

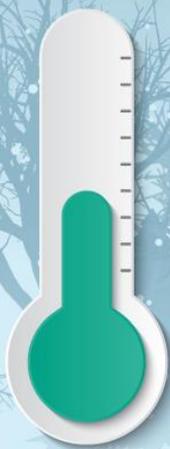
A black and white photograph of a snowy forest path. The path is covered in snow and has a series of footprints leading away from the viewer. The trees on either side are bare and heavily laden with snow. In the bottom left corner, the back of a black dog is visible, looking towards the path.

2016-2017 Winter Outlook

National Weather Service
Twin Cities, MN



Coming Winter



Cooler Temperatures Likely

Likely Near to Below Normal



More Snowfall Likely
Likely Near to Above Normal
(Normal is 50"- 55")

Last Winter



Temperatures were warm

5 to 7 degrees **above normal**



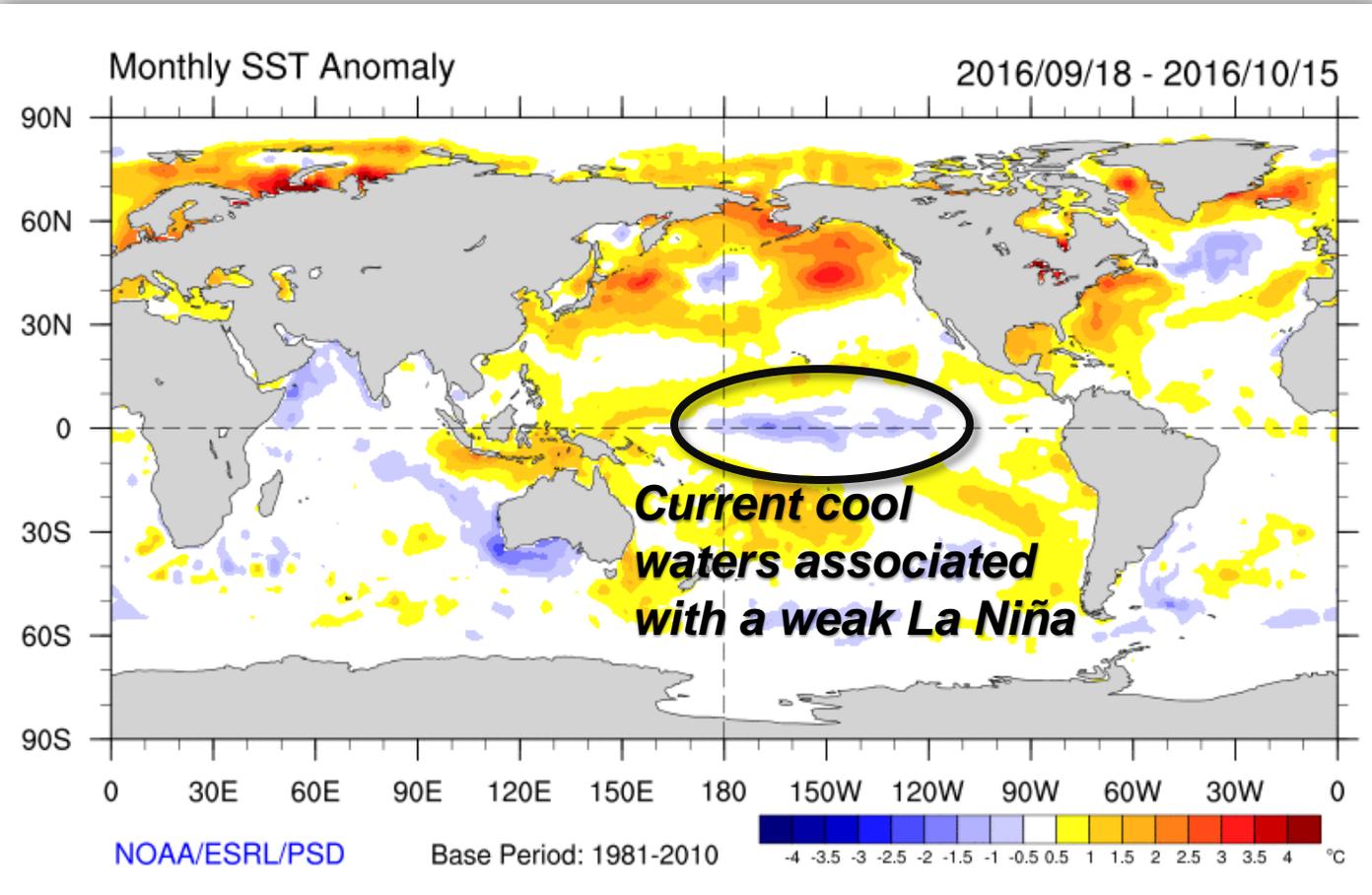
Snow totals were low: 30"- 36"

10"- 20" **below normal**



2016-2017 Winter Outlook

Expected El Niño/La Niña Conditions



Forecast El Niño/La Niña Conditions:

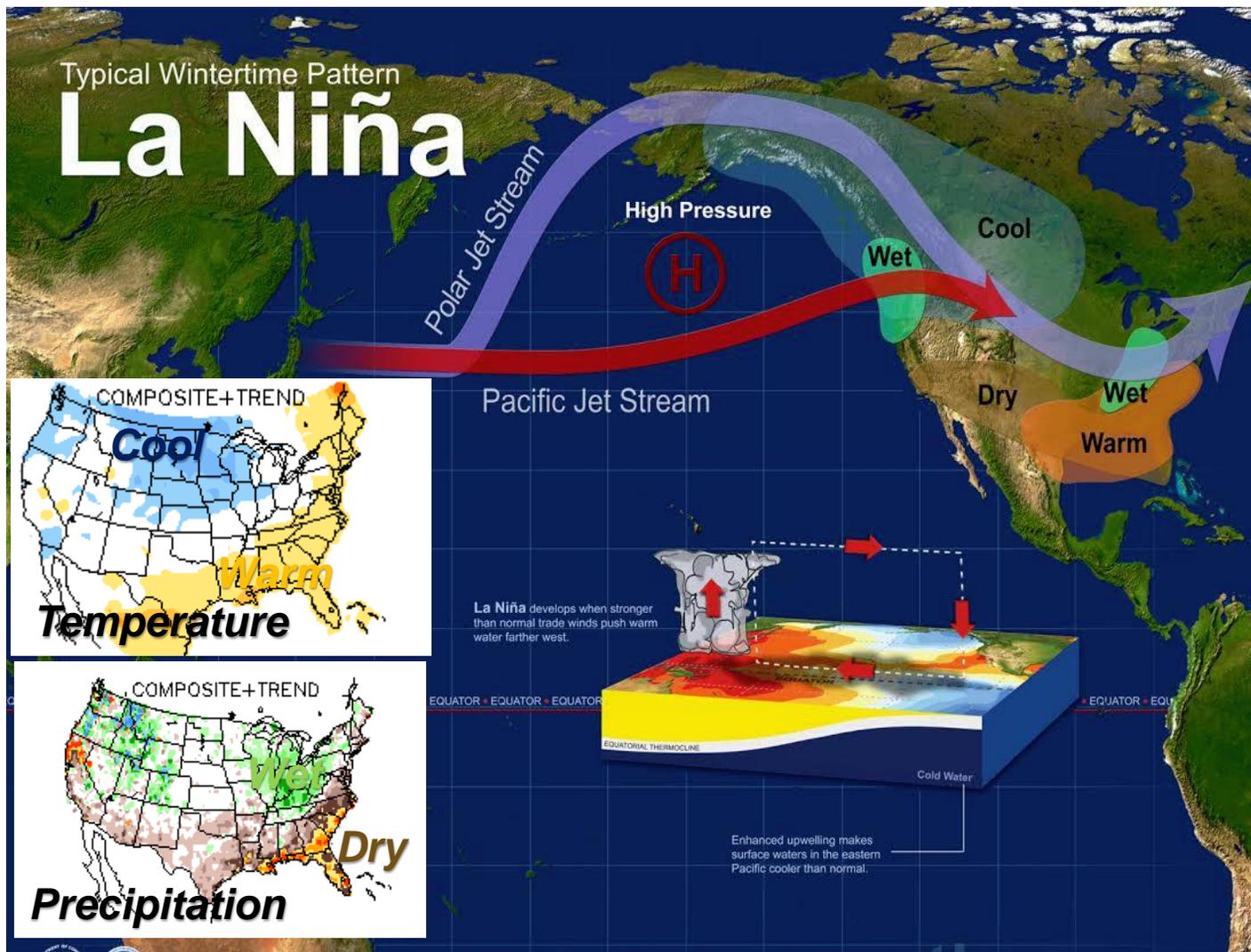
- Current borderline La Niña conditions expected to continue through this winter
- Climate Prediction Center (CPC) currently has a La Niña watch in place for the winter
 - Conditions favorable for the development of a La Niña within the next 6 months

For updated forecast details at your location, please visit www.weather.gov/mpx



2016-2017 Winter Outlook

Typical Impacts of a La Niña



Typical La Niña Impacts:

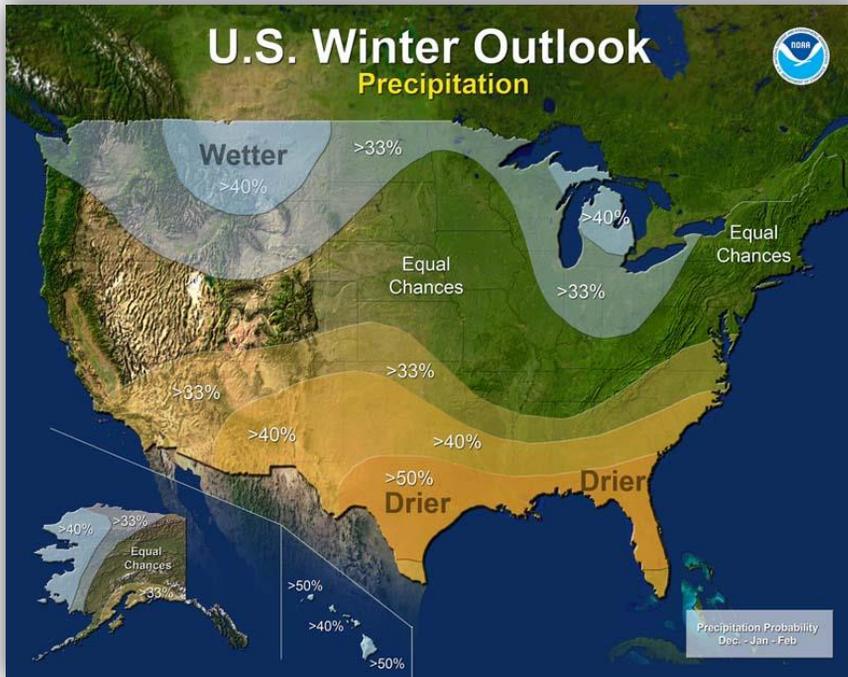
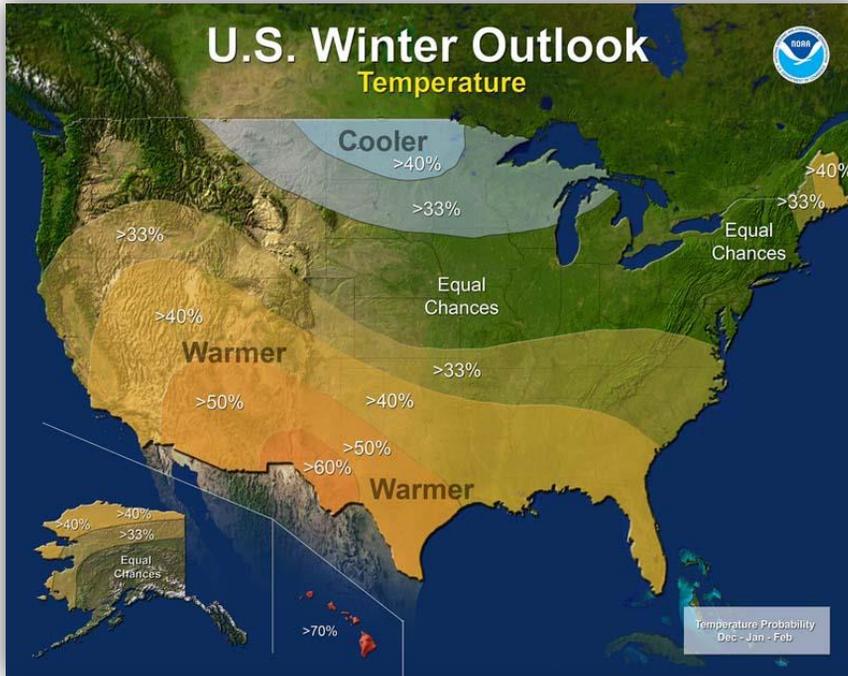
- Weaker jet stream across the Pacific Ocean allows for ridging to develop in the northern Pacific Ocean
- This ridge sends the jet stream into Alaska, capturing cold air as it does so before it dives back south across North America, bringing the cold air with
- Typical La Niña winters locally favor:
 - Bouts of cold arctic air outbreaks
 - A more active storm track across the northern Plains, which favors more frequent snowfalls

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2016-2017 Winter Outlook

Climate Prediction Center Winter Outlook



Outlook Highlights:

- CPC outlooks lean heavily on this winter reflecting typical La Niña temperature and precipitation patterns
- Confidence is highest with the warm and dry outlook for the southern U.S.

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2016-2017 Winter Outlook

What have past neutral/La Niña winters following an El Niño winter been like in the Twin Cities

- There have been 10 winters since 1950 where we have had neutral or weak La Niña conditions follow an El Niño the previous (winter seasons in chart)
- +/- in chart below represents a comparison of the winter shown with the El Niño winter from the year before (i.e. the -5.8 and +44.8 for 1964-1965 represent the difference for these values compared to the El Niño winter of 1963-1964)

Winter Seasons	Average Temp and Difference from previous EN winter	Season Snowfall and Difference from previous EN winter
1959-1960	21.8° (+7.3)	31.8" (+12.7)
1964-1965	12.2° (-5.8)	73.7" (+44.8)
1966-1967	13.8° (-2.1)	78.4" (+42.3)
1978-1979	9.4° (-1.1)	68.4" (+17.7)
1980-1981	20.4° (+1.5)	21.1" (-32.2)
1983-1984	14.3° (-5.7)	98.6" (+24.2)
1992-1993	17.7° (-6.0)	47.4" (-36.7)
2003-2004	19.3° (+0.2)	66.3" (+31.3)
2005-2006	22.7° (+1.2)	44.4" (+18.9)
Normal	18.3°	54.4"

So what does this mean for this winter?

- High confidence we will see more snow than last winter (likely above normal as well)
- High confidence we will be colder than last winter (likely have temperatures within a degree of normal)

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