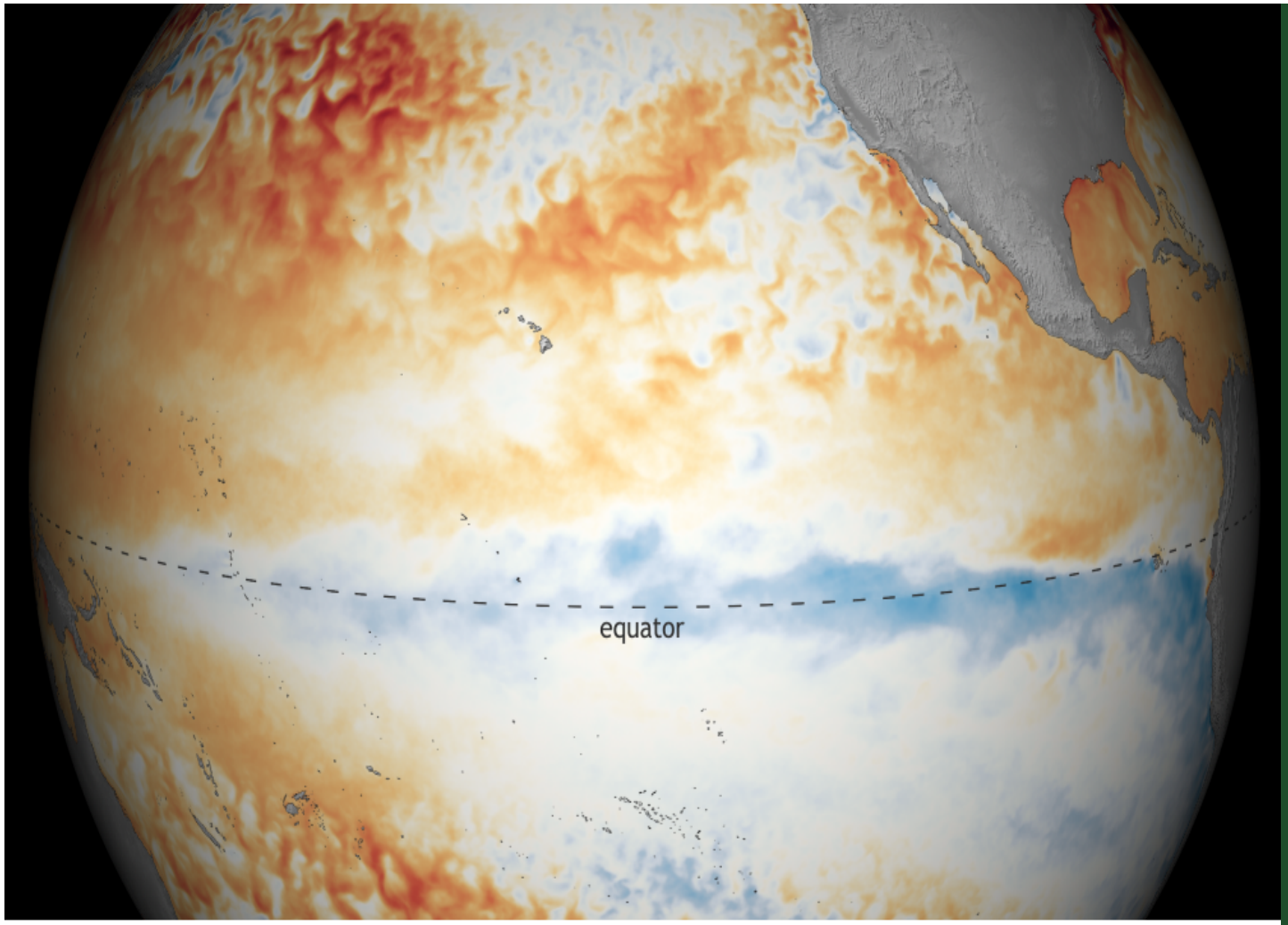
NIDIS Intermountain West – *Dec-Feb Winter Outlook*

Becky Bolinger

NIDIS IMW Drought Early Warning System Webinar
November 21, 2017

Colorado State University



October 2017
compared to 1981-2010

Difference from average temperature (°F)

-9 0 9

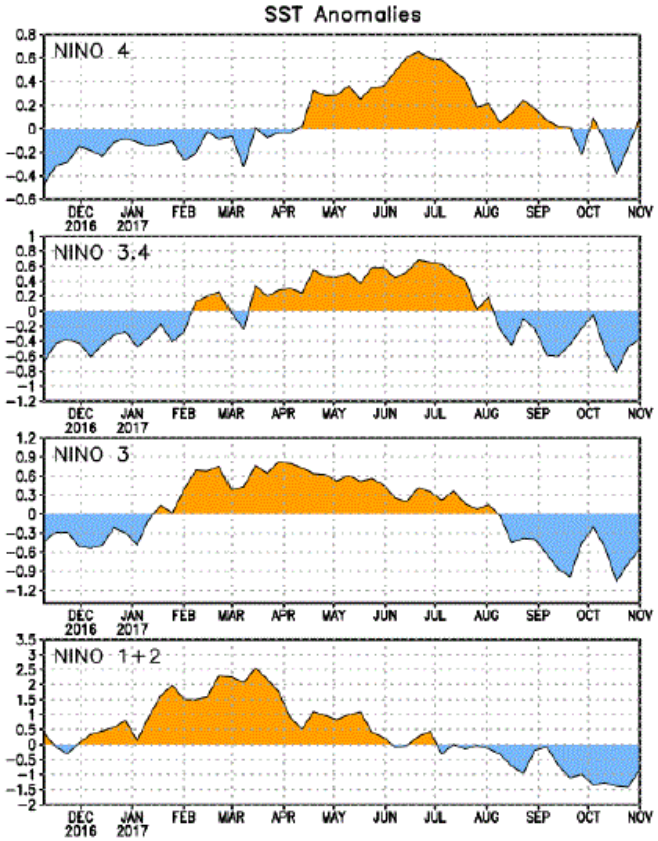
Climate.gov/NNVL
Data: Geo-Polar SST

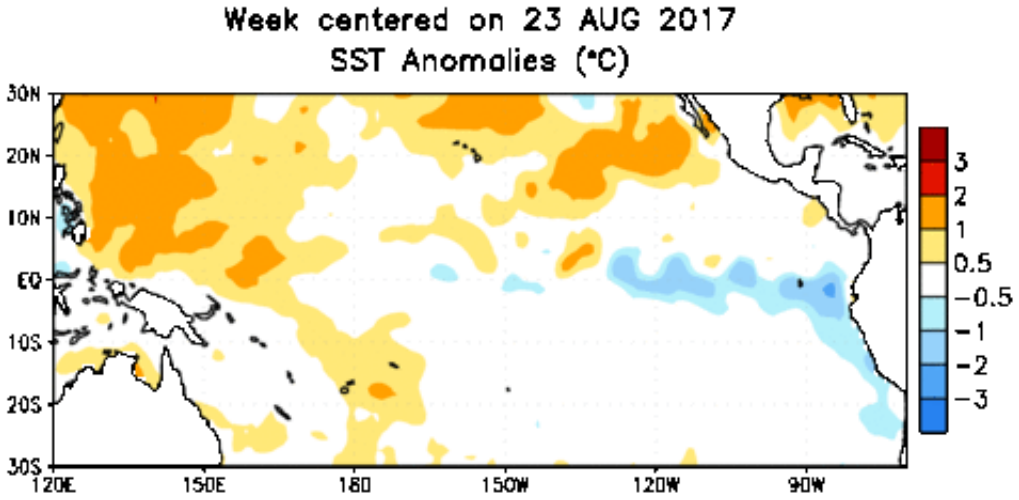
COLORADO
CLIMATE
CENTER

La Niña Advisory

And associated impacts from La Niña

La Niña Update





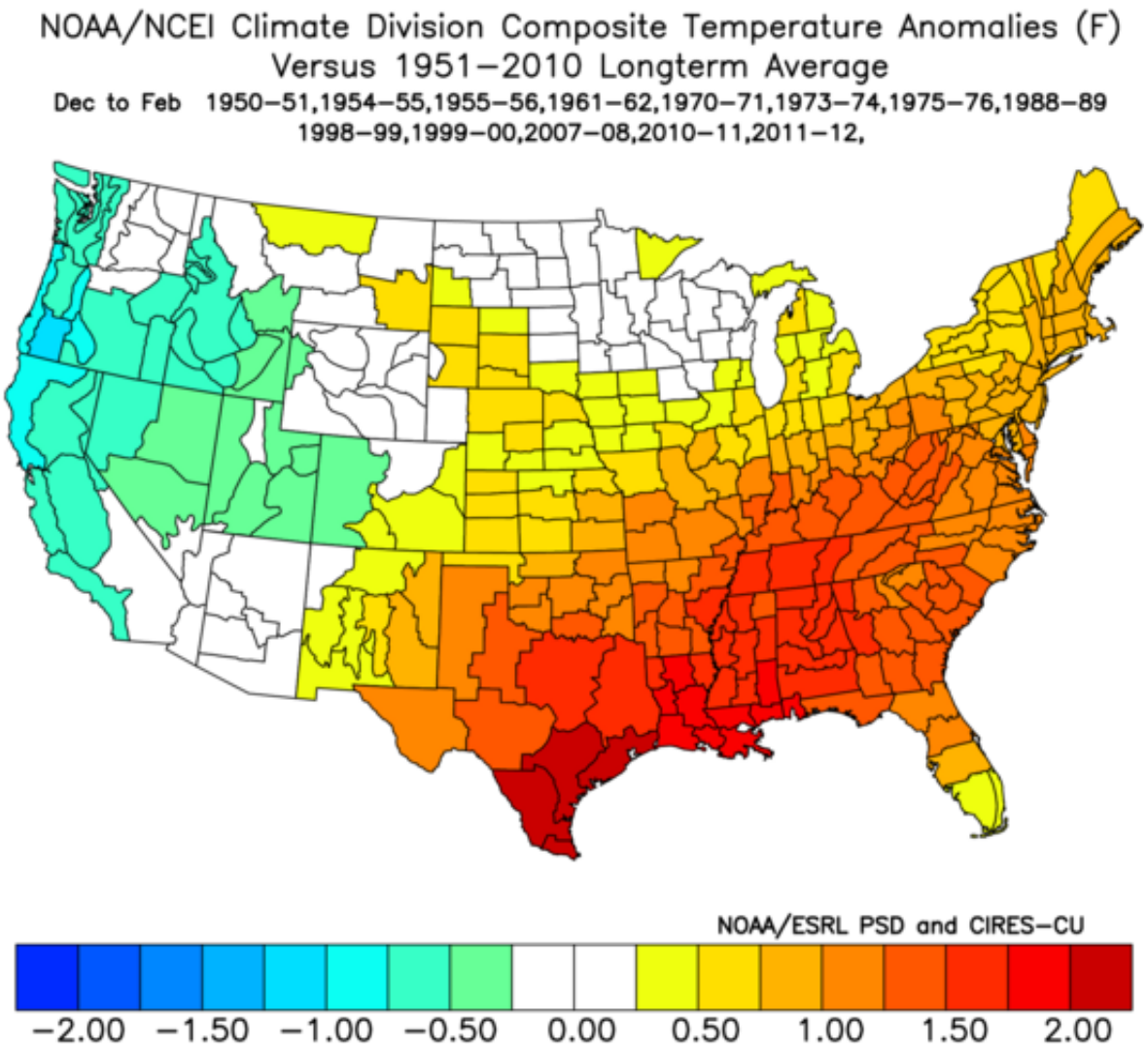
November 9, 2017 (IRI):
In early November 2017, the tropical Pacific reflected **weak La Niña conditions**, with SSTs in the east-central tropical Pacific at the threshold for La Niña and most atmosphere variables showing patterns suggestive of weak La Niña conditions. The collection of latest ENSO prediction models indicates weak La Niña as the most likely scenario for the remainder of Northern Hemisphere fall and for the winter. The official CPC/IRI outlook **favors continuation of La Niña through winter**, and carries a **La Niña advisory**.

http://iri.columbia.edu/our-expertise/climate/forecasts/enso/current/

La Niña Impacts

Temperature Anomalies

1951 – 2012 La Niña events
vs. 1951-2010 Average

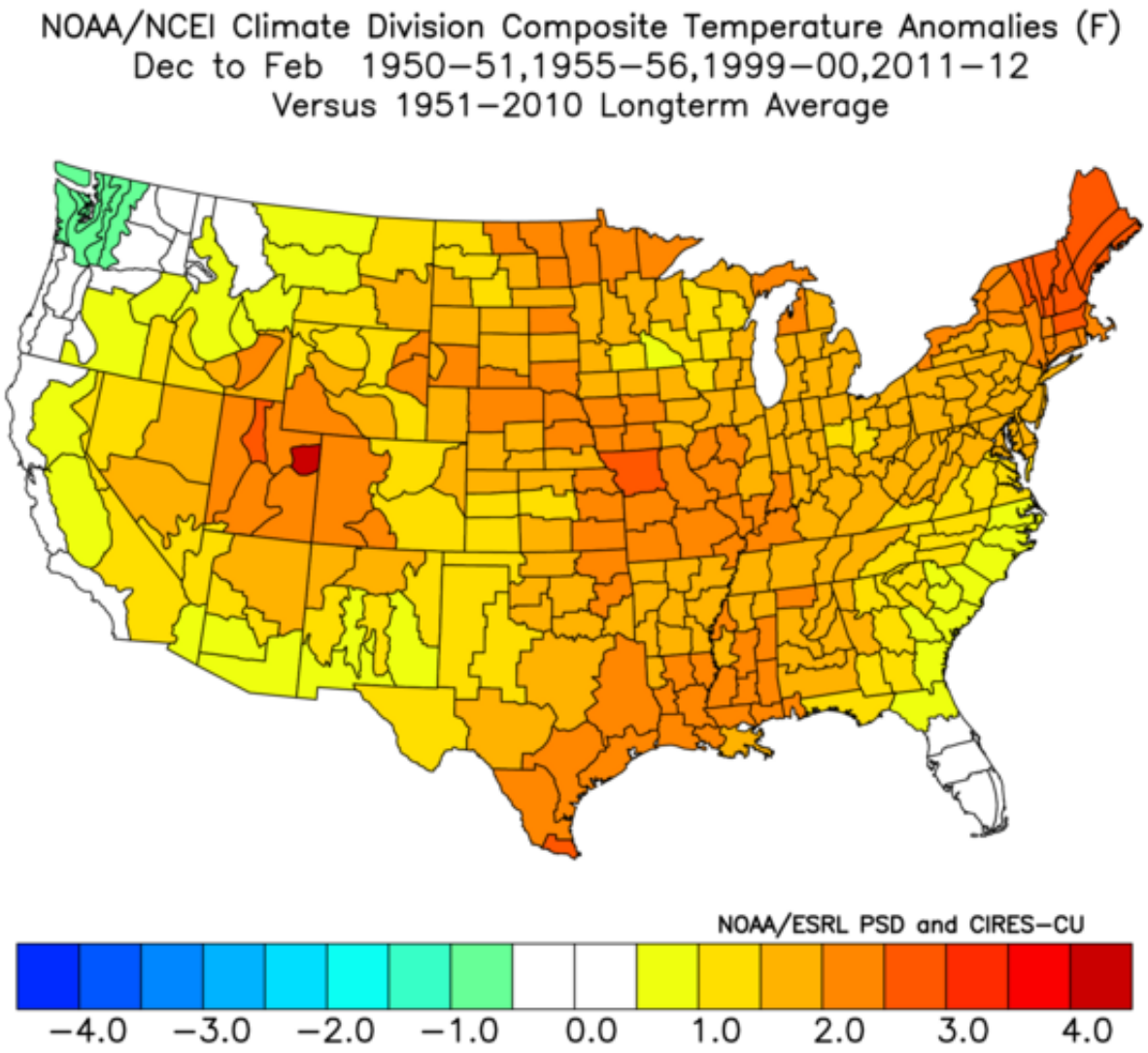


https://www.esrl.noaa.gov/psd/data/usclimdivs/

La Niña Impacts

Temperature Anomalies

1951 – 2012 double dip
La Niña 2nd year events
vs. 1951-2010 Average

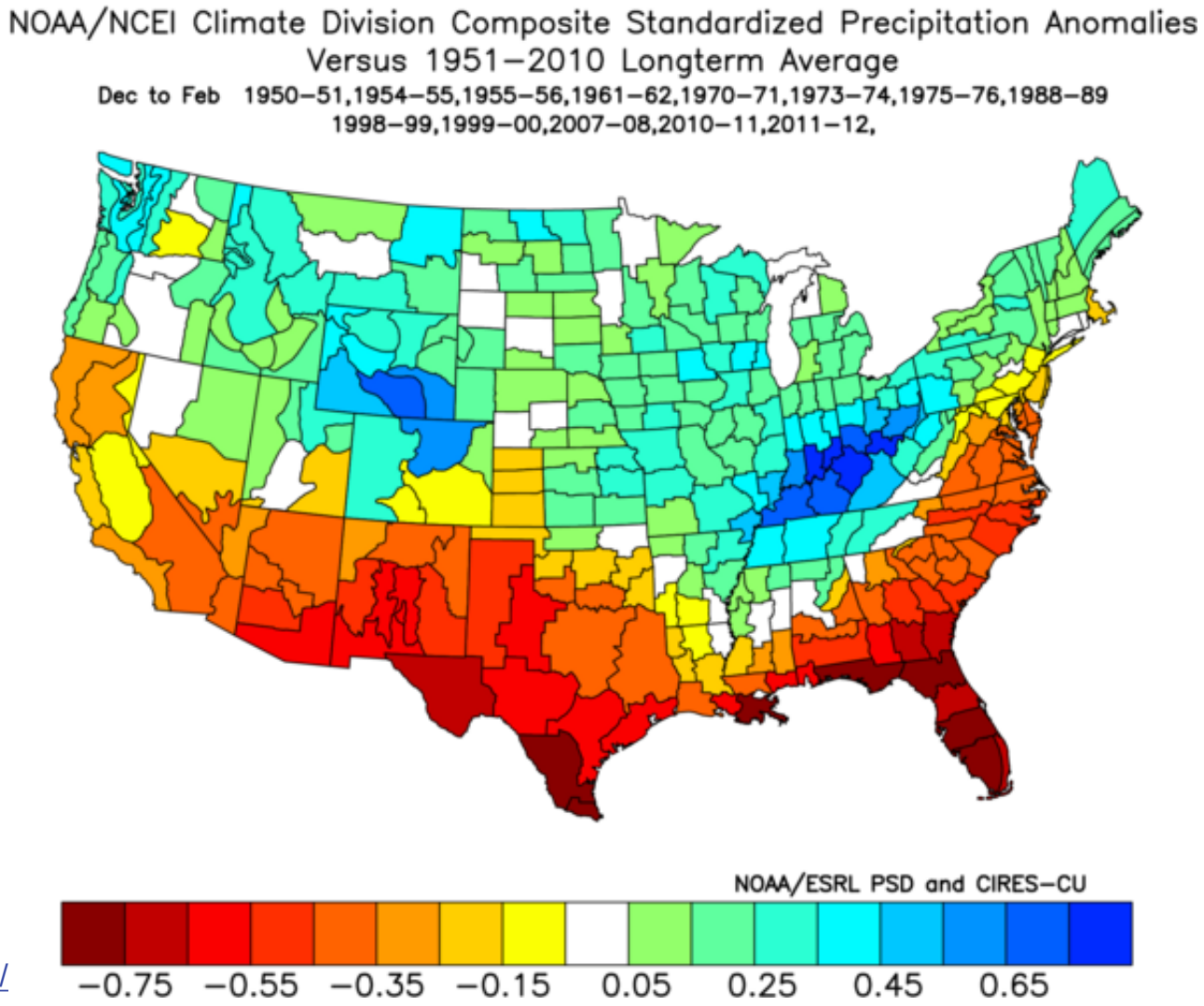


https://www.esrl.noaa.gov/psd/data/usclimdivs/

La Niña Impacts

Precipitation Anomalies

1951 – 2012 La Niña events
vs. 1951-2010 Average

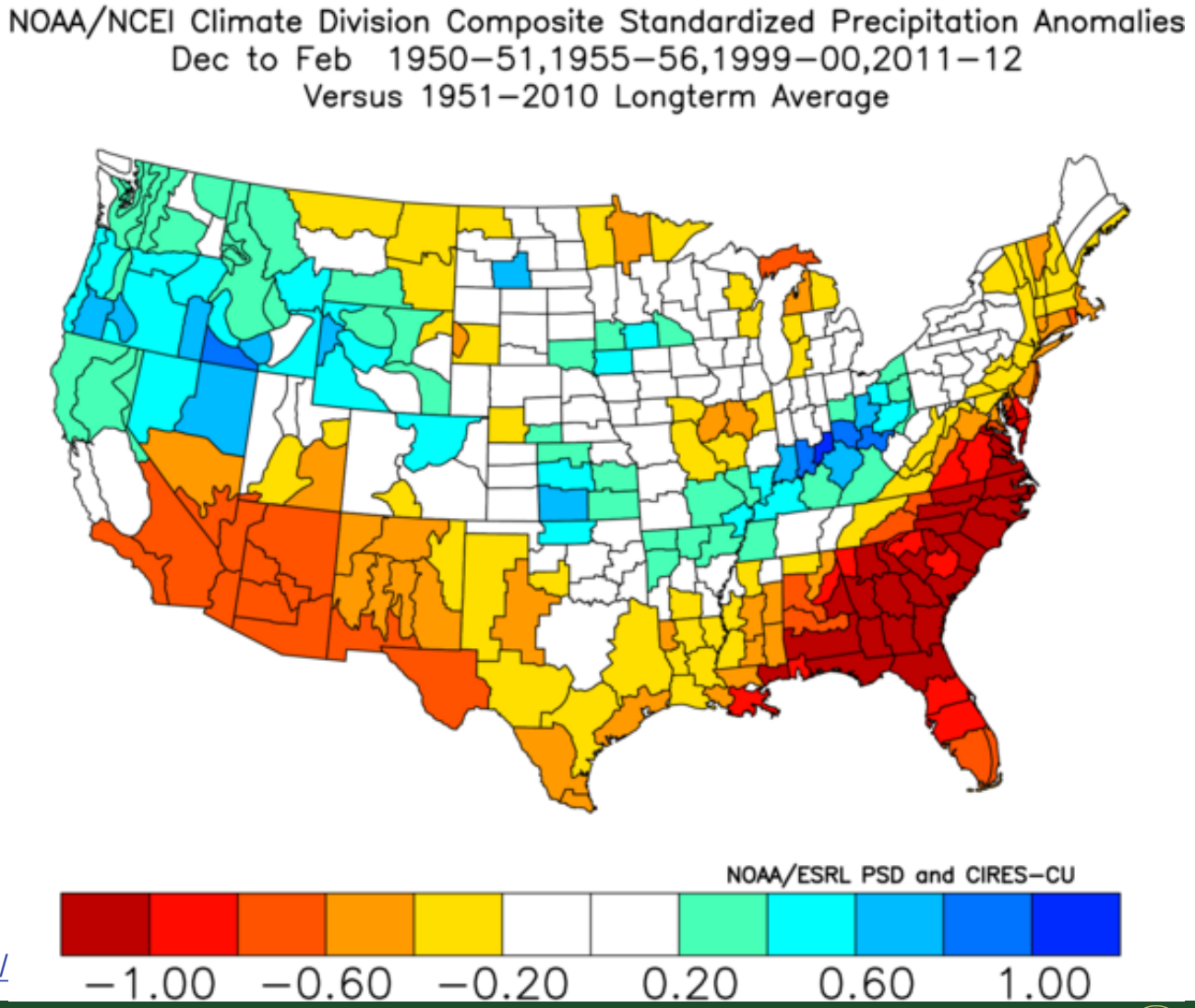


https://www.esrl.noaa.gov/psd/data/usclimdivs/

La Niña Impacts

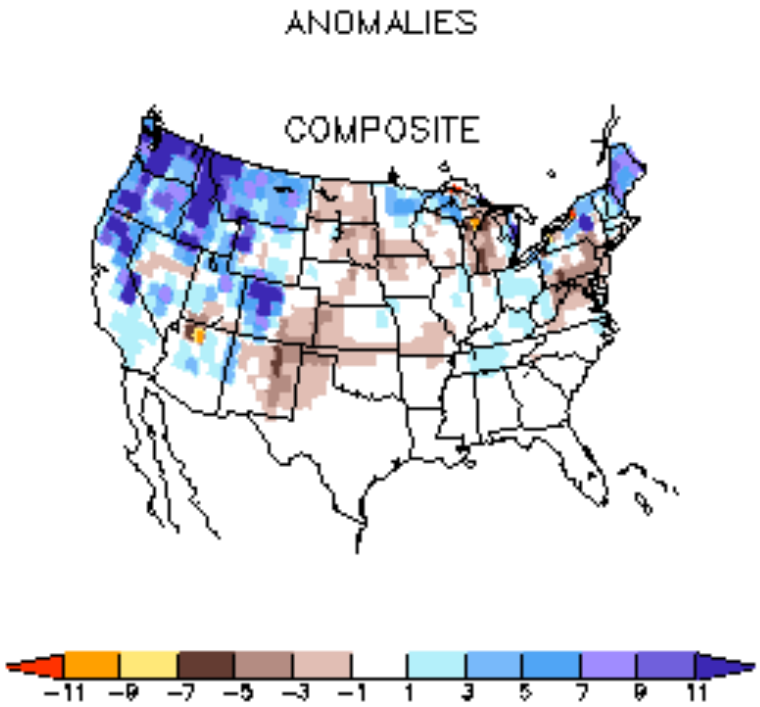
Precipitation Anomalies

1951 – 2012 double dip
La Niña 2nd year events
vs. 1951-2010 Average



https://www.esrl.noaa.gov/psd/data/usclimdivs/

La Niña Impacts



La Niña Composite Snow Anomalies for Dec – Feb

http://www.cpc.ncep.noaa.gov/products/precip/CWlink/ENSO/composites/EC_LNS_index.shtml

Capital Weather Gang

Snow pounds Pacific Northwest and Northern Rockies, ski areas rejoice

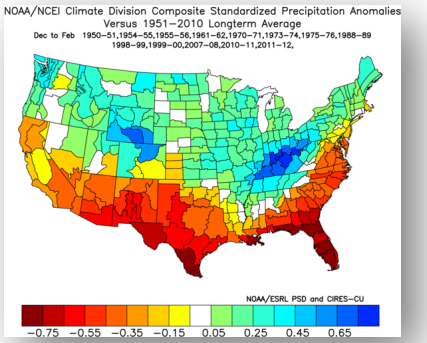
By John Hopewell November 14

Midwinter conditions in November at Bridger Bowl ski area in southwest Montana on Monday. While the lifts aren't operating yet, the locals have already taken to the slopes. (Doug Wales)

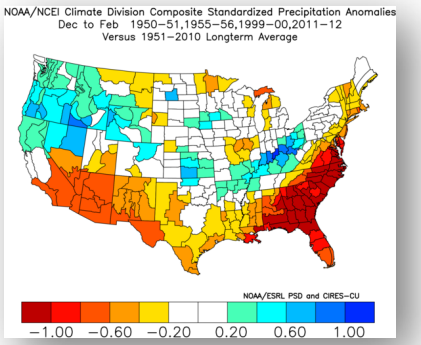
COLORADO CLIMATE CENTER

Current Conditions

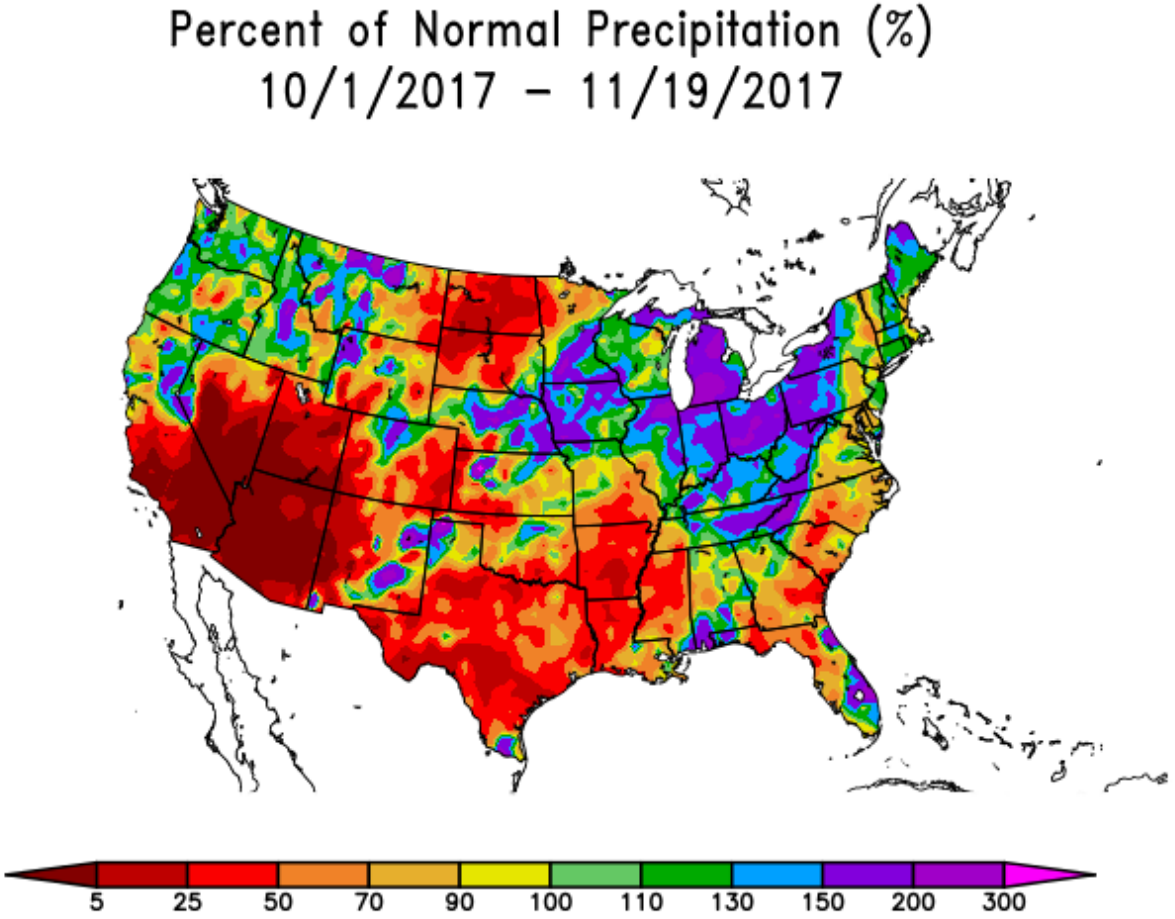
Current Conditions



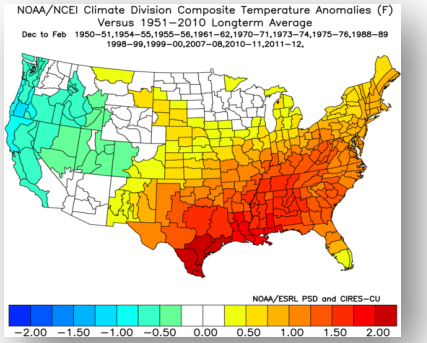
All La Niñas



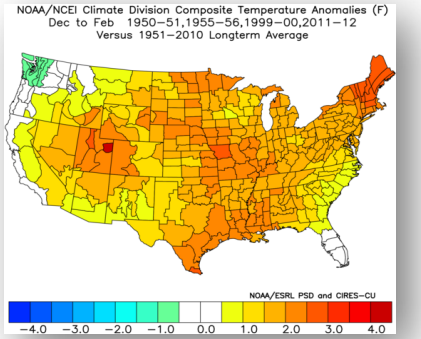
Double-dip La Niñas



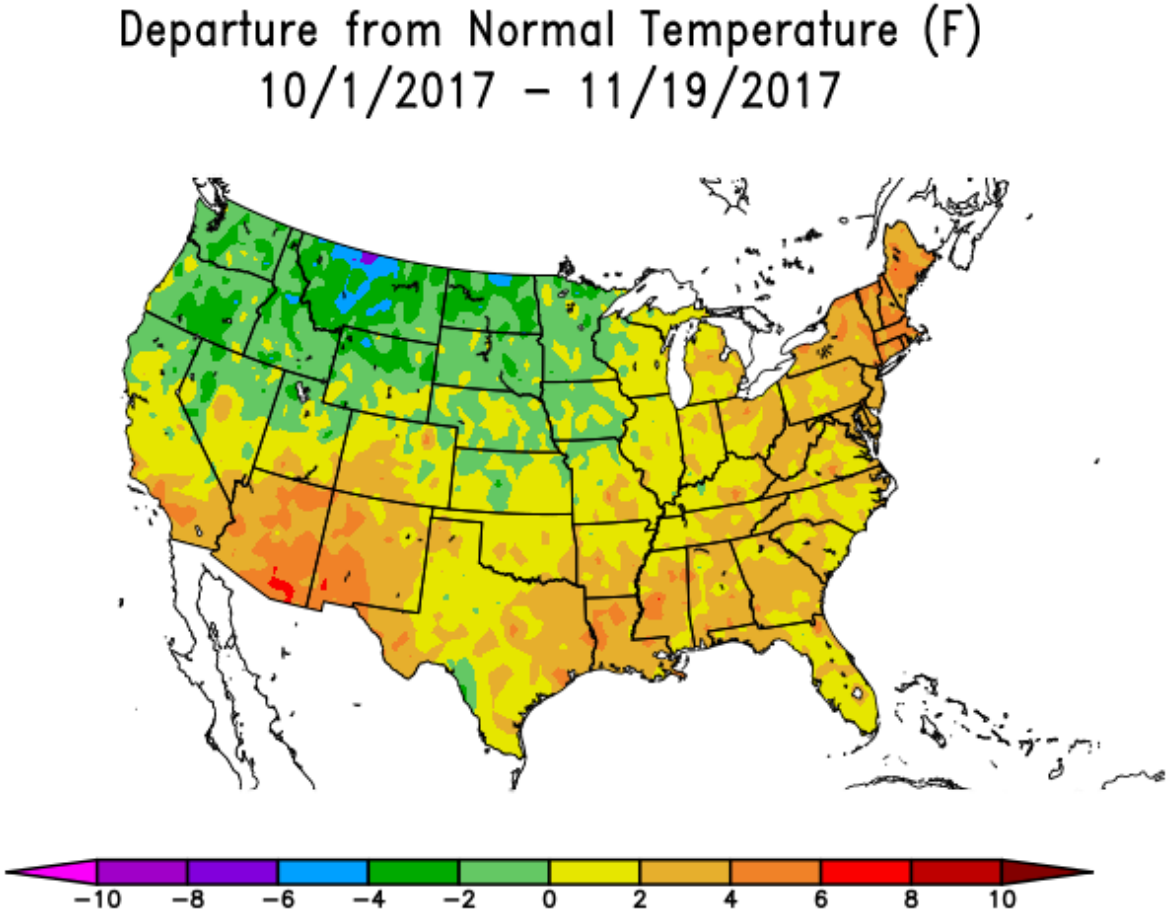
Current Conditions



All La Niñas



Double-dip La Niñas



You heard it here first!

COLORADO CLIMATE CENTER

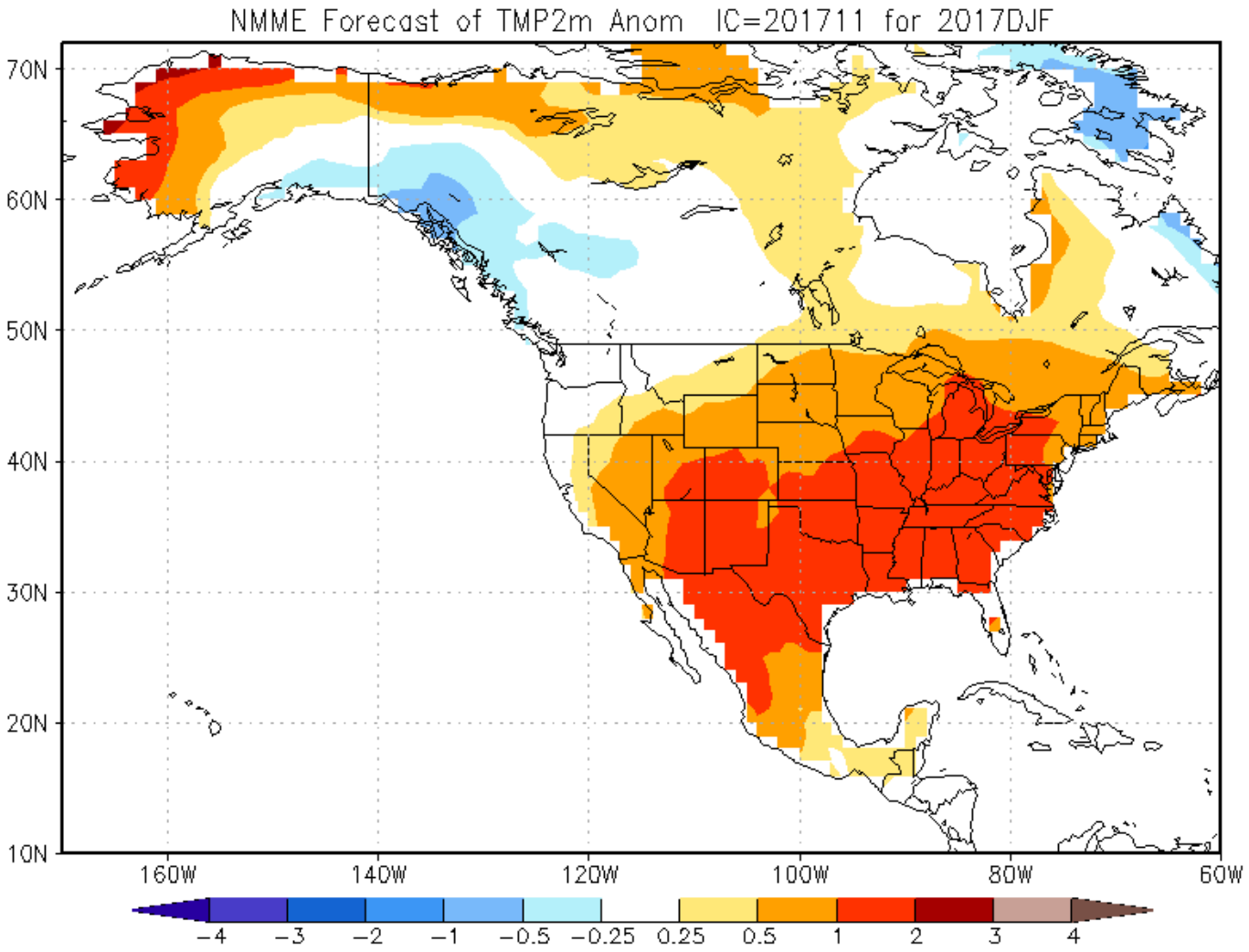
Outlooks:

North American Multi-Model Ensemble

Climate Prediction Center

NMME

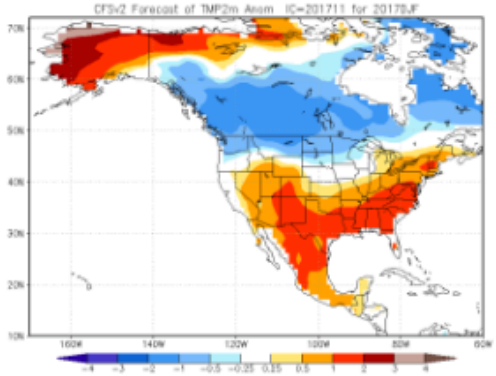
Temperature Anomaly
Forecast for
Dec – Feb



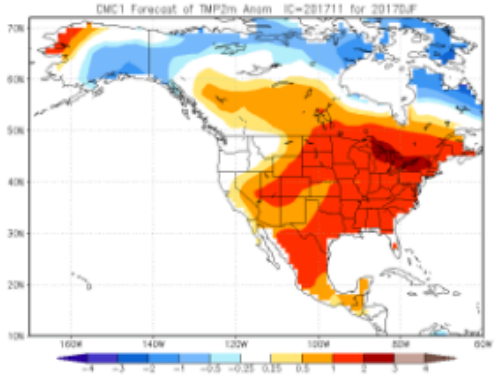
NMME

http://www.cpc.ncep.noaa.gov/products/NMME/

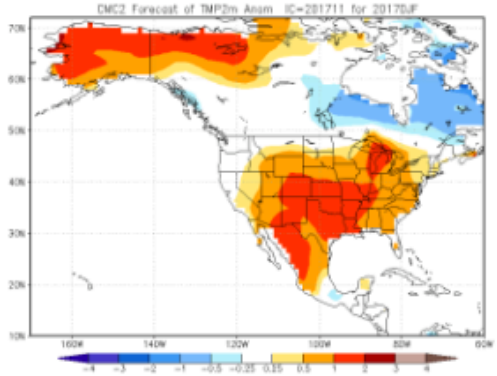
NCEP_CFSv2



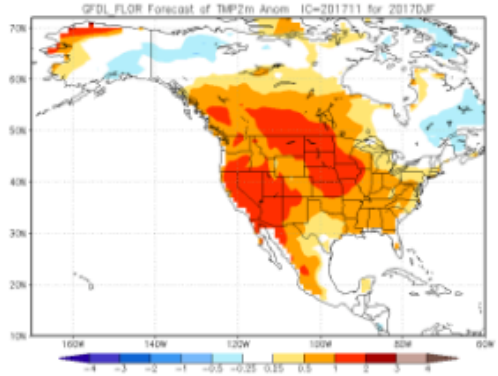
CMC1_CanCM3



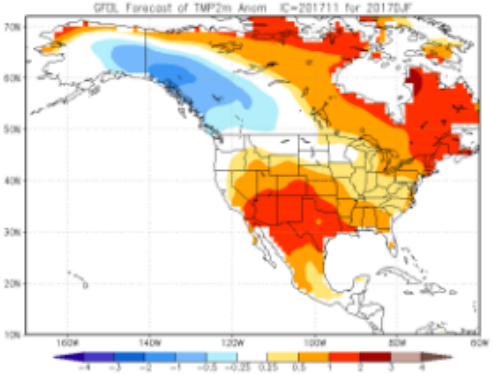
CMC2_CanCM4



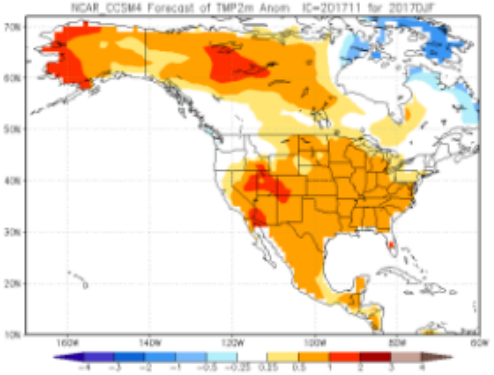
GFDL_FLOR



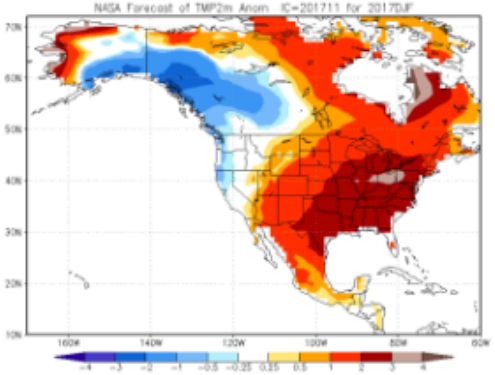
GFDL_CM2.1



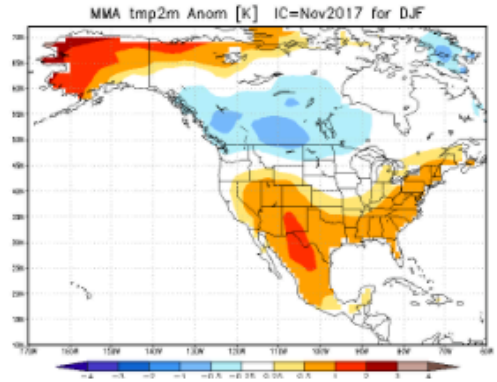
NCAR_CCSM4



NASA_GEOS5

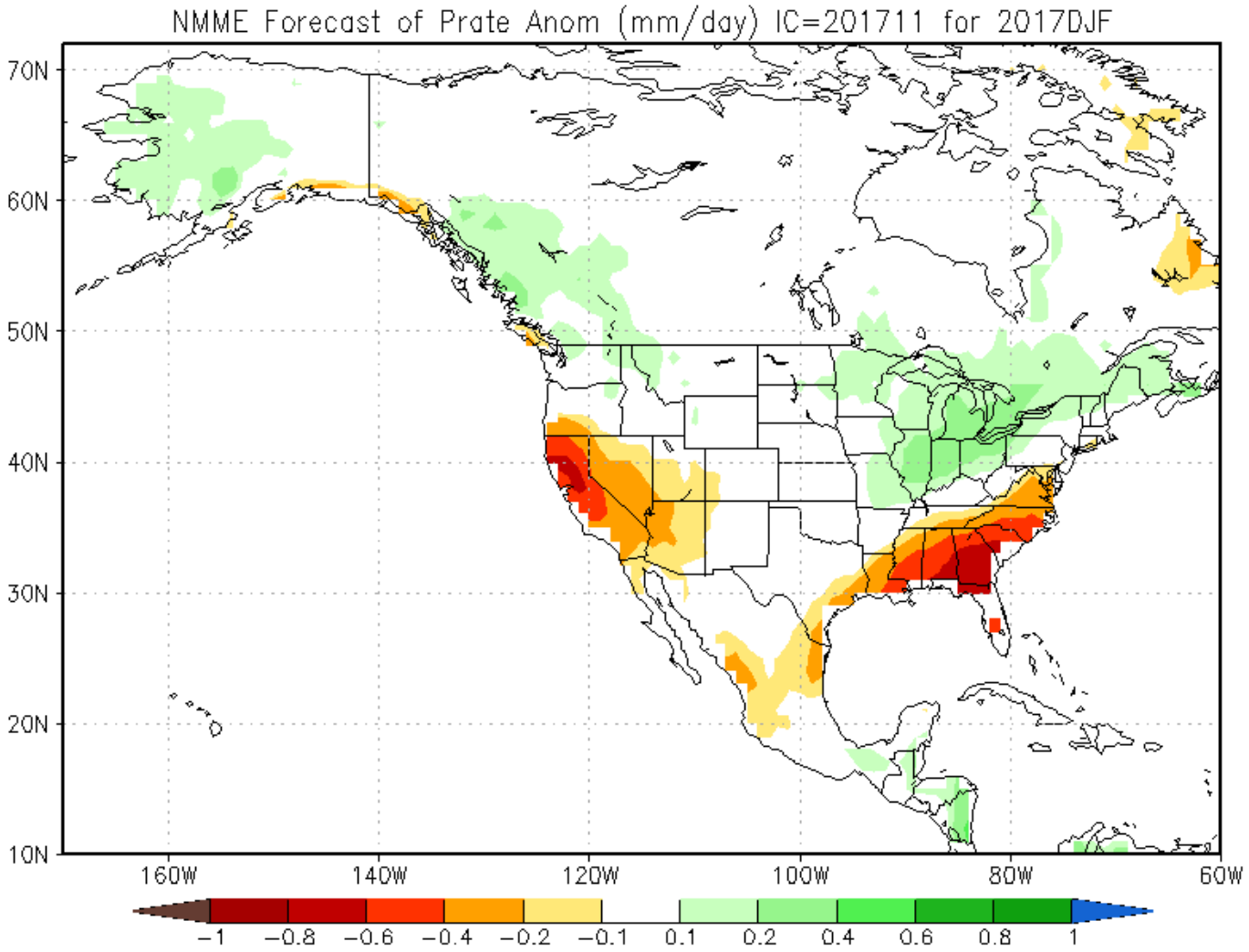


IMME



NMME

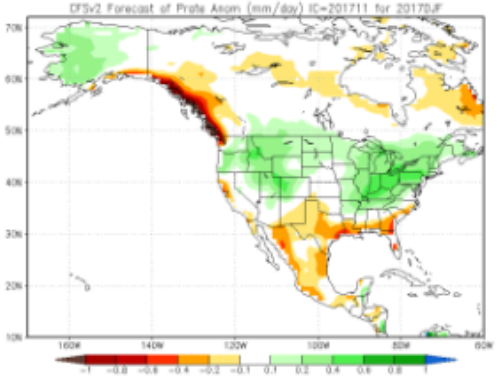
Precipitation Anomaly
Forecast for
Dec – Feb



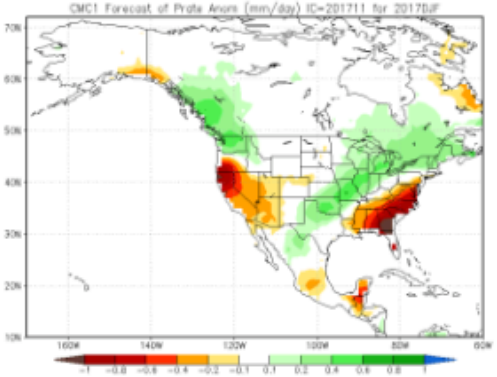
NMME

http://www.cpc.ncep.noaa.gov/products/NMME/

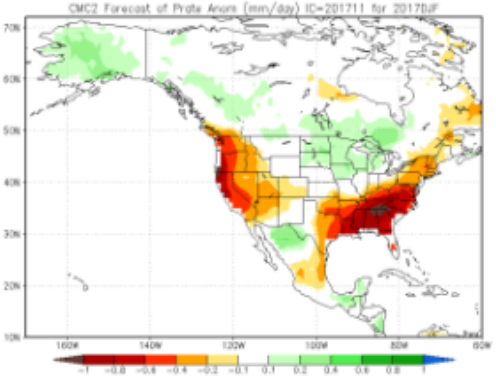
NCEP_CFSv2



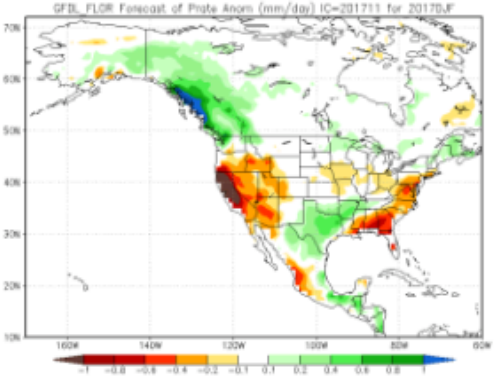
CMC1_CanCM3



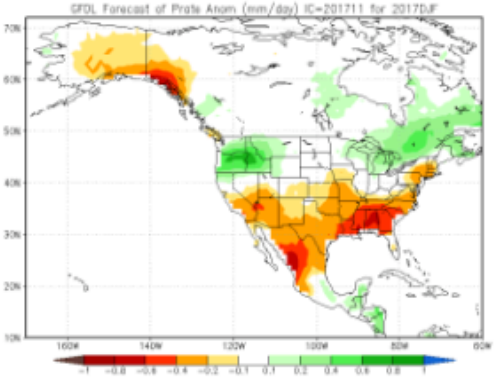
CMC2_CanCM4



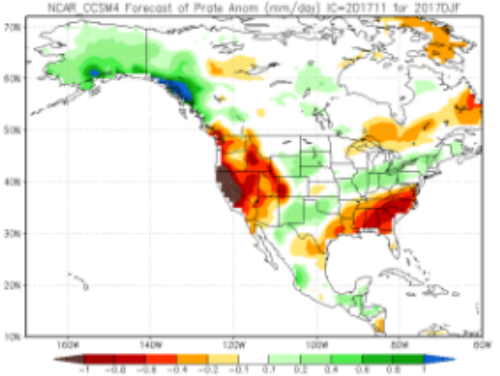
GFDL_FLOR



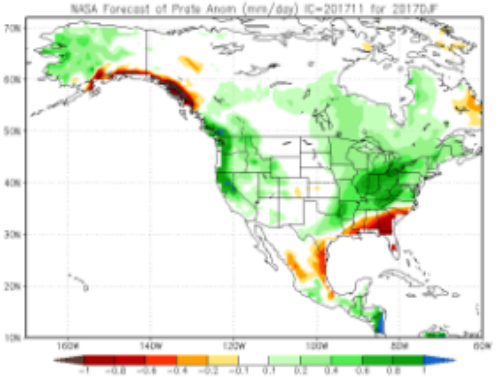
GFDL_CM2.1



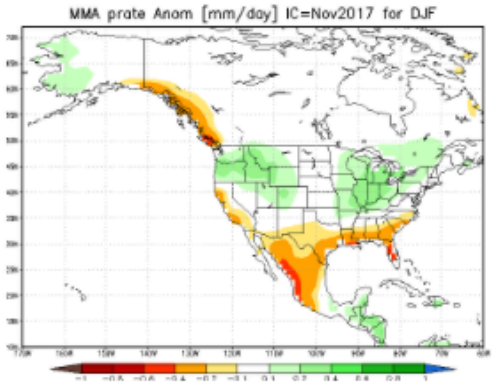
NCAR_CCSM4



NASA_GEOS5

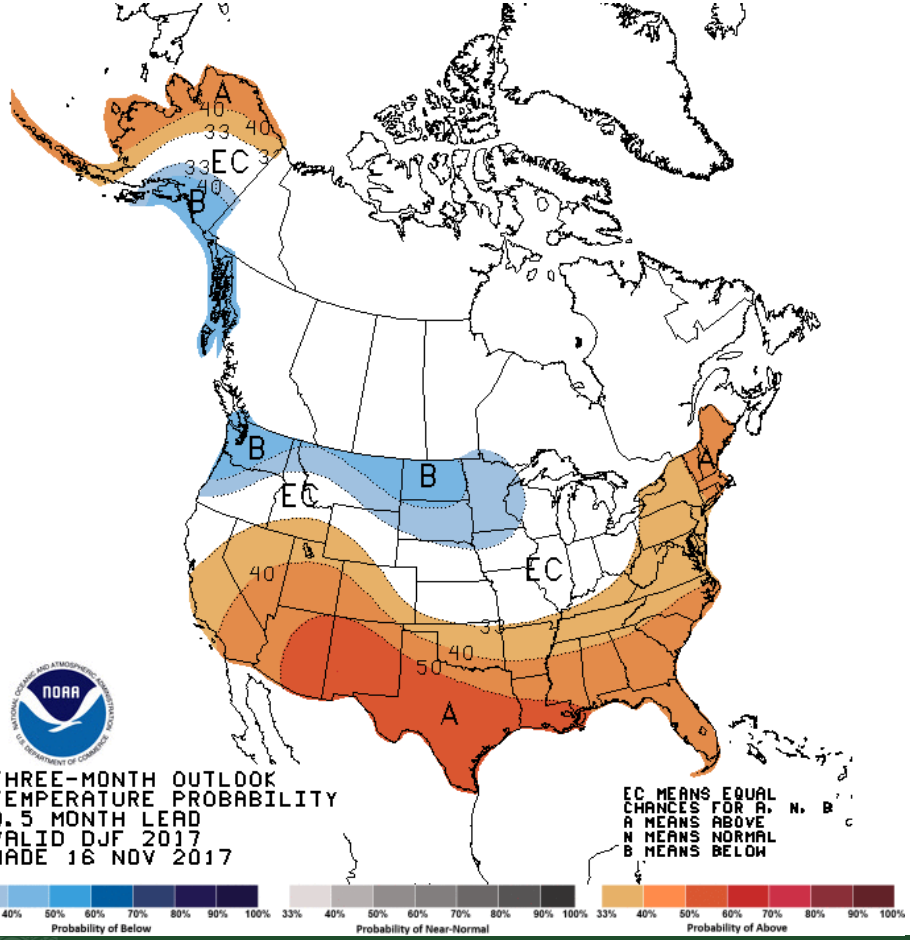


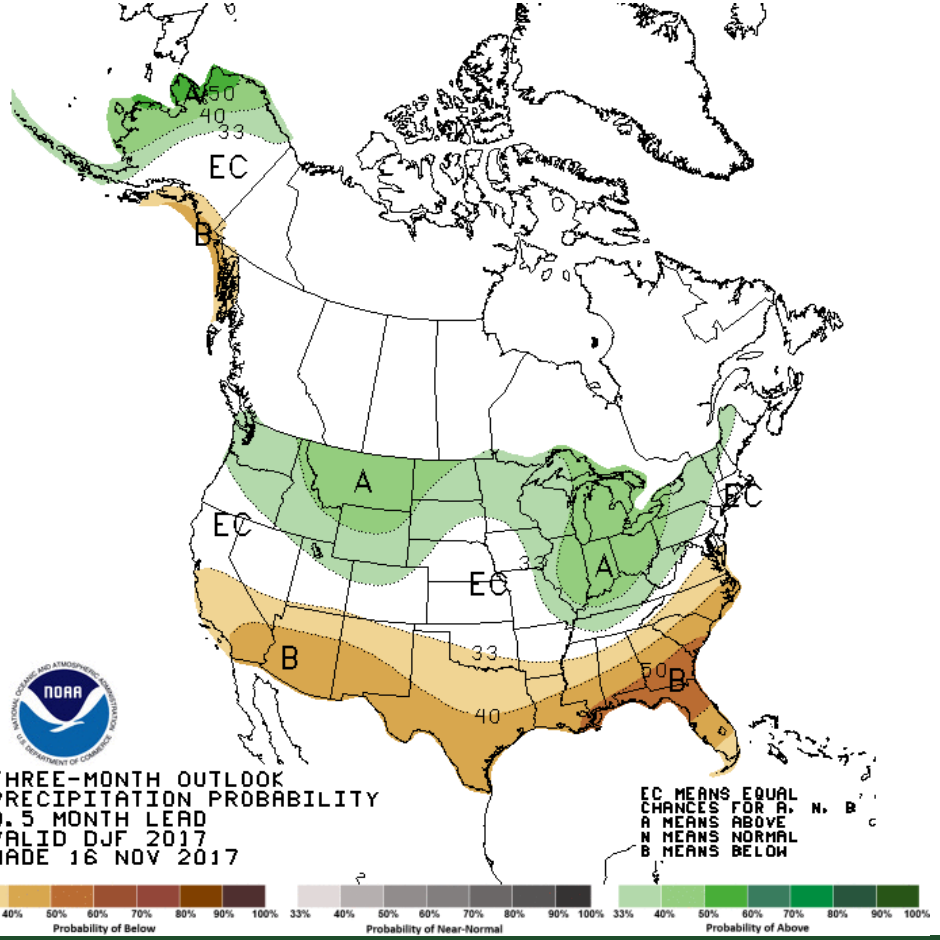
IMME



Climate Prediction Center

http://www.cpc.ncep.noaa.gov



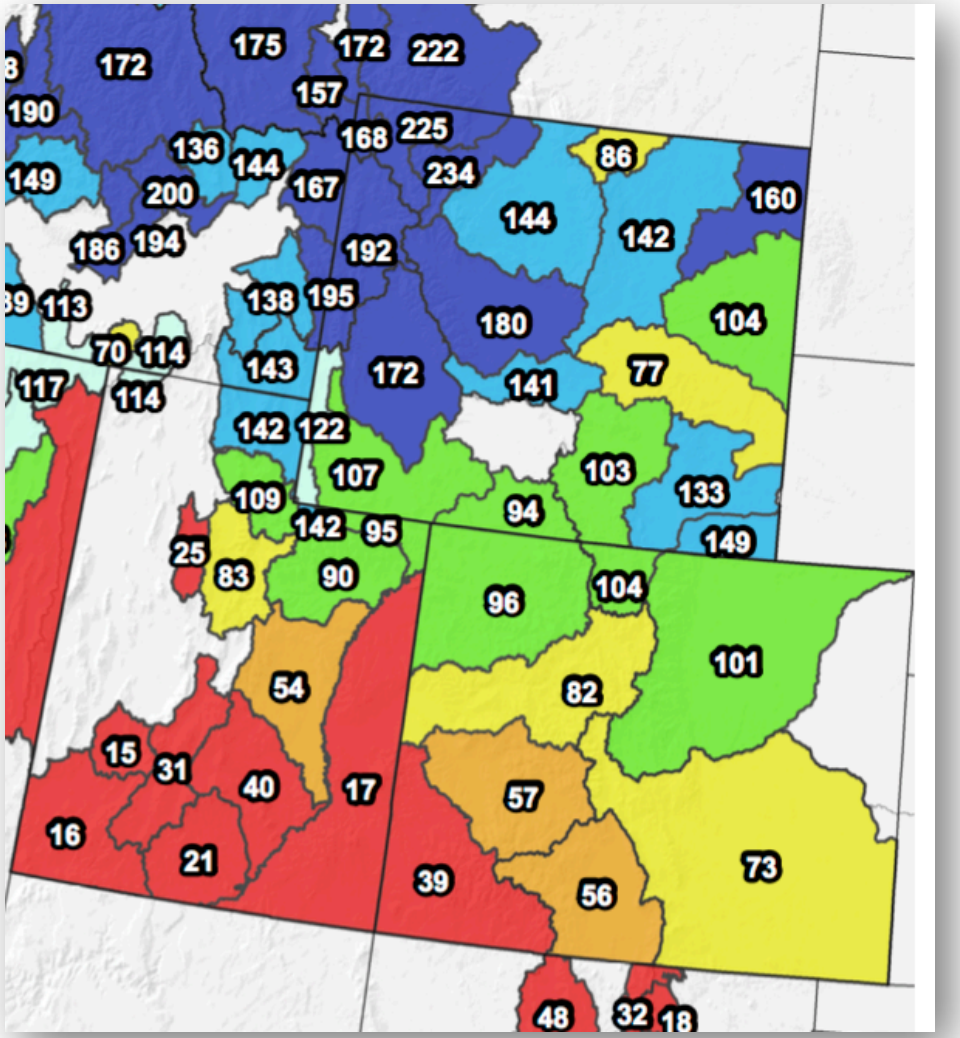


Climate Prediction Center

- Outlook is “heavily influenced by ongoing La Niña conditions”
- Takes into consideration impacts often observed during La Niña conditions…
- Statistical forecast tools and guidance from NMME contributed heavily to the outlook...
- Long term trends in both temperature and precipitation were also utilized...

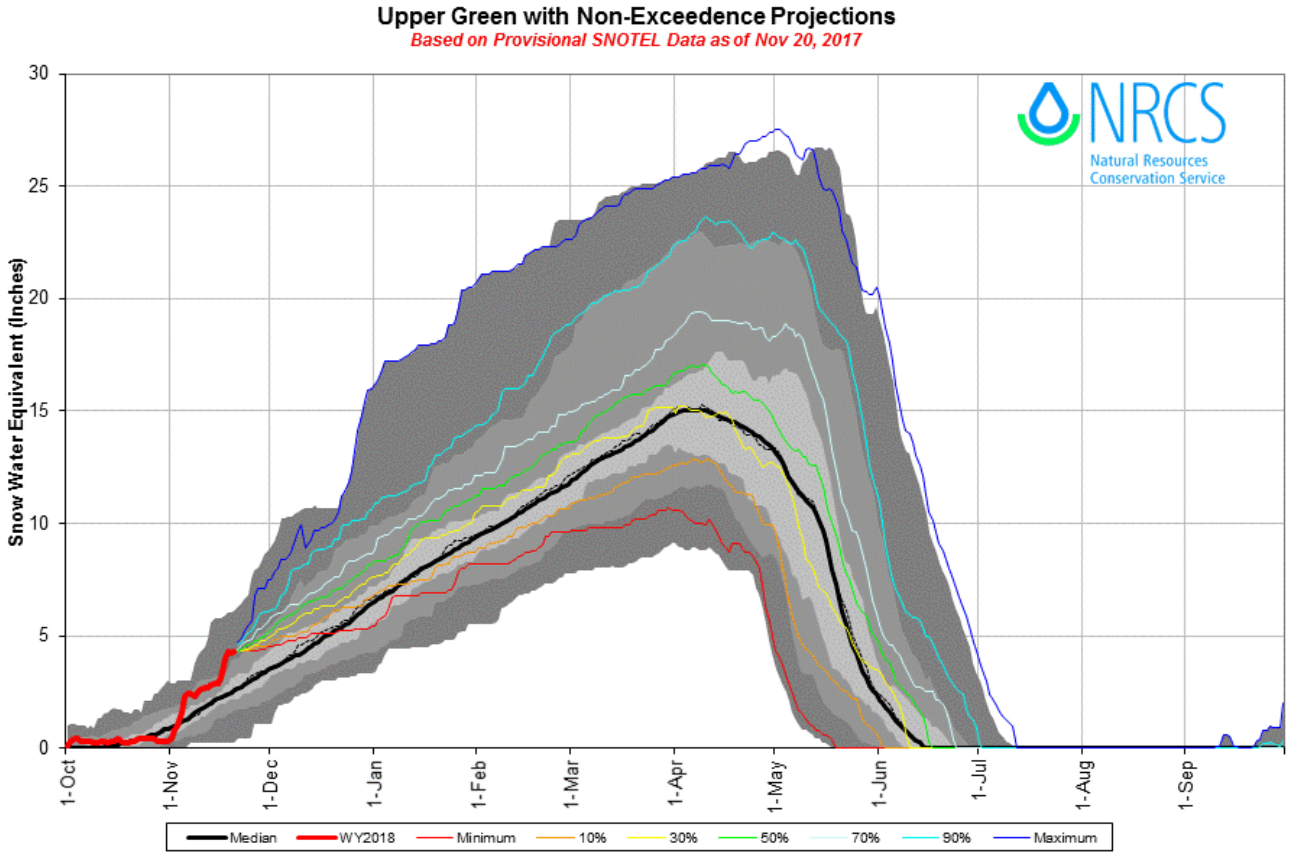
http://www.cpc.ncep.noaa.gov/products/predictions/long_range/fxus05.html

Snow Outlook



Snow Outlook

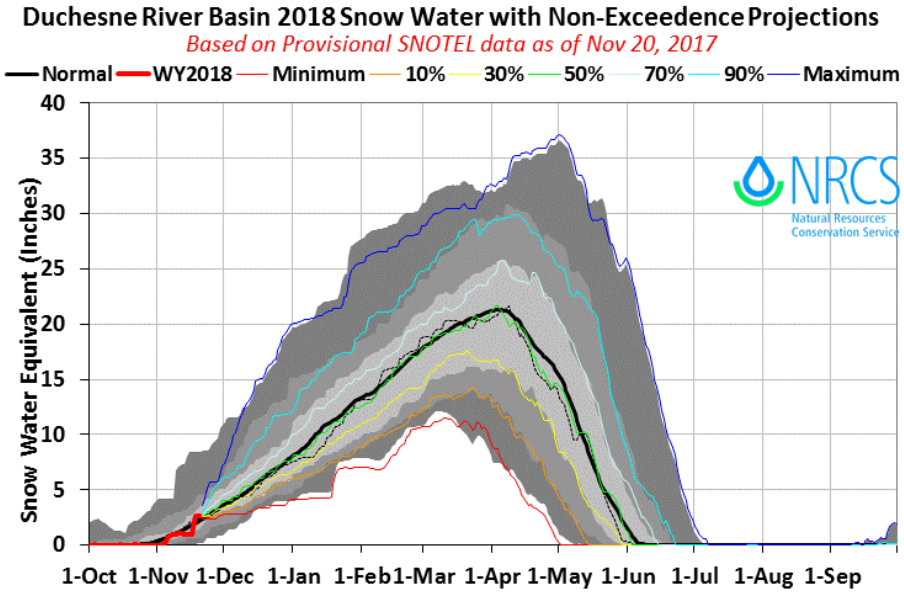
Wyoming

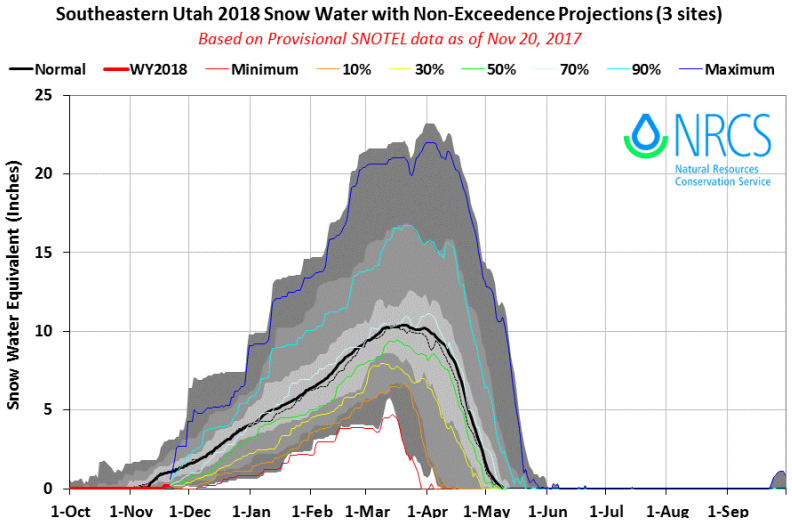


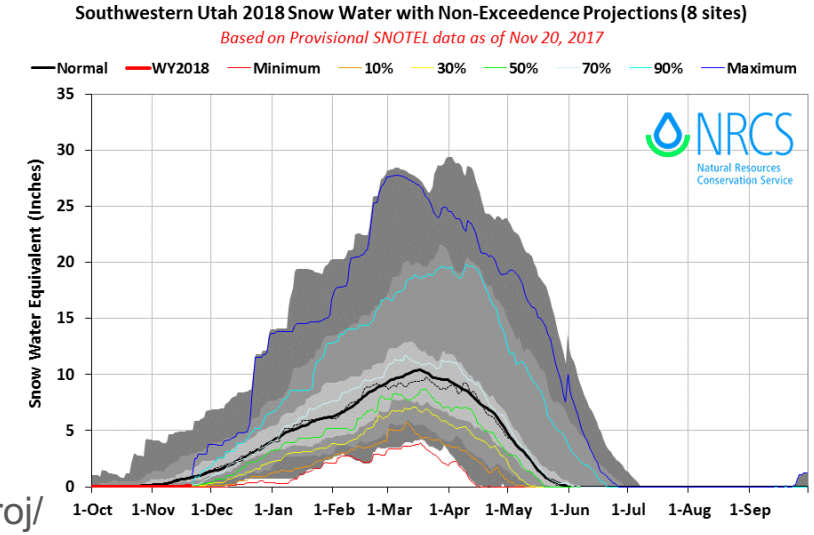
https://www.wcc.nrcs.usda.gov/ftpref/data/water/wcs/basin_proj/

Snow Outlook

Utah



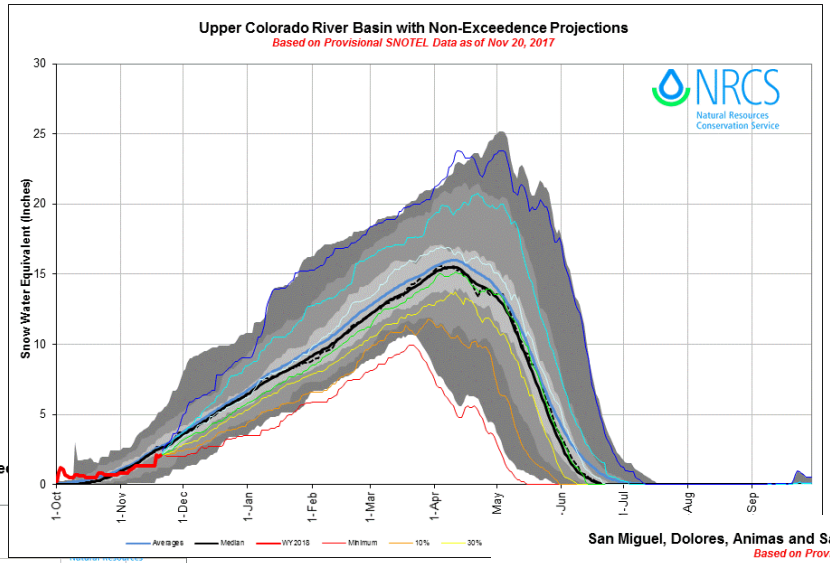


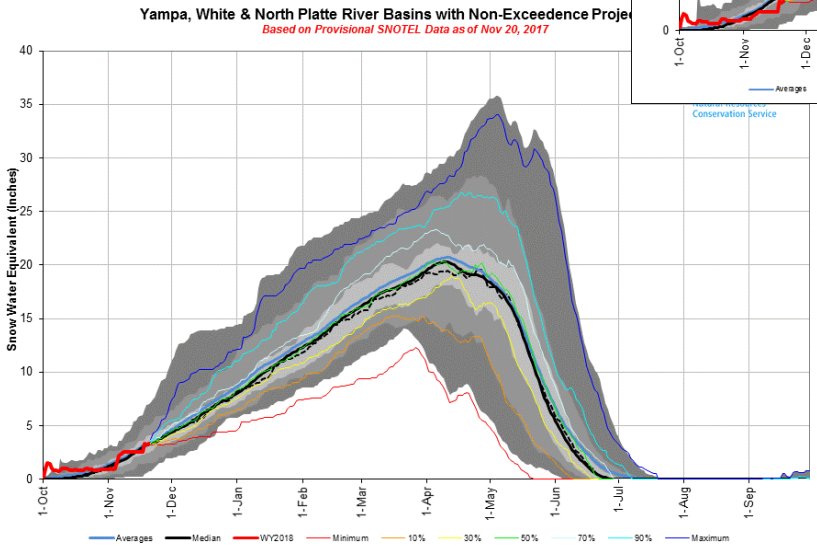


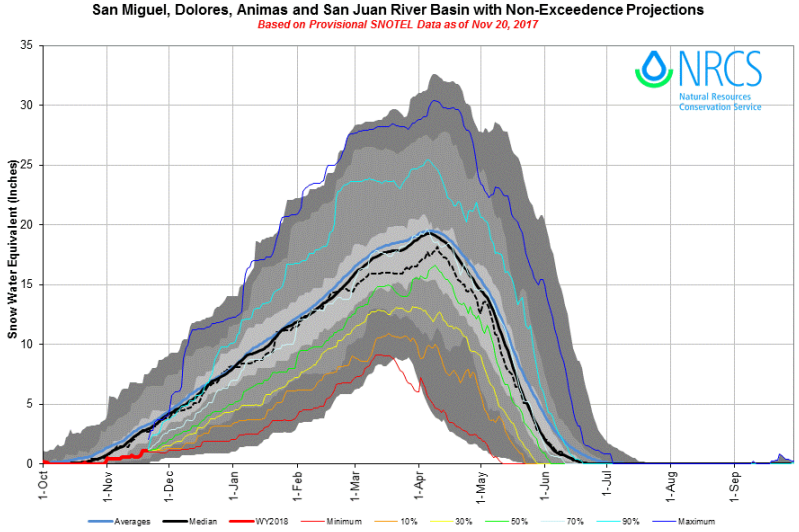
https://www.wcc.nrcs.usda.gov/ftpref/data/water/wcs/basin_proj/

Snow Outlook

Colorado







https://www.wcc.nrcs.usda.gov/ftpref/data/water/wcs/basin_proj/

COLORADO CLIMATE CENTER

Key Takehome Points

- While we are currently coincidentally seeing La Niña like impacts, that may be the starting bump needed to encourage a persistent La Niña pattern to continue.

- Winter over the IMW could see split conditions
  - Northern half may be warm, but wetter and more snowpack than average
  - Southern half may be warmer, drier, and less snowpack than average

- With a northward shift of the jet, Colorado and Wyoming plains could expect a higher frequency of cloudy and windy conditions, passage of cold fronts without much precipitation.

- I expect to see further drought development and expansion in the Four Corners region, with intensification likely.

- If the current snowpack pattern persists, water supplies for the UCRB should be okay at the end of the season with strong runoff contributions from the Green River and Colorado River.

- Tune into CBRFC's first briefing!
  - http://www.cbrfc.noaa.gov/news/wswebinar2018.html
  - Early outlook webinar – December 7, 11am

Becky.Bolinger@colostate.edu

To view this presentation:
http://climate.colostate.edu/ccc_archive.html

Drought Summary:
http://climate.colostate.edu/~drought

Thank you

Colorado State University