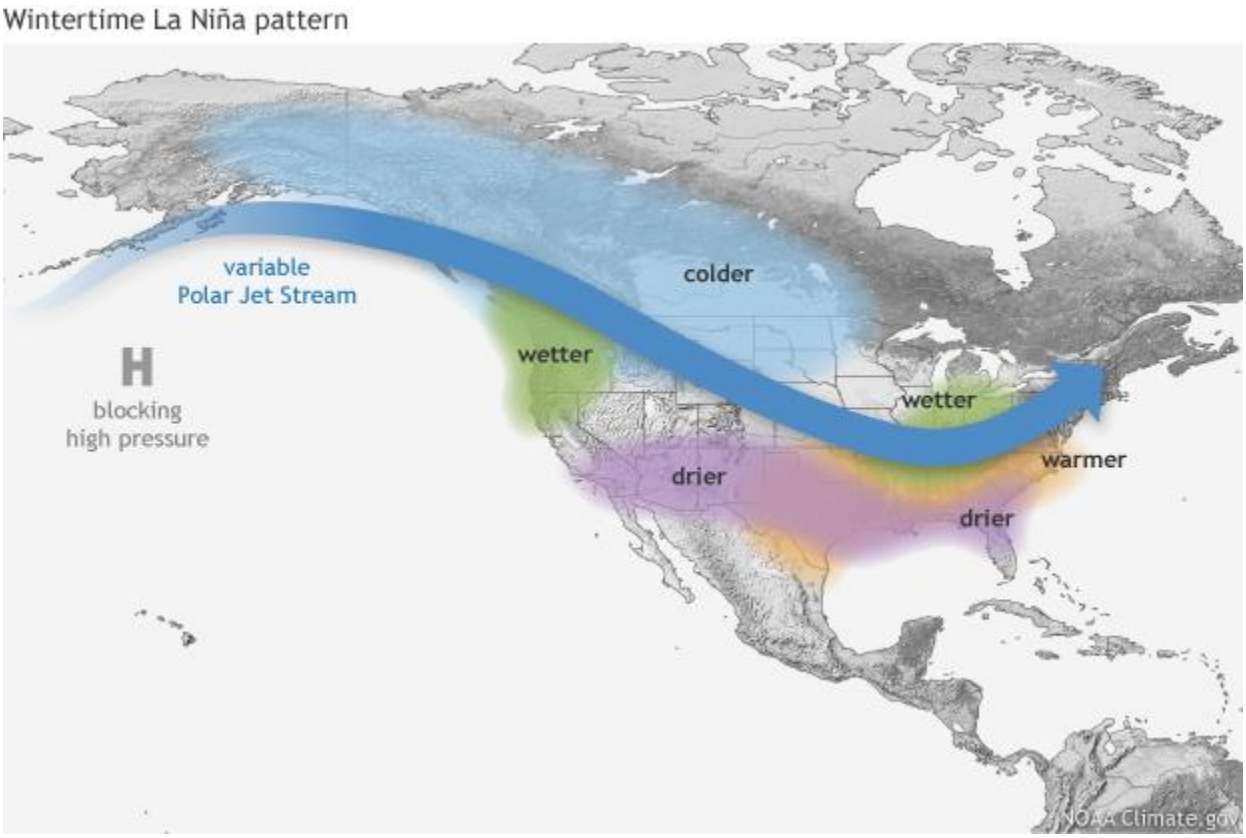
2016 Winter Weather Expectations

This blog is brought to you by the letter p, for “probability”

So what might influence our climate this winter? As you know from the ENSO blog, there is a link between the fall and winter conditions across the tropical Pacific and the average winter climate in the U.S. If the likely La Niña develops, certain patterns of temperature and precipitation would be favored across the country. Over the past few years, we’ve discussed the patterns favored by El Niño, but haven’t really discussed what we often see during La Niña winters. Roughly speaking, La Niña impacts are opposite to what is observed during El Niño winters (see the figure).



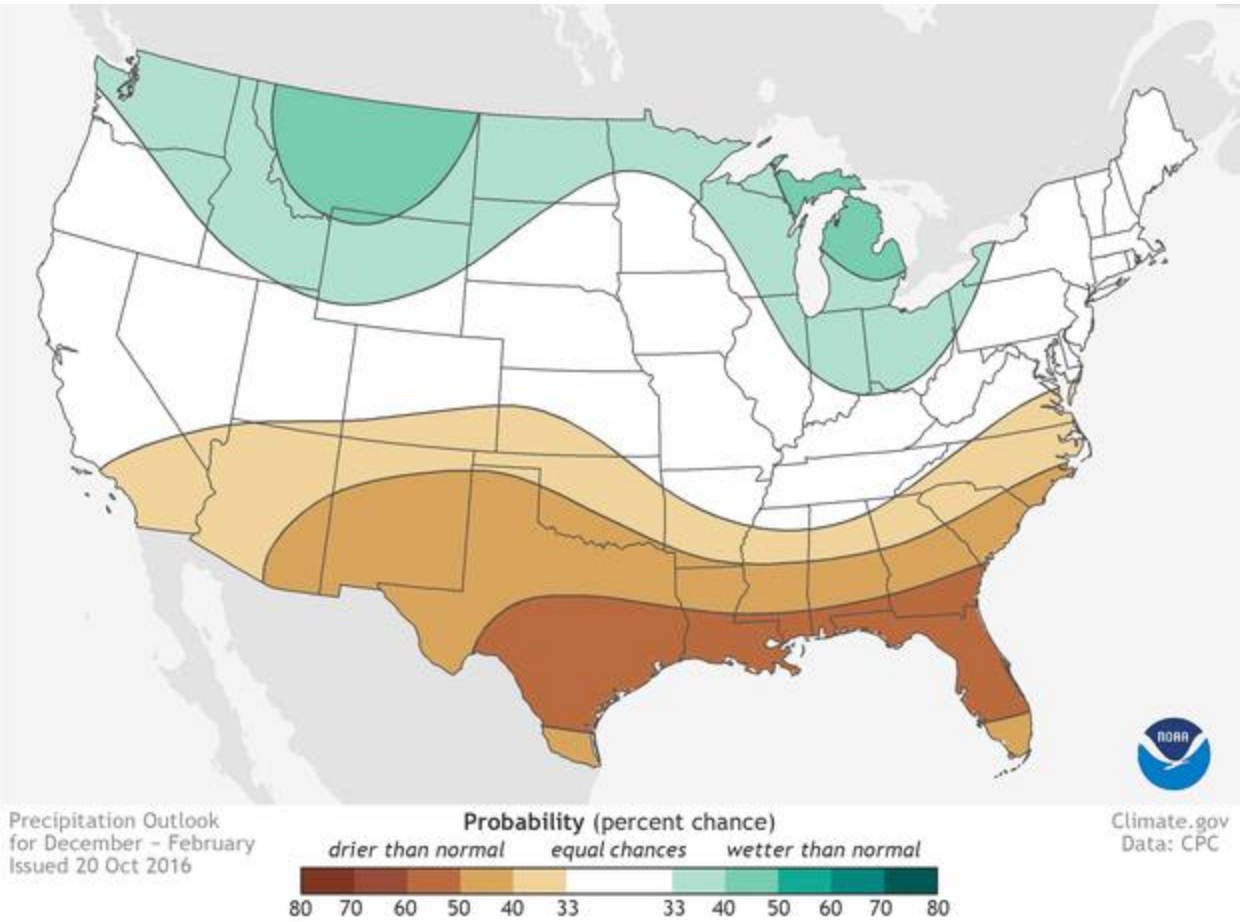
Typical impacts of La Niña on U.S. winter temperature and precipitation. Such impacts have been associated with past episodes, but all impacts aren't seen with every episode. NOAA Climate.gov drawing by Fiona Martin.

So while the southern (and especially southeastern) part of the U. S. is often wetter and colder than average during El Niño winters, La Niña generally favors below-average precipitation and above-average temperatures in those same regions. We also often see opposite patterns across the northern part of the nation, with warmer and drier conditions during El Niño winters and colder and wetter conditions during La Niña years.

Before discussing the actual winter outlook, I want to remind readers that these are probabilities (% chance) for below, near, or above average seasonal climate outcomes with the maps showing only the most likely temperature or precipitation outcome (footnote 1). Because the probabilities shown are less than 100%, it means there is no guarantee you will see temperature or precipitation departures that match the color on the map. As we’ve explained in earlier blog posts, even when one outcome is more likely than another, there is still always a chance that a less favored outcome will occur (witness precipitation last winter over the western United States).

Precipitation outlook

Given the potential La Niña, it’s not surprising that both the temperature and precipitation outlooks are consistent with typical La Niña impacts. However, because there is still some uncertainty that La Niña will develop and persist through the winter, probabilities on the maps this year are fairly conservative, smaller than the ones in the outlook last year.

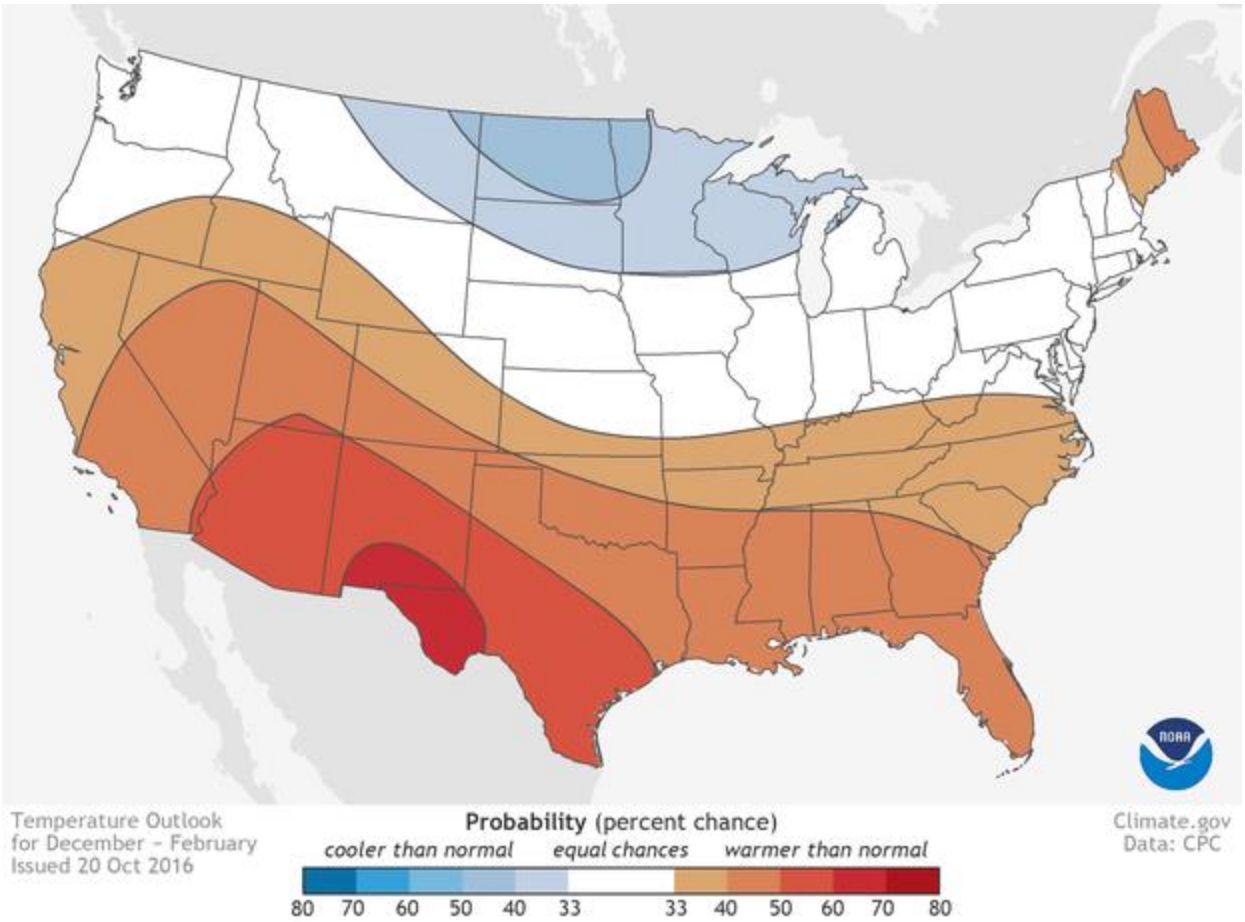


Outlook for average winter precipitation the United States (large version shows Alaska and Hawaii) for December 2016–February 2017. Anywhere in the United States, there is always a chance that the average winter precipitation will be near average, well above average, or well below average. White areas show places where the odds for all three possible outcomes are equal (33%). Colored areas show where—and by how much—the odds favor well above average (greens) or well below average (browns) precipitation. "Well above" and "well below" mean "in the upper or lower third of the climatological record." NOAA Climate.gov map based on NWS Climate Prediction Center data.

As shown in the figure above, the winter precipitation outlook favors below-normal precipitation across the entire southern U. S. and southern Alaska, with probabilities greatest (exceeding 50%) across the Gulf Coast from Texas to Florida. This also includes southern California and the Southwest, although the shift in the probabilities in these locations is very small, barely tilting the odds toward below average. In contrast, above-average precipitation is favored in the northern Rockies, around the Great Lakes, in Hawaii, and western Alaska. This forecast does not bode well for drought in the country, as we'll likely see drought persist in central and southern California and the Southwest and potentially expand in the Southeast. Thus, the likely weak La Niña means California drought relief is not likely.

Temperature outlook

The temperature outlook (see the figure below) favors above-average temperatures across the southern U. S., extending northward through the central Rockies, in Hawaii, in western and northern Alaska and in northern New England. Chances are highest in an area extending from the desert Southwest to central and southern Texas (greater than 50%), with a greater than 6 in 10 chance in southern New Mexico and western Texas. Odds favor colder-than-normal temperatures along the northern tier from Washington eastward to the Great Lakes. However, the likelihood of below-average temperatures across the North is modest, with no regions reaching 50%.



Outlook for average winter temperature across the United States (large version shows Alaska and Hawaii) for December 2016–February 2017. Anywhere in the United States, there is always a chance that the average winter temperature will be near average, well above average, or well below average. White areas show places where the odds for all three possible outcomes are equal (33%). Colored areas show where—and by how much—the odds favor well above average (reds) or well below average (blues) temperatures. "Well above" and "well below" mean "in the upper or lower third of the climatological record." NOAA Climate.gov map based on NWS Climate Prediction Center data.

Both maps include blank regions where neither above-, near- nor below-normal is favored. These areas (shown in white and labeled EC for “equal chances”) have the same chance for above, near, or below-normal (33.33%) average seasonal climate conditions. This doesn’t mean that near-average temperature or precipitation is favored this winter in those regions, but rather that there’s no tilt in the odds toward any seasonal outcome.

Source Website: https://www.climate.gov/news-features/blogs/enso/what-expect-winter-noaa%E2%80%99s-2016-17-winter-outlook