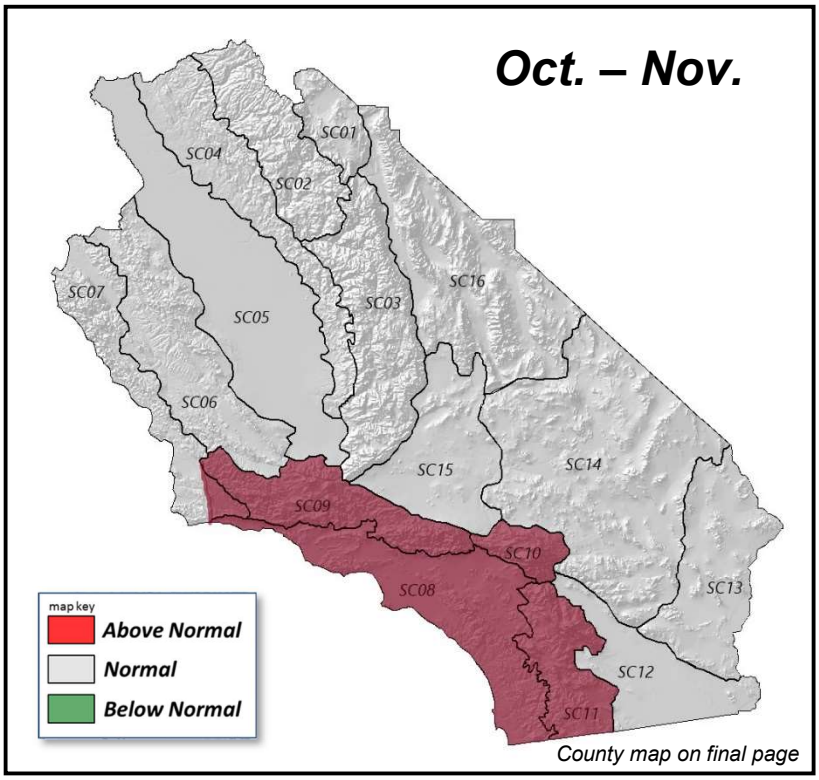
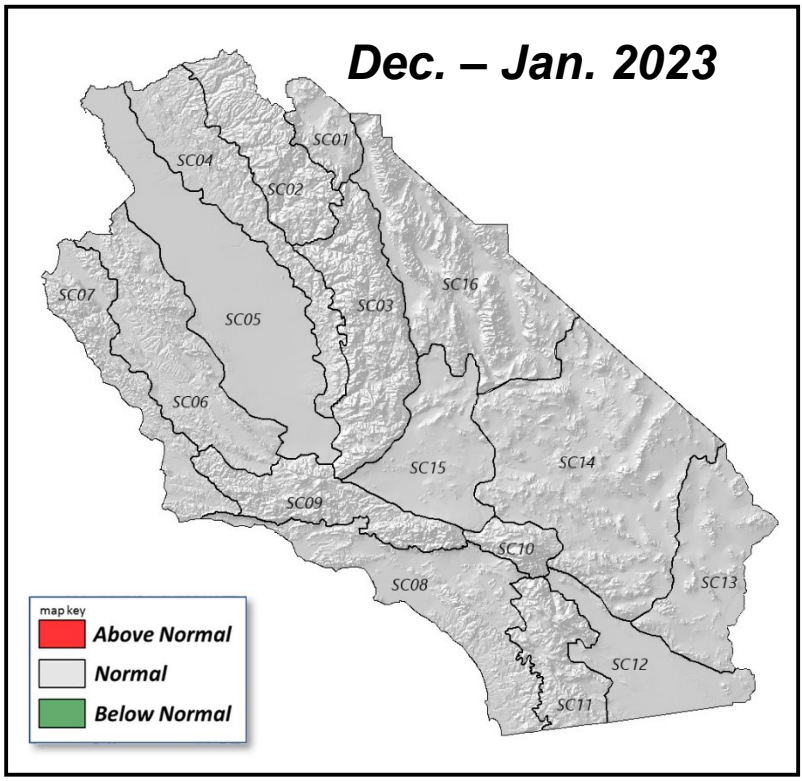
Southern Operations

MONTHLY/SEASONAL OUTLOOKS

ISSUED October 1, 2022 VALID OCT. 2022 – JAN. 2023

PREDICTIVE SERVICES





Oct. 2022 - Jan. 2023 South Ops Highlights:

- Temperatures will likely average **above normal** through November or early December.
- The number of offshore wind events may **be near to slightly below normal** through the end of the year.
- Onset of "winter rainy season" may be **later than normal** due to the ongoing La Niña.
- Significant wetting rains will likely be preceded by 2 or 3 offshore wind events of at least moderate intensity

Weather Discussion

September 2022 was one for the record books as record high rainfall was recorded over a large section of the state. Two extremely uncommon weather events happened to occur during the same calendar month: an intense band of rain from a dissipating hurricane and a visit from an out-of-season cold, wet Alaskan storm.

Southern CA was the focus of the precipitation from a dissipating Hurricane Kate. The storm took northwestward path which brough it close enough to impact far southern parts of the state. As a result, bands of upslope precipitation fell across the Southern CA mountains. Unusually, the desert-facing, east sides of both the Cleveland and San Bernardino National Forest recorded the heaviest rainfall from Kate. Some areas of San Diego County received over 5.5" of rain, but the area which received heavy rainfall was quite small and generally was south and east of Los Angeles.

Later, a deep trough which had its origins in the Bering Sea dropped into Central and Northern CA. Very cold (for September) air aloft along with copious moisture resulted in record rainfall for the northern 2/3rds of the state. Over 4" of rain fell along the central coast and in the Sierra and Sierra Foothills north of Fresno County. Unlike the rainfall from "Kay", the rain fell as a long duration stratiform event with rainfall rates generally under a half inch per hour.

Temperatures were generally a few degrees above normal last month; mainly due to a record-setting heatwave during the first week of September. The rest of the month saw maximum temperatures oscillate between well below normal and well above normal. Despite a lack of offshore winds, low temperatures were generally well above normal as a monthly average. Humidity levels were also above normal, in general, with few days of extremely low RH - which is also very unusual for September.

***Fig 1**: September 2022 max temperature departure from average*

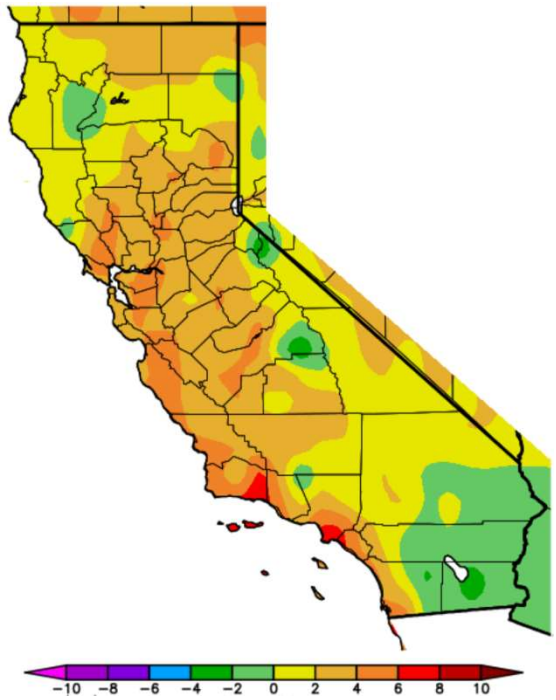
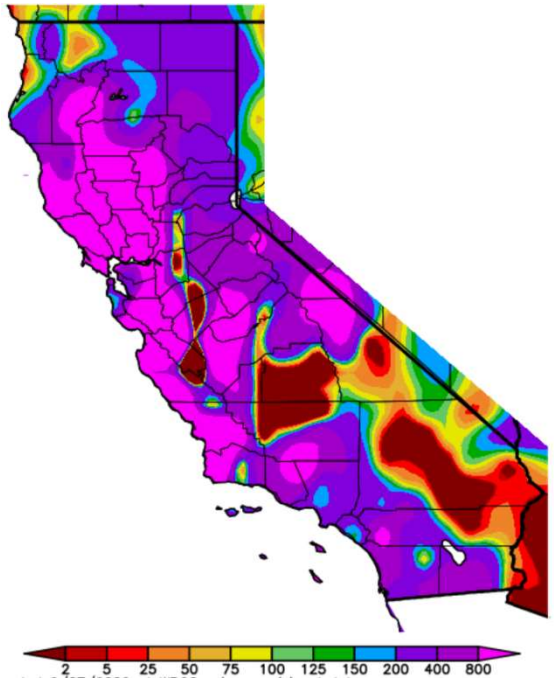


***Fig 2**: September 2022 percentage of normal precipitation*



Fuels Discussion

It would be difficult to find a recent summer month where dead fuel moisture (DFM) values swung from record dryness to well above normal in such a short period of time. But this was the case in September 2022 as record heat exposed dead fuels to kiln-like conditions before the heavy rains arrived later in the month.

At the time of this writing, dead fuel moisture is quickly waning as more typical early-fall weather arrived. DFM is quickly falling to below normal levels. With the expectation of little (if any) rainfall the next few weeks, DFM will likely remain well below normal for an extended period of time.

Live fuel moisture has fallen to critically low levels despite the rainfall. As it is well outside the norm to see significant rains arrive in September, the storms did not spawn a fresh spurt of growth on brush or develop a new grass crop. Shorter daylight hours and a lower solar angle will be necessary for the live fuels to come out of dormancy in most areas. Thus, all fuel types will be available for burning, except the highest elevations of the Sierras.

Fig 3*: *Precipitation totals, Sept. 2022

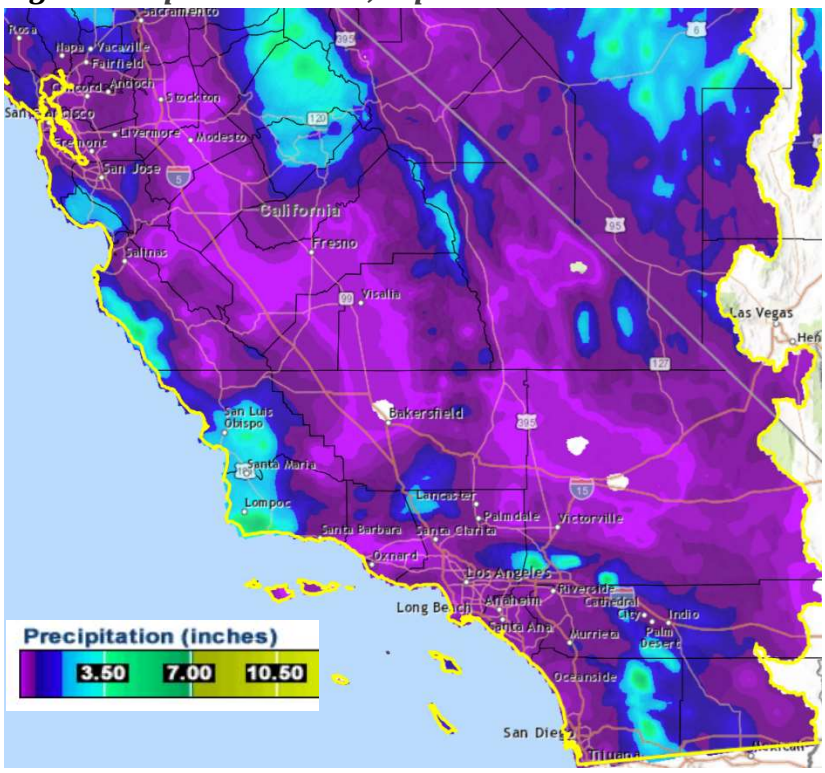


Fig 4*: Central Sierra 1,000 hour *Dead fuel moisture, Sept. 26th

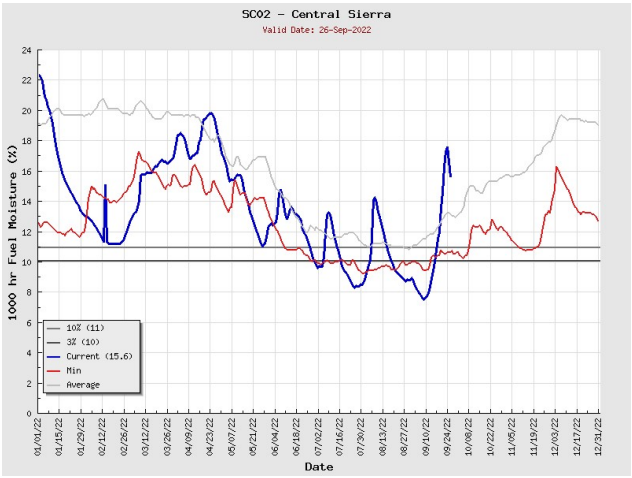


Fig 5*: Central Sierra 100 hour *Dead fuel moisture, Sept. 26th

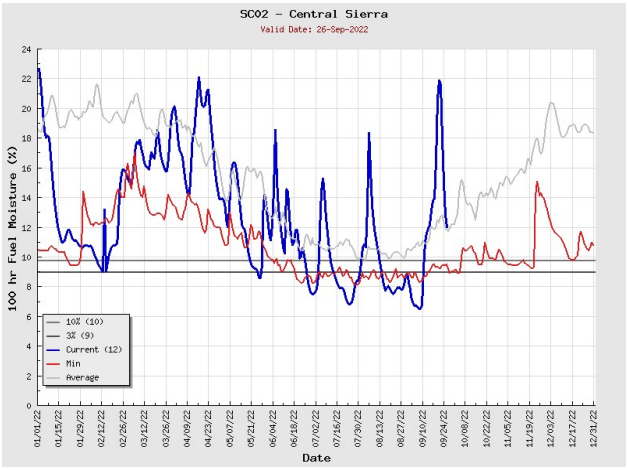
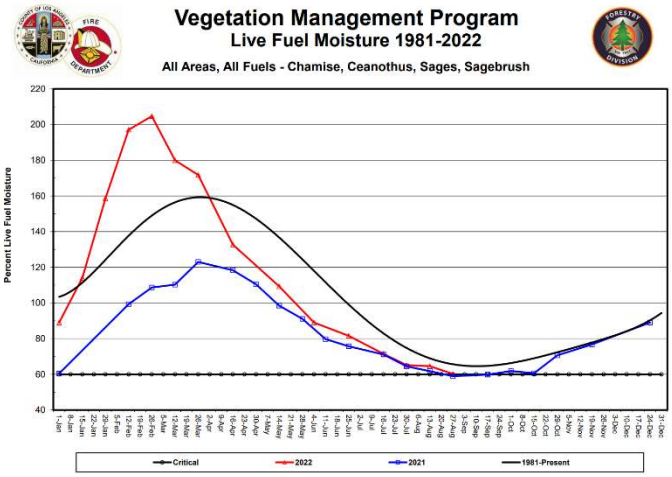


Fig 6: LA County Live Fuel Moisture Aug. 30th



SOUTH OPS OUTLOOK

Recent rainfall from two remarkable weather-events notwithstanding, the overall weather pattern and outlook has changed little recent weeks. The Eastern Pacific remains locked in a La Niña pattern for the third year in a row based on sea surface temperatures (SST) in the Eastern Pacific. Such a "triple dip" La Niña is exceptionally rare with only a handful of occurrences recorded since 1950 (the most recent occurring from late 1998 – 2001). The intensity of the current negative ENSO may have already peaked, but SST are expected to remain in at least a moderate La Niña pattern through the majority of the upcoming rainy season.

As such, the onset and length of the "winter rainy season" will probably be such that drought relief will not occur over most of South Ops' geographic region. A good chunk of the district remains in a D4 drought which may only see modest levels of improvement this winter. The precipitation deficits are expected to be more acute in Southern CA as the storm track is expected to remain far too northerly to allow for sustained rainfall, especially from Kern and Santa Barbara Counties southward.

Given the potential for a later than normal start to the rainy season, the ongoing drought and the expectation of below normal rainfall, large fire potential is expected to remain above normal over Southern CA this fall. The first widespread wetting rain this fall will likely follow 2-3 offshore wind events. All fuel types will readily carry fire in Southern CA until short daylight hours, a low sun angle and wetting rains arrive sometime late in December. Fire season is not "over" by any means. The rainfall of the summer only was a blip in an overarching dry pattern which is likely to continue into the winter.

Fig 8: Average number of offshore wind events by month

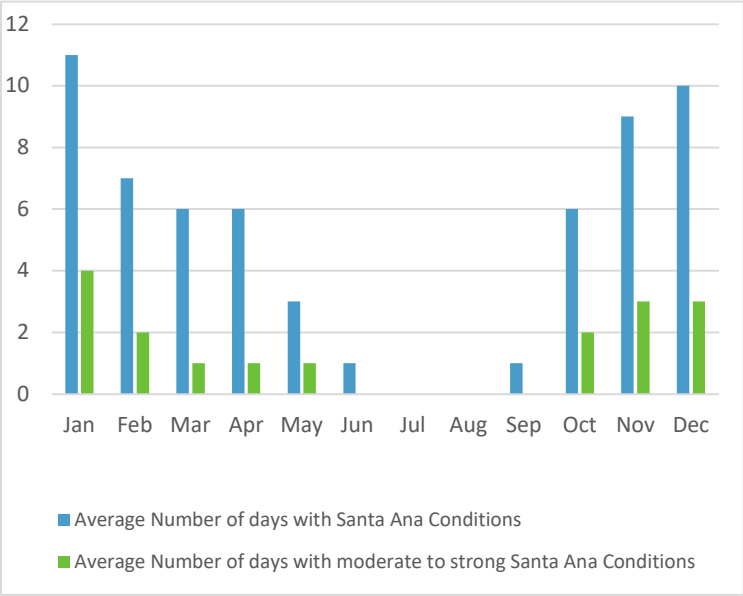
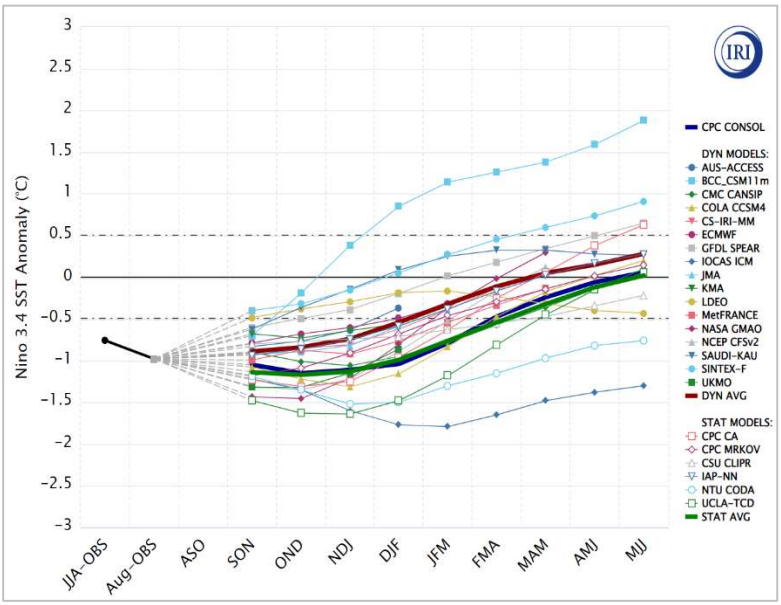
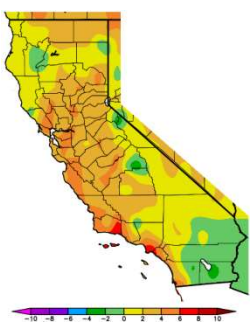
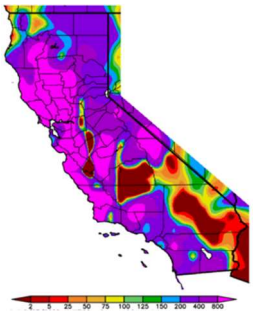


Fig 9: IRI/CPC ENSO forecasts



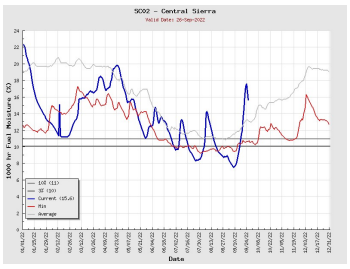
Links:

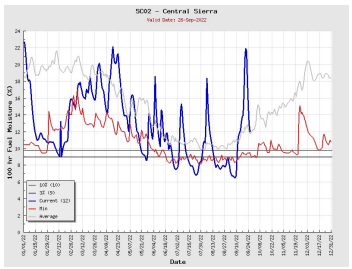




California Climate Archive:

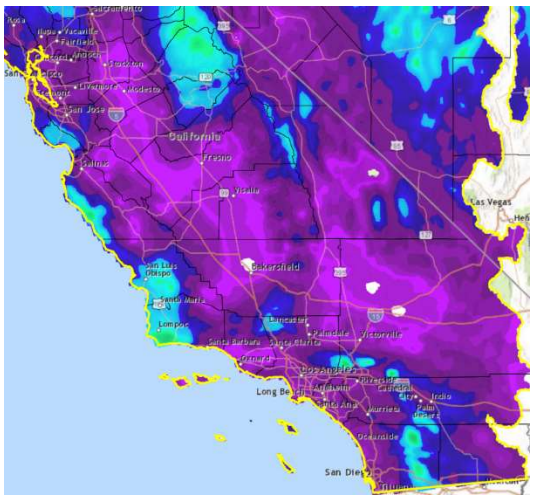
- https://calclim.dri.edu/pages/anommaps.html
- https://calclim.dri.edu/cgi-bin/anomimage.pl?cal1mPpct.png





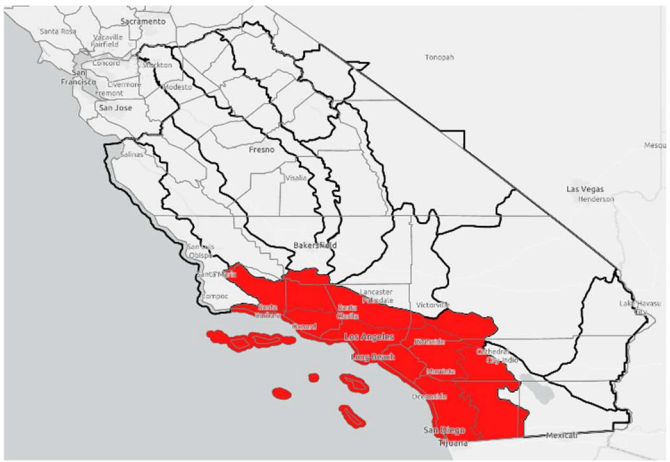
1,000 &100 hr dead fuel moisture

- https://gacc.nifc.gov/oscc/fuelsFireDanger_Thousand.php
- https://gacc.nifc.gov/oscc/fuelsFireDanger_Hundred.php



California/Nevada River Forecast Center

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



Outlook map overlain with counties