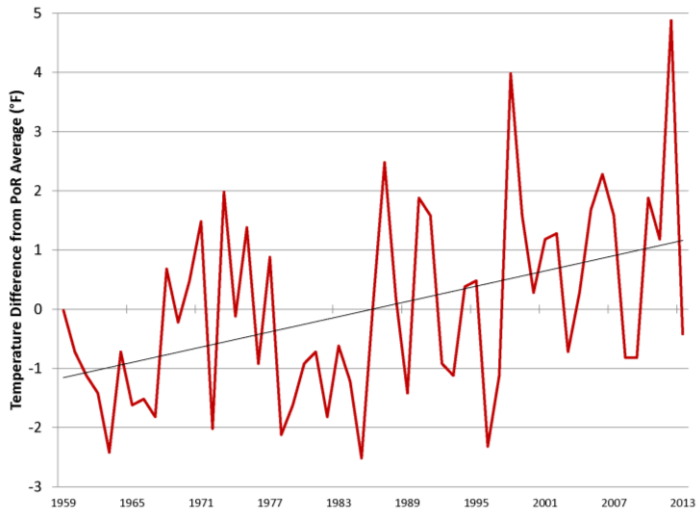
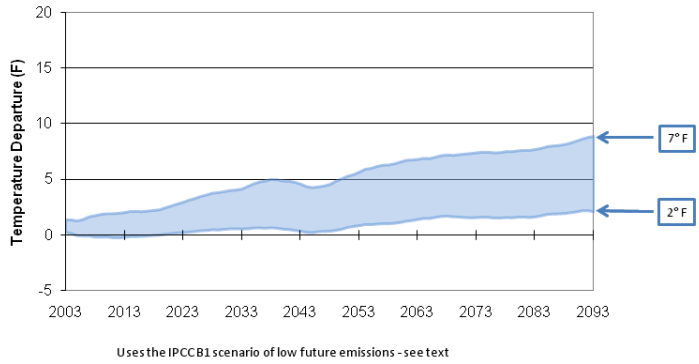
**Figure 1. Average Temperature of the Chicago Region, 1959-2010 (2014 NCA)**



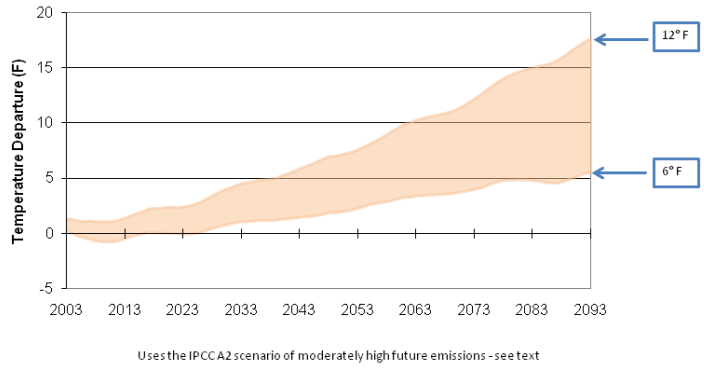

This graph illustrates the difference from the average temperature for O'Hare Airport
Source: Illinois State Climatologist, derived from 2014 National Climate Assessment

**Figure 2. Range of Future Temperature for Illinois in a Low-Emissions Scenario, 2003-2093 (2014 NCA)**



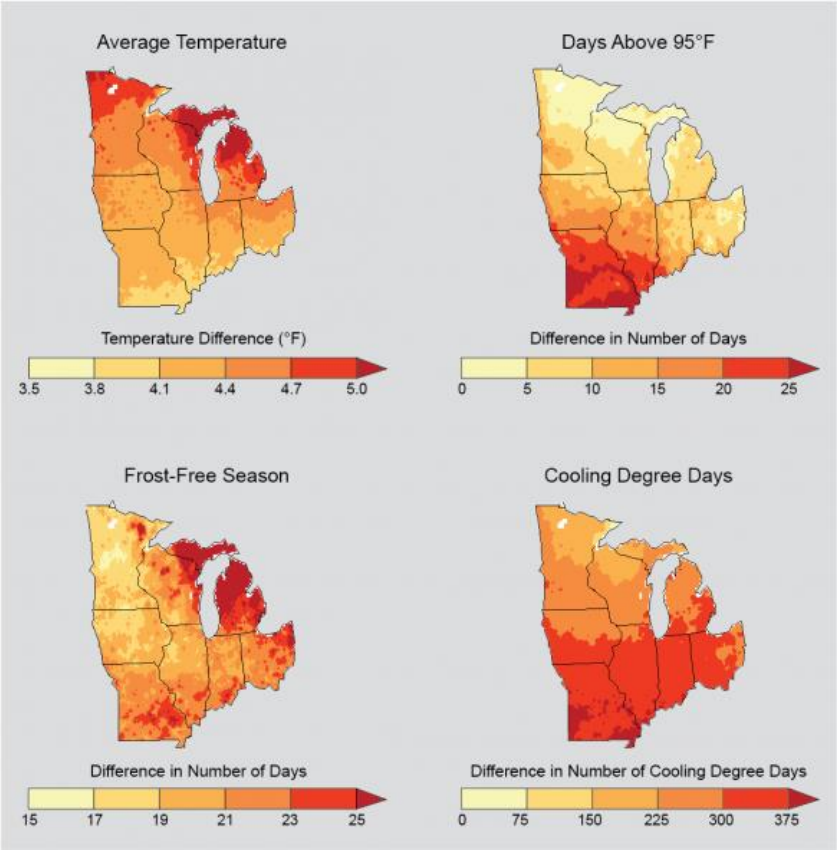

Under a scenario that assumes drastically reduced emissions, the average temperature in Illinois is projected to increase by two to seven degrees Fahrenheit by the end of the century. Source: Illinois State Climatologist Office, derived from the B1 (low emissions) scenario of the 4th IPCC report

**Figure 3. Range of Future Temperature for Illinois in a High-Emissions Scenario, 2003-2093 (2014 NCA)**




Under a scenario that assumes moderately high emissions, the average temperature in Illinois is projected to increase by six to twelve degrees Fahrenheit by the end of the century. Source: Illinois State Climatologist Office, derived from the B2 (high emissions) scenario of the 4th IPCC report

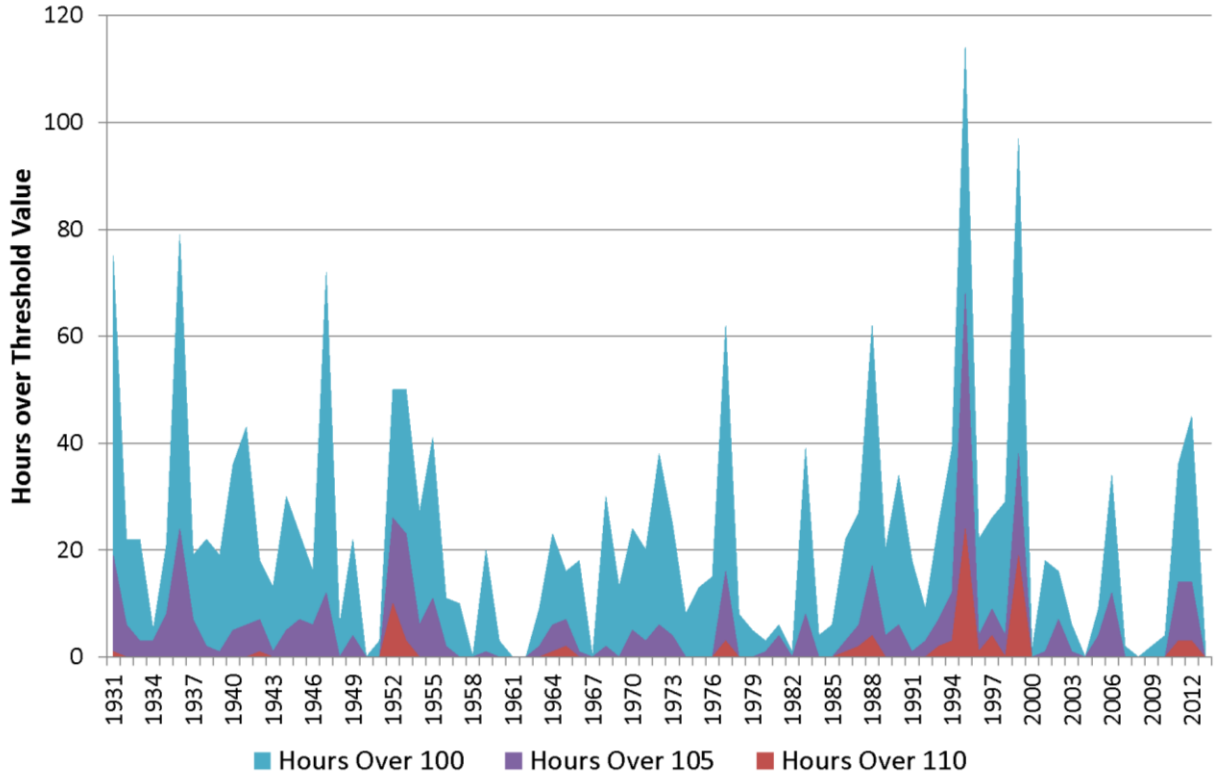
**Figure 4. Projected Mid-Century Temperature Changes in the Midwest**




If emissions continue to rise (IPCC's A2 scenario), projections show that average annual temperatures will increase by mid-century. The Midwest is also expected to see an increase in number of days above 95 degrees Fahrenheit, longer frost-free seasons, and more cooling degree days (defined as the degrees that a day's average temperature is above 65 degrees Fahrenheit, which increases the likelihood of air conditioning use). Source: 2014 National Climate

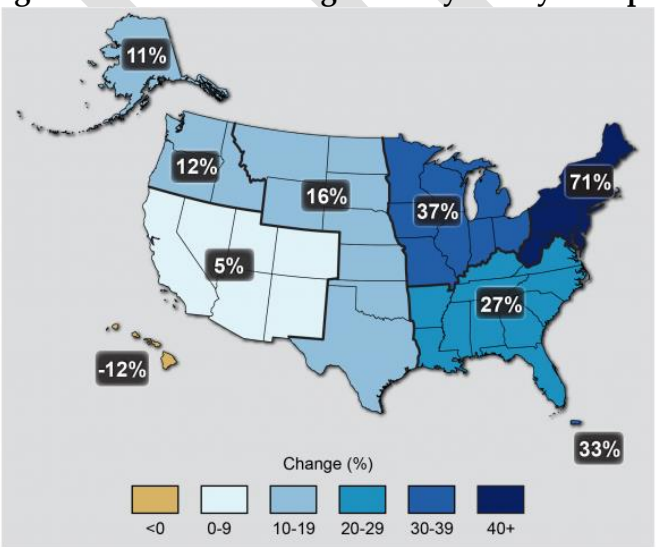
Assessment, Kenneth Kunkel, Cooperative Institute for Climate and Satellites – NC, http://nca2014.globalchange.gov/report/regions/midwest.

**Figure 5. Historical Heat Index Trends**



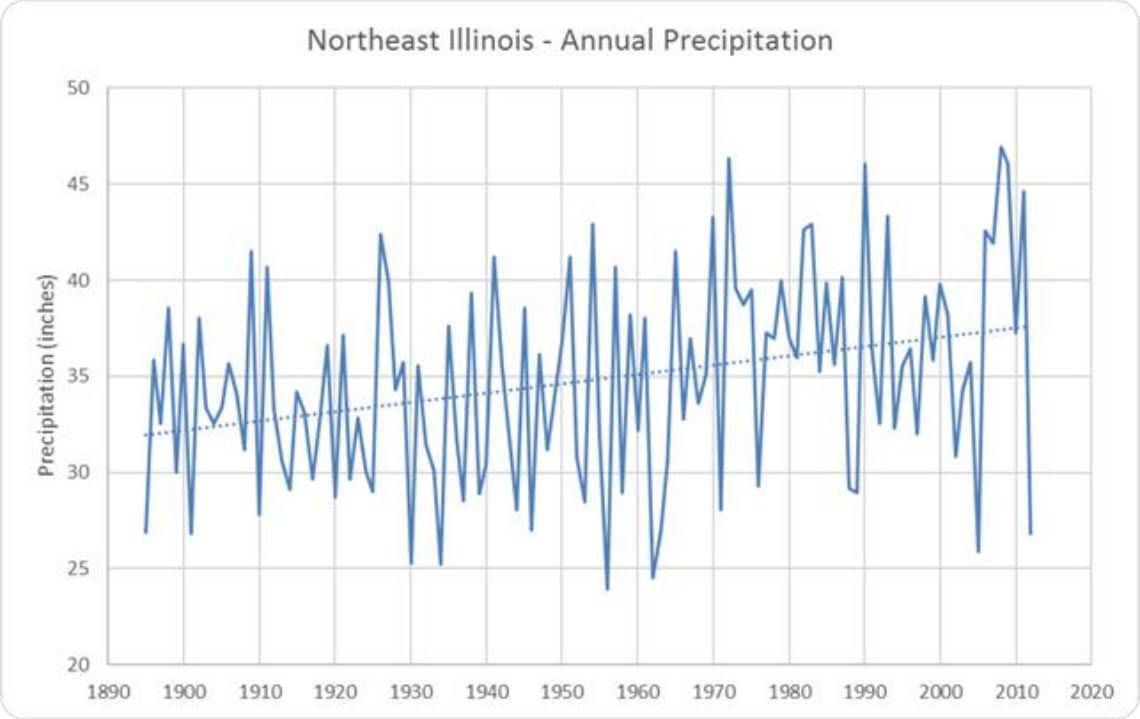

Summers with extremely high heat indexes have increased in recent years, based on annual temperature readings from June through September at Chicago Midway Airport. Most notably, the region is experiencing more hours over 100 degrees Fahrenheit. The 1995 and 1999 heat waves were record breaking. Source: Illinois State Climatologist.

**Figure 6. Observed Change in Very Heavy Precipitation, 1958-2012 (2014 NCA)**



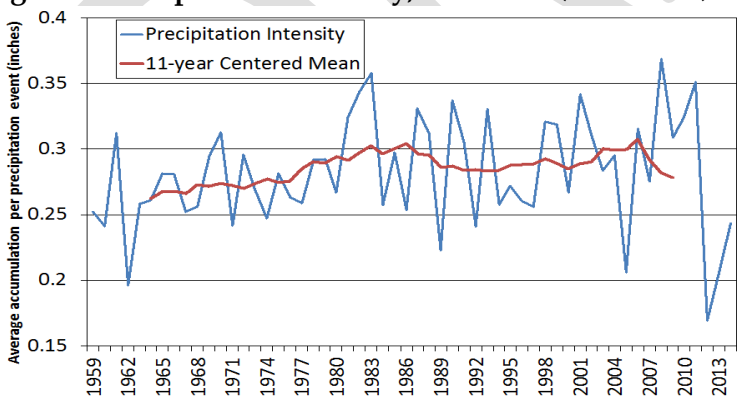
The Midwest has seen a 37 percent increase of very heavy precipitation events, defined as the heaviest one percent of all daily events) between 1958 and 2012. Source: 2014 National Climate Assessment, http://www.globalchange.gov/browse/multimedia/observed-change-very-heavy-precipitation-0.

**Figure 7. Annual Precipitation in Northeast IL, IL State Climatologist**



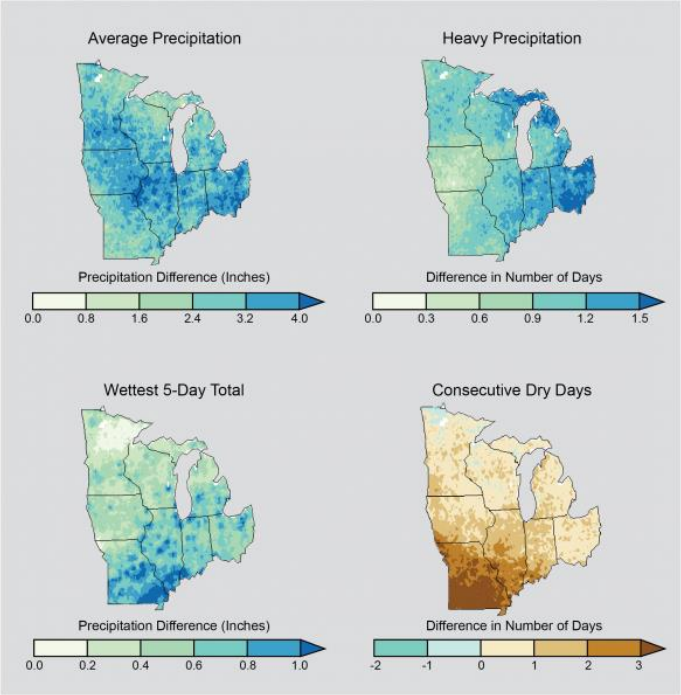

The annual precipitation in northeastern Illinois has increased throughout the century, but that there are still significant vacillations between years of heavy rains and droughts. Source: Illinois State Climatologist Office, http://www.sws.uiuc.edu/atmos/statecli/climate-change/NE-IL-trends/rainfall.htm

**Figure 8. Precipitation Intensity, 1959-2013 (2014 NCA)**




In recent decades, the region has seen storm events with greater precipitation intensity, defined as the average accumulation per weather event. The data in this graph were measured at Chicago O'Hare International Airport. Source: Illinois State Climatologist, based on 2014 National Climate Assessment.

**Figure 9. Projected Mid-Century Precipitation Changes**




If emissions continue to rise (under the IPCC A2 scenario), the Midwest is expected to experience more total precipitation each year in the form of rainfall and snowfall. Each map shows the difference between current and projected data for four factors: average precipitation, heavy precipitation, wettest five-day totals, and consecutive dry days. Heavy precipitation refers to the top two percent of all rainfalls each year and the wettest five-day total refers to precipitation from the wettest consecutive five-day period over the course of a year. Alongside the overall trend of precipitation increase, the Midwest is also expected to see an increase in the number of consecutive dry days without precipitation. This means a great risk of flash floods due to dry ground conditions between heavier rain events. Source: 2014 National Climate Assessment. http://www.globalchange.gov/browse/multimedia/when-it-rains-it-pours

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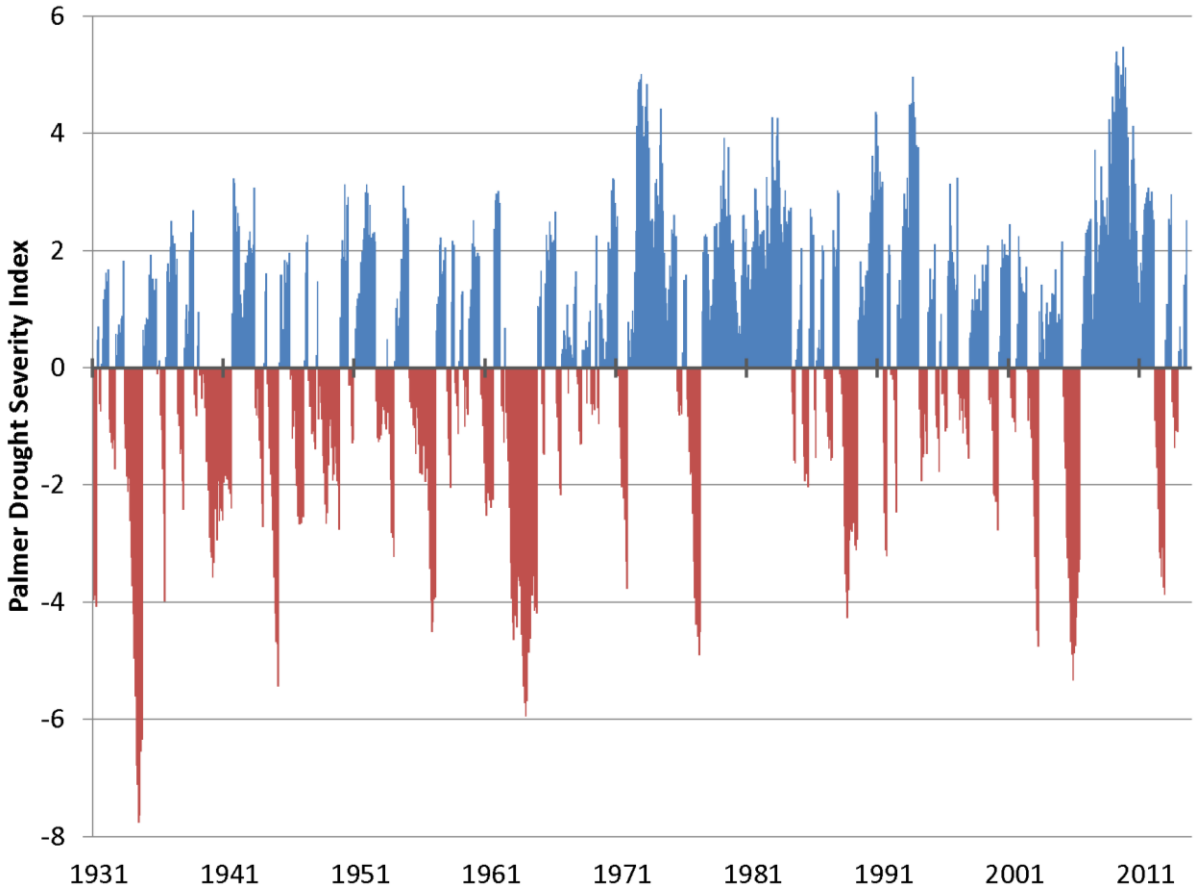
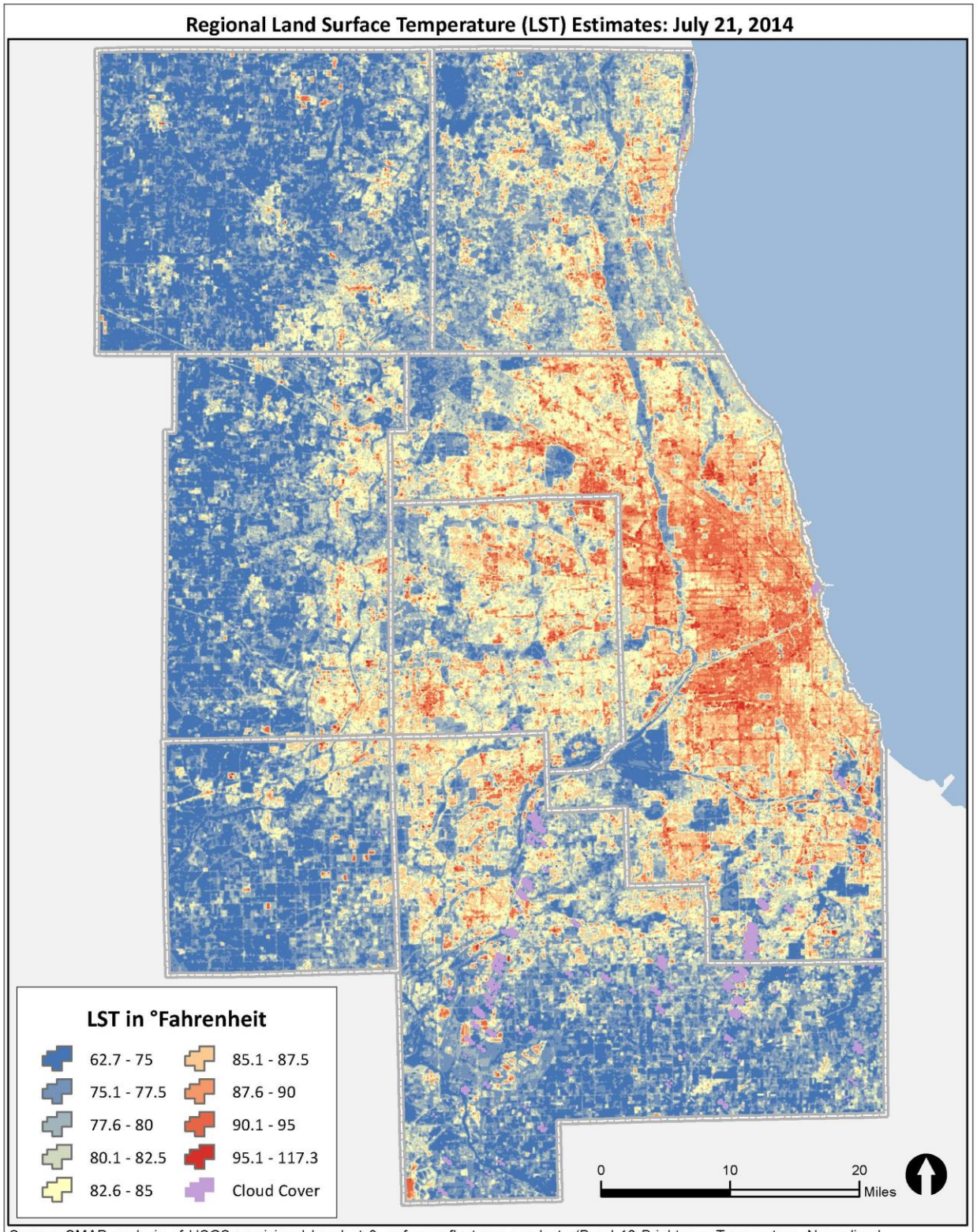
**Figure 10. Historical Drought, Palmer Drought Severity Index, Northeastern Illinois, 1931-2011**




The Palmer drought severity index measures the dryness of ground conditions based on precipitation and temperature, and is used as a measure of drought. This graph shows the Palmer drought severity index for northeastern Illinois (climate division 2). While the region has seen more overall precipitation, these years have been punctuated by years of significant drought. Source: Illinois State Climatologist, based on 2014 National Climate Assessment.

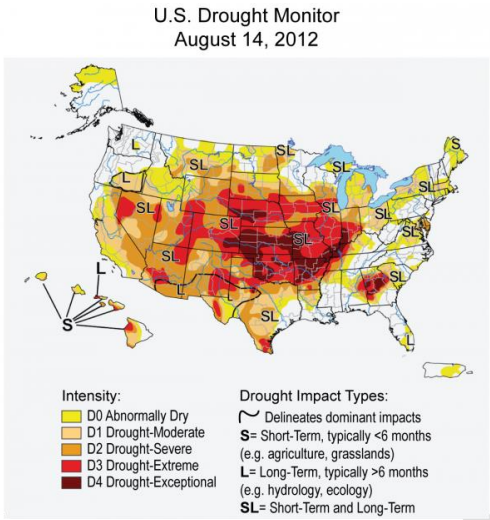
**Figure 11. Land Surface Temperature in the Region**




Source: CMAP analysis of USGS provisional Landsat 8 surface reflectance products (Band 10 Brightness Temperature, Normalized Difference Vegetation Index, and CFMask)

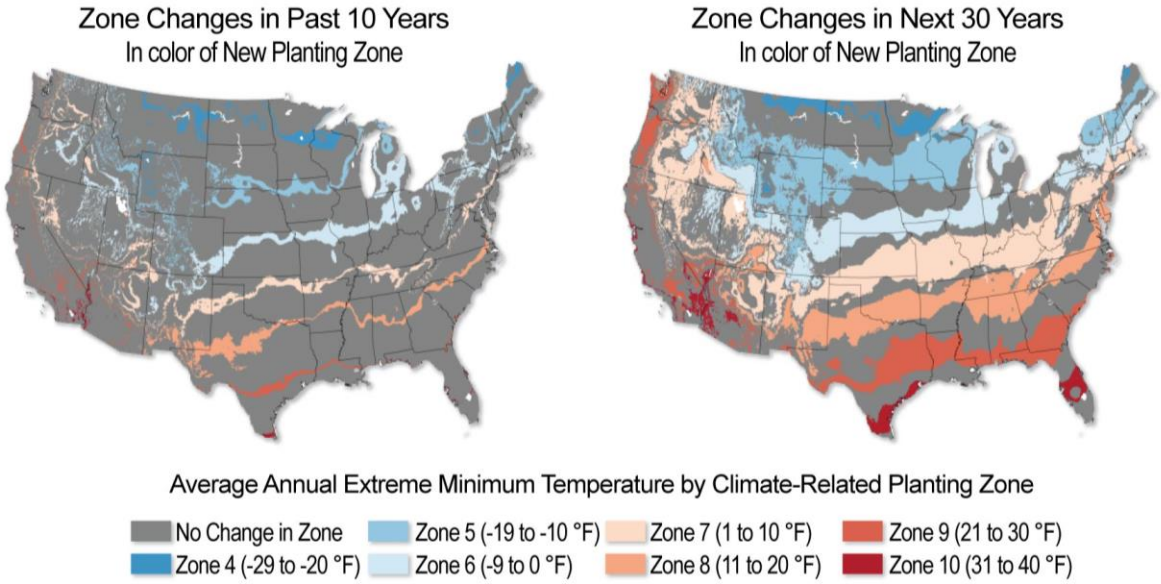
Land surface temperature, which directly correlates to imperviousness, varies across the region. For this land surface data, as well as a more detailed description of CMAP's analysis process, please refer to the Data Hub: https://datahub.cmap.illinois.gov/dataset/land-surface-temperature-estimates-july-21-2014.

### Figure 12. U.S. Drought Monitor, August 14, 2012 (2014 NCA)




Severe droughts in 2012 affected much of the Midwest that caused both short-term impacts on agricultural crops and grasslands, as well as long-term impacts on hydrology and ecology. Source: 2014 National Climate Assessment, http://www.globalchange.gov/browse/multimedia/us-drought-monitor-august-14-2012

### Figure 13. Historic and Projected Shifts in Plant Hardiness Zones (2014 NCA)




The color bands shown in the left-hand map depict regions that have experienced changes in plant hardiness zones over the last decade, indicating that species that once were able to thrive in those areas will no longer be able to survive under changing climate conditions. The map on the right shows that by 2050, a majority of areas across the country are projected to have significantly altered conditions that support different kinds of ecosystems. Source: 2014 National Climate Assessment, http://nca2014.globalchange.gov/report/appendices/climate-science-supplement/graphics/shifts-plant-hardiness-zones.

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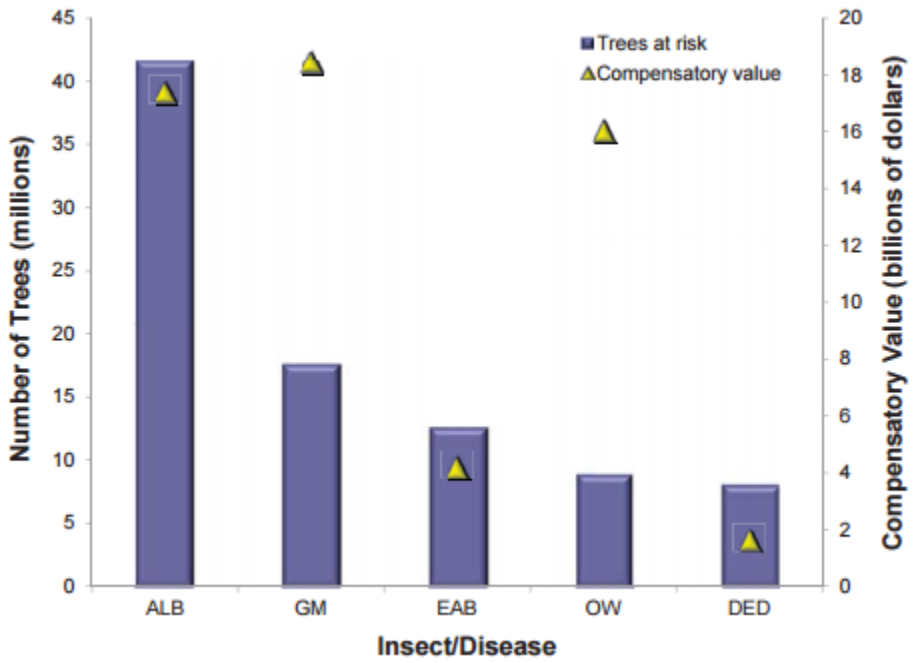
**Figure 14. Risk and compensatory value of trees for five most threatening insects and diseases in the Chicago region, 2010.**




This graph illustrates the number of trees at risk of various diseases, as well as the compensatory value (in billions of dollars) of potential tree losses. ALB: Asian longhorned beetle. GM: gypsy moth. EAB: emerald ash borer. OW: oak wilt. DED: Dutch elm disease. Source: US Department of Agriculture, 2013, Urban Trees and Forests of the Chicago Region, http://www.fs.fed.us/nrs/pubs/rb/rb_nrs84.pdf.

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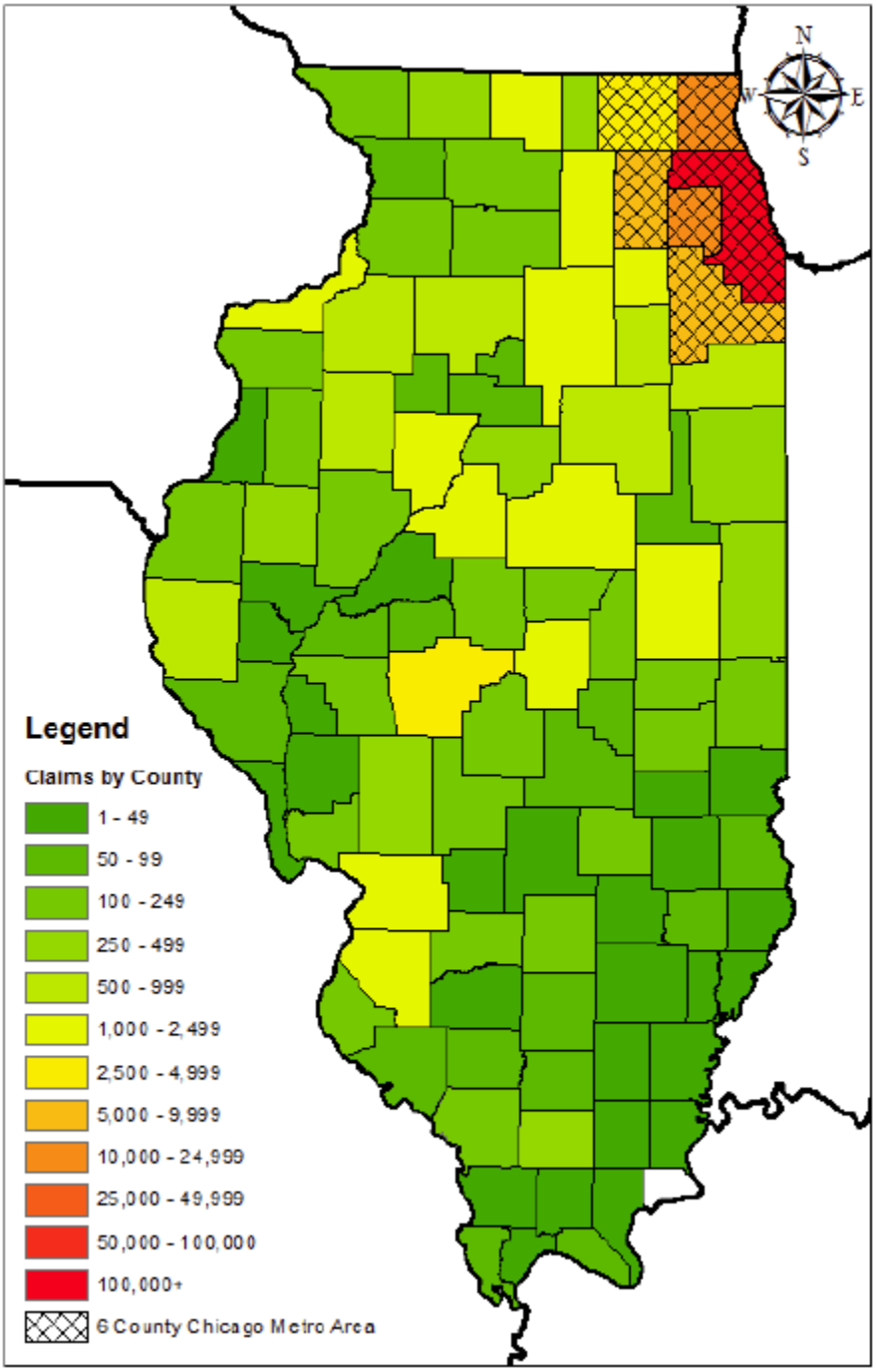
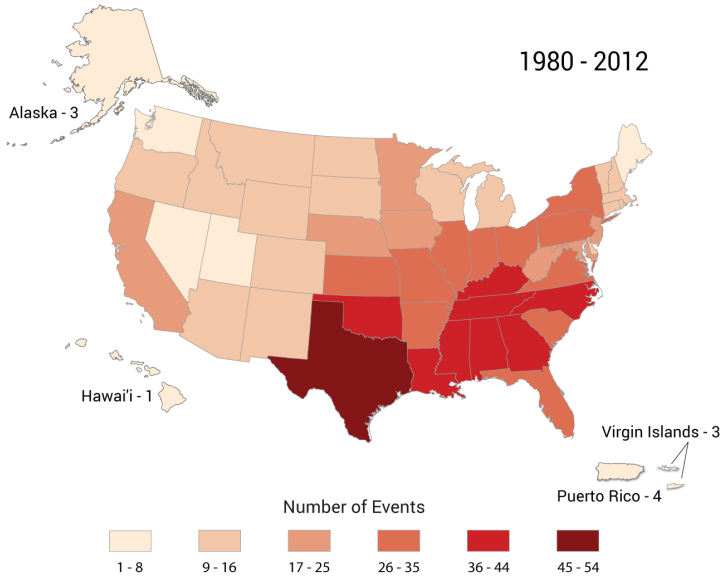
**Figure 15. Flood Claims by County in Illinois**




Northeastern Illinois has had more flood claims than other parts of the state between 2007 and 2014. Source: Illinois Department of Natural Resources Urban Flooding Awareness Act, https://www.dnr.illinois.gov/WaterResources/Documents/Final_UFAA_Report.pdf.

**Figure 16. Climate Disasters with Minimum Cost of $1 Billion, 1980-2012 (2014 NCA)**




In the last 30 years, Illinois has been affected by weather and climate disasters that have cost over a billion dollars per disaster. Source: 2014 National Climate Assessment, http://nca2014.globalchange.gov/highlights/regions/southeast/graphics/billion-dollar-weatherclimate-disasters-1980-2012 (adapted from NOAA, Billion-Dollar Weather and Climate Disasters, http://www.ncdc.noaa.gov/billions/events).

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