



Santa Ana Wind Season Outlook

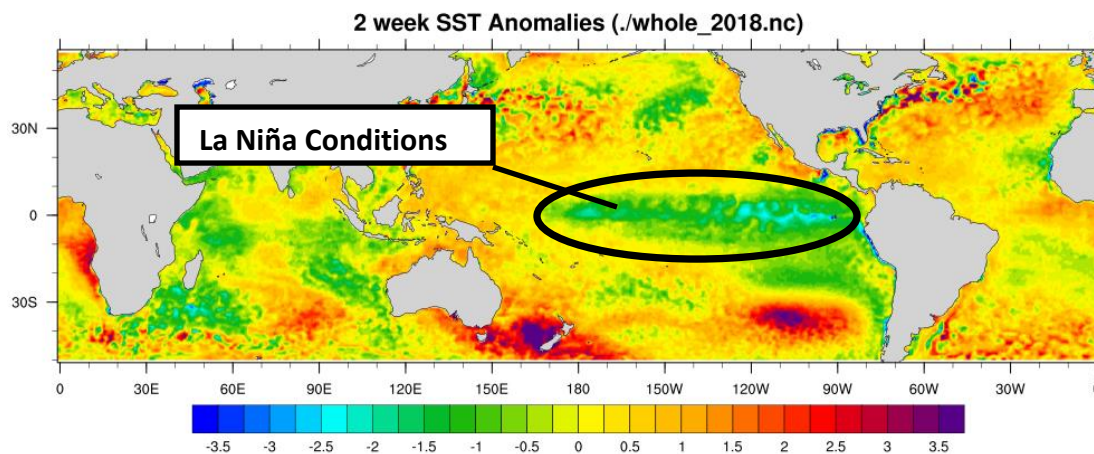
Issued: Thursday, February 8, 2018

The following product from Predictive Services uses a number of statistical methods to make long range predictions of the Santa Ana wind season in Southern California. This outlook uses 35 years of historical meteorological data in conjunction with a blend of three statistical models which forecast above/below normal numbers of Santa Ana wind days for a 1 month and a 3 month time period. While it is difficult to assign specific winds speeds, a Santa Ana wind day is determined to be distinctly different from the light offshore winds which normally occur during the overnight and early morning hours of the day. Santa Ana wind days were defined by correlating wind velocities with synoptic scale weather patterns that result in gusty, dry offshore winds across Southern California. The models used in this outlook are: Random Forest, ARIMA Time Series, and Analog. The Random Forest and Analog methods use various predictors such as the Pacific Decadal Oscillation (PDO), the Atlantic Multidecadal Oscillation (AMO), and the Niño3.4 index.

Discussion:

After a very active December, the number of days in January having Santa Ana winds was closer to normal, with 9 days across the Los Angeles area and 8 days over San Diego County; the average for January is 10 and 7 respectively. One strong event occurred on the 28th, but otherwise most events in January were in the weak to moderate category.

Sea surface temperatures (SSTs) across the Equatorial Pacific region remain below normal with a weak to moderate La Niña present. The Pacific Decadal Oscillation (PDO) remains slightly negative. Large-scale troughing across the eastern two thirds of the United States has led to a highly amplified ridge pattern over the Eastern Pacific and along the West Coast for the majority of the winter. This weather pattern is favorable for the formation of offshore winds which is why there have been near to above normal numbers of Santa Ana wind days during the fall and winter so far. The La Niña is forecast to continue through the spring but should slowly weaken over time. The atmospheric response to this condition has been consistent with these types of SST profiles in the past, therefore we can expect a pattern favorable for Santa Ana winds to continue into the spring. Our random forest and analog models provide mixed results, but overall there is support for near to above normal numbers of Santa Ana wind days for both the February and the February through April time frame. It is important however that the period of peak Santa Ana wind activity has now past and we are in a downward trend for activity. Normally, we experience around 6 Santa Ana wind days in February for the Los Angeles area and 4 days across San Diego County. For the February through April period, the normal number of days is 16 and 9 respectively.



Potential Impacts:

Despite the significant rainfall that occurred during the early part of January, precipitation this winter has been well below normal. Fuels have experienced some moisture recovery since December, but the vegetation is still much drier than normal for this time of year and it will

continue to support large fire activity during windy periods. With the potential for above normal Santa Ana wind days this spring, the threat for large fires will be higher than normal over Southern California until more wetting rains occur.

Summary:

The current and projected weather patterns suggest that **there will be near, to an above normal number of Santa Ana wind days for both the February and the February through April time periods.** Most analog models support this forecast and therefore **confidence is medium to high with this outlook.** Fuels remain dry enough to favor the development of large fires during windy conditions, especially in areas that are dominated by dead fuels.

* Data for this forecast provided by Atmospheric Data Solutions