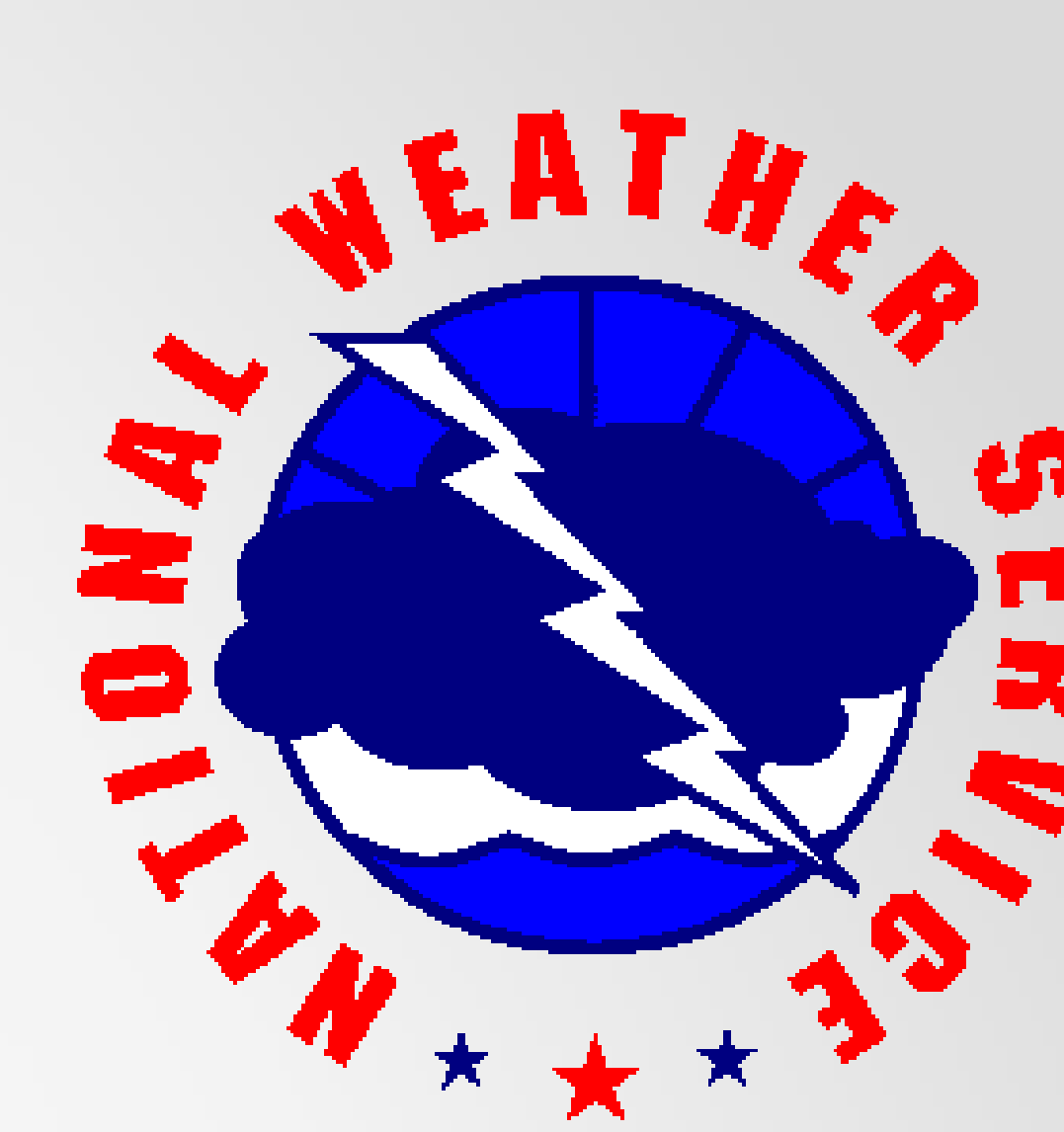


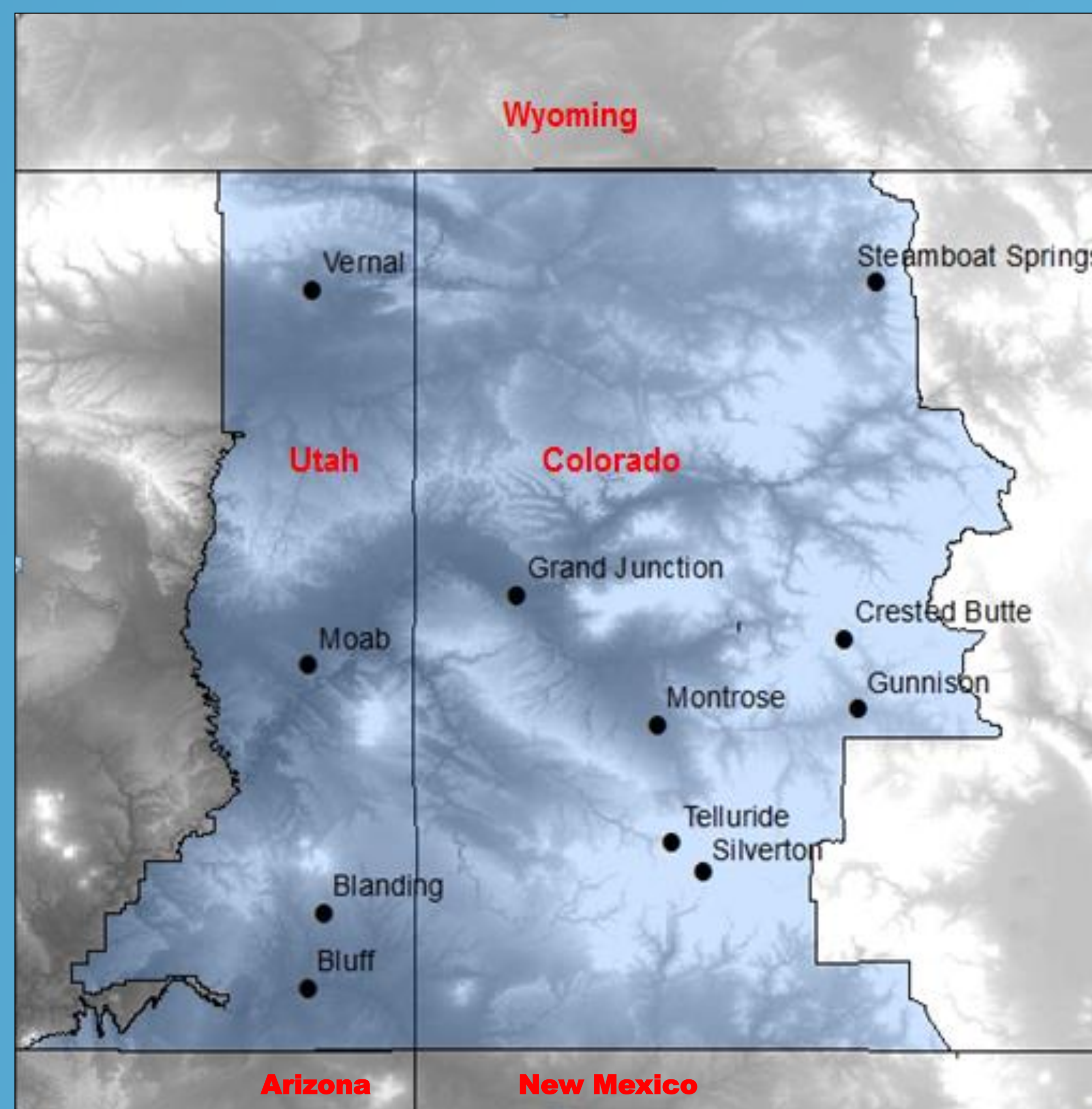


Climate Trends From 1911 to 2015 For Selected Sites in Western Colorado and Eastern Utah

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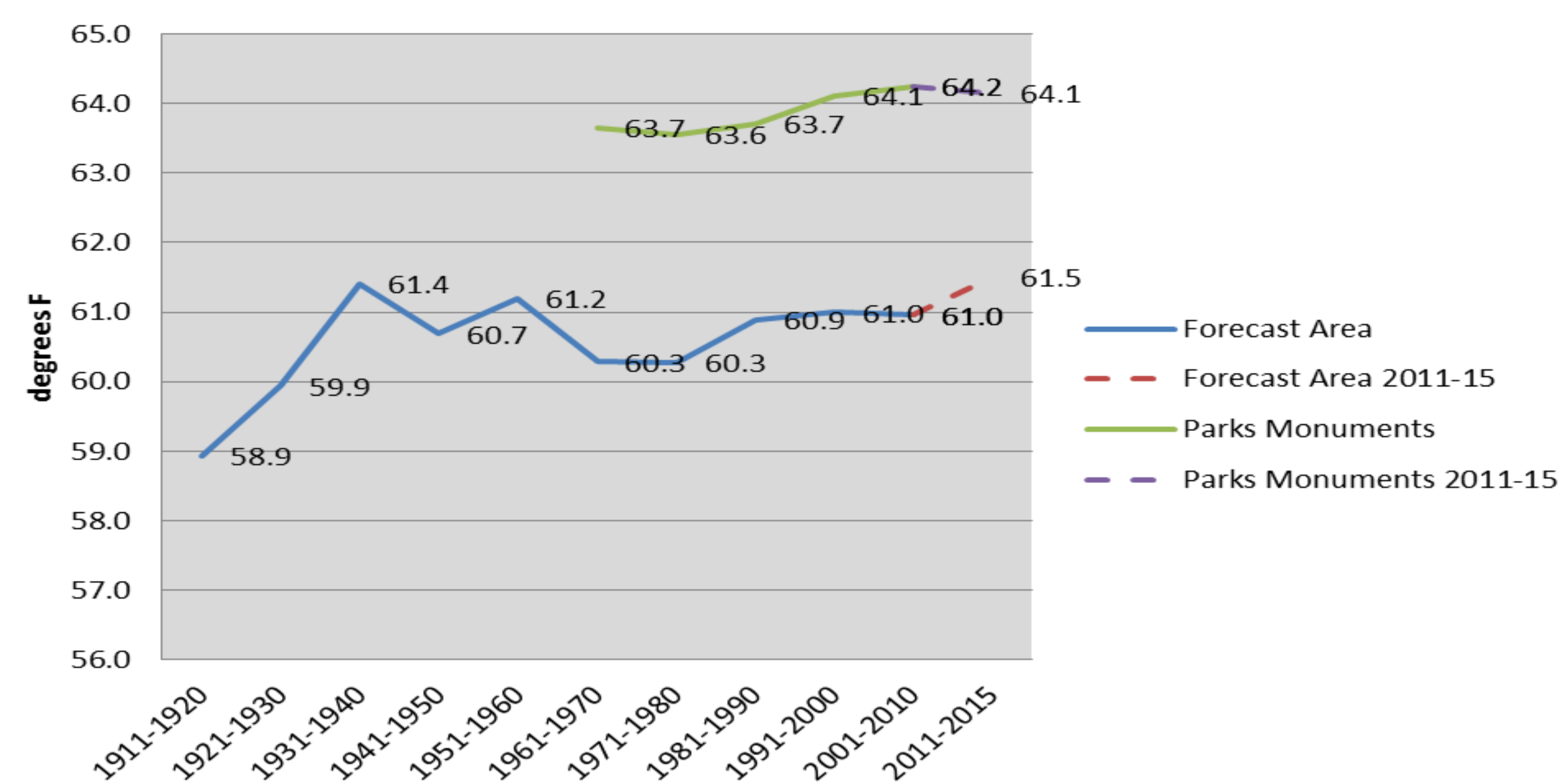


Forecast Area Sites

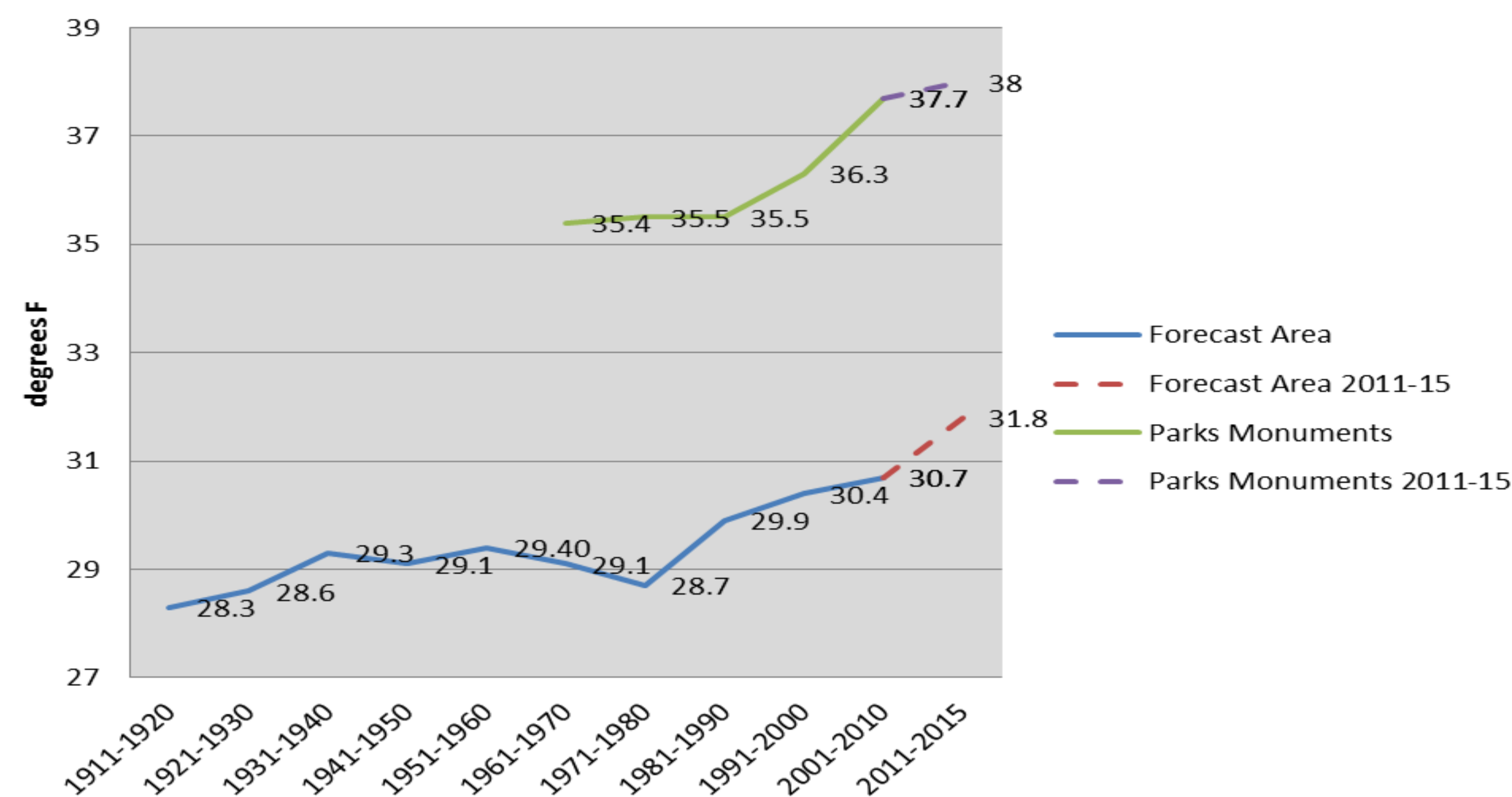


- To explore climate trends in this forecast area, sites with strong climate records were analyzed.
- These eleven sites have strong climate records back to at least 1911.
- Elevation average for these sites is 6558 feet MSL.
- Site elevations range from 4016 feet at Moab Utah to 9320 feet at Silverton Colorado.

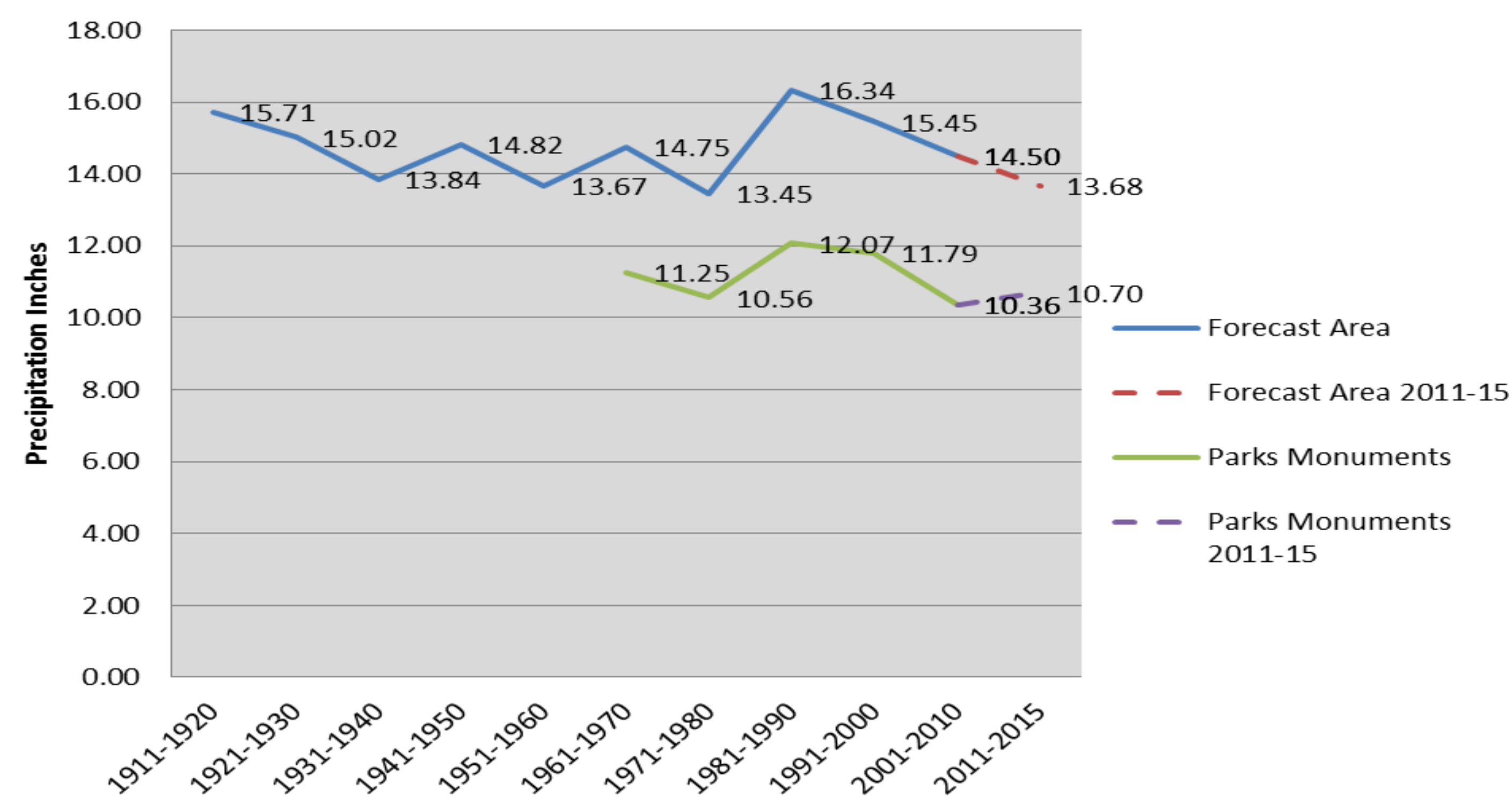
Western Colorado and Eastern Utah
Maximum Temperatures 10 Year Average



Western Colorado and Eastern Utah
Minimum Temperatures 10 Year Average



Western Colorado and Eastern Utah
Precipitation 10 Year Average



Hypothesis

- The eleven forecast area sites taken together overcome localized microclimate biases and thus are a good representation of regional climate trends.

Discussion

- The parks and monuments sites provide a baseline that minimizes or eliminates problems with urbanization, changes in location, or changes in instrumentation.
- These two data sets were graphed separately for comparison of their trends with their graphical separation due to elevation differences.
- The data sets were analyzed at both 30-year and 10-year averages, the latter shown here.
- The last five years were also analyzed, shown here with dashed lines to delineate this shorter, most recent time period.
- A third data set of nine sites surrounding the forecast area was also analyzed, not shown here. This third data set also followed the general trends seen here adding confidence that these data sets have captured regional trends.
- This localized study has proven useful to bring global and national climate trends down to the local level for greater public understanding.

Conclusions

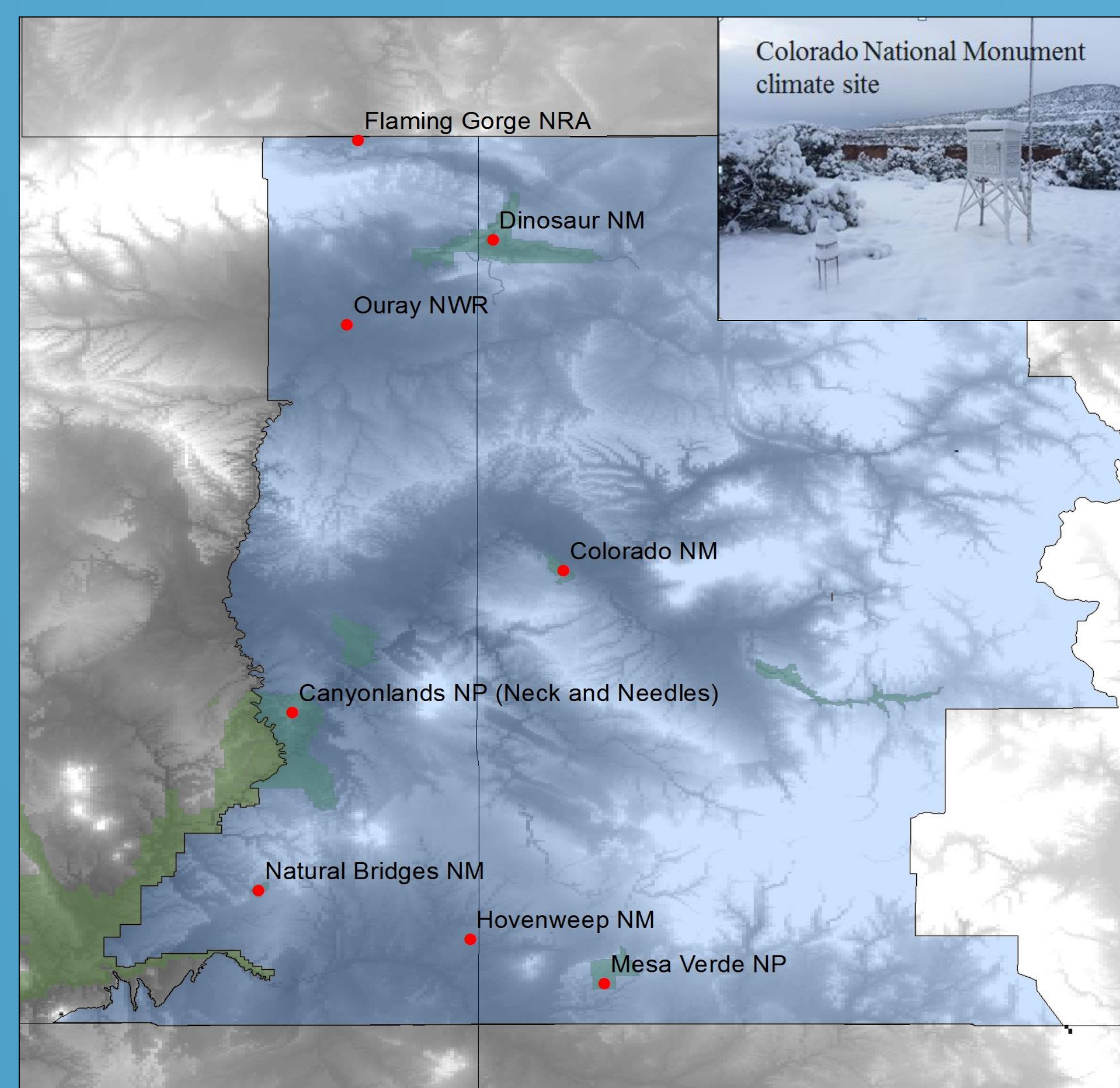
- Maximum temperatures have shown little overall trend in the last 100 years.
- Minimum temperatures have shown a distinct warming trend since the 1970s.
- Precipitation has shown large variation with a distinct drying trend since the 1990s.
- These trends have continued into the latest five years, 2011-2015.
- Separation of the sites by elevation showed a recent stronger warming and drying trend in the higher elevations. This may be due to stronger fall storms producing earlier cold season valley inversions.

These Local Conclusions Support Global Trends

- The local change in trend of minimum temperatures in the 1970s generally supports the use of 1975 as the most appropriate hinge anchor year.
- "Almost everywhere, daily minimum temperatures are projected to increase faster than daily maximum temperatures, leading to a decrease in diurnal temperature range." IPCC Fourth Assessment Report 2007, The Physical Science Basis, Temperature Extremes

Comparison Sites

National Parks, Monuments, and Recreation Areas



- These nine sites were analyzed as a separate group.
- These sites provide a baseline with less potential site problems.
- A disadvantage of these sites is their shorter climate records, typically beginning in the 1960s.
- Elevation average for these sites is 5779 feet MSL.
- Site elevations range from 4662 feet at Ouray National Wildlife Refuge to 7115 feet at Mesa Verde National Park.