El Niño-Southern Oscillation (ENSO) Update + Seasonal Outlooks

NOAA Eastern Region Climate Services

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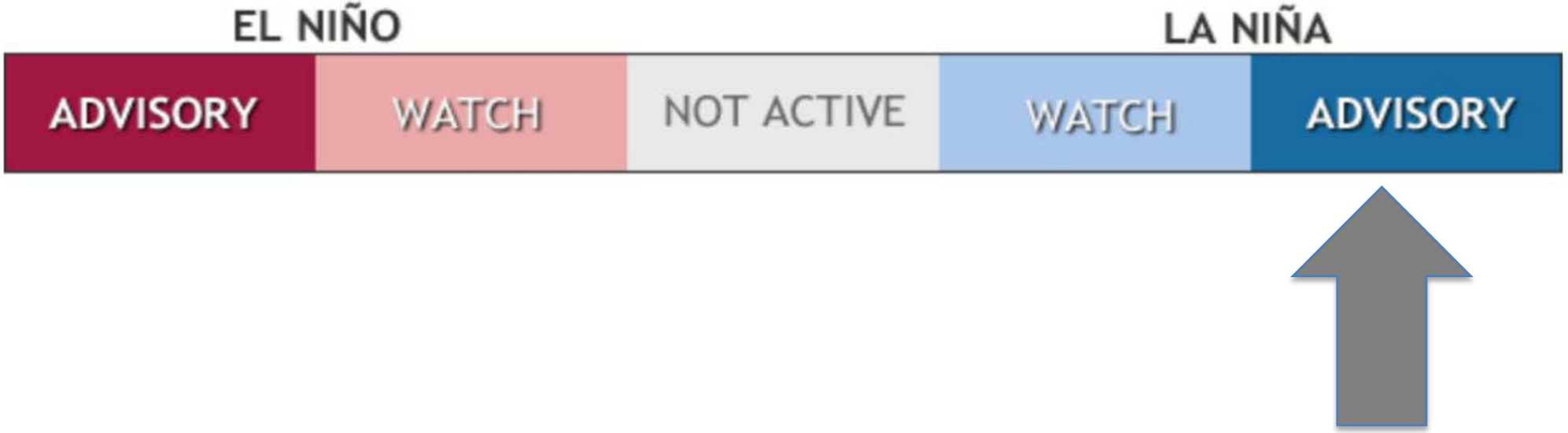
19 November 2020

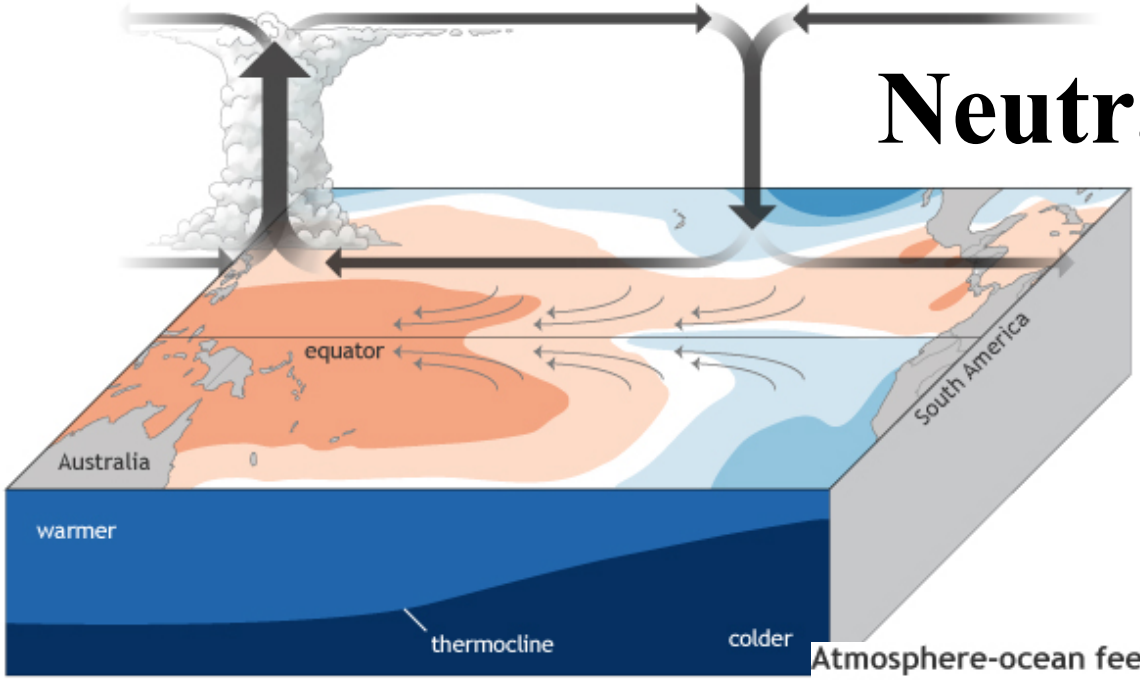


La Niña Advisory

La Niña is likely to continue through the Northern Hemisphere winter 2020-21 (~95% chance during January-March) and into spring 2021 (~65% chance during March-May).

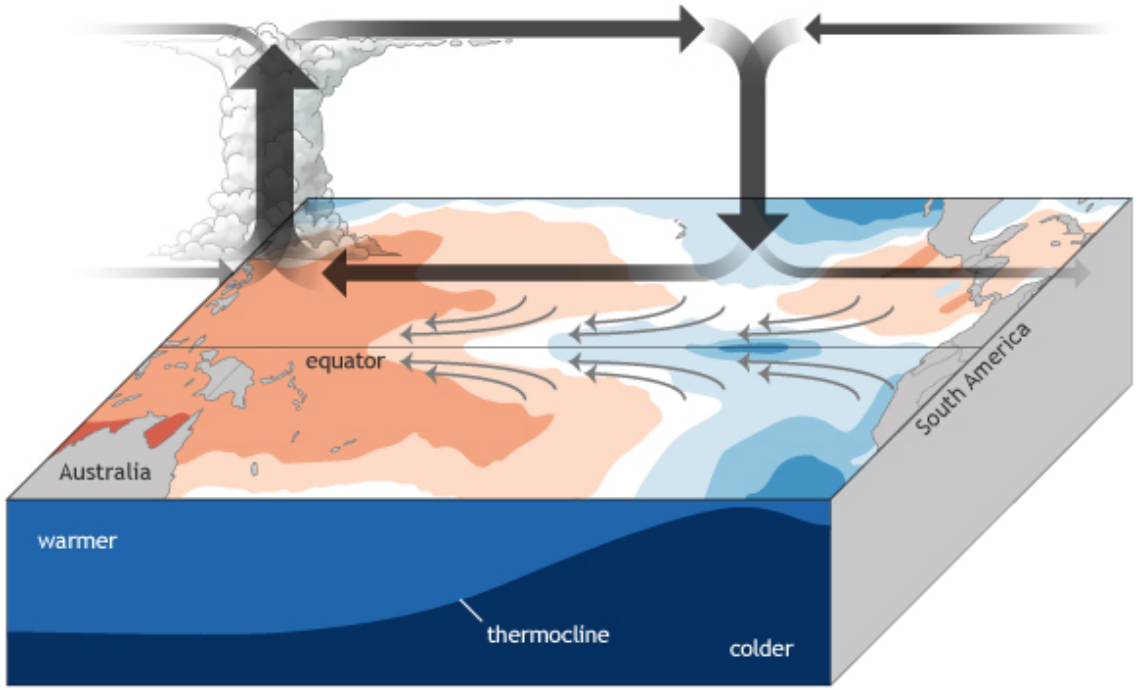
Atmosphere-ocean feedbacks during El Niño-Southern Oscillation
Neutral

Neutral



La Niña

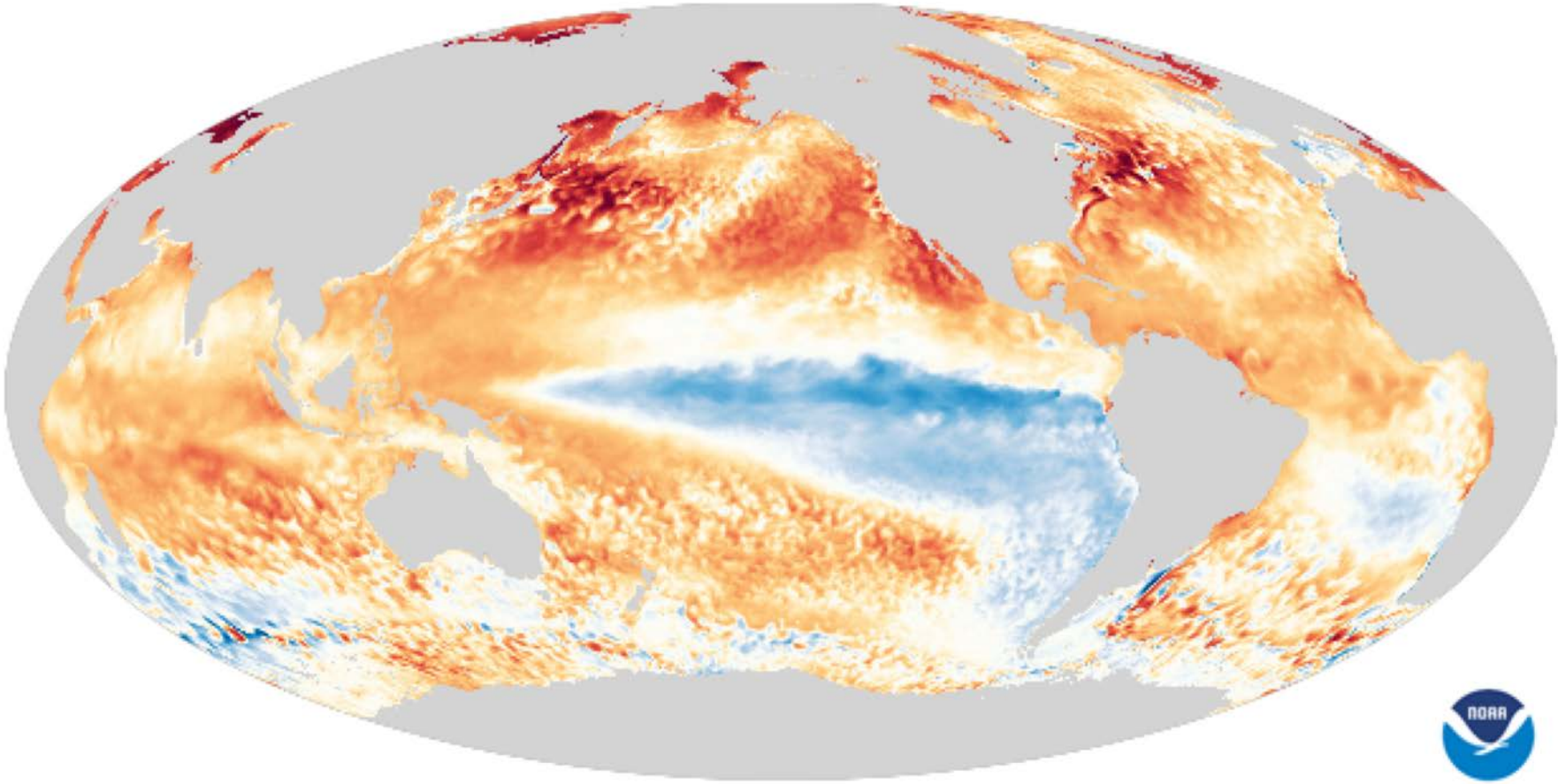
Atmosphere-ocean feedbacks during El Niño-Southern Oscillation
La Niña



https://www.climate.gov/news-features/blogs/enso/rise-el-niño-and-la-niña

NOAA Climate.gov

Sea surface temperatures (SST) anomalies during October

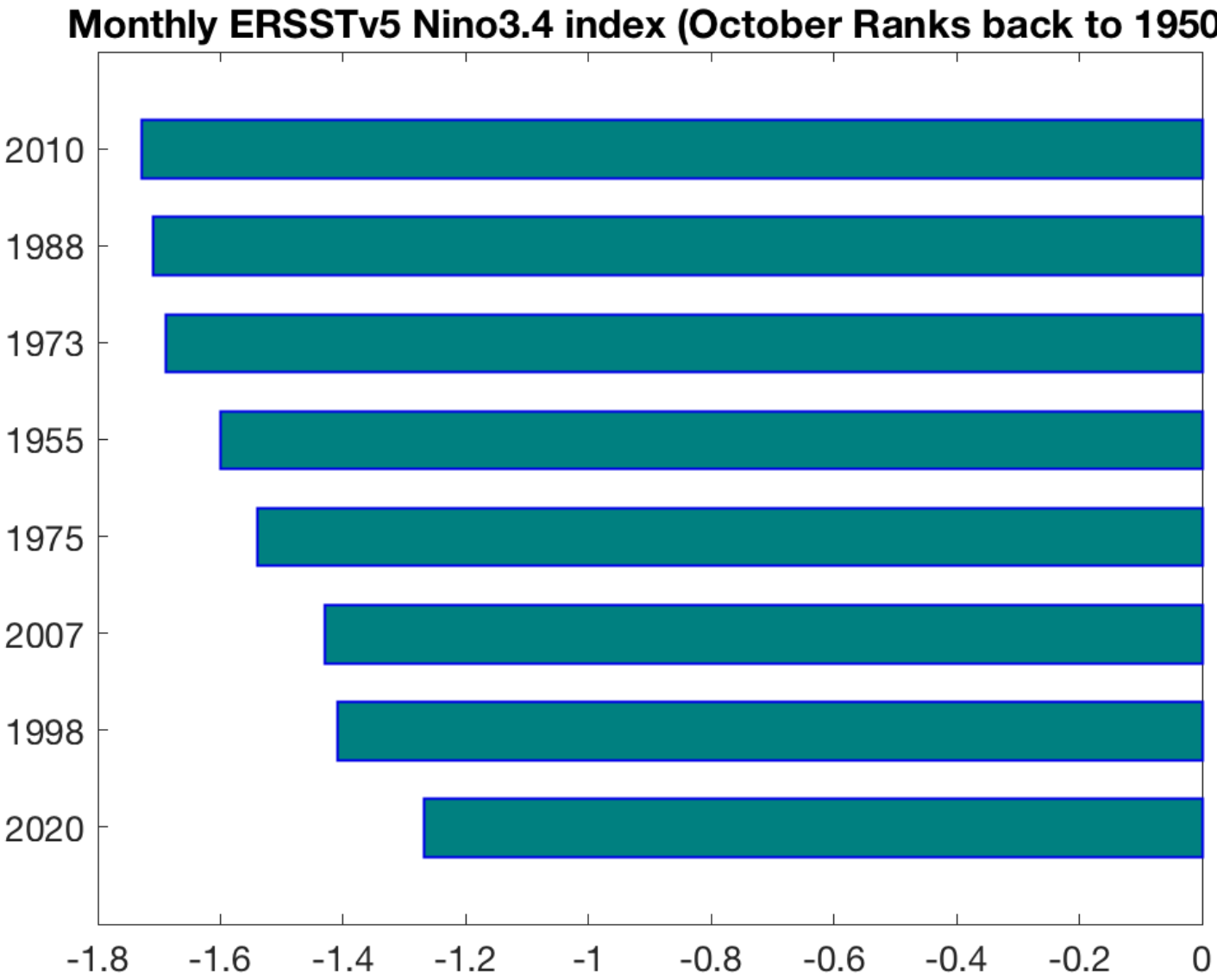


Blue shading is Below-Average SST

Yellow-Red shading is Above-Average SST

Below-average SSTs across the equatorial Pacific Ocean, which indicate La Niña

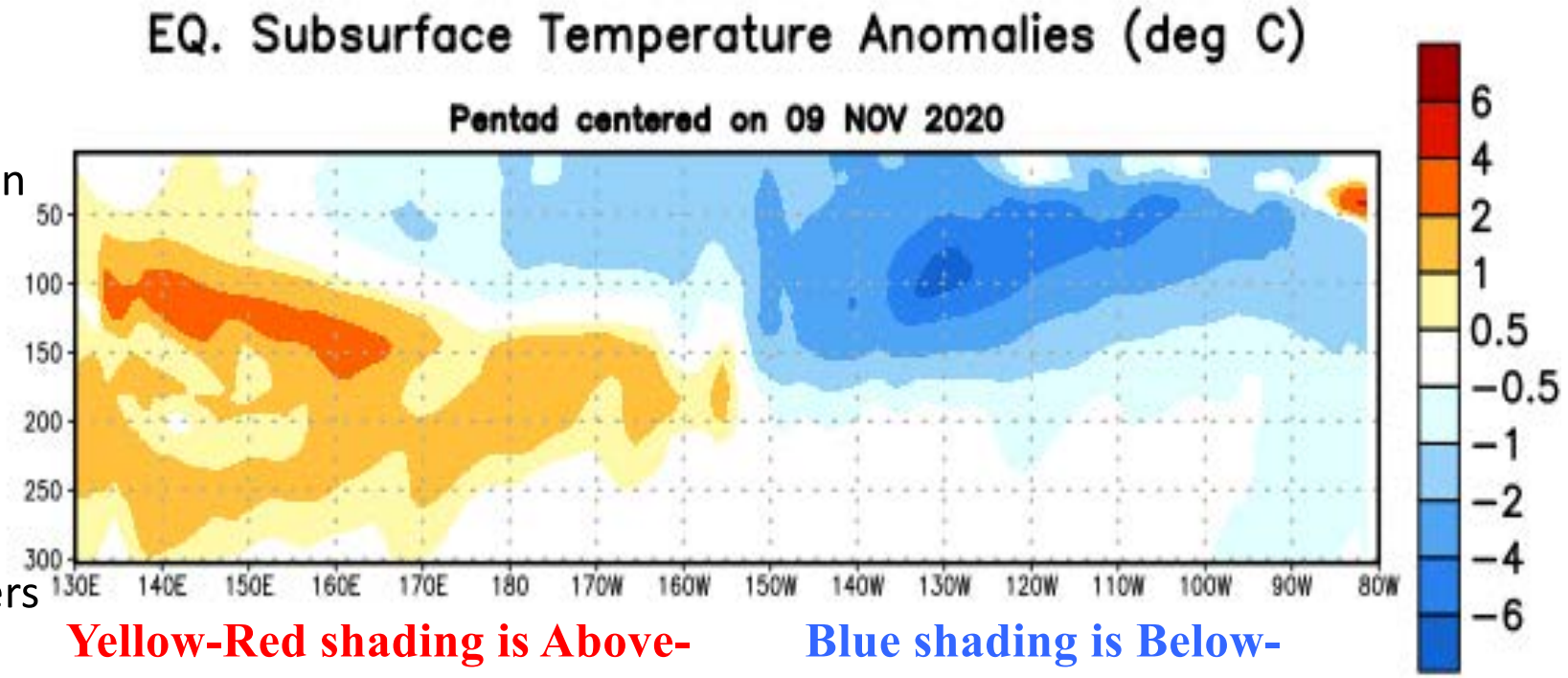
Looking back to 1950, How Strong is it?



Roughly 1 in 10 years have a La Niña as strong as this one.

But La Niña is not just monthly SSTs.

Subsurface temperature anomalies on the Equator (Pacific Ocean)



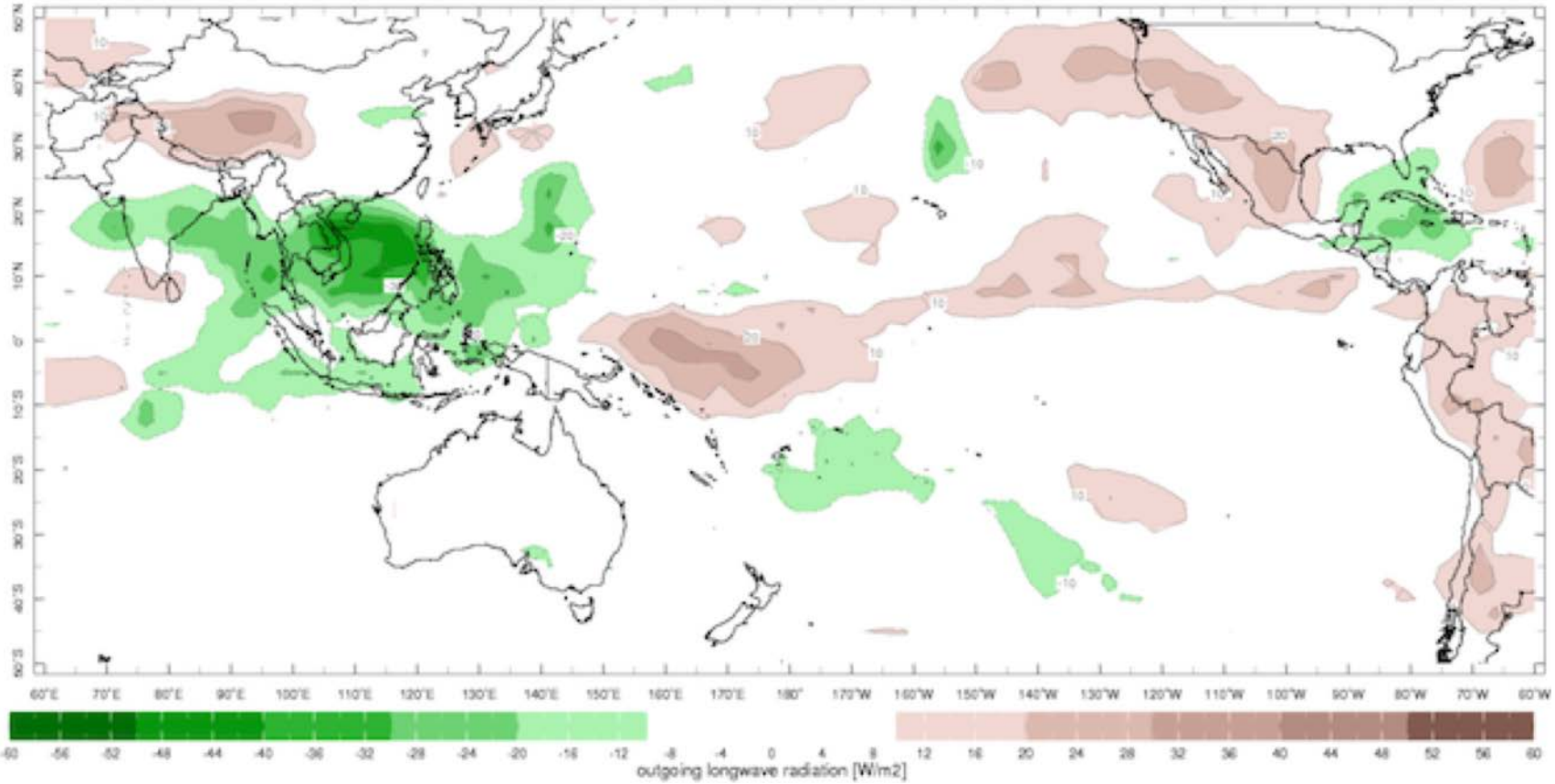
Surface of Ocean

300 meters below surface

Yellow-Red shading is Above-Average Temperatures

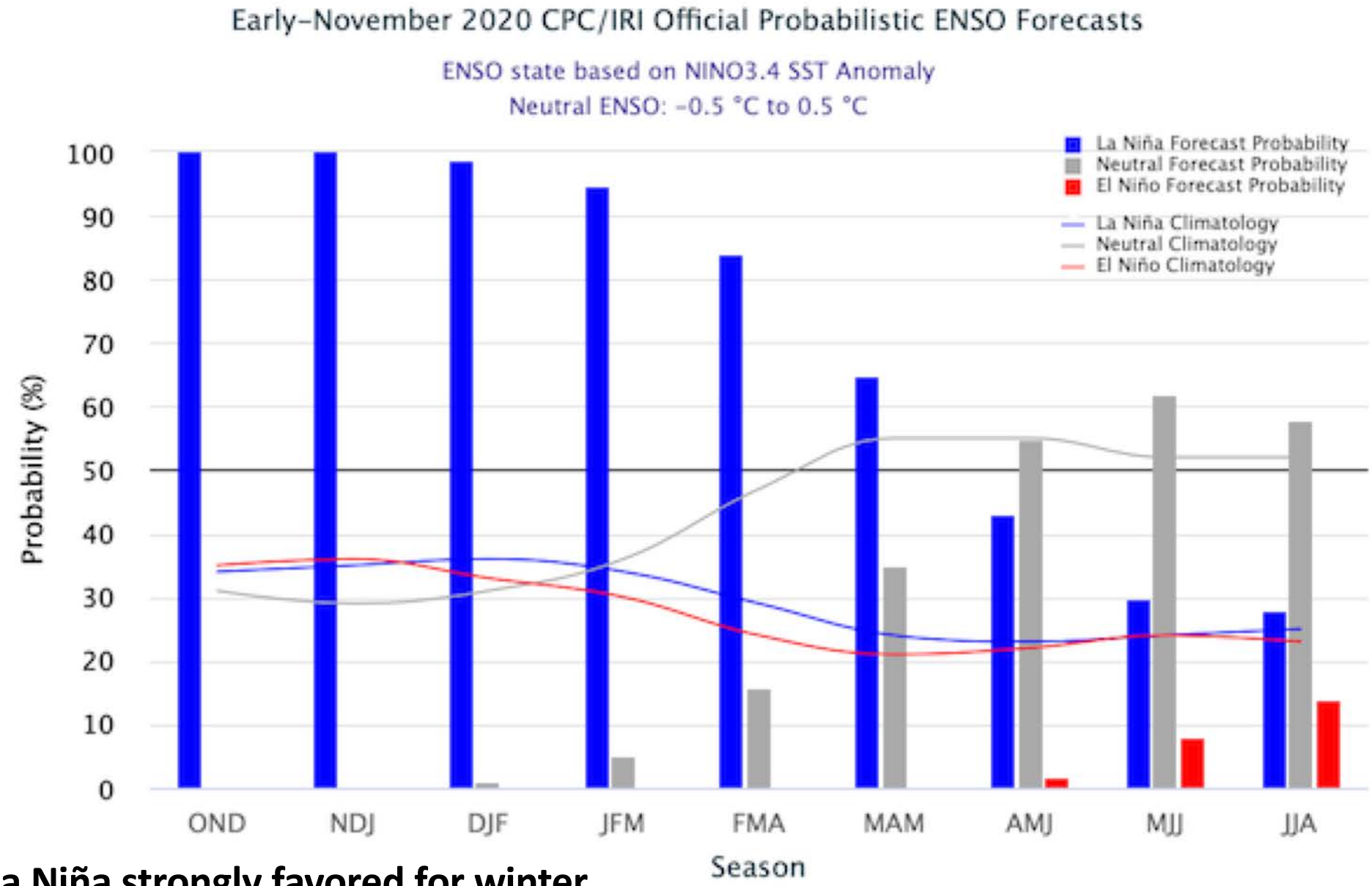
Blue shading is Below-Average Temperatures

Cloudiness/Rainfall (Outgoing Longwave Radiation) anomalies during October



During La Niña, drier than average conditions persist near the Date Line (on equator) and wetter than average conditions are evident over Indonesia.

Current ENSO Probabilities or Chances (in %) (updated 12 November 2020)



La Niña strongly favored for winter.

ENSO-neutral is slightly more likely starting in April-June 2021

New Probabilities for ENSO Strength!

HOME> Climate & Weather Linkage> El Nino Southern Oscillation

ENSO Strengths

This table shows the forecast probability (%) of Niño-3.4 index exceeding a certain threshold (in degrees Celsius).
For negative thresholds, the table shows the probability (%) of a Niño-3.4 index value that is less than (more negative) that value.
For positive thresholds, the table shows the probability (%) of a Niño-3.4 index value that is greater than (more positive) that value.
This tool supports the official ENSO Diagnostic discussion updated on the 2nd Thursday of each month.

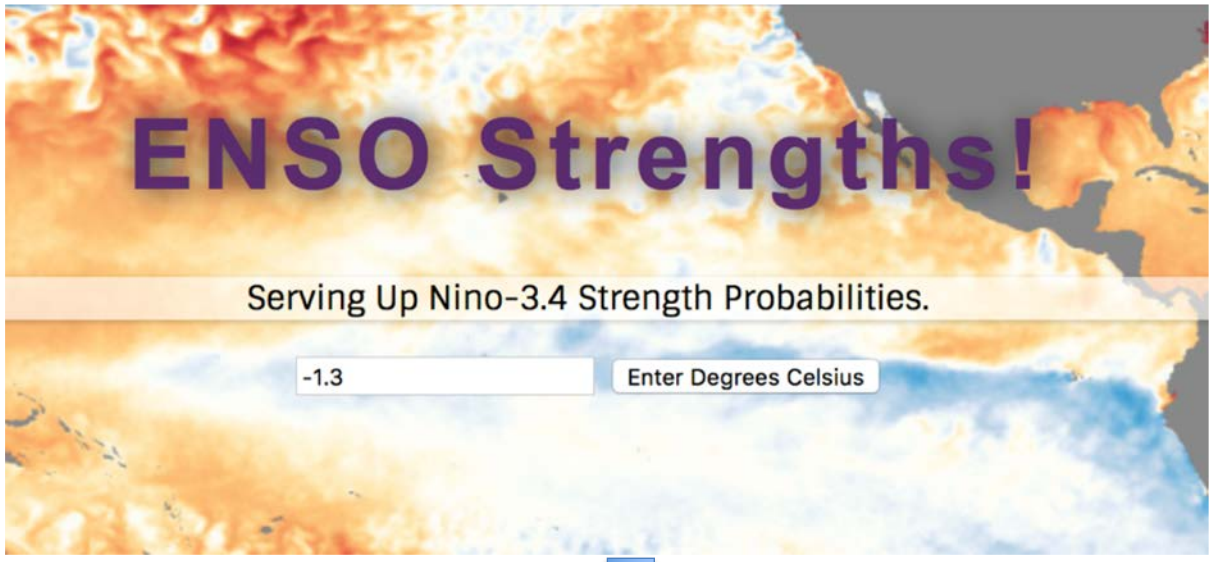
Target	< -1.5°C	< -1.0°C	< -0.5°C	> 0.5°C	> 1.0°C	> 1.5°C
OND	50	99	~100	~0	~0	~0
NDJ	54	94	~100	~0	~0	~0
DJF	44	86	99	~0	~0	~0
JFM	25	69	95	~0	~0	~0
FMA	8	41	84	~0	~0	~0
MAM	2	19	65	~0	~0	~0
AMJ	1	9	43	2	~0	~0
MJJ	~0	6	30	8	1	~0
JJA	1	6	28	14	2	~0
	< -1.5°C	< -1.0°C	< -0.5°C	> 0.5°C	> 1.0°C	> 1.5°C

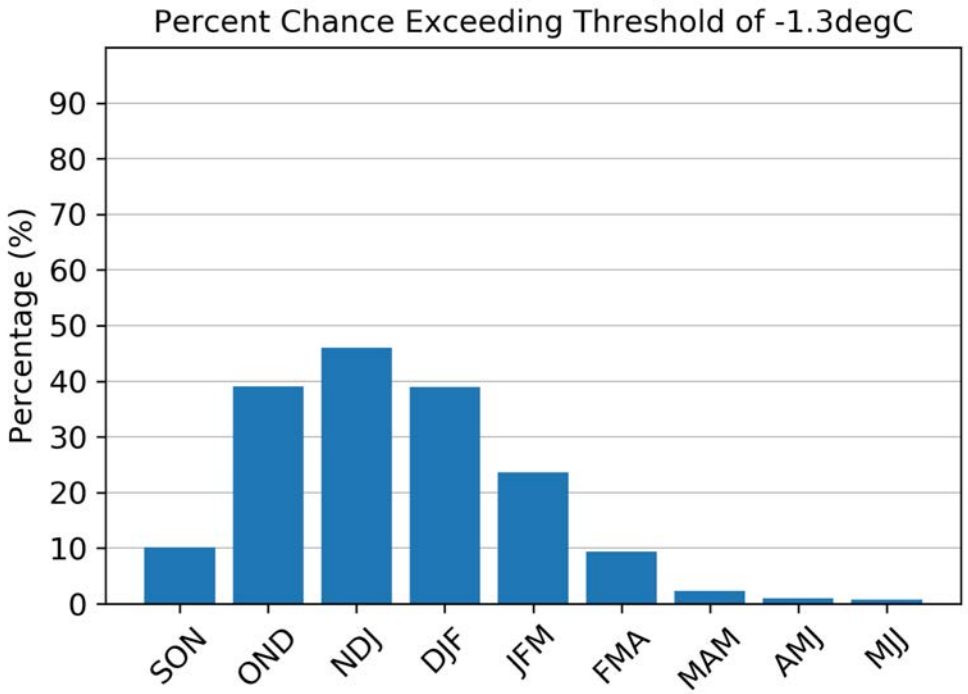
More info here:
https://www.climate.gov/news-features/blogs/enso/enso-forecast-mash-ups-what's-best-way-combine-human-expertise-models

For example, for the November-January season, there is a 54% chance of Niño-3.4 index less than -1.5°C (stronger

https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/strengths/index.php

We want to eventually roll out an interactive tool where you can write in any cut-off you want and get a probability. But we still have some IT challenges to resolve.



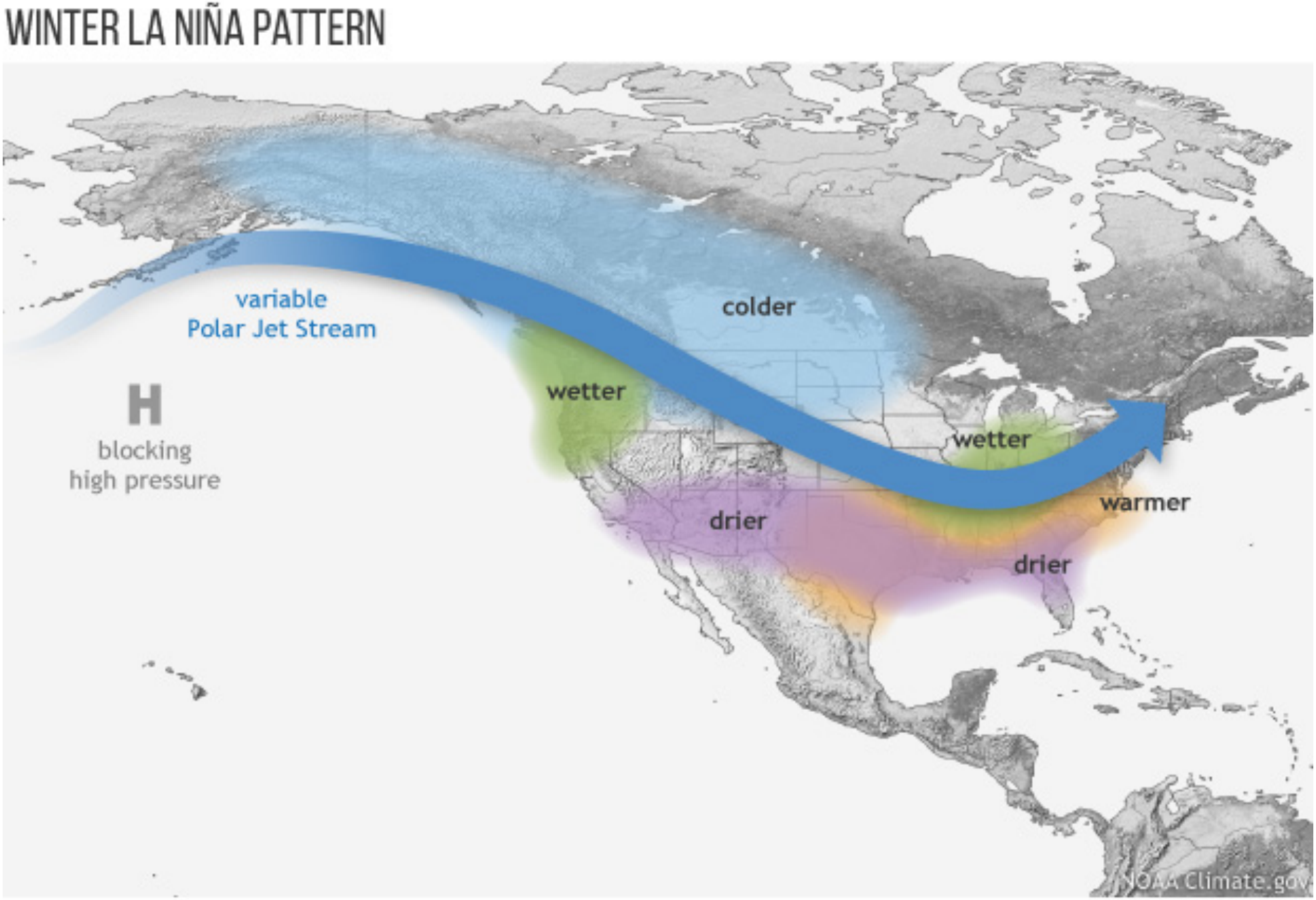


What to Expect for
US Temperature and Precipitation

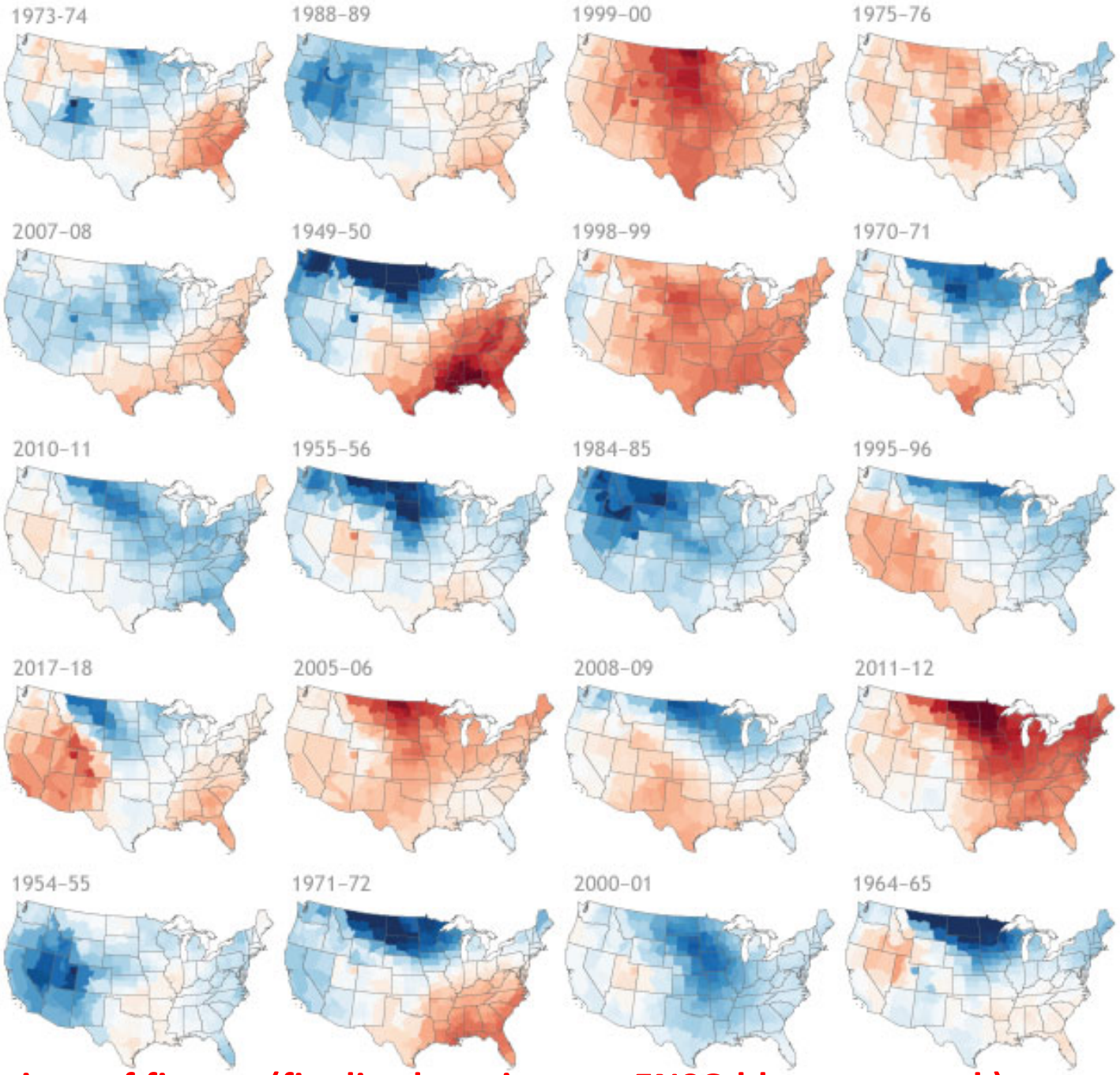
The CPC seasonal outlook
updated as of this morning!

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

Schematic Version of La Niña Impacts

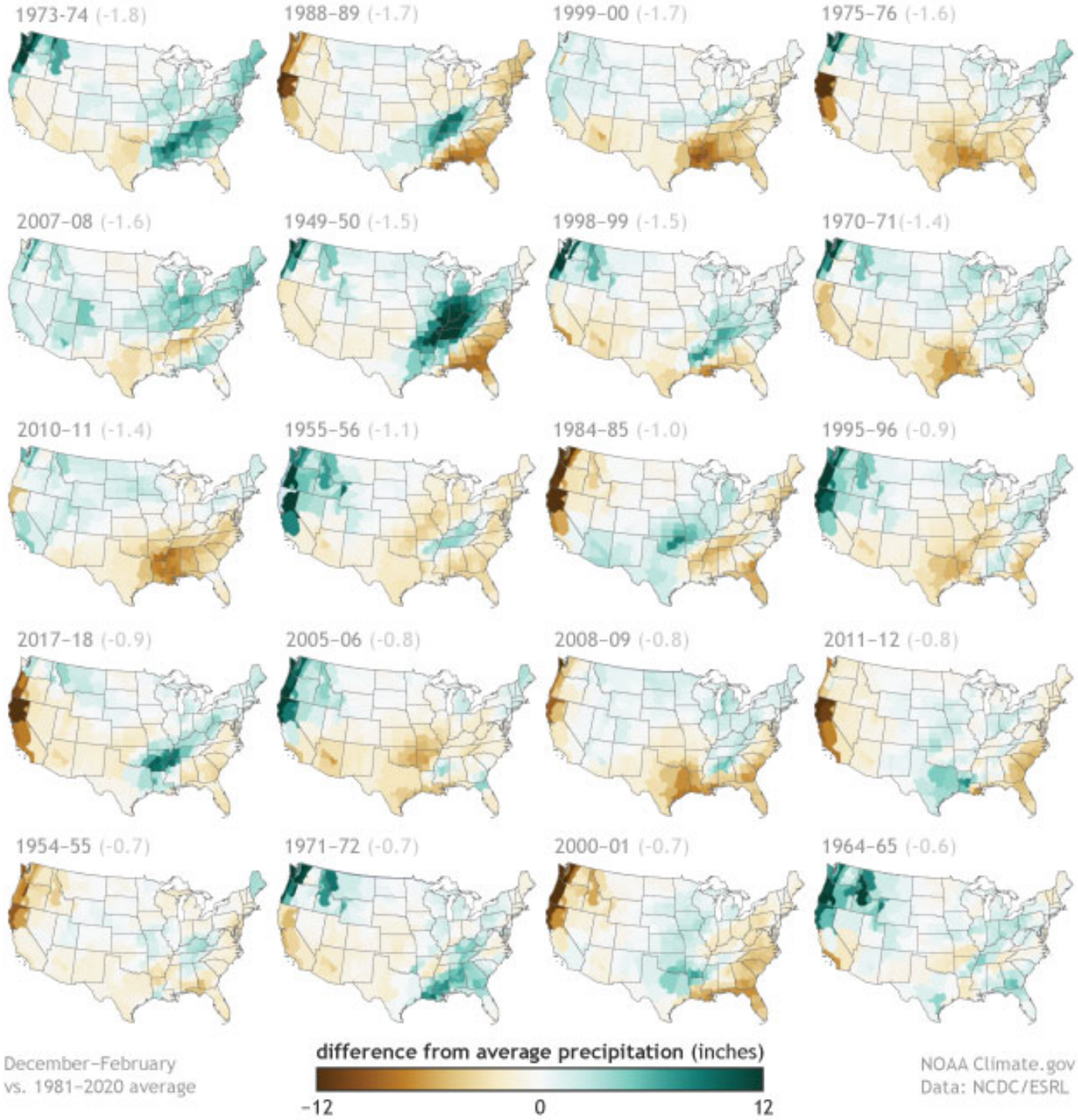


Temperature anomalies associated with La Niña winters



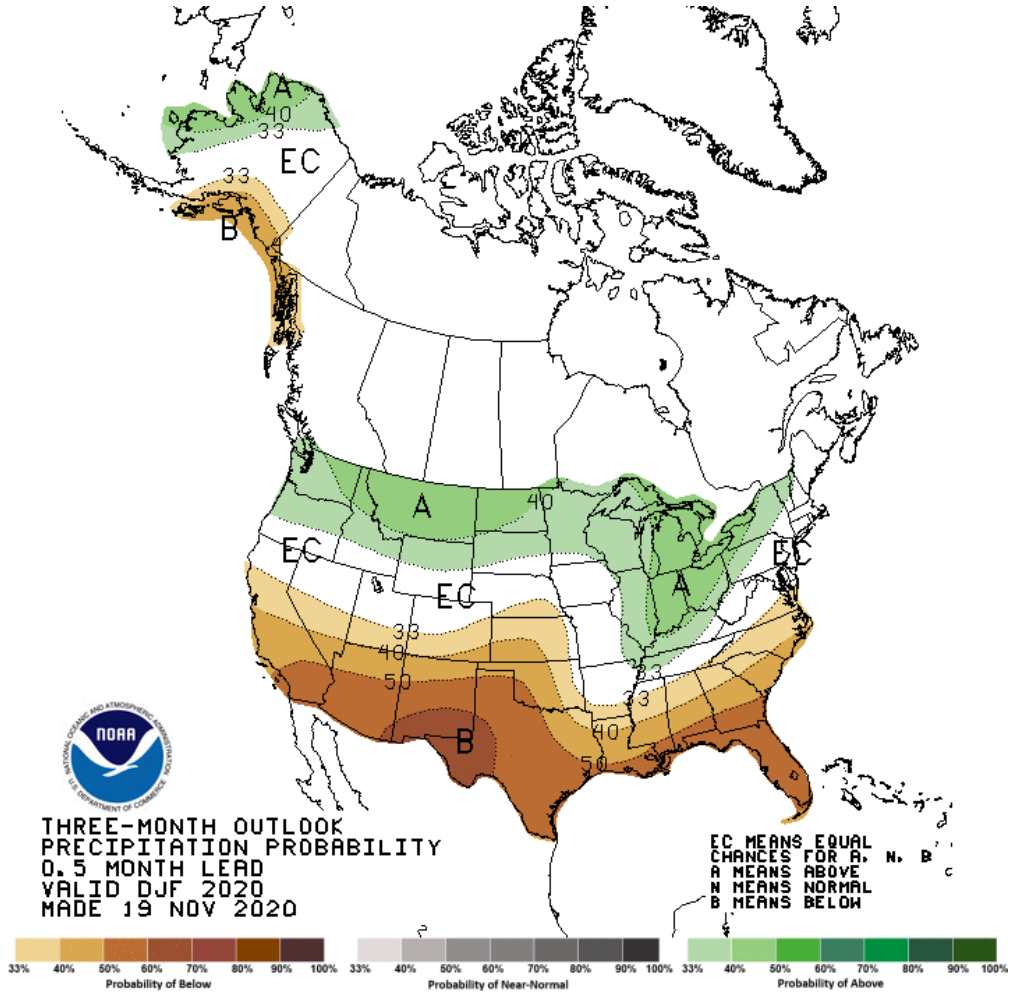
NOTE: Draft versions of figures (finalized versions on ENSO blog next week)

Precipitation anomalies associated with La Niña winters

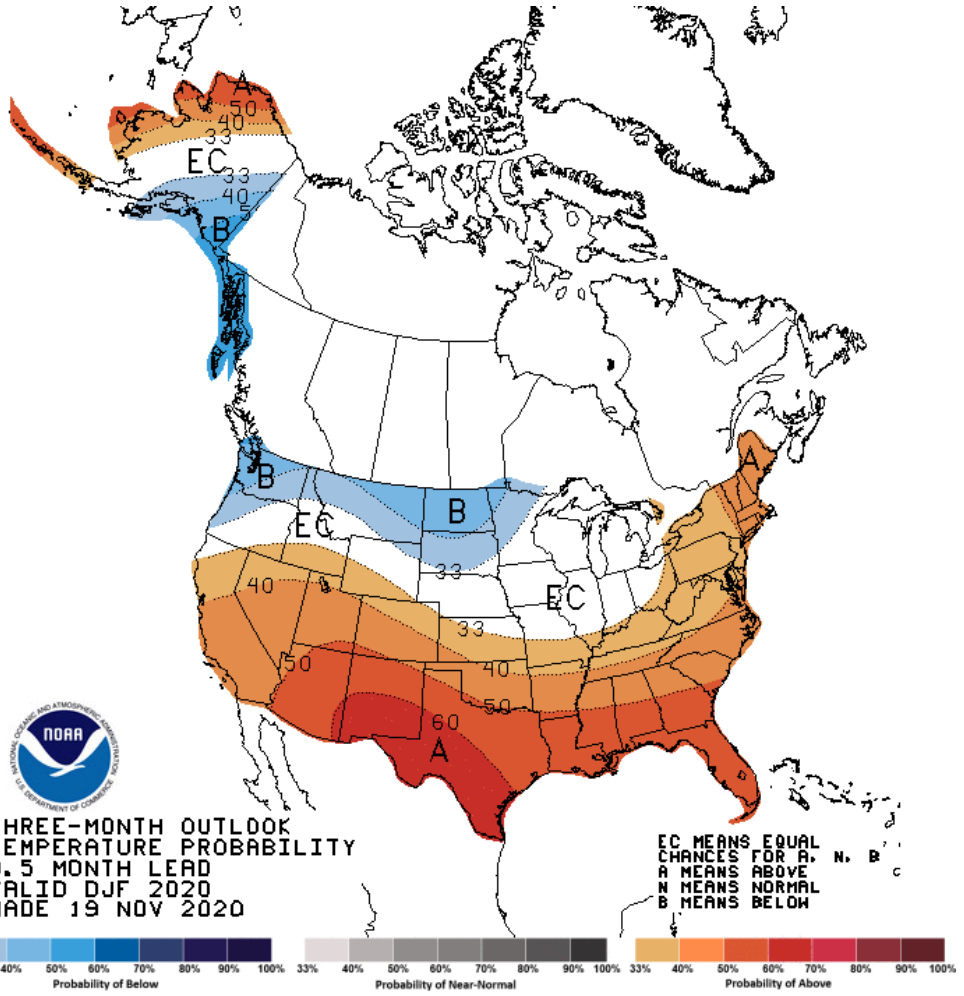


December-January-February (DJF) Outlook 2020-21

Precipitation Chances

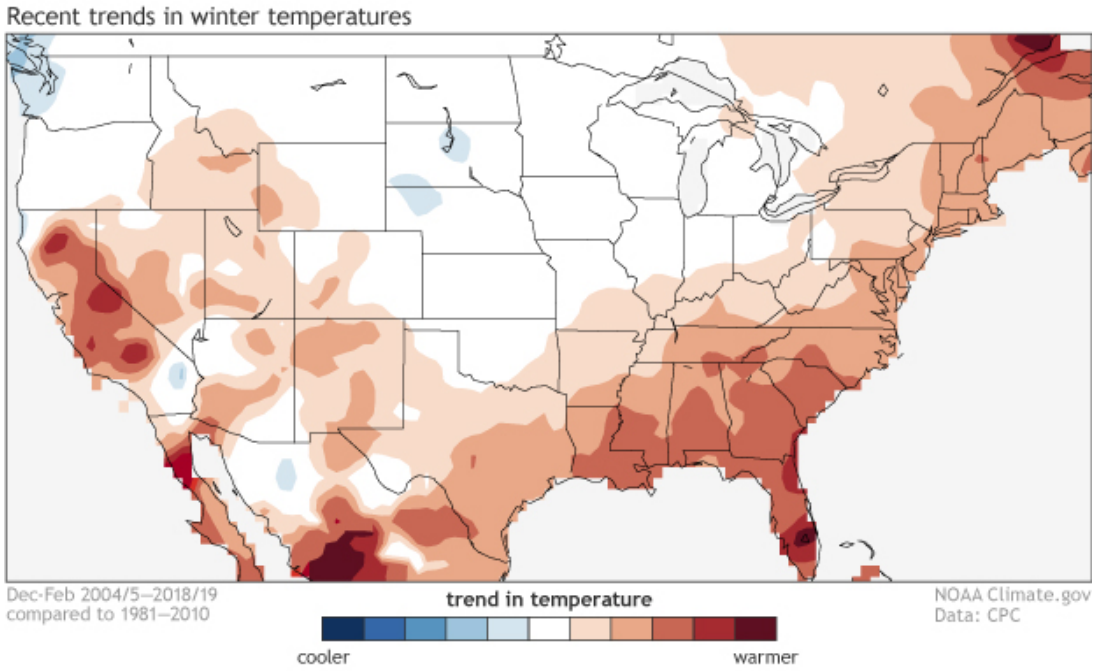


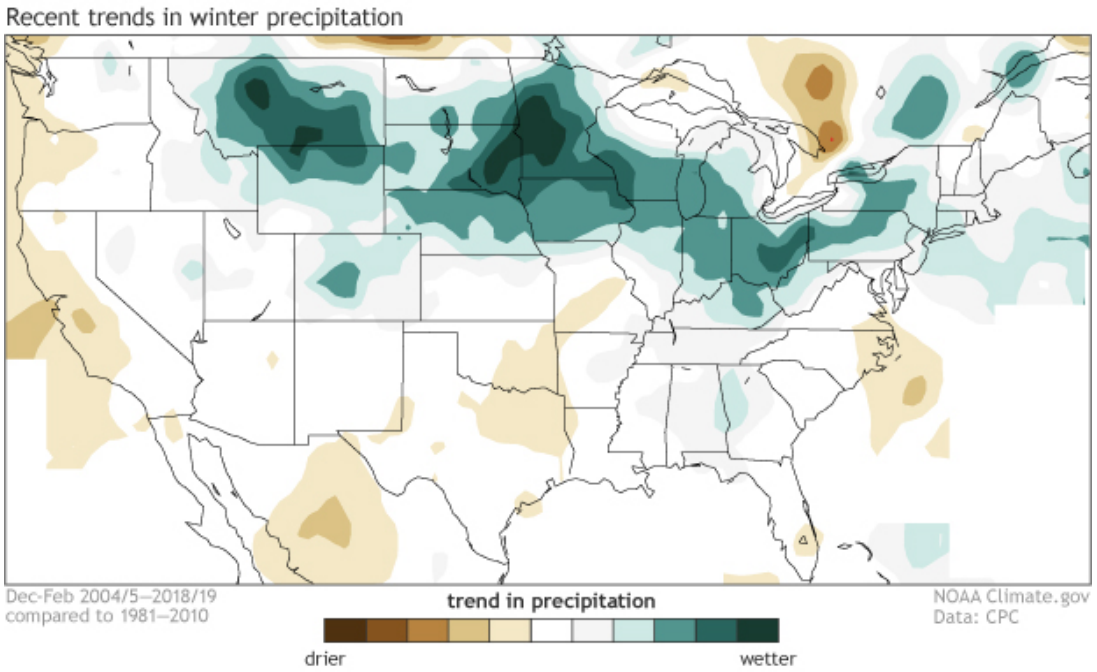
Temperature Chances



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

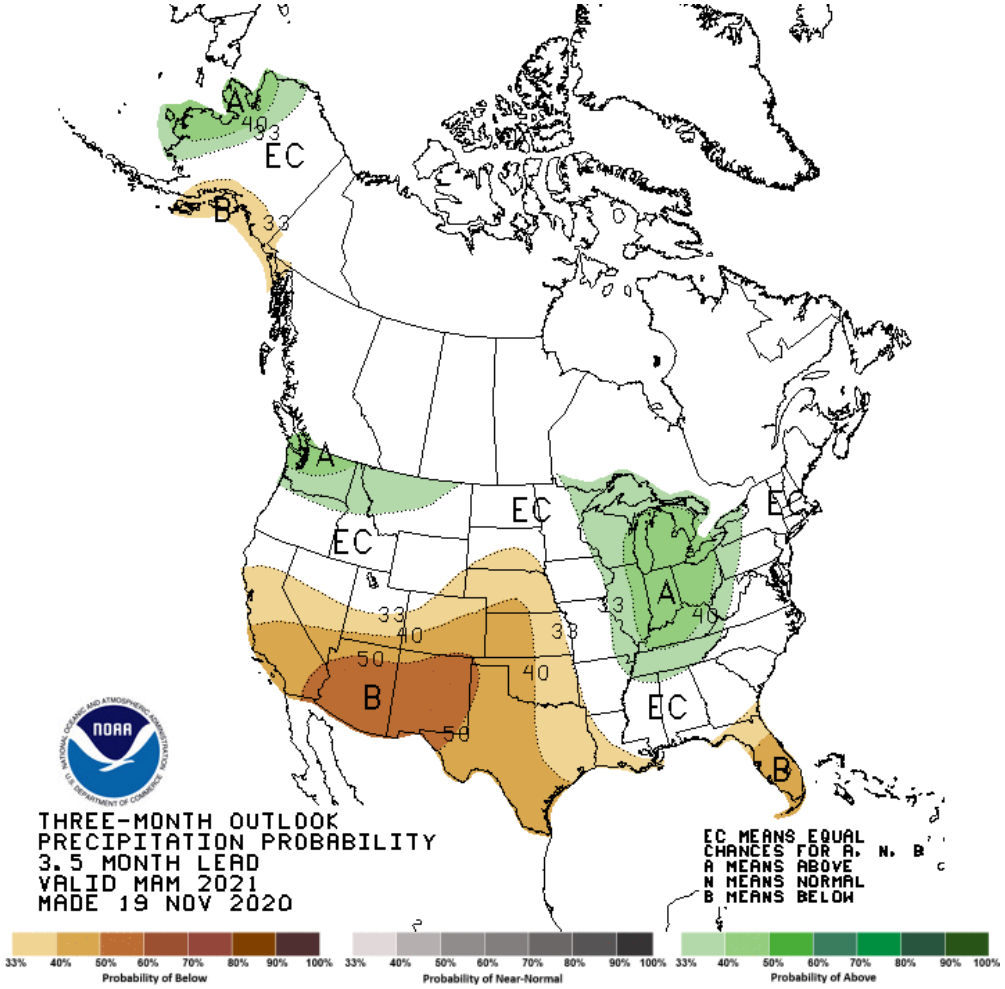
Dec-Feb Trend based on Optimal Climate Normals (OCN)



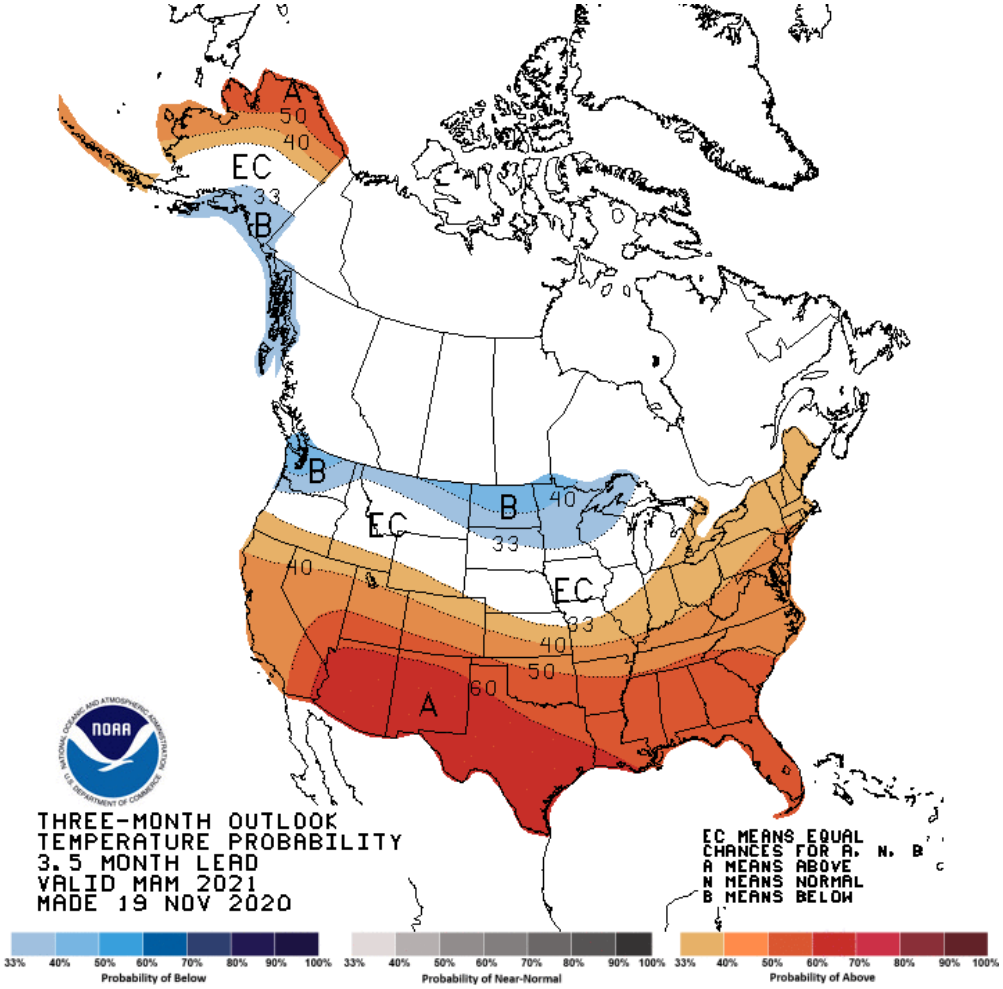


March-April-May Outlook
2021

Precipitation Chances



Temperature Chances



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

Summary

- Currently, there is a La Niña Advisory
- La Niña is likely to continue through the Northern Hemisphere winter 2020-21 (~95% chance during January-March) and into spring 2021 (~65% chance during March-May).
- Winter (Dec-Feb) seasonal prediction is informed by various climate models, but La Niña and the "Trend" (15-year average relative to 30-year climo) are prominent drivers.

ENSO Diagnostics Discussion
http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/ensodisc.html *[updated on 2nd Thursday of each month]*

ENSO Blog http://www.climate.gov/news-features/department/enso-blog *[updated twice a month]*