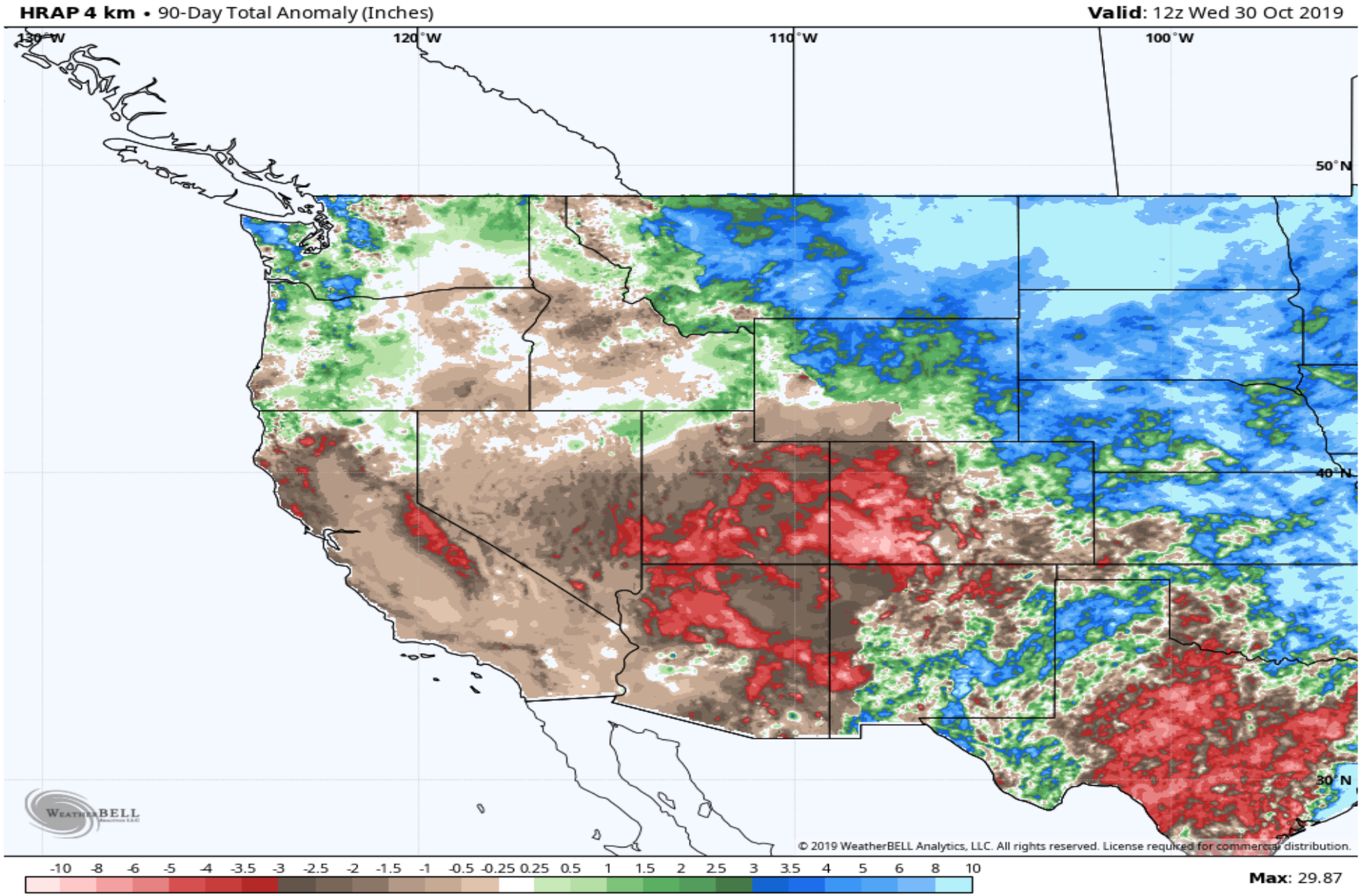
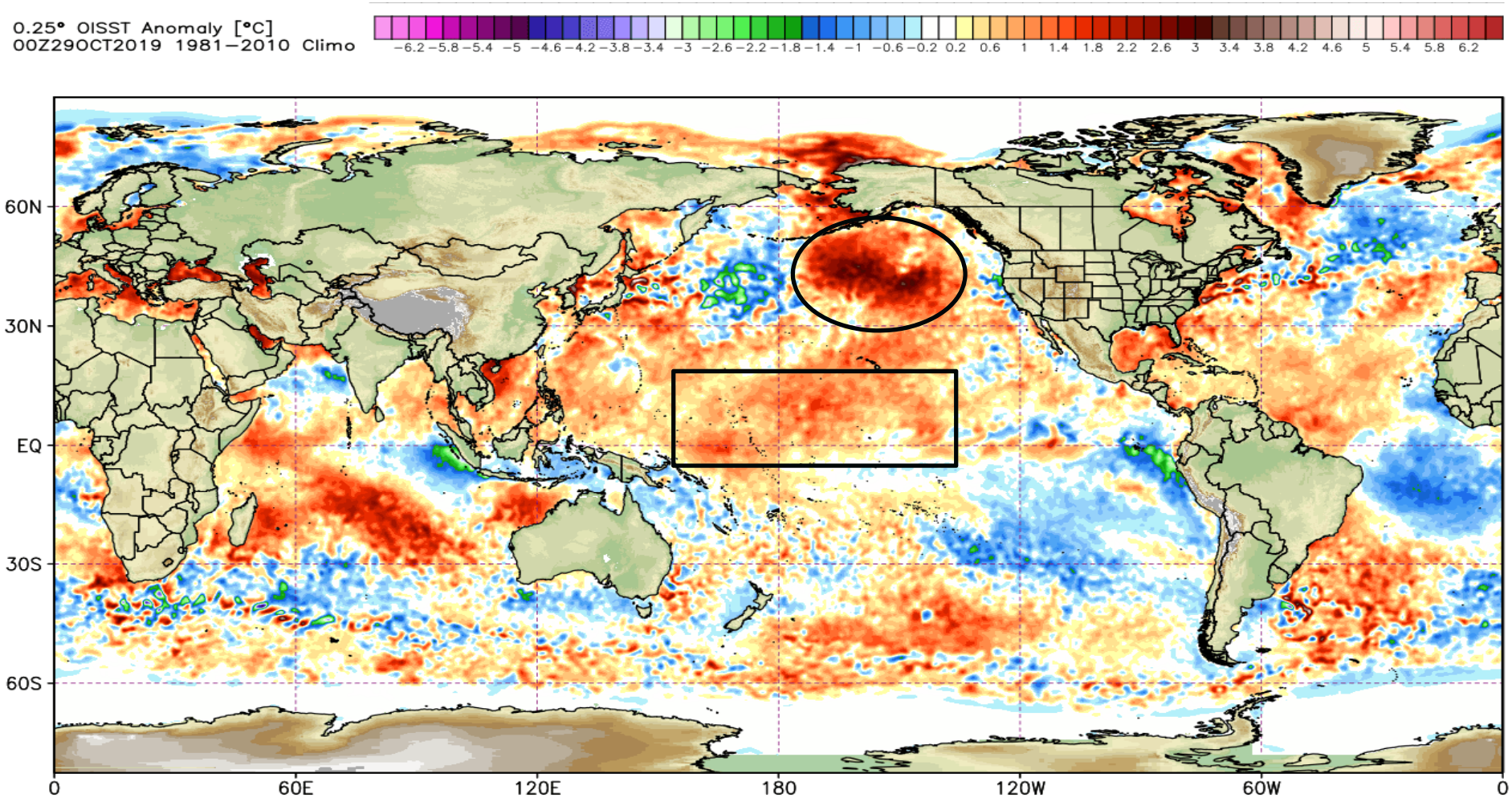
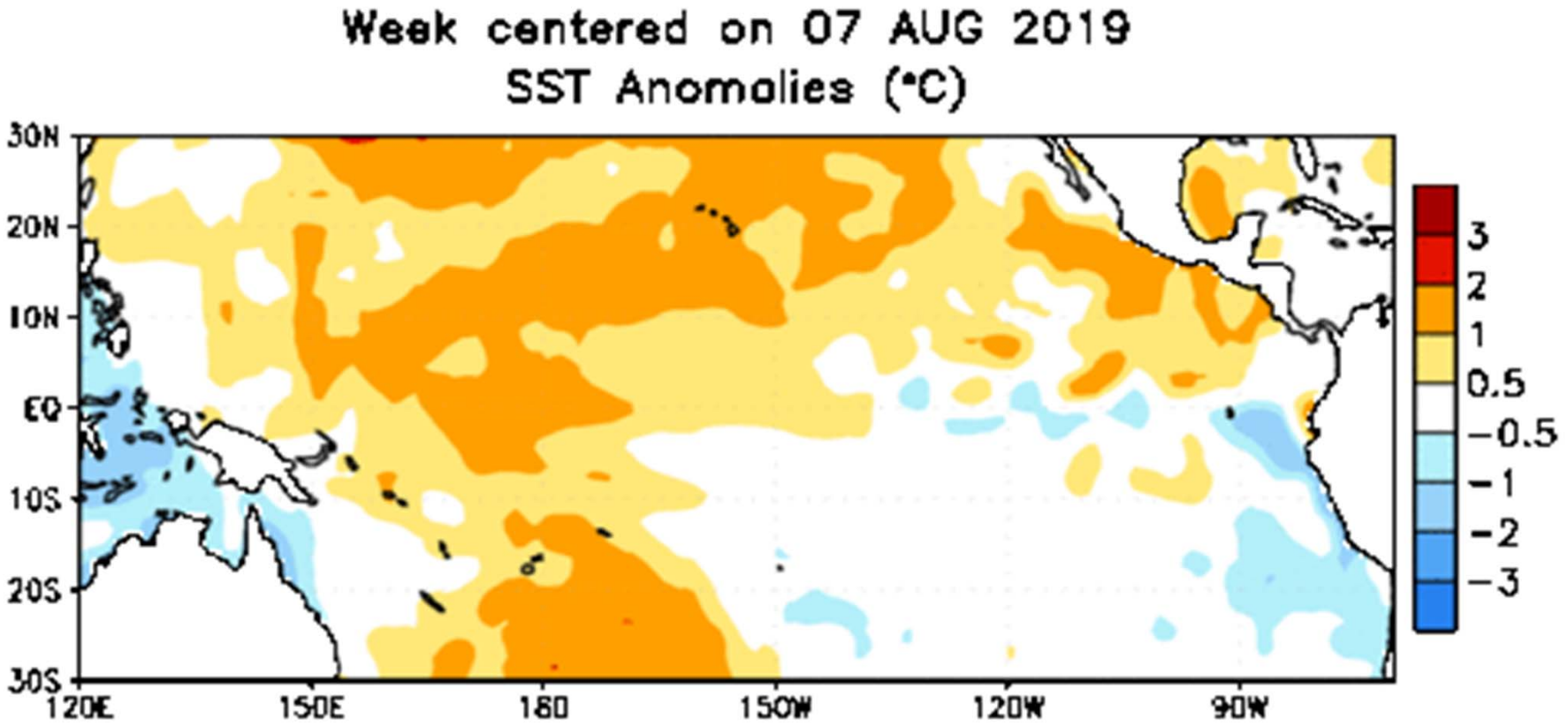
Precipitation +/- Inches of “Normal” Past 90 Days



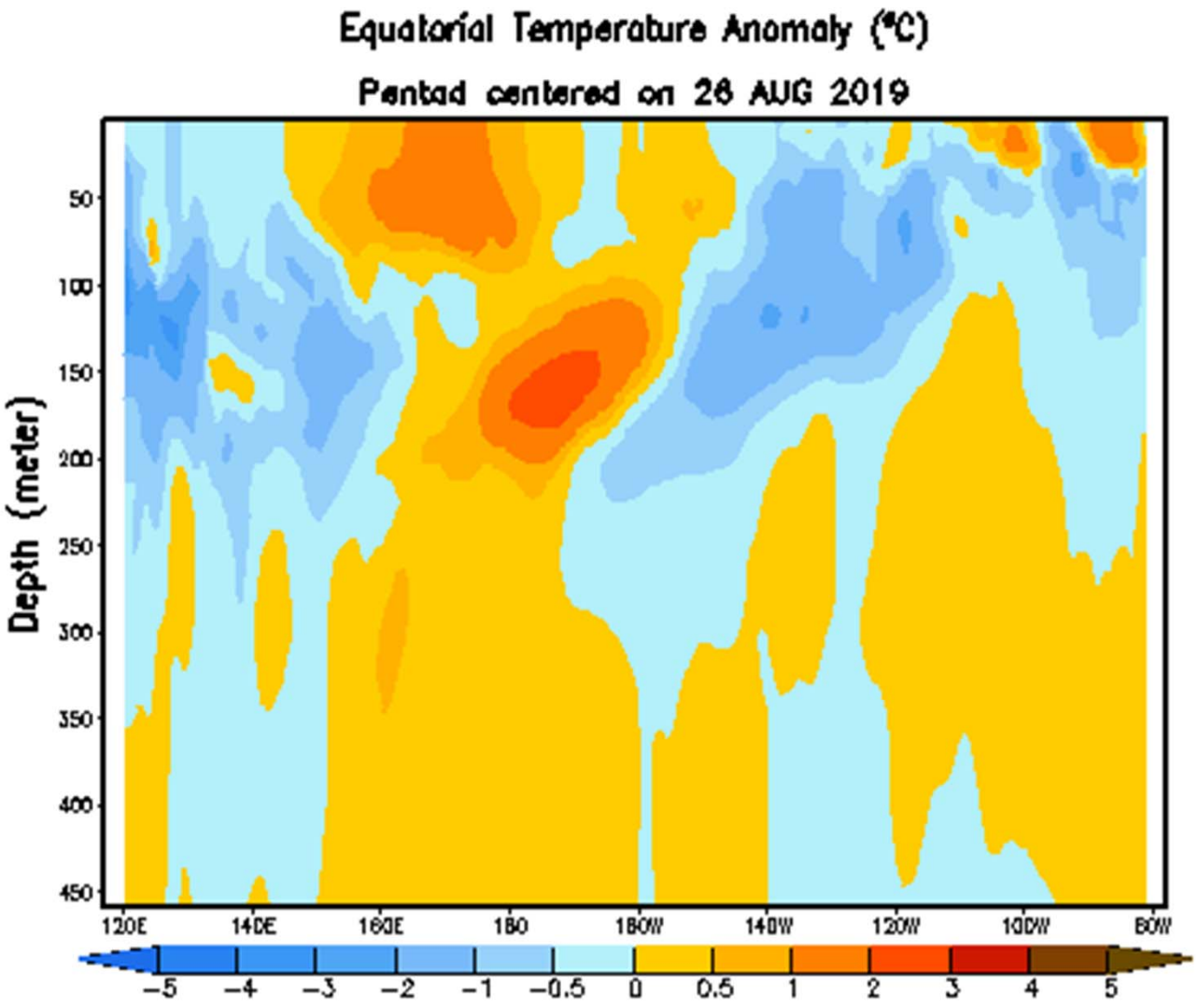
ENSO Update
Sea Surface Temperature Anomalies 10/29/19



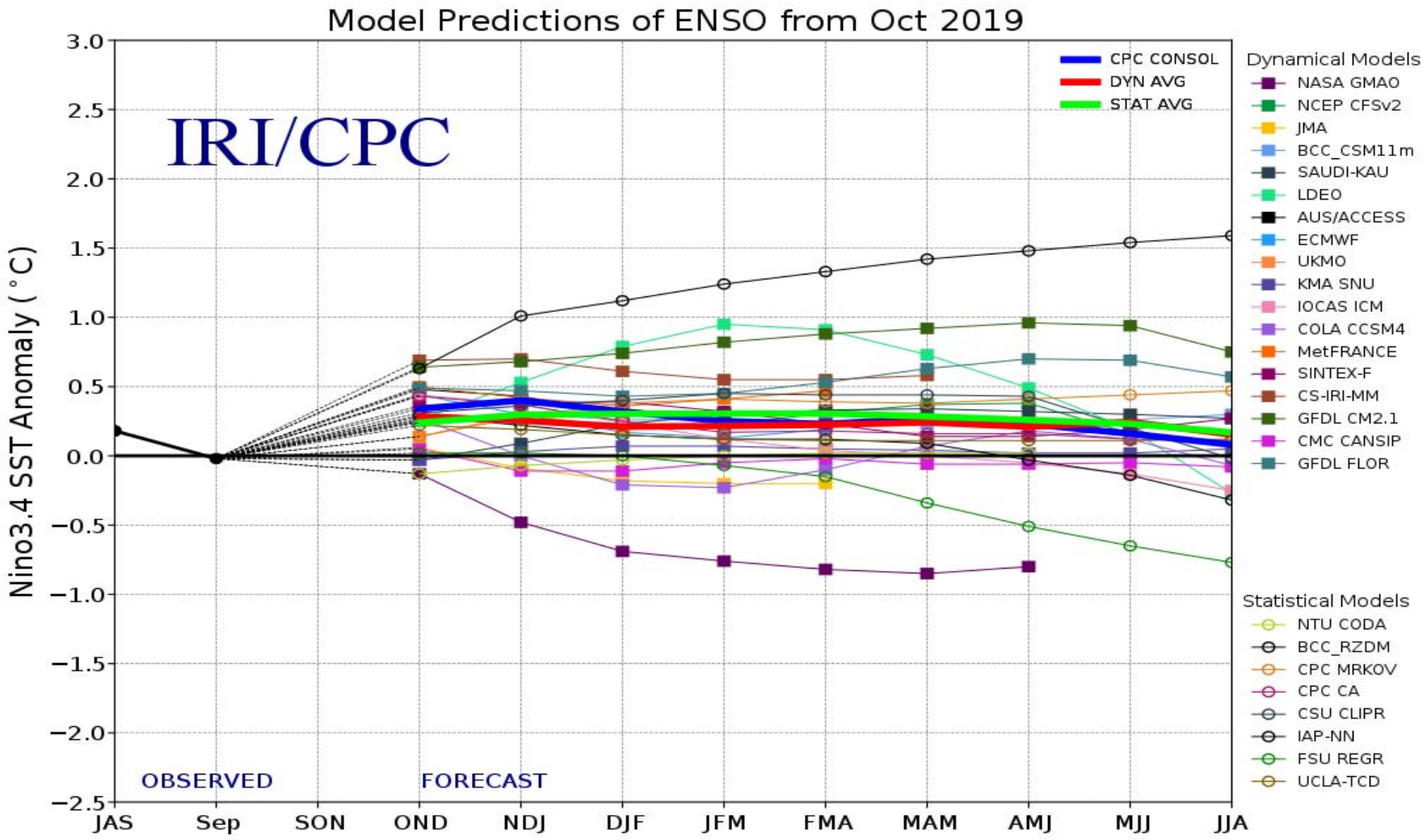
Neutral to weak Modoki El Niño…



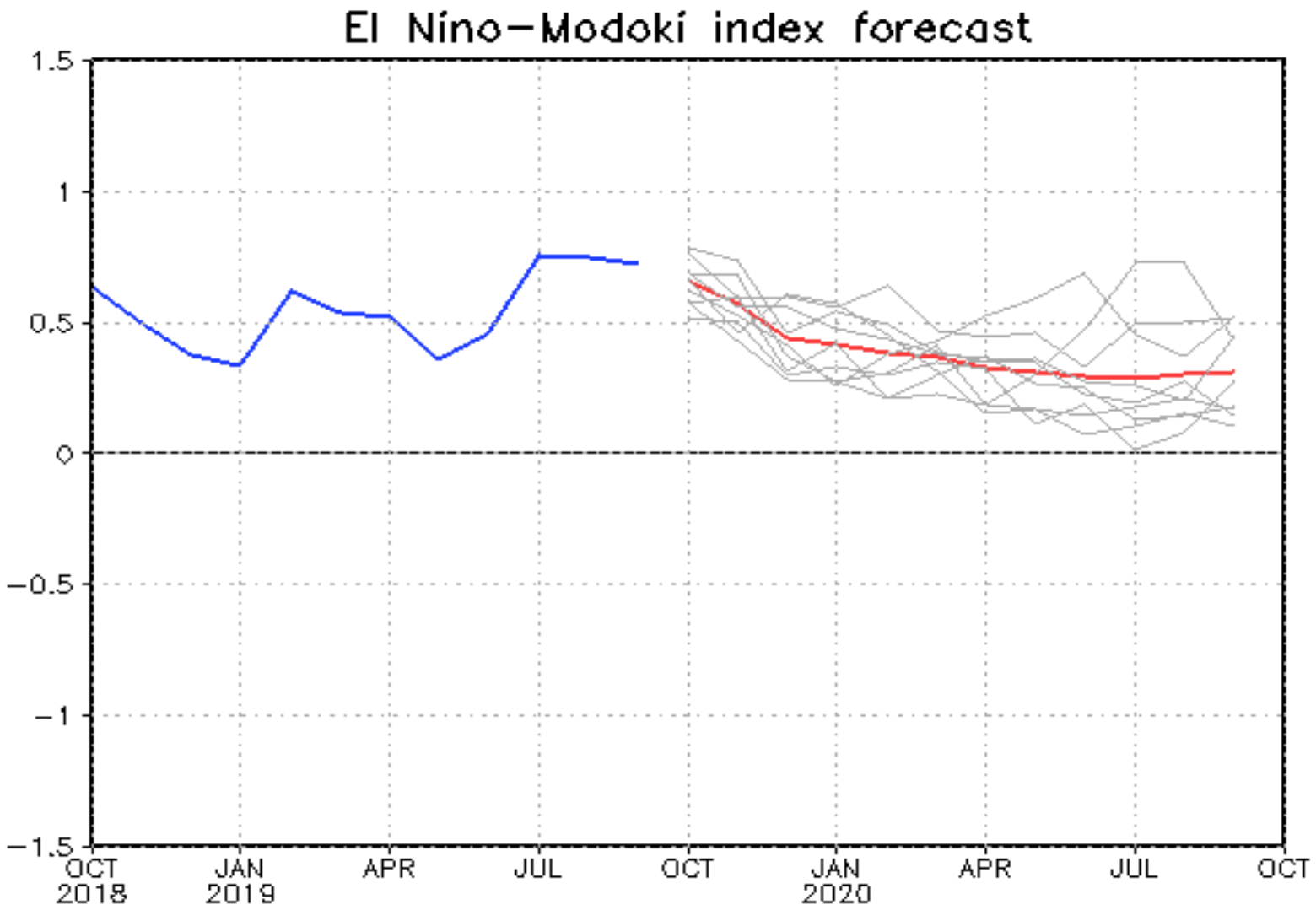
Warmest water beneath the surface resides across the Central/Western Pacific…cooler farther east



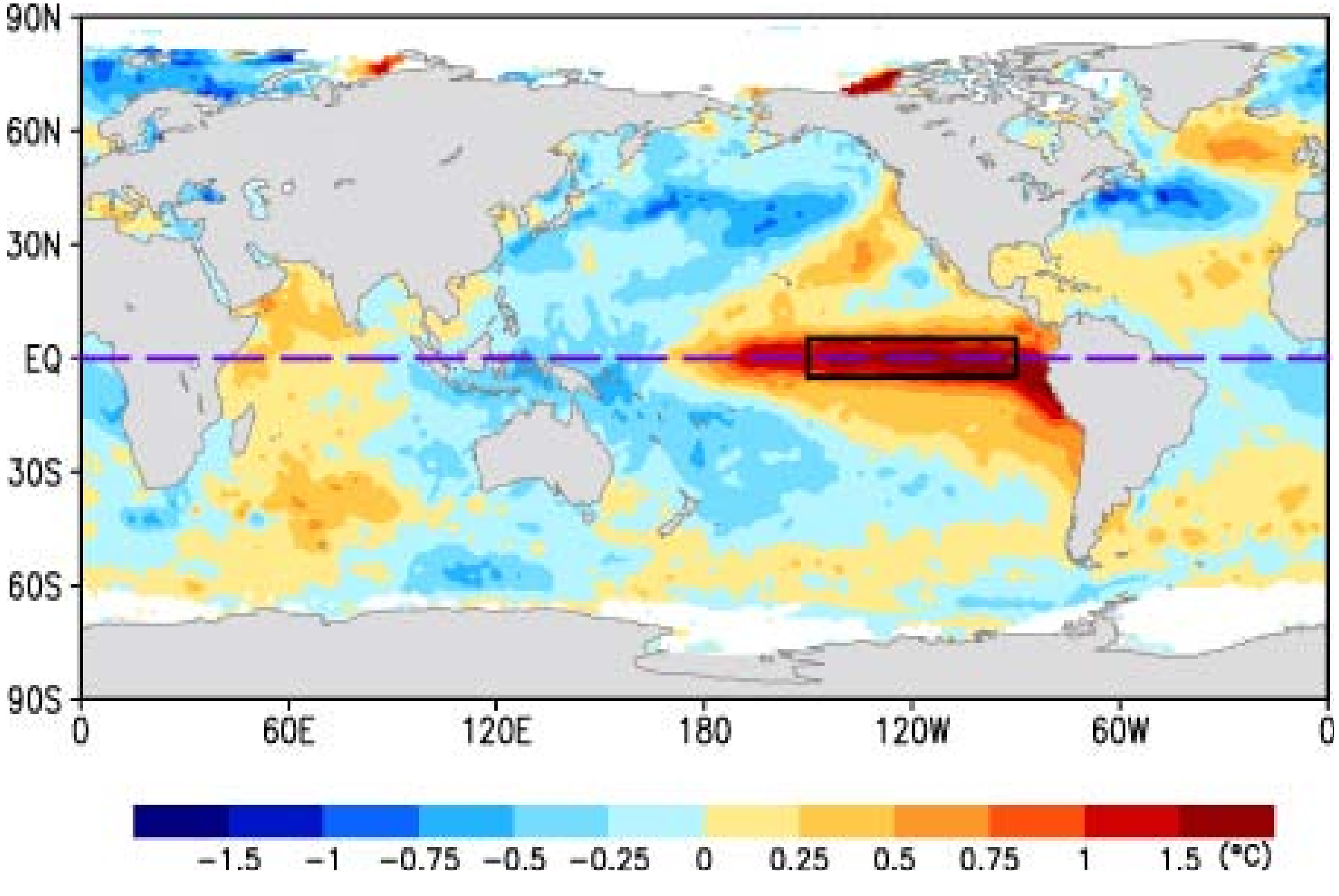
ENSO Plumes Ensemble
Favors Neutral to Weak Modoki El Niño



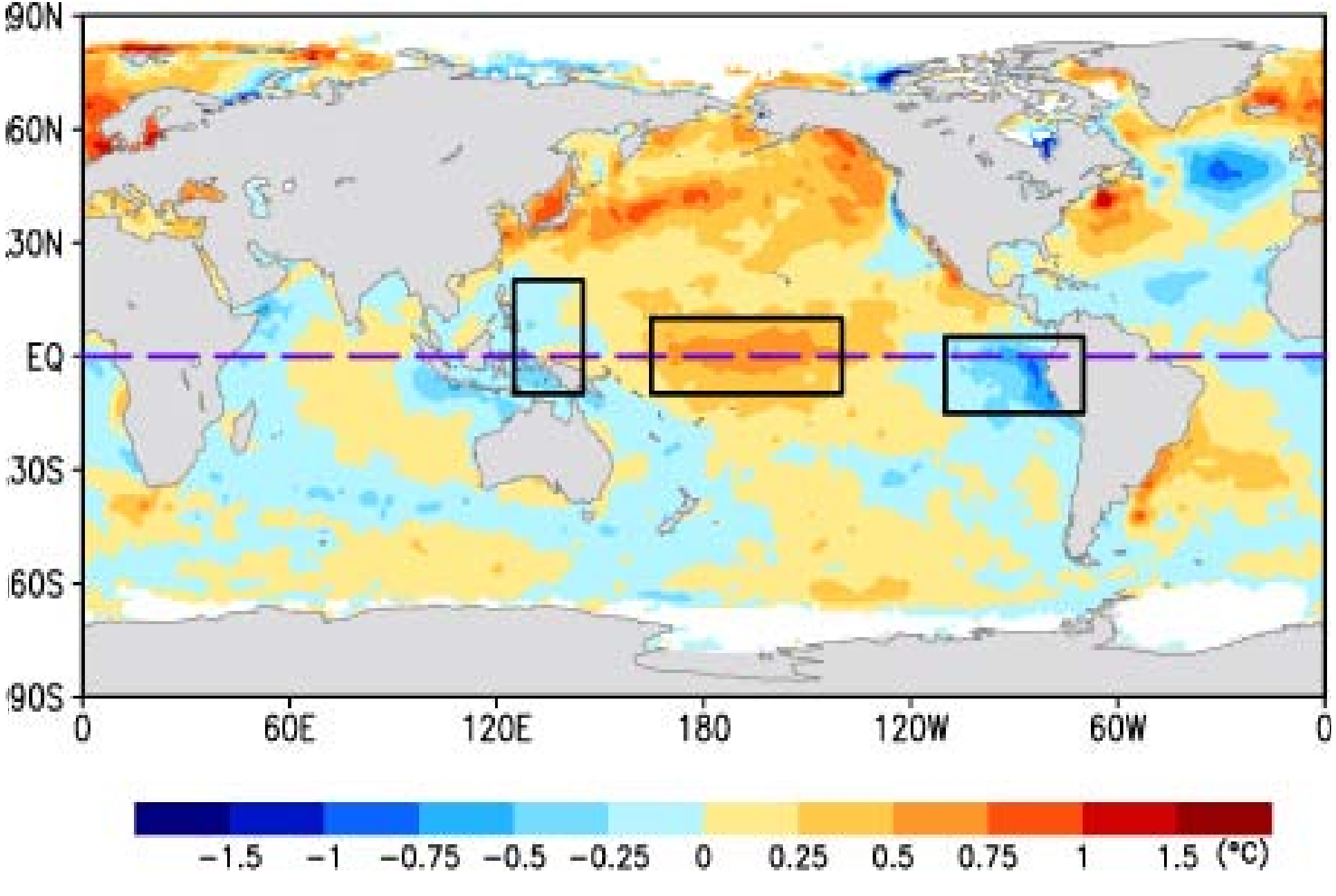
JAMSTEC Modoki Index
Weak Modoki El Niño Likely Continues



Traditional El Niño

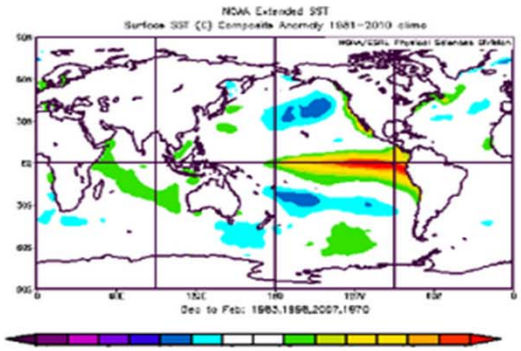


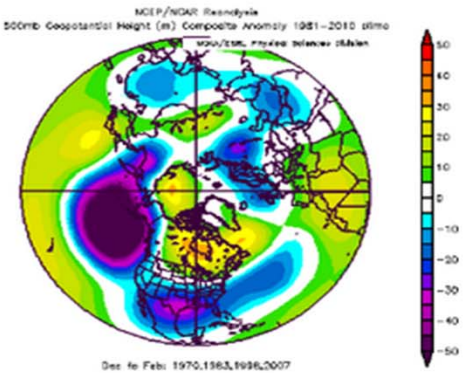
Modoki El Niño

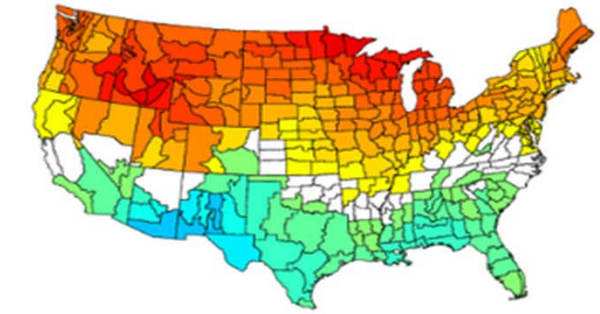


El Niño Types and Impacts

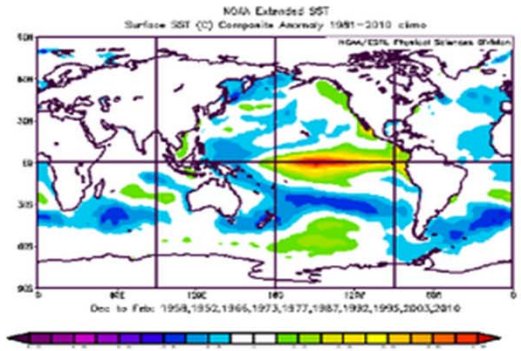
Traditional (East-Based)

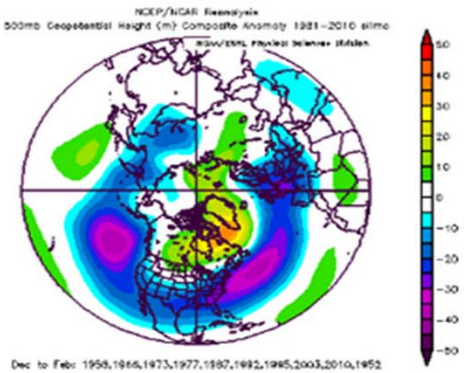


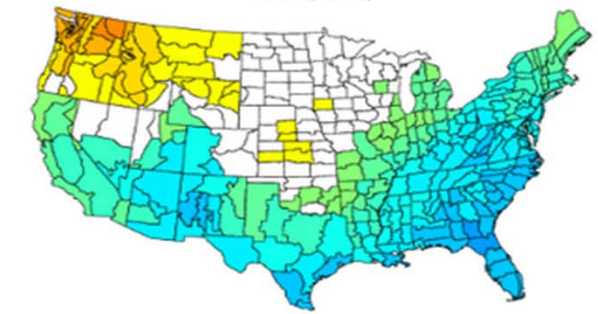




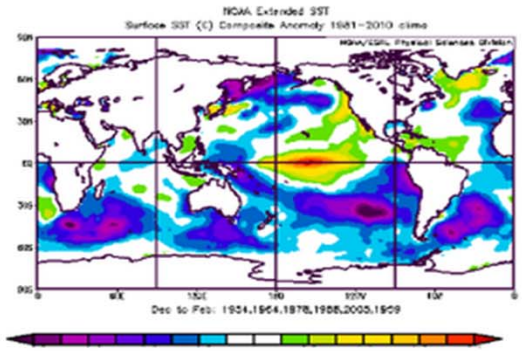
Hybrid (East-Central Based)

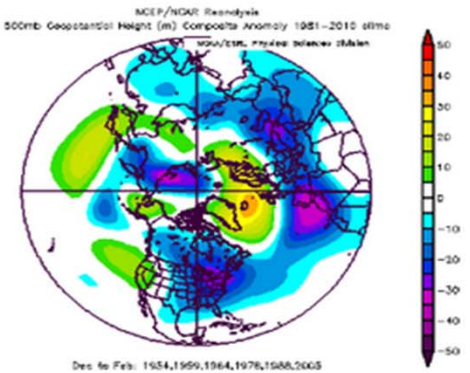


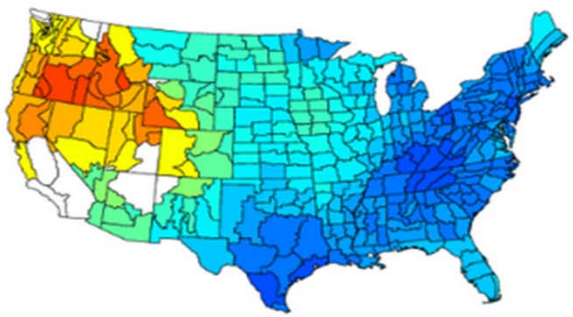




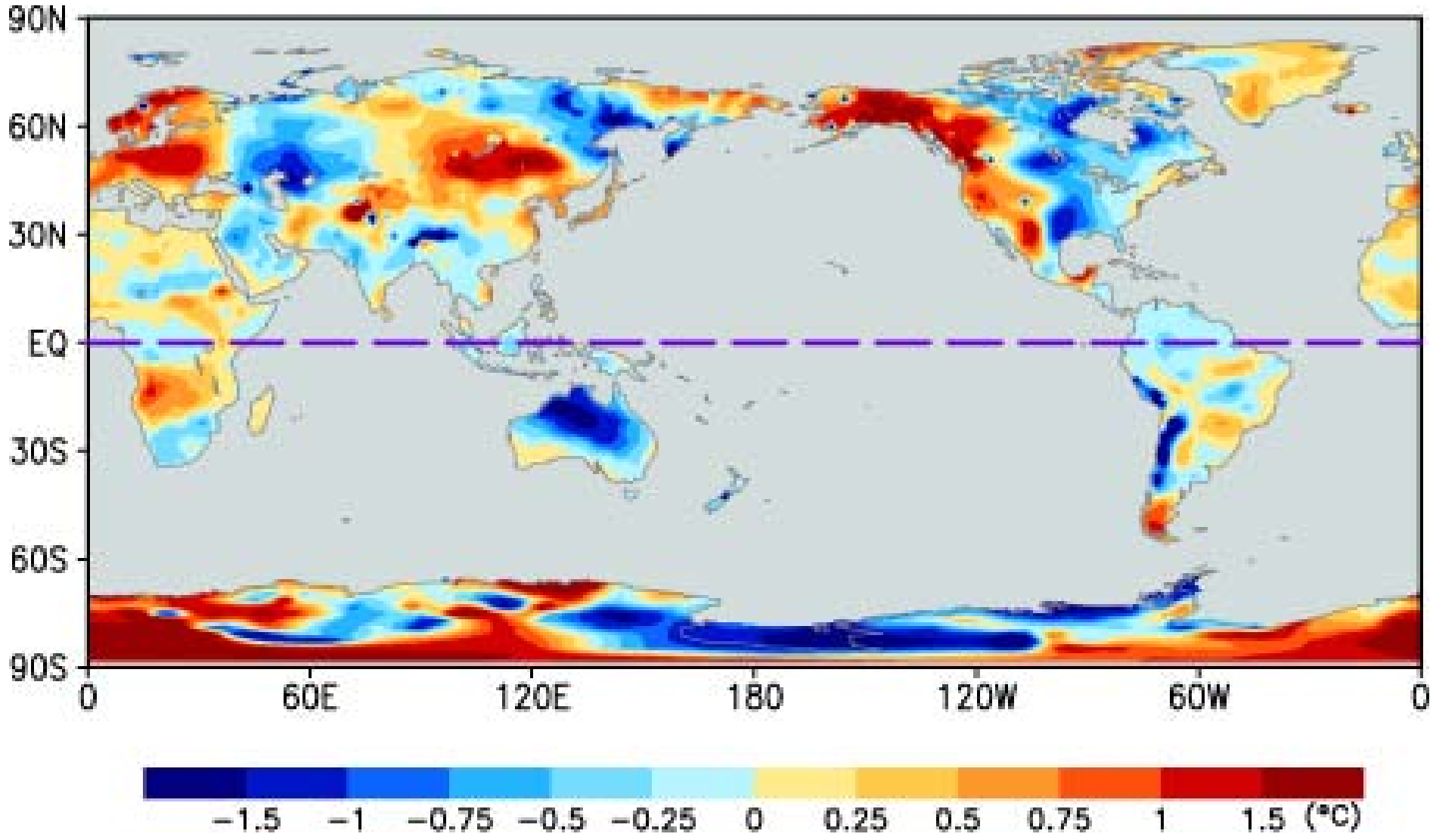
Modoki (Central Based)



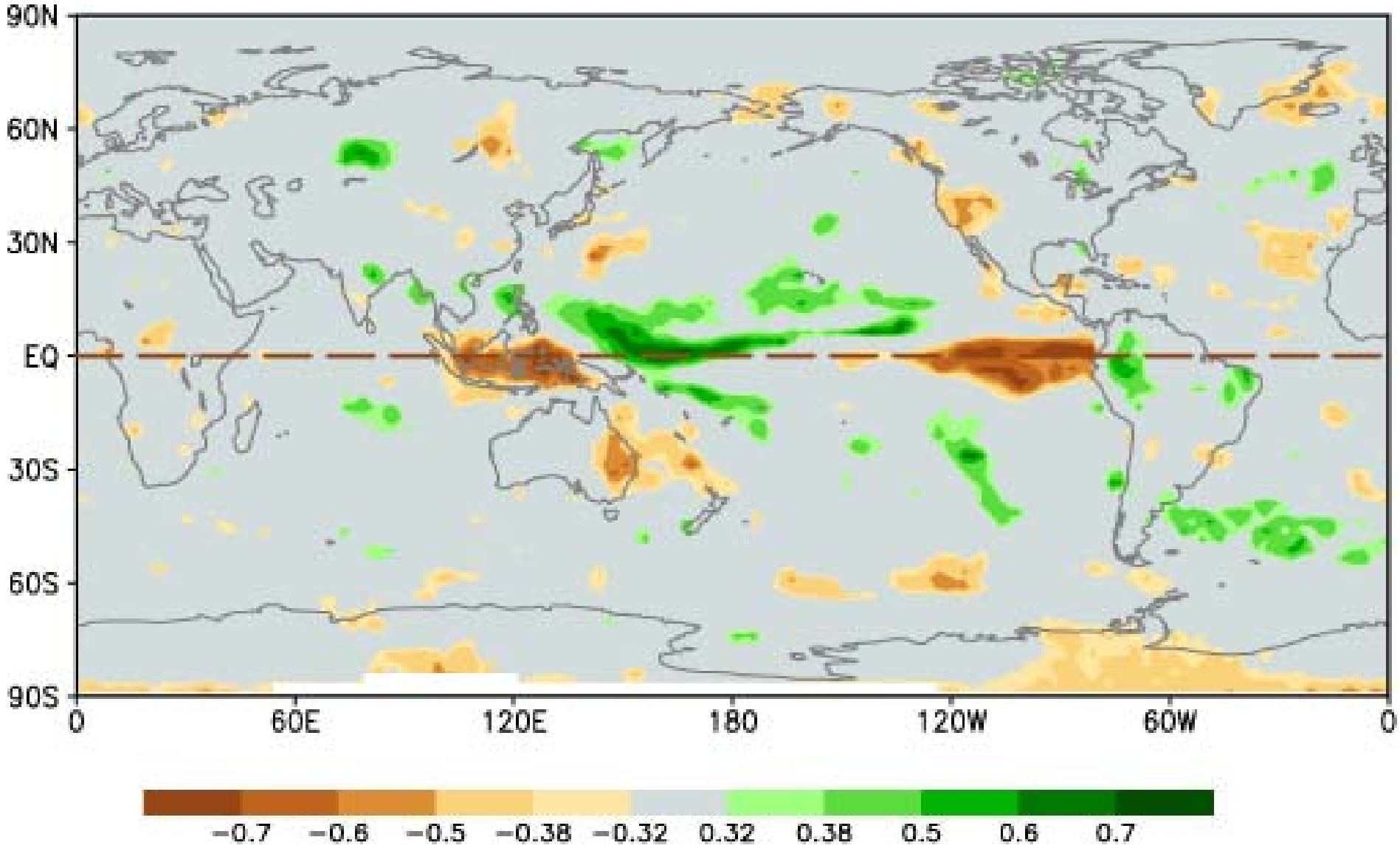




Typical Modoki El Niño Global Temperature

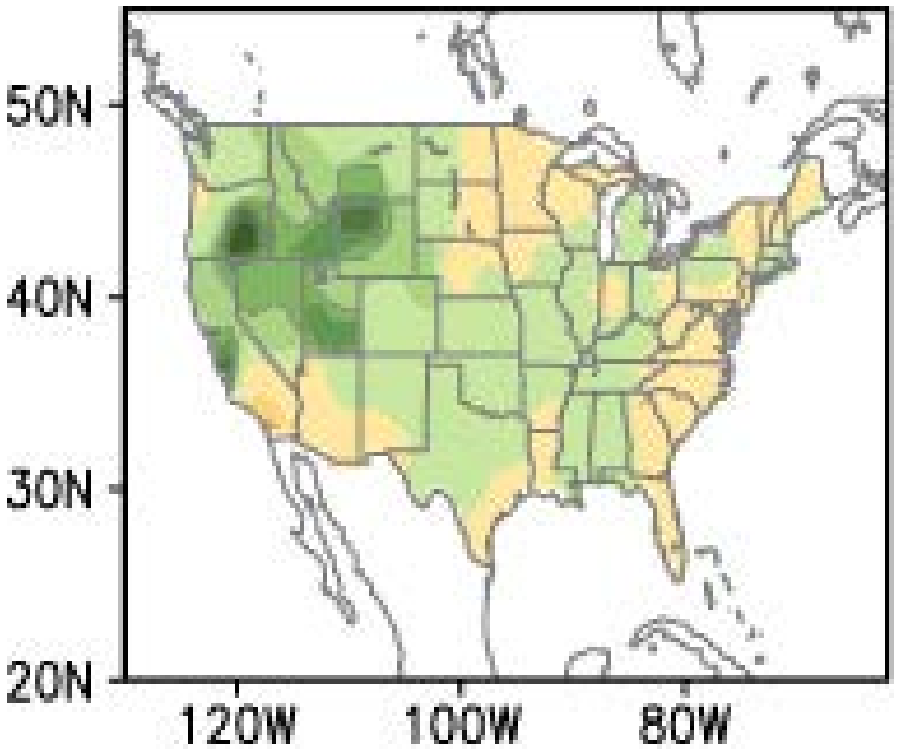


Typical Modoki El Niño Global Precipitation

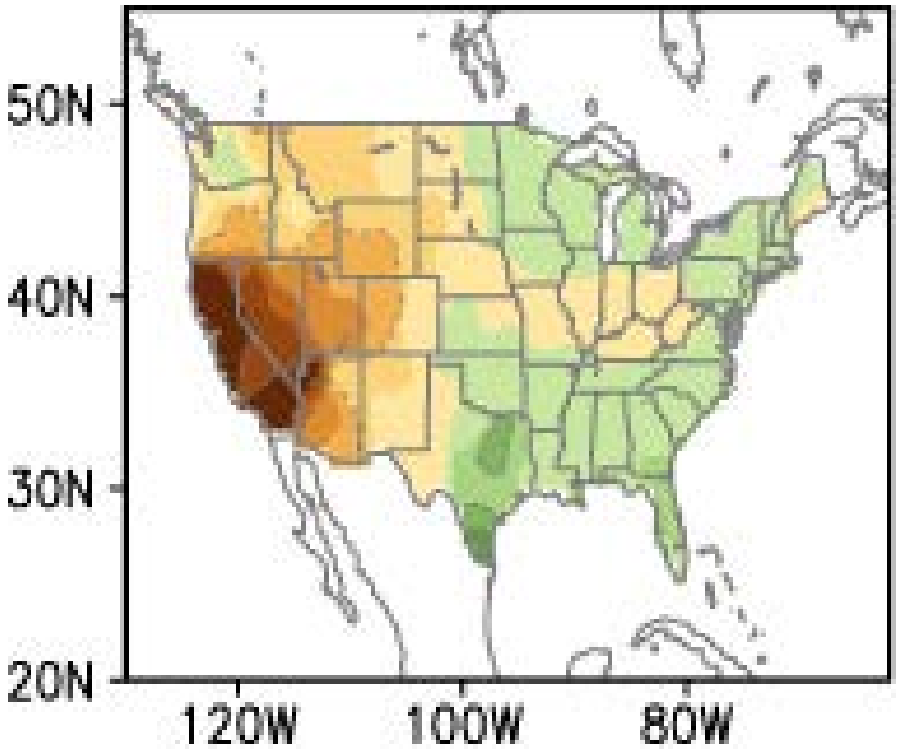


Precipitation Differences With Different El Niños

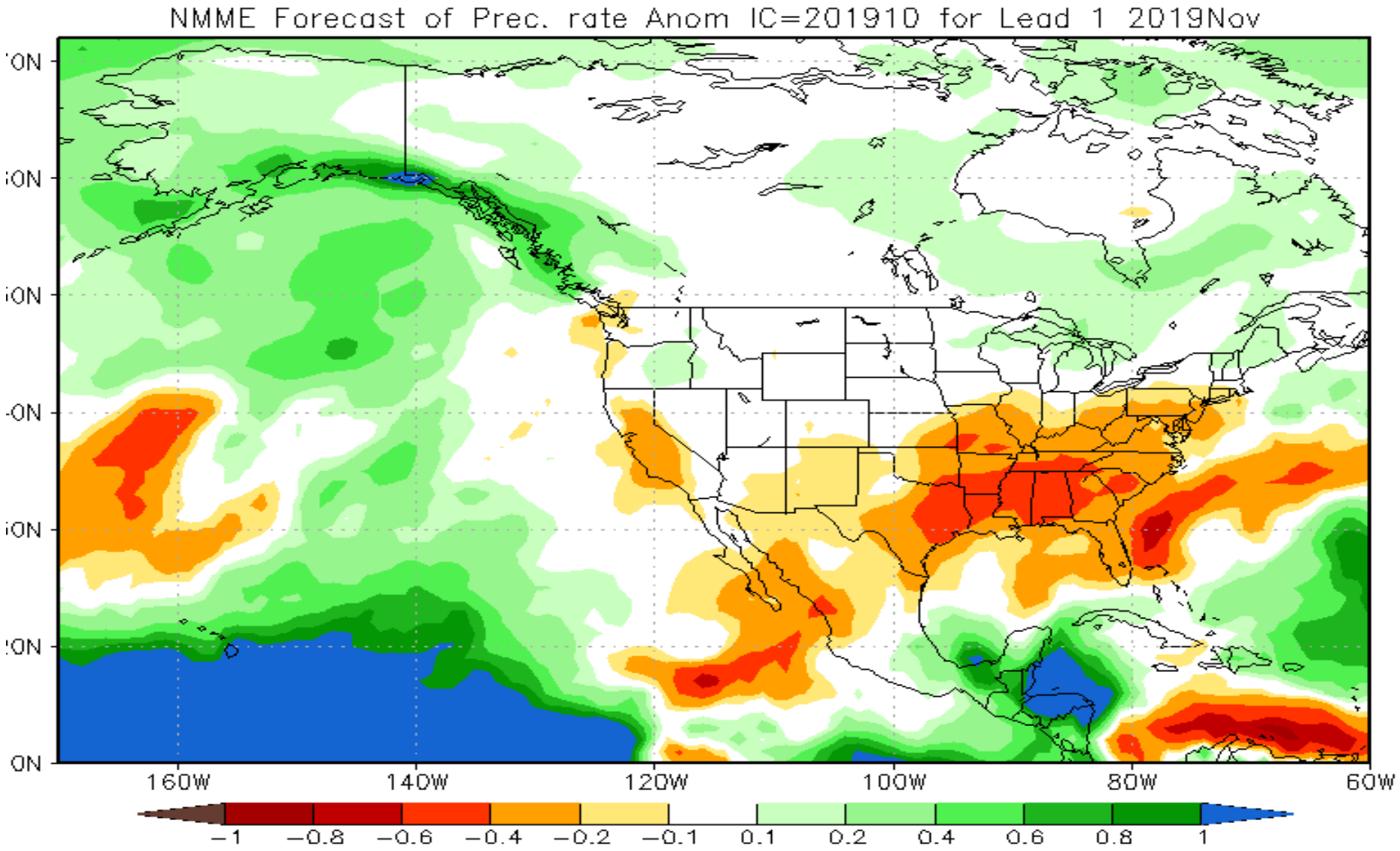
- Traditional El Niño



Modoki El Niño



NMME Model Precipitation Forecast
Green = Wetter Brown = Drier White = “Average”



NMME Model Precipitation Forecast
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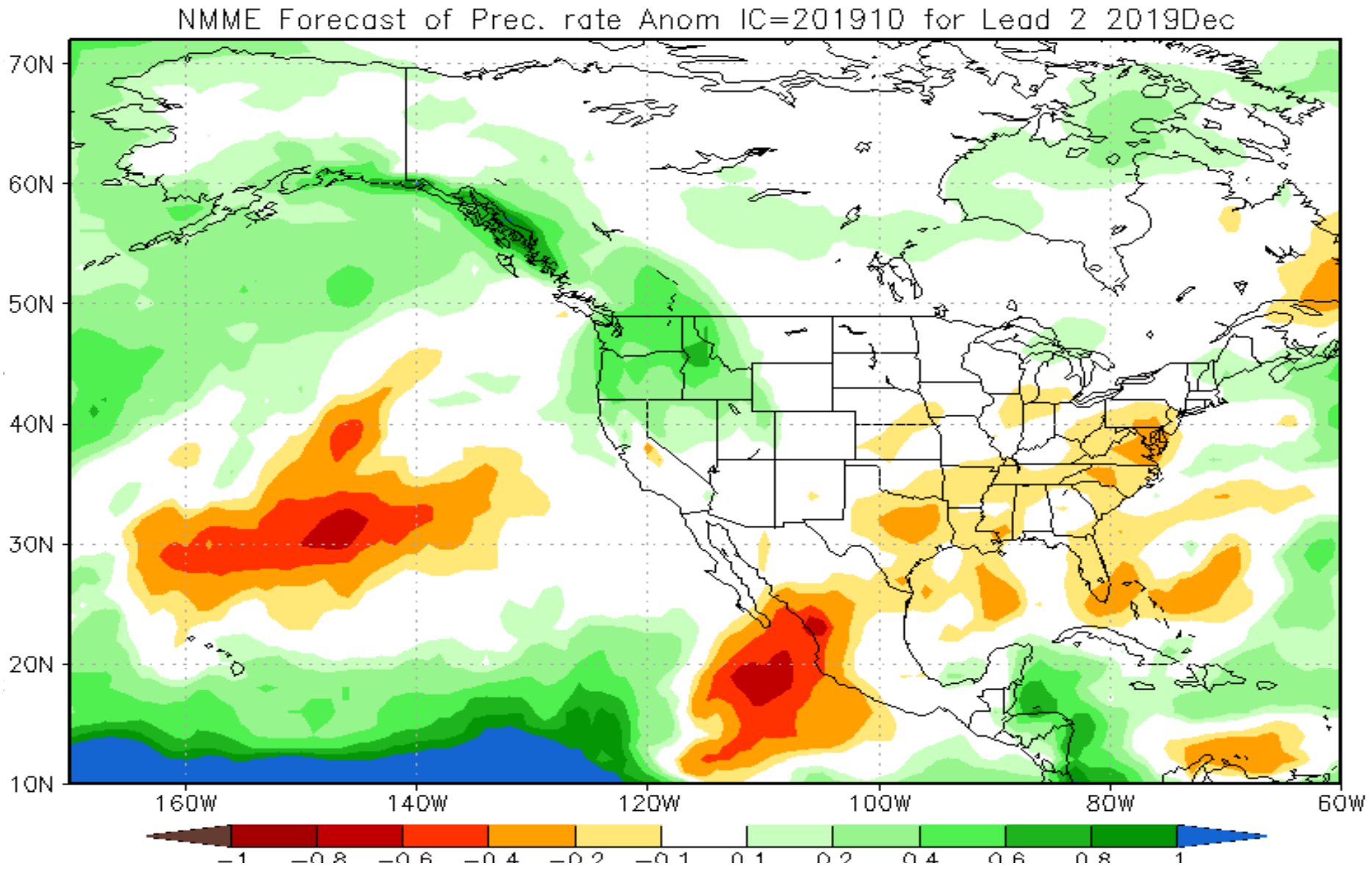
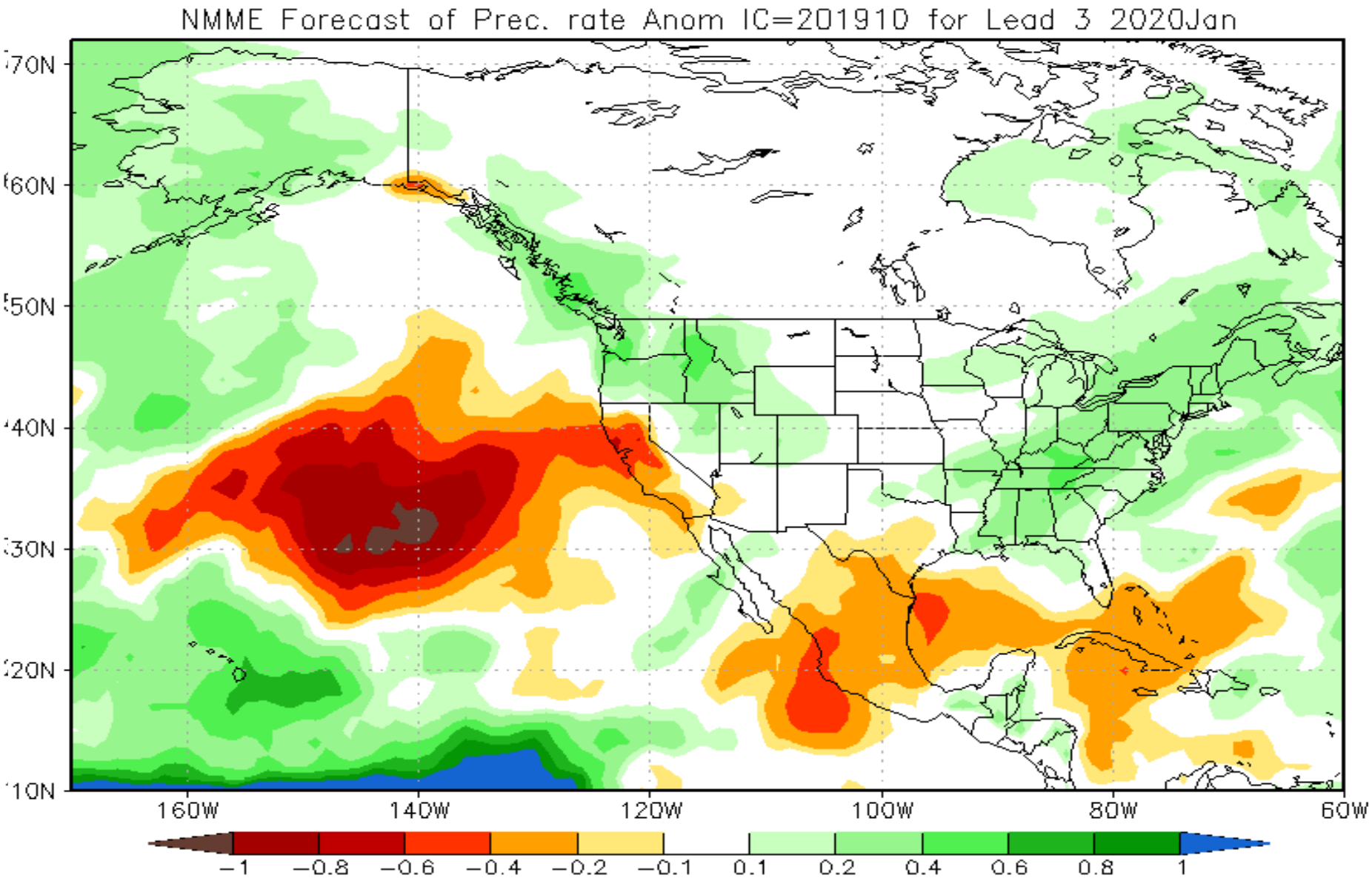


NMME Model Precipitation Forecast
Green = Wetter Brown = Drier White = “Average”



NMME Model Precipitation Forecast
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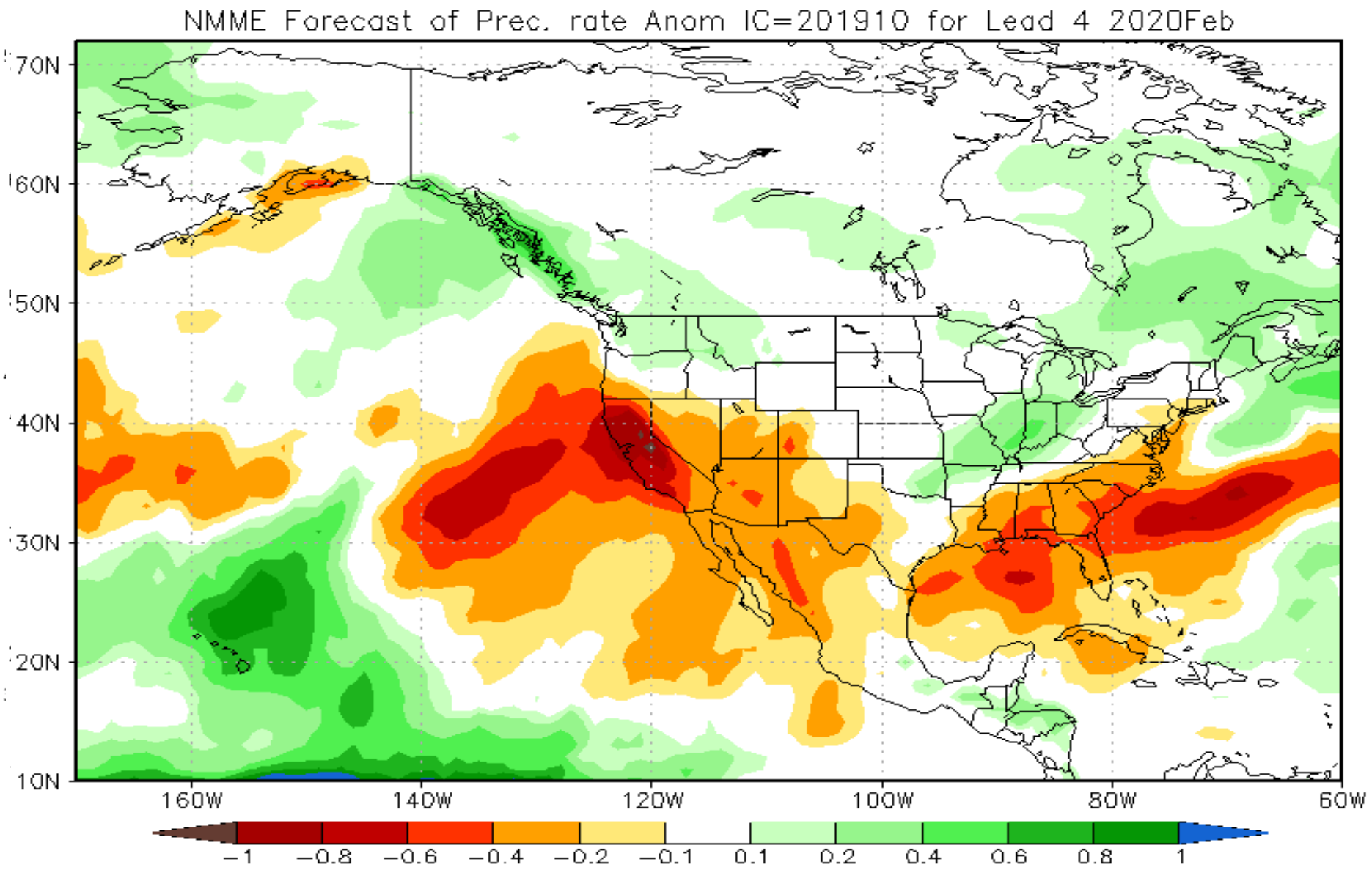

NMME Model Precipitation Forecast
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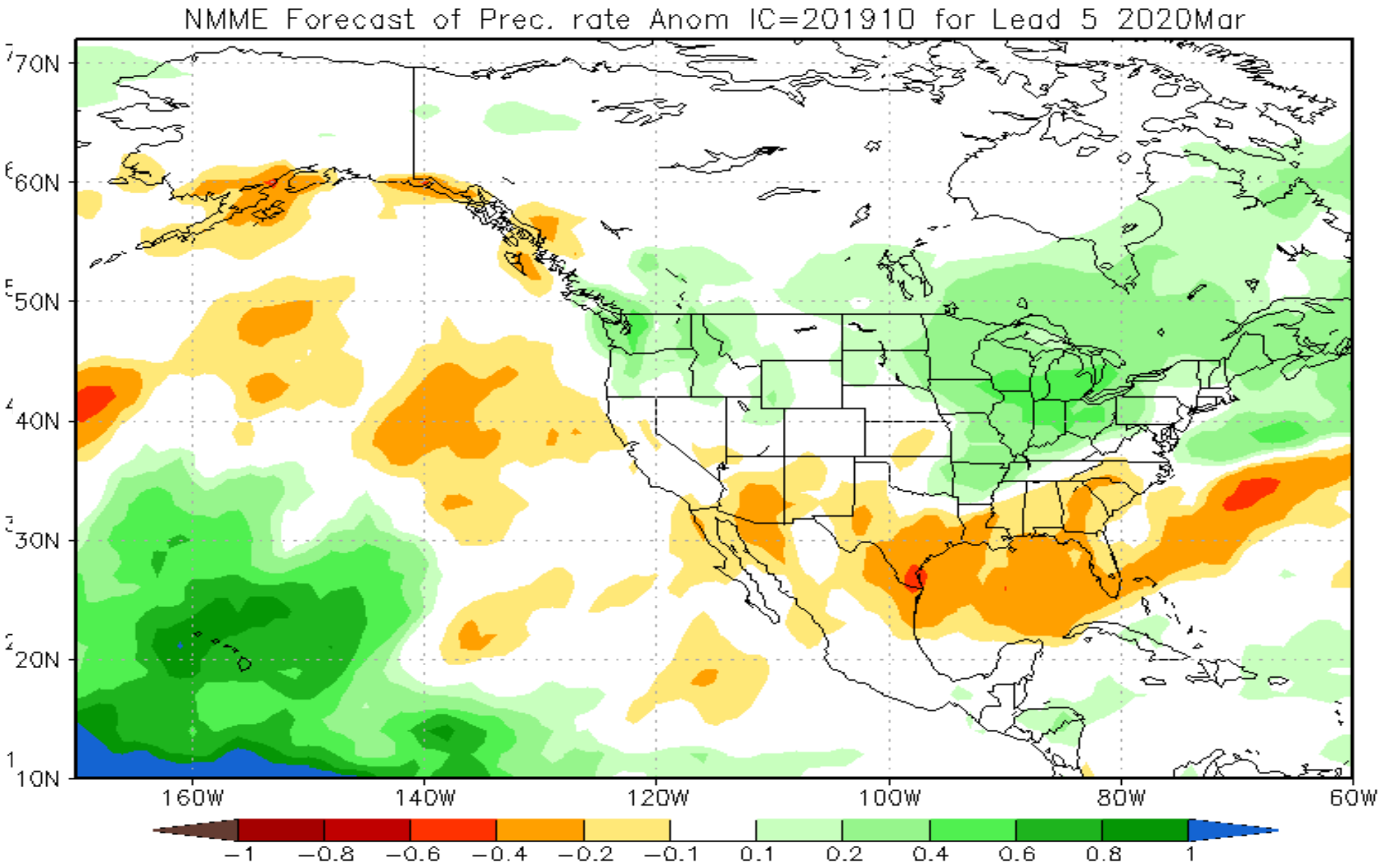

NMME Model Precipitation Forecast
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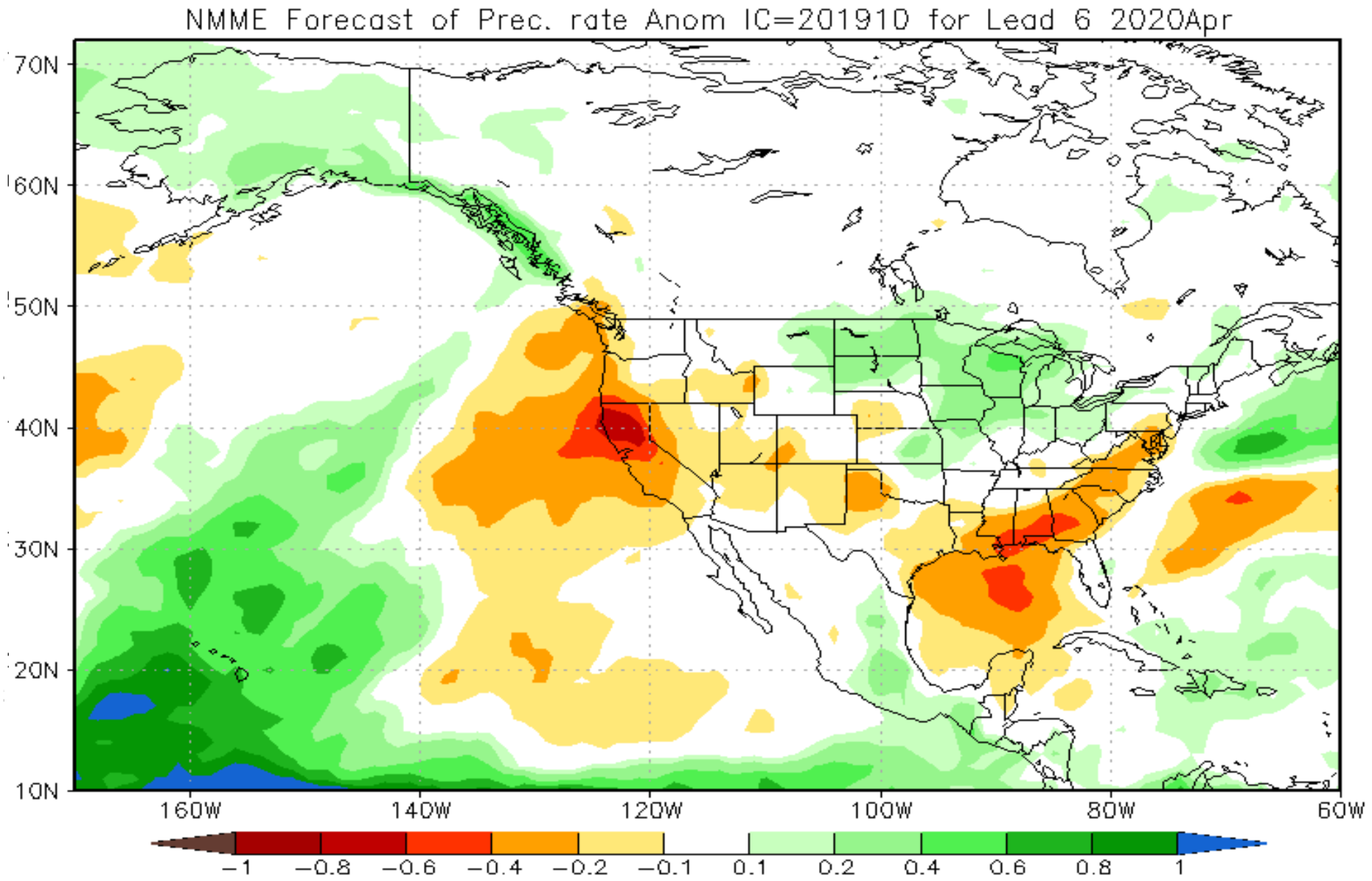
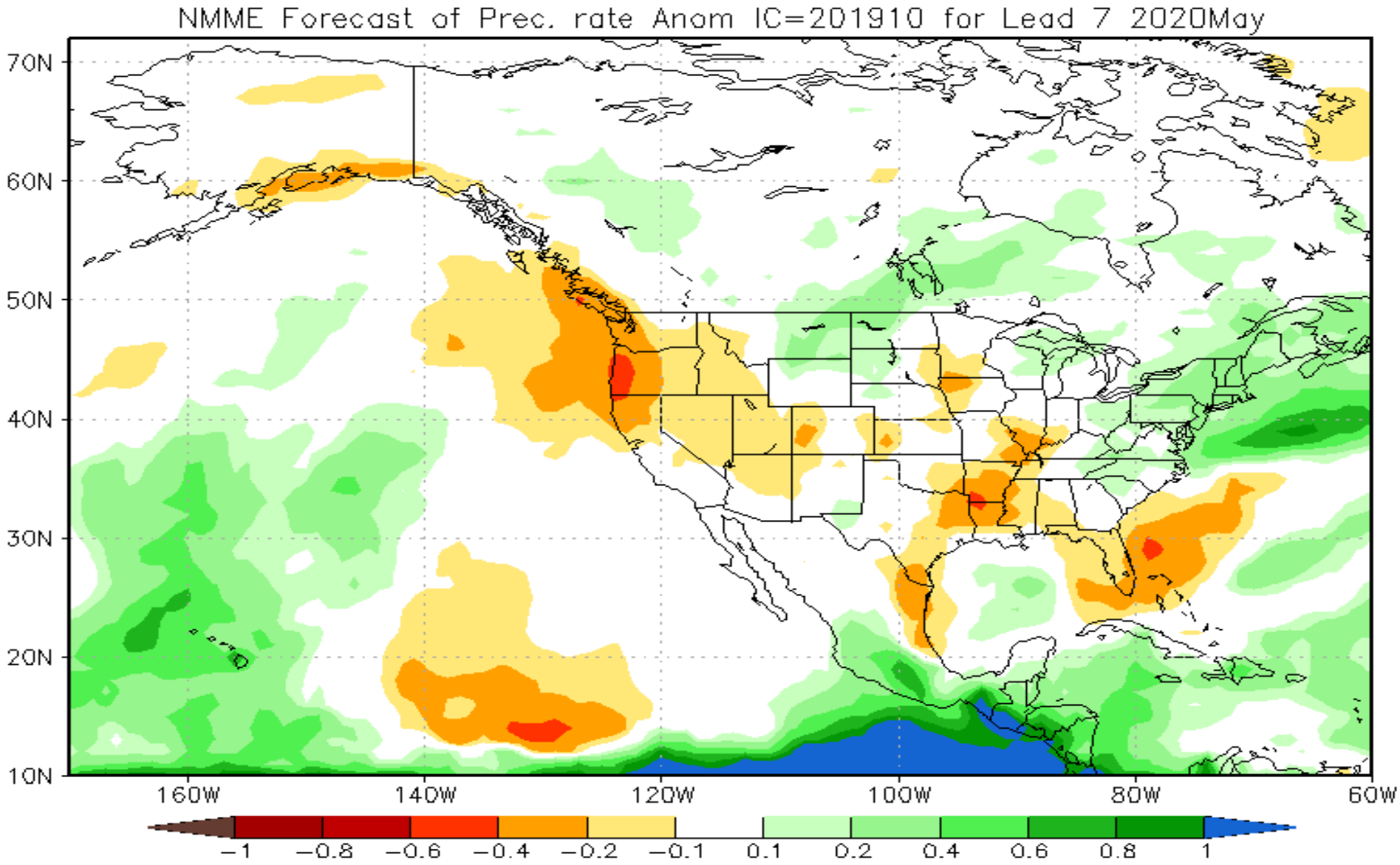
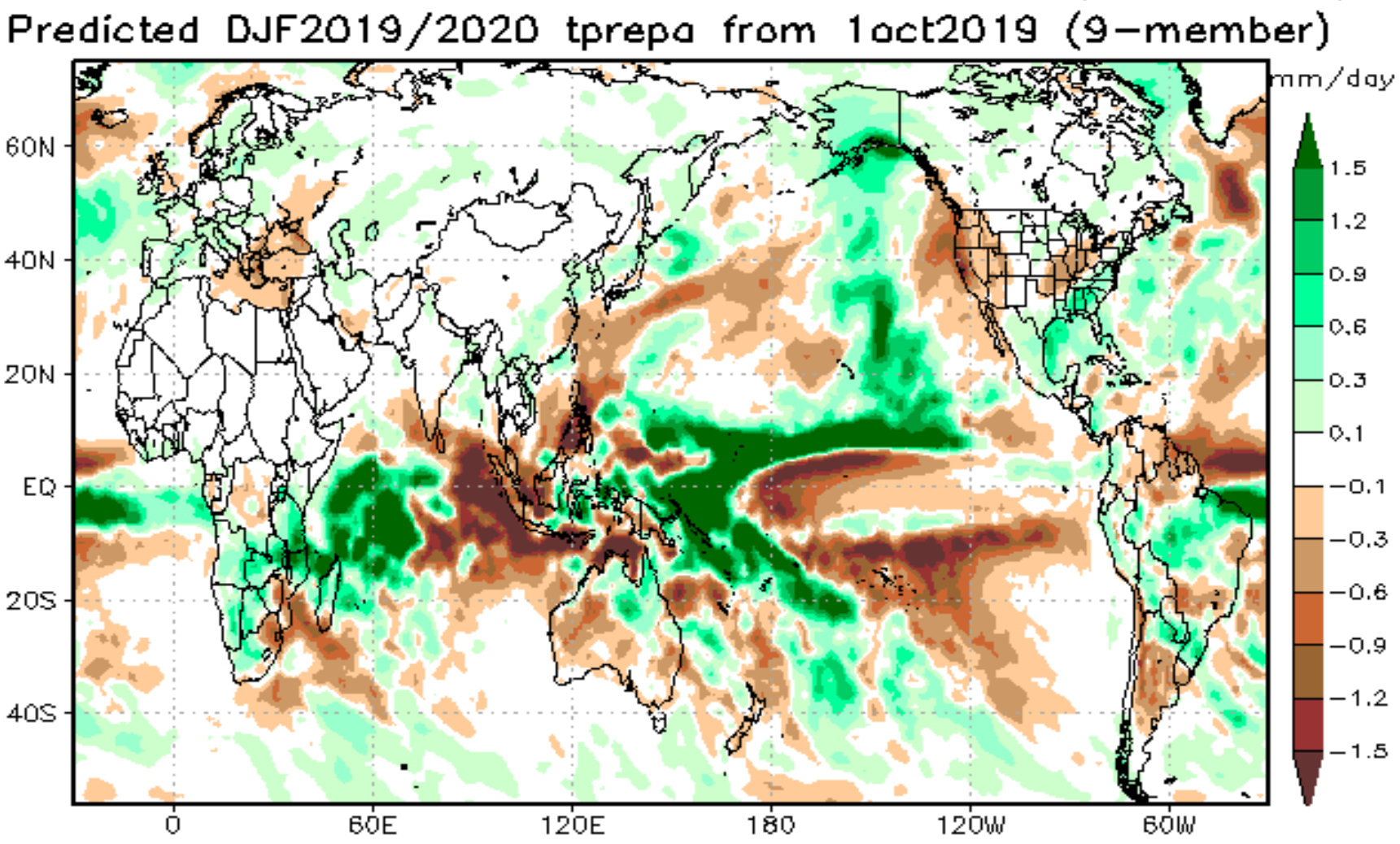


NMME Model Precipitation Forecast
Green = Wetter Brown = Drier White = “Average”



JAMSTEC Model Precipitation Forecast
Green = Wetter Brown = Drier White = “Average”



JAMSTEC Model Precipitation Forecast
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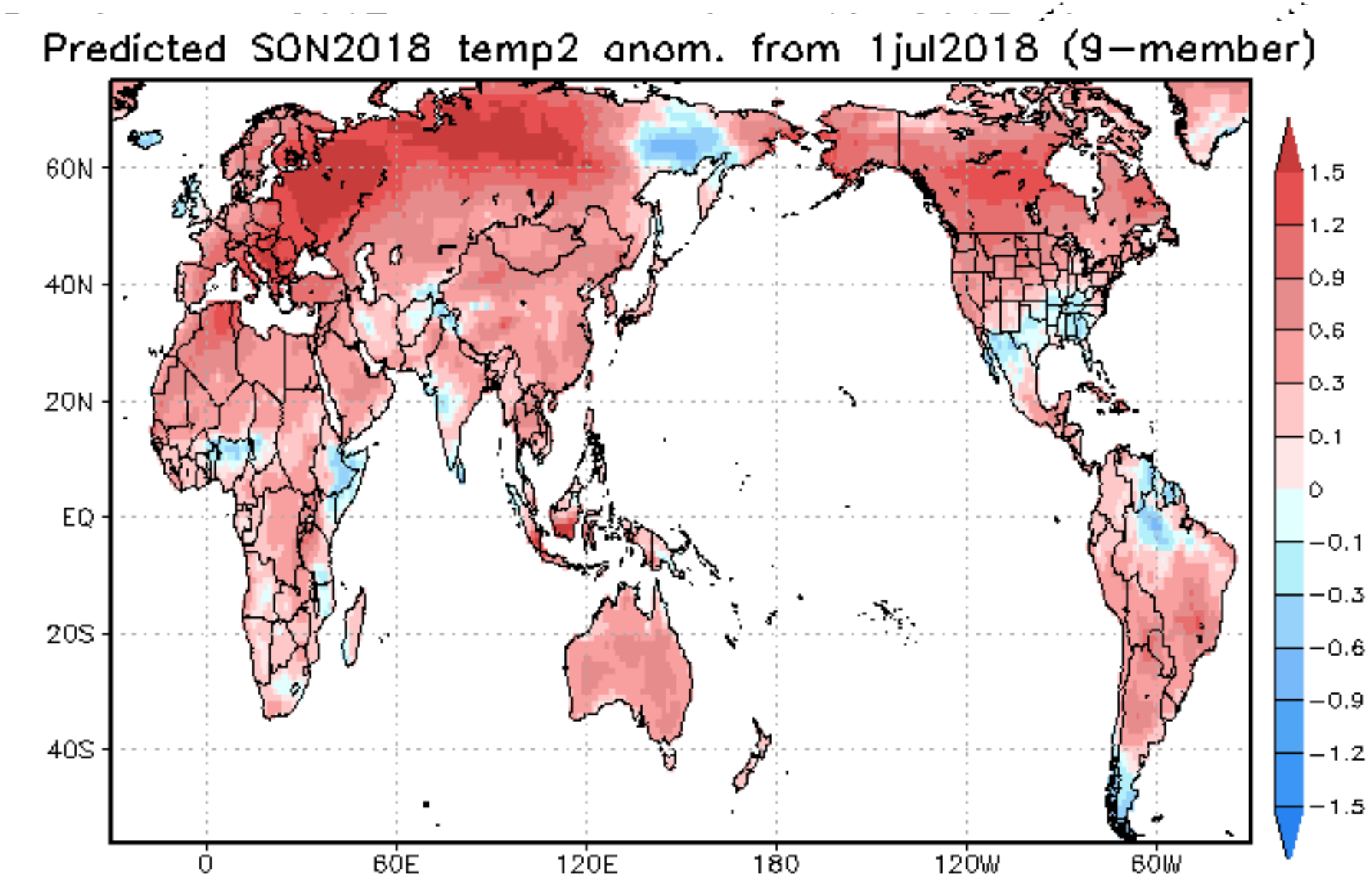

JAMSTEC Model Precipitation Forecast
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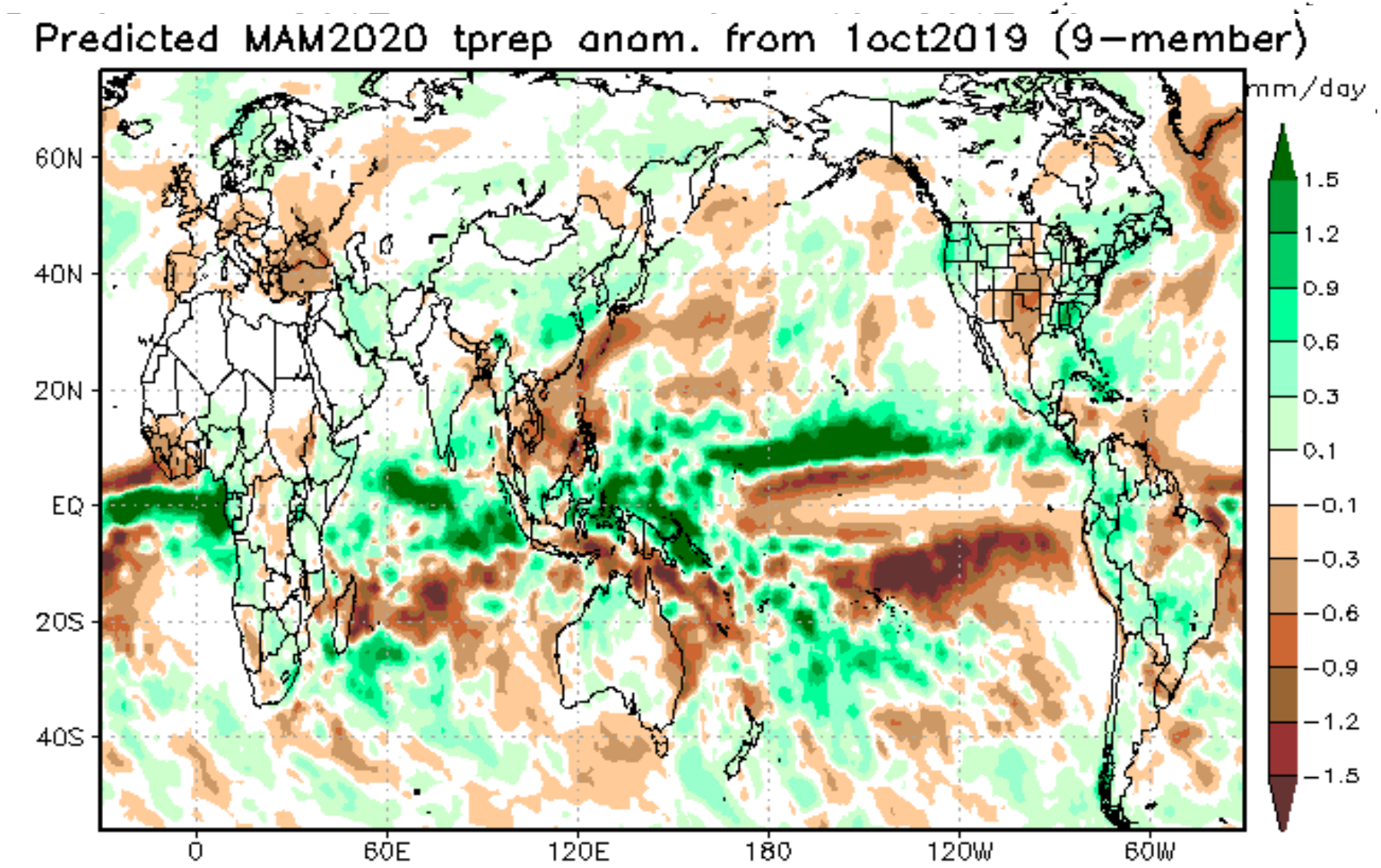

JAMSTEC Model Precipitation Forecast
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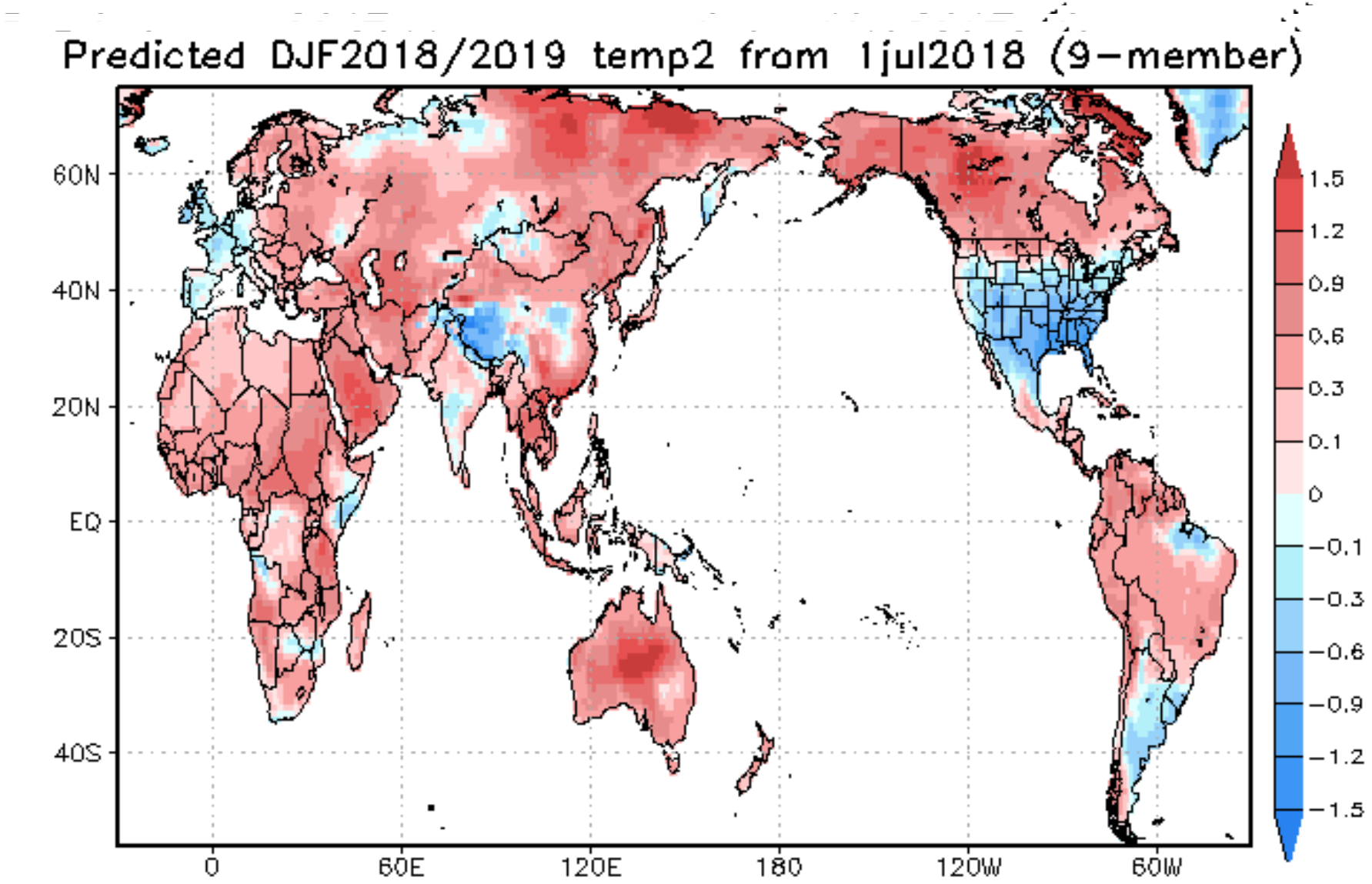

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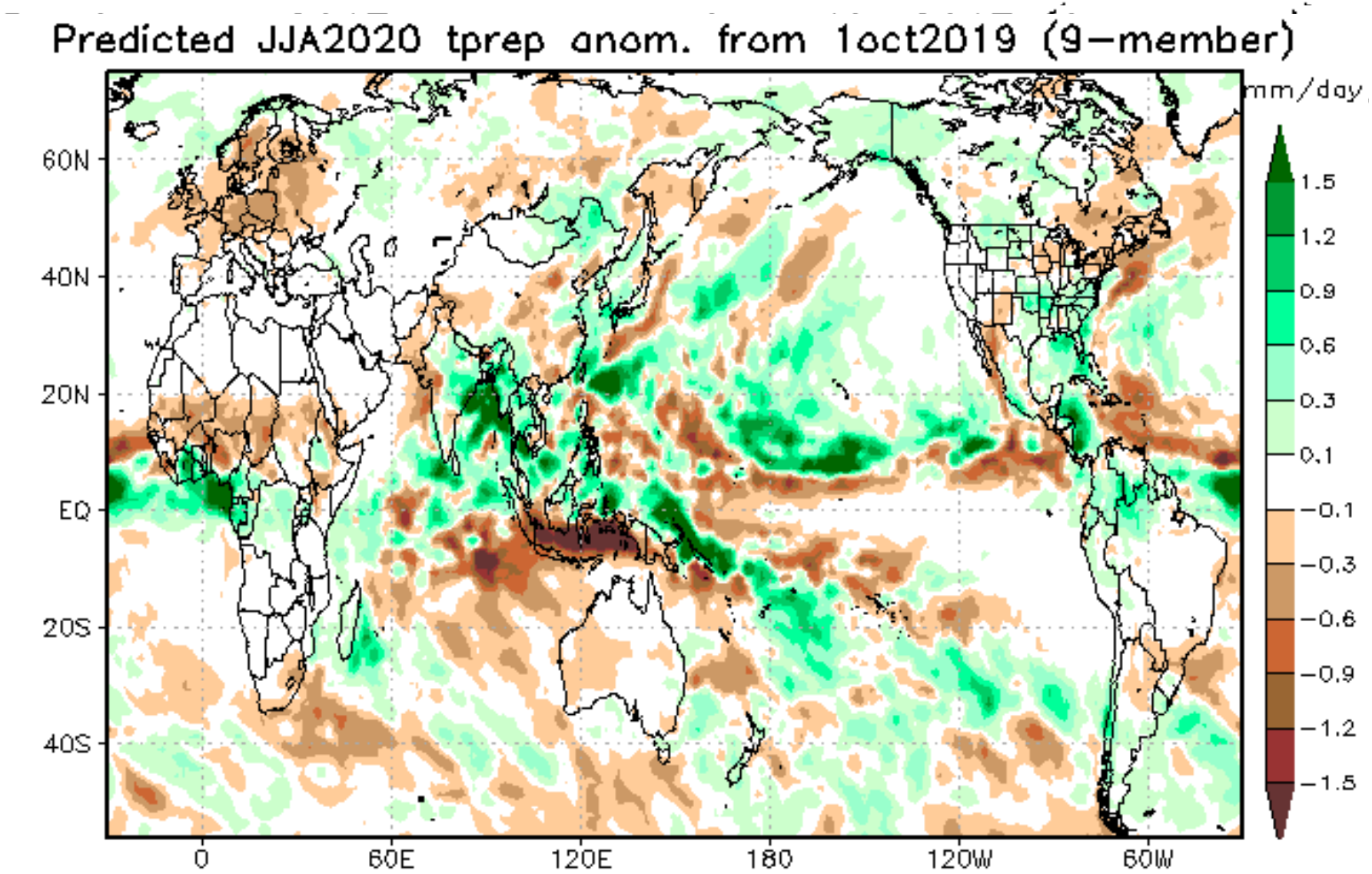

JAMSTEC Model Precipitation Forecast

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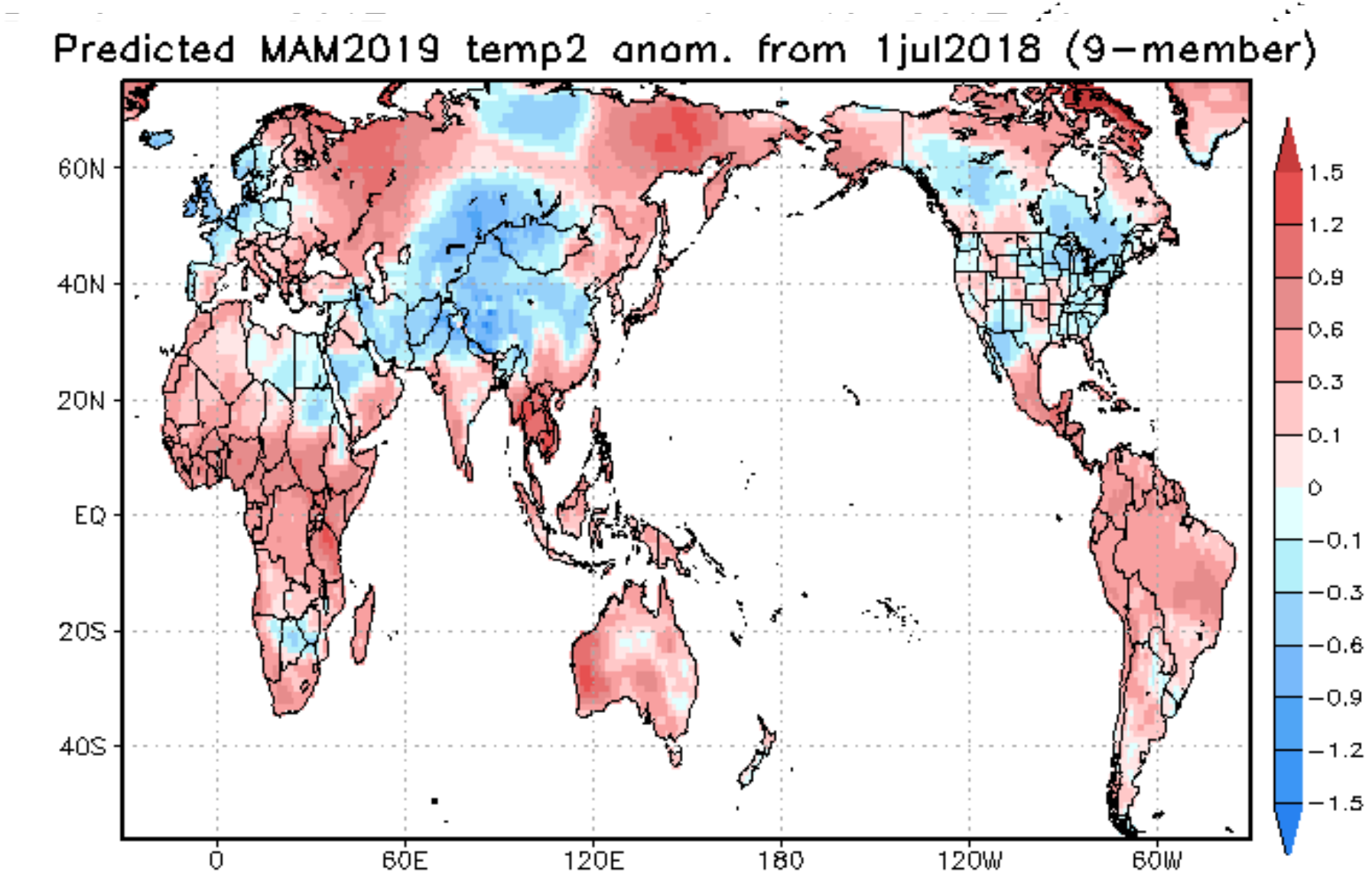
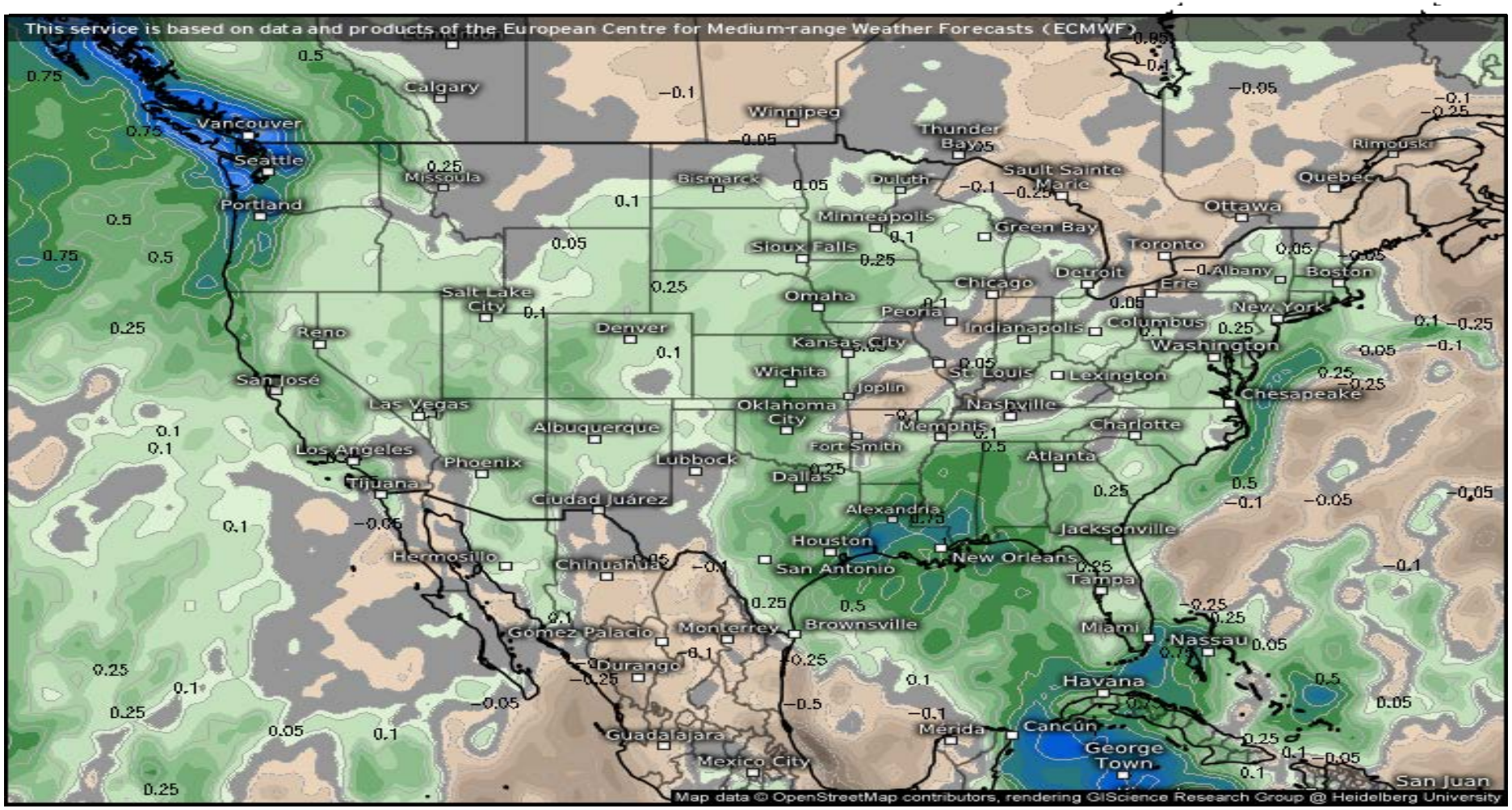


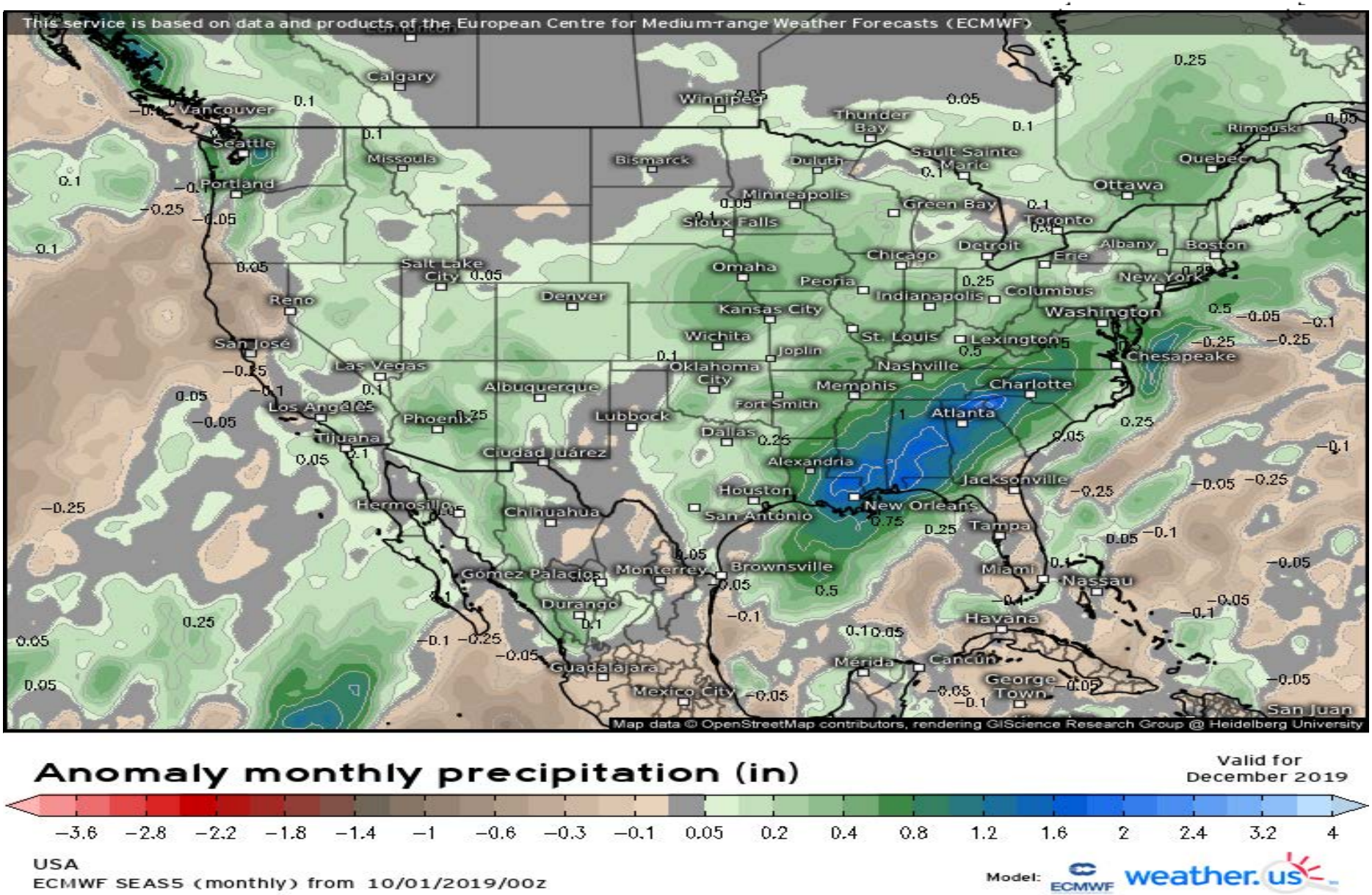
EURO Seasonal Model Precipitation Forecast

Green/Blue = Wetter Yellow/Brown = Drier White = “Average”



EURO Seasonal Model Precipitation Forecast

Green/Blue = Wetter Yellow/Brown = Drier White = “Average”



EURO Seasonal Model Precipitation Forecast
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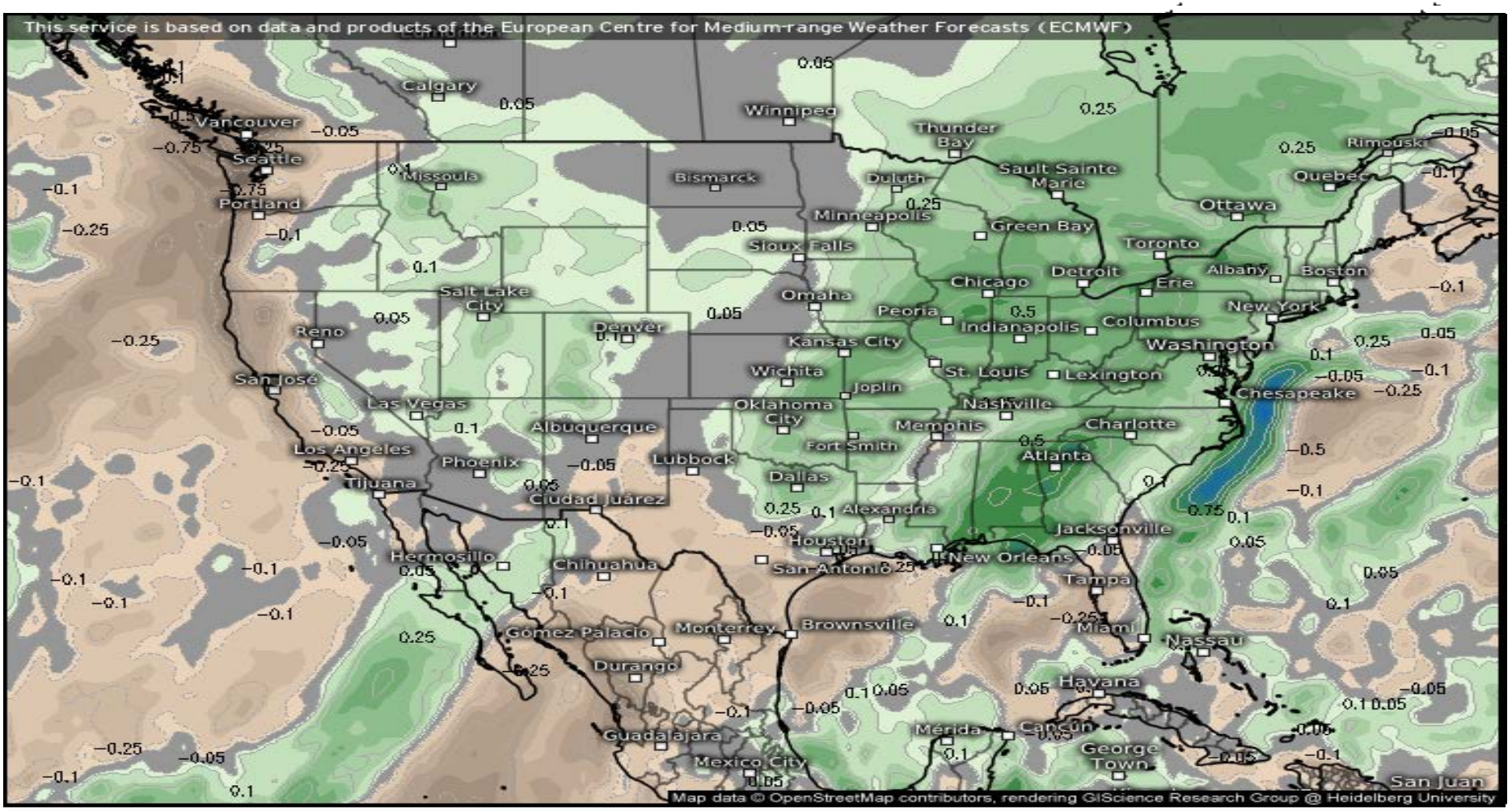
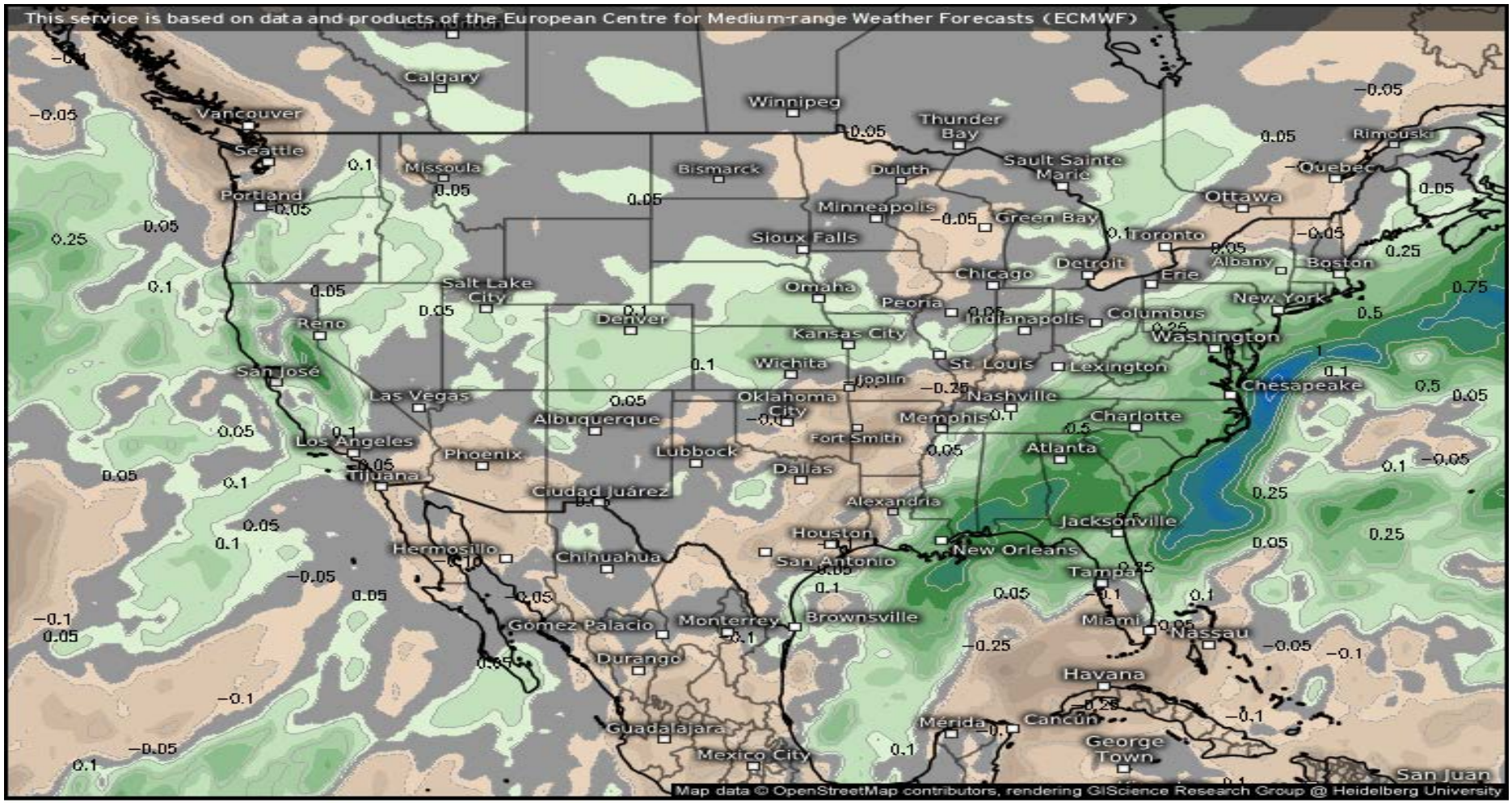


EURO Seasonal Model Precipitation Forecast

Green/Blue = Wetter Yellow/Brown = Drier White = “Average”



Anomaly monthly precipitation (in)

Valid for February 2020

−3.6 −2.8 −2.2 −1.8 −1.4 −1 −0.6 −0.3 −0.1 0.05 0.2 0.4 0.8 1.2 1.6 2 2.4 3.2 4

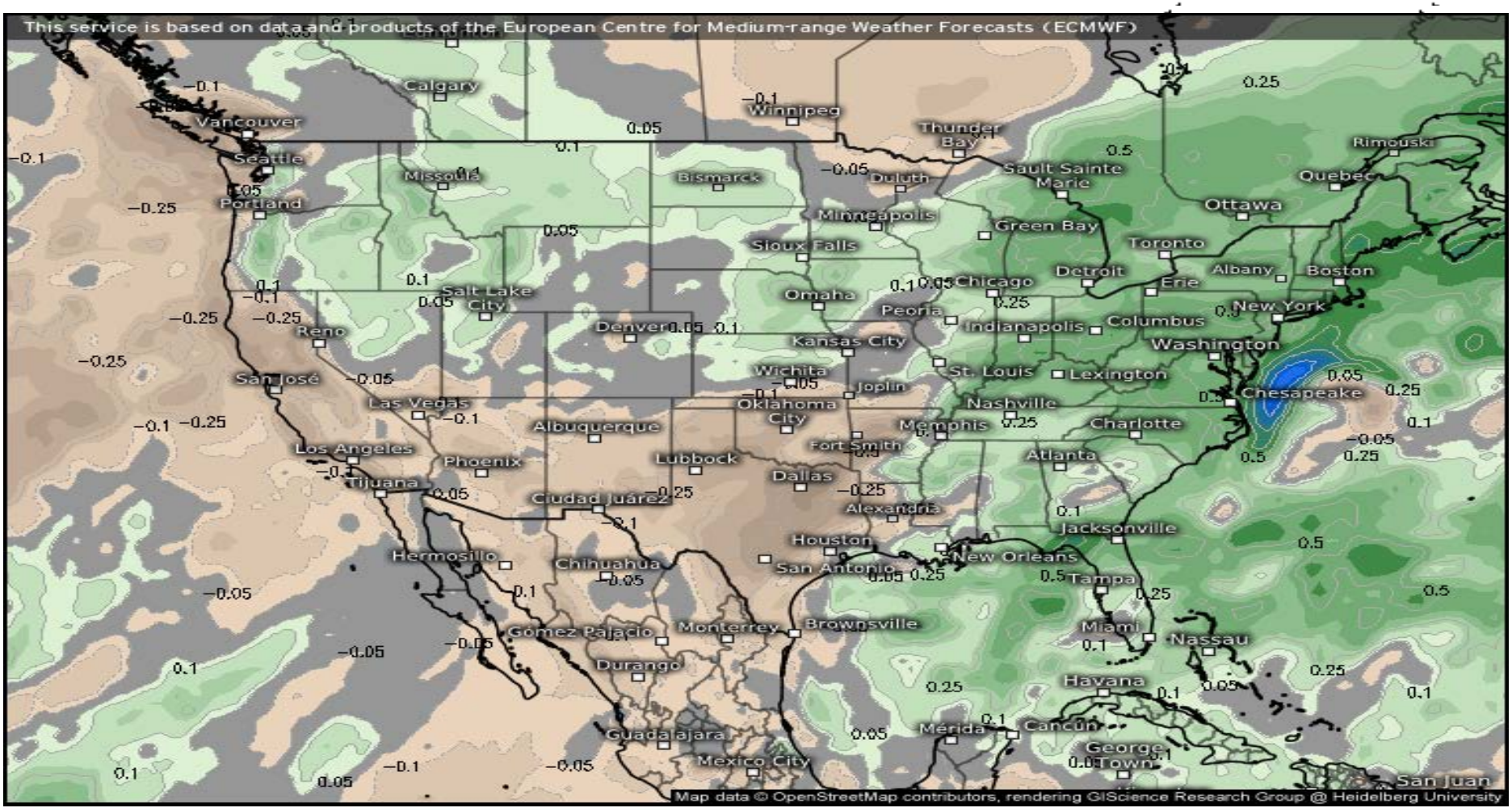
USA

ECMWF SEAS5 (monthly) from 10/01/2019/00z

Model: ECMWF weather.us

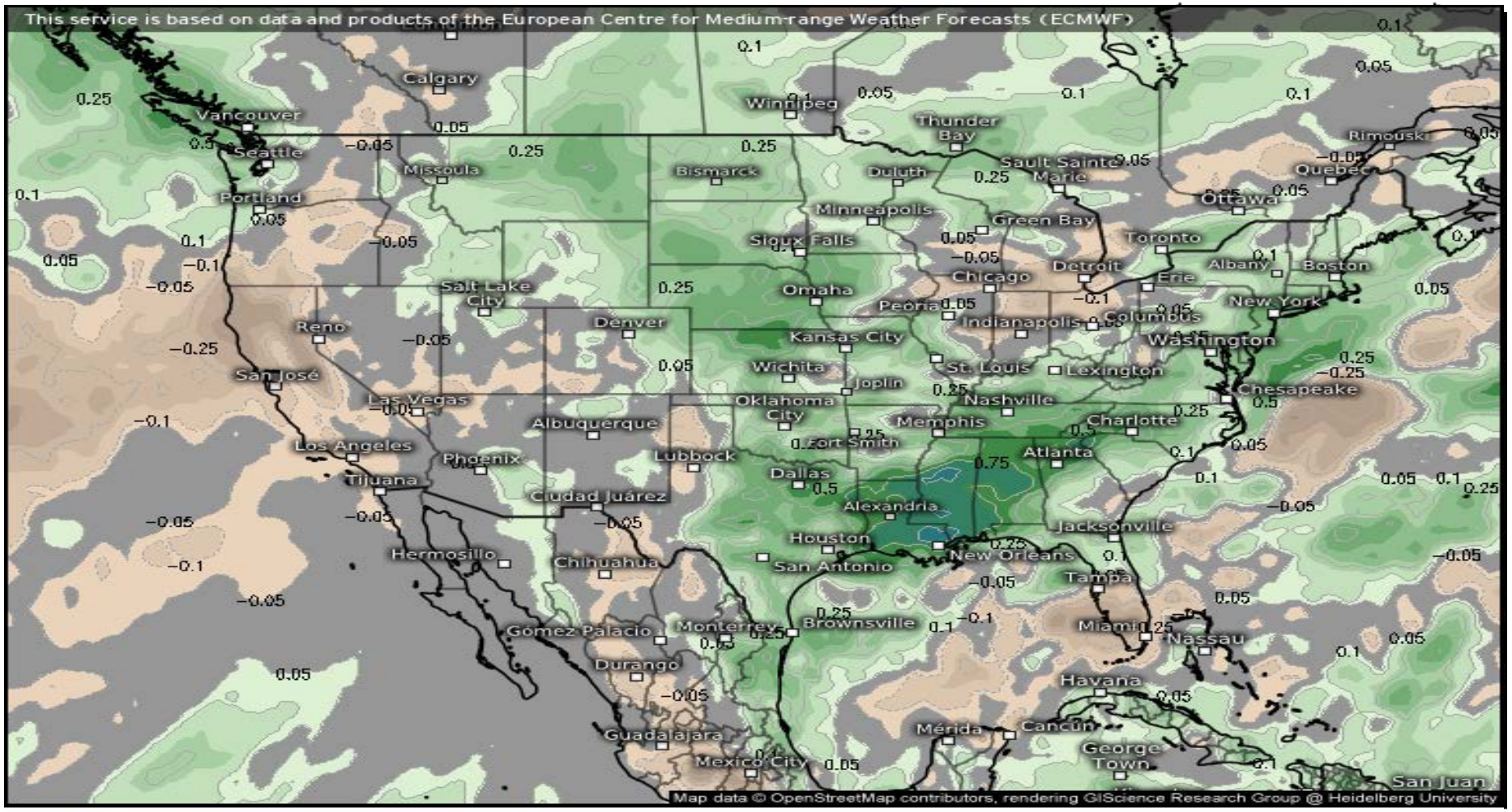
EURO Seasonal Model Precipitation Forecast

Green/Blue = Wetter Yellow/Brown = Drier White = “Average”



EURO Seasonal Model Precipitation Forecast

Green/Blue = Wetter Yellow/Brown = Drier White = "Average"



Anomaly monthly precipitation (in)

Valid for April 2020

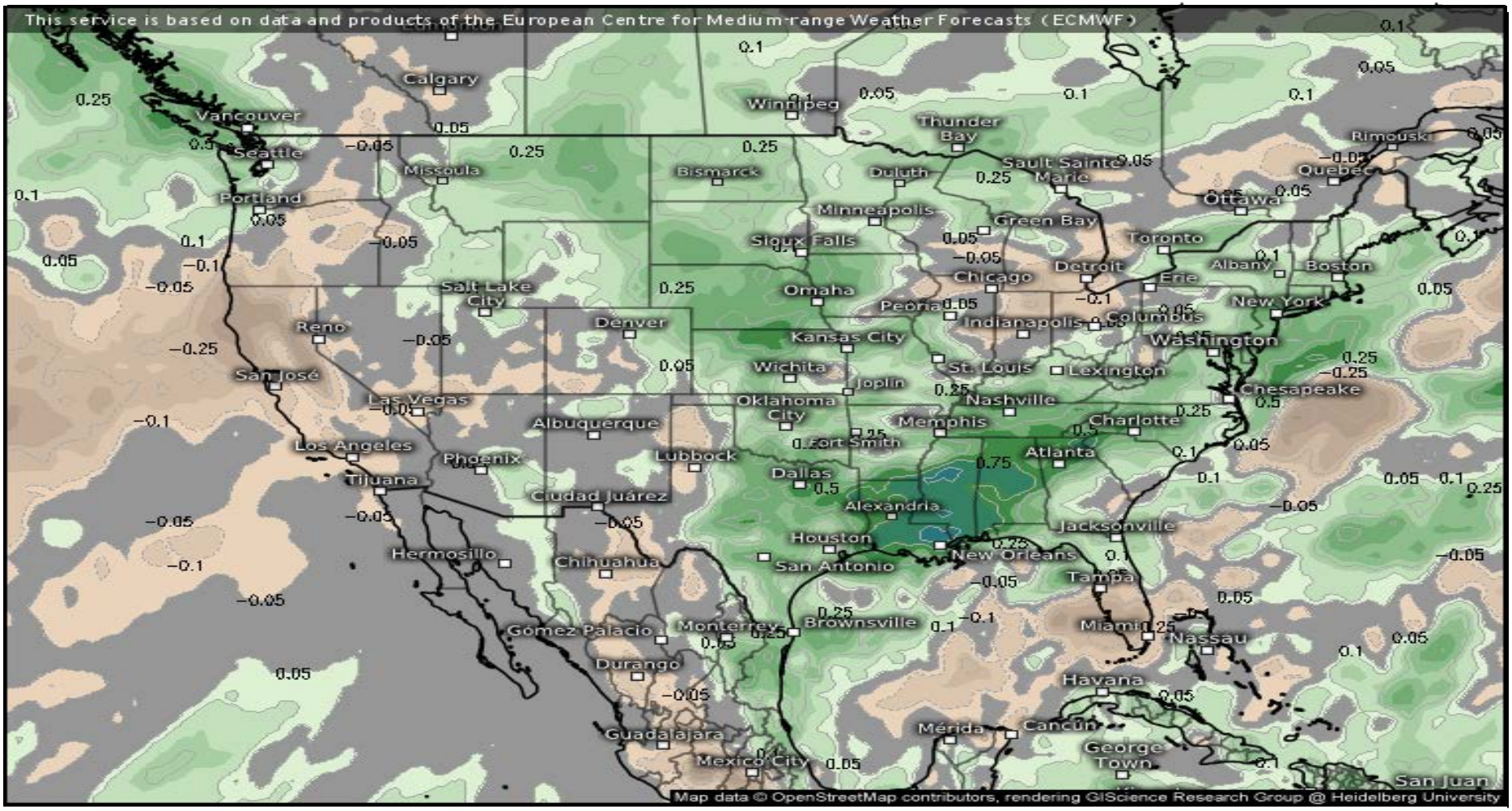
−3.6 −2.8 −2.2 −1.8 −1.4 −1 −0.6 −0.3 −0.1 0.05 0.2 0.4 0.8 1.2 1.6 2 2.4 3.2 4

USA

ECMWF SEAS5 (monthly) from 10/01/2019/00z

Model: ECMWF weather.us

EURO Seasonal Model Precipitation Forecast
Green/Blue = Wetter Yellow/Brown = Drier White = "Average"



Anomaly monthly precipitation (in)

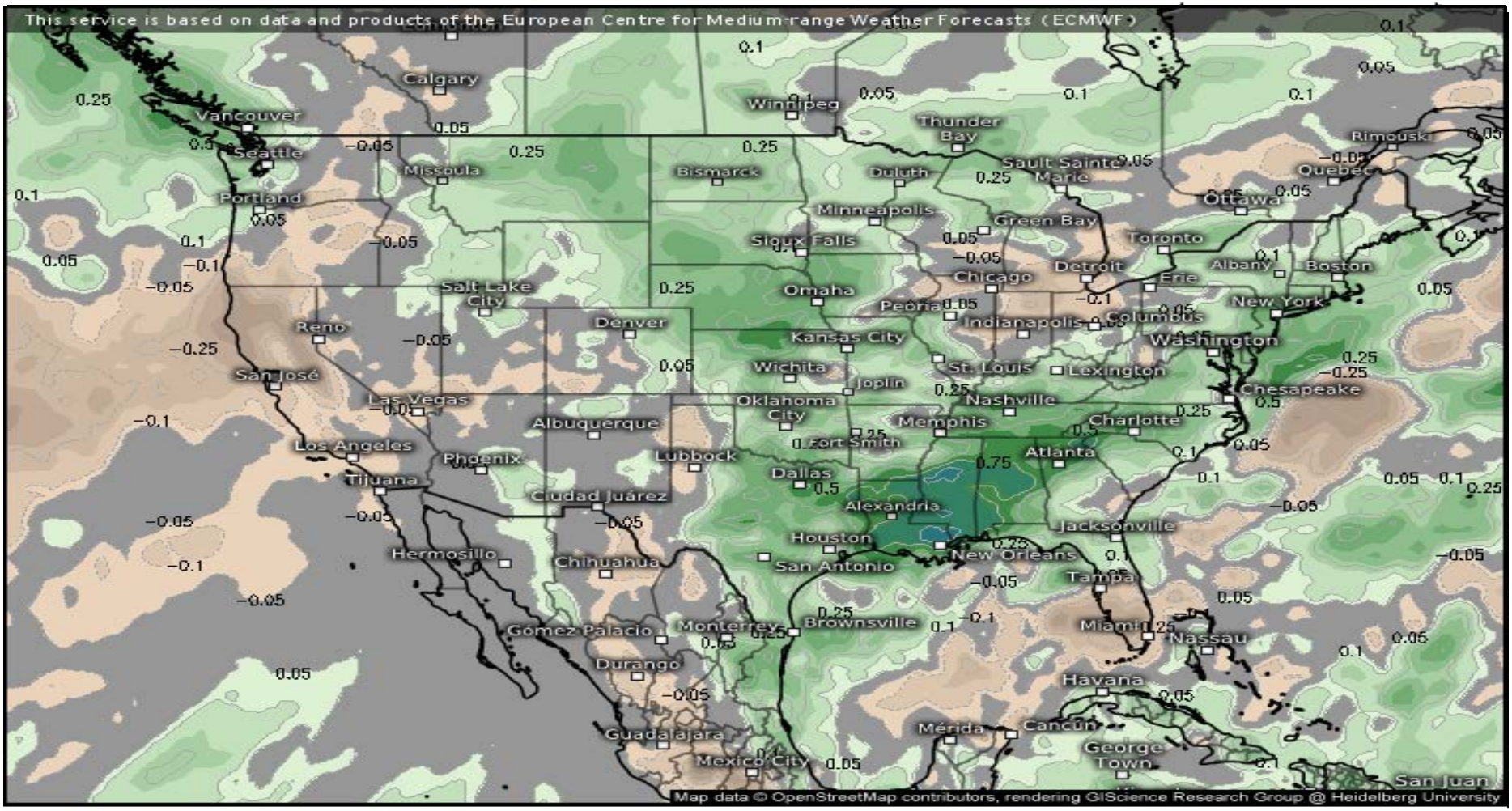
Valid for April 2020

−3.6 −2.8 −2.2 −1.8 −1.4 −1 −0.6 −0.3 −0.1 0.05 0.2 0.4 0.8 1.2 1.6 2 2.4 3.2 4

USA
ECMWF SEAS5 (monthly) from 10/01/2019/00z

Model: ECMWF weather.us

EURO Seasonal Model Precipitation Forecast
Green/Blue = Wetter Yellow/Brown = Drier White = "Average"



Anomaly monthly precipitation (in)

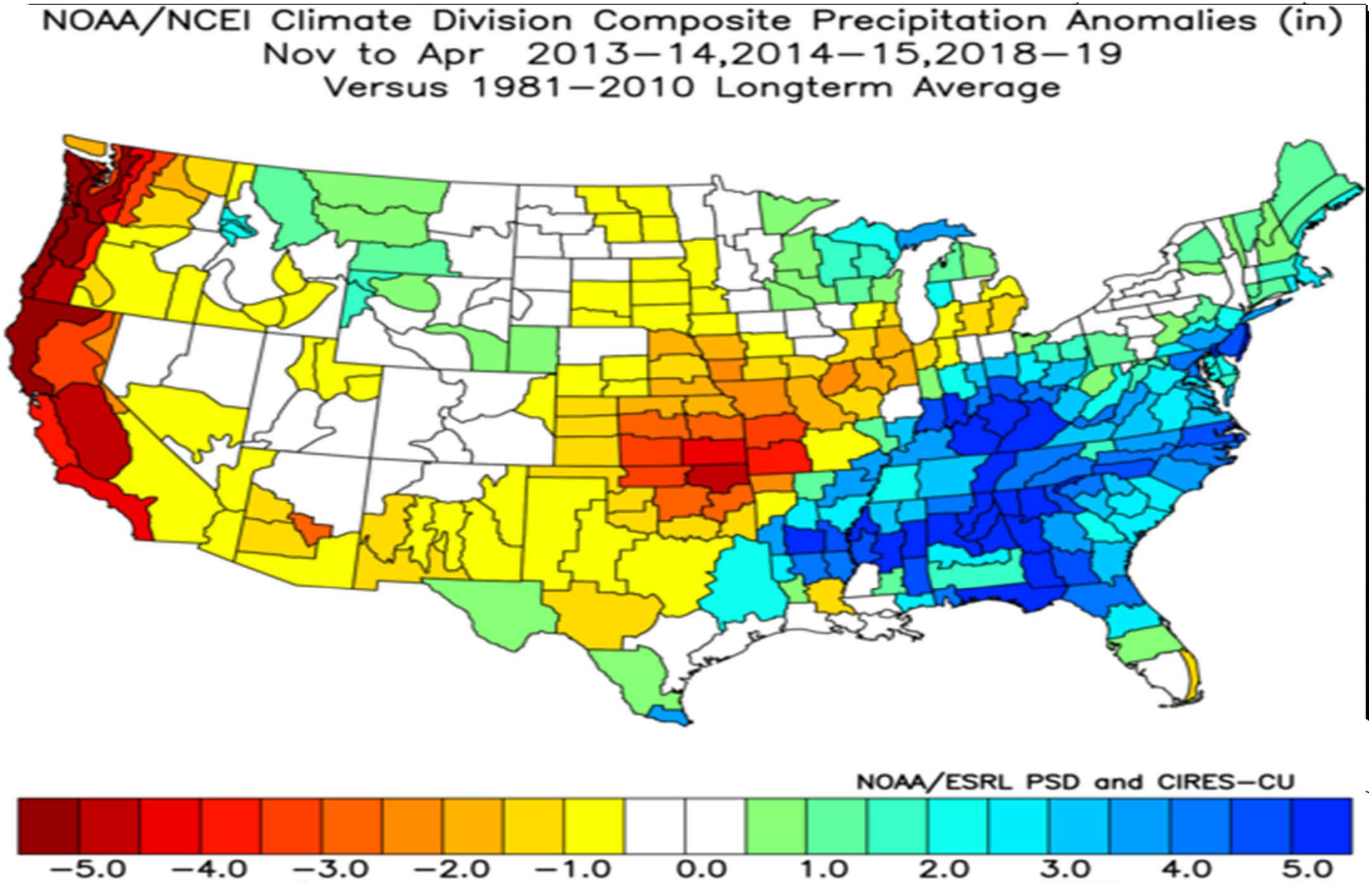
Valid for April 2020

−3.6 −2.8 −2.2 −1.8 −1.4 −1 −0.6 −0.3 −0.1 0.05 0.2 0.4 0.8 1.2 1.6 2 2.4 3.2 4

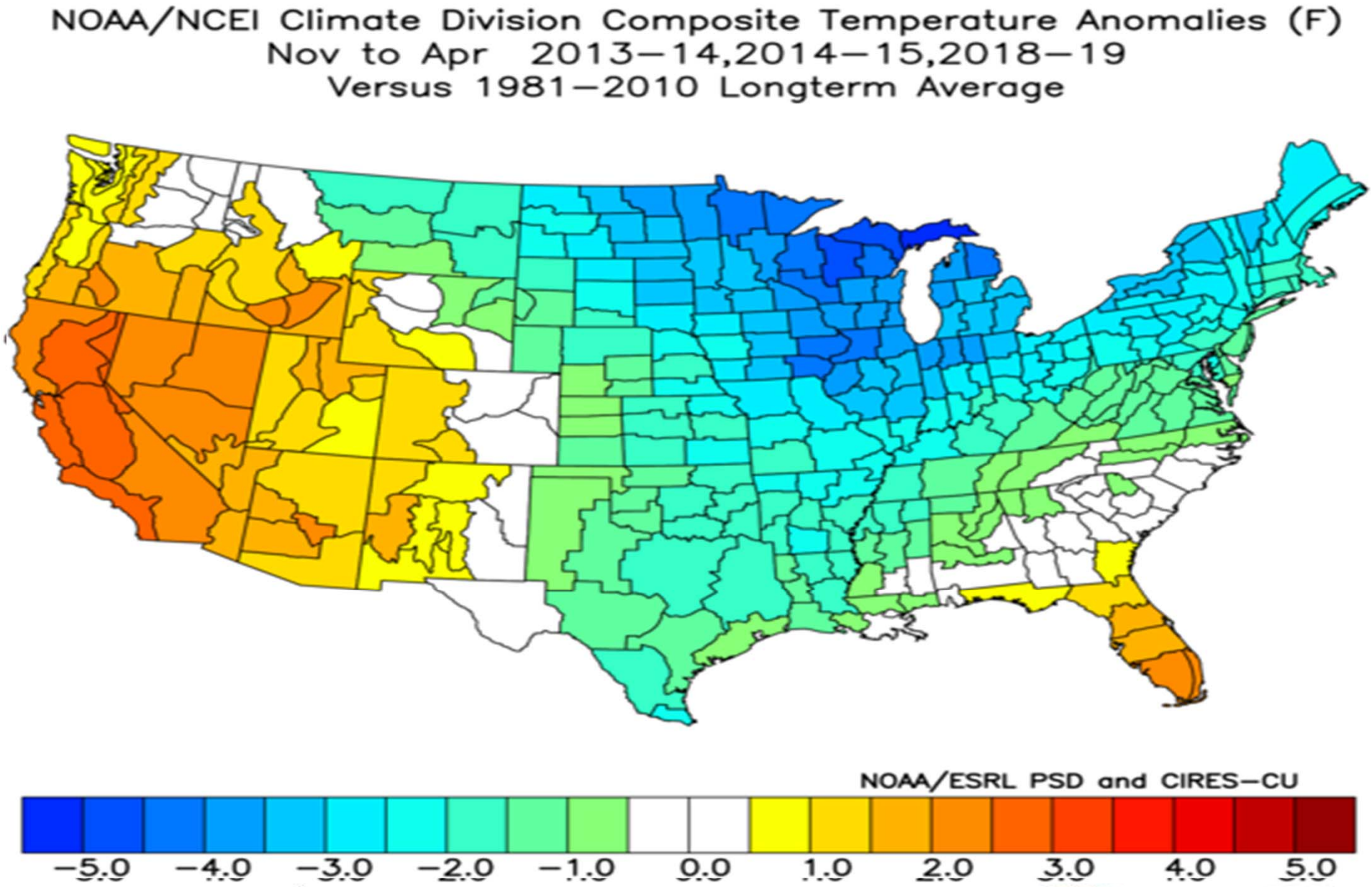
USA
ECMWF SEAS5 (monthly) from 10/01/2019/00z

Model: ECMWF weather.us

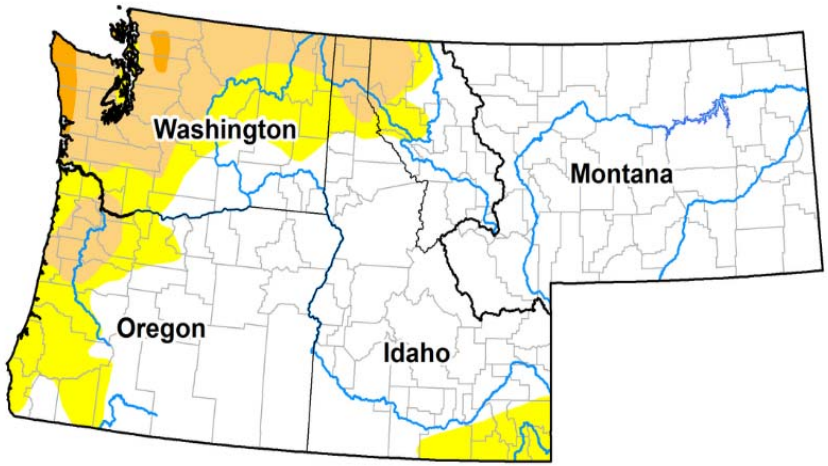
Potential Analog Years Precipitation Anomalies



Potential Analog Years Temperature Anomalies

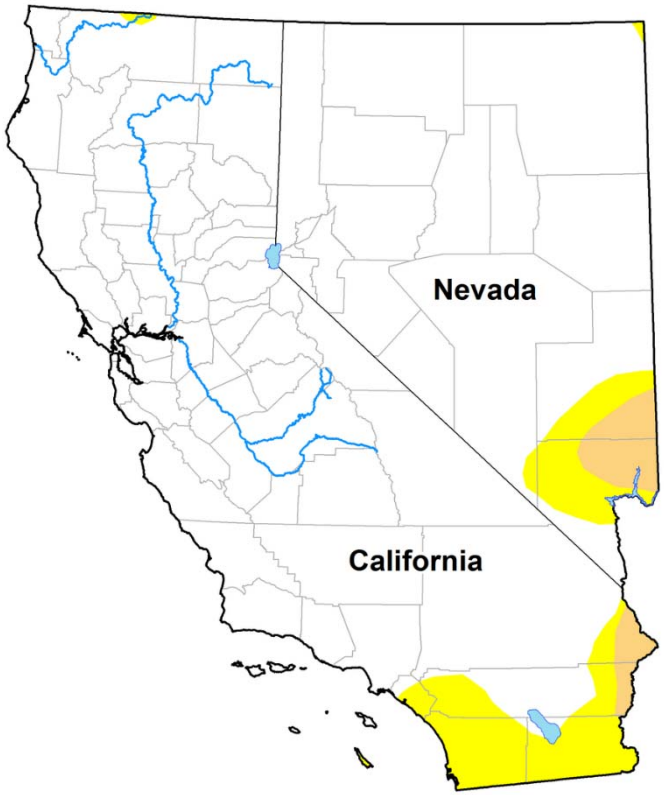


Pacific Northwest Regional Outlook



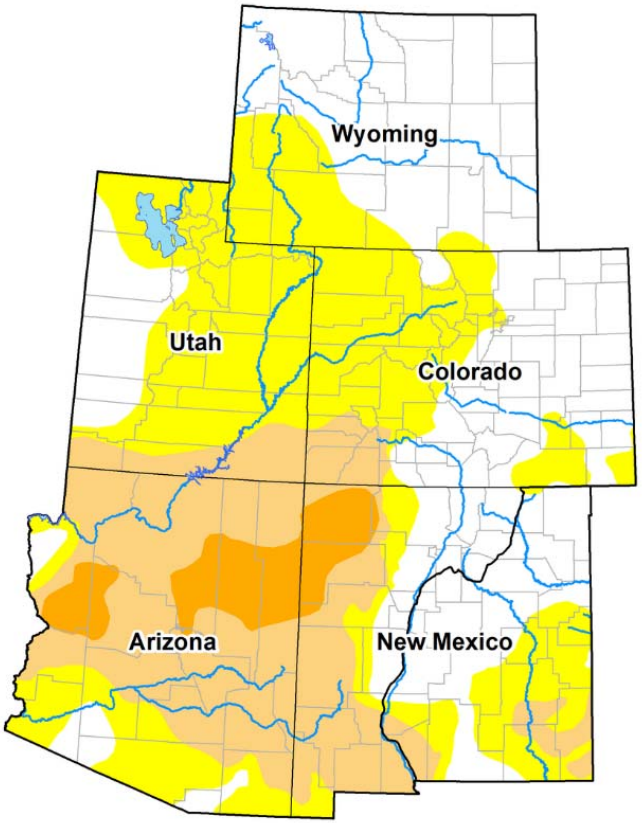
Drought currently an issue, especially northwest…and could worsen according to models and analogs. Dry signal isn’t strong for a prolonged stretch, but worth protecting against.

California/Nevada Outlook



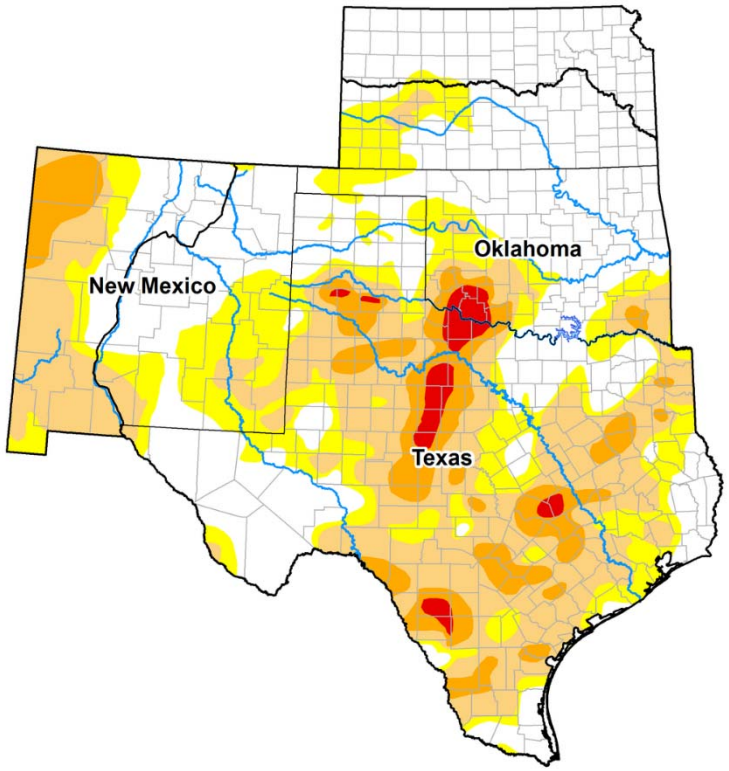
Drought not an issue at this time. However, various models show the potential for the wetter than average at times, and much drier than average at times. The driest stretch could be Jan/Feb per models. Esp. if weak Modoki occurs…

Four Corners Regional Outlook



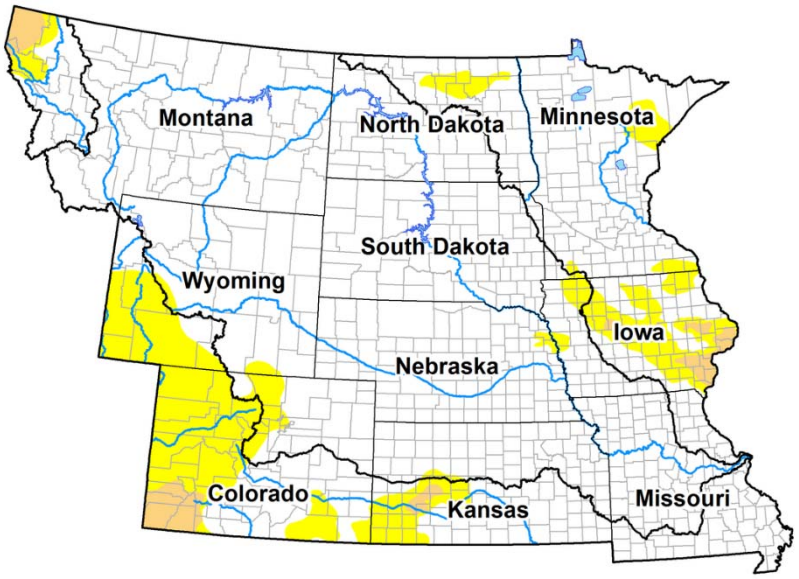
Drought continues to expand due to monsoon season failure. May continue to worsen through the fall, before getting better through the winter and spring of 2020.

Southern Plains Regional Outlook



Drought has worsened in New Mexico and parts of Texas Panhandle. Drought has eased considerably farther east. Models optimistic for continued relief, especially east per Modoki. Less west…

Plains/Midwest Regional Outlook



Most areas not experiencing ANY drought. Models do not show stout dry signal for most areas. In fact, the winter/spring could be quite active for most of this region…esp. Northern Plains and Missouri Valley.

My Thoughts…

- ENSO neutral or weak Modoki will continues...
- Analog years: 2004-05, 2013-14, 2014-15, 2018-19
- Analogs can still change a bit, so will continue to update accordingly...
- Combine analog info, model data, and data from RangeCalc to help manage interval decisions.

Weather
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