SOUTH CAROLINA CLIMATE TRENDS

South Carolina's climate is relatively temperate, with the average temperature and total precipitation varying across the state due to its location in the northern mid-latitudes, its proximity to both the Atlantic Ocean and the Appalachian Mountains, and elevation. The state's annual temperature varies from the mid-50s in the mountains to low 60s along the coast (Figure 1); the statewide annual temperatures have ranged from a low of 60.6° F (1901) to a high of 65.1° F (1925). The normal total precipitation is a relatively plentiful 49.8 inches, with a peak of precipitation in the mountains of between 70 to 80 inches of rainfall and a low of 42 to 47 inches in the midlands of the state (Figure 2). Total statewide annual precipitation has ranged from a low of 32.1 inches (1954) to a peak of 70.2 inches (1964) – more than double the lowest total precipitation!

In addition to these spatial differences, there are annual variations in temperature (Figure 3) and precipitation (Figure 4). These are important when communicating to the public what the average climate is for South Carolina. Currently, the 1971 – 2000 period is used to describe the average or normal annual temperature and total precipitation, yielding a statewide average annual temperature of 62.4° F and average total precipitation of 49.8 inches. However, if the 1931 to 1960 period were used, the annual average temperature would be 63° F and the total precipitation would be 46.5 inches. The change in average annual temperature is relatively small, but the two averaging-periods for precipitation differ by 3.3 inches, a difference that can be critical when planning the use and maintenance of water resources in South Carolina.

An examination of the full period of record (i.e., 1895-2006) shows that the average annual temperature has decreased about 0.5° F, while precipitation has increased approximately three inches. These long-term trends in temperature and precipitation are of great interest, and may be related to natural climate change or anthropogenic climate change (e.g., human-induced climate change from such activities as the burning of fossil fuels). Unlike most of the United States that experienced a warming over the last century, South Carolina has cooled very slightly, without a clear signal in the temperature record. The precipitation, while having increased as a whole, also does not show a clear trend. One thing that is for certain is South Carolina's climate will change – whether from natural or anthropogenic causes. The climate will change over time – as it has in the past – and the spatial patterns we presently see (Figures 1 and 2) will also vary; the magnitude and the extent of these changes remain to be seen.

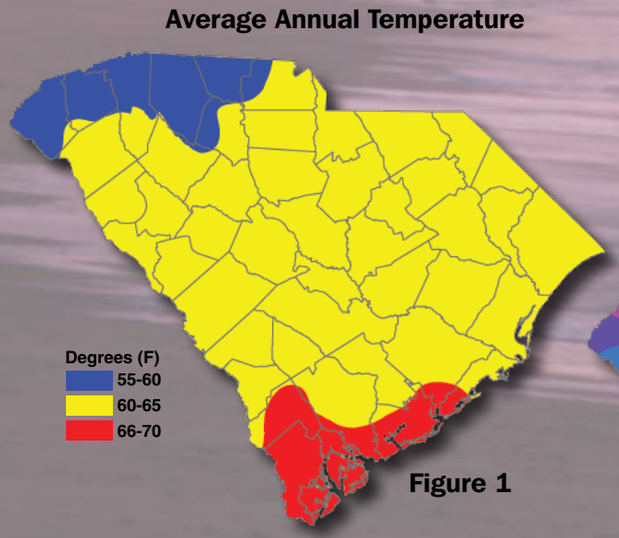

Figure 1

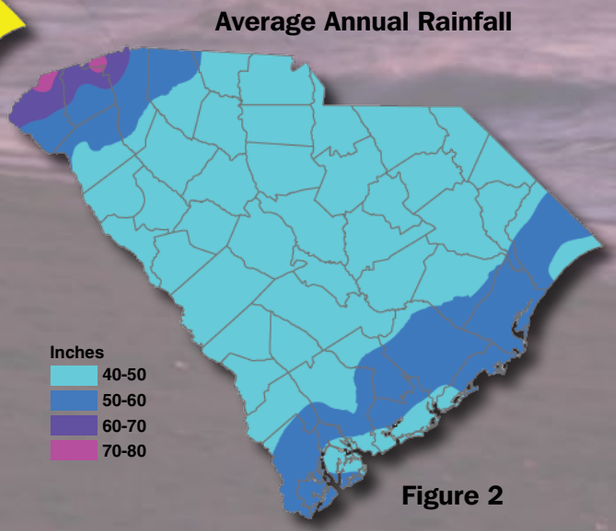

Figure 2

Figure 3

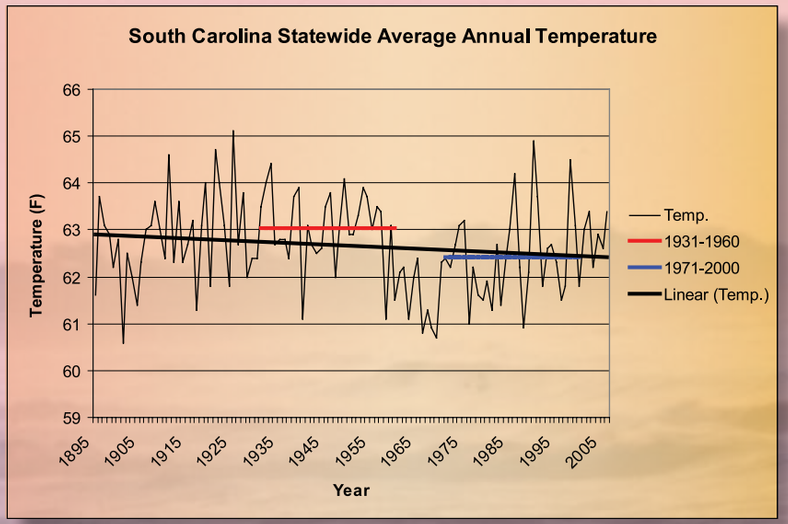

Figure 4