

Land Cover Map of the Southeast Region



Figure 1. The Southeast region includes all of nine states (Alabama, Florida, Georgia, Kentucky, Louisiana, North Carolina, Mississippi, South Carolina, and Tennessee), the southern portion of Virginia, and 50 counties in east Texas. Four subregional workshops were conducted in the Southeast region.

Southeast US Annual Mean Temperature

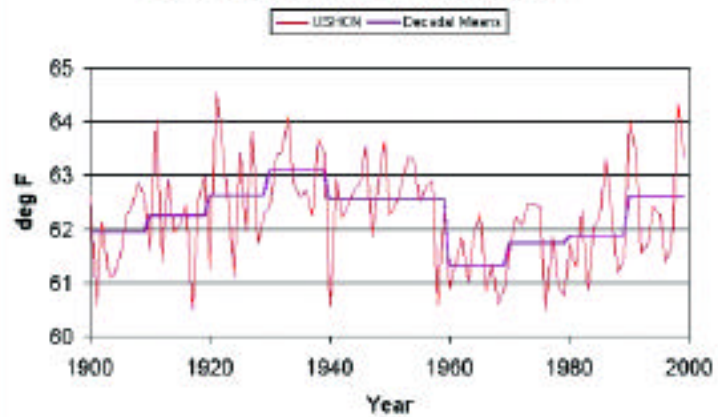


Figure 2. Decadal average temperatures in the Southeast. Source D. Easterling, NOAA National Climatic Data Center.

Gulf Landfalling Hurricanes By Decade

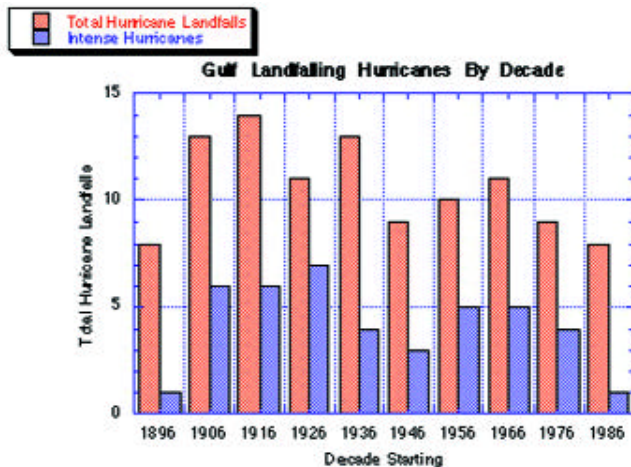


Figure 3(a). US Hurricane Landfall Trends in the Gulf of Mexico. This figure shows the number of US hurricanes making landfall in the Gulf of Mexico by decade for the past 100 years. There were peaks in activity during the 1910s and 20s, as well as a lower peak in the 1960s. The past 30 years have shown a decrease in the number and intensity of Gulf hurricanes making landfall.

US Hurricanes

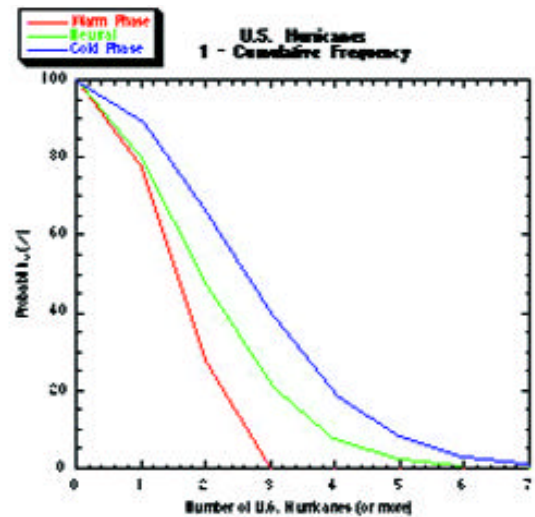


Figure 3(b). Effect of ENSO Phase on Hurricane Landfall. This figure shows the probability of the number of hurricane landfalls on the US in a given hurricane season and ENSO phase (El Niño, Neutral, La Niña). Based on the past 100-year record, the probability of at least 1 hurricane landfall is similar for all three phases, with probabilities ranging from 78% for El Niño to 90% for La Niña. For multiple landfalls, however, the differences caused by ENSO phase become apparent. The probability of at least 2 landfalls during El Niño is 28%, but is 48% in neutral years, and 66% during La Niña. The probability of at least 3 landfalling hurricanes is near 0% for El Niño, 20% for neutral years, and 50% for La Niña. It is clear that El Niño years have few multiple hurricane strikes on the US, while neutral years and La Niña years often see multiple hurricane strikes on the US coast. Source: Florida State University, Center for Ocean-Atmosphere Prediction.

July Heat Index Change - 21st Century

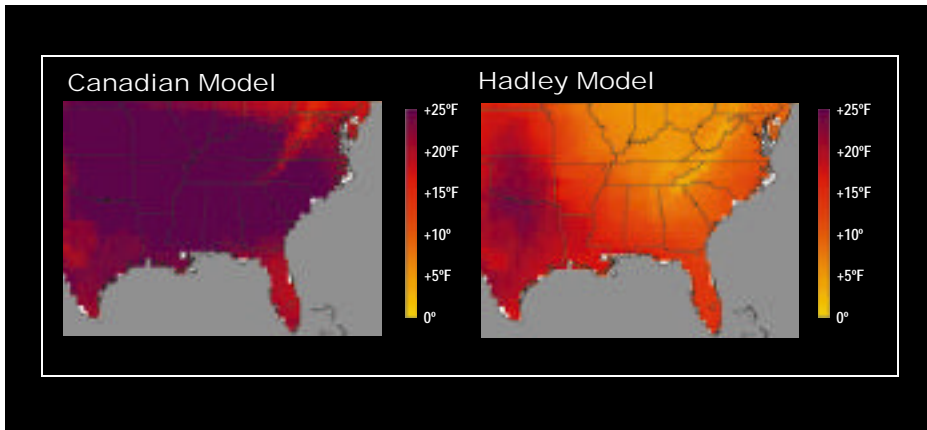


Figure 4. The changes in the simulated heat index for the Southeast are the most dramatic in the nation with the Hadley model suggesting increases of 8 to 15°F for the southern-most states, while the Canadian model projects increases above 20°F for much of the region. Heat indices simulated for the Southeast by 2100. Source, NOAA National Climatic Data Center.

Summer and Winter Climate Changes from Hadley Centre Scenario

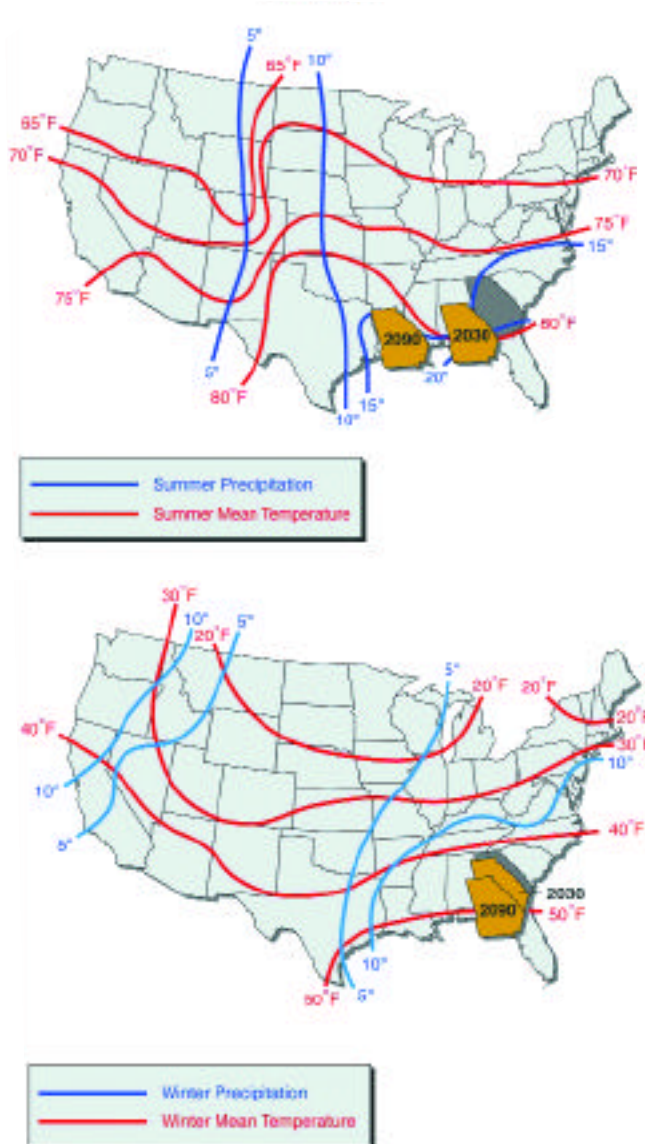


Figure 5. Illustration of how the summer and winter climates in Georgia would shift under the Hadley climate scenario (HADCM2). For example, the summer climate in Georgia in the 2030s would be more like the current climate of the Florida panhandle. Source: NOAA, National Climatic Data Center.

Dryland Crop Yield Changes

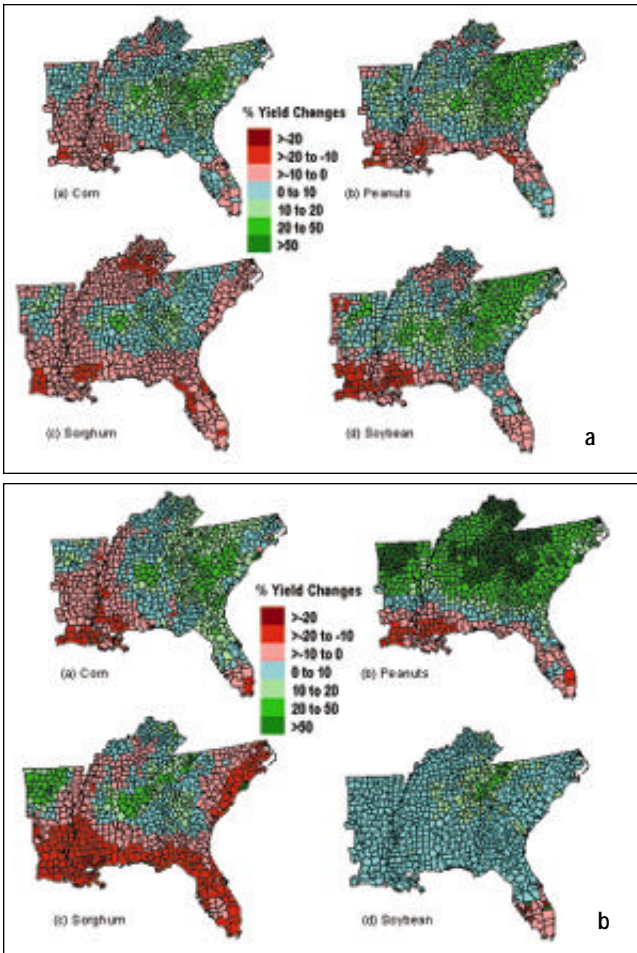


Figure 6. Dryland crop yield changes in 2030 (a) and 2090 (b) without adaptation for various climate sensitivity scenarios Source: Auburn University, Global Hydrology and Climate Center; University of Florida, Agricultural and Biological Engineering Department.

Simulated Changes in Dryland Yields for Southeastern Crops based on the Hadley (HADCM2) Scenario

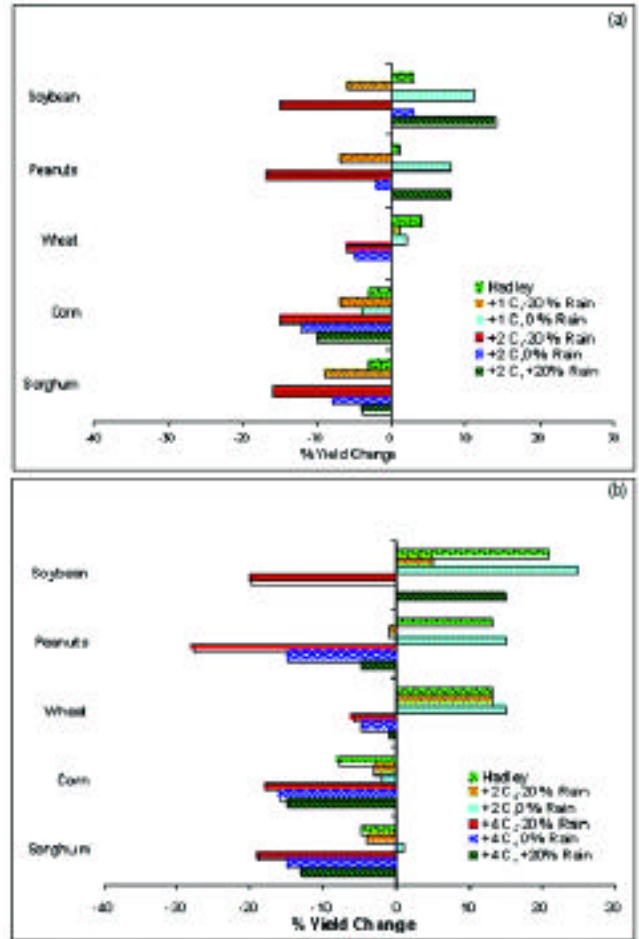


Figure 7. Dryland yields changes in 2030(a) and 2090(b) without adaptation for various climate sensitivity scenarios. Source: Auburn University, Global Hydrology and Climate Center; University of Florida, Agricultural and Biological Engineering Department.

Changes in Florida's Big Bend

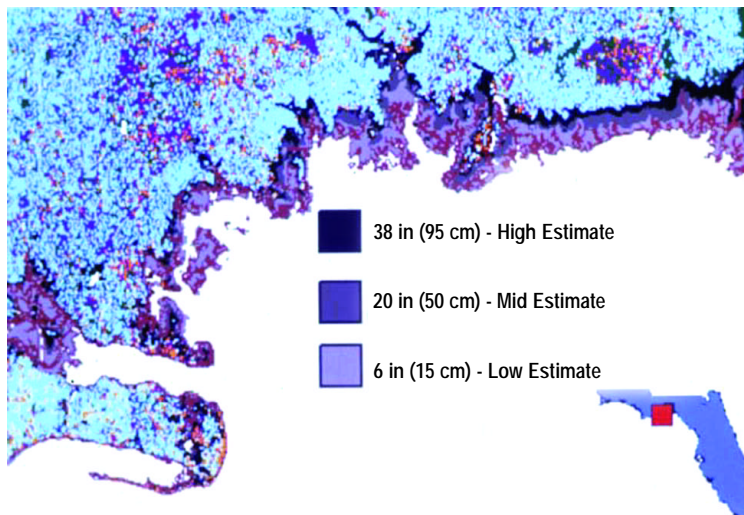


Figure 11. Changes in Florida's Big Bend region forest, marshes, and open water under IPCC (1998) sea-level rise scenarios. Source: Doyle, 1998.

Timberland Acreage Shift

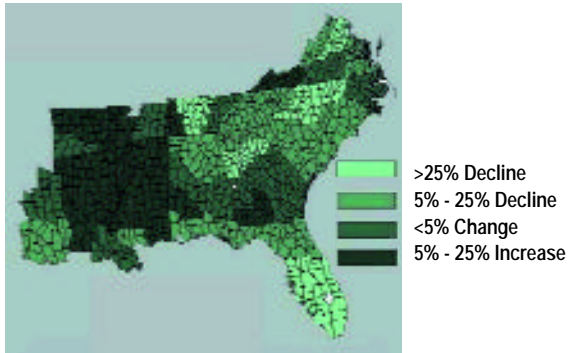


Figure 9 (a). Changes in land use based on Timberland Acreage Shift 1993-2040: Baseline Without Climate Change. Forestland losses are projected in the more urbanized areas of the Southeast, from northern Virginia through the Georgia piedmont and southern Florida. The movement of land from agriculture to forest is projected in many parts of the mid-South.

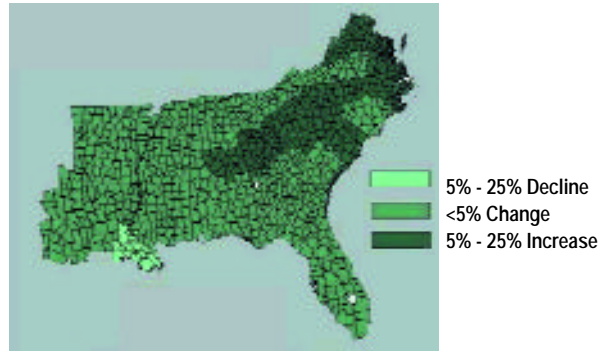


Figure 9(b). Timberland acreage shifts by 2040 due to Hadley climate change. In 2040, forestland is projected to be slightly higher with Hadley base climate change than without climate change in some of the northern reaches of the Southeast, but slightly lower under climate change in parts of the deep South. Year 2040 land allocation effects in most of the region are fairly neutral. Source: North Carolina State University, Department of Forestry; Research Triangle Institute, Center for Economics Research.

Potential Southern Pines and Hardwoods Net Primary Productivity (NPP)

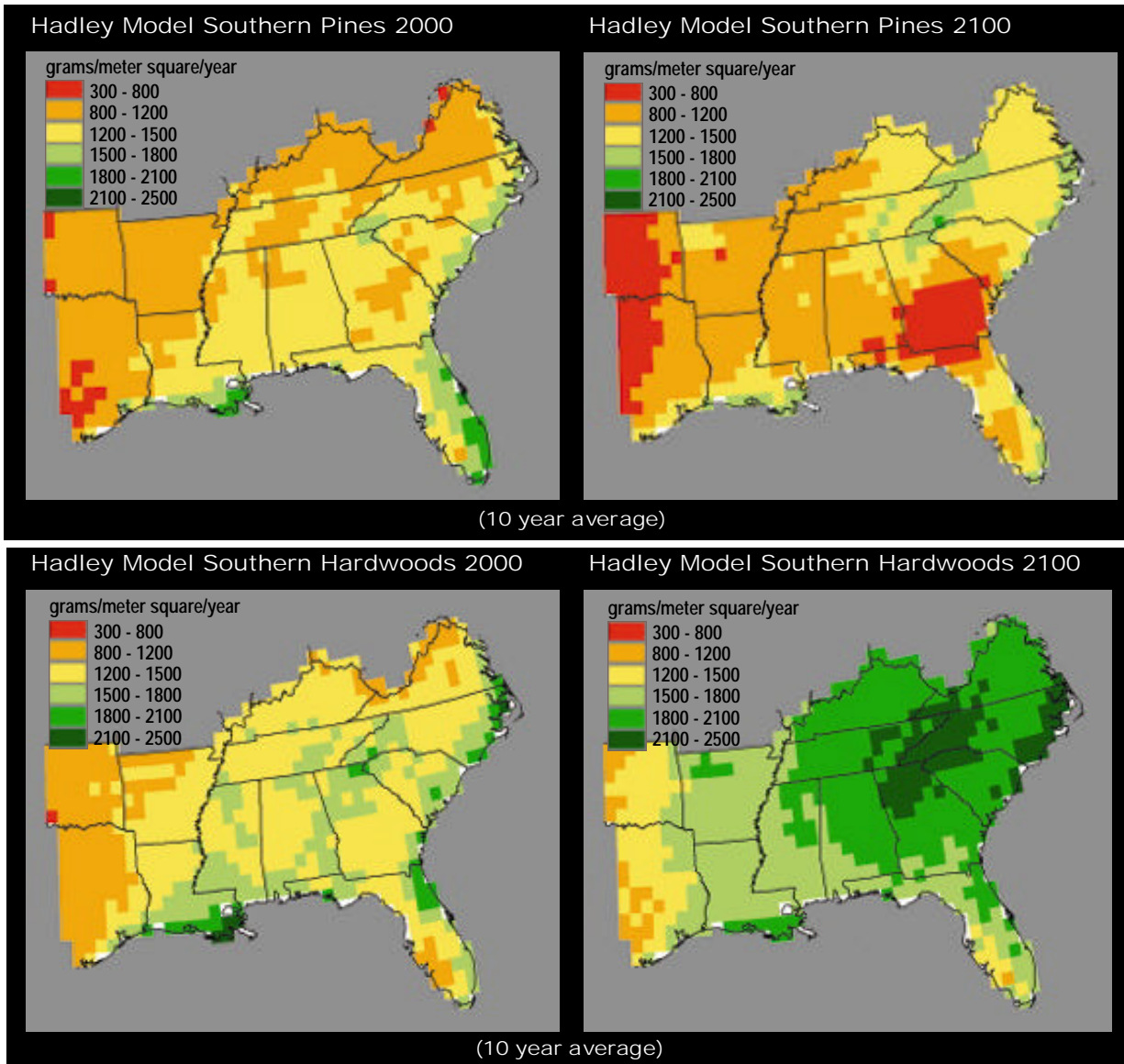


Figure 8. Potential net primary productivity (NPP) of loblolly pine and southern hardwoods simulated by the PnET model with the Hadley climate scenario (HADCM2). Source: USDA Forest Service, Southern Global Change Program.