

“Scientific Assessment of the Effects of Global Change on the United States”
A Report of the White House Committee on Environment and Natural Resources
National Science and Technology Council
May 2008

Excerpts on the Southern United States

The report is available online at <http://www.climate-science.gov/Library/scientific-assessment/>

Temperature

“The warmest years... on record (since the mid-19th century) have mainly occurred in the past 12 years.” (p. 52)

“U.S. temperatures also warmed during the 20th and into the 21st century...1998 was the warmest year on record.” (p.53)

“2007 was the 10th warmest year for the contiguous U.S. since national records began in 1895.” (p.53)

“The number of heat waves has been increasing since 1950.” (Executive Summary, p.4)

“The last 10 years have seen fewer severe cold waves than for any other 10-year period in the historical record, which dates back to 1895.” (ES, p.4)

“All of North America is very likely not only to warm during this century...but to warm more than the global mean warming in most areas.” (p.90)

“Abnormally hot days and nights and heat waves are very likely to become more frequent and cold days and cold nights are very likely to become less frequent over North America.” (ES, p.4)

Precipitation, Runoff and Drought

“Total annual precipitation over the contiguous U.S. has increased at an average rate of 6 percent per century from 1901 to 2005...The greatest increases in precipitation were in the northern Midwest and the South.” (ES, p.5)

“A severe drought has affected the southwestern U.S. from 1999 through 2007 ... the southeastern U.S. has experienced severe drought as well.” (p.61)

“Observations over the contiguous U.S. show statistically significant increases in heavy precipitation and very heavy precipitation, primarily during the last three decades of the 20th century...This increase is most apparent over the eastern parts of the country.” (p.62)

“Precipitation is likely to be less frequent, but more intense...For example...daily precipitation so heavy that it now occurs only once every 20 years is projected to occur

approximately every eight years by the end of this century over much of eastern North America.” (p.94)

“A widespread increase in annual precipitation is projected...over most of the North American continent.” (p.91)

Storms

“It is likely that the annual numbers of tropical storms, hurricanes and major hurricanes in the North Atlantic have increased over the past 100 years.” (ES, p.7)

“It is likely that hurricane rainfall and wind speeds will increase in response to human-caused warming.” (ES, p.7)

“It is likely that future tropical cyclones (typhoons and hurricanes) will become more intense, with larger peak wind speeds and more heavy precipitation.” (p.94)

“High-density populations in low-lying coastal regions, such as the U.S. Gulf of Mexico, experience a high health burden from weather disasters, particularly among lower income groups.” (ES, p.15)

Wildfires

“Wildfires pose significant direct health risks...wildfires, with their associated decrements to air quality and pulmonary effects, are likely to increase in frequency, severity, distribution and duration in the Southeast, the Intermountain West and the West.”

Human Health

“Declining air quality in cities’ due to ‘warmer and fewer cold days and nights and/or warmer/more frequent hot days and nights over most land areas’...climate change impacts on human health in U.S. cities will be compounded by population growth and an aging population.” (p.178)

“Climate change is likely to increase the risk and geographic spread of vector-borne infectious diseases, including Lyme disease and West Nile virus.” (p.175)

“Storm events and flooding may result in the contamination of food crops (especially produce such as leafy greens and tomatoes) with feces from nearby livestock or feral animals.” (p.175)

“Increases in extreme weather...may lead to increases in deaths, injuries, infectious diseases...and stress-related disorders.” (ES, p.15)

Transportation

“Increasing frequency, intensity or duration of heat spells could cause railroad tracks to buckle or kink and could affect roads through softening and traffic-related rutting.” (p.195)

“Coastal and riverine flooding and landslides are very likely to cause negative impacts on roads, rails and ports.” (ES, p.17)

“Climate change may worsen the vulnerability of Gulf Coast and eastern transportation systems to hurricanes and tropical storms.” (ES, p.17)