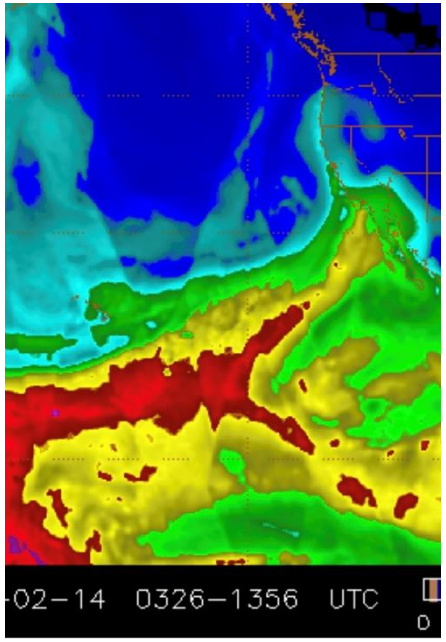
Climate Extremes and Winter Outlook



Alex Tardy
Meteorologist
October 24, 2019

Weather-Ready Nation

Extreme years

3.34 inches at San Diego 2017-18

12.93 inches at San Diego 2018-19

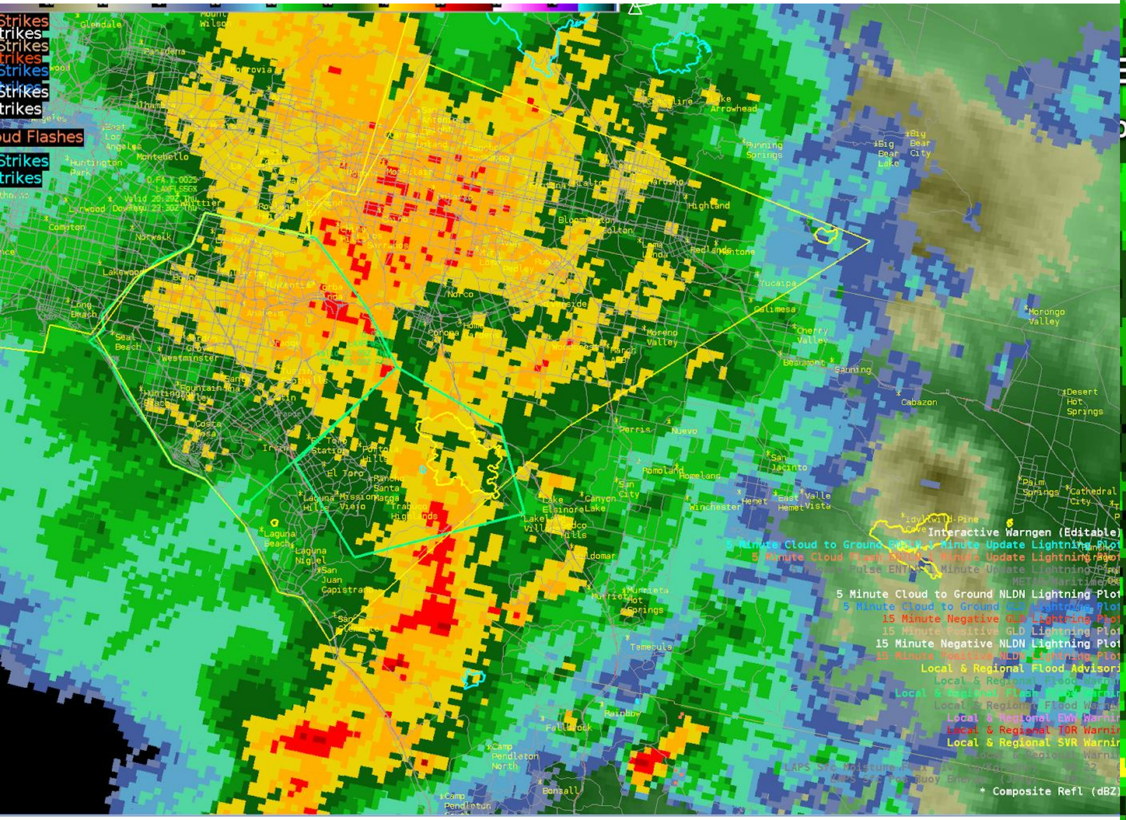
Southern California Weather Impacts
years of extremes from 2015 to 2019

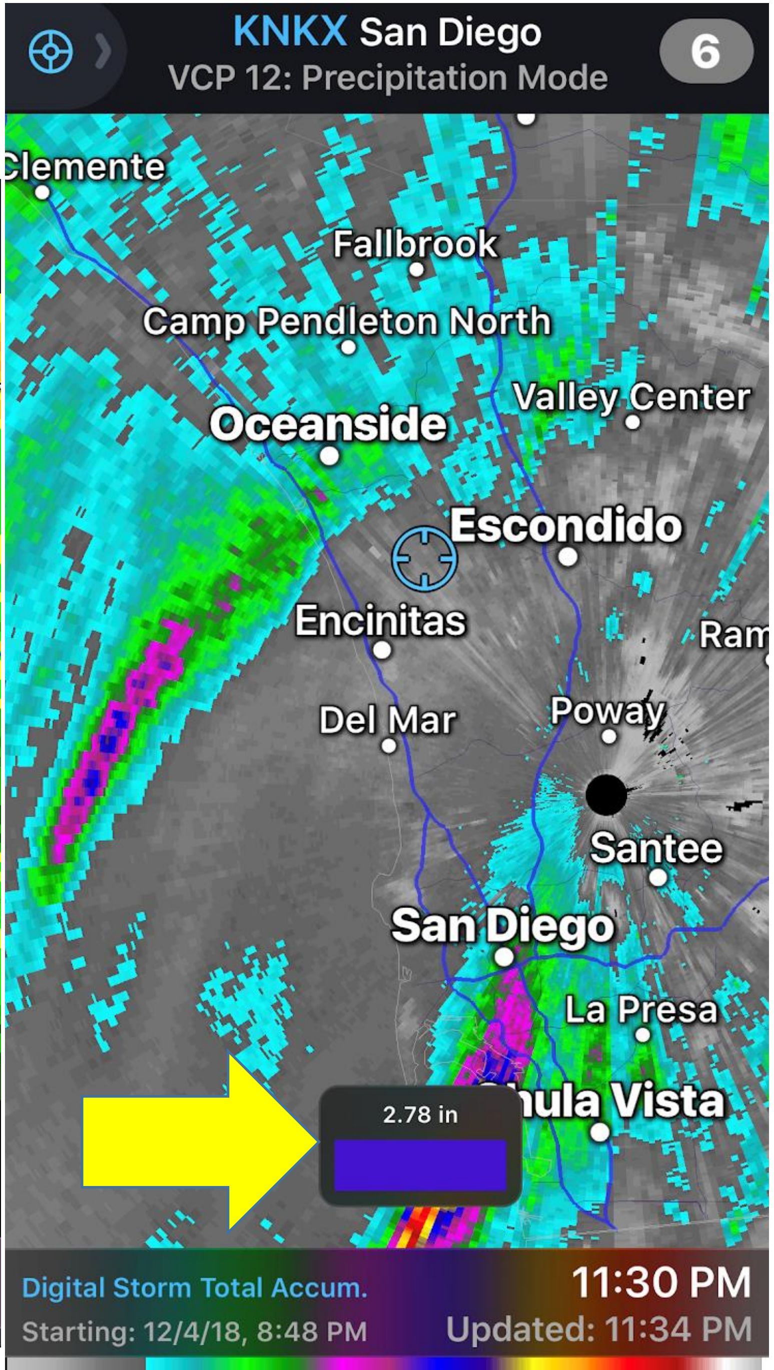
2012-16 - warmest and driest for California
2017-18 - 2nd driest water year on record
2018 - hottest summer on record
2014-15 - hottest years on record
2014-2018 - top 5 hottest years on record
February 2019 coldest on record many areas

February 2019 - wettest 1-day on record for Idyllwild and Palomar mtn
2016-2017 - damaging winds over coastal and valleys in winter storms – 2nd wettest season for California
2017 - 3rd highest San Diego river level at 14 feet
December 6, 2018 – 2-3 inches of rain in San Diego and Costa Mesa In 2 hours!

Weather-Ready Nation

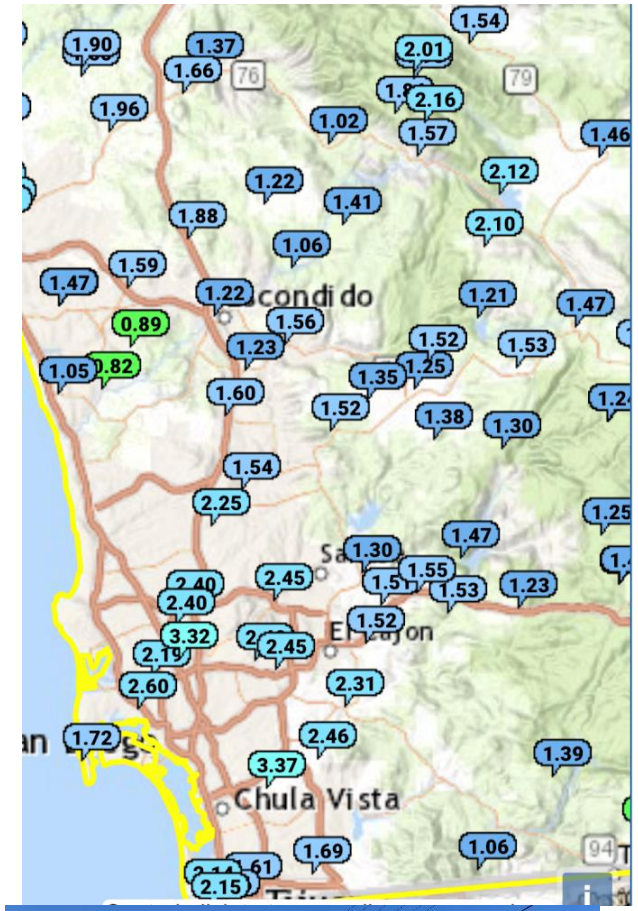
Intense Urban rainfall December 6, 2018

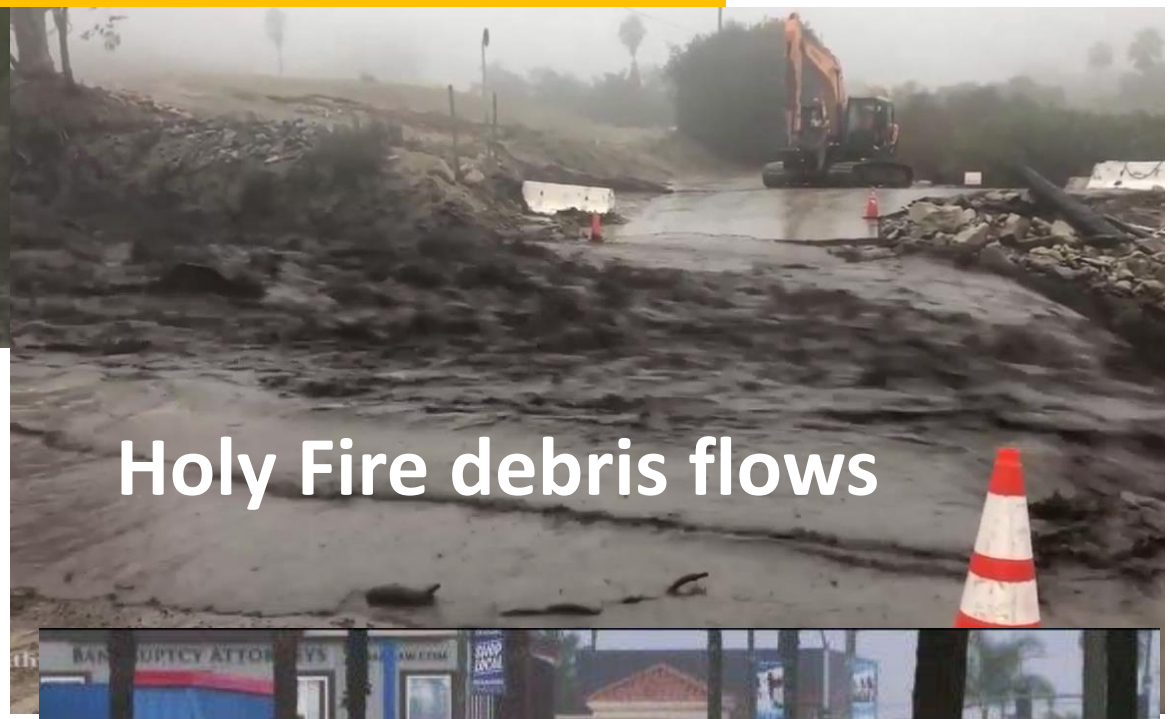




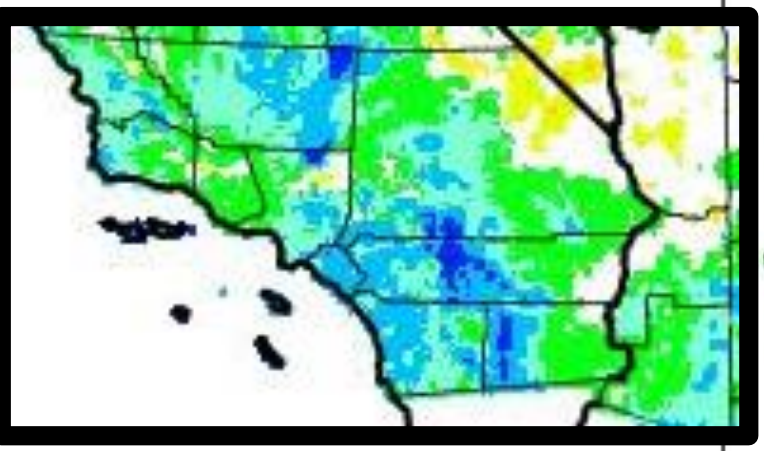
December 5-6, 2018 heavy rain on coast/debris flows

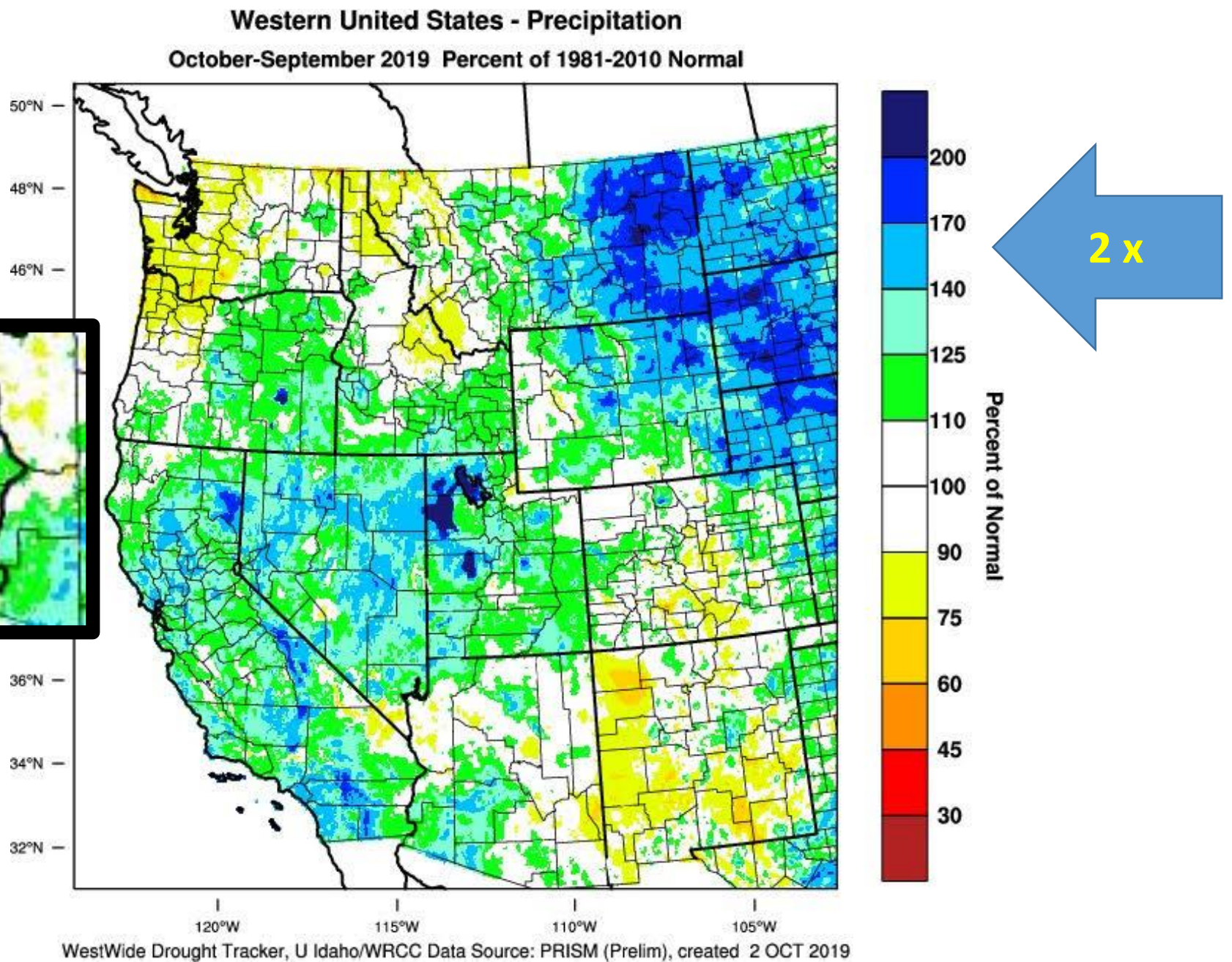
2 inches in 2 hours – San Diego, Oceanside and Costa Mesa





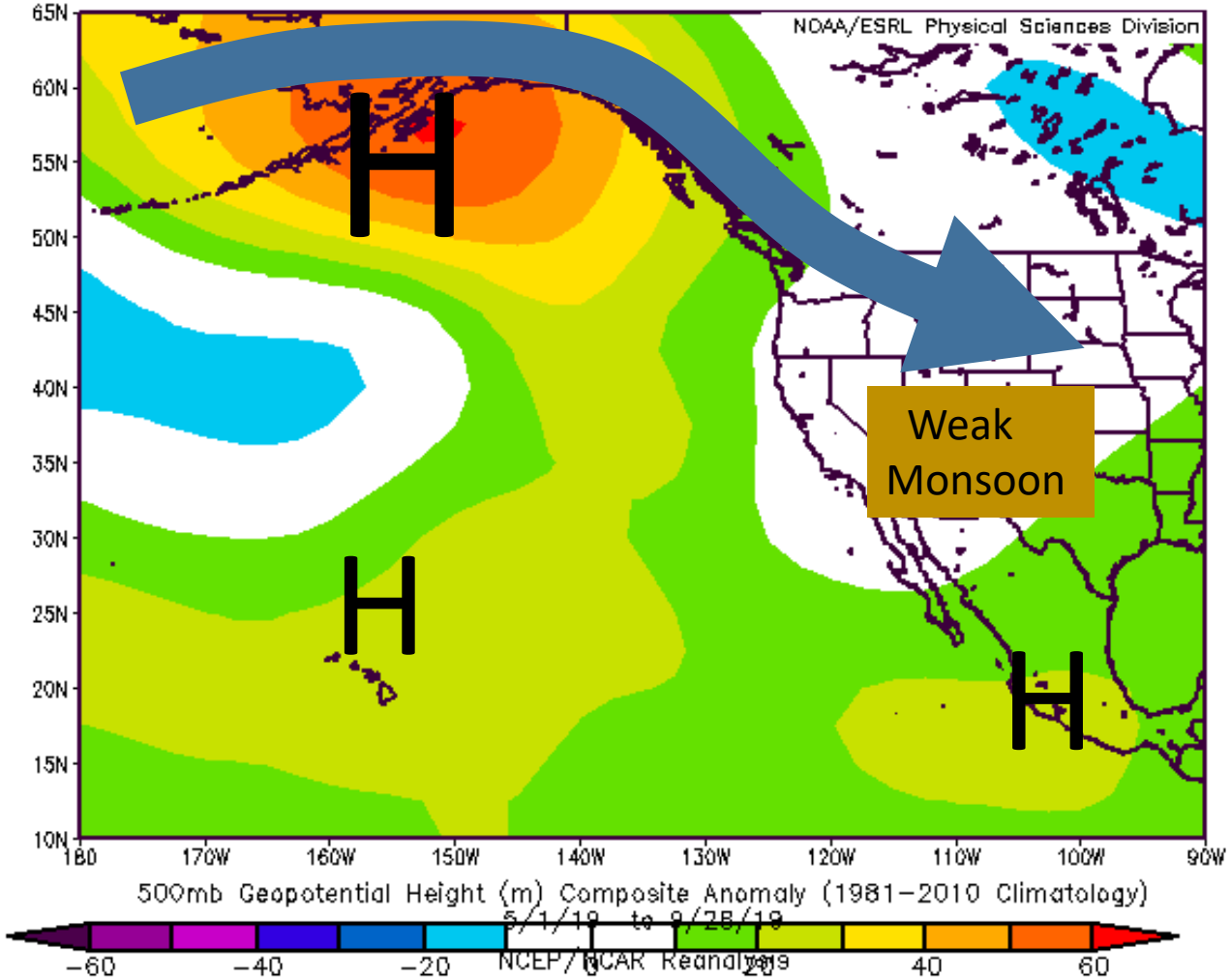
Water Year 2018-19 was very wet in mountains





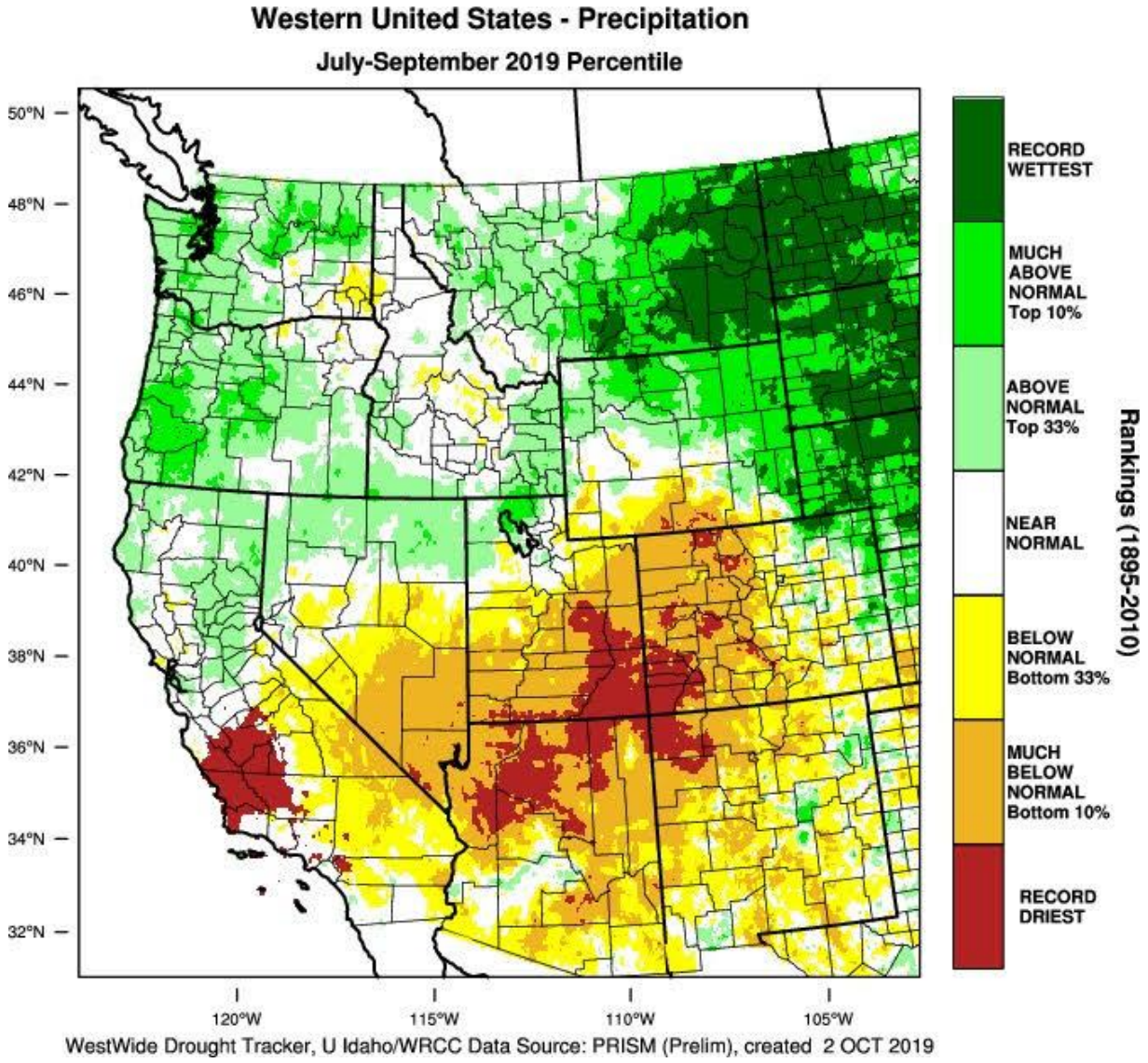
The weather pattern summer 2019

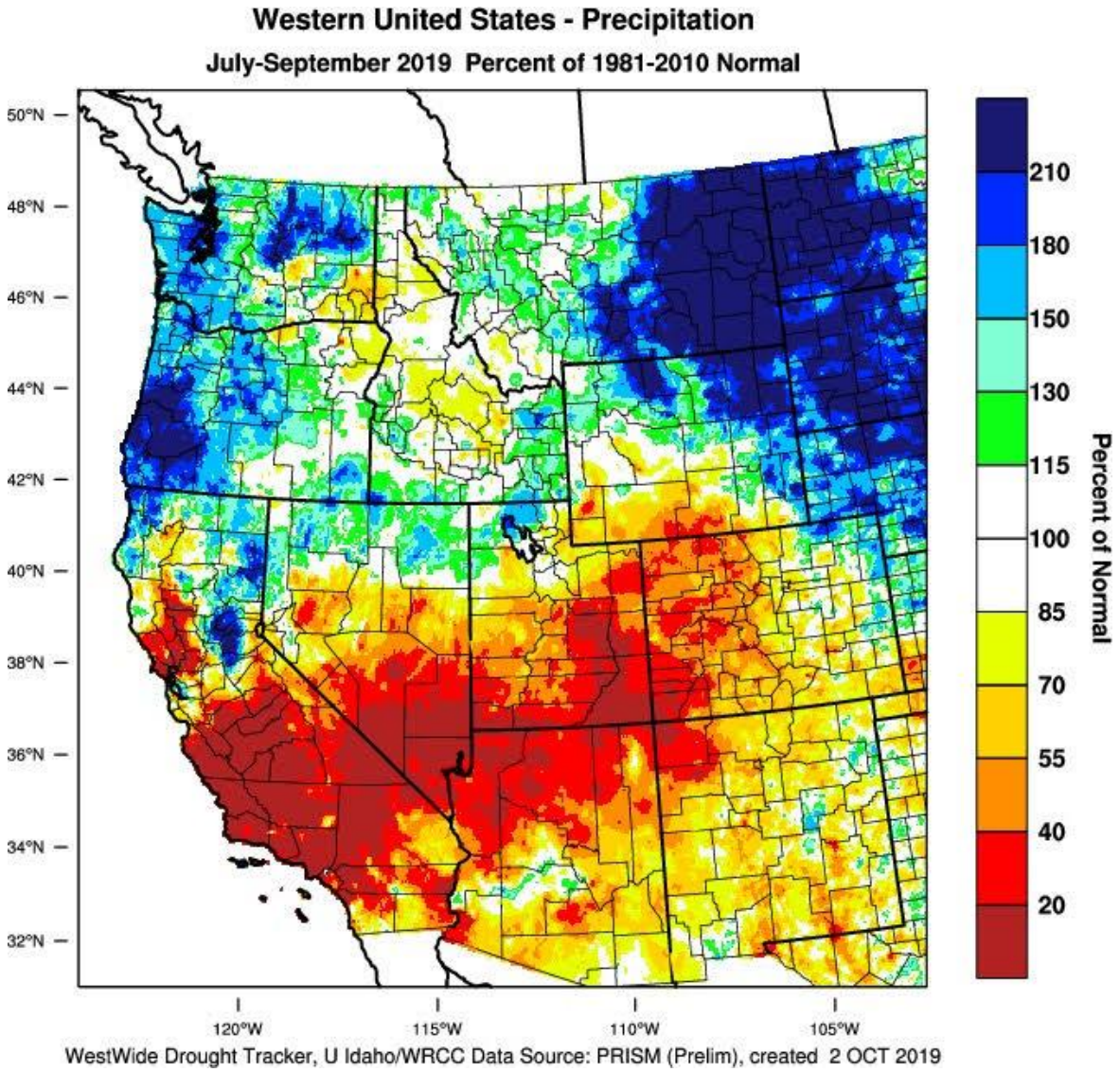
May through September



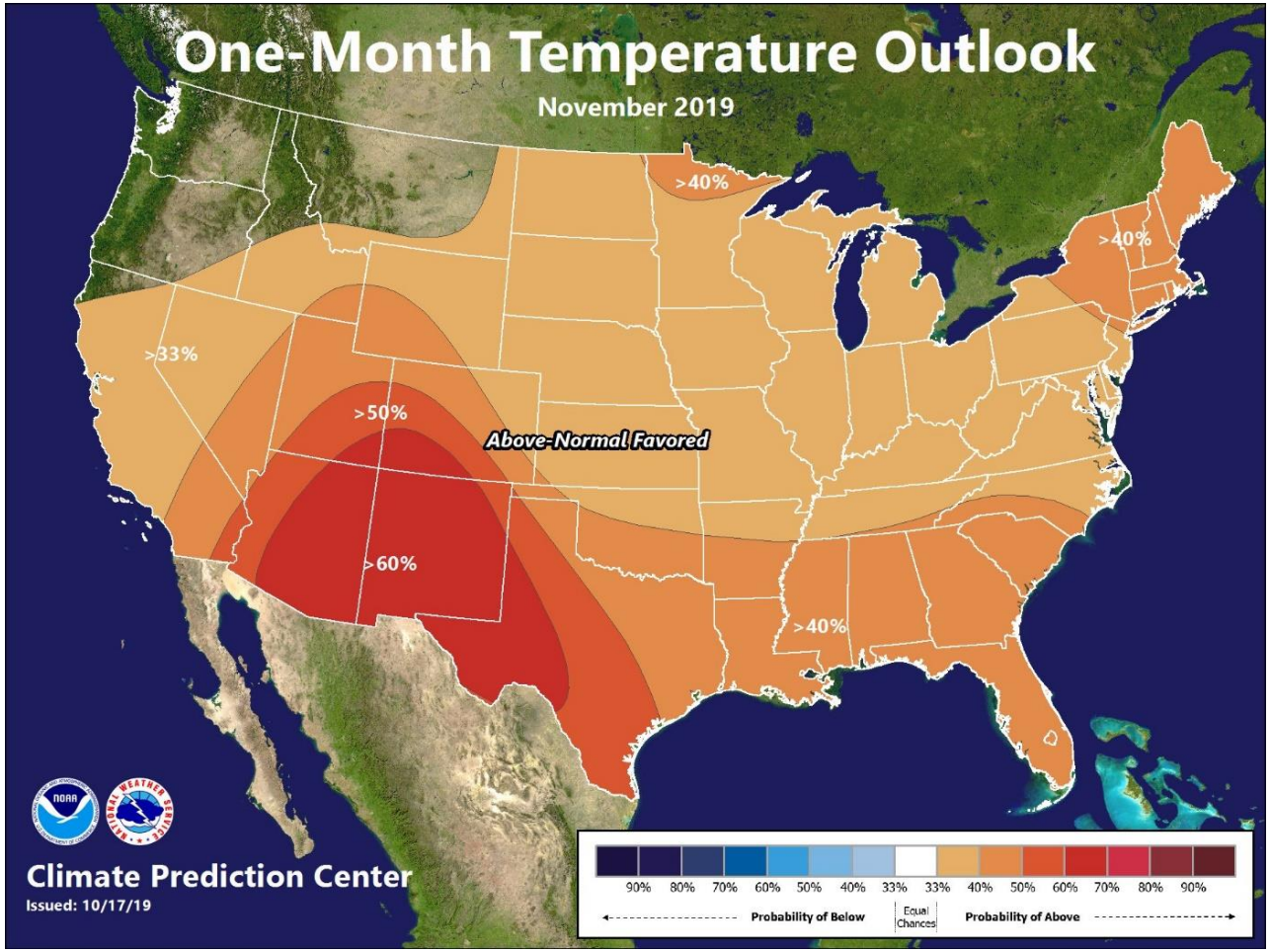
Summer Monsoon was dry

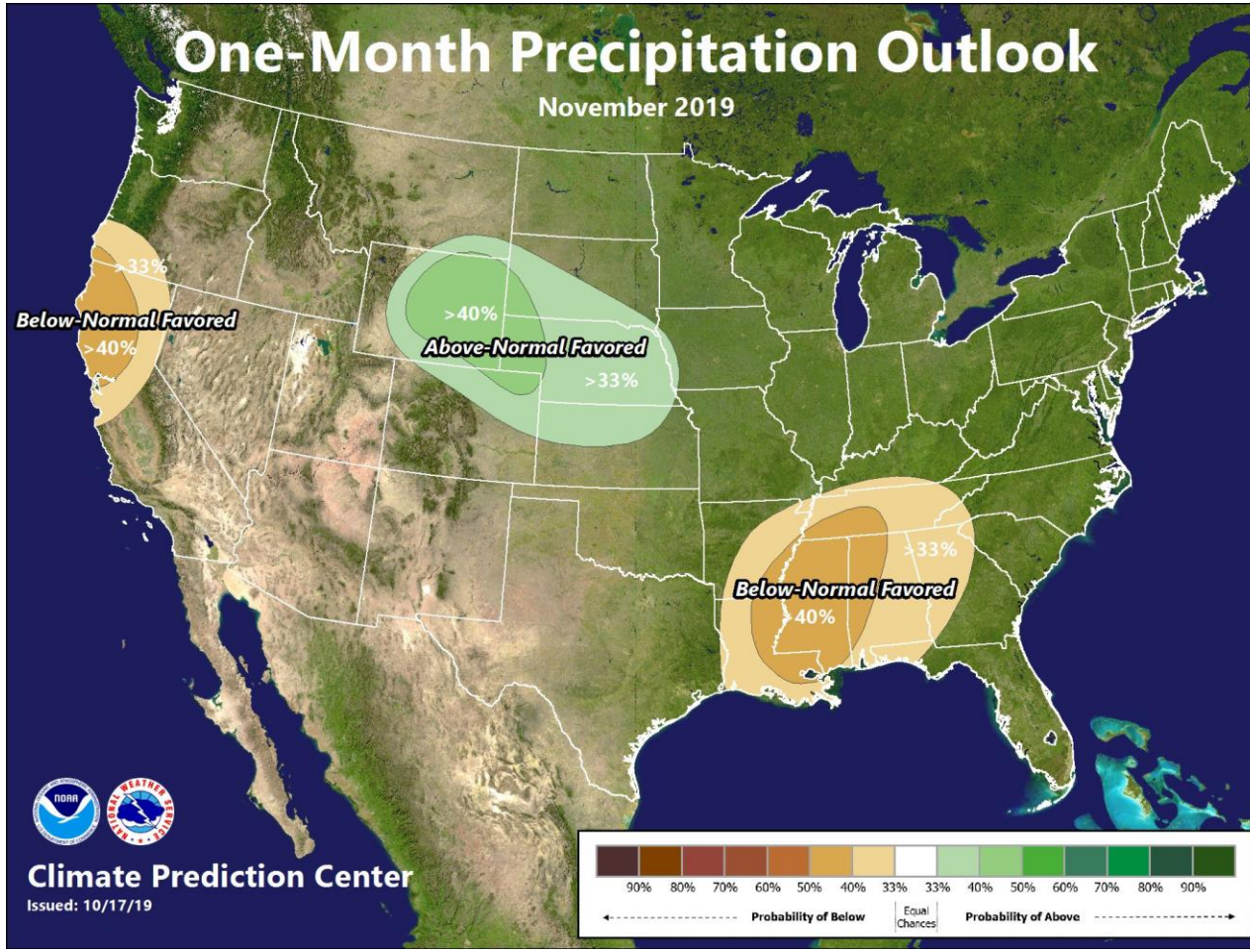
little rainfall in mountains and deserts



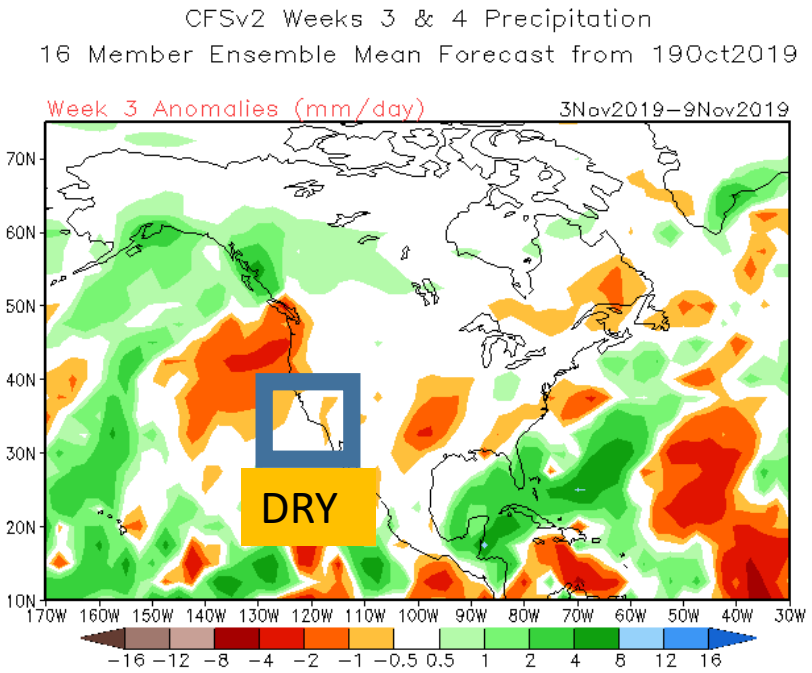


Outlook for November 2019



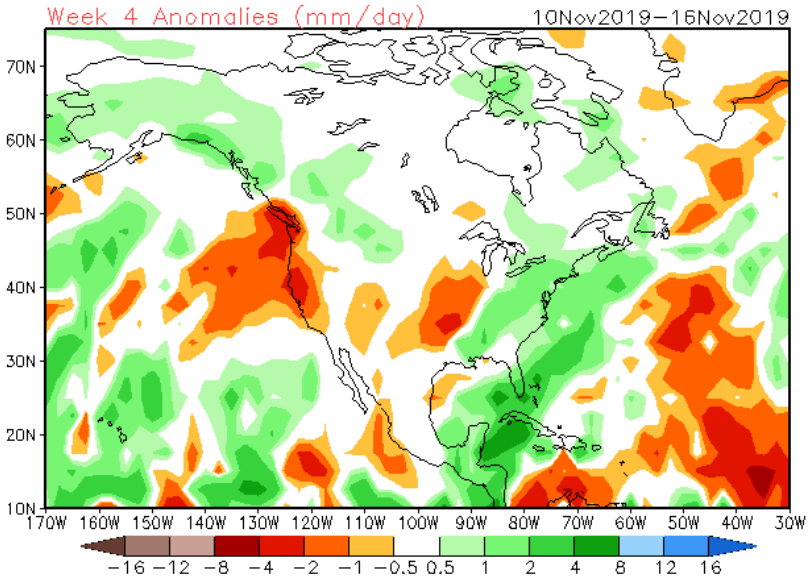


November - precipitation and temperature

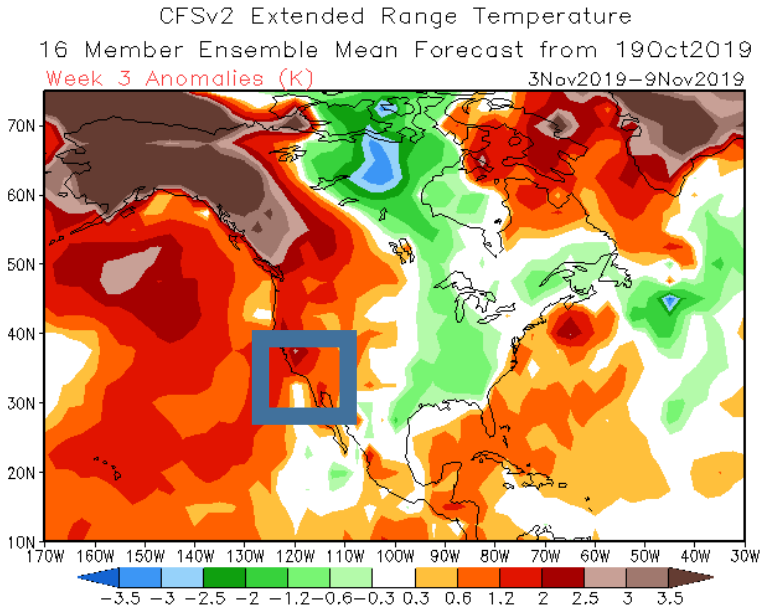


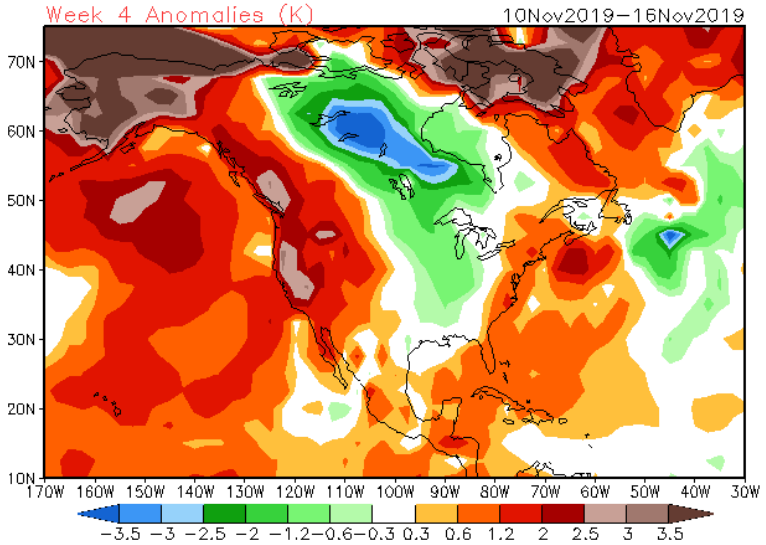
Nov 3-9, 2019

Dry warm (Santa Ana pattern)



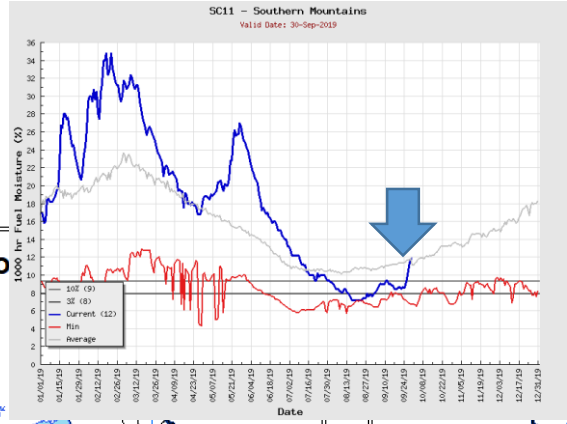
Nov 10-16, 2019

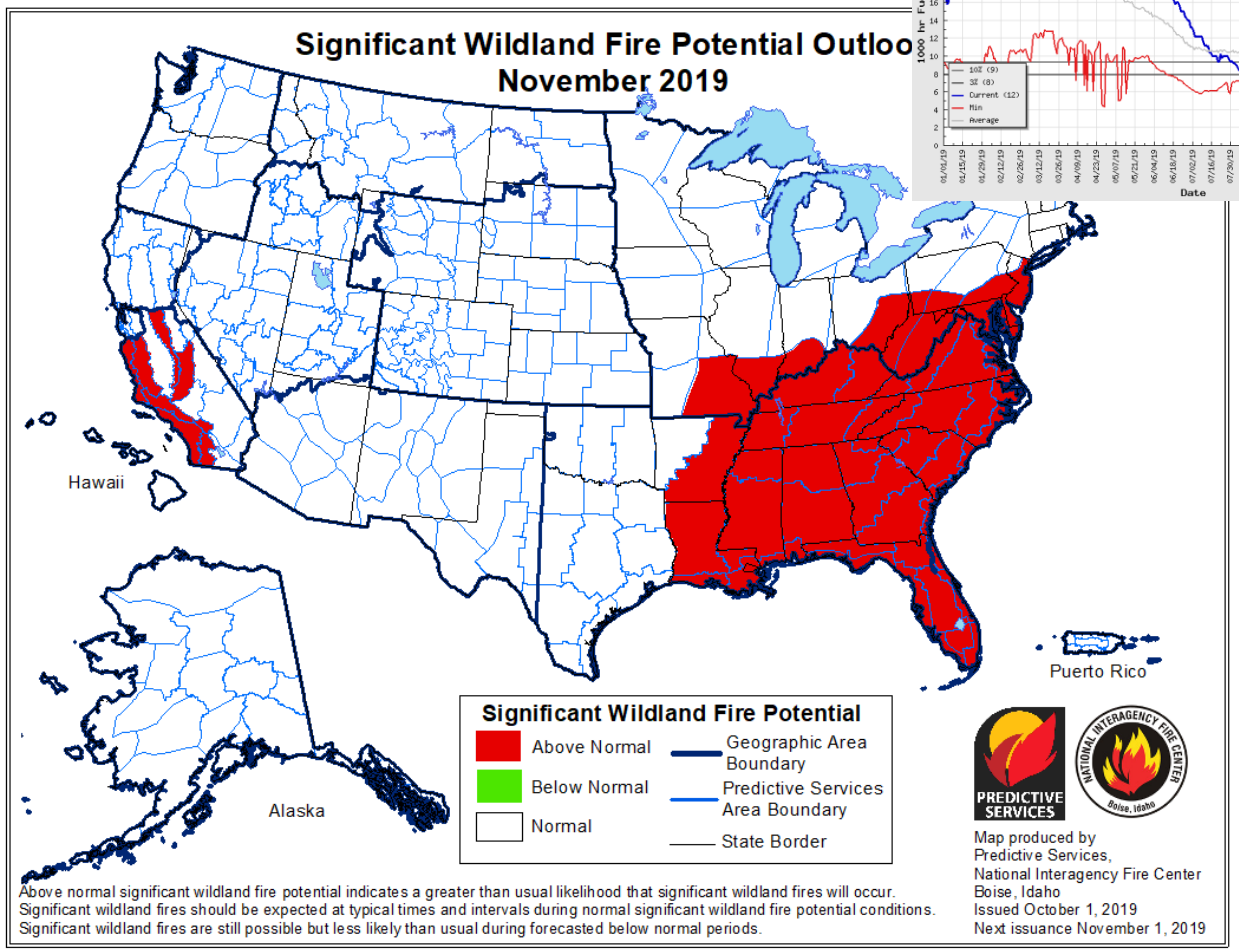


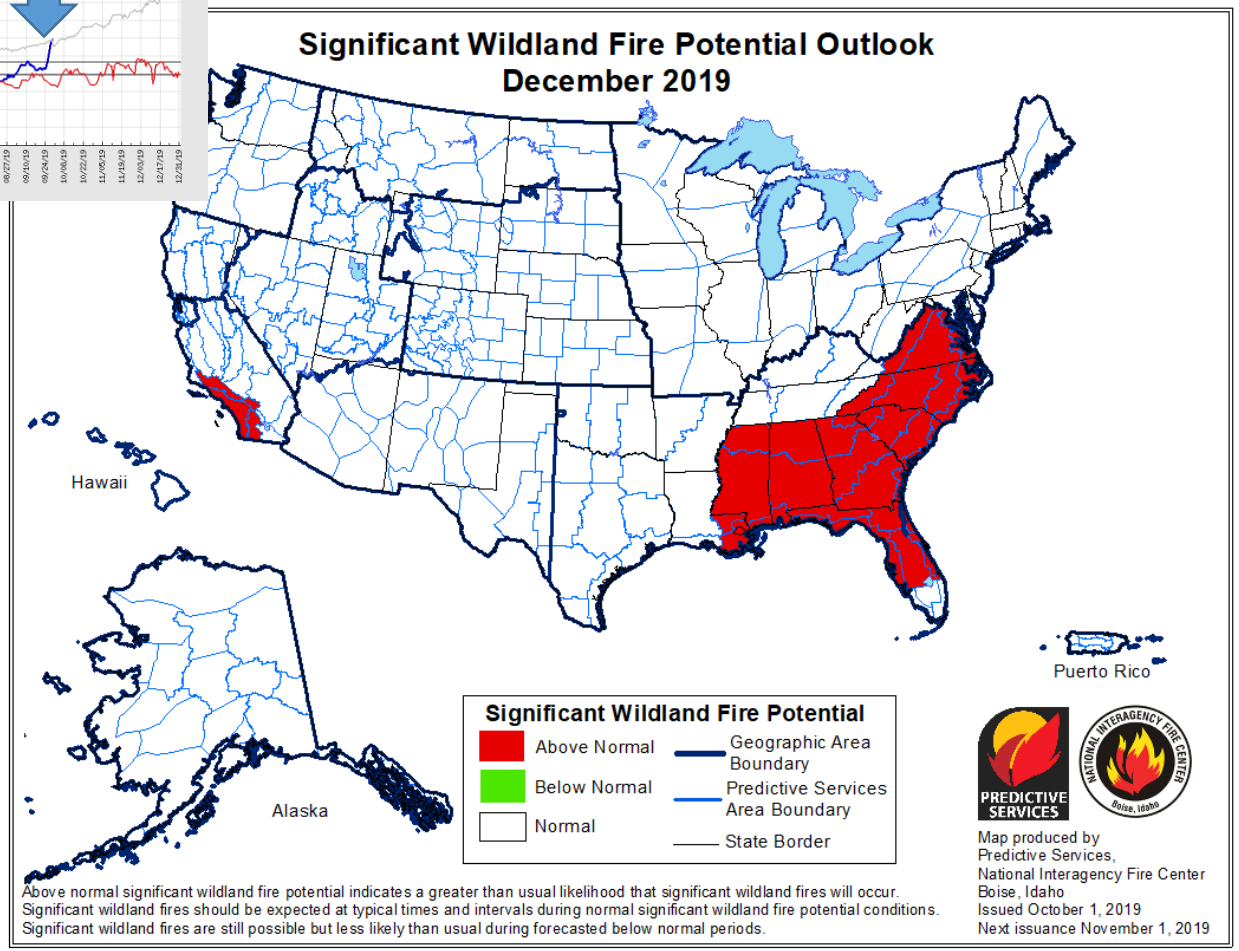


Fire potential outlook significant over Socal

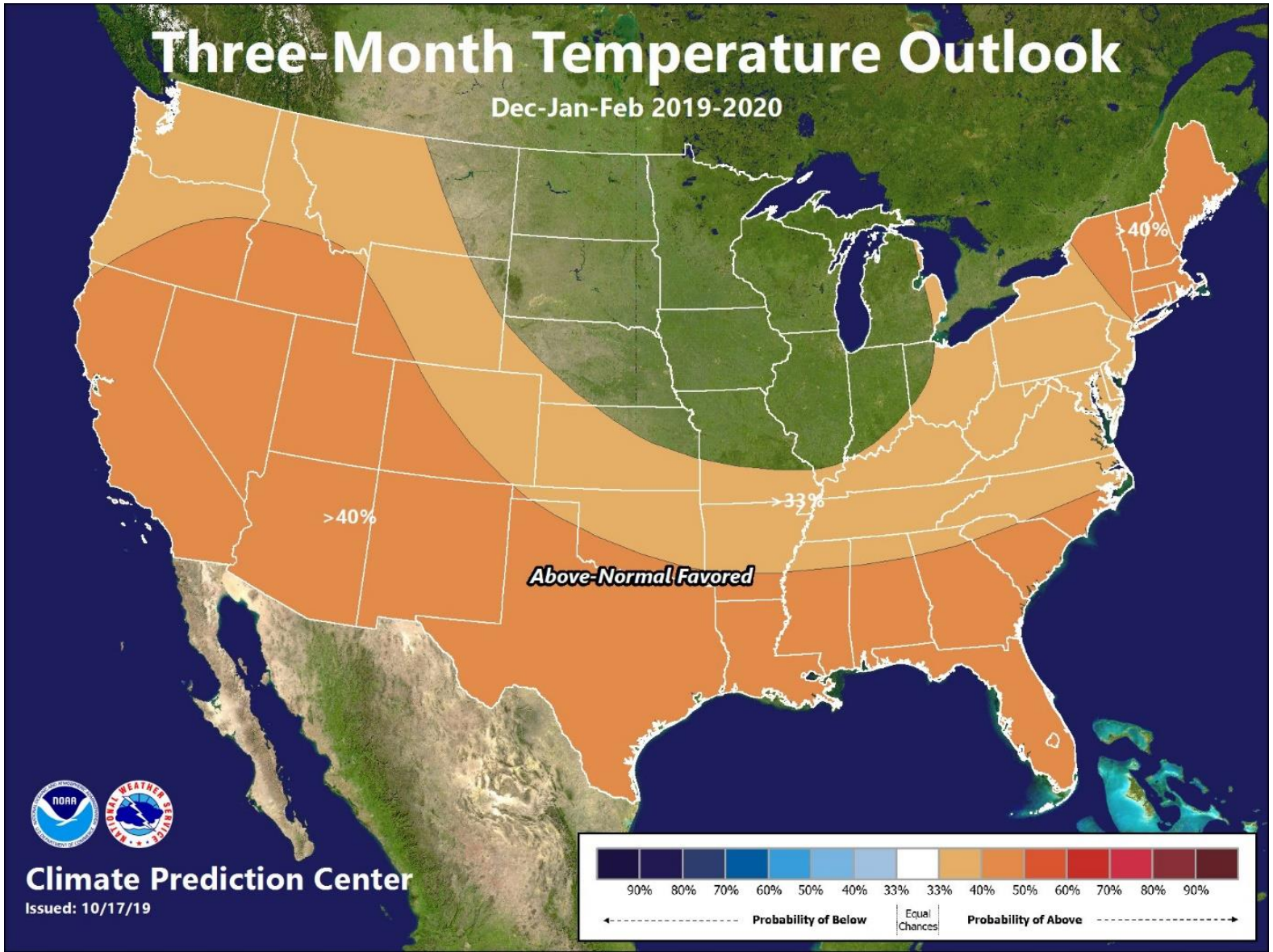
October through December 2019



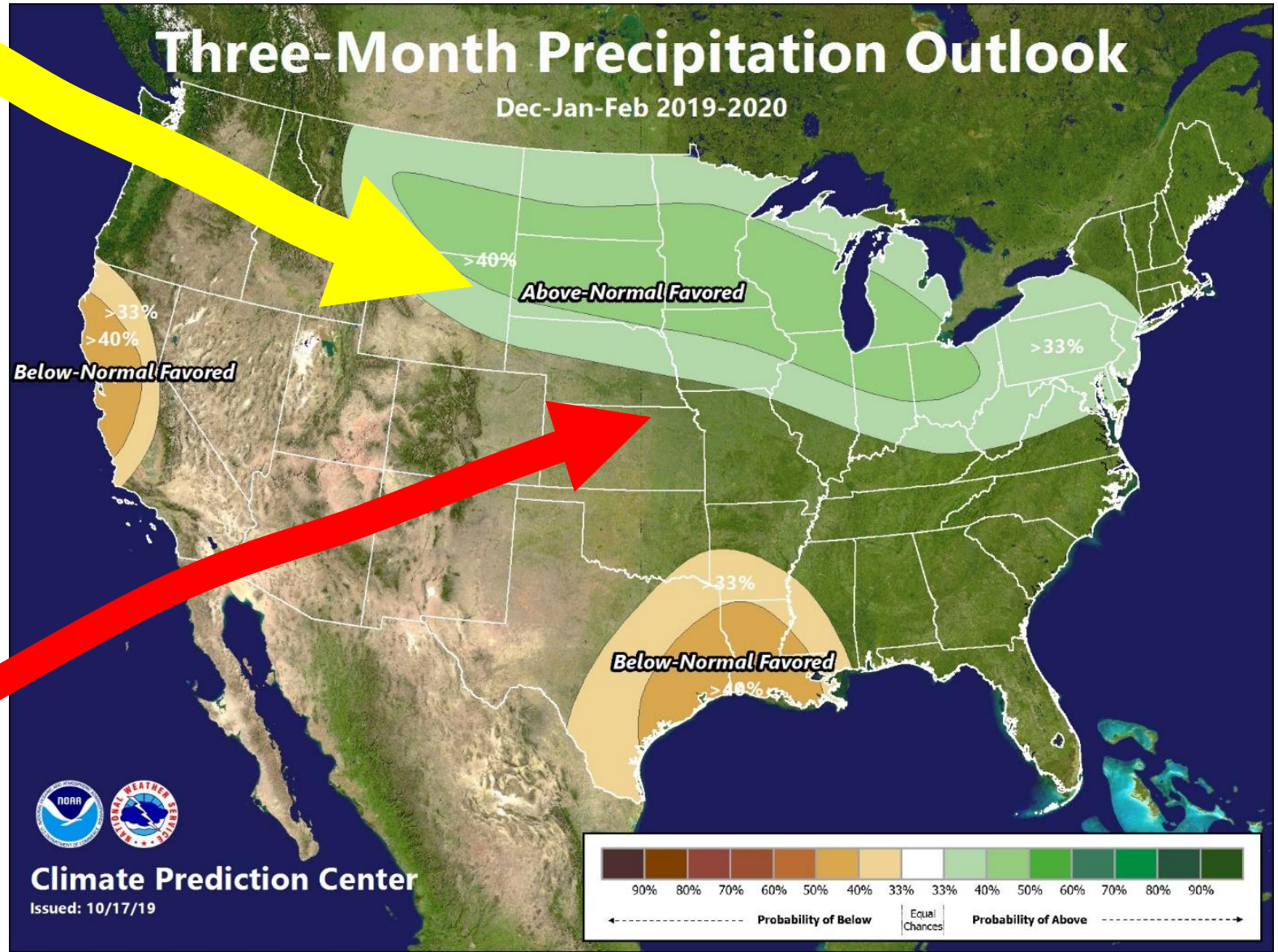




Winter (December to February 2020) **temperature** outlook



Winter (December to February 2020) **precipitation** outlook



Summary of Outlook 2019-20

- Summer 2019 was above average temperature but much cooler than 2018
- Summer 2019 monsoon was below average (drier)
- There is no signal in the ocean near equator (mix) so no El Nino (neutral) but the Pacific Ocean is running much above average (sea surface temperature)

- Fall 2019 is expected to be above average temperature and near average precipitation
- Above average Santa Ana winds (high wildfire danger due to dry abundant fuels and warmer than average temperatures with winds)

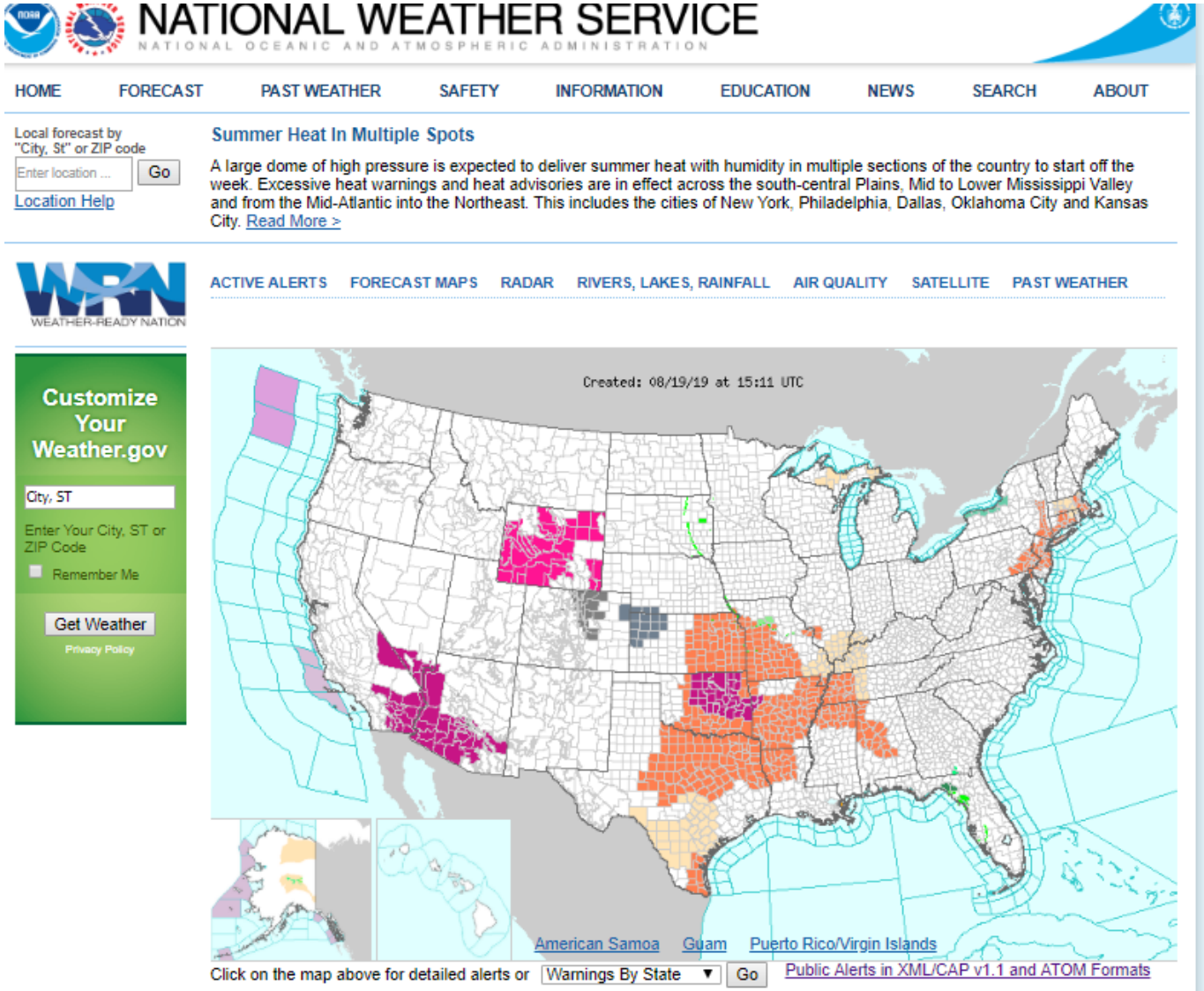
- Winter 2019-20 is expected to be warmer than average temperatures
- Winter 2019-20 (December to February) is expected to be drier than average
- Fall 2019 is expected to be near average for precipitation but Spring 2020 forecast to be drier than average

- Strong atmospheric rivers such as January and February 2019 are possible any year, even when the winter months are dry

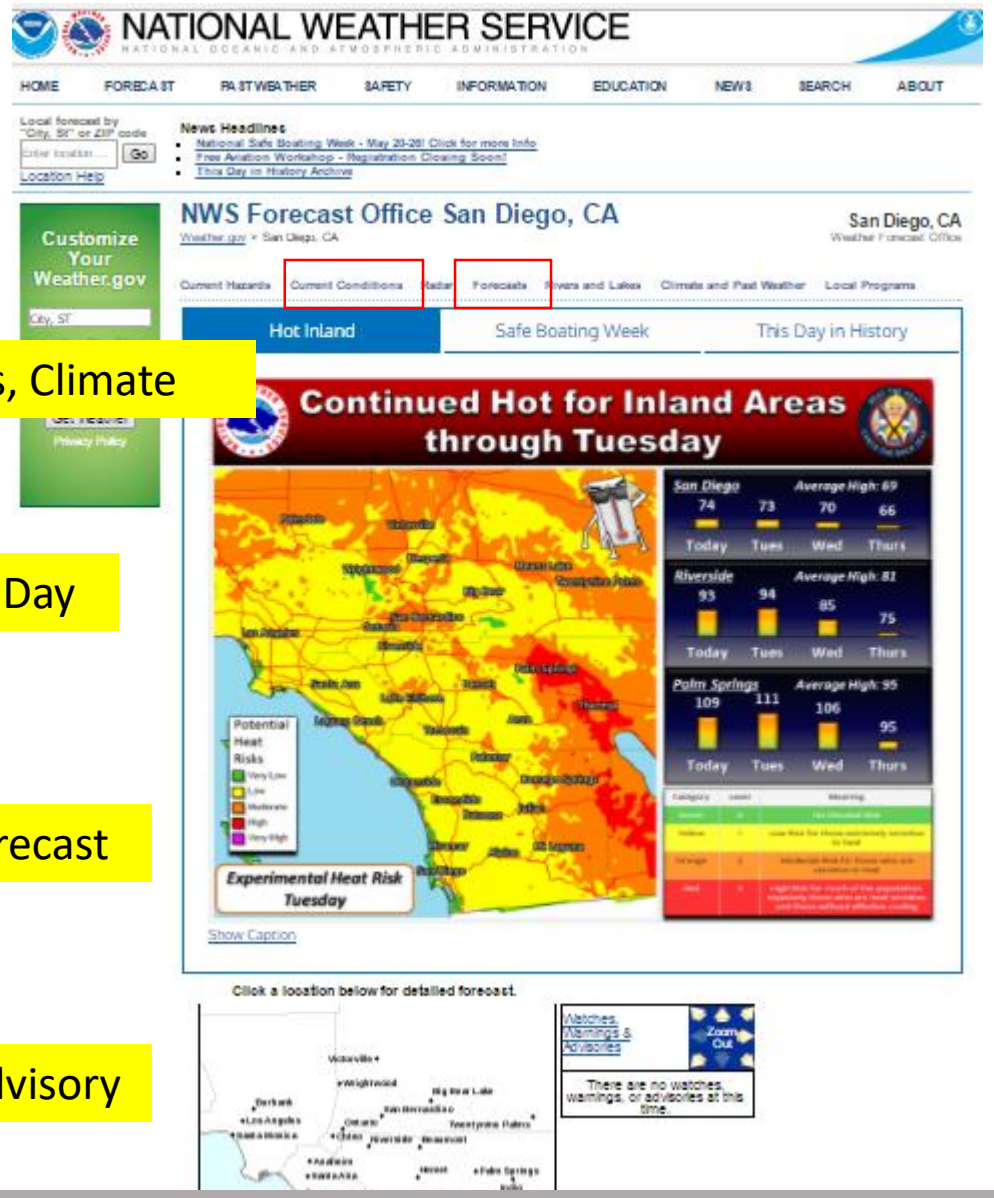
Resources

- https://inws.ncep.noaa.gov (alerts specific type and location)
- https://nwschat.weather.gov (chat rooms)
- https://weather.gov/SanDiego (fire weather, marine, aviation, climate)
- https://www.weather.gov/spot (specific forecasts and plume model)
- Satellite hot spot (wildfires) notification by SMS text message (1 to 5 minute updates)
- 1 page specific forecast tables for any event (by request)
- Partner email lists (subscribe through Alexander.Tardy@noaa.gov)
- Follow NWS on Facebook, Twitter and YouTube

weather.gov
mobile weather.gov



Weather.gov



Forecasts, Observations, Climate

Weather Story of Day

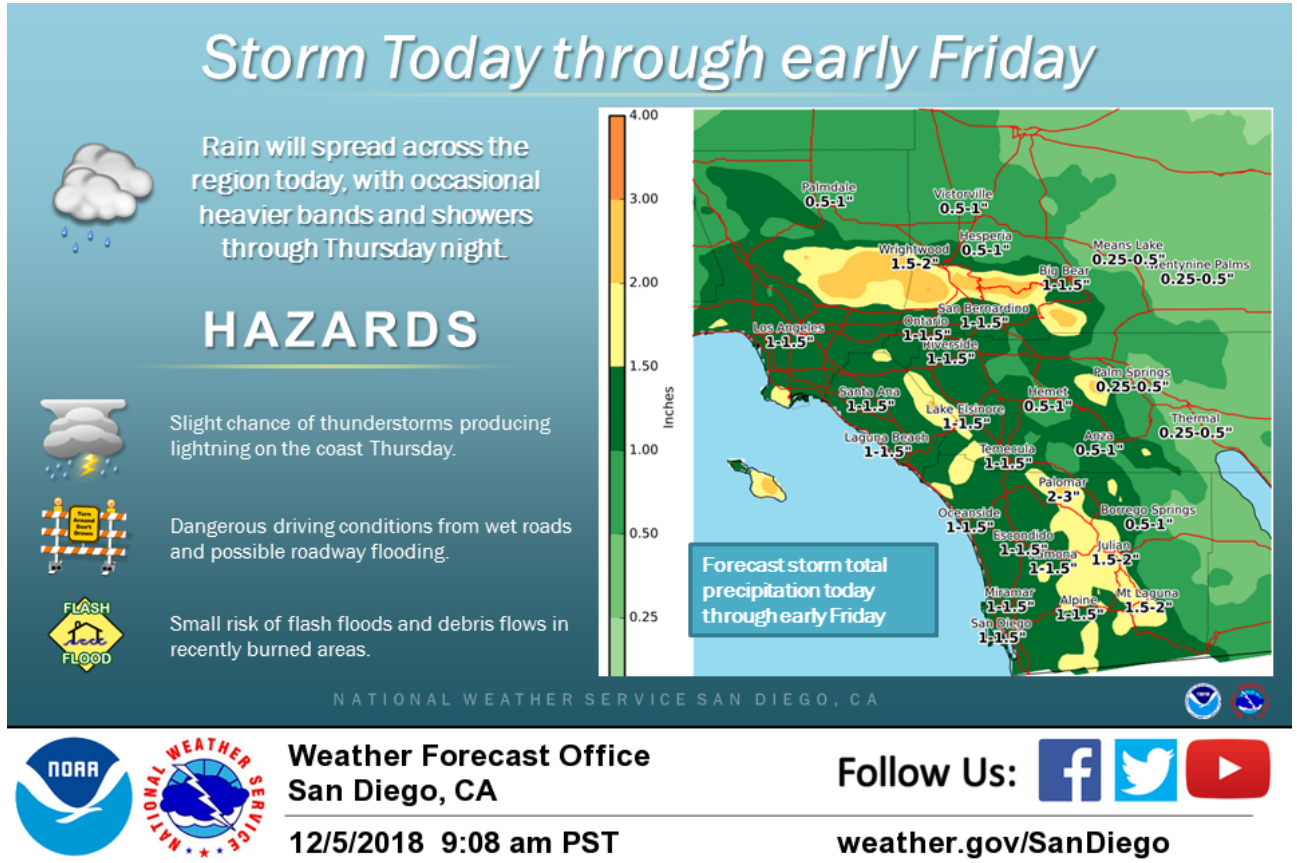
Point and Click Forecast

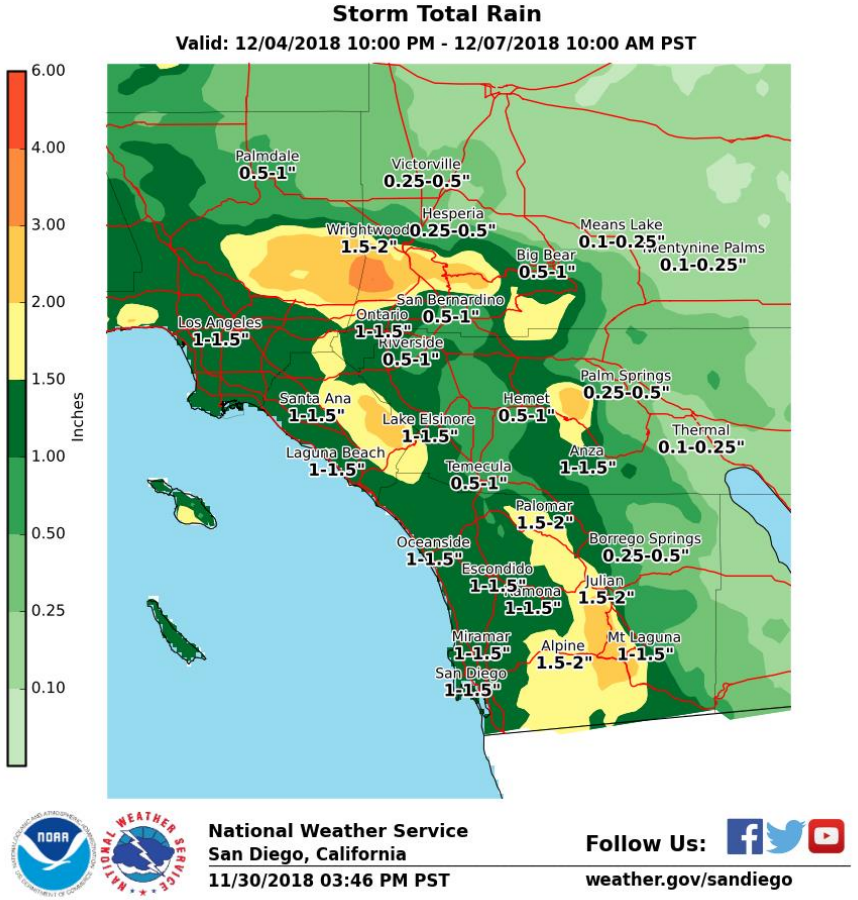
Watch/Warning/Advisory

Weather Forecast Office

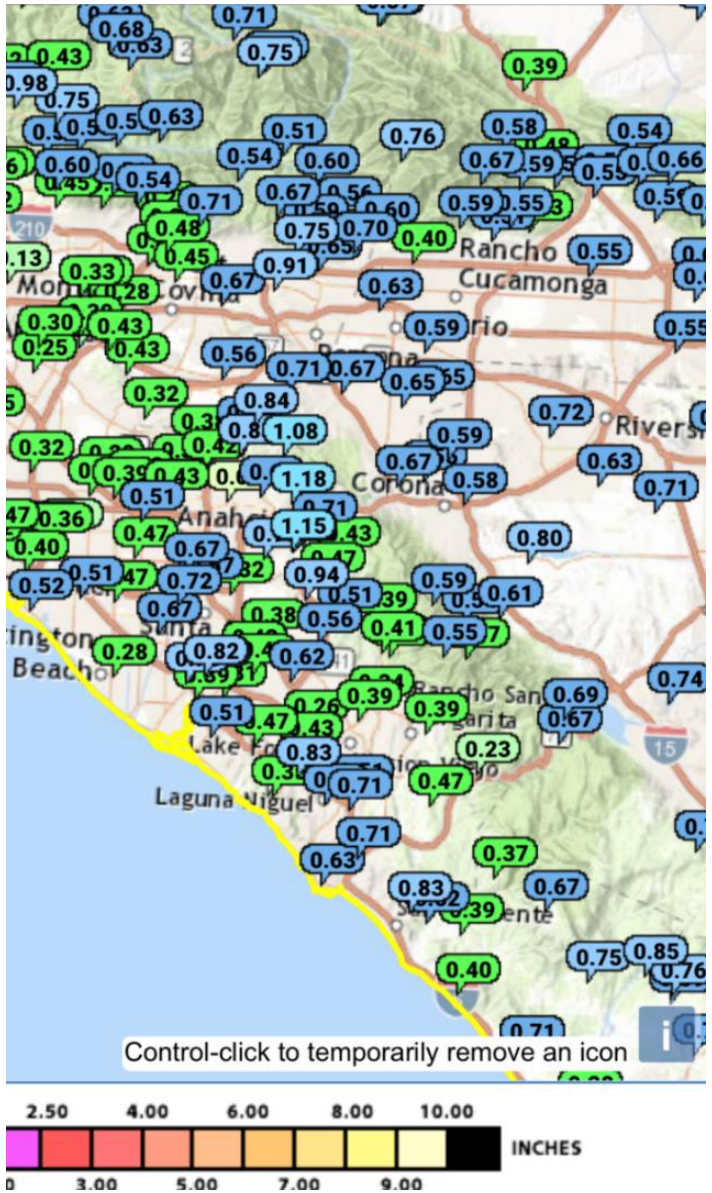
weather.gov/SanDiego

https://www.weather.gov/sgx/Hydro

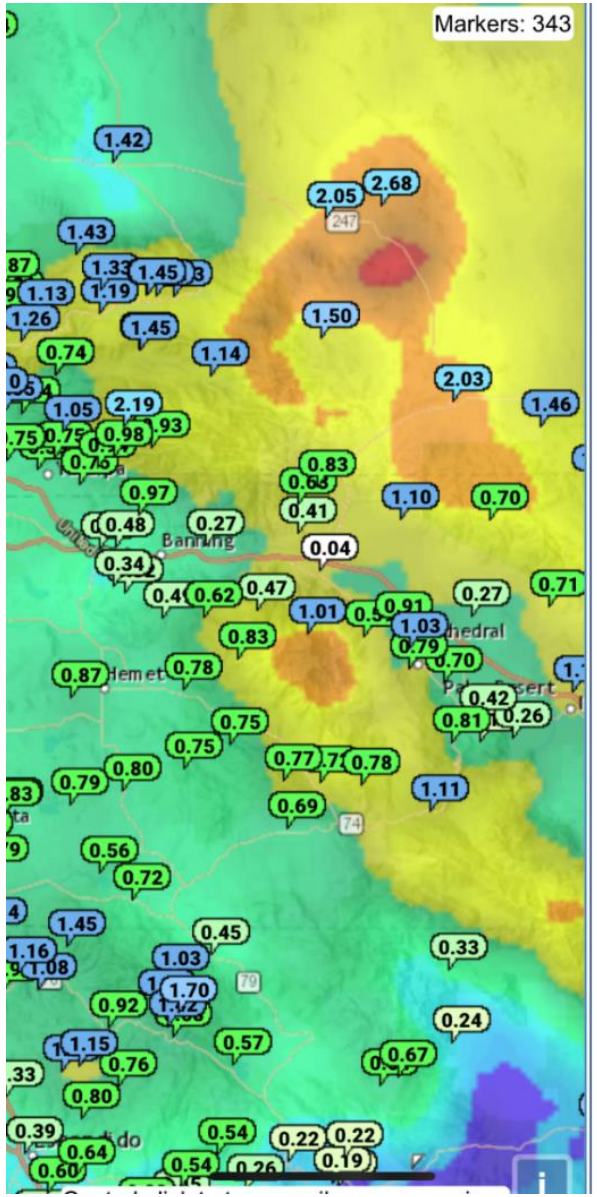




Precipitation plots by point and gridded

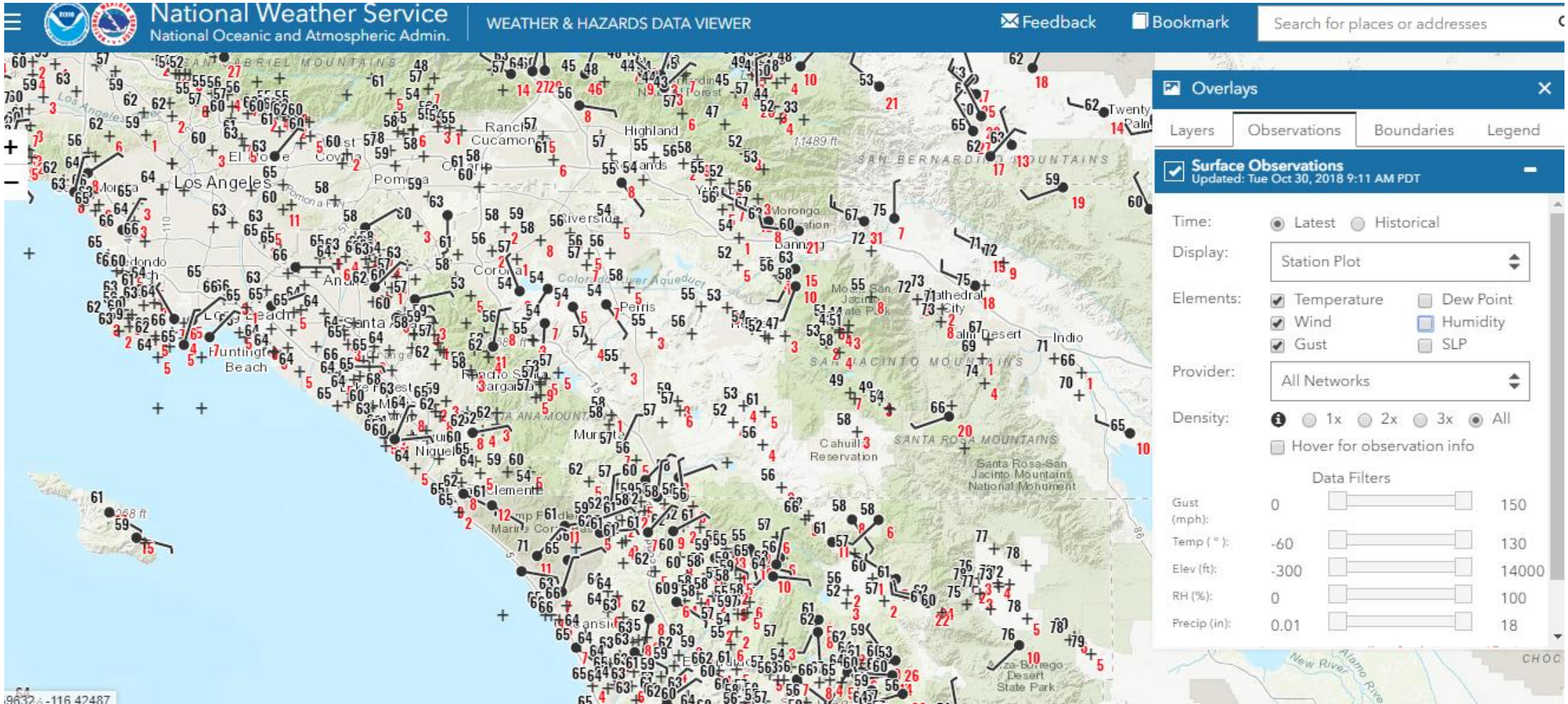


https://www.cnrfc.noaa.gov/



Plot wind, humidity, precipitation, temperature

https://www.wrh.noaa.gov/map/?obs=true&wfo=sgx



Briefings to Emergency Management

Rainfall Rate
Confidence
Total Rainfall

Thresholds

Discussion

Debris Flow Briefing for Burn Scars

Updated 1500 Wednesday 2/13/19

National Weather Service San Diego

Decision Support Services 24/7: (858) 675-8705 (restricted)

Monitoring website: https://www.wrh.noaa.gov/sgx/kml/holyfire.php

Time period (6 hours)	1800-0000 Wed	0000-0600 Thu	0600-1200 Thu	1200-1800 Thu	1800-0000 Thu

Holy & Canyon 1 Burn Scar Rainfall (inches)

Max 1-Hour Rate	0.20	0.50	0.70	0.70	0.25
Rate Confidence	High	Moderate	High	High	Moderate
Total Rainfall	0.35 to 0.90	0.60 to 1.40	1.30 to 2.20	1.10-1.90	0.25-0.60

Cranston Burn Scar Rainfall (inches)

Max 1-Hour Rate	0.20	0.45	0.65	0.75	[illegible]
Rate Confidence	High	Moderate	High	High	[illegible]
Total Rainfall	0.30 to 0.90	0.65 to 1.40	1.25 to 2.30	[illegible]	[illegible]

USGS Flash Flood Warning Debris Fl[illegible]

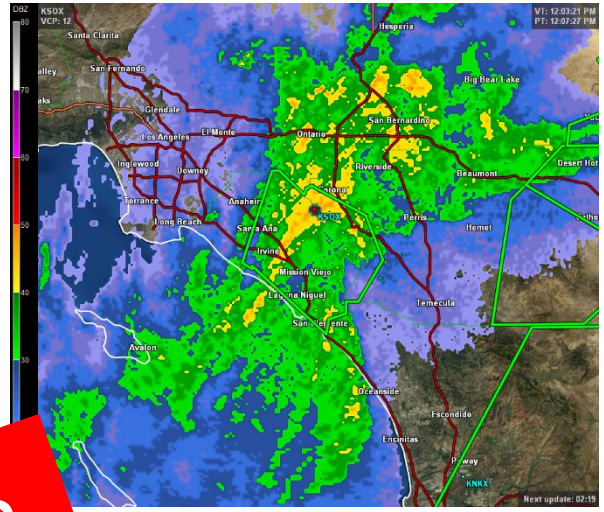
	Cranston
Rainfall Duration	Rainfall (inch[illegible]
15 min	[illegible]
30 min	[illegible]
60 min	[illegible]

[illegible] continue [illegible]ng and tonight. Rainfall [illegible]tes expected in the morning [illegible]ng this period. Rain will transition to [illegible] Holy Fire scar, and Thursday evening for the [illegible] over lower elevations of the scars through Thursday [illegible] Cranston fires seeing around 7 and 8 inches respectively. With [illegible] melt in and above the Cranston Fire scar will contribute to total runoff.

Outlook

Scattered light showers to continue through Monday, with slight uptick Sunday, but remaining well below thresholds.

Request through NWS (Alex)

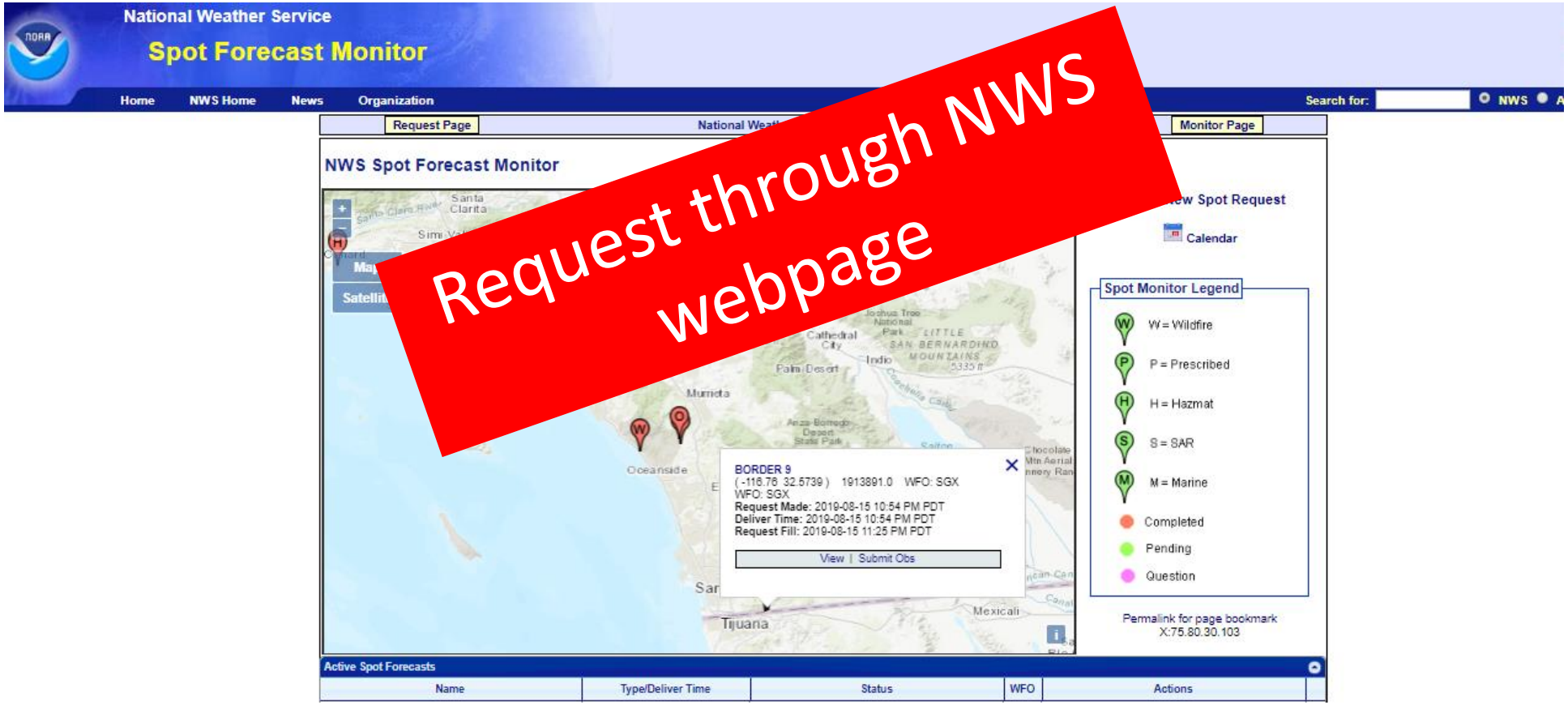


Watch – Evacuation order or warning – EOC stand up

Flash Flood warning – Sheriff drive through for final notice

All hazards SPOT specific forecast

weather.gov/SPOT



Ideal for wildfire, prescribed, incident, event, hazmat, SAR, smoke plume modeling

Fire or Incident weather support

Fire Weather Snooper

- Quick way to see which stations are close to or meeting Red Flag Criteria
- Red Flag Criteria for Snooper:
  Winds sustained 25 mph or gusts to 35 mph and RH ≤ 15%

School House Canyon	6:10am	12%	NE	24G38mph	4 / 6	55	4284	258
Shockey Truck Trail	6:10am	13%	ENE	11G15mph	3 / 4	55	2886	258
Sill Hill	6:10am	10%	E	42G64mph	11 / 12	60	3556	258
Sunrise Hwy	6:10am	11%	WNW	7G18mph	0 / 1	54	4010	258
Sunshine Summit	6:10am	9%	NNE	1G4mph	0 / 0	54	3244	258
Sweetwater River	6:10am	11%	ENE	8G19mph	0 / 0	58	3394	258
Viejas Grade	6:10am	11%	NE	25G37mph	1 / 1	60	3211	258
Volcan Mountain	6:10am	17%	E	28G33mph	2 / 12	47	5154	258
West Descano	6:10am	11%	NE	15G26mph	0 / 1	56	3877	258
West Santa Ysabel	6:10am	10%	E	21G39mph	2 / 4	58	3291	258

Total Sites: 234 Red Flag Stations: 0 Flirtatious Stations: 0

https://www.weather.gov/lox/fwmV3?wfo=sgx&net=1,2

NWS Spot Forecast

https://www.weather.gov/spot/

Spot Forecast Request

NOTICE - This interface is intended to be used solely for the relay of forecast information to the National Weather Service. Submissions sent through this online form are intended for internal agency use. We are required (by e-Gov Act of 2002) to explicitly state that submission of any information is voluntary. For further information please read our Privacy Policy and Disclaimer. False statements on this form may be subject to prosecution under the False Statement Accountability Act of 1996 (18 U.S.C. § 1001) or other statutes.

Incident and Decision Support Forecast Request

This site is the National Weather Service interface to requesting, filling, and monitoring spot forecasts issued by our Forecast Offices and National Centers.

Click here to provide 'Spot Webpage Testing Feedback'

Submit Spot Request — **Interactive Request:** Request a spot forecast using an interactive map, with or without a Lat/Lon of the incident.

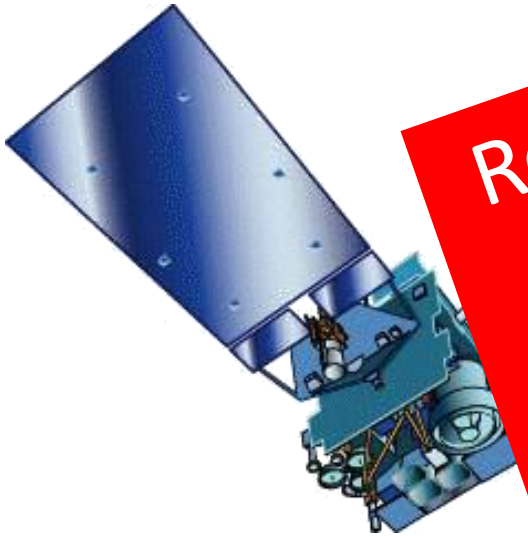
Monitor Spot Forecasts — **Monitor:** Use this to monitor existing spot requests and forecasts.

Please take the online survey to let us know what you think of this interface.
Download the Product Description Document (PDD)

Tools We Use

Satellites in space including GOES – 16 and 17

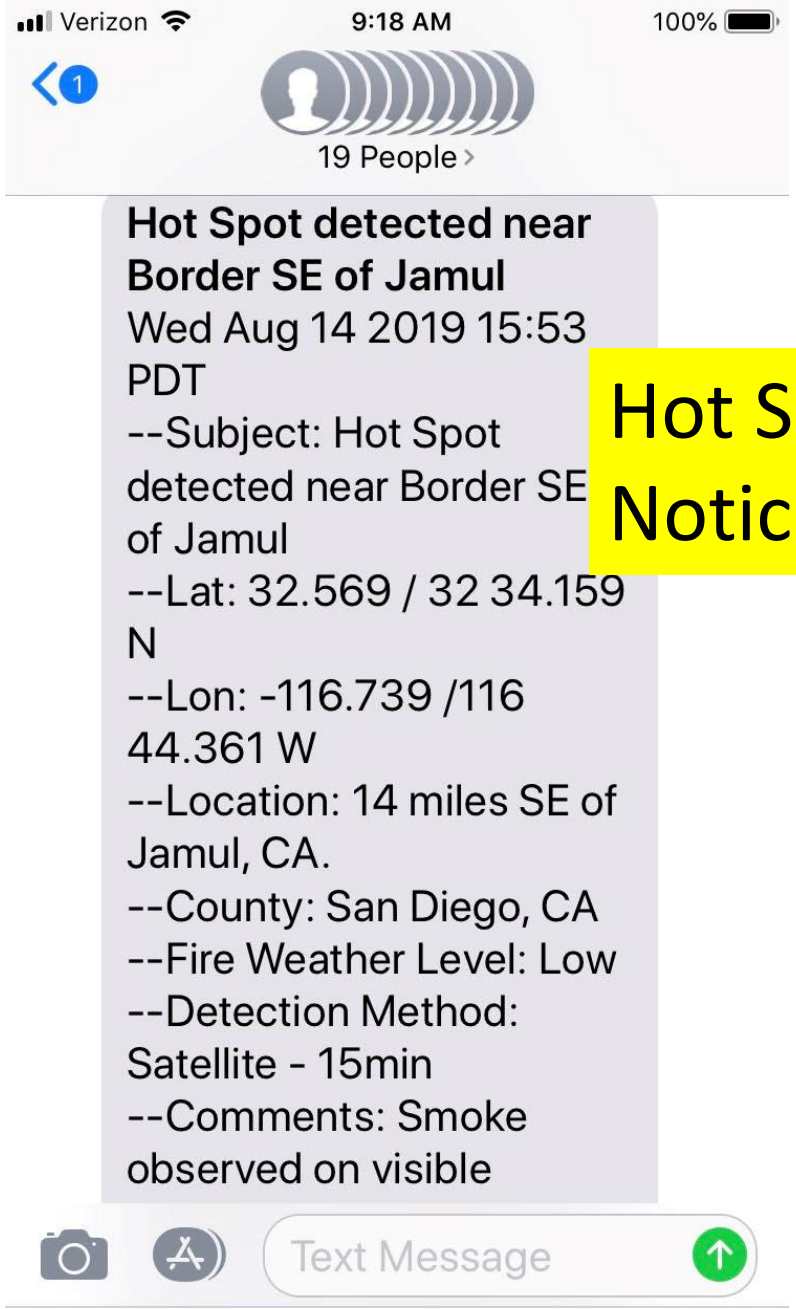
24/7 *fire hot spot notification*

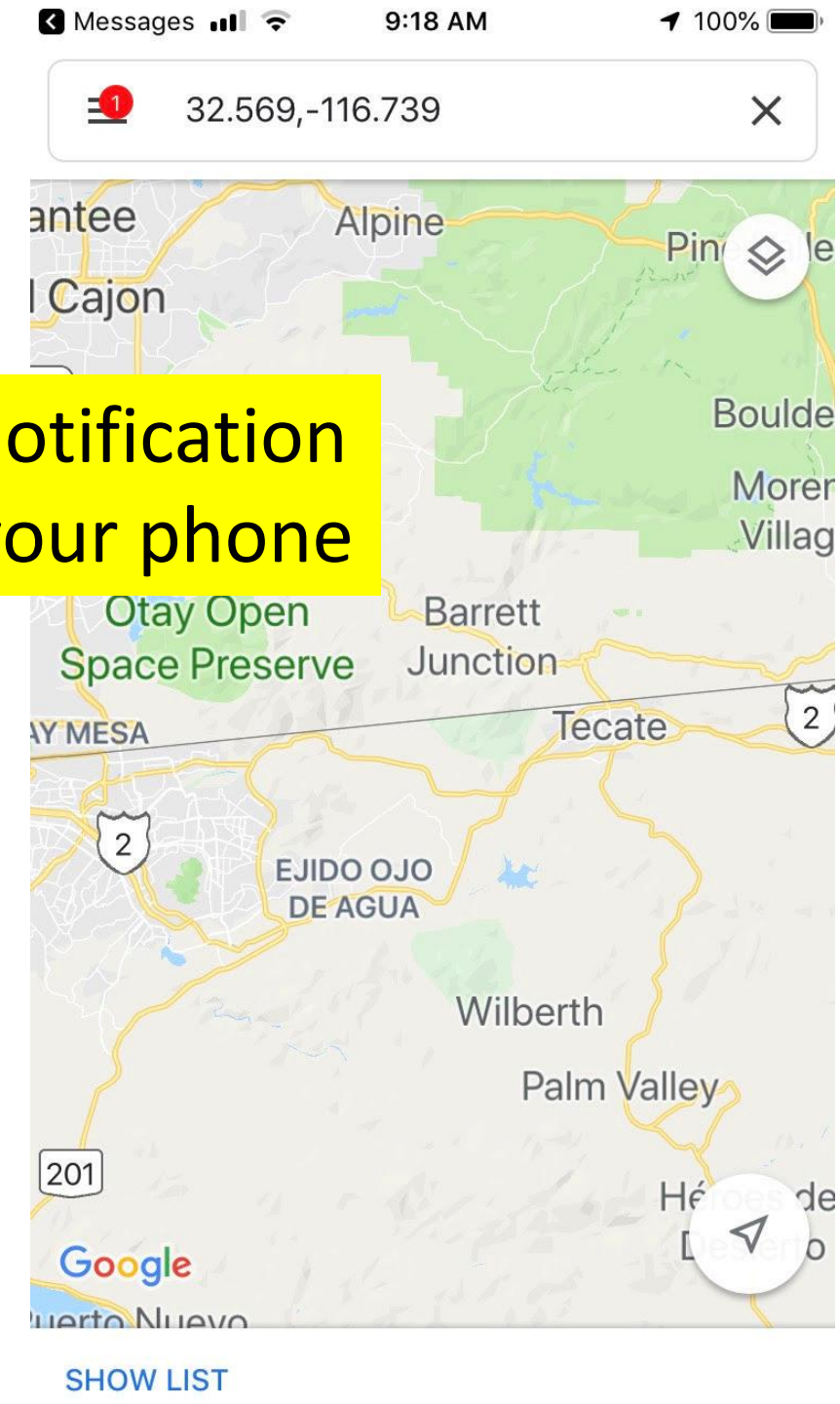


Request through NWS (Alex)
Need cell number and mobile carrier

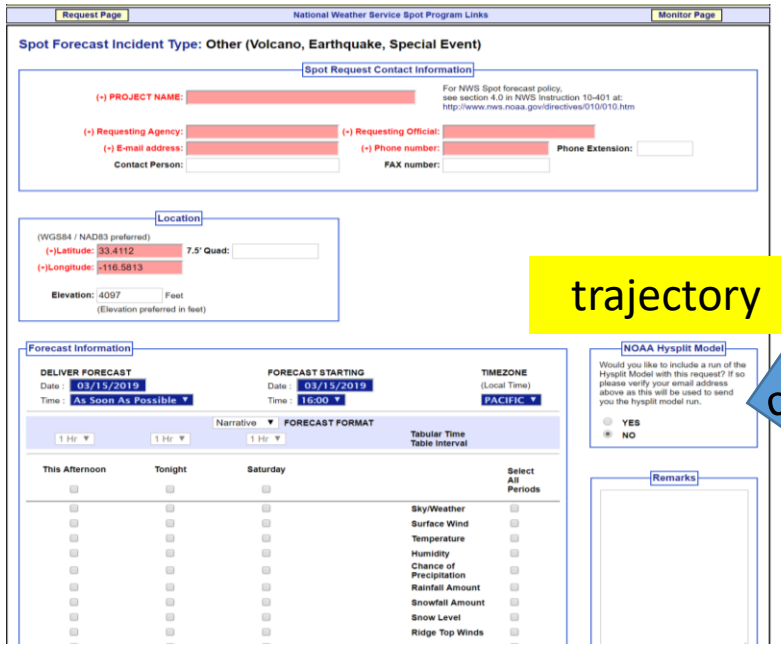
1 to 5 minute updates

Hot Spot Notification
Notice to your phone





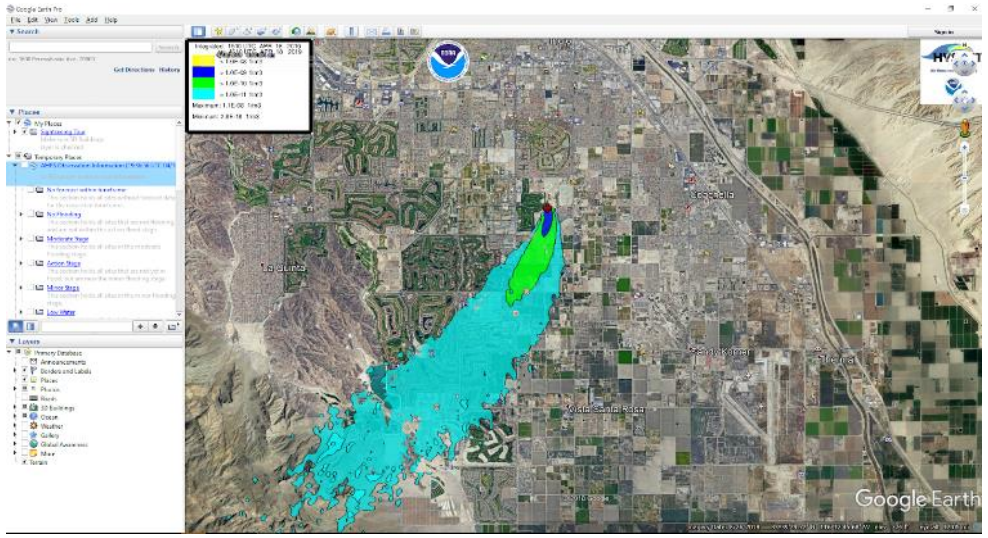
Plume modeling for smoke or hazmat

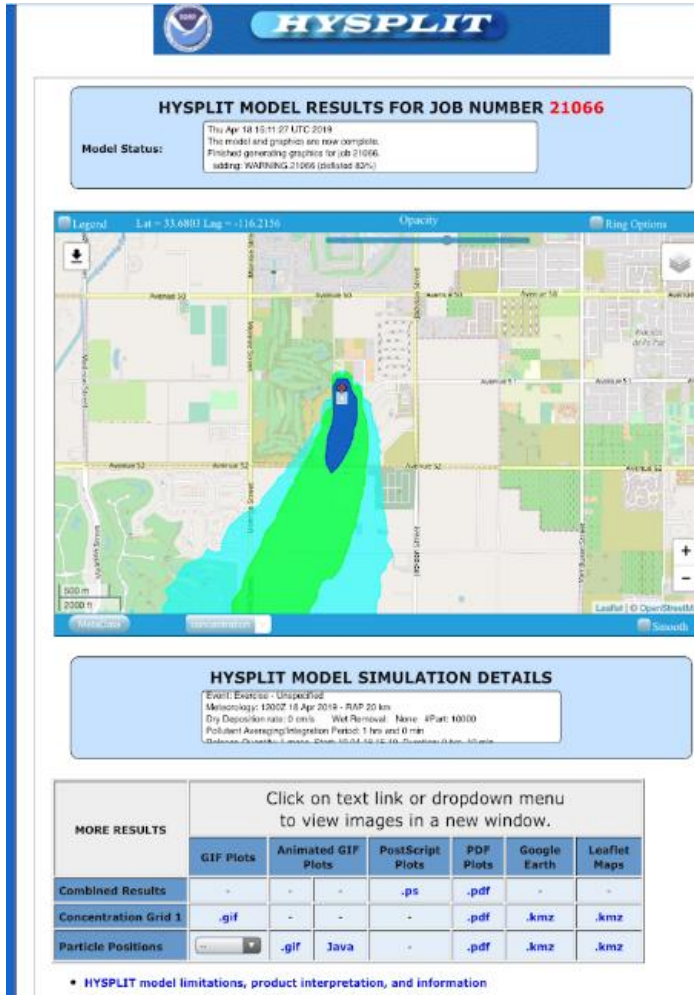


trajectory

check

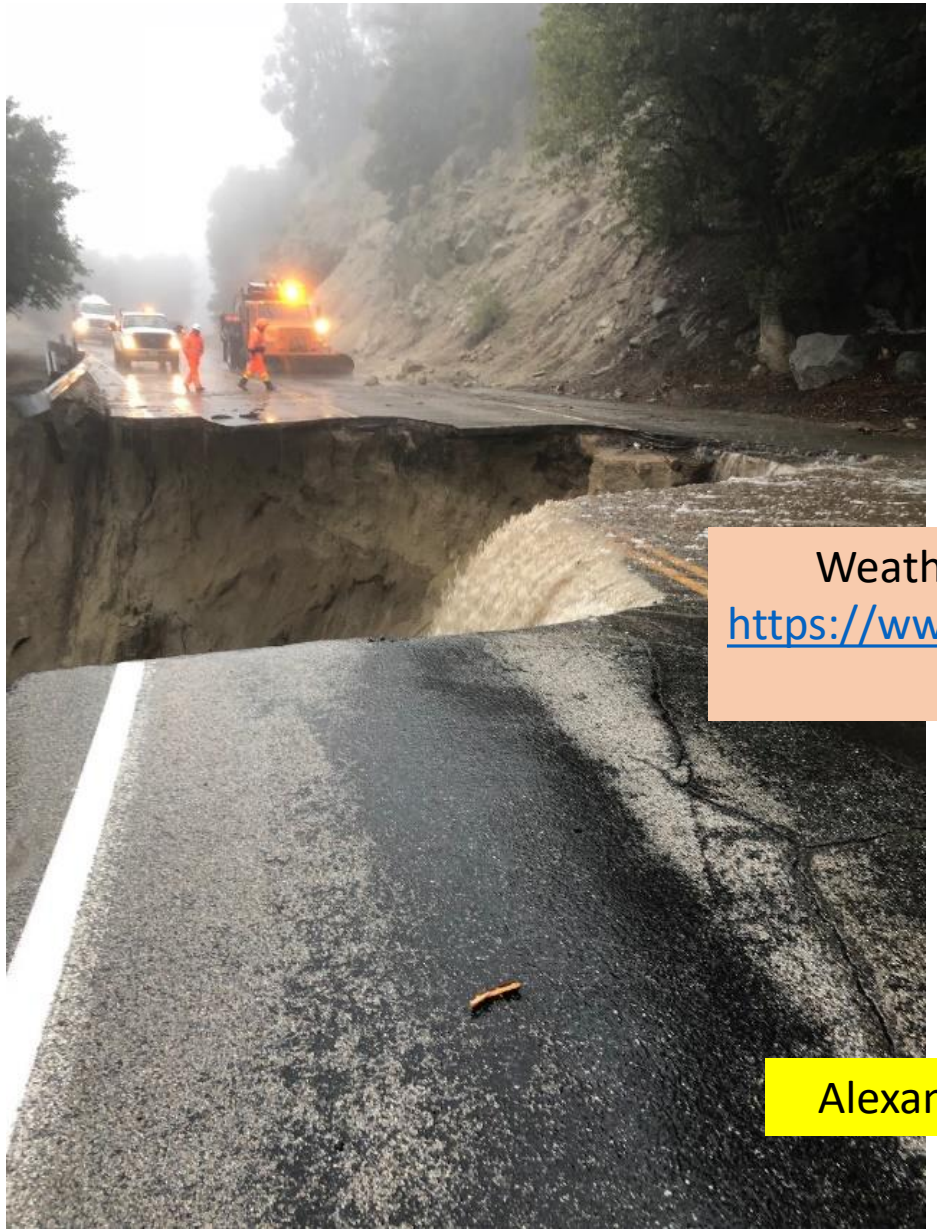
Must contact NWS office for full *plume* modeling prediction





February 14, 2019

Caltrans



Weather.gov/SanDiego
https://www.cpc.ncep.noaa.gov/

Alexander.Tardy@noaa.gov