



# Santa Ana Wind Season Outlook

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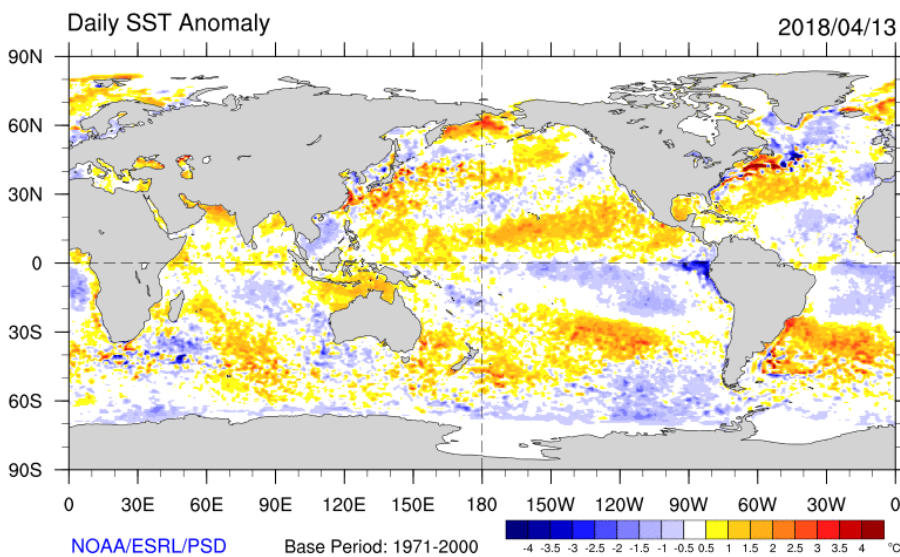
The following product from Predictive Services uses a number of statistical methods to make long range predictions of the Santa Ana wind season in Southern California. This outlook uses 35 years of historical meteorological data in conjunction with a blend of three statistical models which forecast above/below 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:

A fairly significant shift in the upper-air pattern occurred in March to allow for several periods of wet weather across Southern California. This shift brought slightly fewer than normal Santa Ana wind events to the region with 4 days (2) in the Los Angeles and San Diego areas respectively. The number of Santa Ana wind events has been decreasing since January and will continue to decline during the next couple of months.

Although sea surface temperatures continue to increase across the Equatorial Pacific region, La Niña conditions are still present. Most guidance suggests that SSTs will continue warming through the remainder of the spring and into the summer, with neutral conditions expected through late summer or early fall. The Pacific Decadal Oscillation (PDO) is slightly negative with probably only minor changes in SSTs occurring across the Central Pacific during the next few months. This, combined with our analog models would suggest a continuation of a near normal number of Santa Ana wind days for the remainder of April and also for the April-May time period. Normally for April the Los Angeles area experiences around 4 Santa Ana wind days, with an average of 2 days in the San Diego region.

While the end of Santa Ana season is nearing, the next six weeks, however, can be a crucial time as fuels begin to dry out, making them more receptive to fire. The significant rains that occurred in March led to the development of a healthy grass crop over much of Southern California which is now starting to cure. Any Santa Ana winds that occur in May could result in an increase in large fire potential. Recall that in May 2013, the Camarillo Springs Fire occurred, and in May 2014, a significant fire outbreak developed over Northern San Diego County, both events were associated with late season Santa Ana winds.



## Summary:

While the PDO remains in a slightly cool phase, the Niño3.4 index is positive. Warming in the Equatorial Pacific region is expected through summer with neutral conditions anticipated later this summer and fall. Both the current weather pattern and our analog models suggest that there will be a near normal number of Santa Ana wind days for both the April and the April through May time periods. This time of year is often quite changeable so **confidence in this forecast is moderate.** Fuels will become more susceptible to fire in the coming weeks, so any significant winds that occur, especially in May, could result in significant fire activity.

\* Data for this forecast provided by Atmospheric Data Solutions