

**“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 Northeast and Midwestern United States*

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

**Temperature Extremes**

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

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

“2007 was the 10<sup>th</sup> 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**

“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 20<sup>th</sup> 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)

**Ice and Snow**

“In 2007, Arctic sea ice extent was approximately 23 percent below the previous all-time minimum observed in 2005.” (ES, p.5)

“The average sea ice thickness in the central Arctic very likely decreased by up to approximately three feet from 1987 to 1997.” (ES, p.5)

“The date that rivers and lakes freeze over has become later...and the ice breakup has happened earlier.” (ES, p.6)

“An Arctic Ocean free of summer ice is likely by the end of the century.” (ES, p.6)

**Wildlife**

“In North America, warming has generally resulted in and is expected to continue to result in shifts of species ranges poleward and to higher altitudes. However, species that require higher-elevation habitat...may have nowhere to migrate.” (ES, p.9)

“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)