**Methodology for Data Viewer**

**图表, 条形图

描述已自动生成**

**Historical Values (Boxes: Climatological Percentile)**

1. Read historical daily data from 1981 to 2023
2. Convert daily data to monthly data
   * Precipitation: Sum the daily precipitation values for each month to obtain monthly totals, and convert the units to inches per month
   * Temperature: Average the daily temperature values for each month to obtain monthly averages, and convert unit to Fahrenheit
3. Determine the minimum, 1/3, 2/3, and maximum percentiles for each calendar month

* For example, to determine these four percentile values for January:
  + Rank the January values from 1981 to 2023
  + Identify the minimum, 1/3, 2/3, and maximum percentiles from the ranked data

1. Save the four percentile values for each of the 12 months and plot them as boxes

**Forecast Values (White Dots: Ensemble Mean; Shading: Probability)**

1. Convert daily data to monthly data
   * Precipitation: Sum the daily precipitation values for each month to obtain monthly totals, and convert the units to inches per month
   * Temperature: Average the daily temperature values for each month to obtain monthly averages, and convert the units to Fahrenheit
2. Calculate the ensemble mean for each forecast month
3. Calculate the probability of each percentile range for each forecast month
   * Count how many ensemble members fall below 1/3, between 1/3 and 2/3, and above 2/3 of the historical percentiles
   * Divide the count of ensemble members in each category by the total ensemble size to get the percentage for each group
4. Plot the ensemble mean as white dots and the percentage distributions as shading with different colors

/scratch16/umd-xliang/shinsa11/Exp2024May\_NonBC/CWRF-post

**OBS**

*/mnt/gfs01/PUB/S2S/V2023-07/Operational/Data\_Viewer/*

Neet to do:

Max and min, not only quantile.

60km search

**CWRF operational run:**

*/mnt/gfs01/PUB/S2S/V2023-07/Operational*

Before May 16: 2 realizations. Amend later.

After, 3 realizations.

**CWRF hindcast: 2012- 2023**

*/mnt/gfs01/PUB/S2S/V2023-07/V0\_hindcast*

**CFS data**

Monthly data:

/mnt/gfs01/PUB/CFS/regrid\_full\_monthly/

For data viewer

*/mnt/gfs01/PUB/CFS/regrid\_full\_monthly/for\_data\_viewer*