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Climate Change Projections & Impacts JOHNSON COUNTY, IOWA



LIKELY CLIMATE STRESSORS FOR JOHNSON COUNTY

 Higher average temperatures and more extreme heat

 Increased spring rainfall, humidity, and soil moisture

 Reduced annual snowfall and fewer/less intense snow events

 Increased frequency/intensity of extreme precipitation and flooding

 Likely increase in frequency and intensity of storms and wind events

 More frequent and/or more severe droughts

Climate Explorer Projections



The Climate Explorer

Explore graphs and maps of historical and projected climate variables for any county in the contiguous United States.

New!
Climate projection charts are now available for boroughs in Alaska.

To get started, enter a county, city, or zip code



or choose from the following suggested cities:

- | | | |
|-------------------|-----------------|---------------|
| New York City, NY | Los Angeles, CA | Chicago, IL |
| Phoenix, AZ | Houston, TX | Anchorage, AK |

Climate Explorer Projections



The Climate Explorer About this site

Johnson County, IA

Select one of the following for Johnson County, IA

Climate Maps

Compare past and projected future conditions in your county.

Climate Charts

Check past and projected values for climate variables.

High-Tide Flooding

View the number of high-tide floods in the past and projected for the future.

Historical Weather Data

Compare daily weather at local observing stations to long-term climate.

Historical Thresholds

Check how often temperature or precipitation has exceeded user-defined values.

Ready to plan for resilience?

Resources from our partners can help you identify what matters to your community and evaluate how climate change could affect it:

- Check your exposure to extreme events such as wildfires and flooding
- Identify social vulnerabilities across urban areas
- Get step-by-step guidance for completing a vulnerability assessment or crafting an action plan.

[Explore planning tools →](#)

Cards Home

Take action

Region Based

Climate Charts

Climate Maps

Historical Weather Data

Historical Thresholds

High-Tide Flooding

Climate Explorer Projections



Johnson County, IA

Stations

Johnson County, IA Avg Daily Max Temp (°F)

Avg Daily Max Temp (°F)

Chart

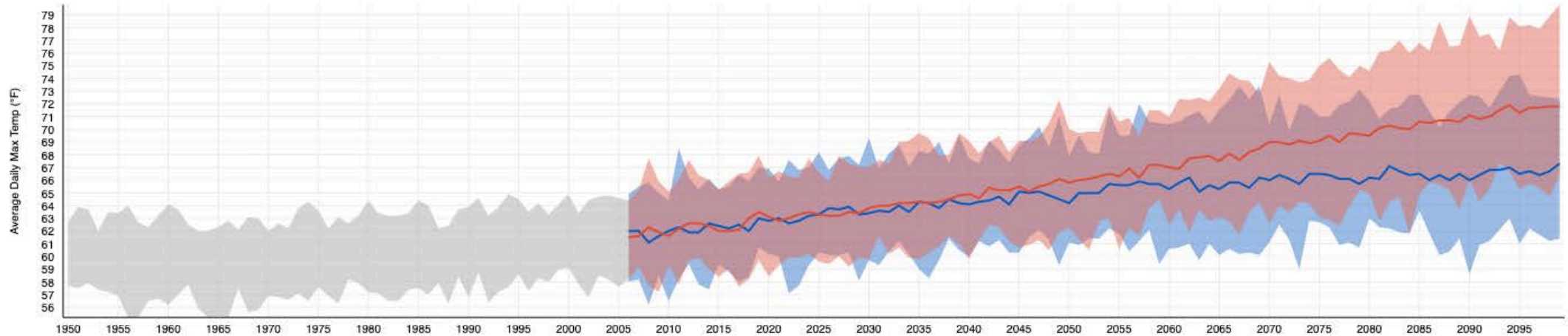
Map

Annual

Monthly

Downloads

About the graph



1950

2099

Historical Observed

Historical Modeled

Lower Emissions

Higher Emissions

Region Based

Station Based



Cards Home



Take action



Climate Charts



Climate Maps



Historical Weather Data



Historical Thresholds



High-Tide Flooding

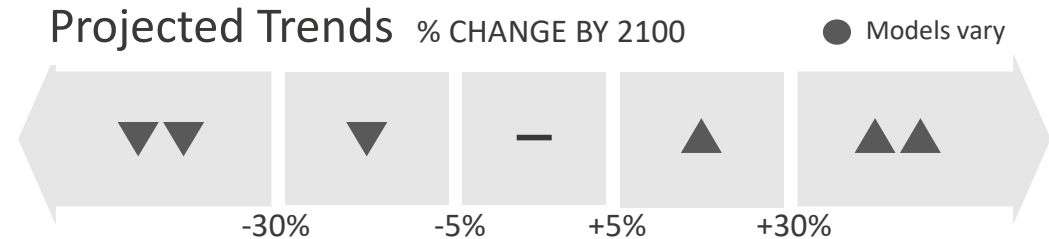


Important Considerations



FACTORS TO CONSIDER:

- Trend direction ▲ ▼ –
- Magnitude of change
- Shifts in timing/variability





HIGHER AVERAGE TEMPERATURES

▲ Minimum temperature

+5.5°F by 2050; +9.7 °F by 2100 (*historical: 39.3°F*)

▲ Maximum temperature

+5.7°F by 2050; +9.8°F by 2100 (*historical: 60.2°F*)

MORE EXTREME HEAT

▲▲ Days over 100°F

+9 days by 2050; +30.8 days by 2100 (*historical: 0.6 days*)

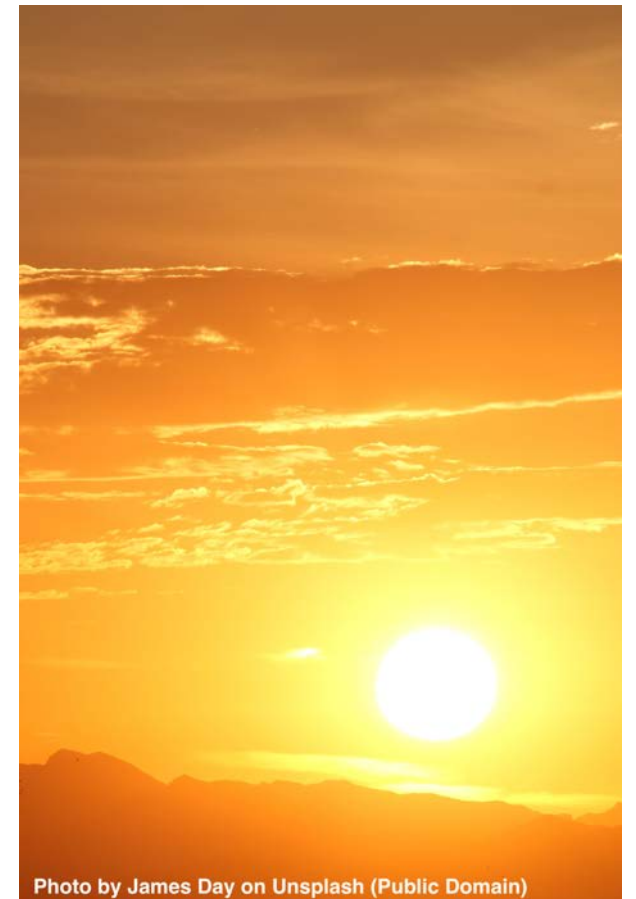
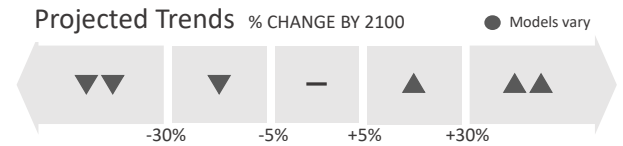


Photo by James Day on Unsplash (Public Domain)

Precipitation (Rain & Snow)

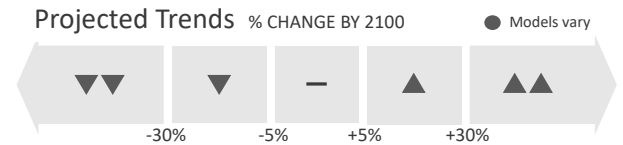


SHIFTS IN AMOUNT/TIMING OF RAINFALL

- Annual precipitation
 - +0.01% by 2050; 0.04% by 2100 (*historical: 35.9 in*)
- ▲▼ Increases in spring rainfall and decreases in late-season rain; increased variability

REDUCED SNOWFALL

- ▼ Declines in annual snowfall
- ▼ Declines in the frequency, intensity, and duration of snowfall events

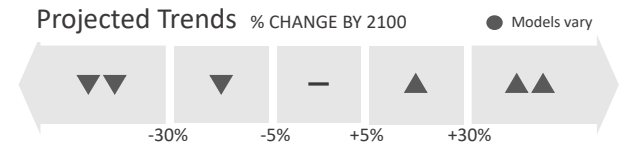


Humidity & Soil Moisture



INCREASED SURFACE HUMIDITY

- ▲ Spring surface humidity
+4.4% per decade in Iowa from 1979–2014
- ▲ Likely to continue increasing through 2050,
then may decrease



INCREASED SOIL MOISTURE

- ▲ Likely to increase, with spring soils saturated
more frequently



Extreme Precipitation, Storms, & Flooding

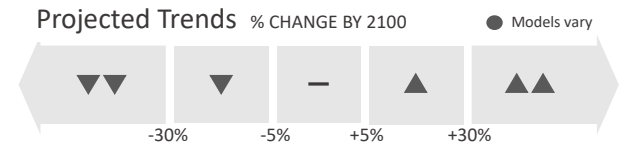


MORE EXTREME PRECIPITATION

- ▲▲ 99th percentile daily precipitation total
+42% in the Midwest from 1958–2016
- ▲▲ Storm-related rainfall (April–June)
+25% per decade in the central U.S. from 1979–2015

INCREASED STORMS & FLOODING

- ▲ Increase in frequency, intensity, and duration of mesoscale convective system (MCS) events
- ▲ Overall increases likely in extreme weather events and severe floods (*no projections available*)



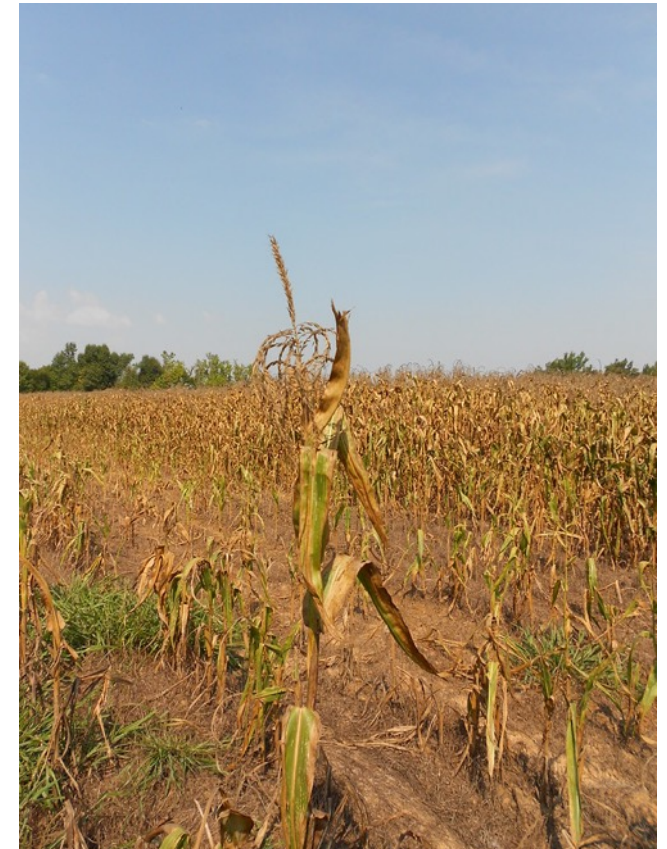
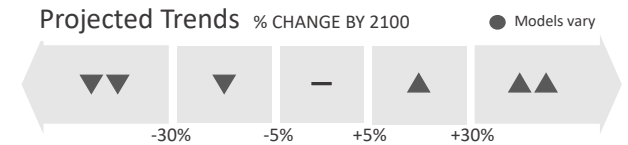


INCREASED DROUGHT RISK

- ▲ Likely increase in droughts between wet years, particularly late in the century

NEXT UP: How will these changes affect the 4 areas of interest chosen for this workshop?

- **Examples! What other impacts can you think of?**





Transit

- Damage to transportation infrastructure (e.g., roads, bridges, culverts) following storm and flood events
- Road blockages and loss of access following extreme events, impacting evacuation routes, emergency access, etc.
- Loss of electricity due to flooding or heat waves, limiting use of electric vehicles and impacting public transit
- Slower travel or road closures due to melting asphalt, overheating engines, and other impacts of extreme heat



Health & Safety

- Increased occurrence of public health concerns due to heat stress, reduced air quality, and increases in allergens
- Increased risk of injuries and/or death
- Increased risk of extreme events overwhelming emergency systems, blocking emergency access/evacuation routes, or damaging emergency shelters
- Disruption to emergency communication systems due to power loss or infrastructure damage from extreme events



Facilities & Public Services

- Increased risk of damage to critical infrastructure during floods
- Increased energy demand during heat waves, potentially straining electrical grids
- Increased soil erosion and nutrient runoff into rivers and streams, as well as concentration of contaminants and greater risk of algal blooms, affecting water quality and recreation
- Decreased water supplies during drought due to declines in water sources combined with increased demand



Land use

- Increased heat stress in developed areas with impervious surfaces and lack of vegetation
- Increased flooding in low-lying areas/where drainage is poor
- Exacerbation of existing patterns of inequity
- Increased plant stress/mortality due to drought, disease/insects
- Increased heat stress for people using parks and recreation areas as well as changes in patterns of recreational use

Important Tools and Resources



- Climate Explorer (<https://crt-climate-explorer.nemac.org>)
- Midwest Chapter of the Fourth National Climate Change Assessment (<https://nca2018.globalchange.gov/chapter/21/>)
- Iowa Climate Adaptation and Resilience Report (<https://www.hsdl.org/?view&did=828099>)
- An Uncertain Future: The Outlook for Iowa Communities and Flooding as our Climate Changes (<https://www.iowapolicyproject.org/2019docs/190905-Flood-Climate.pdf>)
- Iowa City Climate Action and Adaptation Plan (<https://www.icgov.org/project/climate-action>)
- Iowa Flood Center (<https://iowafloodcenter.org/>)
- Climate Adaptation Knowledge Exchange (www.cakex.org)

Questions?



Next step:
*Group discussion of
climate impacts!*

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