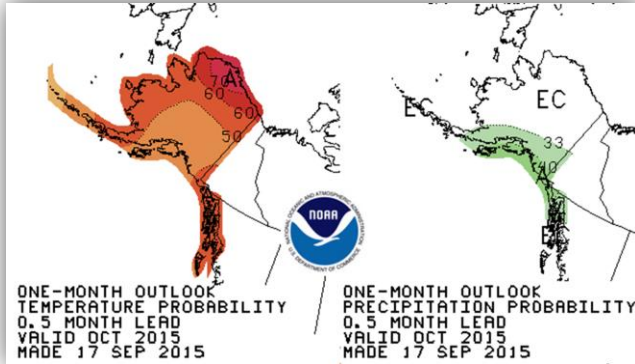


# Climate Product Discussion

## NWS Alaska Region, September, 2015

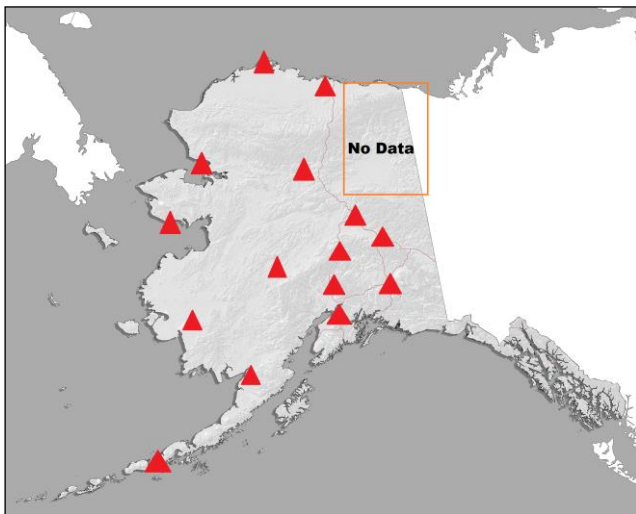
### Climate Prediction Center Official Forecasts and Reasoning, Forecast for October 2015



“The October temperature outlook depicts enhanced odds for above-normal temperatures for...Alaska. This...is based on several factors...which includes dynamical model guidance, above-average SSTs in the north Pacific Ocean, El Nino composites. The high probabilities across the North Slope of Alaska are due to a very robust trend in the past 15 years of either the delayed formation of, or anomalously low coverage of, sea ice in the nearby Arctic Ocean. Above-median precipitation is...highlighted for much of the southern coast of Alaska, consistent with El Nino conditions.”

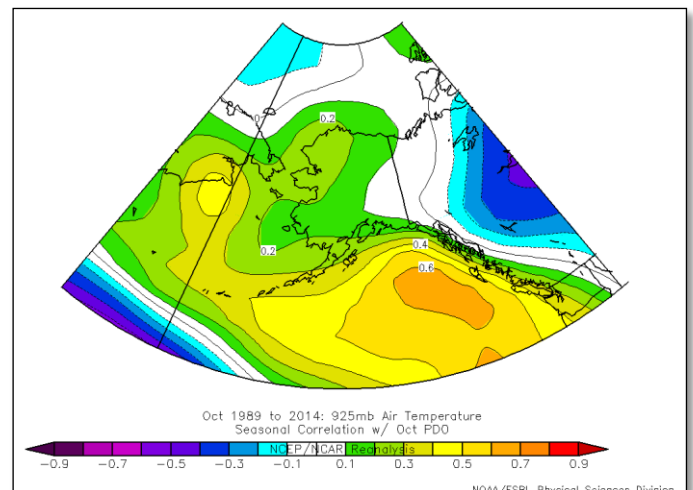
### Regional Discussion for October 2015

Significant short-term trends in temperature and precipitation can be a powerful climate forecast tool, but are rarely spatial coherent except when there are unusual and dramatic changes in the physical system, e.g. recent decline in late summer and autumn sea ice near Alaska. The autumn season features a rare example of

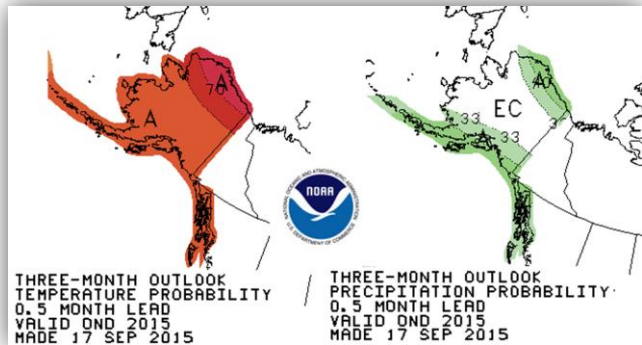


widespread strong trends with regards to temperatures. The graphic at the left illustrates the broad area in western and central Alaska over which the median October temperature in the past ten years has been in the upper third of the 1981-2010 distribution. Meanwhile, a strong El Niño continues in the tropical Pacific, though the cold season influence over Alaska of variations in deep tropical convection is just ramping up during October. Sea surface temperatures remain warmer than normal across the northeast

Pacific as well. The Pacific Decadal Oscillation Index has been strongly positive for a year now. The graphic on the right shows the correlation of the October PDO Index against low level temperatures for the past 26 years. The correlation is not strong anywhere on land, though is positive statewide. Precipitation is, as usual, a much more difficult forecast, with only weak signals.



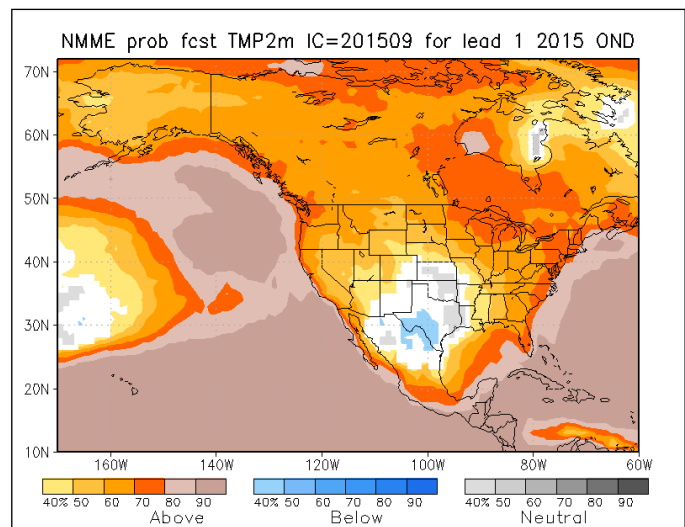
## Climate Prediction Center Official Forecasts and Reasoning October through December 2015 Forecast



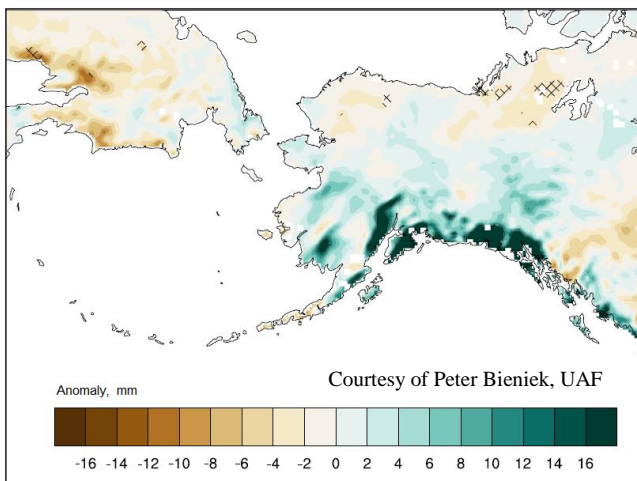
“Above-normal temperatures are...most likely for Alaska. Dynamical models and ENSO based statistical models are in greater agreement on the predicted temperature pattern...closely resembling historical impacts of El Niño events. Enhanced chances of above-median precipitation are...indicated for the south and north coasts of Alaska. This precipitation pattern...is largely derived from dynamical model forecasts of the NMME and statistical tools for El Niño precipitation impacts.”

### Regional Discussion for October through December 2015

The CPC late autumn outlook features unusually high tilts toward significantly warmer than normal statewide. The NMME probability product (right) shows a strong tilt toward warmth, with more than 50% of the 100+ ensemble members forecasting significantly above normal temperatures over nearly all of Alaska, and more than 80% of members in that category over the Alaska Peninsula and southern Bering Sea. In addition to reduced sea ice coverage in the Chukchi and Bering Seas, warmer than normal sea surface temperatures persist in the Northeast Pacific. Increased chances for warmth are supported by a broad range of tools, including statistical and El Niño composite. All of these factors contribute to support the very high chances of significant warmth forecast by CPC.



Precipitation departures show modest tilts and limited spatial coherence in the dynamic and many of the statistical models, though there is some consensus for increased chances for wet conditions over the southern mainland and Southeast.



Similarly, composites (below left) of high-resolution reanalysis precipitation anomalies during the October through December season of the seven moderate and strong El Niños since 1979 (1982, 1987, 1991, 1994, 1997, 2002 and 2009) show a wet tilt over much of central and southern Alaska. However, it is important to remember that individual El Niño years show considerable variation from this pattern. For example, 1982 was very dry over Southeast, while 1997 was quite dry over most of western Alaska south of the Bering Straits.