



Update to 30 year Climate Normals: Comparisons and Impacts

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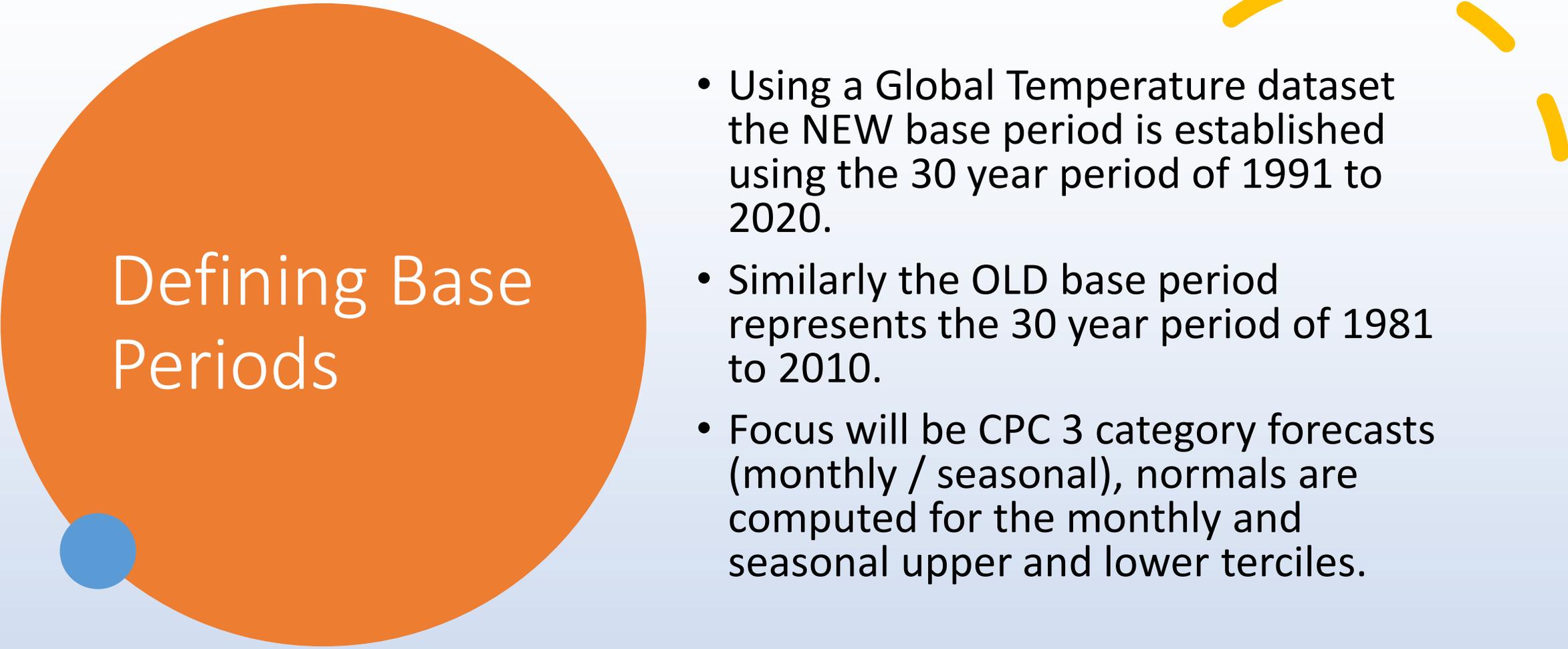
Mentors: **Mike Halpert** and **Nick Novella**

October 27th, 2021

Outline

- Define new and old base periods
- Monthly / Seasonal Temperature differences between tercile thresholds
- Categorical distribution of observations

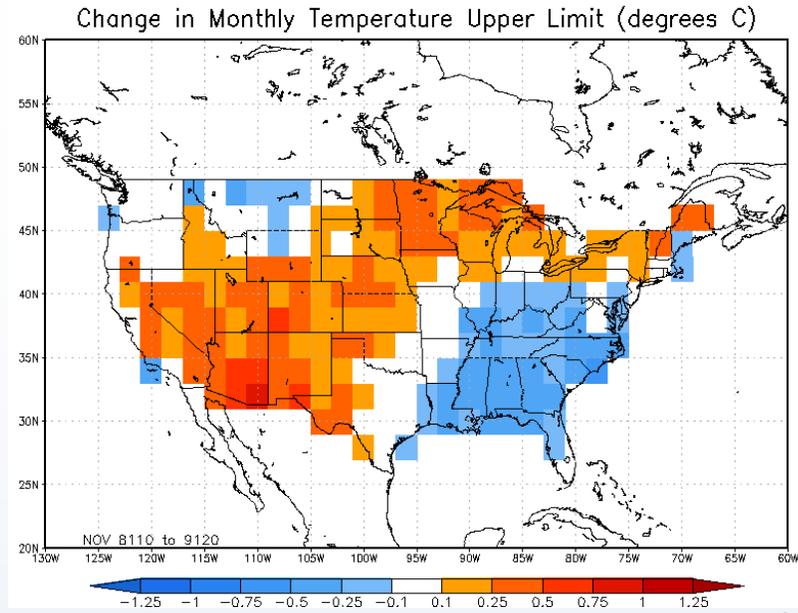




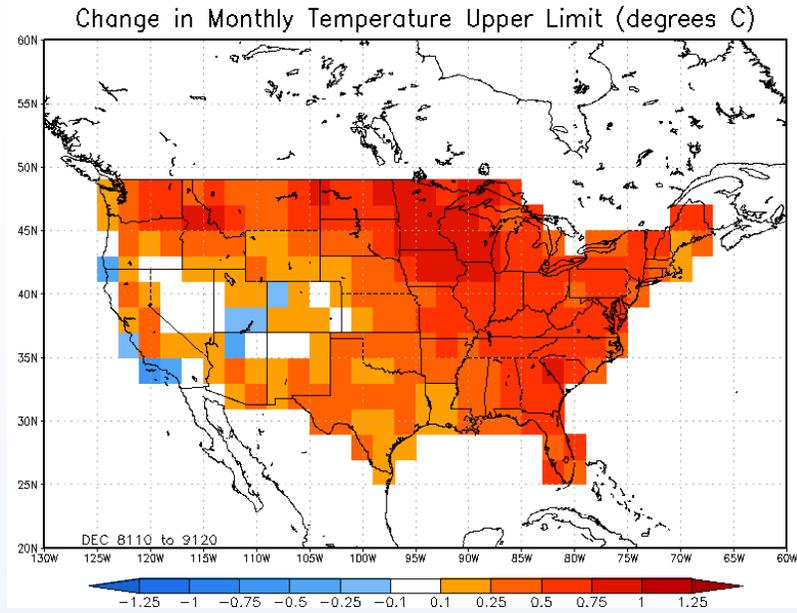
Defining Base Periods

- Using a Global Temperature dataset the NEW base period is established using the 30 year period of 1991 to 2020.
- Similarly the OLD base period represents the 30 year period of 1981 to 2010.
- Focus will be CPC 3 category forecasts (monthly / seasonal), normals are computed for the monthly and seasonal upper and lower terciles.

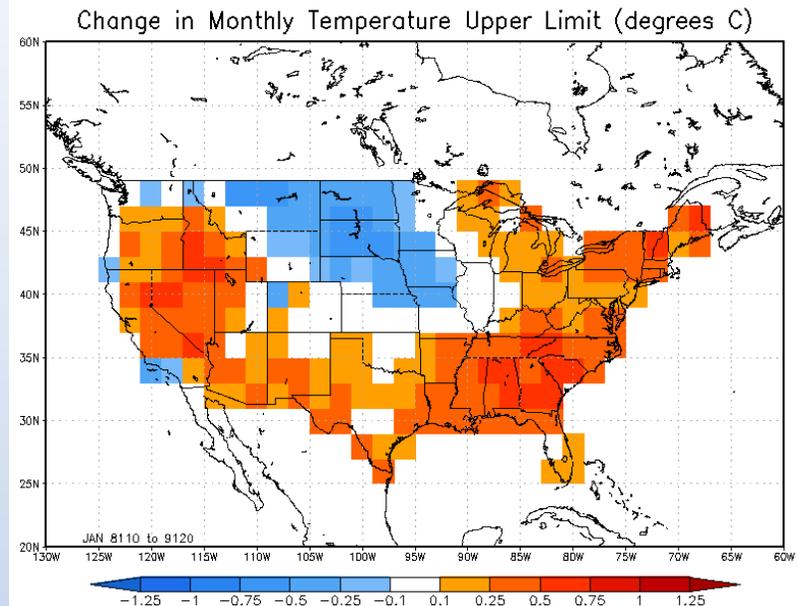
November



December



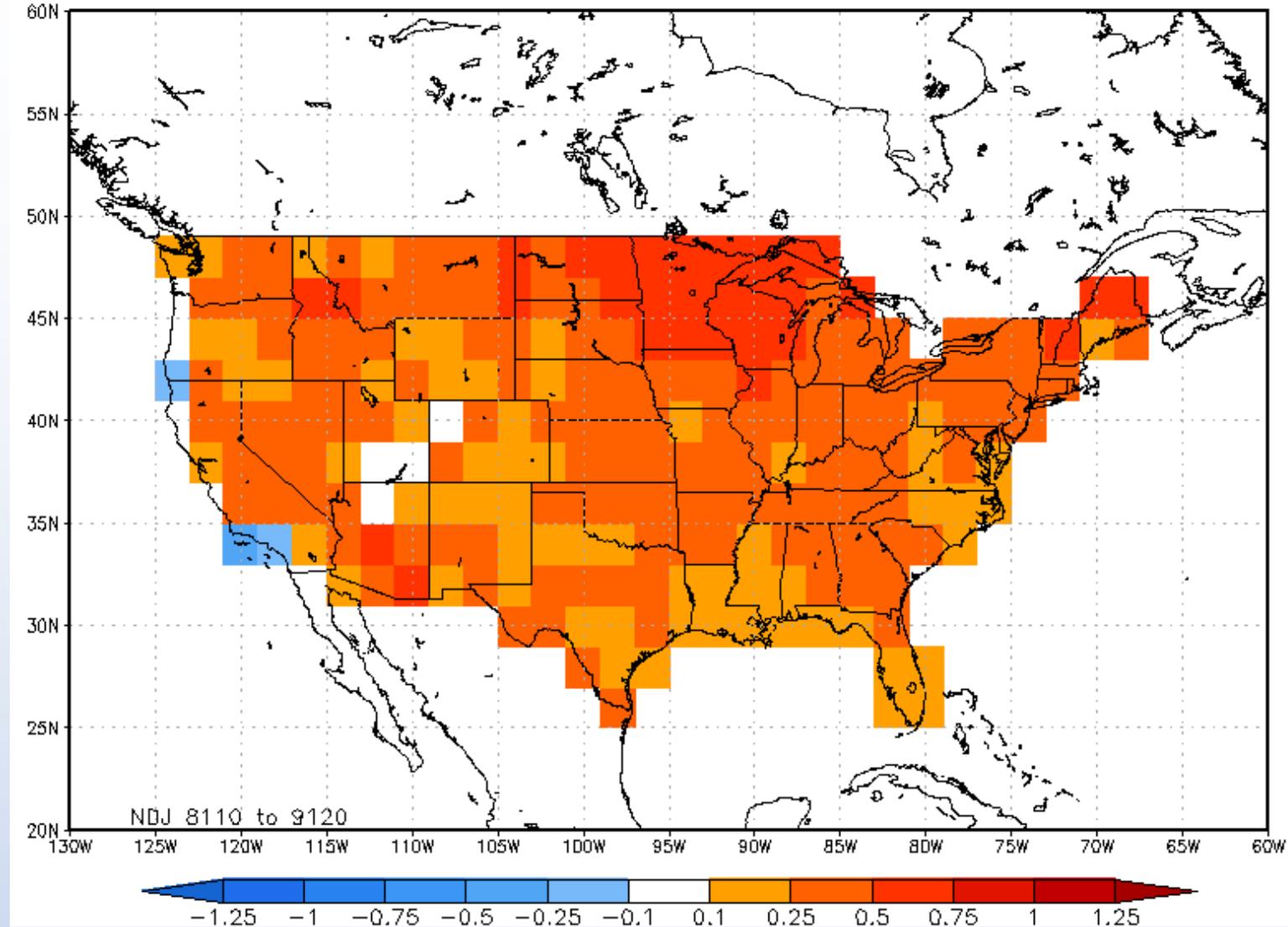
January



New = 1991 to 2020 Old = 1981 to 2010

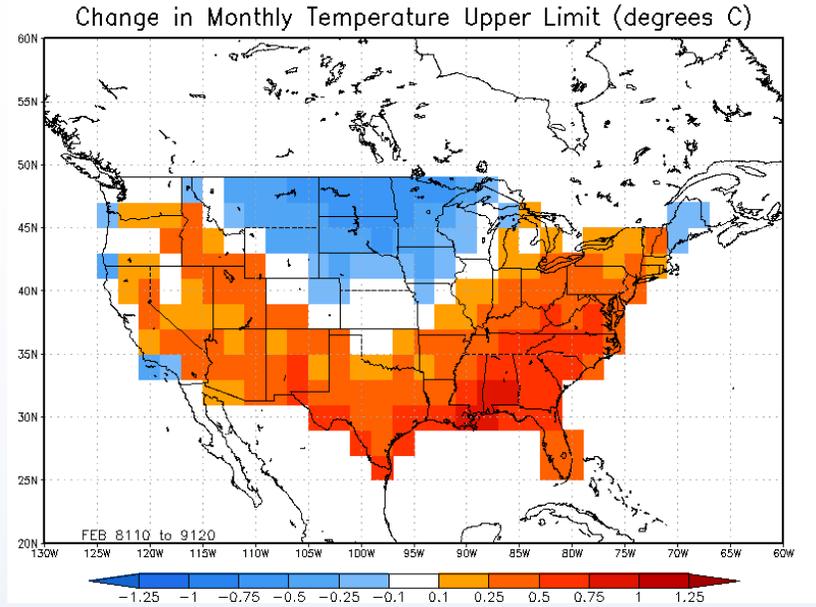
November – December - January

Change in Season Temperature Upper Limit (degrees C)

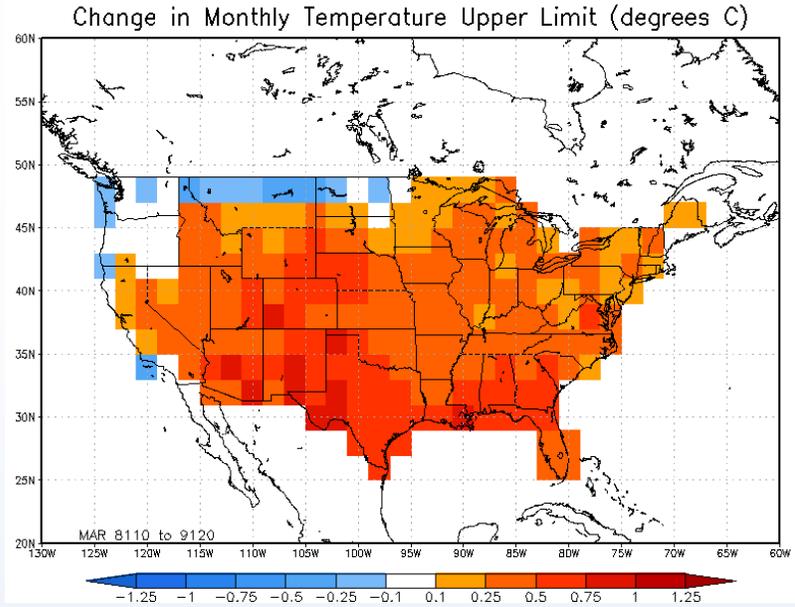


New = 1991 to 2020 Old = 1981 to 2010

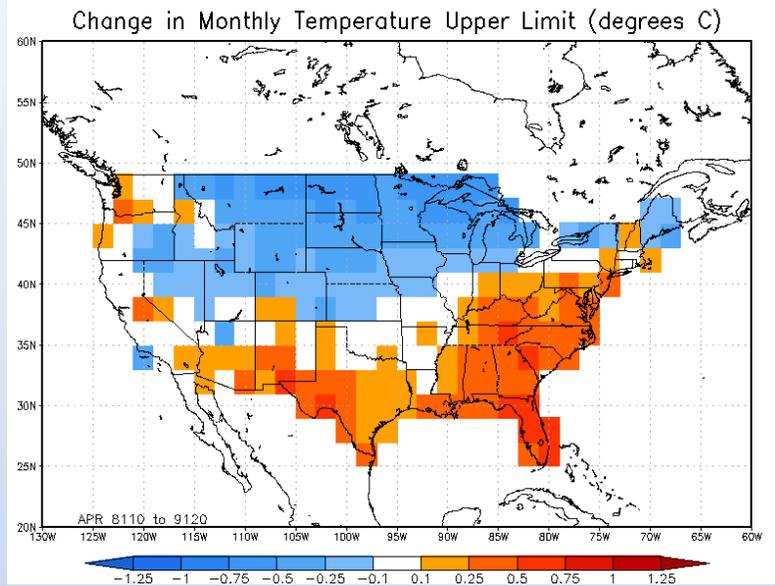
February



March



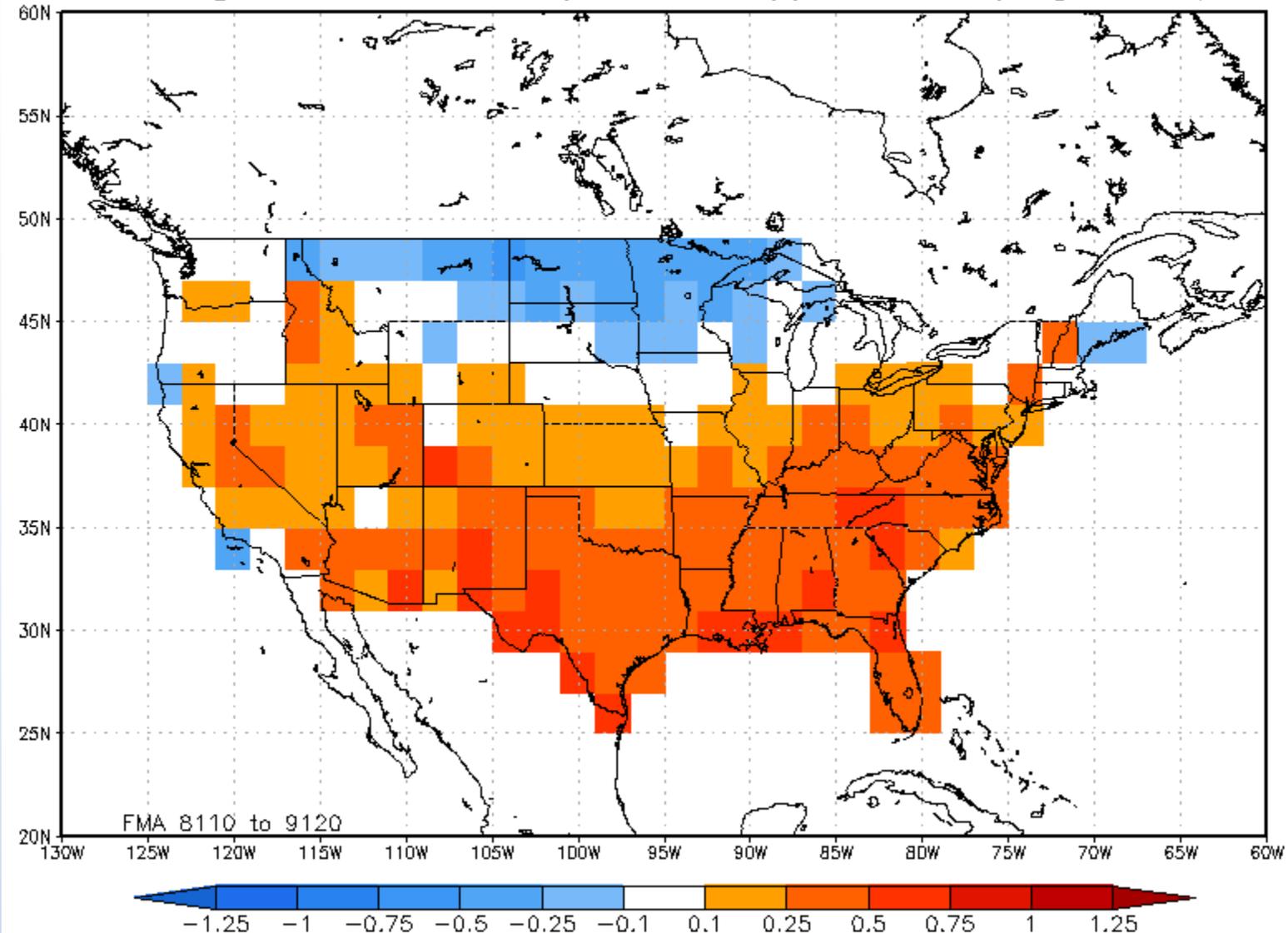
April



New = 1991 to 2020 Old = 1981 to 2010

February – March - April

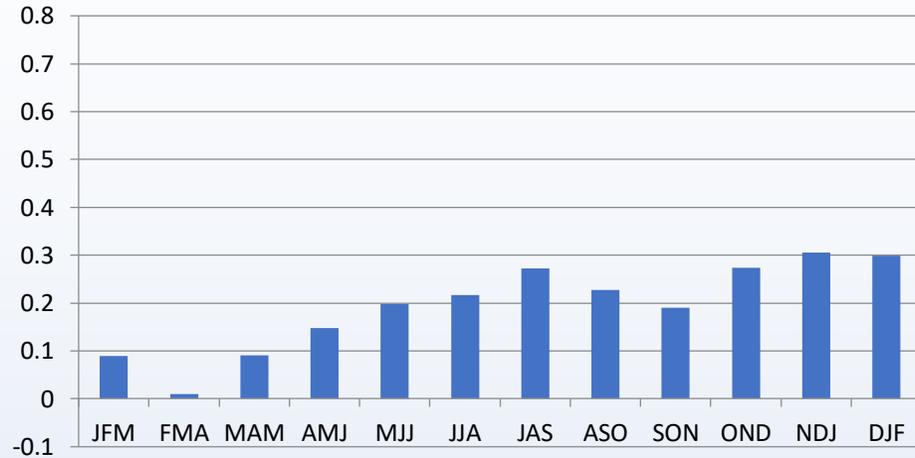
Change in Season Temperature Upper Limit (degrees C)



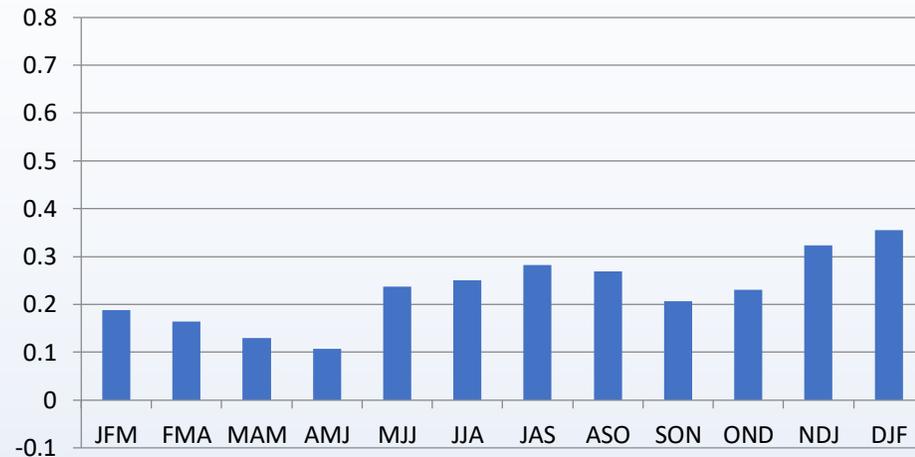
New = 1991 to 2020 Old = 1981 to 2010

Differences in Base Periods CONUS Spatial Average

Temp Difference Seasons Lower



Temp Difference Seasons Upper



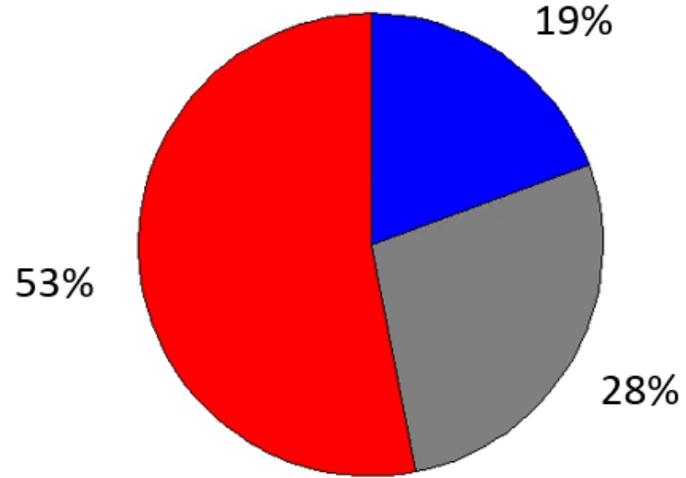
Precip Difference Seasons Lower



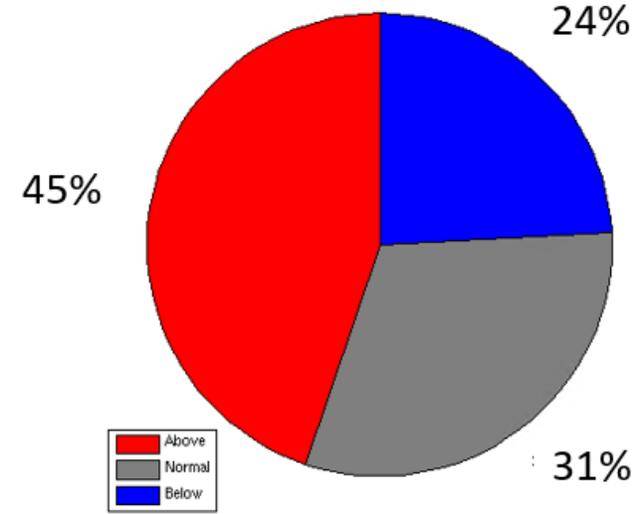
Precip Difference Seasons Upper



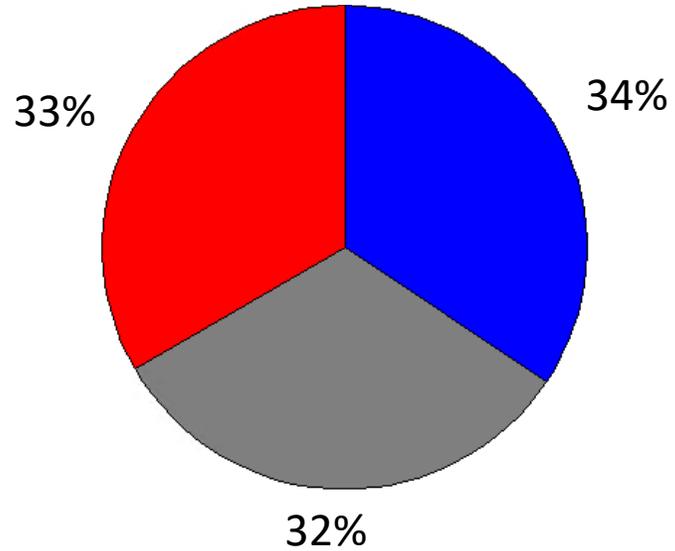
**Seasonal Temp
1981-2010**



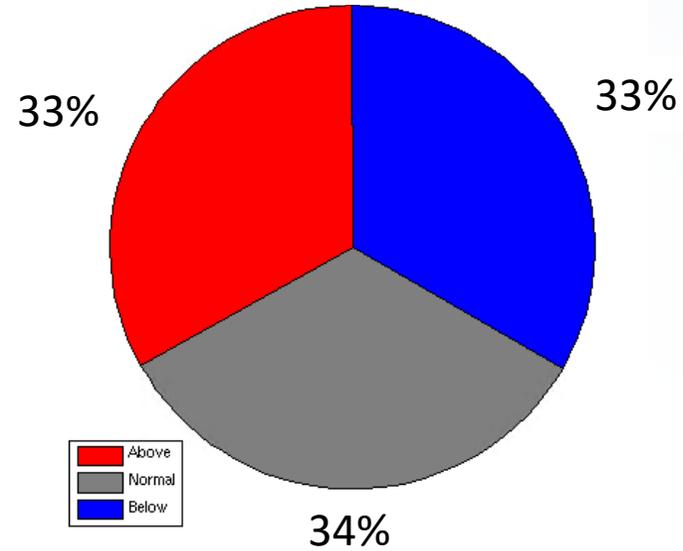
**Seasonal Temp
1991-2020**



**Seasonal Prec
1981-2010**



**Seasonal Prec
1991-2020**



Summary

- New base period for Temperature is predominantly warmer although there are some unique instances where the new base period is colder in some locations of the CONUS. Precipitation differences are smaller although there's a tendency for the eastern and central US to be wetter with the western CONUS drier.
- The general trend of increasing temperatures results in a smaller share of the 2011-2020 observations being classified as above-average. However, the distribution is still biased toward above average.
- Precipitation observations are very evenly distributed among the three classes and the change in limits from the new base period has little impact.

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