

Climate Discussion for May 2020

Dr. Justin Schulte

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Current forecasts suggest that the NAO (**Figure 1**) will be in a near-neutral phase in the beginning of May before becoming positive. As such, I expect warmer-than-normal conditions to be favored across the western United States, especially if the NAO becomes more strongly positive. However, for the Northeast, I do not expect the negative NAO regime to contribute to any cool weather, as there is no relationship between temperature and the NAO index in May. In terms of precipitation, NAO impacts will be negligible because the relationship between May precipitation and the NAO is weak across the entire United States. The likelihood for cooler-than-normal conditions across the eastern United States will be greatly enhanced by a negative PNA pattern that is forecast to occur during the first half of May (**Figure 2**). I expect the strongest PNA impacts to be across the Southeast United States. Across the western United States, the positive PNA will slightly favor warmer-than-normal conditions.

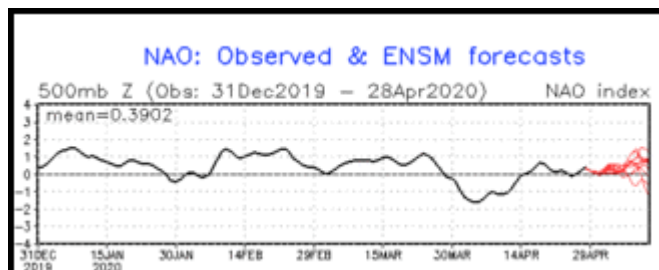


Figure 1. 14-day NAO ensemble forecast from the Climate Prediction Center.

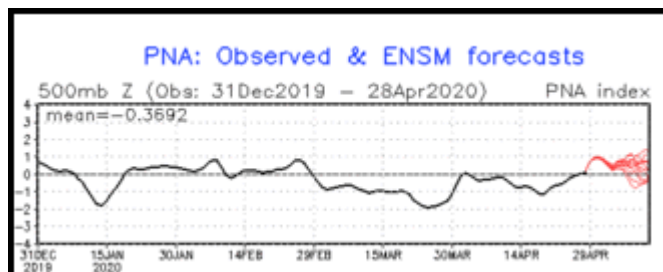


Figure 2. 14-day PNA ensemble forecast from the Climate Prediction Center.

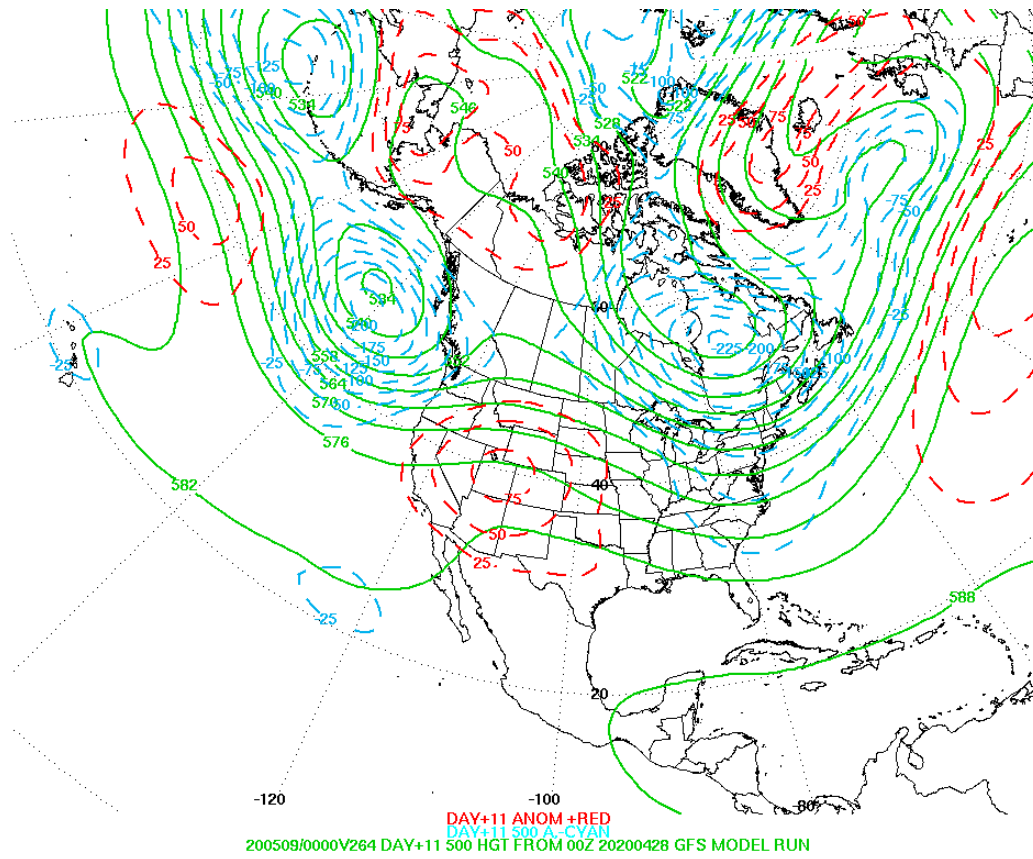


Figure 3. 11-day 500 mb GFS geopotential height forecasts obtained by applying a 7-day mean centered on the 11-th day.

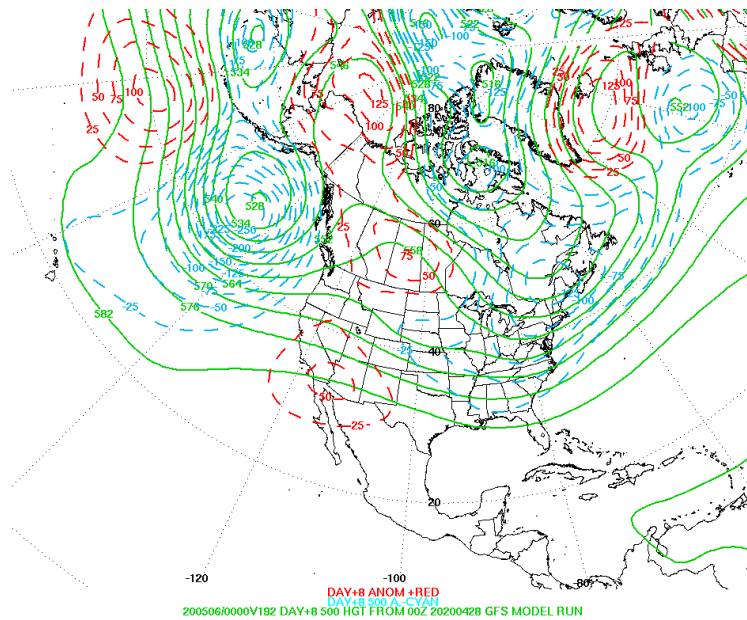


Figure 4. 8-day 500 mb GFS geopotential height forecasts obtained by applying a 5-day mean centered on the 8-th day.

The current 8-day and 11-day forecasts for 500-mb geopotential height anomalies (**Figures 3 and 4**) suggest that geopotential heights will be below normal across much of the eastern United States and above normal across Northern Alaska. This forecast 500-mb geopotential height anomaly pattern corresponds well with a strong positive phase of the East Pacific/North Pacific (EPNP) pattern or the ridge-trough dipole pattern, which will contribute substantially to cooler-than-normal conditions across the eastern half of the United States, particularly across the Northeast/Midwest where temperature relationships with the pattern are strong (<http://justinschulte.com/forecasting/dipole.html>). Not surprisingly, the NOAA 8 to 14 day outlook strongly suggests that it will be cooler-than-normal across regions strongly influenced by the ridge-trough dipole pattern (**Figure 5**). It is worth noting that the cool weather will likely occur during a neutral or positive AO phase, which is expected because my research shows that the AO is not an important temperature driver across the Midwest and Northeast despite popular belief.

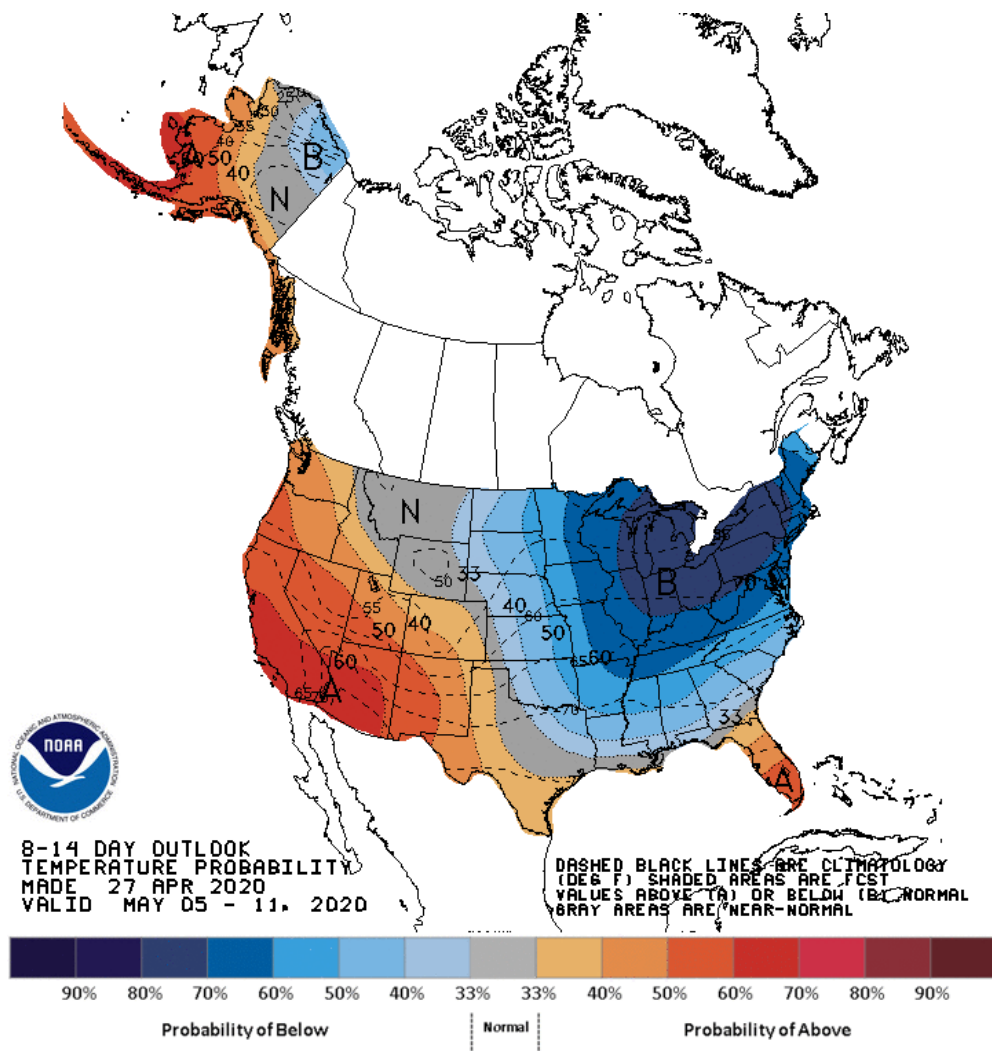


Figure 5. NOAA 8 to 14 day outlook.

For the past month, equatorial Pacific SST anomalies have been positive across the central equatorial Pacific (**Figure 6**). This pattern corresponds with a negative trans Nino index and a central

Pacific El Nino. This pattern does not favor colder-than-normal or warmer-than-normal conditions across the eastern United States in May because tropical connections are so weak in late Spring. Similarly, the current SST setup does not strongly favor drier-than-normal or wetter-than-conditions across the eastern United States. Thus, I am not giving SST anomalies in the equatorial Pacific any weight in my May prediction. However, the above average SSTs along the east coast will reduce the impacts of east wind events on high temperatures. Also, the probability of a major rain event is enhanced should an active storm track establish itself along the east coast.

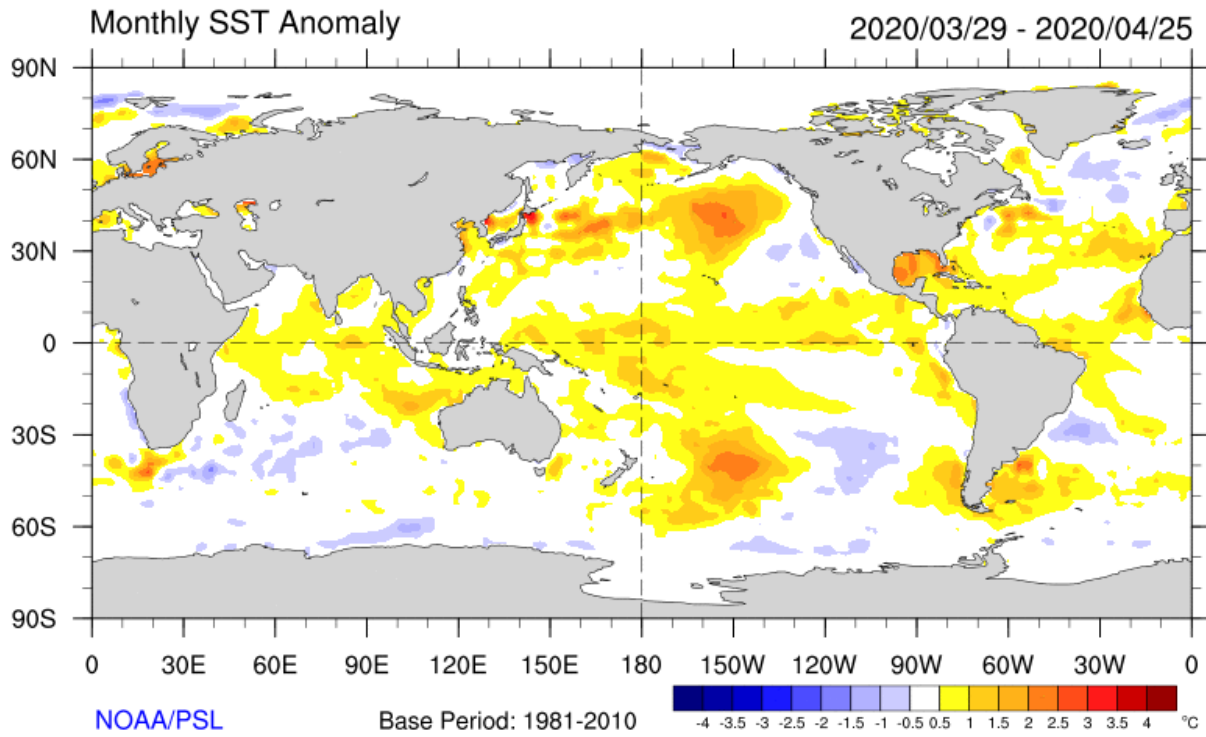


Figure 6. SST anomalies over the course of the last month.