

A Visual Climatology of Kentucky

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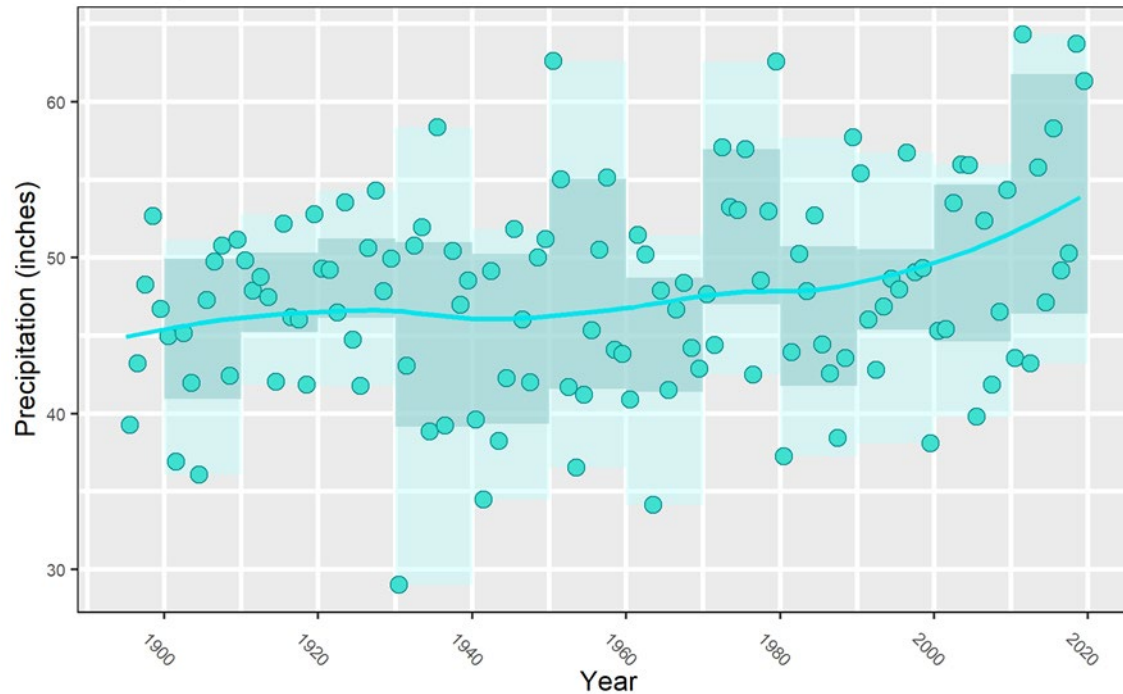
Kentucky Agriculture Science and Monitoring Committee

September 2, 2020

Motivation

- Broad public and professional interest in climate trends and climate change
- Challenge of identifying and conveying patterns and trends in the midst of high variability
- Extracting information via exploratory data visualization

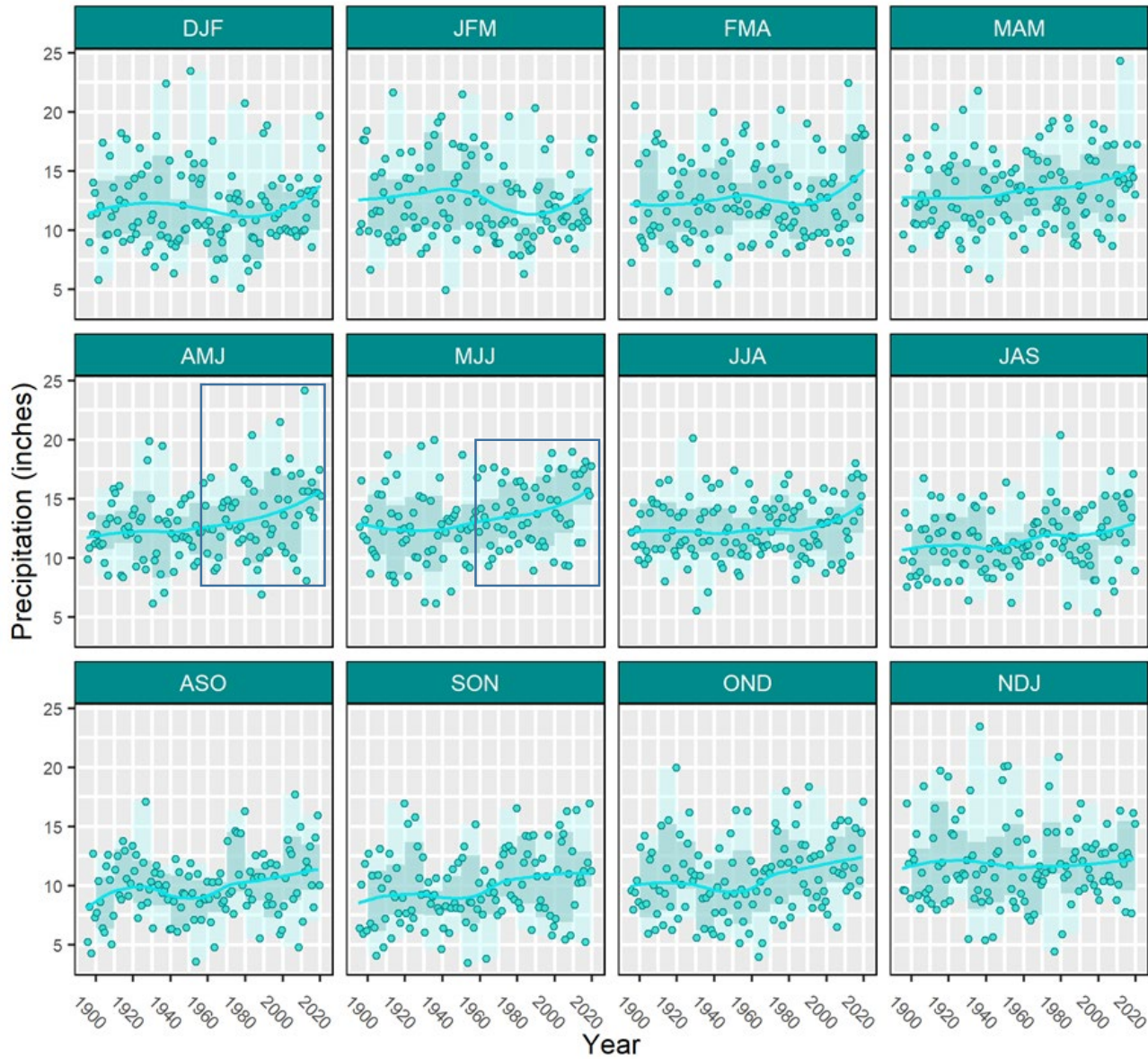
Annual Precipitation Trends Kentucky, Statewide



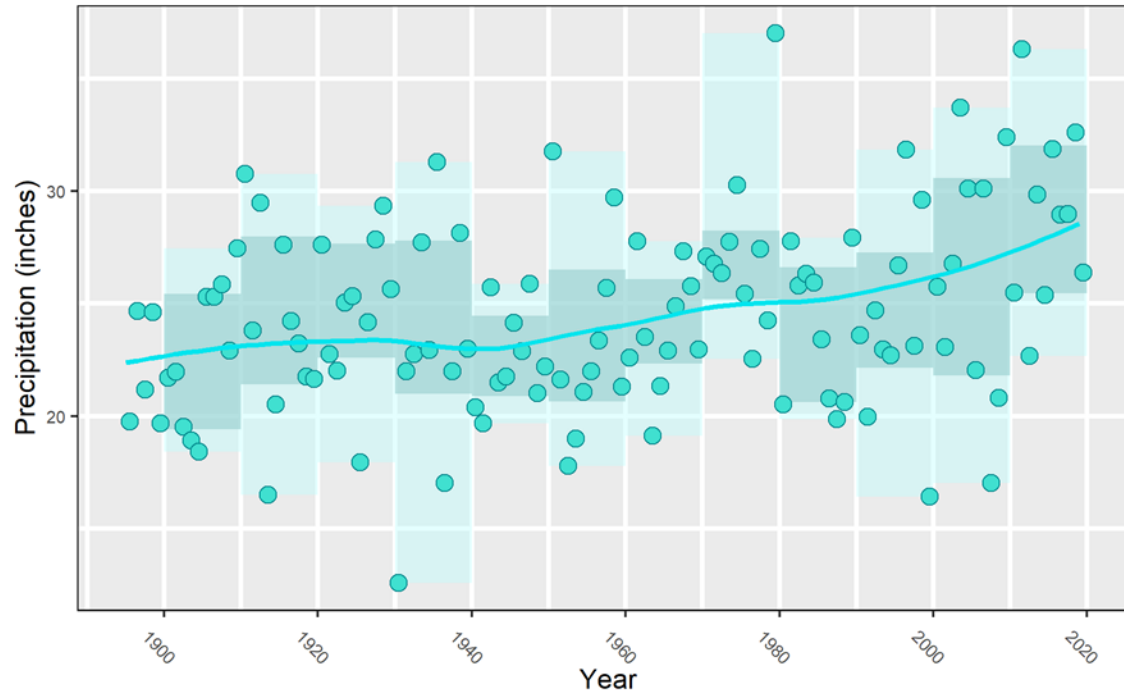
- Scatter plot
- Smoothing curve (LOESS)
- Quantiles (0%, 20%, 80%, 100%)

Seasonal Precipitation Trends

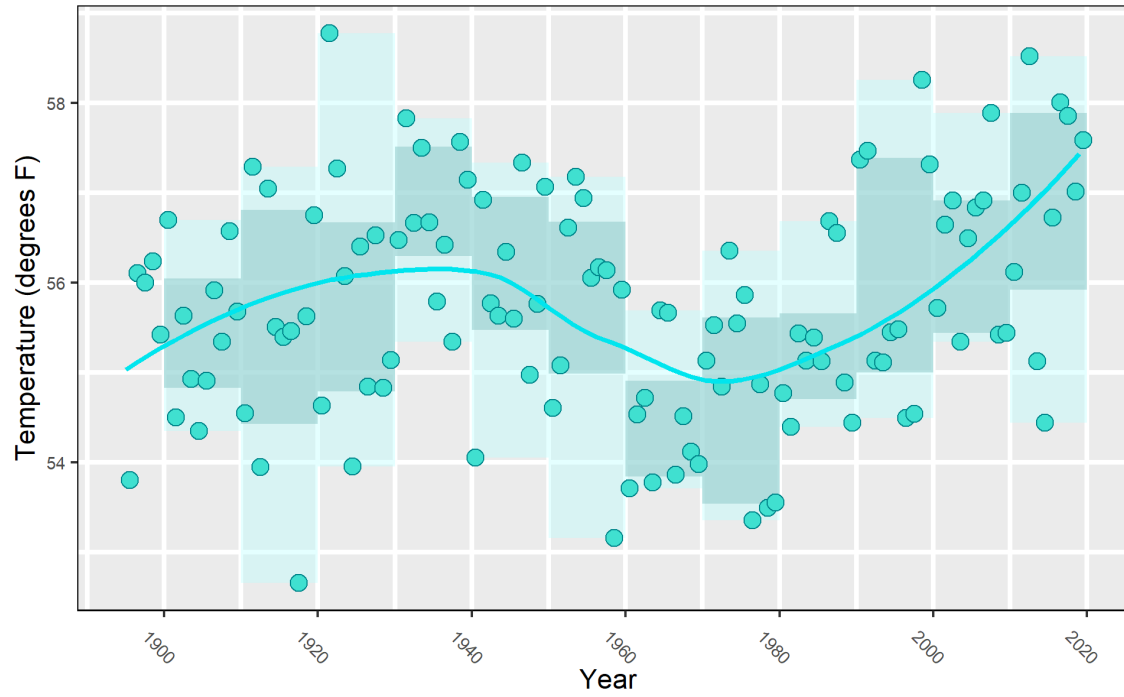
Kentucky, Statewide



Growing Season Precipitation Trends Kentucky, Statewide

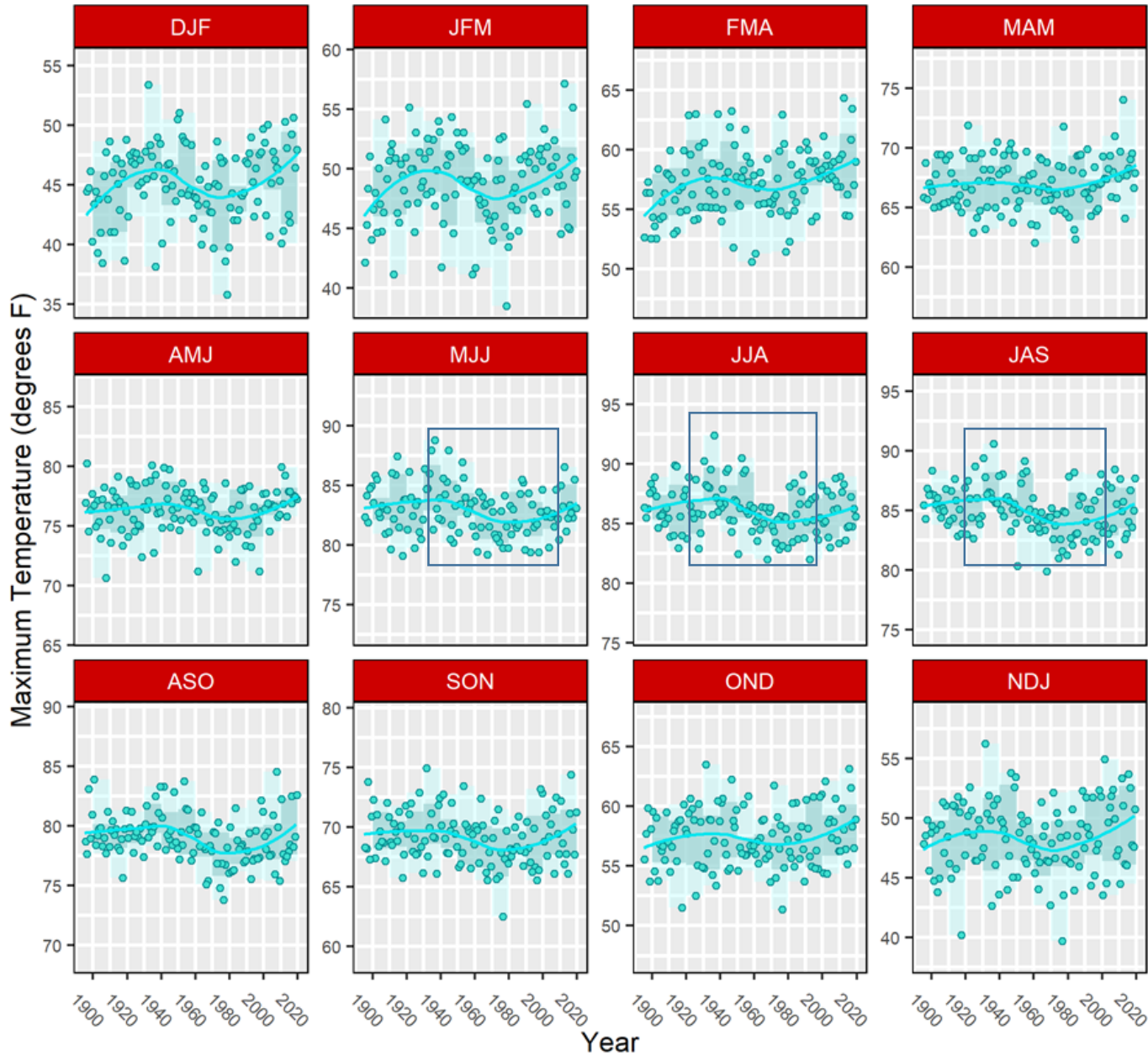


Annual Average Temperature Trends Kentucky, Statewide



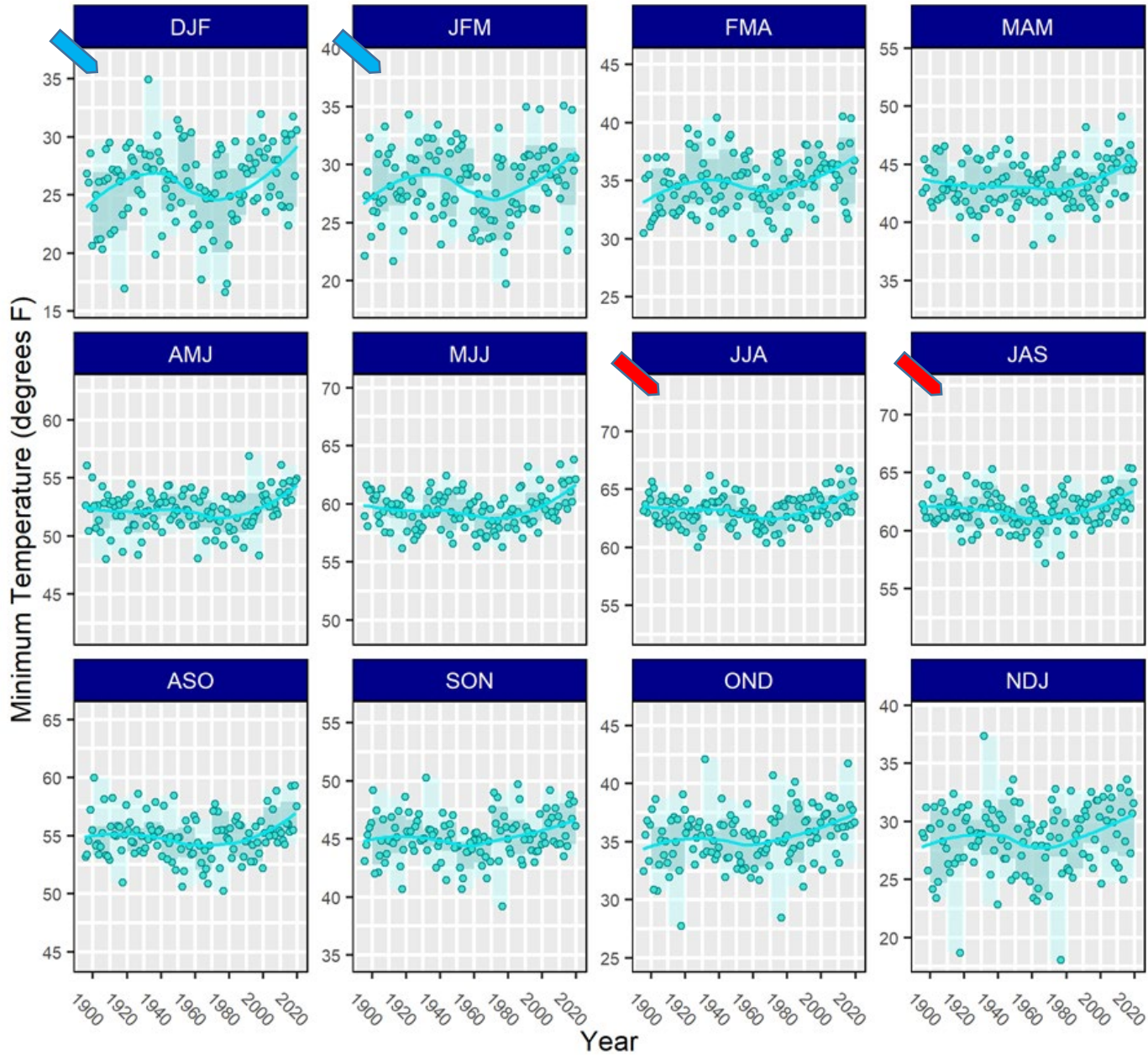
Seasonal Maximum Temperature Trends

Kentucky, Statewide



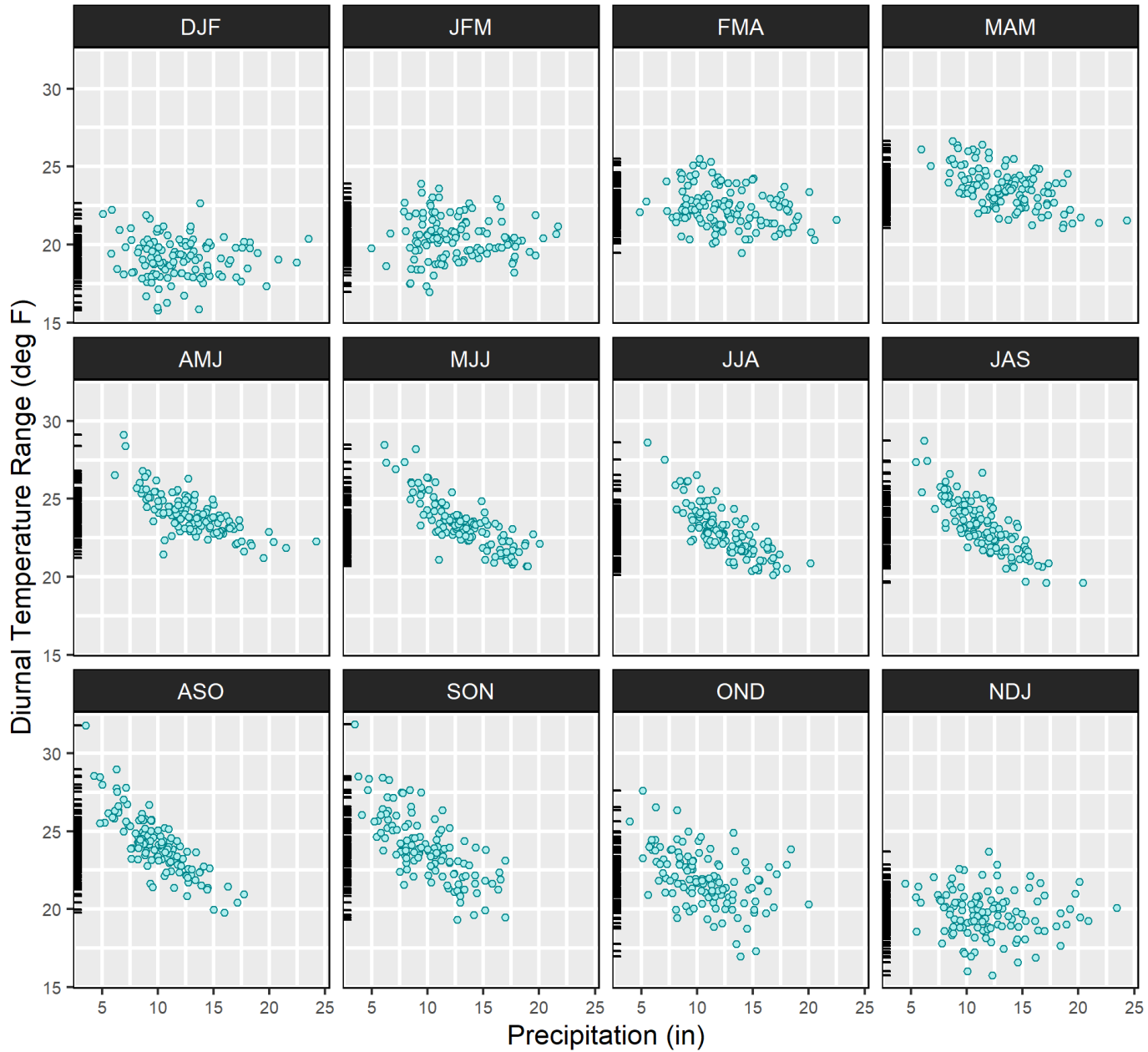
Seasonal Minimum Temperature Trends

Kentucky, Statewide



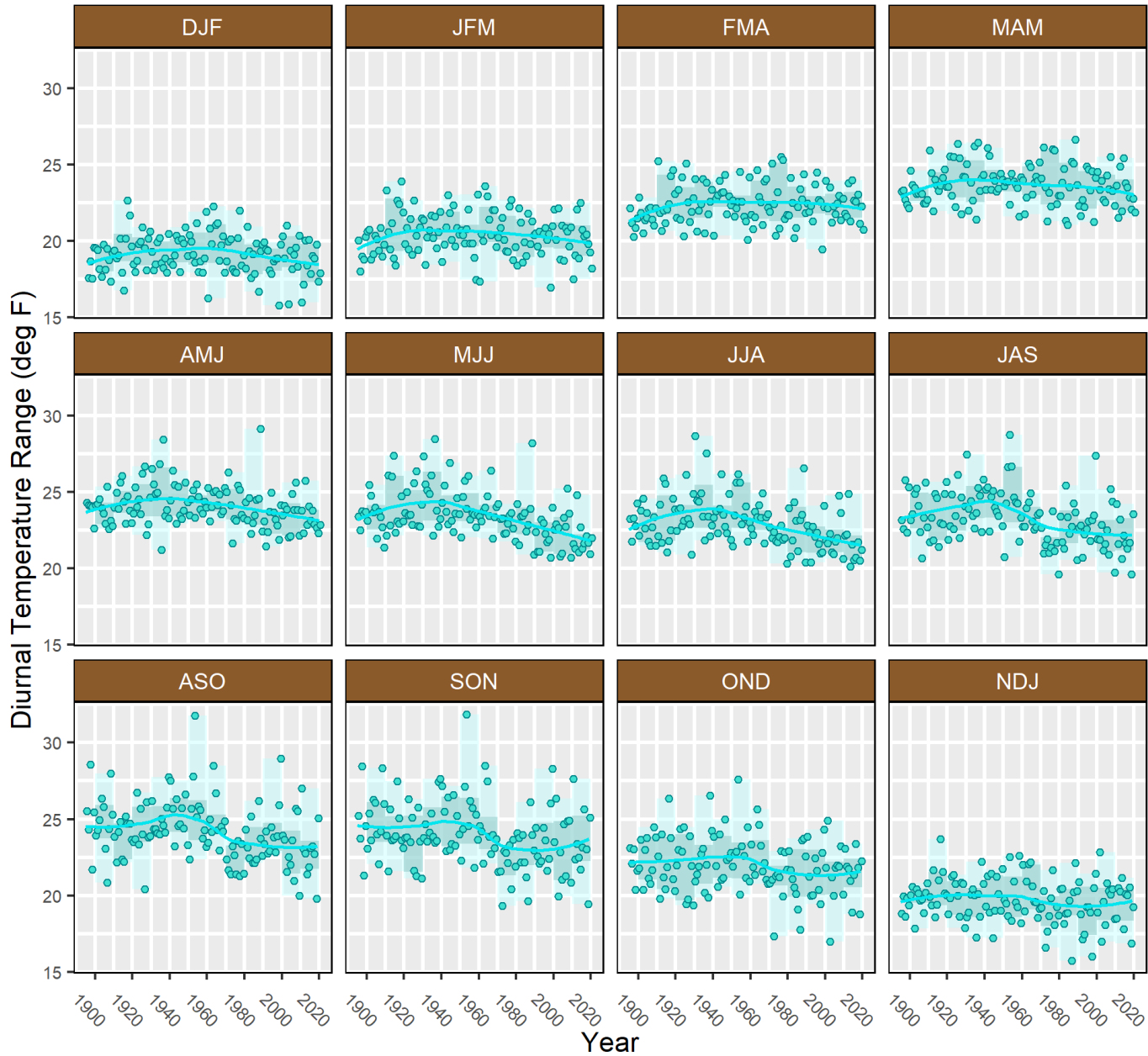
Relationship between Diurnal Temperature Range and Precipitation

Kentucky, Statewide



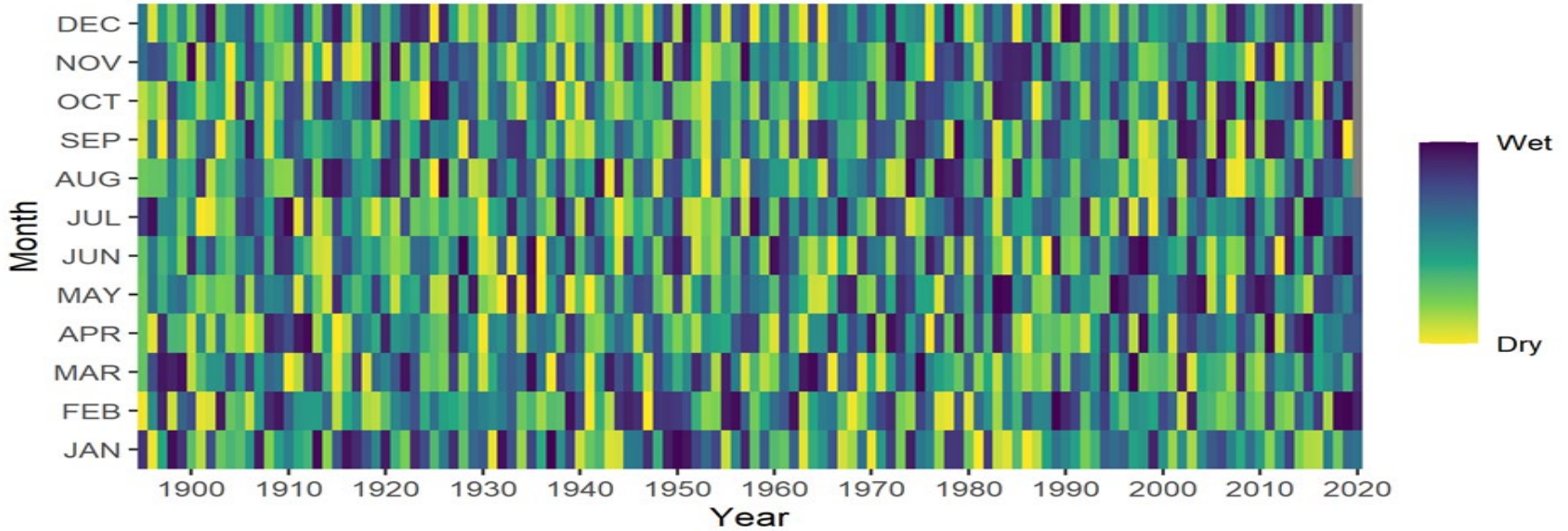
Diurnal Temperature Range Trends

Kentucky, Statewide



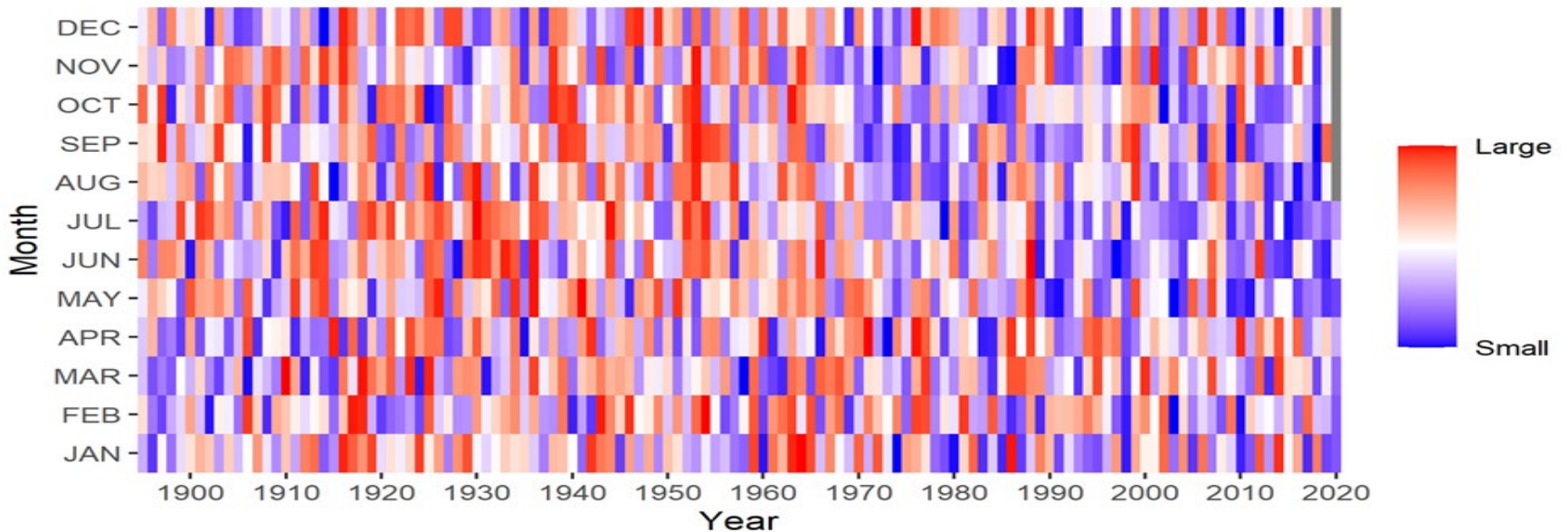
Kentucky, Statewide

Precipitation, Ranked by Month



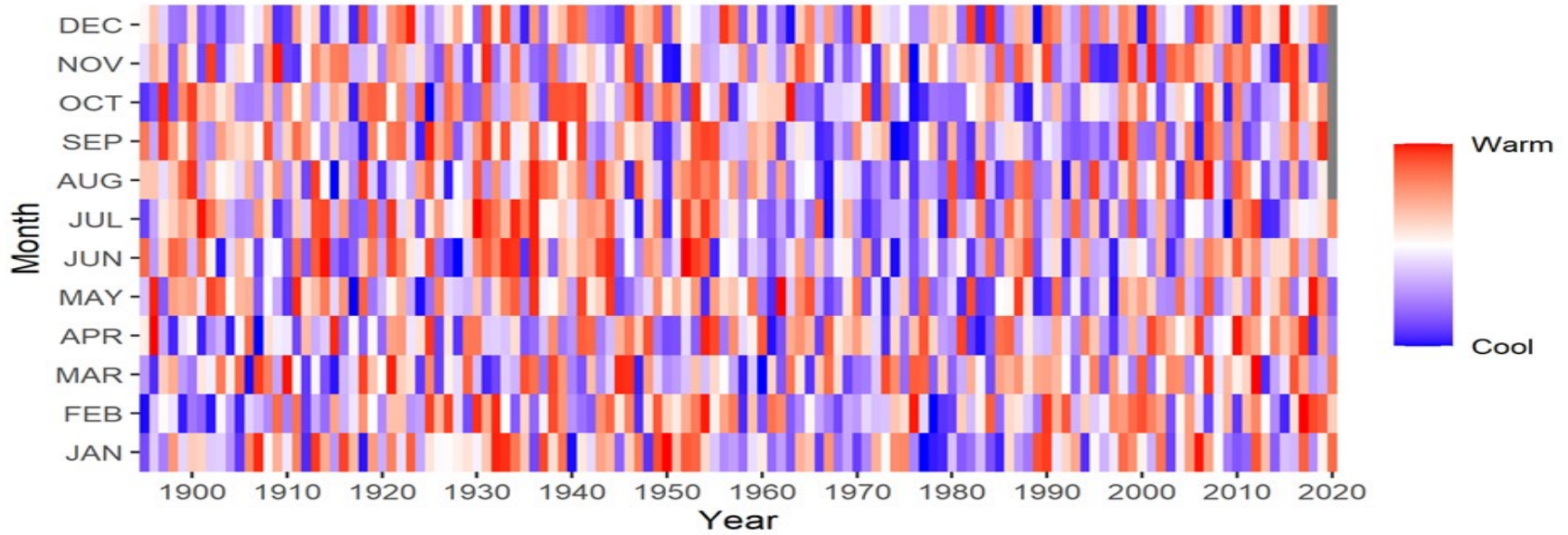
Kentucky, Statewide

Diurnal Temperature Range, Ranked by Month



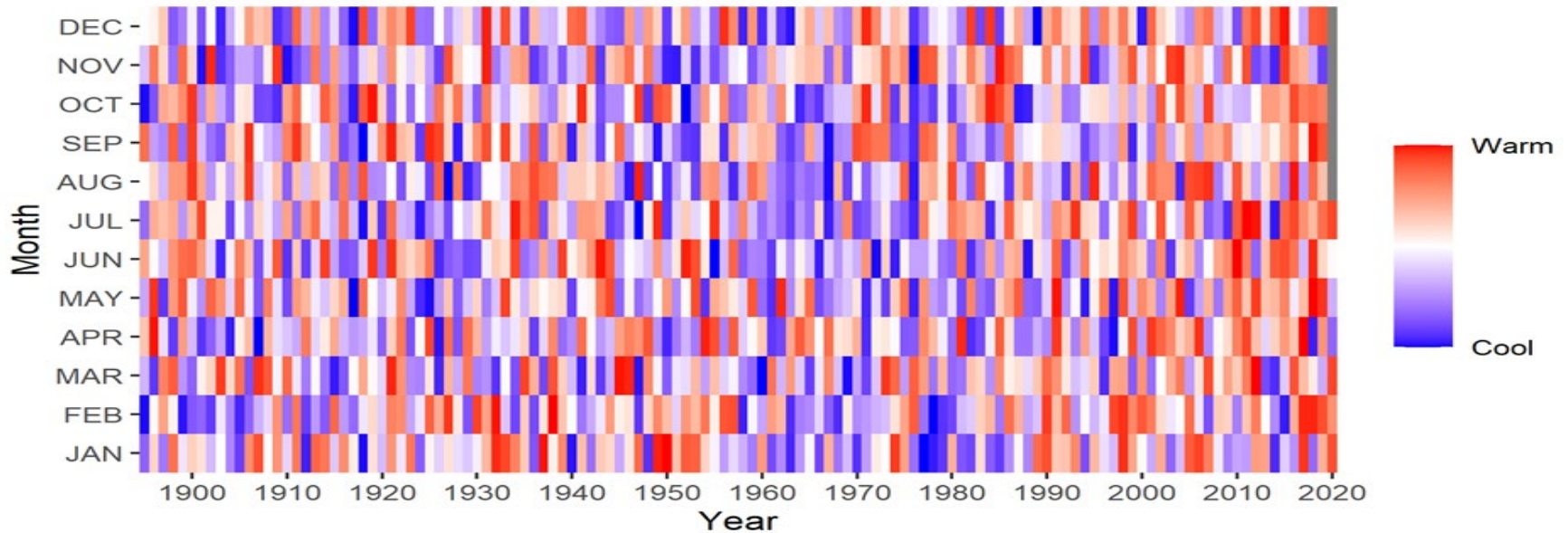
Kentucky, Statewide

Maximum Temperature, Ranked by Month



Kentucky, Statewide

Minimum Temperature, Ranked by Month



Takeaways regarding Kentucky's climate

- Using a variety of metrics, Kentucky's climate is becoming wetter.
- Average diurnal temperature range is decreasing, especially during the warm season.
- Average temperature is increasing, but average minimum temperature is increasing faster than average maximum temperature.
- Kentucky's climate today is distinctly different than during other periods over the past 125 years.