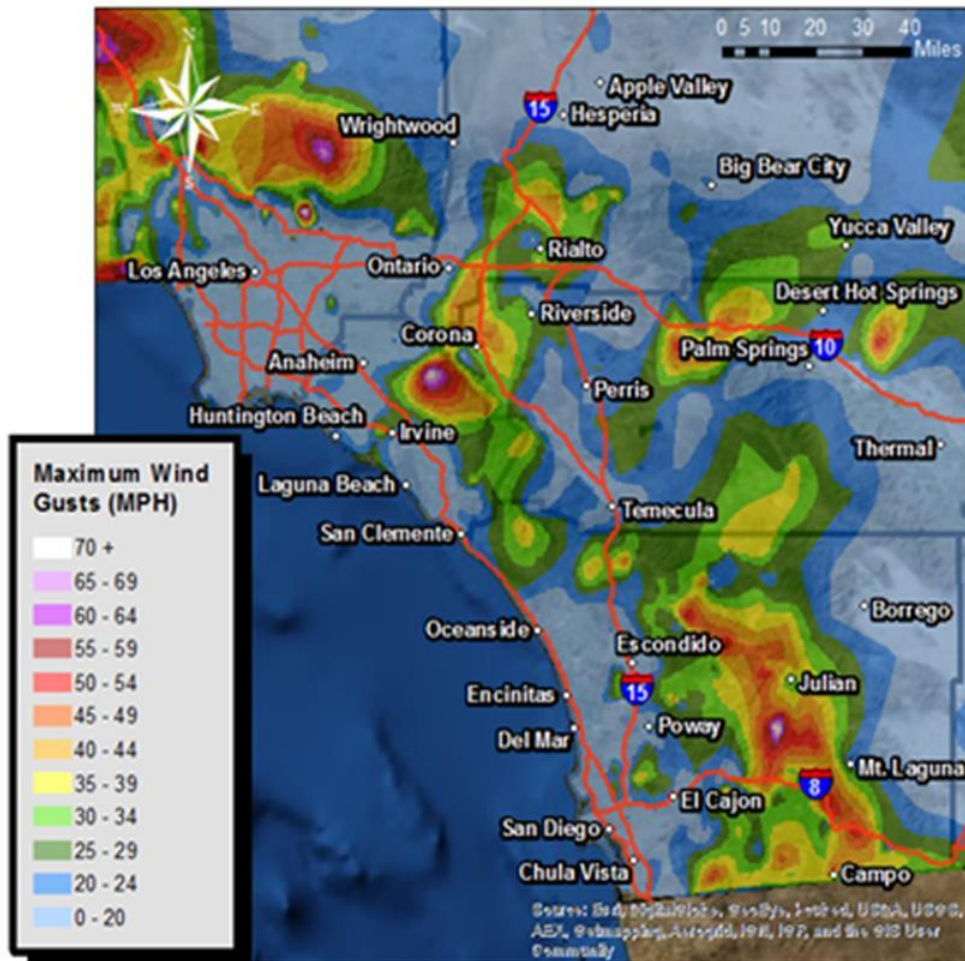
January 13-16, 2014 Santa Ana wind a very dry start to the year

- 3 day period of wind followed by secondary event January 17 (prolonged similar to January 14 to 17, 2013!)
- Peak wind gusts 77 mph at Fremont and 88 mph at Sill Hill
- Record high temperatures on coast (82 San Diego, 84 Newport Beach, 84 Oceanside Harbor, 89 Vista, Escondido 87 (15 to 16C 850 mb temps on



January 13-15, 2014

72-HOUR PEAK WIND GUSTS ENDING AT NOON JANUARY 15, 2014



TOP TEN WIND GUSTS

SILL HILL	88 MPH
FREMONT CANYON	77 MPH
BUCKMAN SPRINGS	61 MPH
HELLHOLE CANYON	60 MPH
BIG BLACK MTN	59 MPH
BOULDER CREEK	58 MPH
SKY VALLEY	58 MPH
WEST SANTA YSABEL	56 MPH
LA POSTA	55 MPH
LUCKY FIVE RANCH	55 MPH



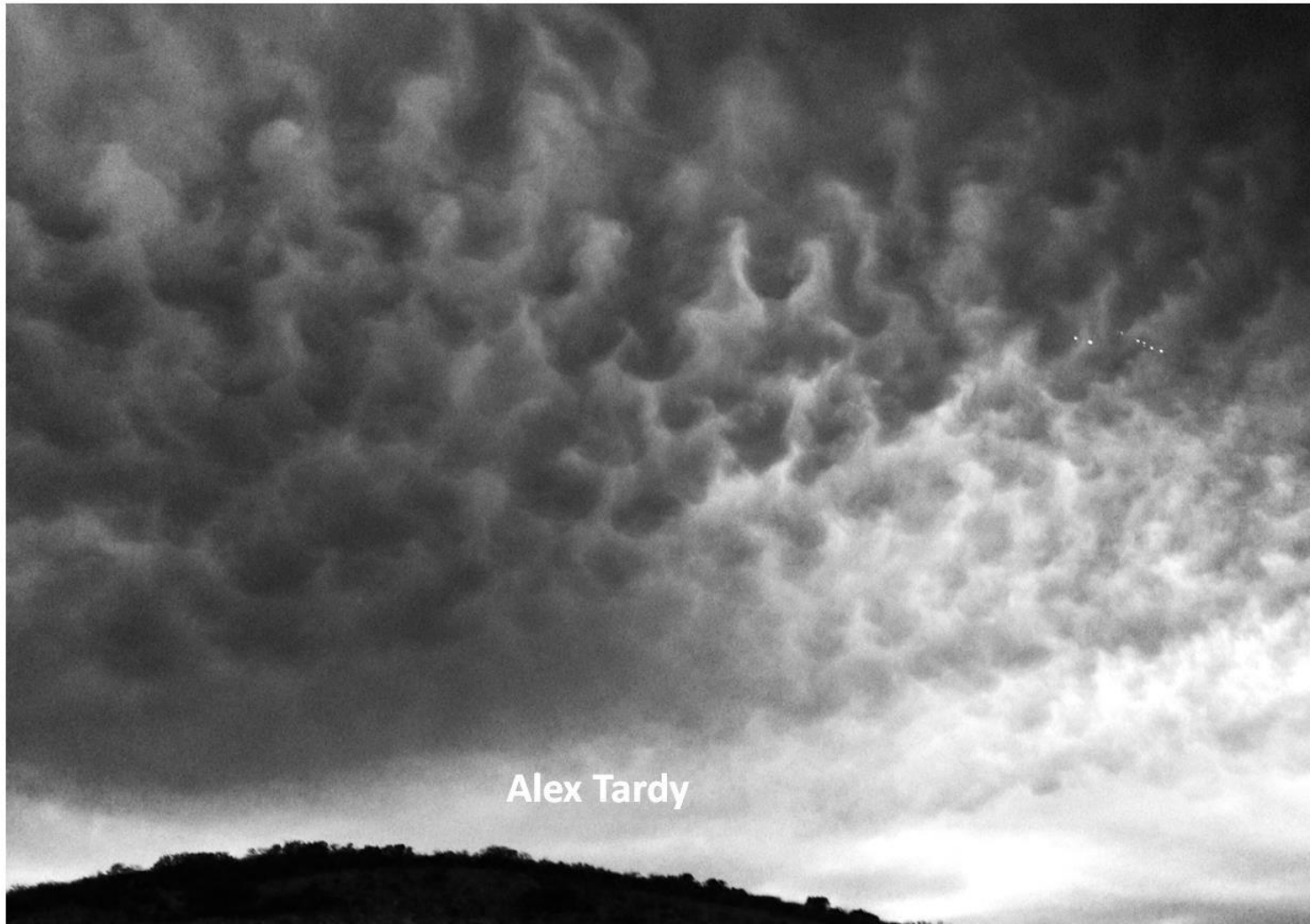
This is an interpolation of reported values, and should only be considered an estimation.

Created and distributed by NWS San Diego.



February 28- March 1, 2014

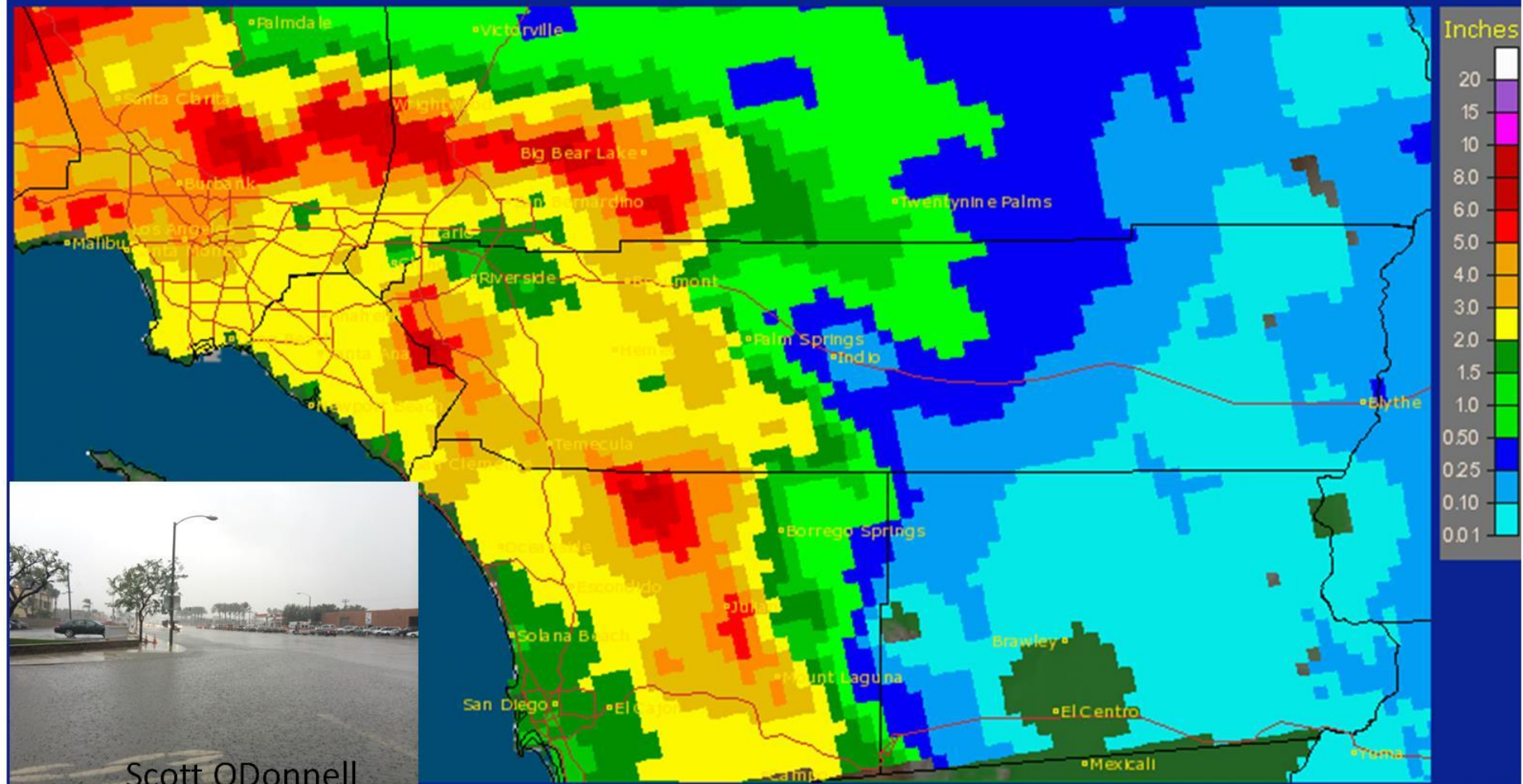
Severe thunderstorms and heavy rain
with wind damage



Alex Tardy

Storm Total Thursday through Sunday (Feb 27 to Mar 2) morning - AHPS

San Diego, CA (SGX): Current 7-Day Observed Precipitation
Valid at 3/2/2014 1200 UTC - Created 3/2/14 18:10 UTC



San Diego County

Scripps Ranch



Fox5 news



NBC7 Mission Beach



Milan Way
San Ejilo Hills
San Marcos

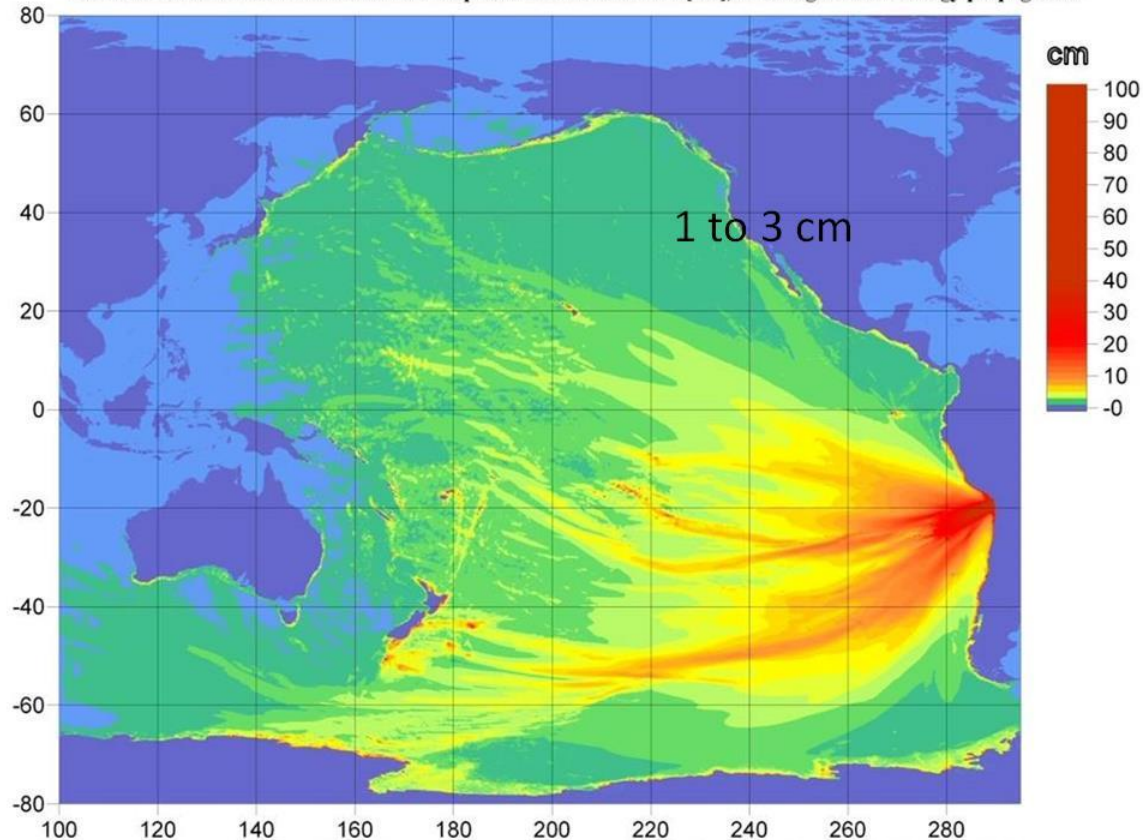


Chile 8.2 earthquake and local 4 to 7 foot Tsunami wave amplitude

April 1, 2014

Tsunami Propagation Forecast

Contours of forecasted maximum wave amplitudes above sea level [cm], detailing tsunami energy propagation.



Event ID: n3dm1y

Earthquake Magnitude: 8.2

Earthquake Location: [-19.80N, -70.80W], near the coast of northern Chile

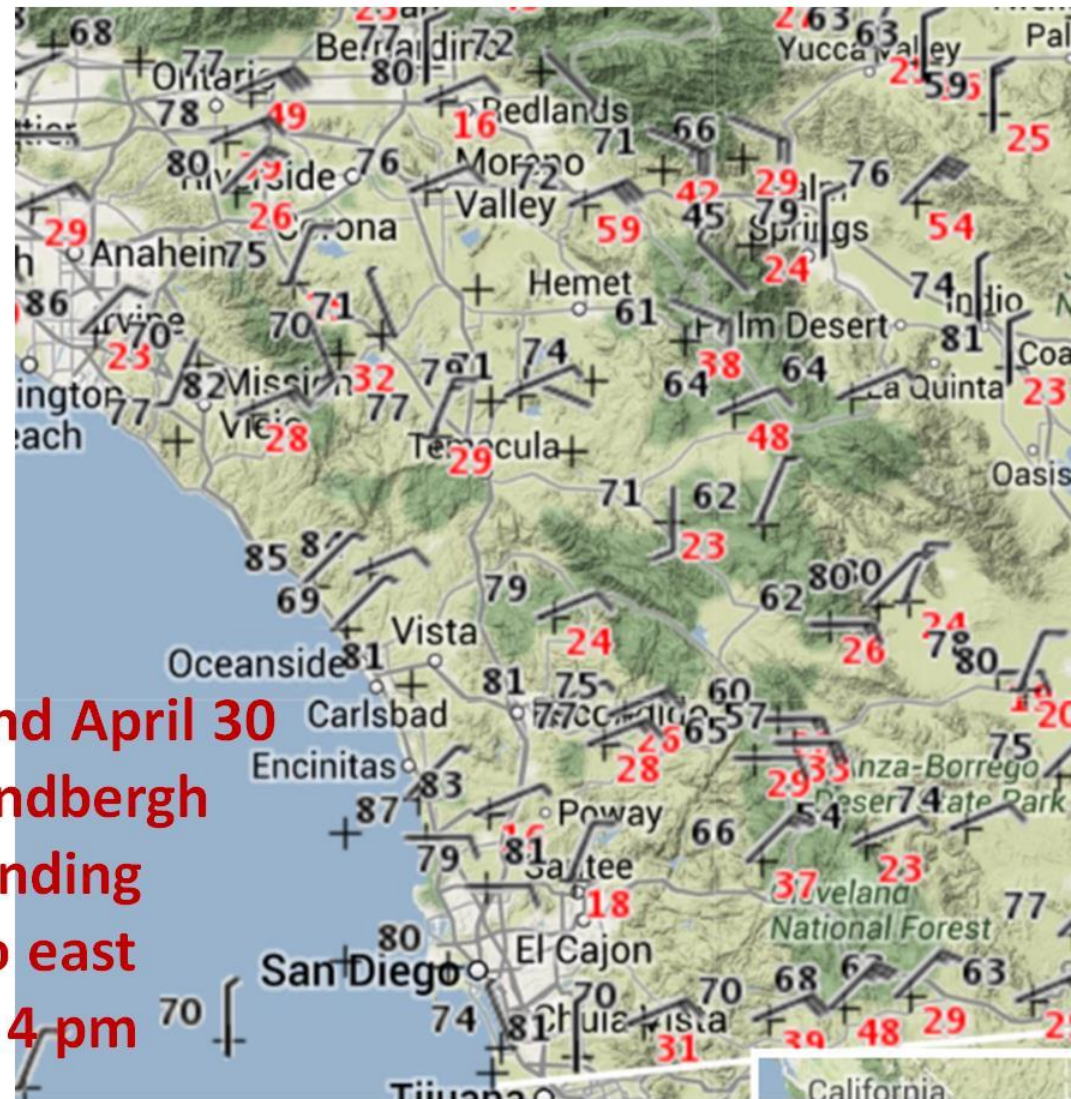
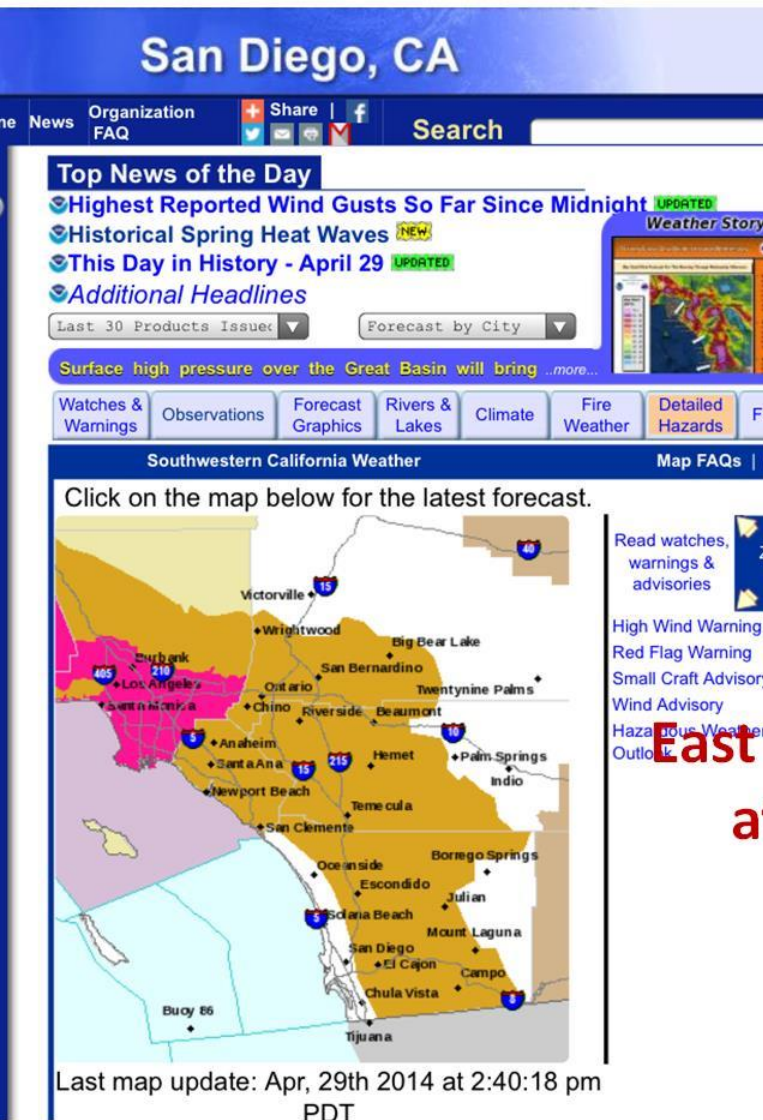
Earthquake Origin Time: 23:46:48 (UTC)

Date: 4/1/2014

National Tsunami Warning Center

April 29-May 1, 2014

Intense Santa Ana Wind and Damage



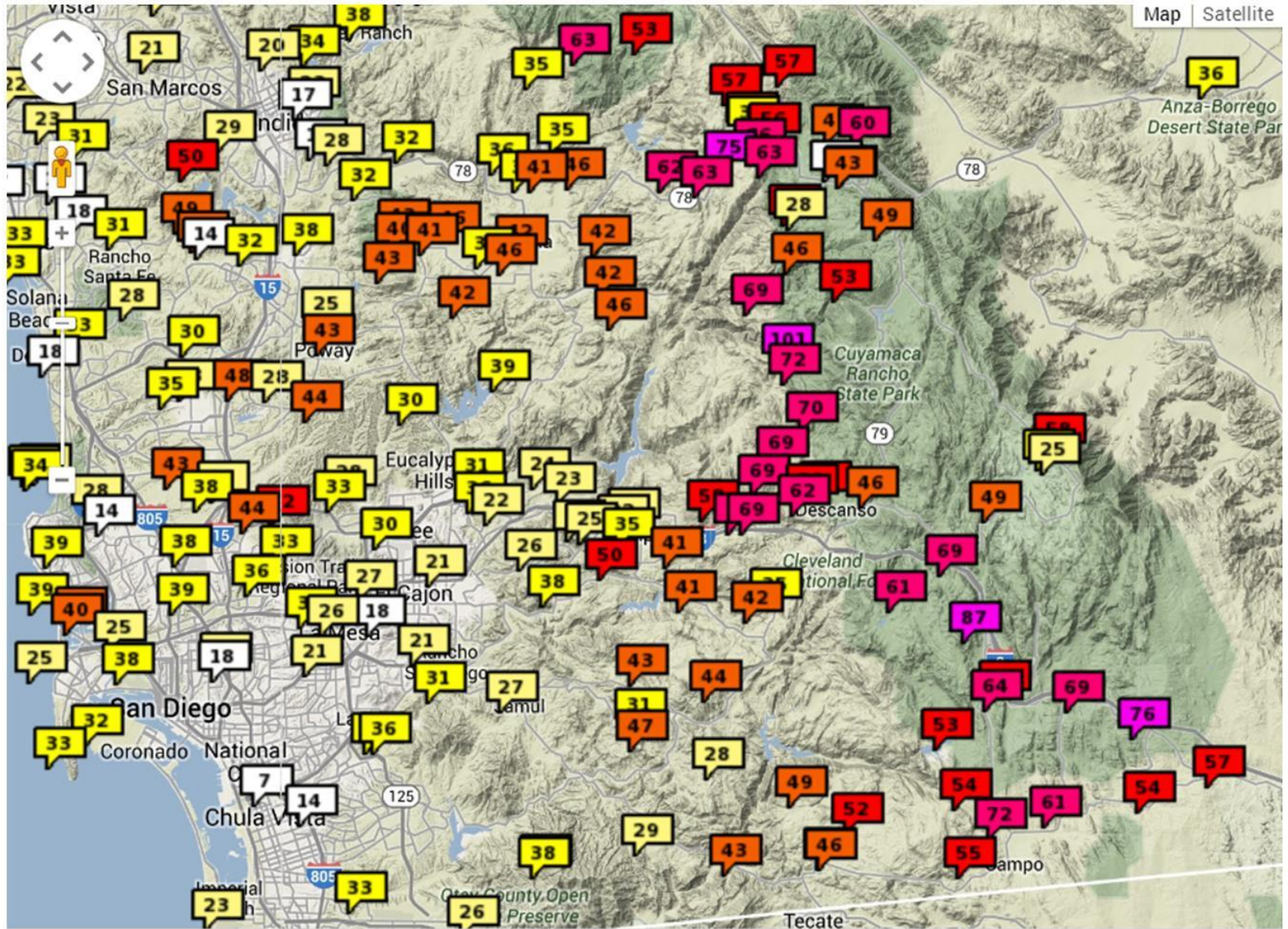
USBP Pine Valley and Campo



April 30, 2014
USBP

Peak Wind April 30

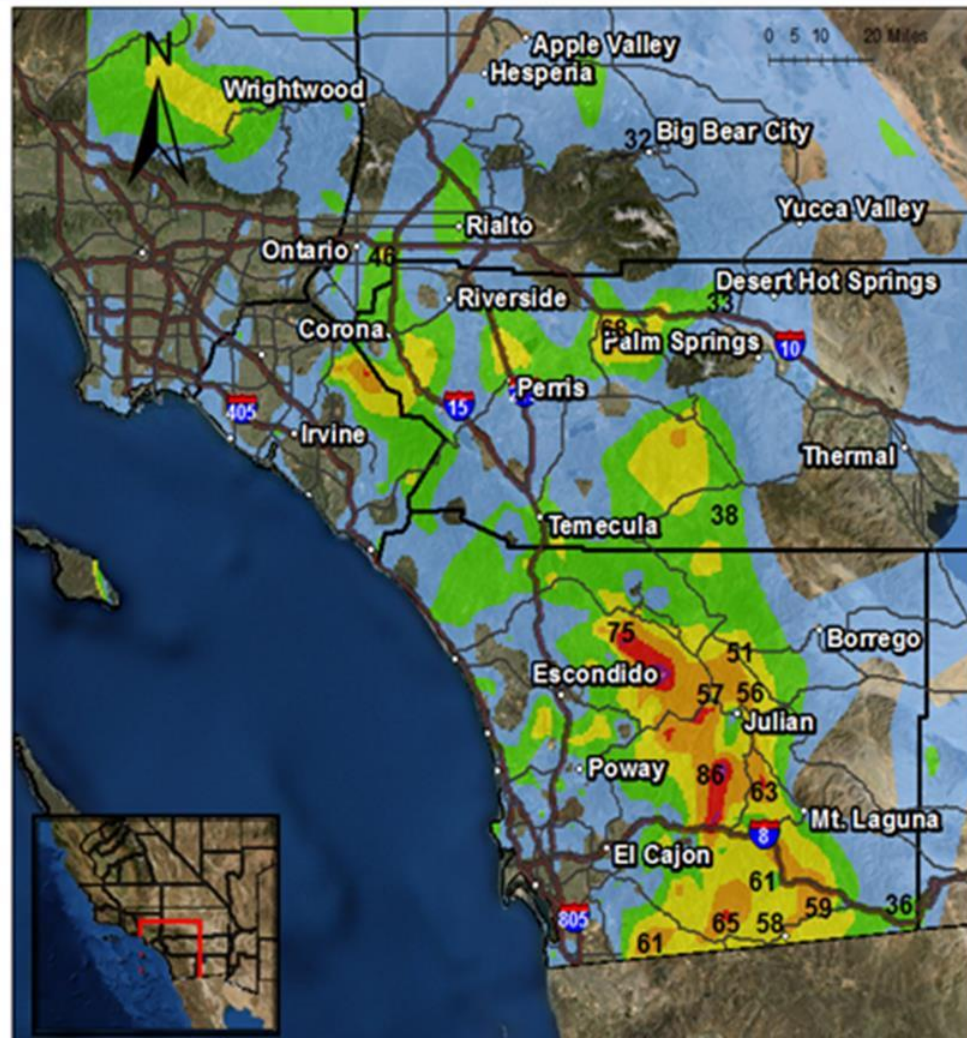
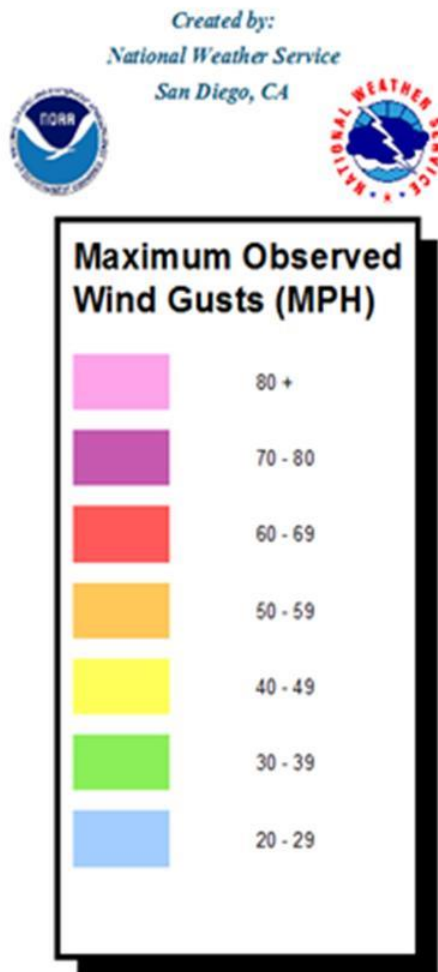
25 stations with 60 mph or higher!



Santa Ana Wind, Heat, and Firestorm

May 13 to 17, 2014

Observed Max Wind Gusts For Monday Afternoon Through Thursday Morning



View from Escondido, start of San Marcos Cocos

10 wildfires burning at once in San Diego County



Alex Tardy

Carlsbad view May 14 of Cocos



Alex Tardy

DC 10 drop
Wed Evening

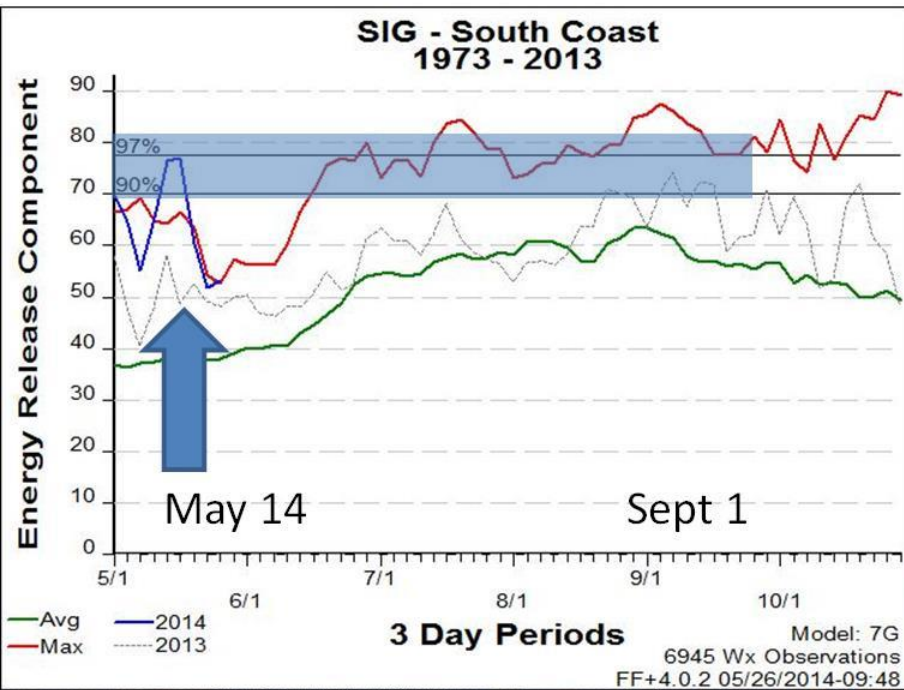


San Marcos State



Energy Release Component

Burn Scar



Alex Tardy



Closed Upper Low Retrogrades and Thunderstorms on May 22-23, 2014

Upper low closed and retrogrades with center over Palm Springs

- Widespread convection in May, mountains and desert slopes
Local flash flooding Borrego Highway 78/S2 and Indio on May 22
- Local flooding (6 inches running water) and dime hail in Borrego Springs May 23



Near Indio via Rob Bradley May 22

Flash Flood

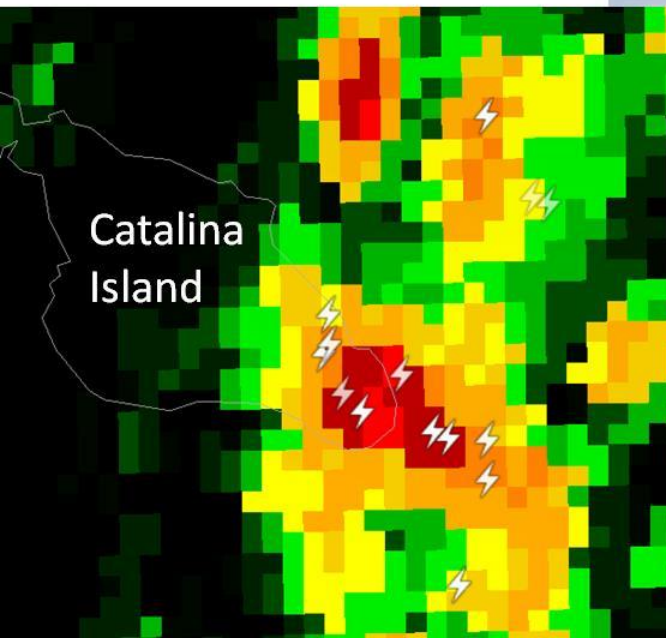
photo by Rod Johnson near Borrego



Thunderstorms

Coastal, beaches, ocean, valleys and mountains

July 25 to 28, 2014

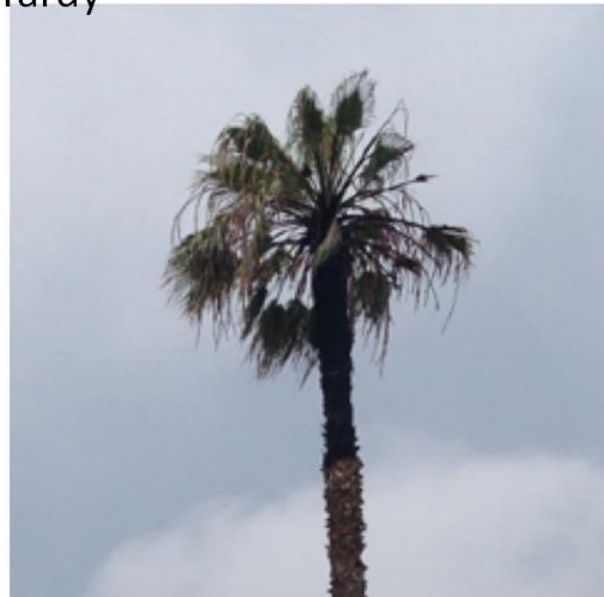


Lightning hits palm tree in Encinitas

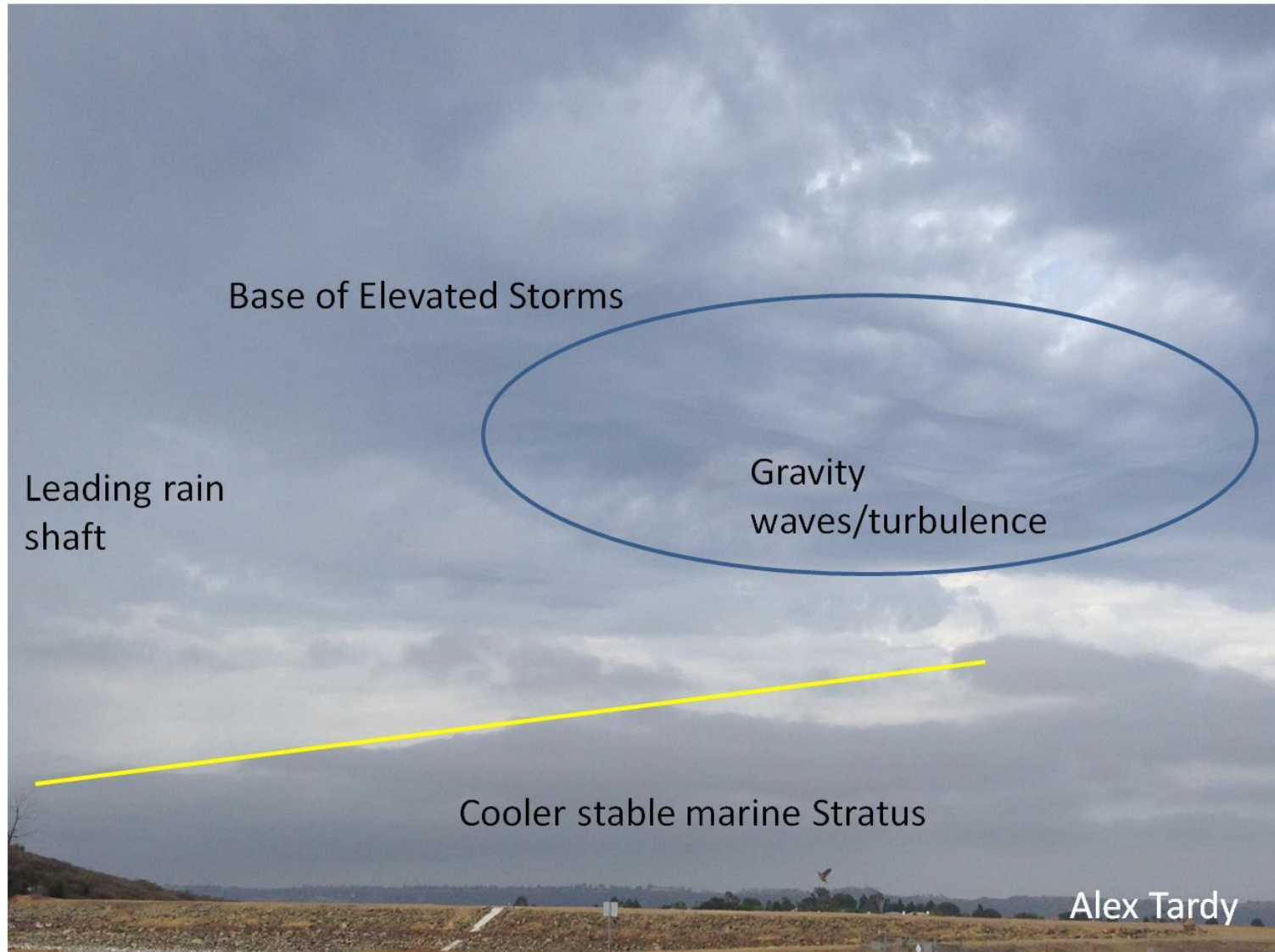
Santa
Hidalga
and Santa
Olivia



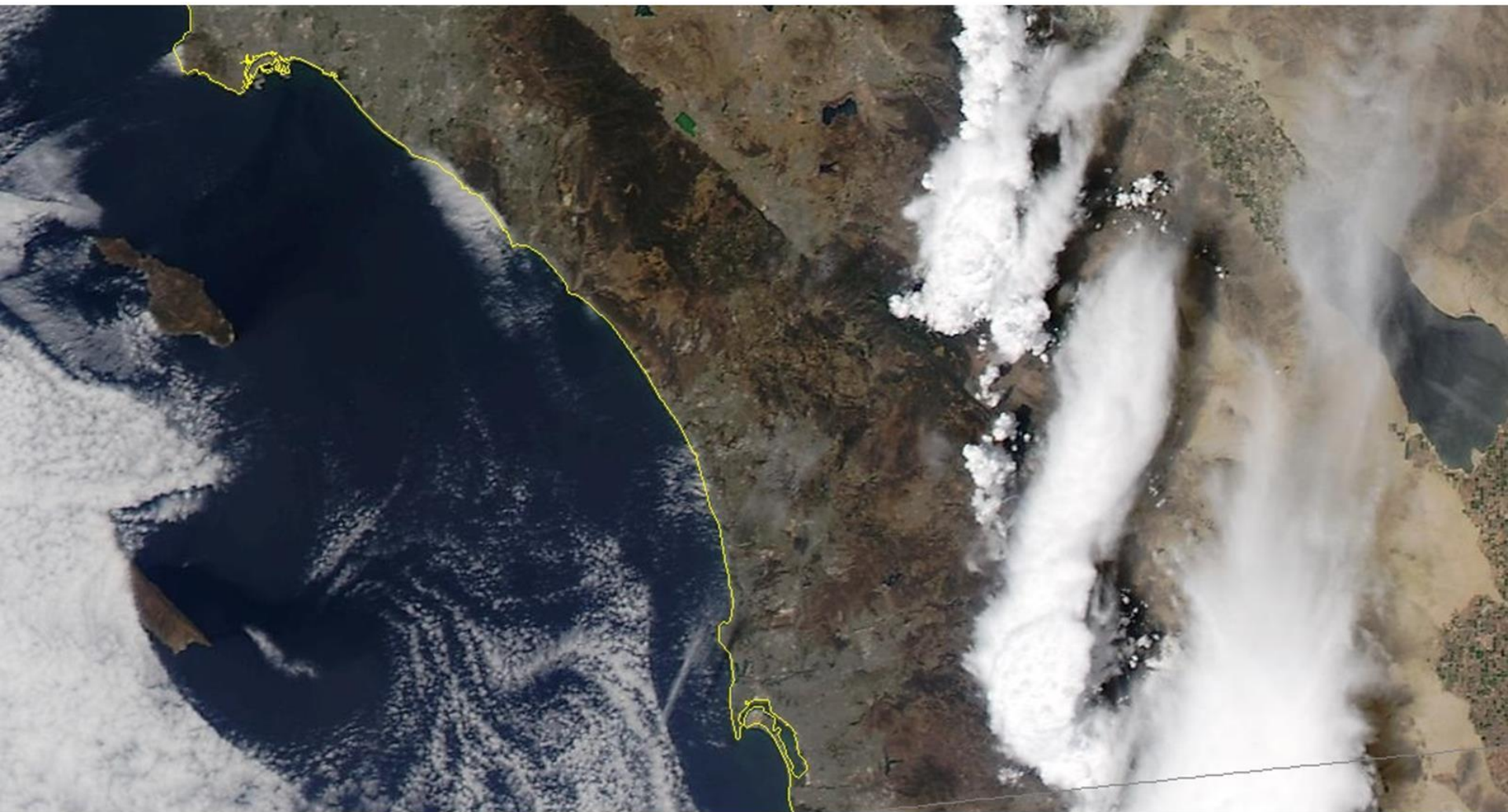
Alex Tardy



Elevated convection over marine layer

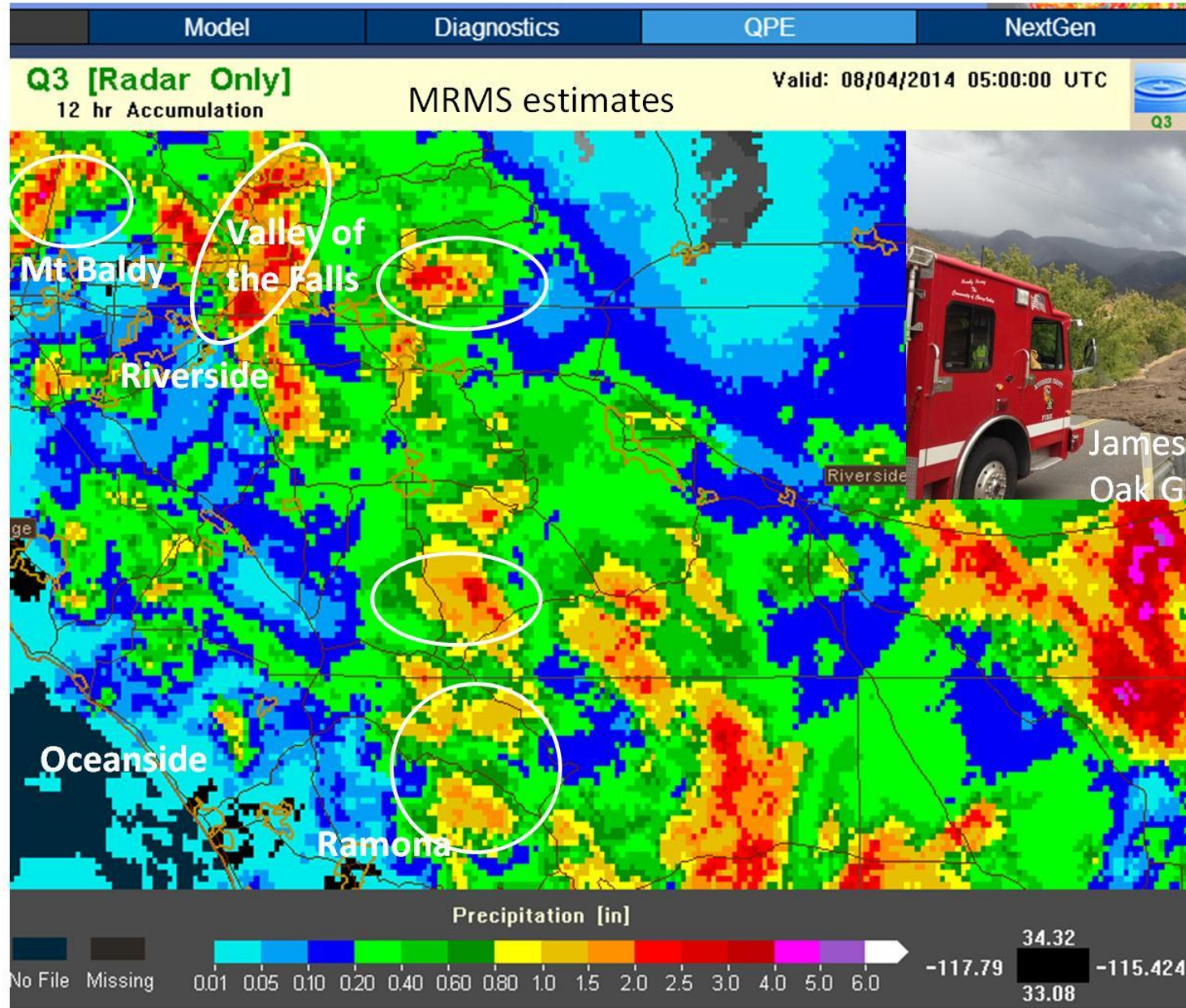


MODIS view August 1



Isolated big mountain thunderstorms

August 2-3, 2014 elevated and surface based thunderstorms





Alex Tardy



San Diego Country Estates
August 3, 2014

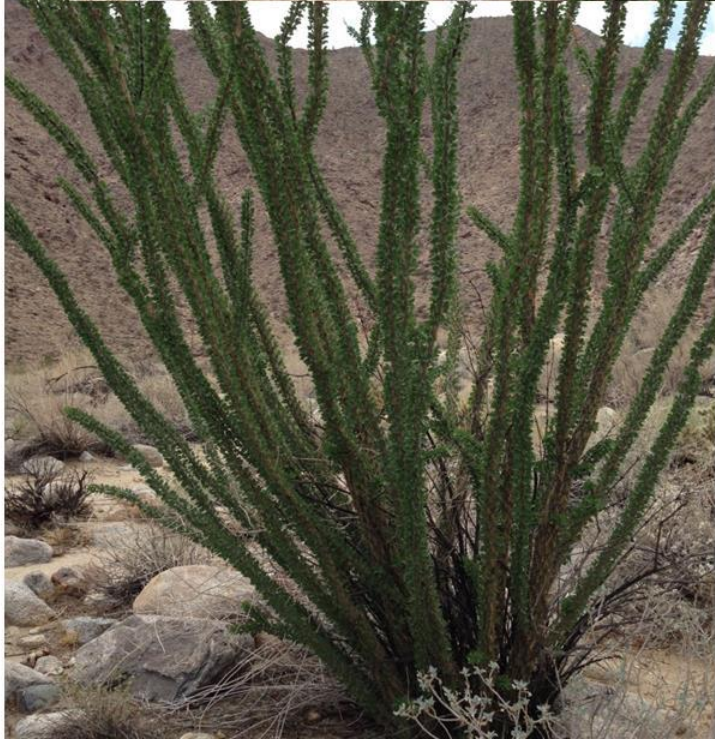
Borrego Springs desert flash floods



Rock Debris field as high as 8 feet in Split Mountain Anza Borrego State Park



Mike Shafner



Ocotillo was green
due to rainfall



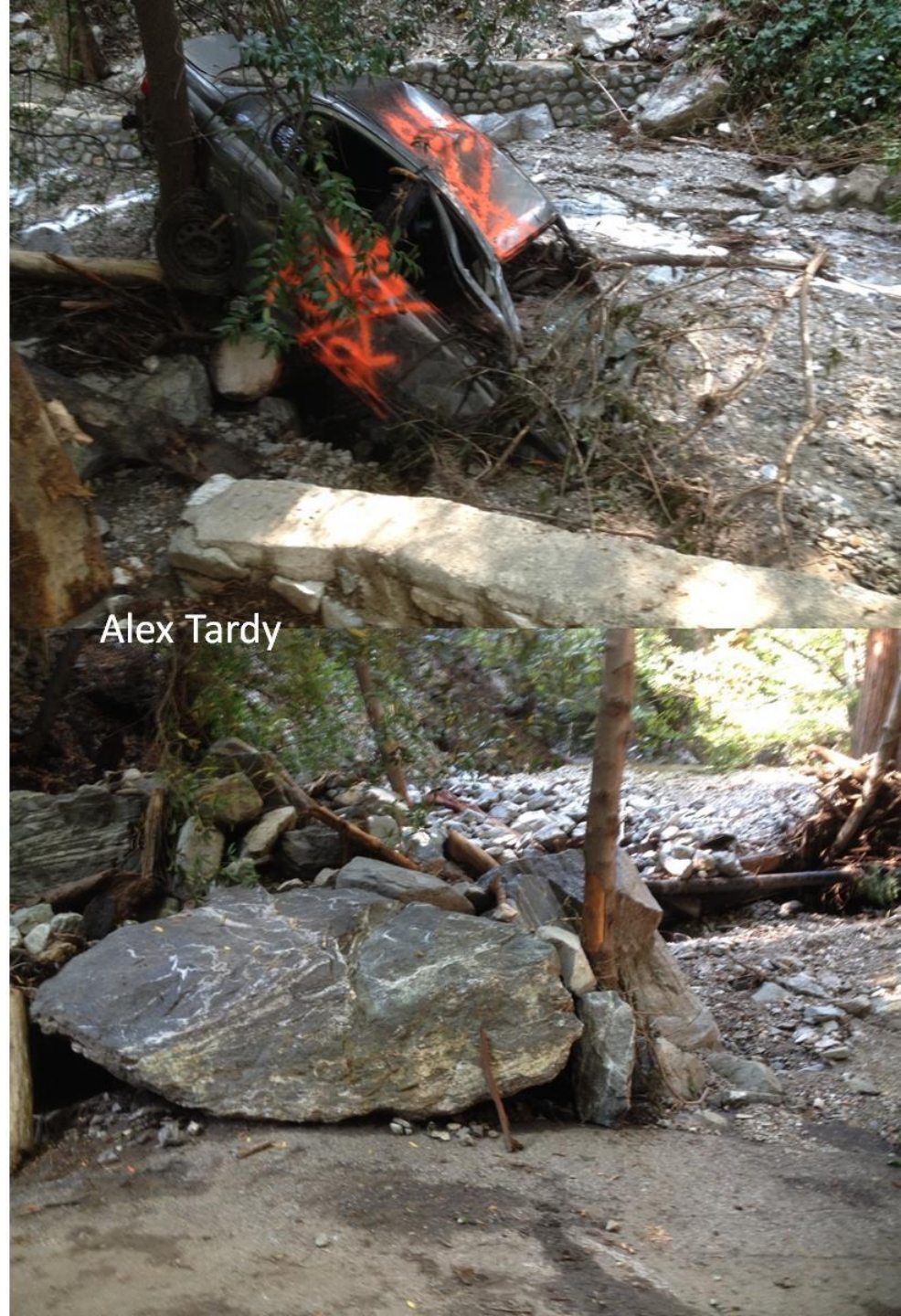
Main Road mud and rock debris closure Valley of the Falls





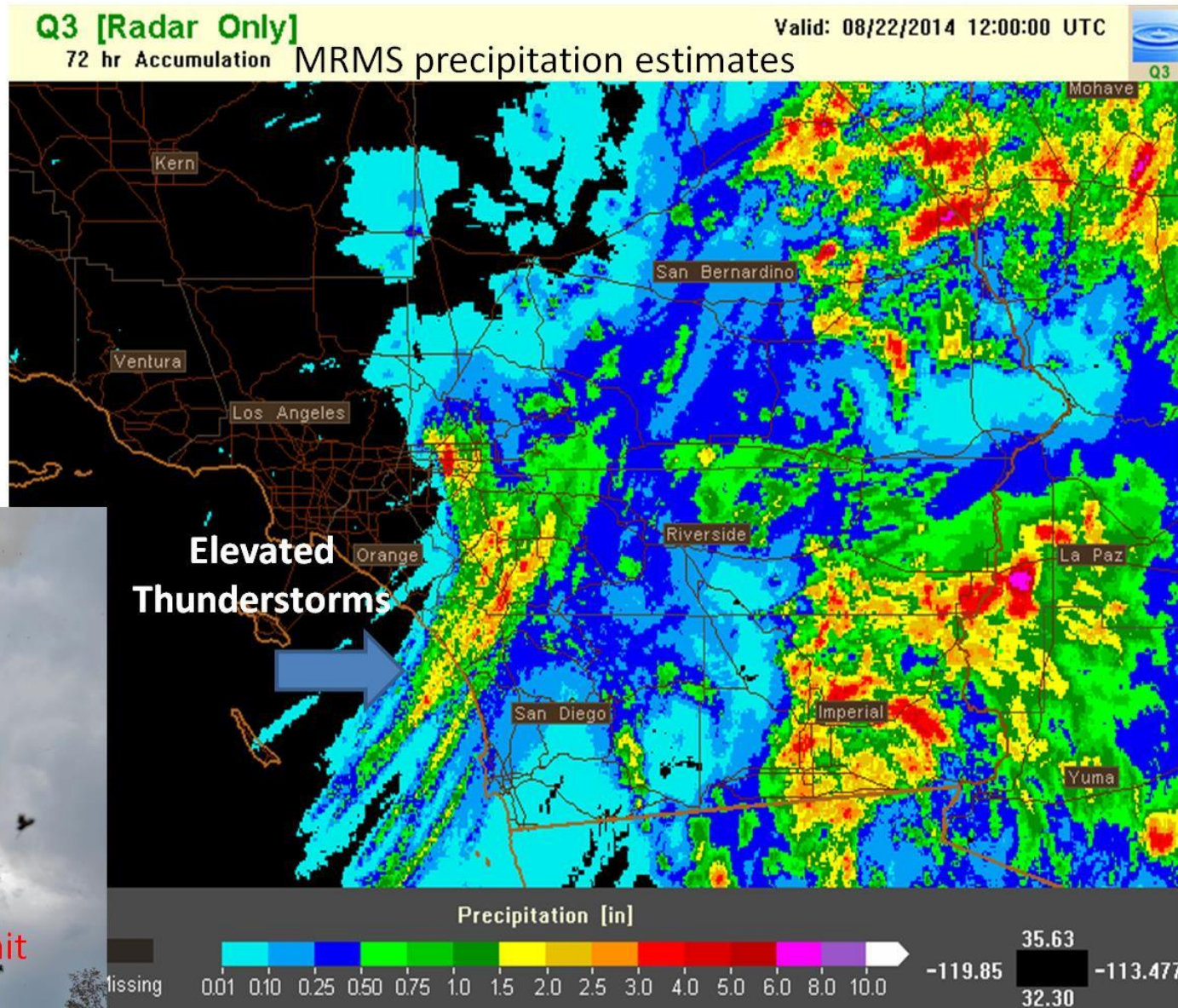
Alex Tardy
Jimmy Taeger
at Oak Glen





Summary August 20-21, 2014

Thunderstorms on the coast and valleys



Lightning hit
Jim Grant

Elevated Thunderstorms August 20

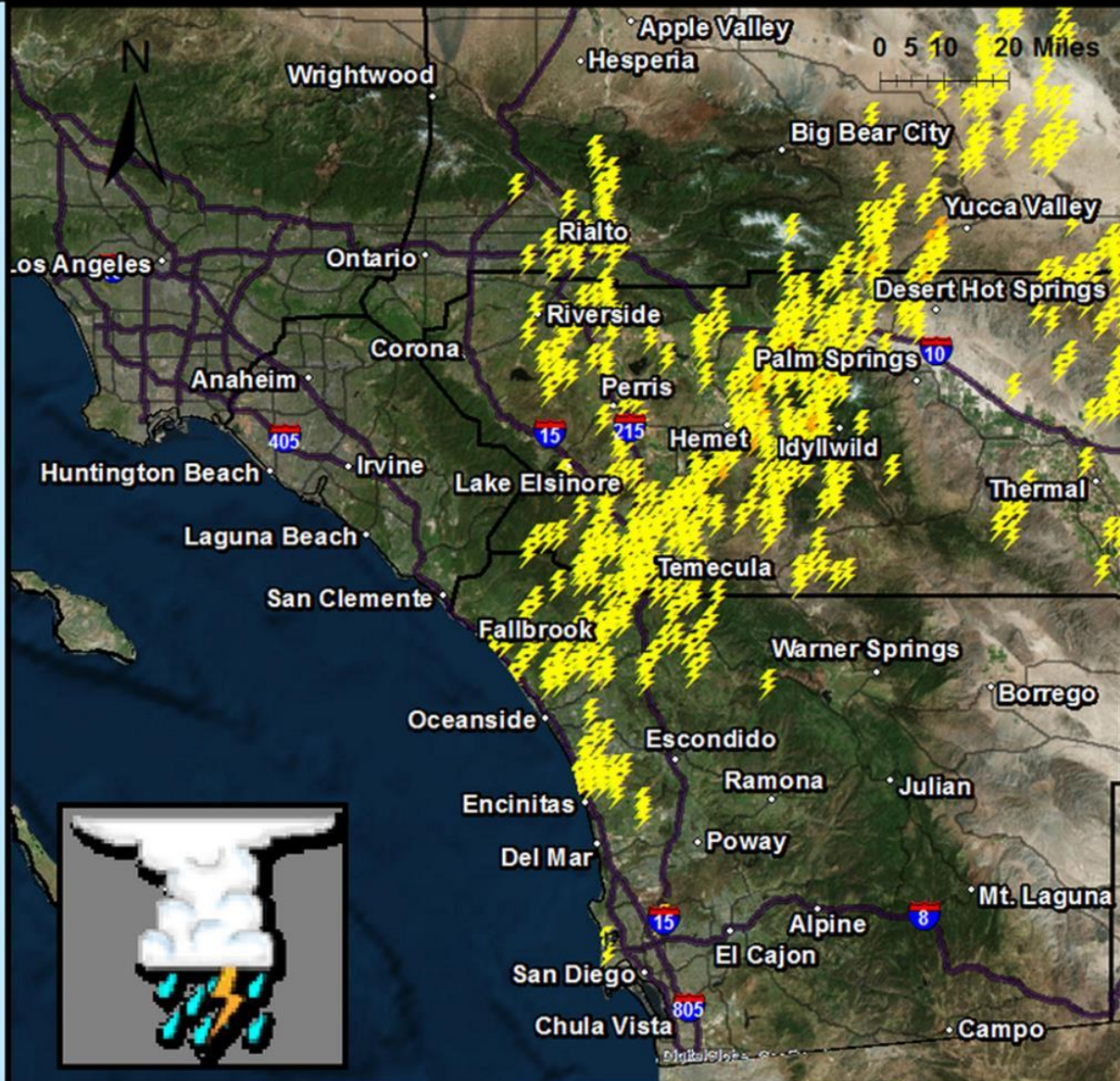
24 - Hour Cloud to Ground Lightning Strikes Ending at 3 PM 8/20/14

Created by:
National Weather Service
San Diego, CA

Number of CG
Lightning Strikes
(Per Square 2.5 km)



Map generated 8/20/2014 at 3:48:30 PM





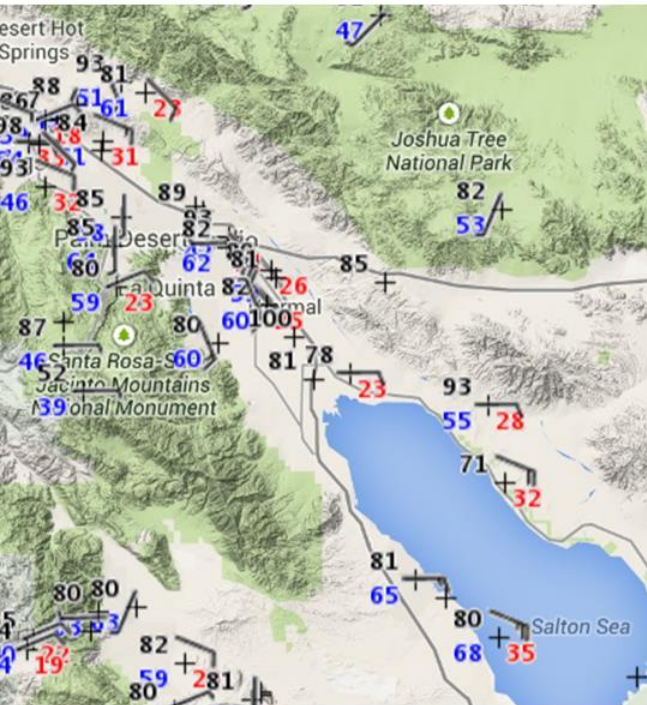
Matt Taylor shared from Meniffee

0 Shared by Email George Phillips – Nuevo
Early morning nickel to quarter hail

645 am August 20, 2014



August 21, 2014 dust storm



<http://hpwren.ucsd.edu>

Toro Peak camera

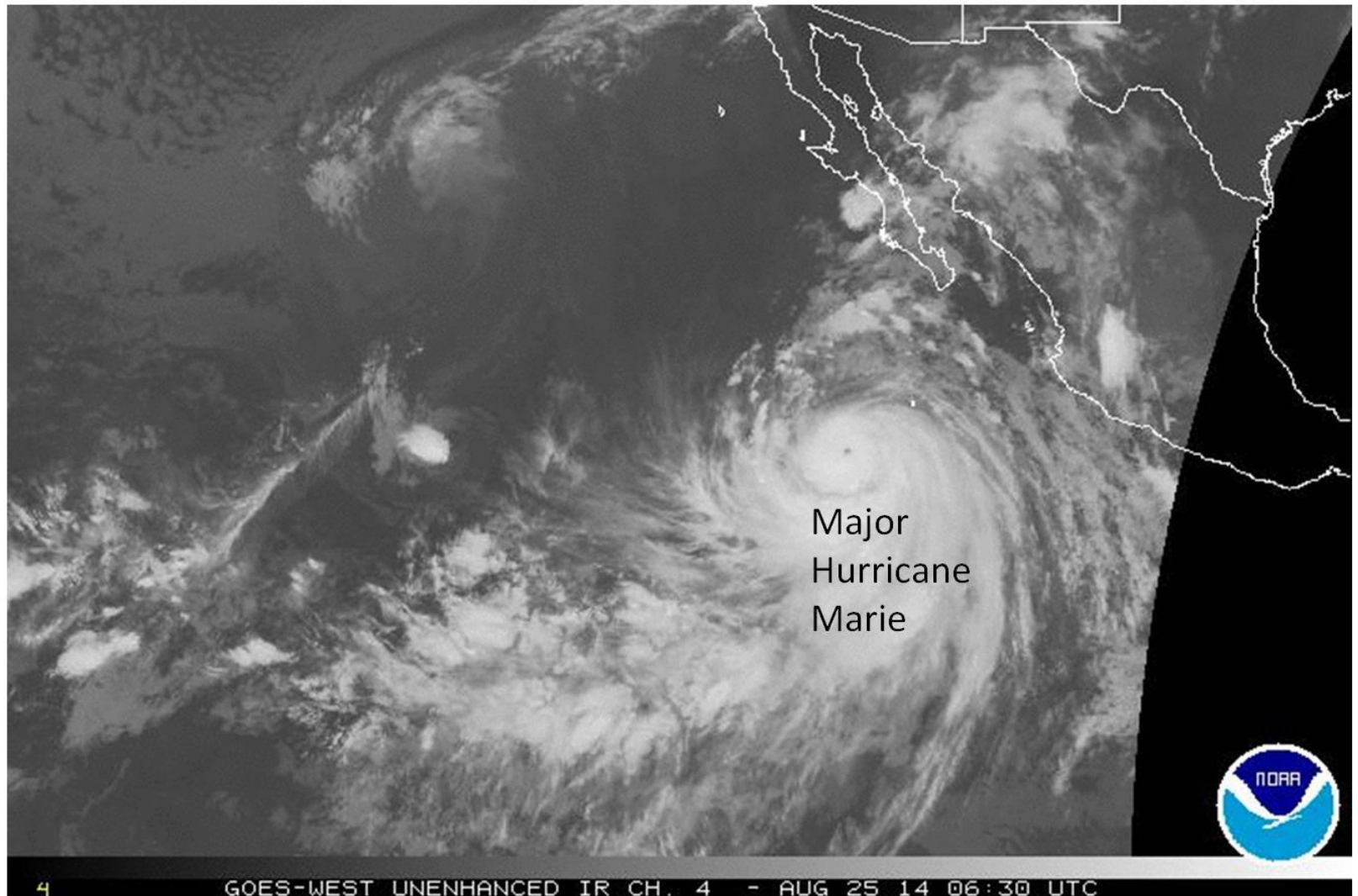


¼ mile
vsby in
dust

HPWREN

August 26 to 29, 2014

major swell



Hurricane Marie Swell



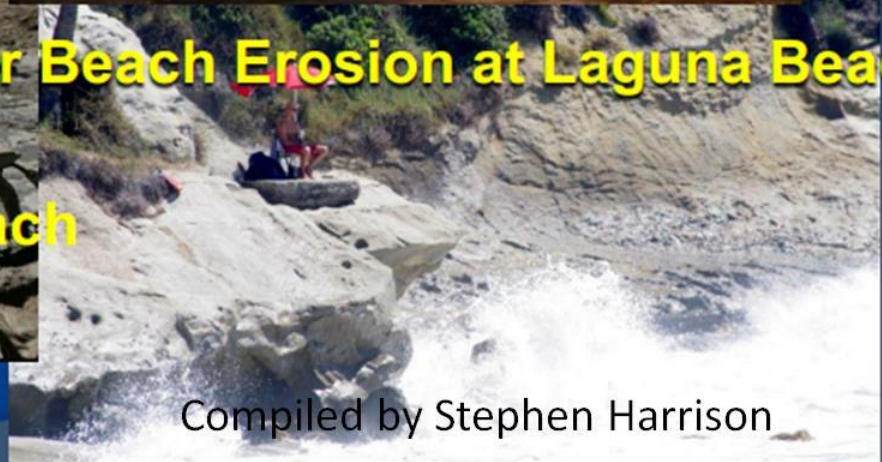
25 foot waves at The Wedge

Coastal Flooding at Seal Beach



Major Beach Erosion at Laguna Beach

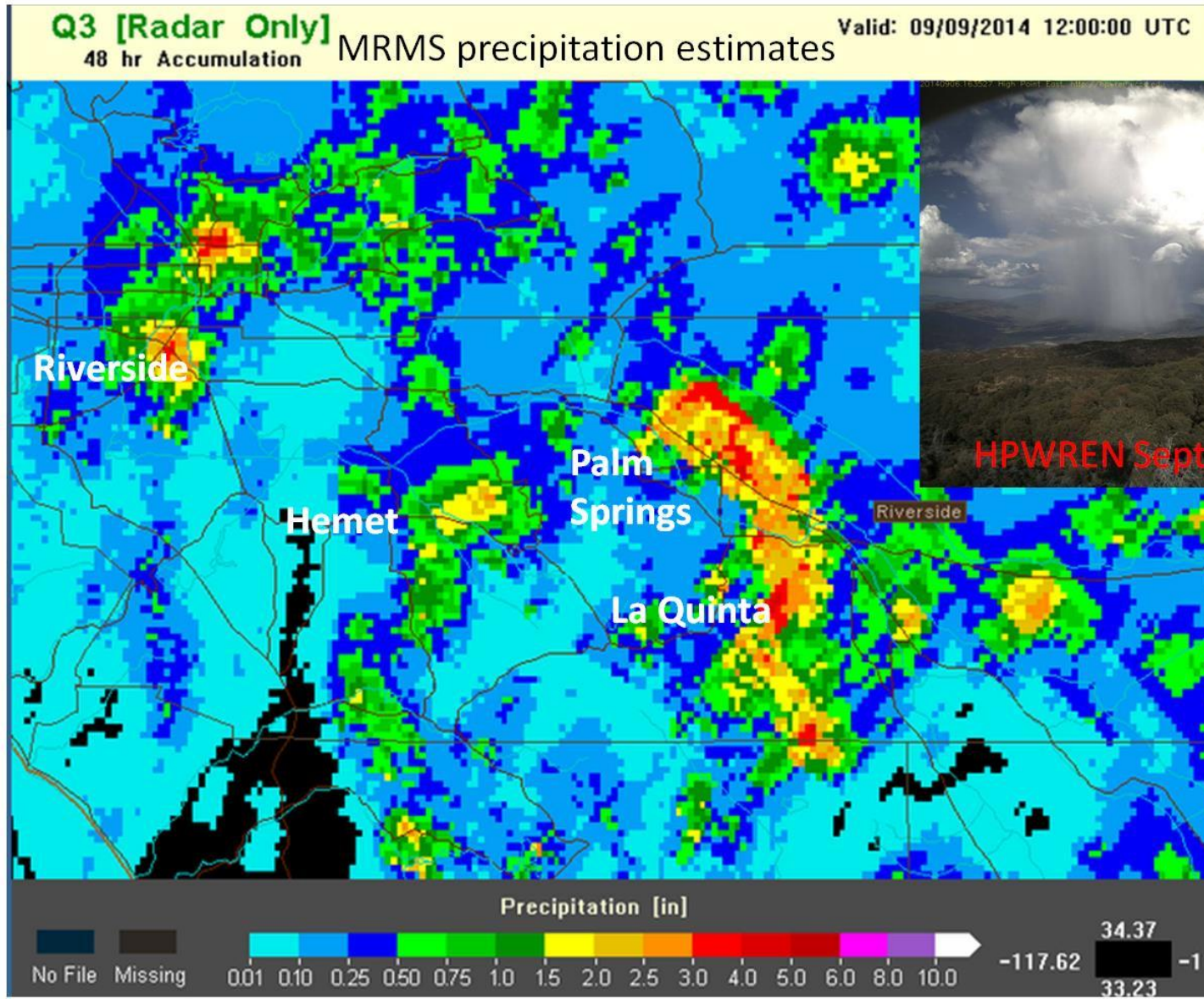
Coastal Flooding at Seal Beach



Compiled by Stephen Harrison

Precipitation Totals (radar)

September 6-8, 2014 and TC Norbert

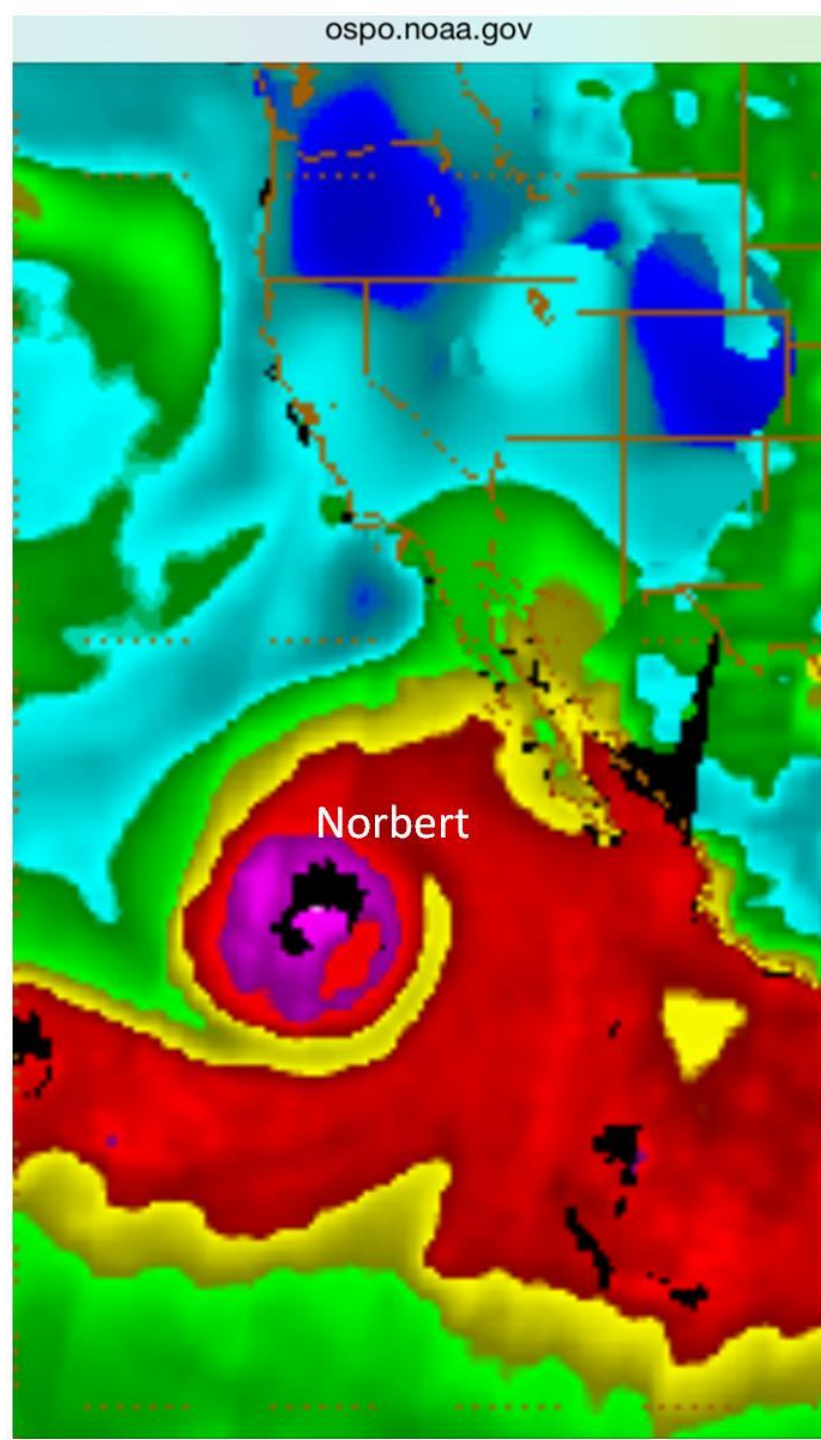




Alex Tardy - NWS



La Quinta





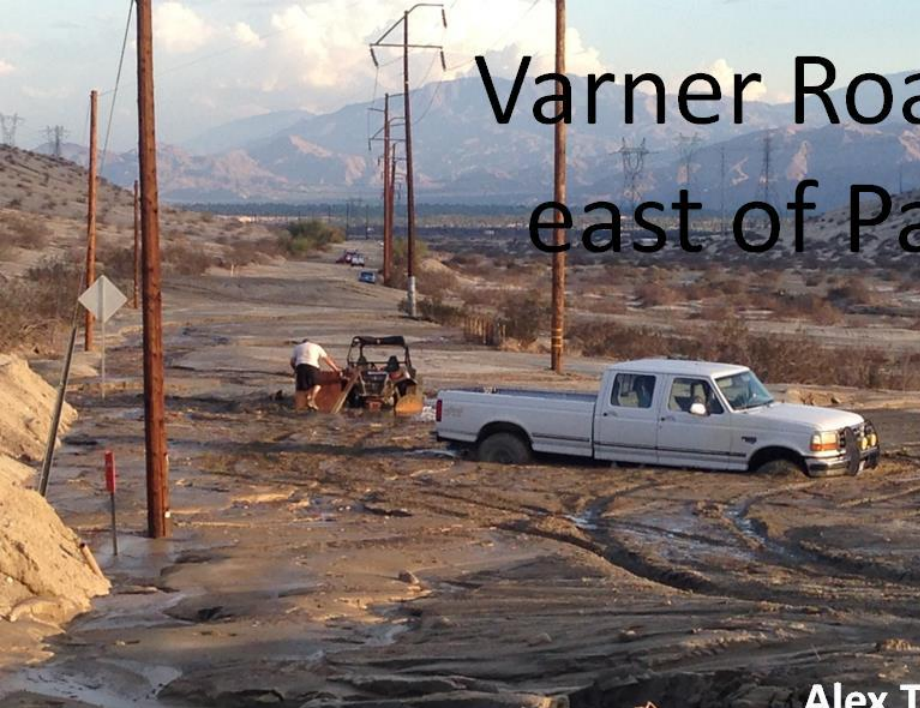
La Quinta on 9-9-14



Alex Tardy -NWS



Varner Road on 9-9-14 east of Palm Springs



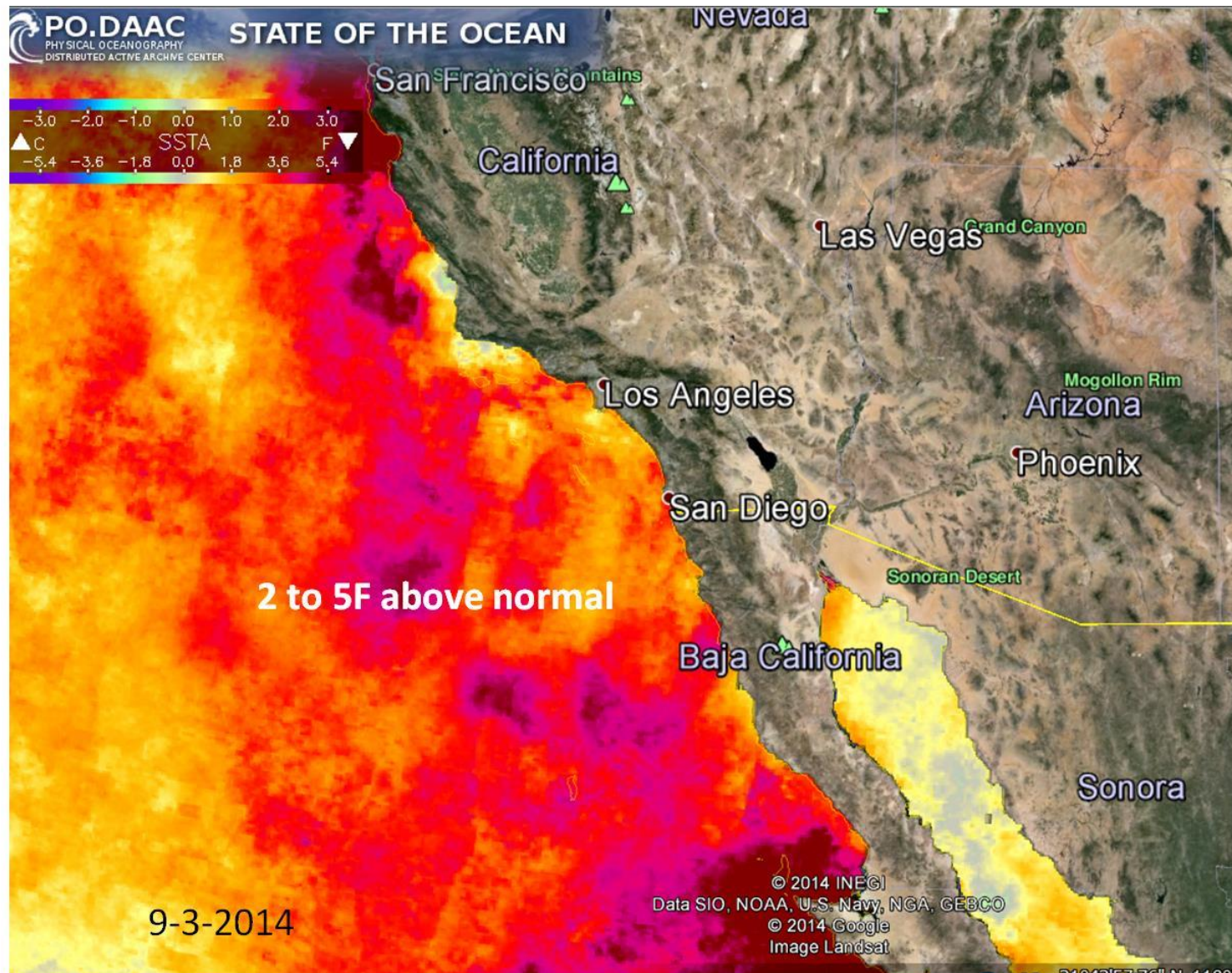
Alex Tardy - NWS



La Quinta

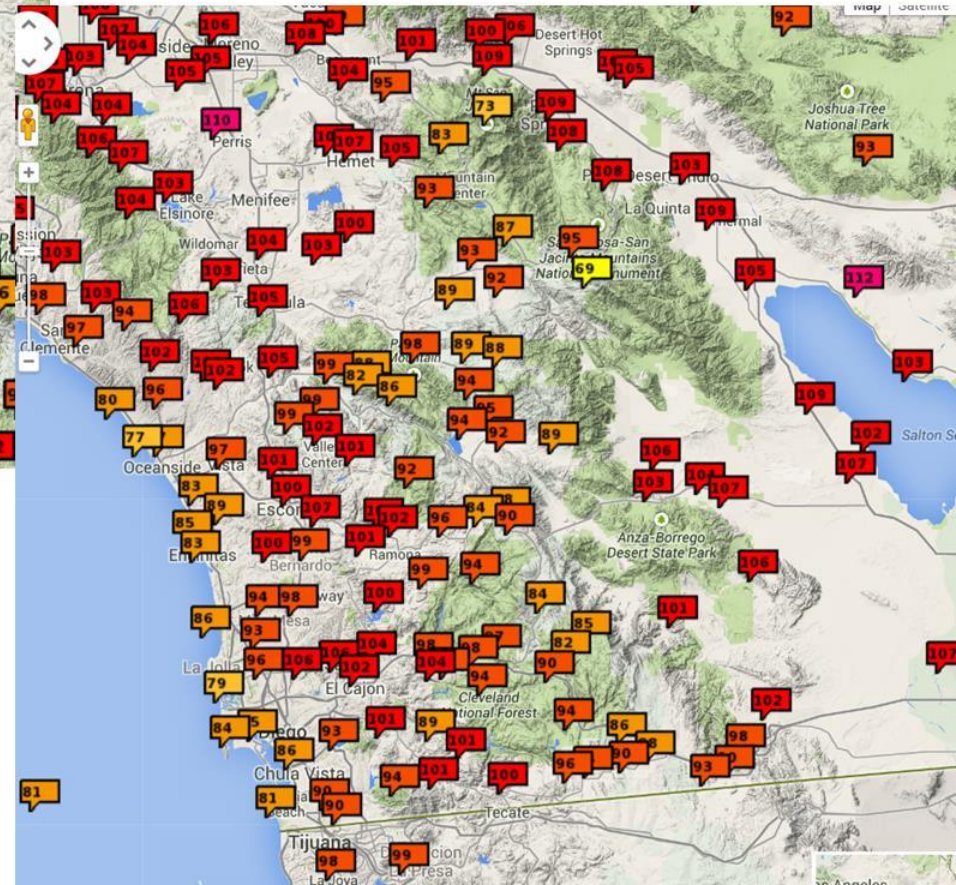
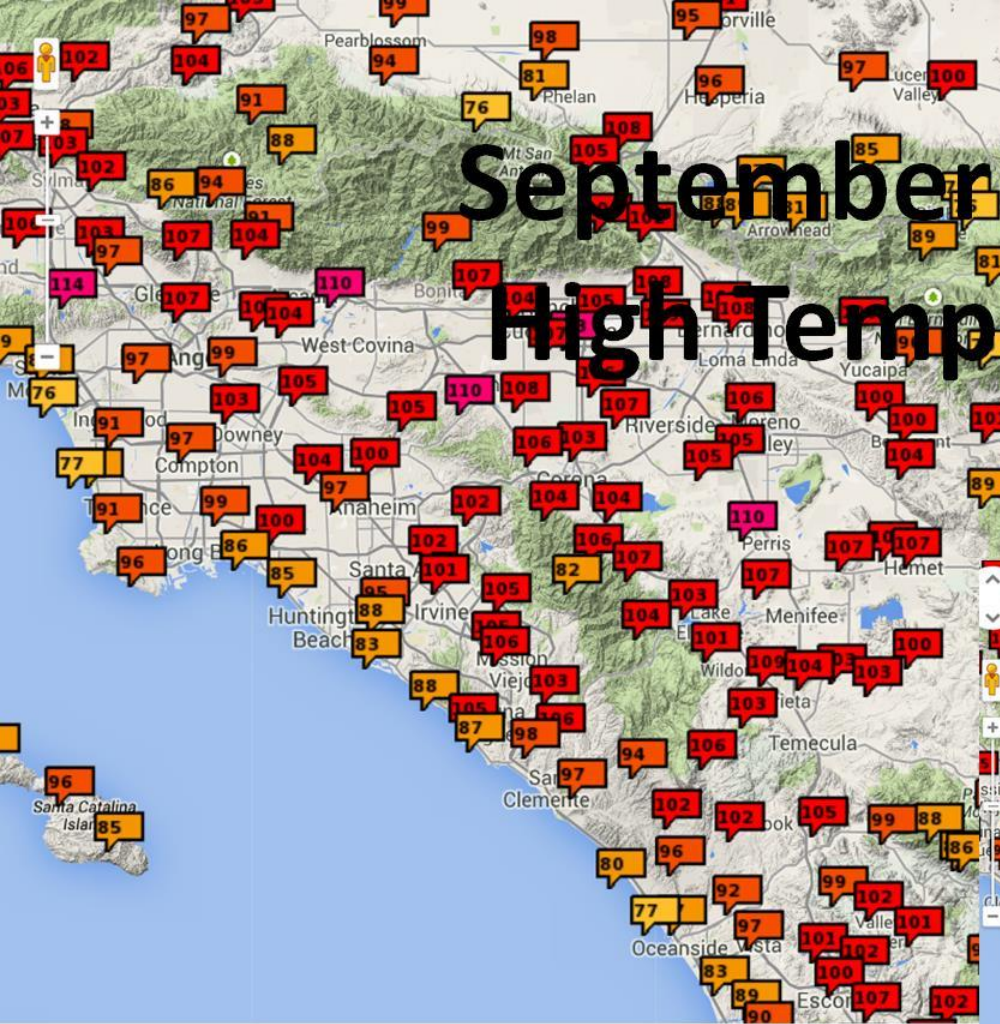


Warm coastal waters high humidity and warmer night temps

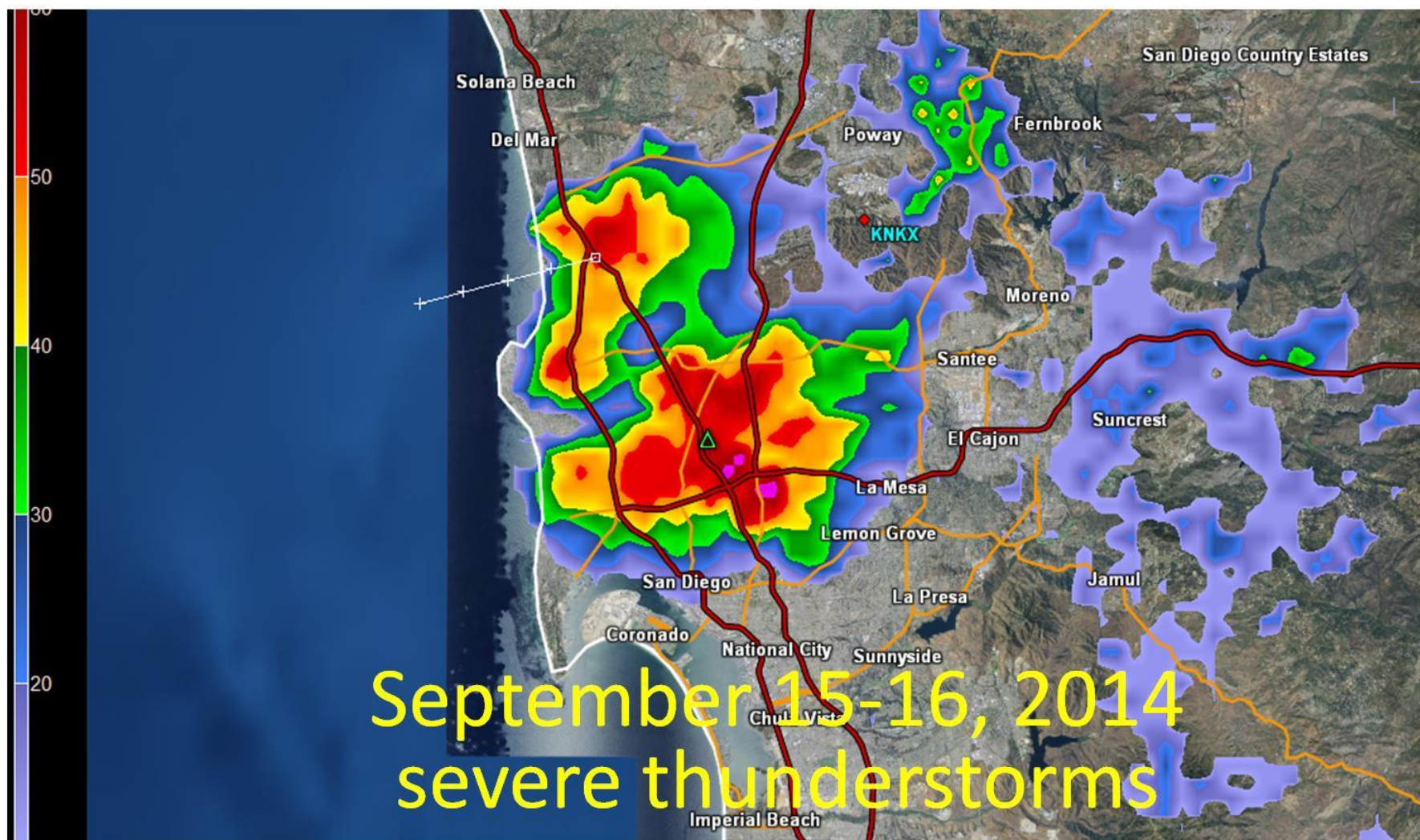


September 14, 2014

High Temperatures



City of San Diego severe thunderstorm through 615 pm



Thunderstorms September 16, 2014

Rancho San Diego

Wet microburst



East County Magazine



Montgomery Field



Kit Corry



John Carroll –
Sierra Mesa



UT San Diego



Penske – Balboa Ave



CW6

Wildomar



Alex Tardy - NWS



Balboa Ave and Aero Drive



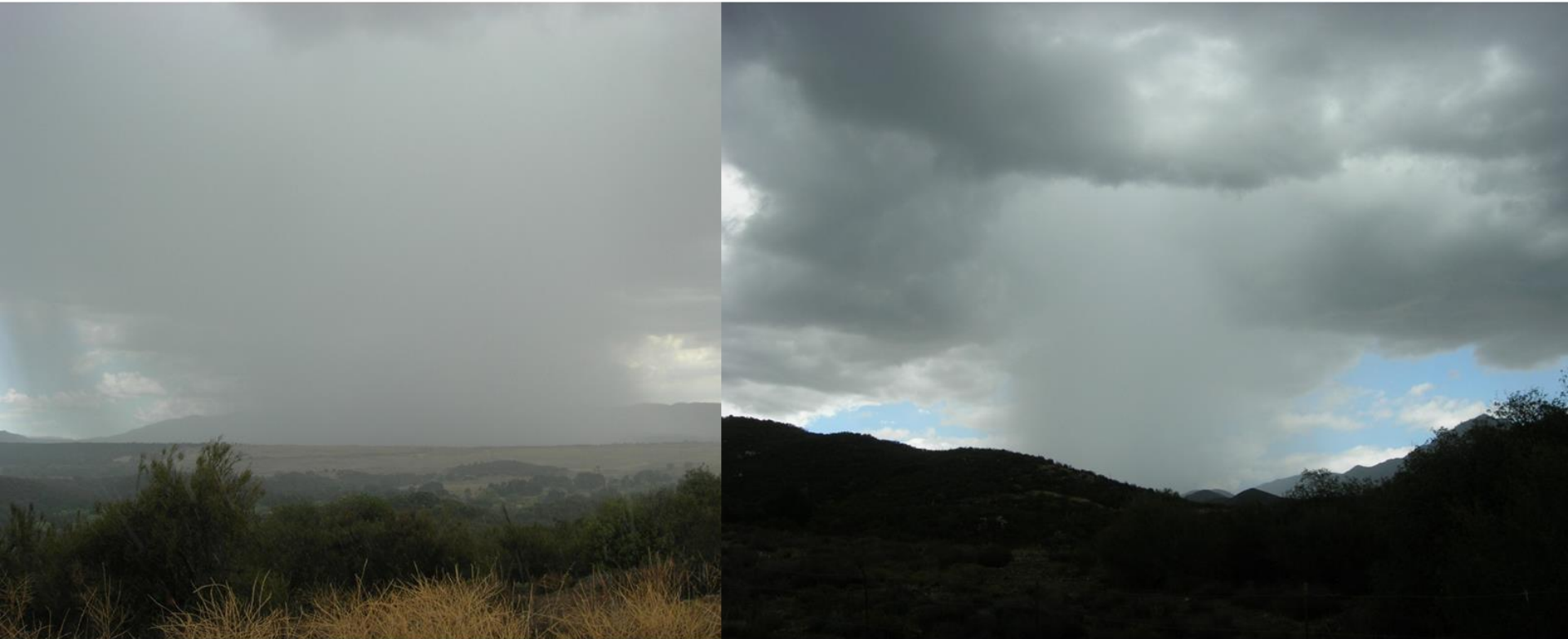
Alex Tardy - NWS



New
storm

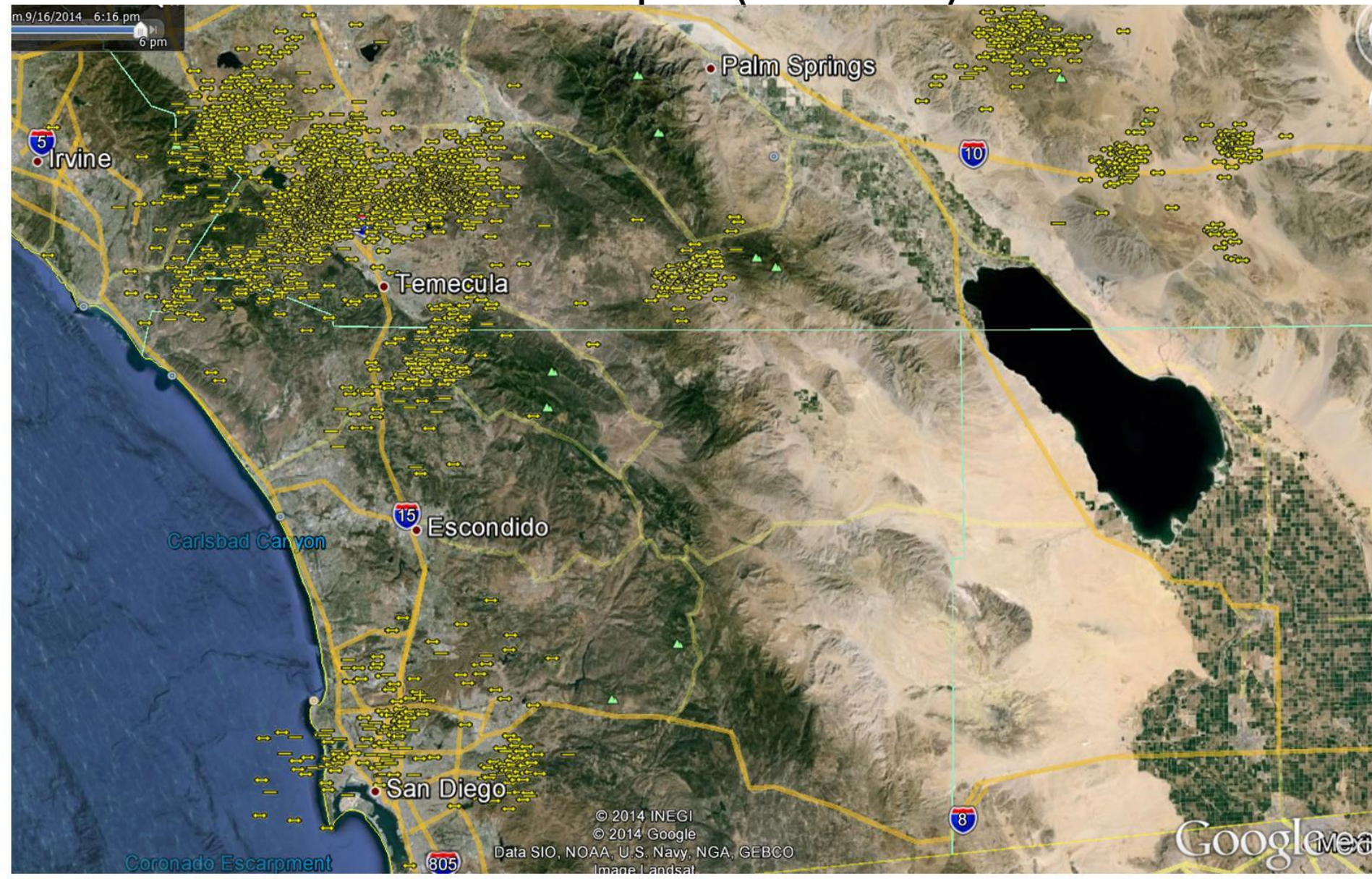


September 17 thunderstorms in San Diego mountains



John Pedersen

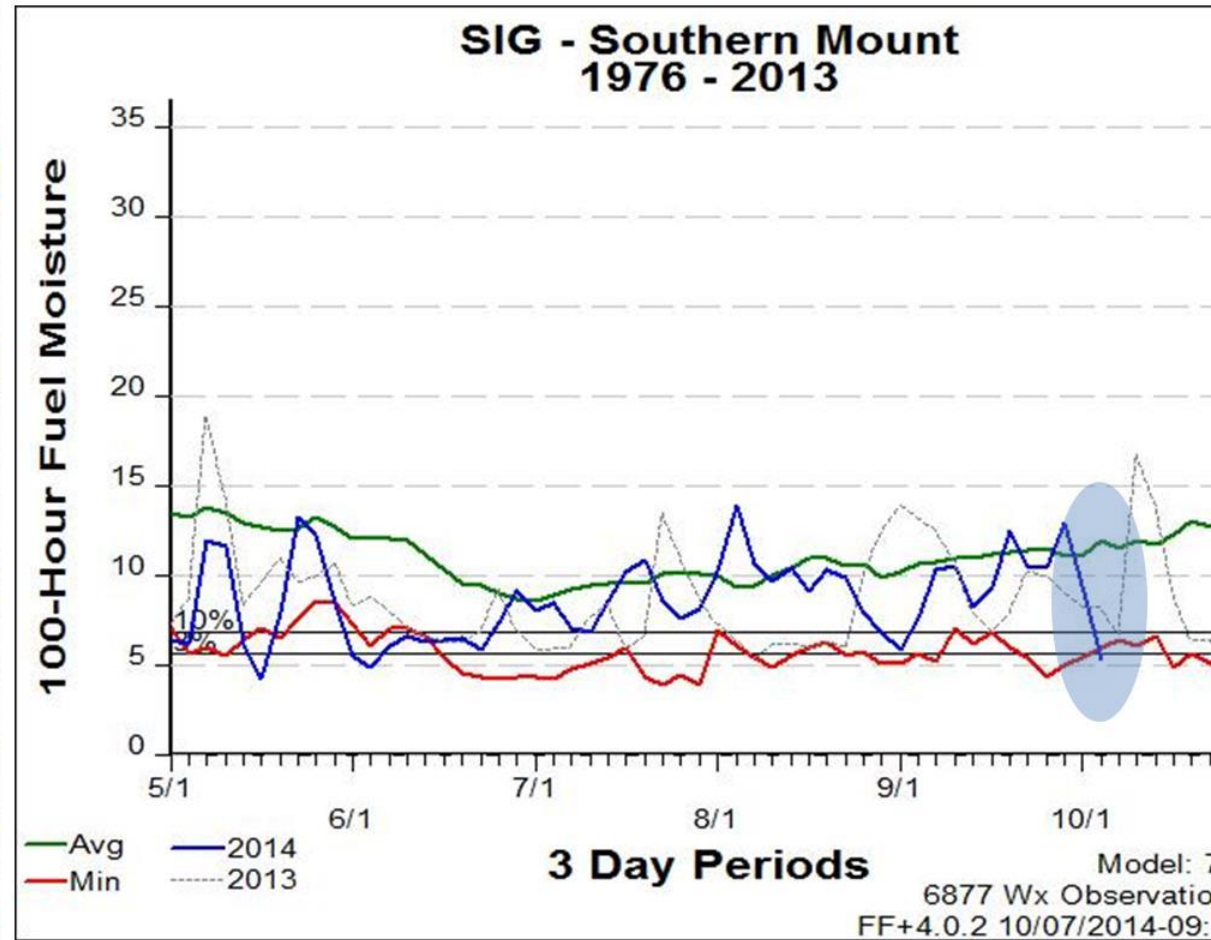
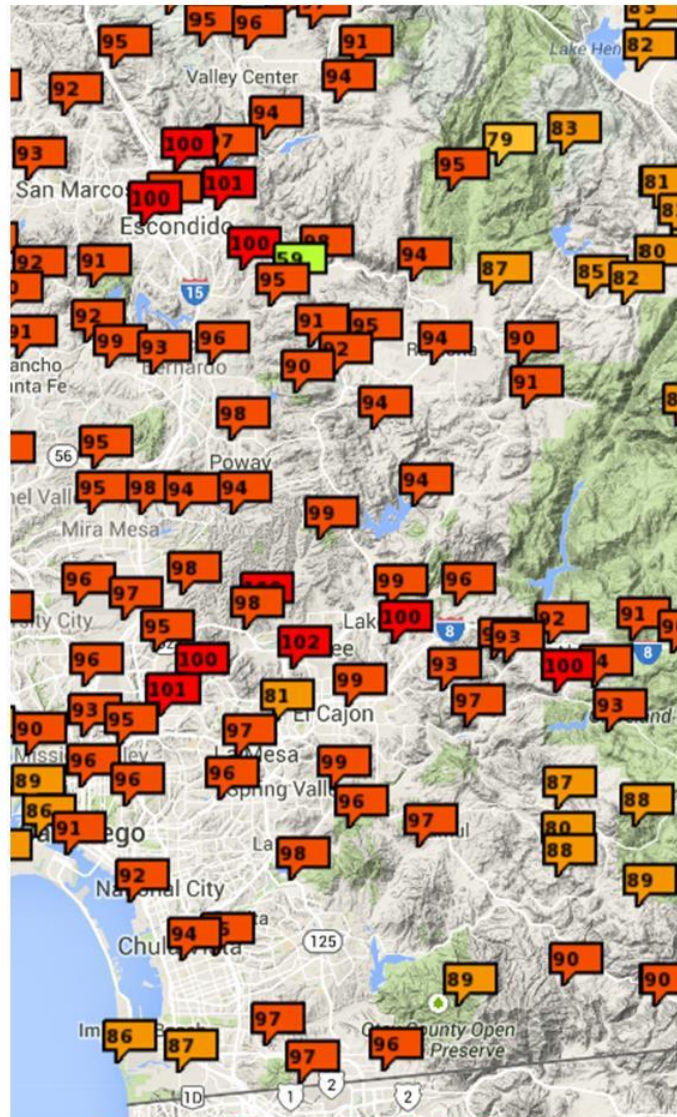
Lightning Locations noon to 6 pm (9-16-14)



Alex Tardy – NWS
September 25, 2014

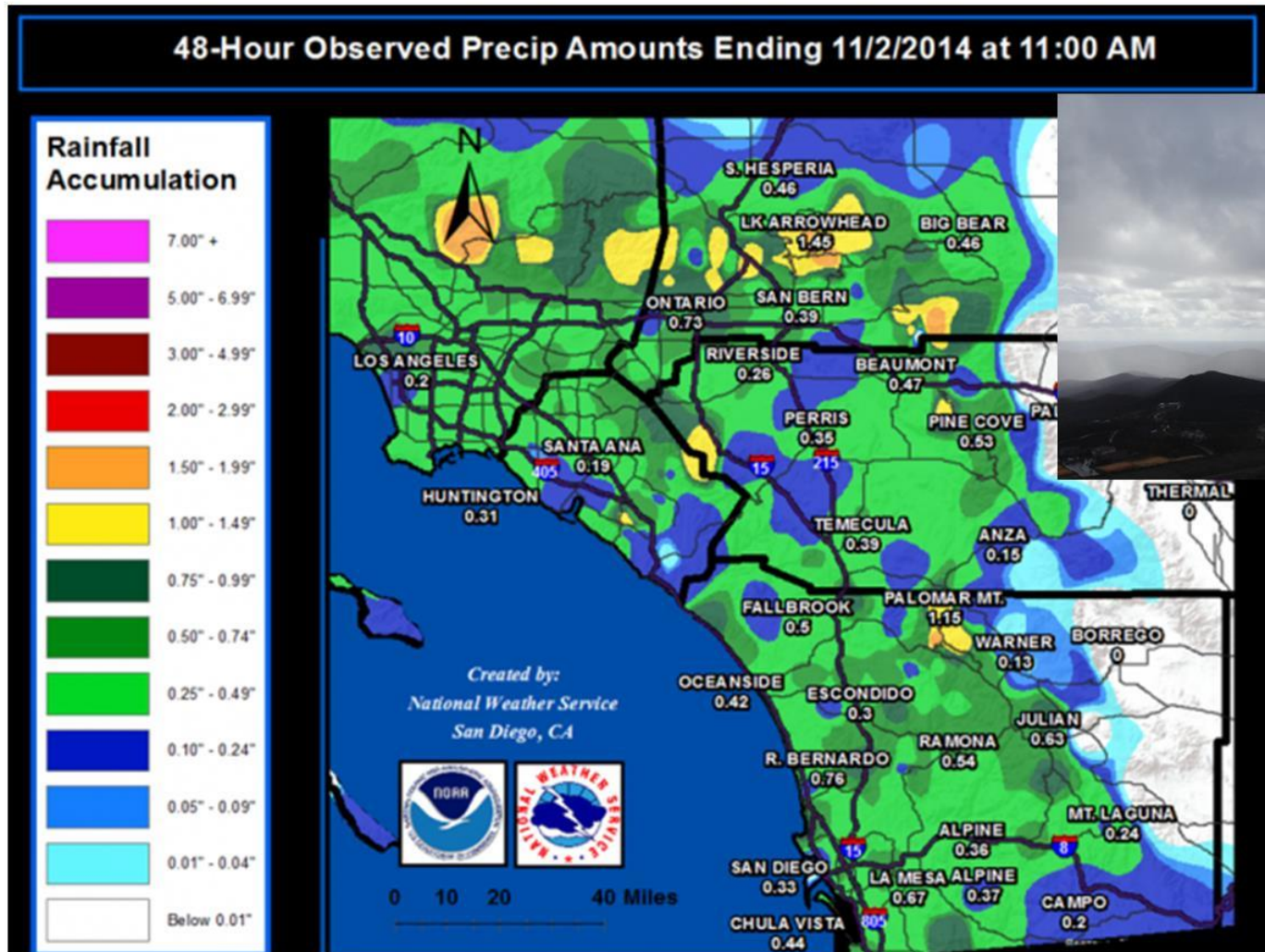


Record Energy Release and Driest 100 hour dead fuels in early October 2014



October 2014 record dryness during Santa Ana winds

First rain of the season



Weather Forecast Office
San Diego, CA

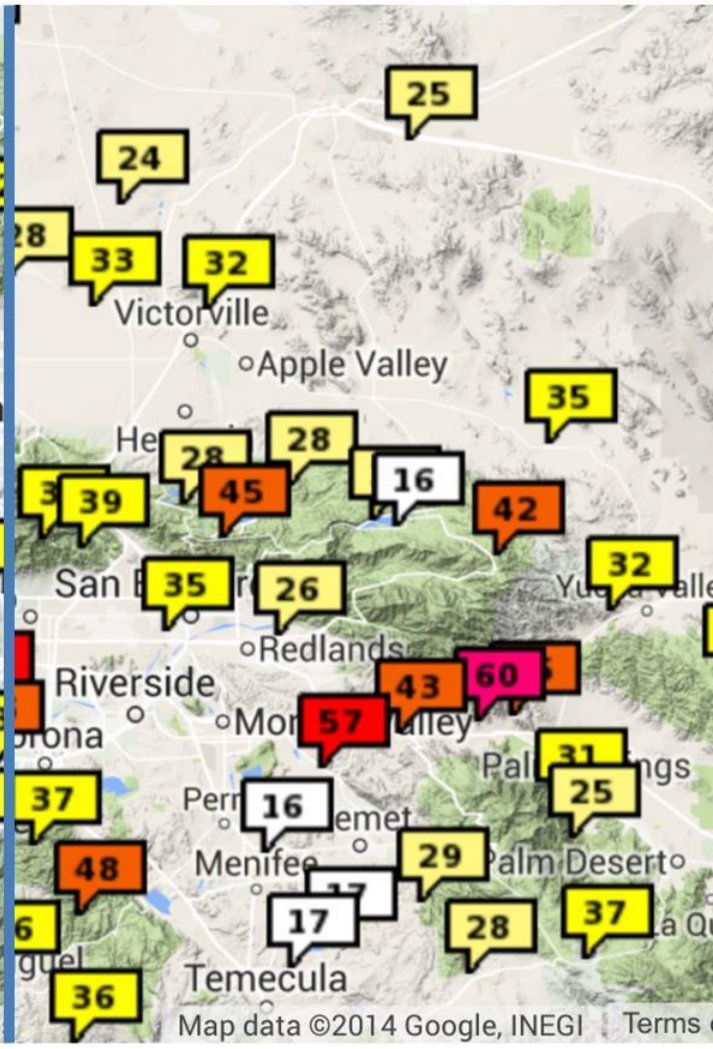
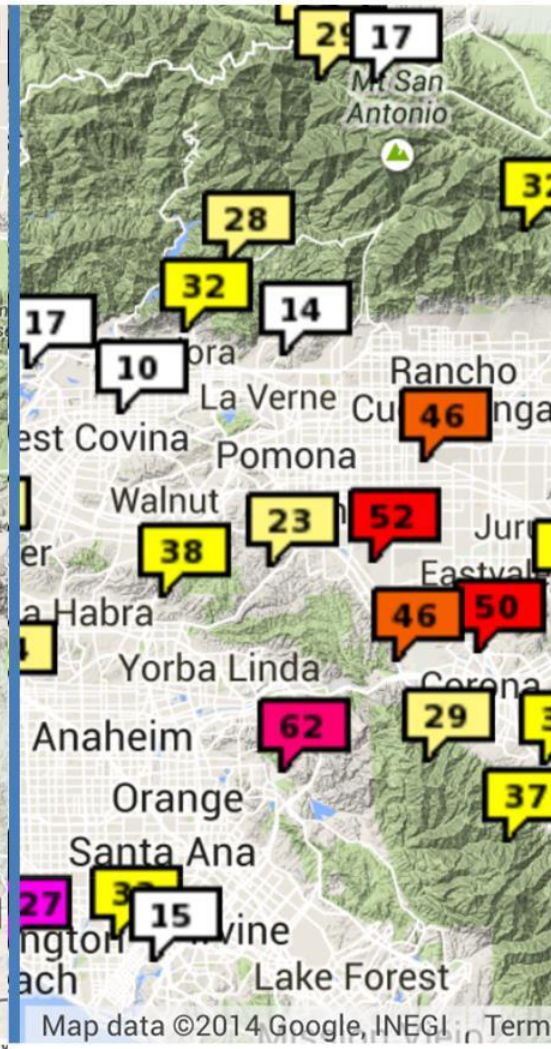
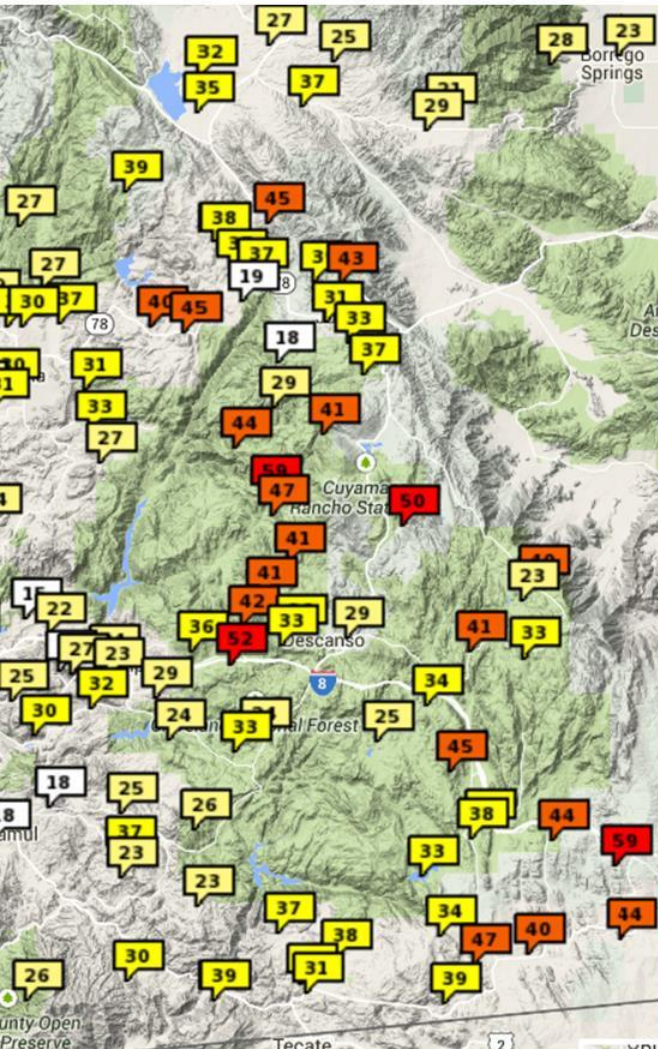
11/2/2014 12:19 pm PST

Follow Us:



weather.gov/SanDiego

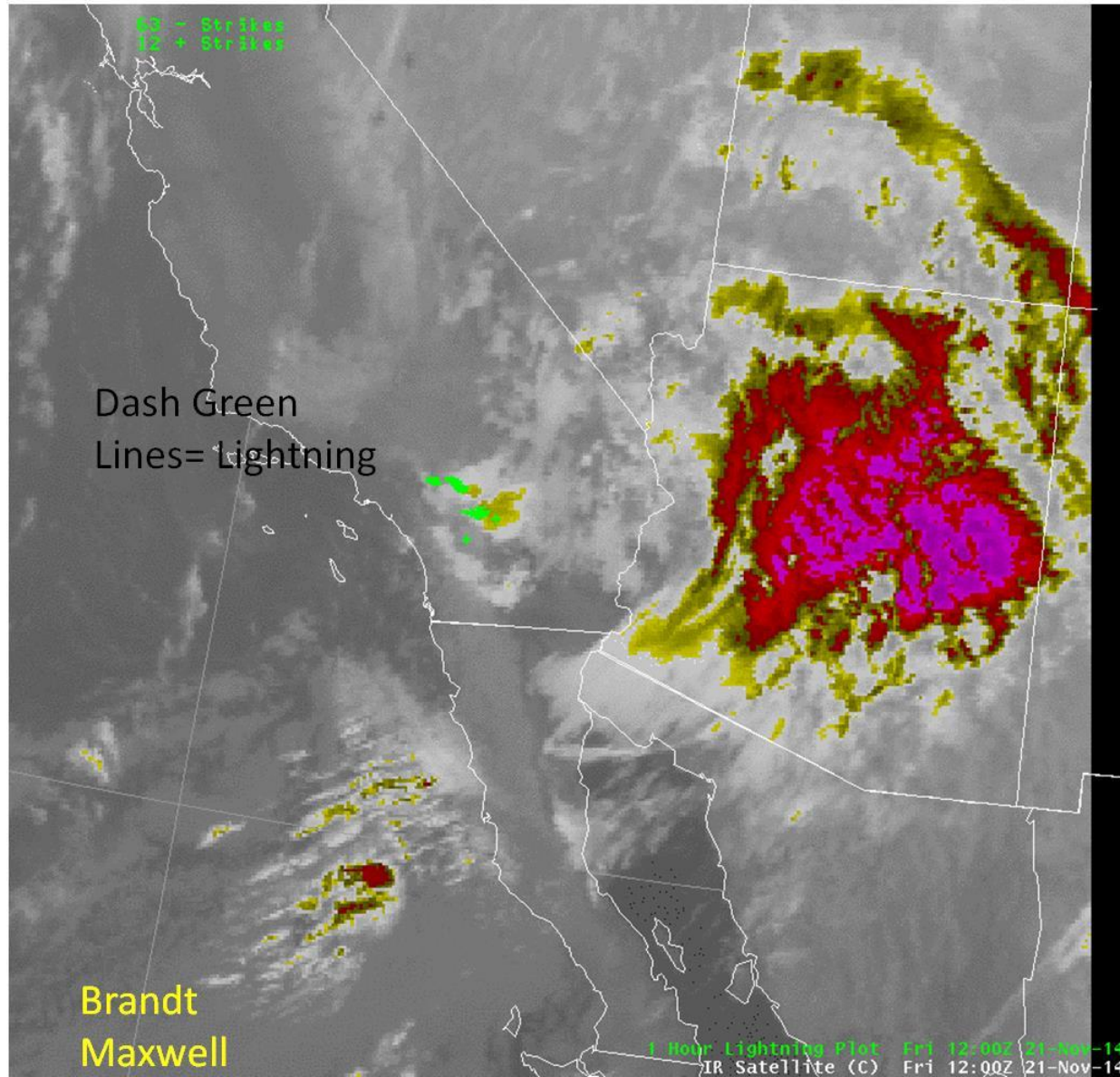
November 16-17, 2014 - Santa Ana Wind



November 16, 2014 peak gusts
(mainly during the morning)

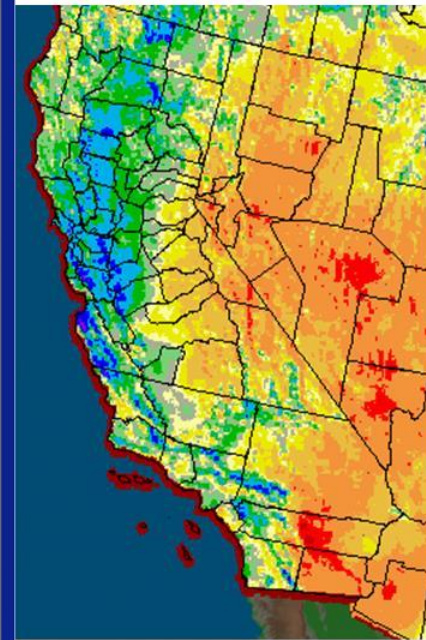
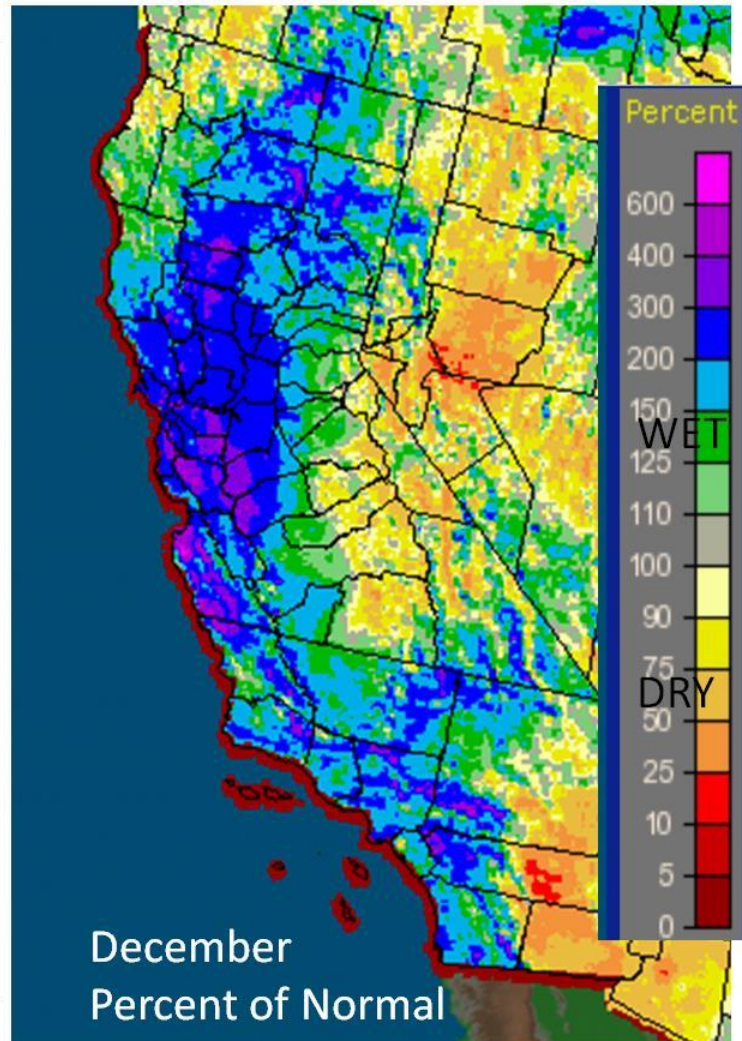
Nocturnal Thunderstorms

November 21, 2014

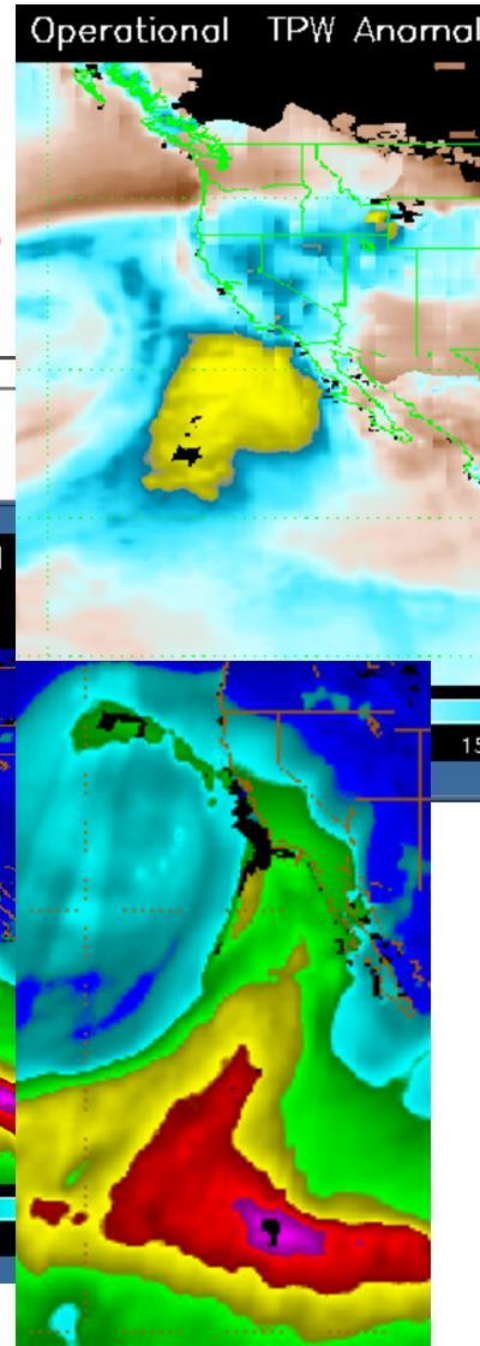
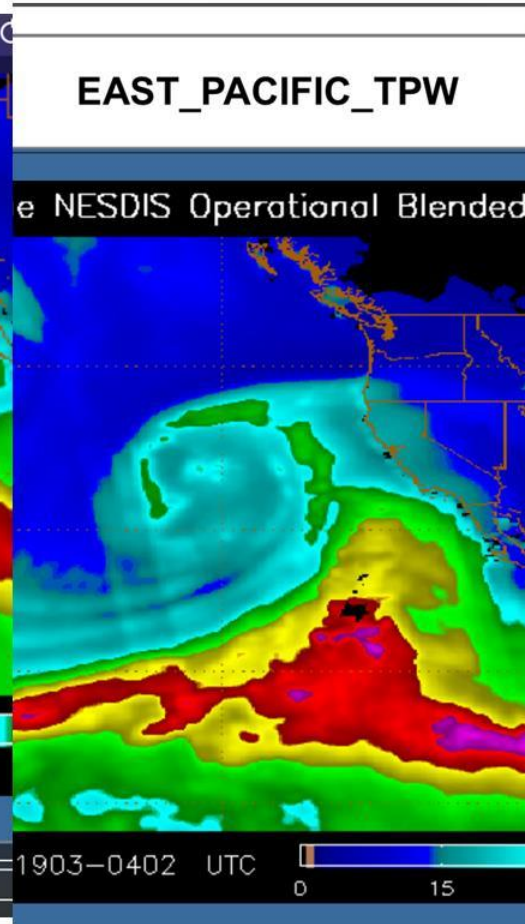
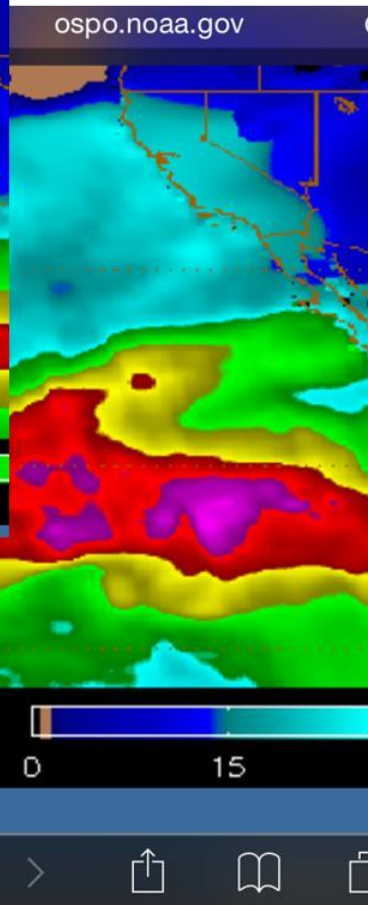
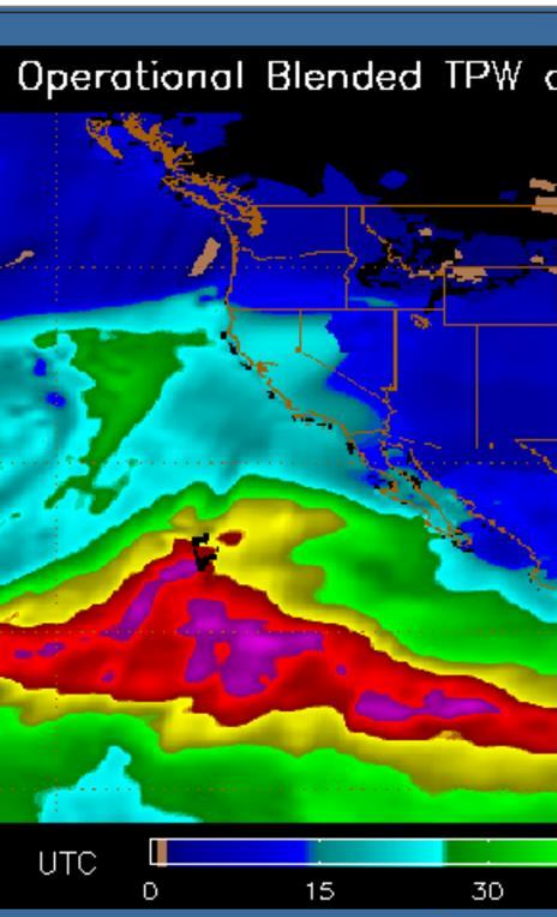


Wet December 2014

3 significant storms – Drought continues

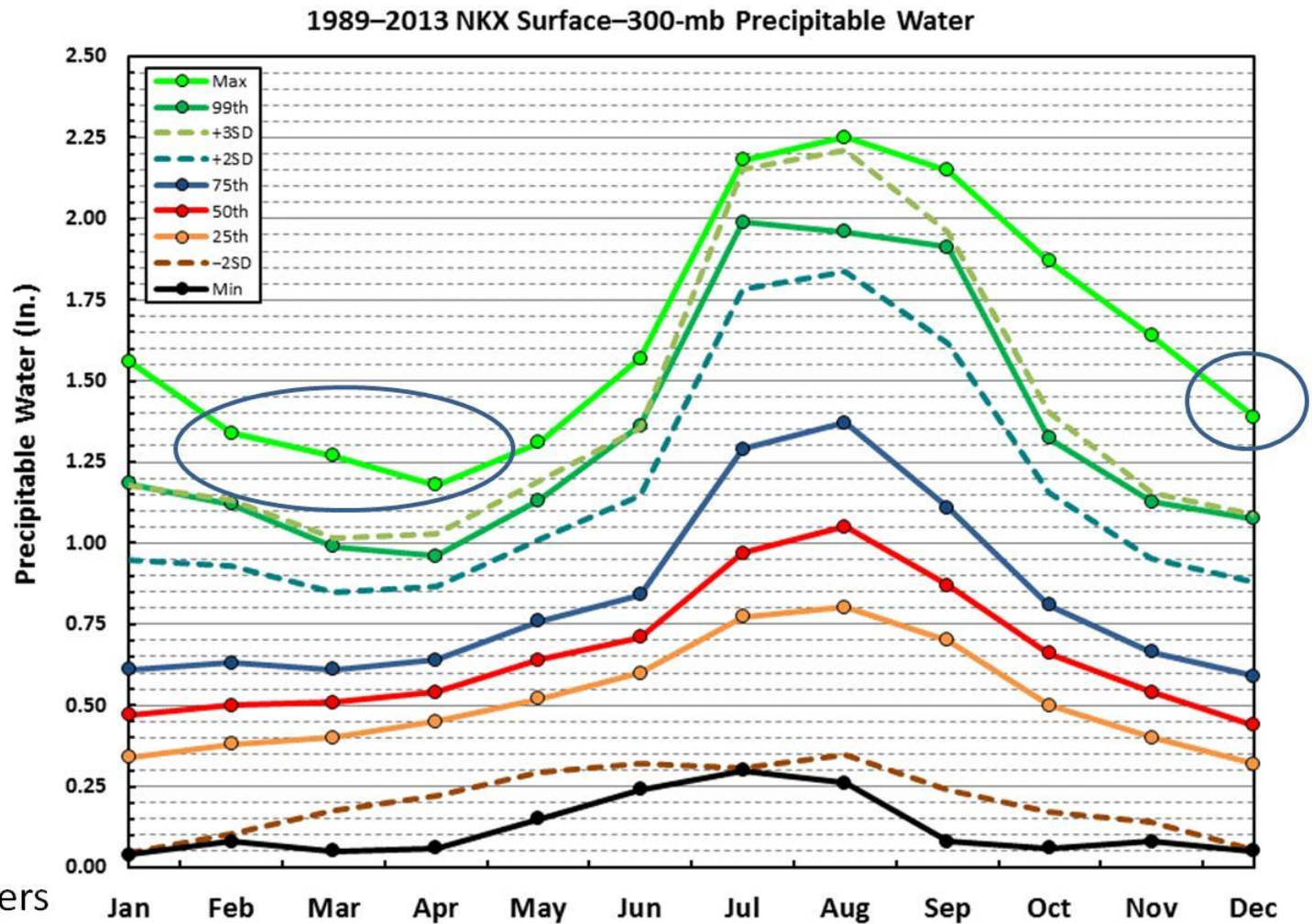


Moisture Plume evolution December 1-3, 2014

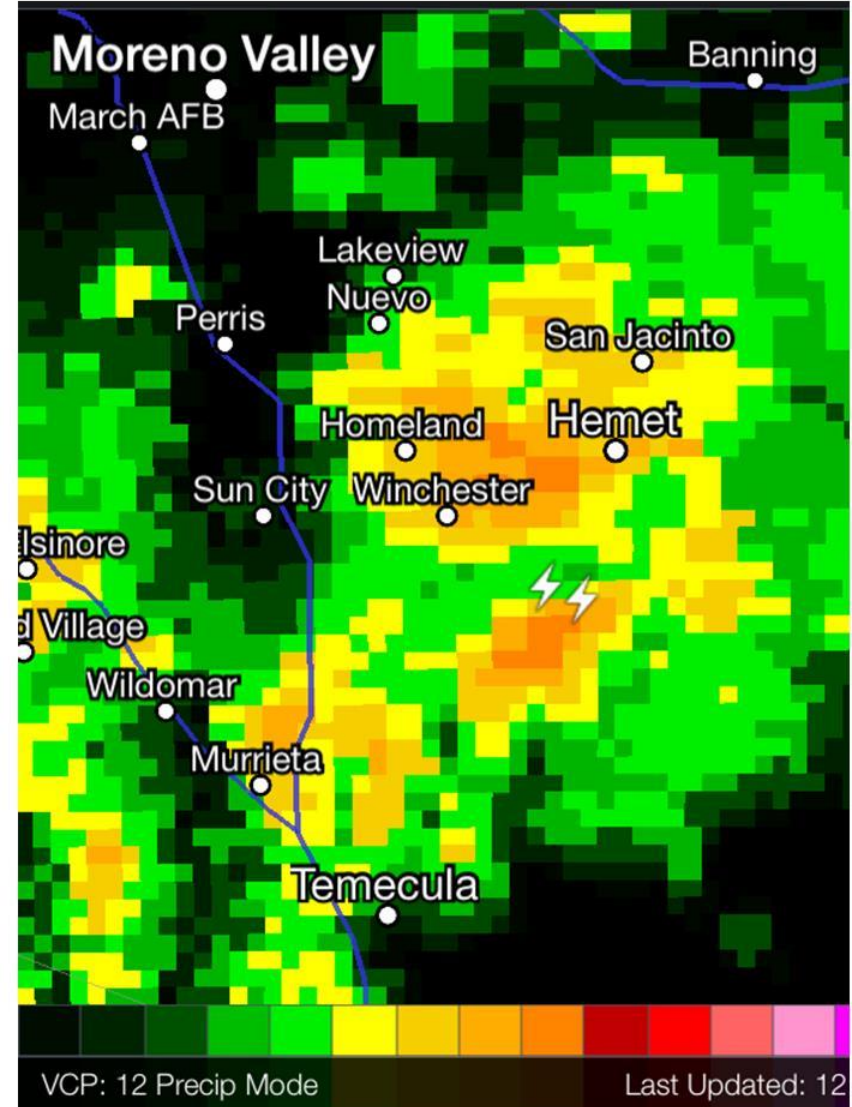


Record December Moisture

1.57 inch NKX “winter” record
1.47 to 1.49 inches observed on
December 2, 2014 at Miramar



Thunderstorms (lightning detection)



Twitter Photos San Diego Mission Hills



1.85 inches in one day (within 3 hours)
1 inch of rain in 1 hour at
SAN Lindbergh
1 in 15 year return interval





Storm Survey Reynard Way Mission Hills

Alex Tardy



San Jacinto
Twitter post

Alex Tardy

December 16-17

2 to 4 inches 5000 to 6000 feet
3 to 6 inches 6000 to 7000 feet
6 to 10 inches 7000 to 8000 feet
½ inch Palomar Mtn
1 inch Mt Laguna



Ed Sherman
Suicide Rock Mt San Jacinto



Flood areas and debris flow



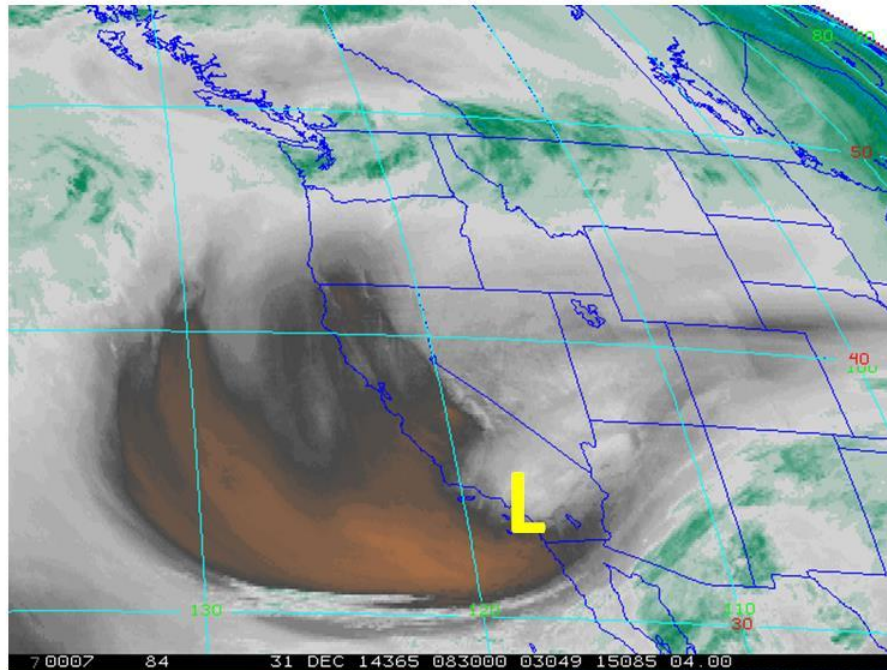
Quarry Rd webcam

SD County Flood Control District: Quarry Rd.



Highway 91 closed
via Twitter
December 17

Low snow levels December 30-31



Mike Gibbs
Temecula



Linda Klengler –
Escondido 1700 ft
East County Mag