AER Month Ahead Forecast
February, March & April 2020

US Regions

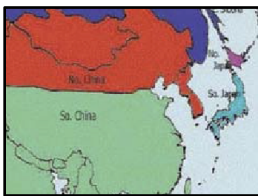**European Regions**

Asian Regions

About the Science:
Unlike other seasonal forecasts, AER uses a unique initialization scheme as input to its climate model. Our input is a combination of El Niño and temperature trends in addition to snow cover from remote parts of the world and the North Atlantic Oscillation and Arctic Oscillation patterns. This provides a more complete indication of the overall forcing and allows more accurate seasonal forecasting than other models that incorporate only ocean-based factors in predicting seasonal climate, including El Niño.

About AER:
Founded in 1977, Atmospheric and Environmental Research is an award-winning environmental research, consulting and weather information services company with demonstrated expertise in numerical weather prediction, climate dynamics and radiation, circulation diagnostics, atmospheric chemistry, air quality and risk assessment, planetary sciences, remote sensing, satellite meteorology, and systems engineering. Consulting services are available. AER is a business unit within Verisk Analytics. Visit our web site at www.aer.com.
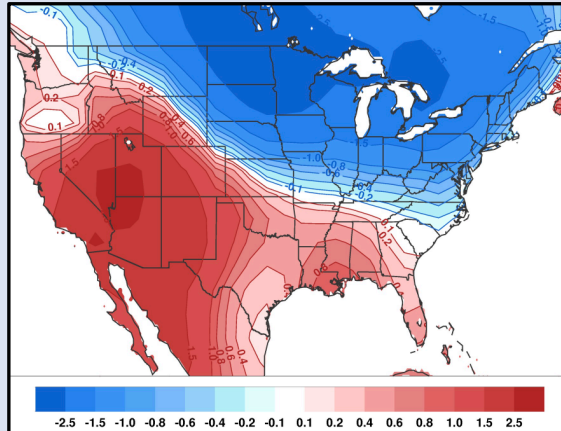
TEMPERATURE FORECASTS

Technical Discussion – US

The major inputs for the late winter and early spring forecast are ENSO and multi-annual trends. Sea surface temperatures are near normal in the equatorial Pacific and the models are predicting that ENSO conditions will be neutral to weak El Niño this late winter and early spring. The AER model is forecasting normal to above normal temperatures for the Western United States, the Southern Plains and along the coast of the Gulf of Mexico with normal to below normal temperatures in the Northern and Central Plains, the Upper Midwest, the Great Lakes, the Northeast, the Mid-Atlantic and the Southeast outside of the Gulf States. The model is predicting that March will be the warmest month and February the coldest month relative to normal. We have low confidence in the forecast. The biggest risk that we see to the forecast is that the model is too cold in its forecast for the Northeastern US.
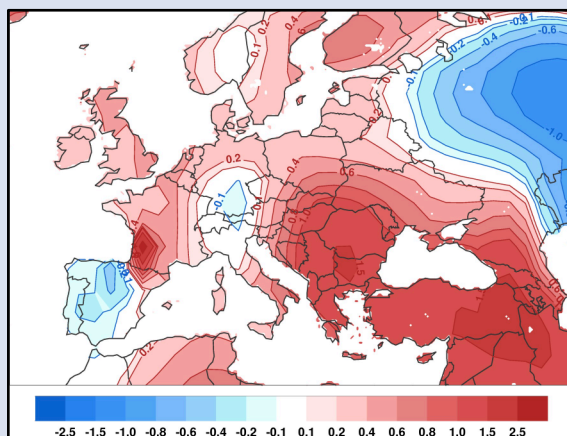

Temperature Forecast – US

Temperature from Normal (°F)
February, March & April 2020

Technical Discussion – Europe

The AER model is forecasting normal to above normal temperatures for much of Northern, Central and Western Europe with normal to below normal temperatures for Europe, Russia, Spain, Portugal and the Alps. The model is predicting that April will be the warmest and March the coldest month relative to normal. The biggest risk that we see is that the model forecast is too cold in its forecast for Eastern Europe.
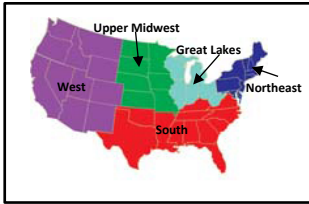

Temperature Forecast – Europe

Temperature from Normal (°C)
February, March & April 2020

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European Regions

Asian Regions

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AER Month Ahead Forecast
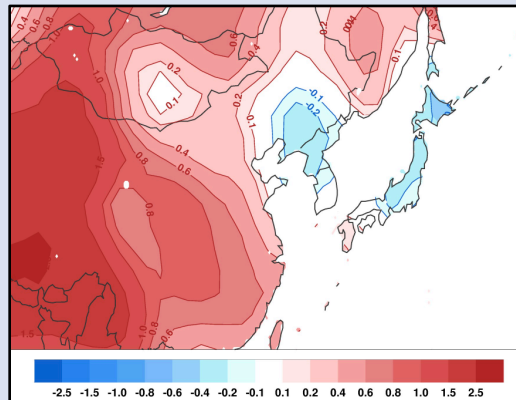## February, March & April 2020

Technical Discussion – Asia

The AER model is forecasting normal to above normal temperatures for China, southernmost Japan and Far Eastern Siberia with normal to below normal temperatures for Korea and Central and Northern Japan. The model is predicting that February will be the coldest and April the warmest month relative to normal. The biggest risk that we see is that the model predicts temperatures that are too warm for China.

Temperature Forecast – Asia

**Temperature from Normal ($^\circ$C)**
February, March & April 2020

PRECIPITATION FORECAST

Technical Discussion – US

Sea surface temperatures in the equatorial Pacific are near normal and the government climate models are forecasting that sea surface temperatures will support neutral to weak El Niño during the late winter and early spring. Based on neutral to weak El Niño conditions the model is forecasting normal to wet conditions for Northern and Central Rockies, the Western Great Lakes and New England with normal to dry for the Southern US, the Eastern Great Lakes, the Plains and coastal Oregon and Washington. Analog years show a very similar forecast except for a wetter coastal Oregon and Washington and interior Southeast.
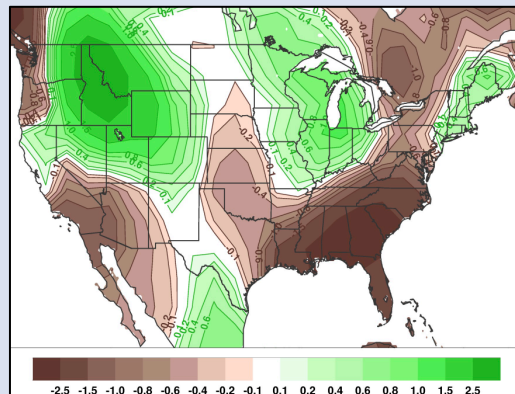
mCast Precipitation Difference from Normal (inches)
February, March & April 2020
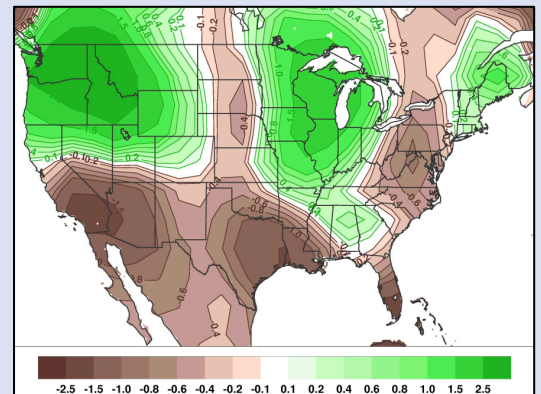
Precipitation Anomaly Composite for
Analog Years 2007, 2010, 2015, 2016

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POPULATION WEIGHTED CDD FORECAST – US

Forecast HDD Difference from Normal for Feb 2020, Mar 2020, Apr 2020
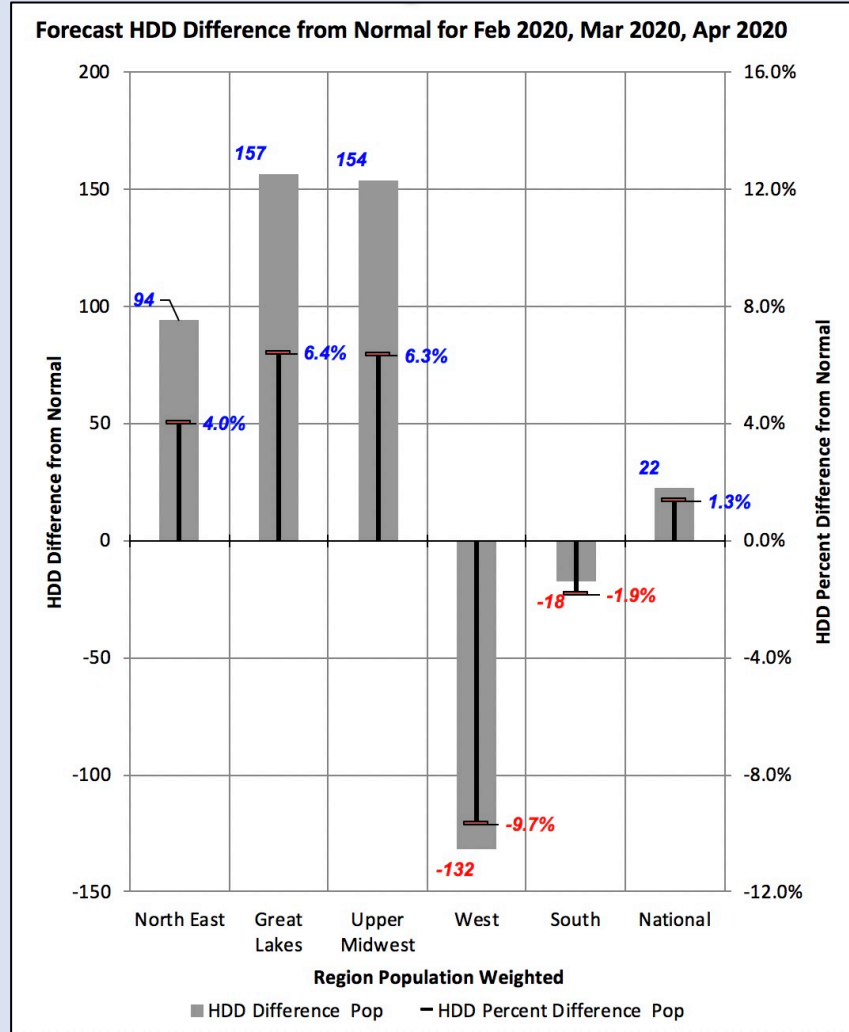
Region	Normal Population Weighted HDD	Forecast Population Weighted HDD	Observed Population Weighted HDD for 2019
North East	2346	2440	2431
Great Lakes	2448	2604	2626
Upper Midwest	2441	2595	2823
West	1360	1228	1426
South	939	922	871
National	1691	1714	1758

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# AER Seasonal Forecast Validation
September, October & November 2019

VALIDATION – September, October & November 2019

AER validates the Month-Ahead Forecast model for temperature against observations roughly 45-days following the end of the forecast period. Included is the CPC forecast for the same period.
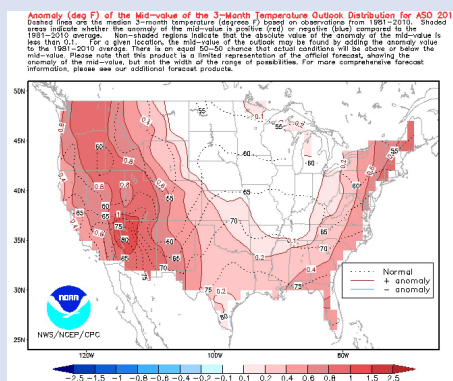
TEMPERATURE FORECAST VALIDATION

The AER model and CPC both correctly predicted warm temperatures for the Eastern US but missed the relatively cold temperatures for the Interior Western and Central US.

AER Temperature Difference from Climate Normal September, October & November 2019
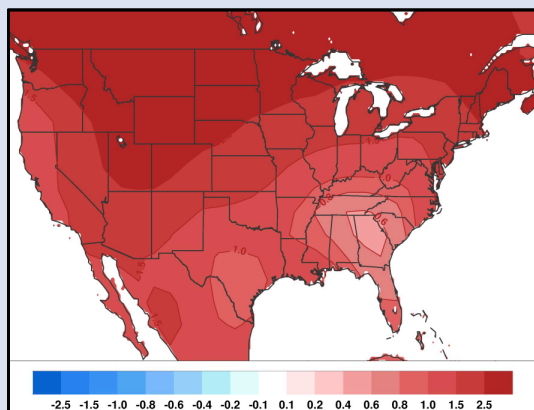
CPC Temperature Difference from Climate Normal

Observed Temperature Difference from Climate Normal