

How will global warming of 2°C affect Wisconsin?



**Observed and projected changes
in climate and their impacts**

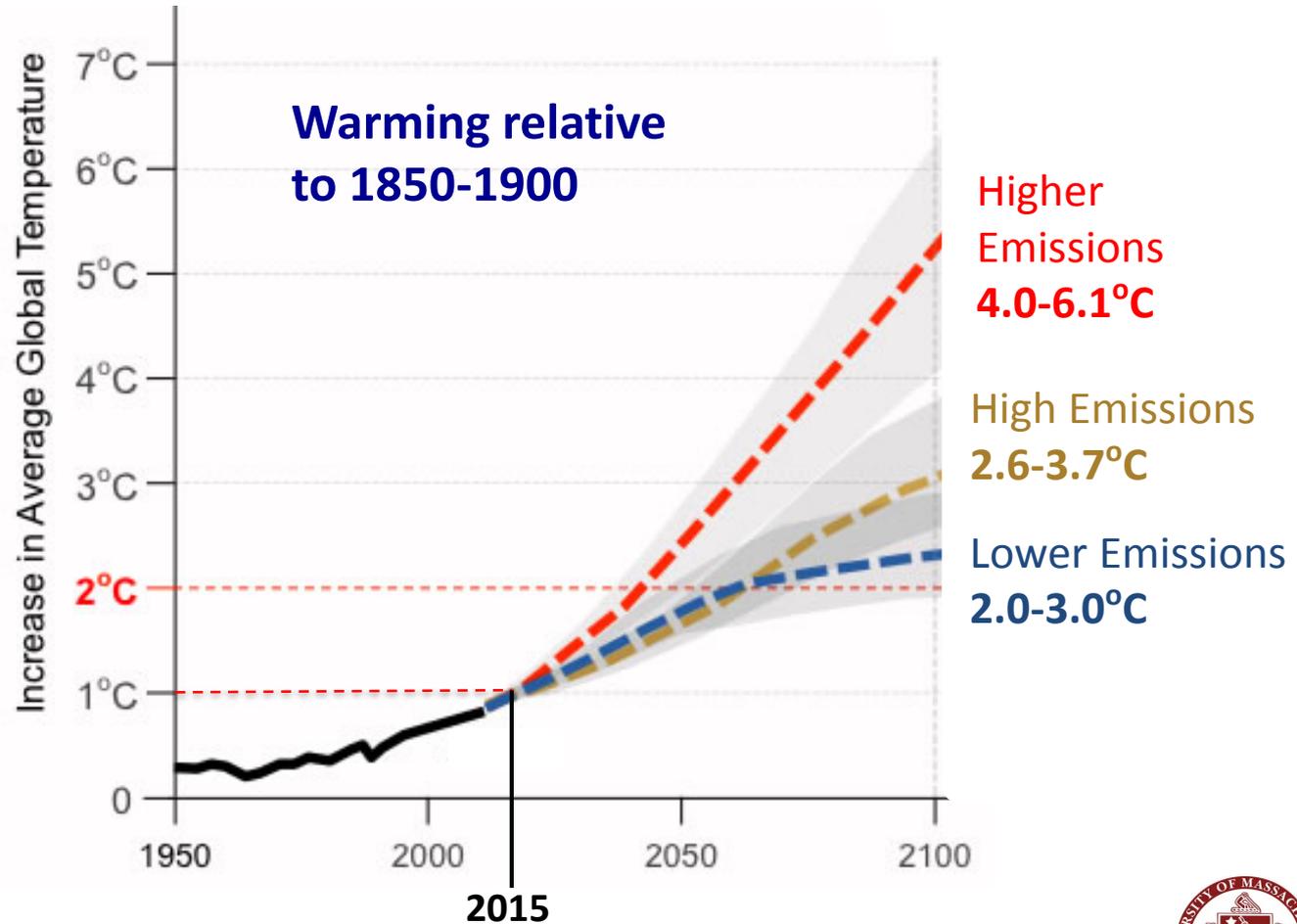
“To prevent dangerous interference with the climate system, the scientific view is that the increase in global temperature should be below 2°C [relative to pre-industrial levels]”.

- United Nations Framework on
Climate Change, 2010

How will global temperatures change in the future?

The global average temperature has already increased by about 1°C (1.8°F) relative to pre-industrial levels.

Current CO₂ emissions are tracking the 'higher emissions' scenario; unless emissions are reduced, the 2°C threshold will be crossed before 2050.

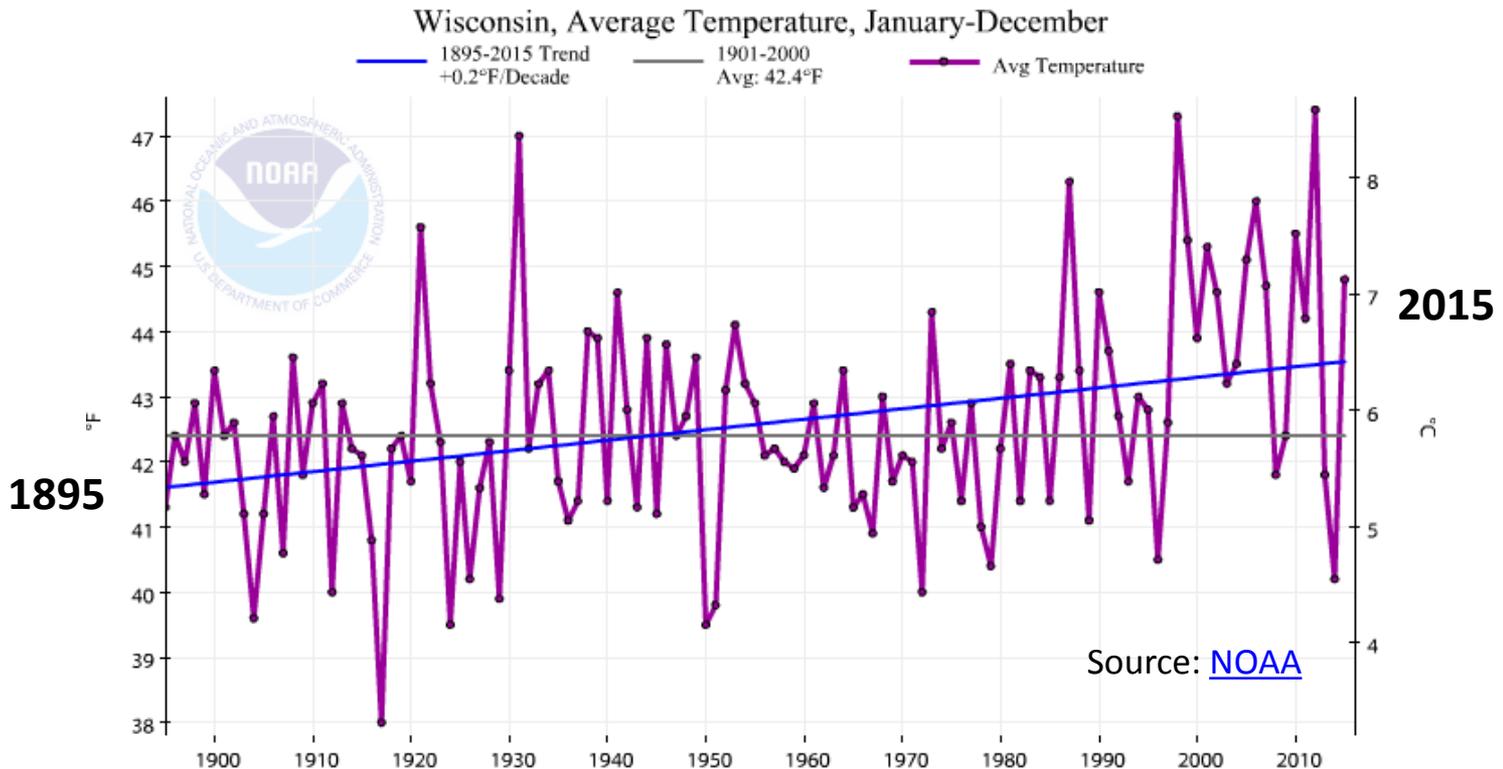


Warming in Wisconsin



OBSERVATIONS

The annual mean temperature in WI has increased by about 2°F (1.1°C) since 1895 – as fast as the rise in global mean temperature.



In 15 out of the last 18 years, the annual mean temperature in WI exceeded the 20th-century average.

Warming in Wisconsin

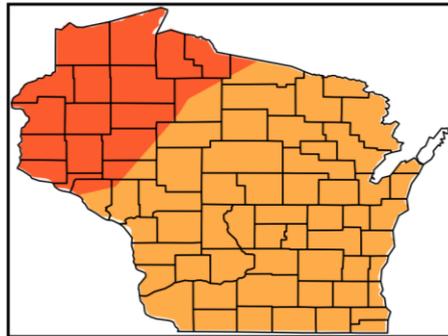


PROJECTIONS

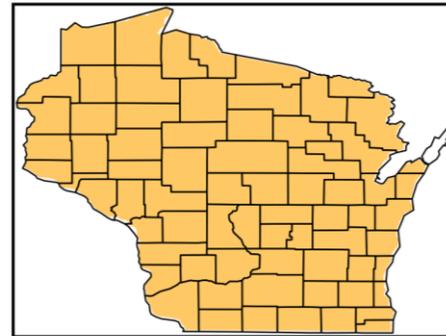
In the next 50-60 years, when global warming crosses the 2°C threshold, WI average summer and winter temperatures are projected to increase by over 6°F (3.3°C) relative to pre-industrial levels.

Lower Emissions

Winter

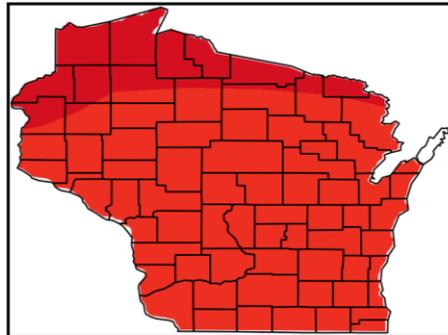


Summer

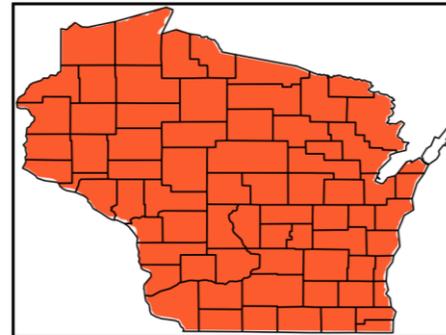


Higher Emissions

Winter

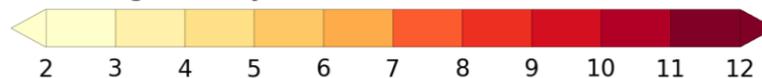


Summer



Source: produced by CSRC, UMass Amherst

Warming in °F by 2070 relative to 1961-1990 mean

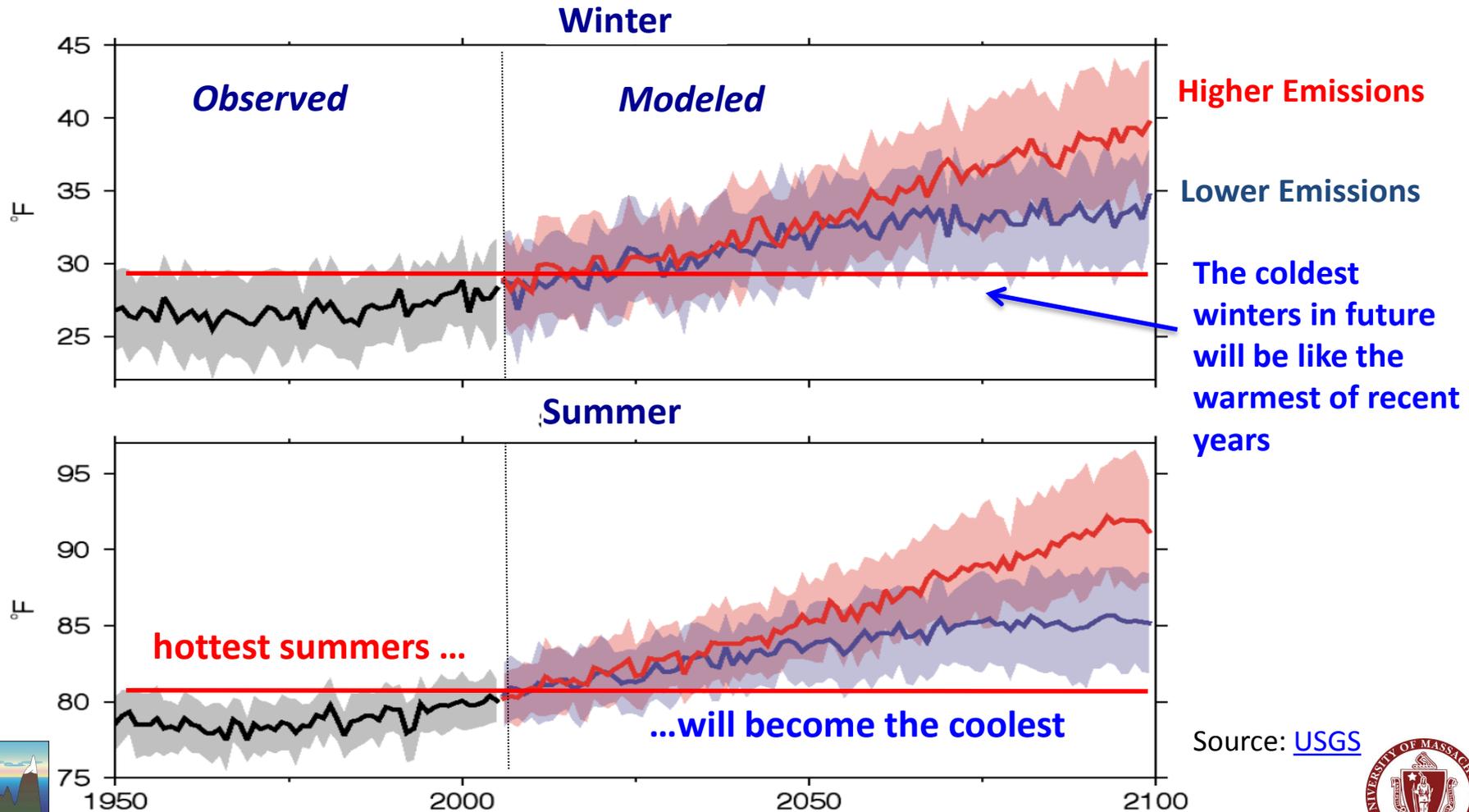


Warming in Wisconsin



PROJECTIONS

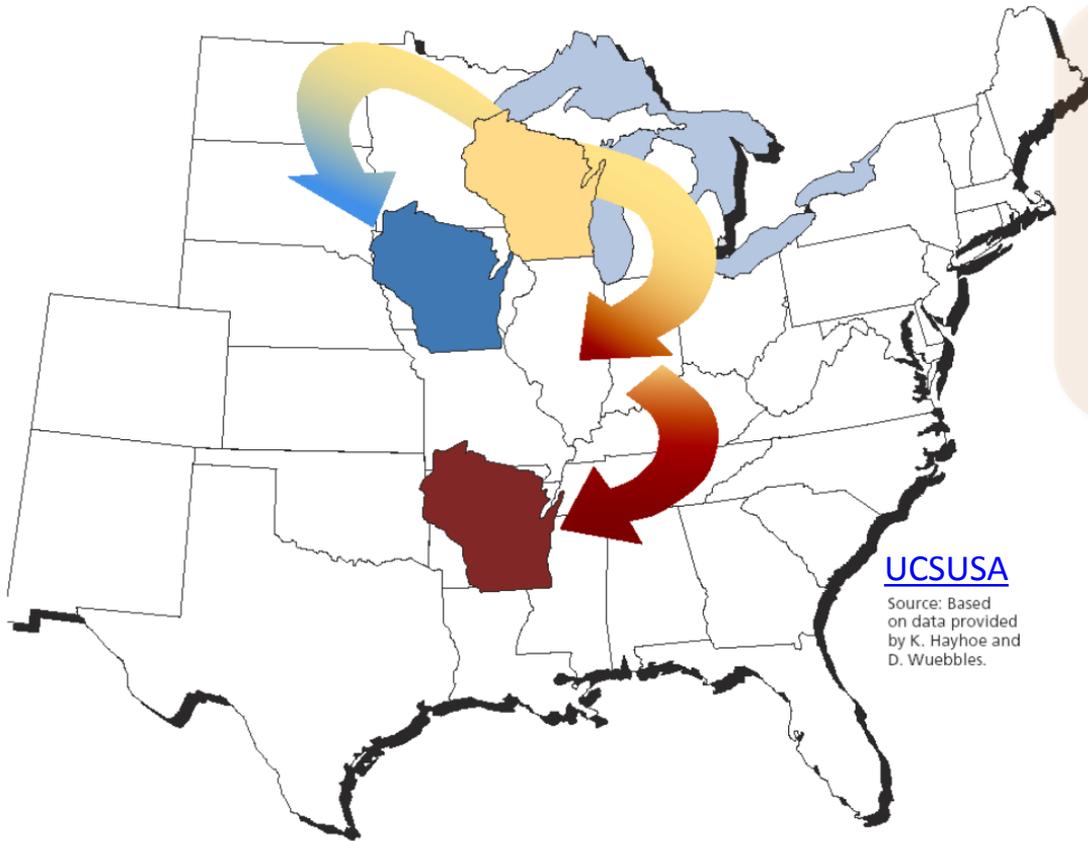
How warm will Winter and Summer temperatures become?



Source: [USGS](#)



Migrating Wisconsin Climate



PROJECTIONS

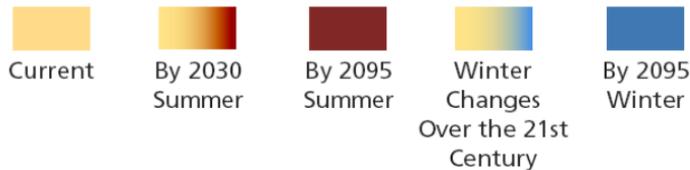
Summer in Wisconsin by the end of this century could feel like a present-day typical summer in Arkansas.

Consequences:

Negative impacts on human health, ecosystems, and the economy.

[UCSUSA](#)

Source: Based on data provided by K. Hayhoe and D. Wuebbles.



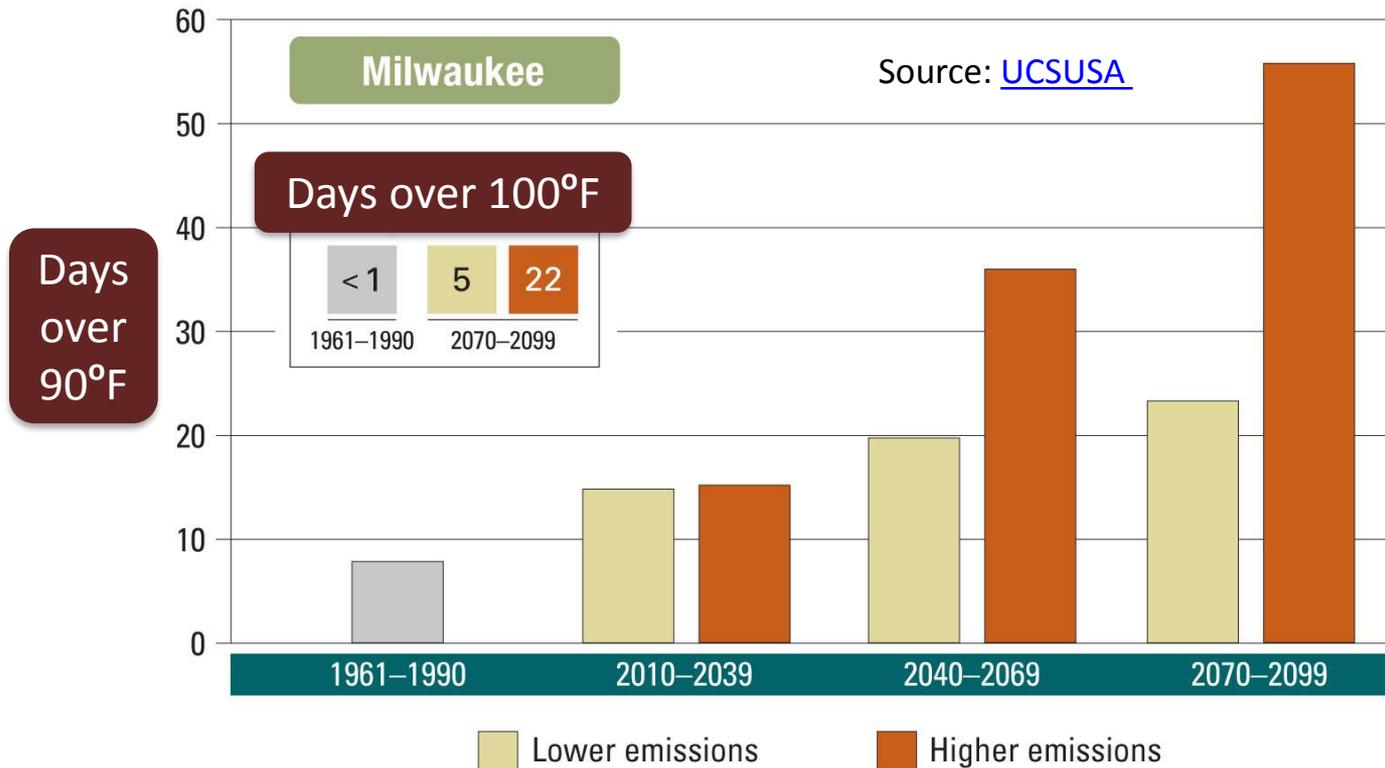
Analysis is based on changes in average summer heat index (a measure of how it actually feels for a given temperature and humidity).

Extreme Heat in Wisconsin



OBSERVATIONS

Summer daytime high temperatures in Milwaukee rarely reach 90°F in today's climate.



PROJECTIONS

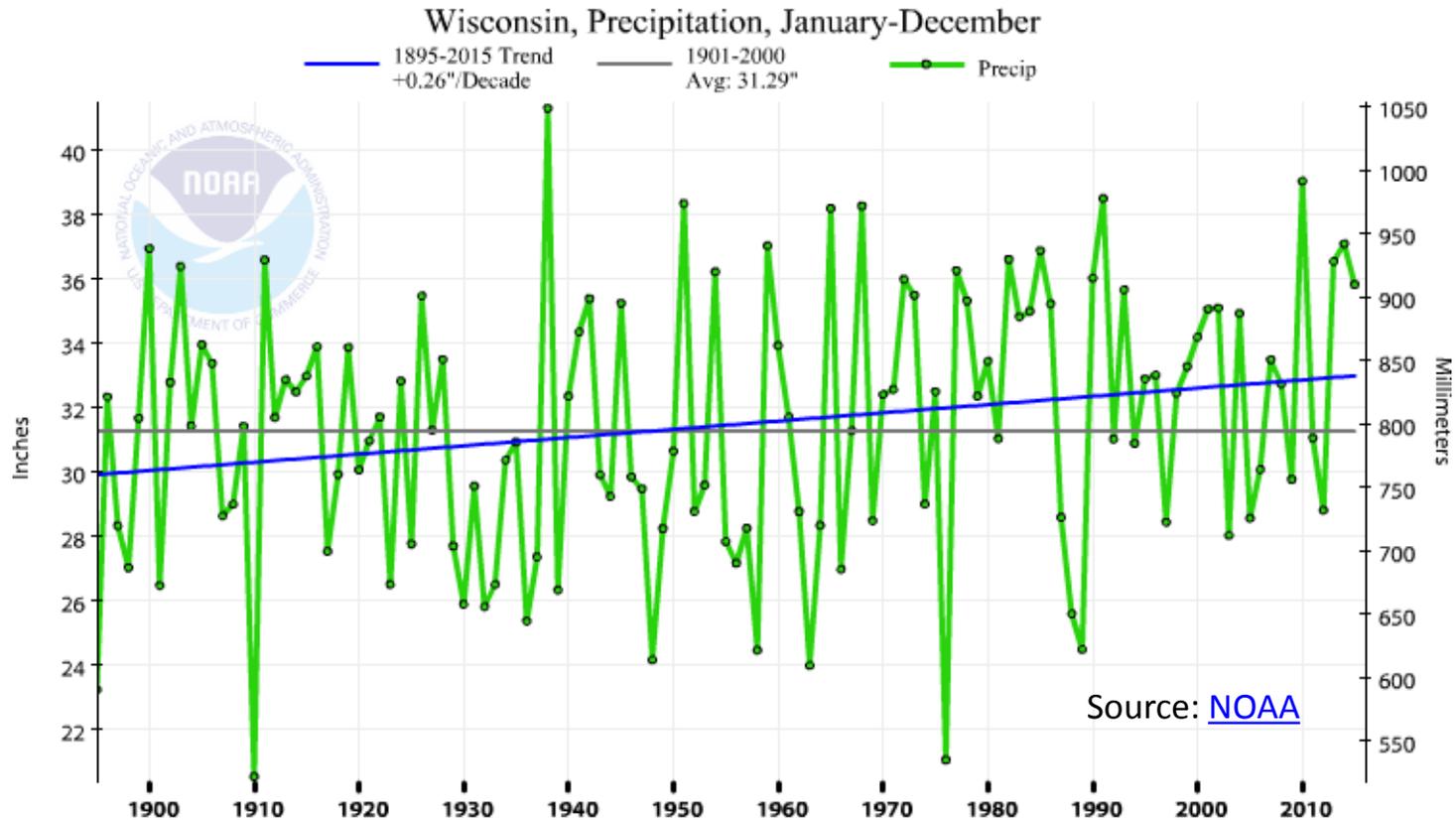
The number of days with dangerously high temperatures (above 100°F) is projected to increase significantly in the future.

Rain and Snow in Wisconsin



OBSERVATIONS

Annual total precipitation (rain + snow) has increased slightly over the last few decades.

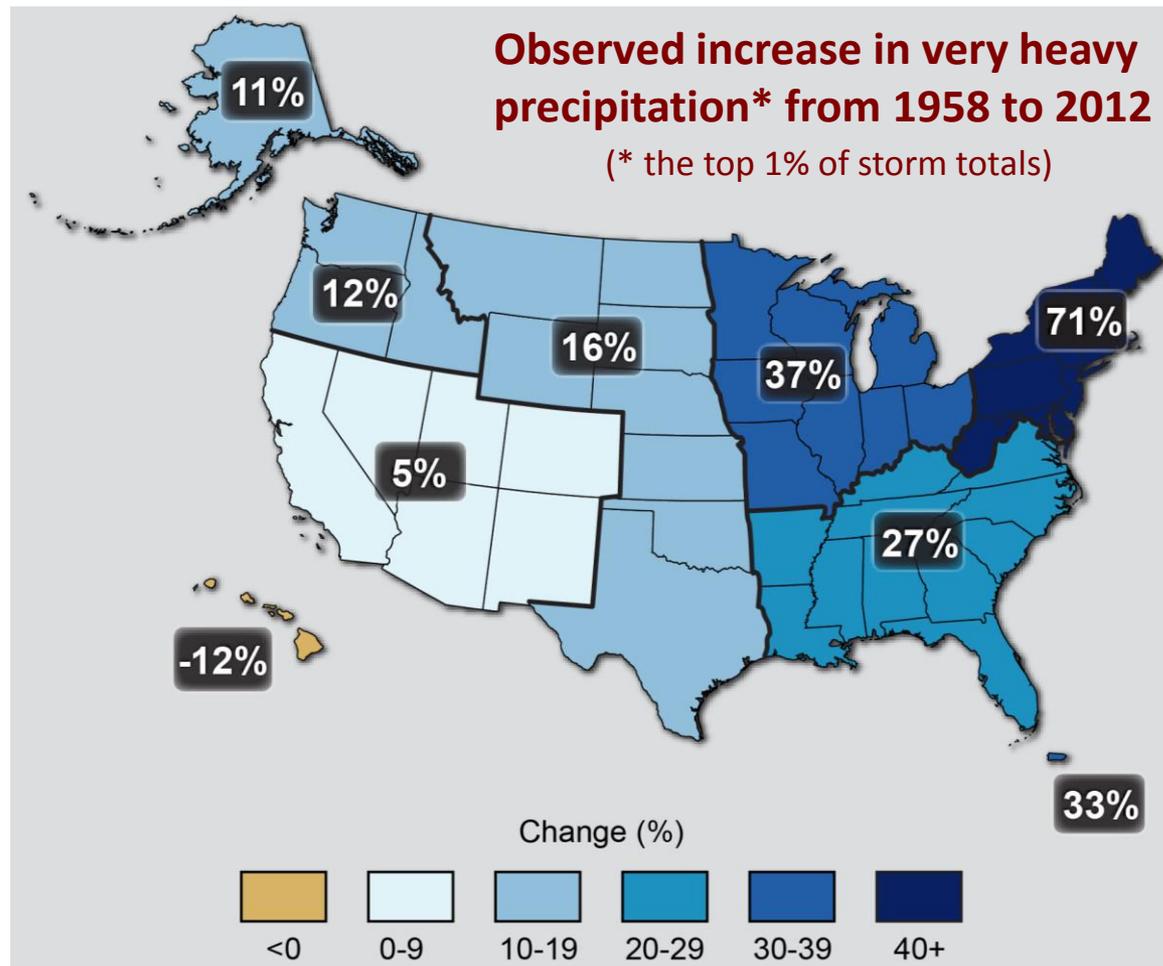


Very Heavy Rainfall

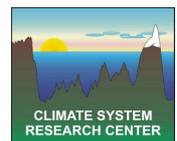


OBSERVATIONS

The amount of precipitation falling during intense multi-day events has increased in the Midwest US.



Source:
[NCA 2014](#)



Flooding Dangers



A road was destroyed when heavy rains led to flash flooding in Clark County, WI, 2015



Weeks of heavy rain led to flooding of wastewater treatment plant in Reedsburg, WI, 2008

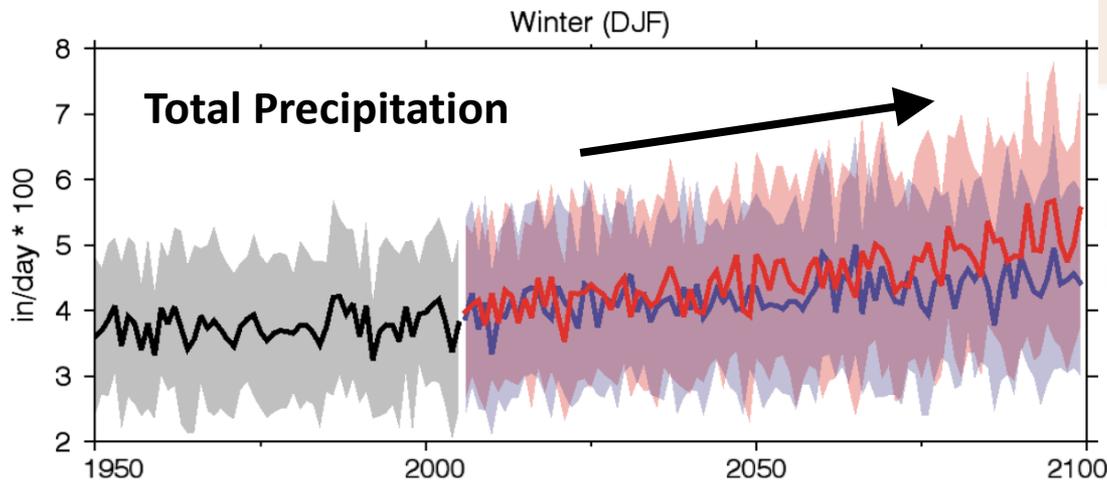


Rain and Snow in Wisconsin



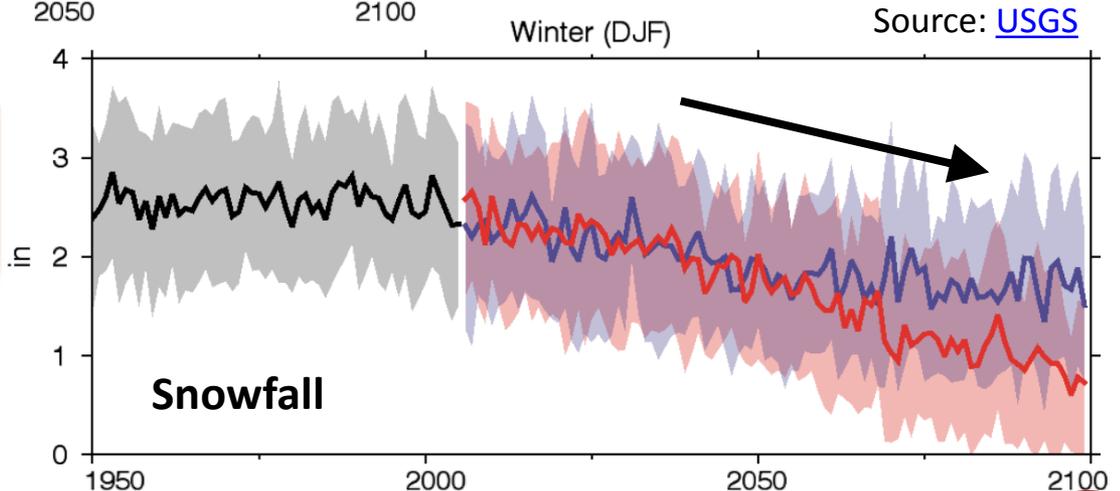
PROJECTIONS

Winter precipitation is projected to increase through the 21st century.



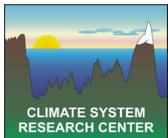
Higher Emissions
Lower Emissions

Due to increasing temperatures, there will be more rain and less snow.



Source: [USGS](#)

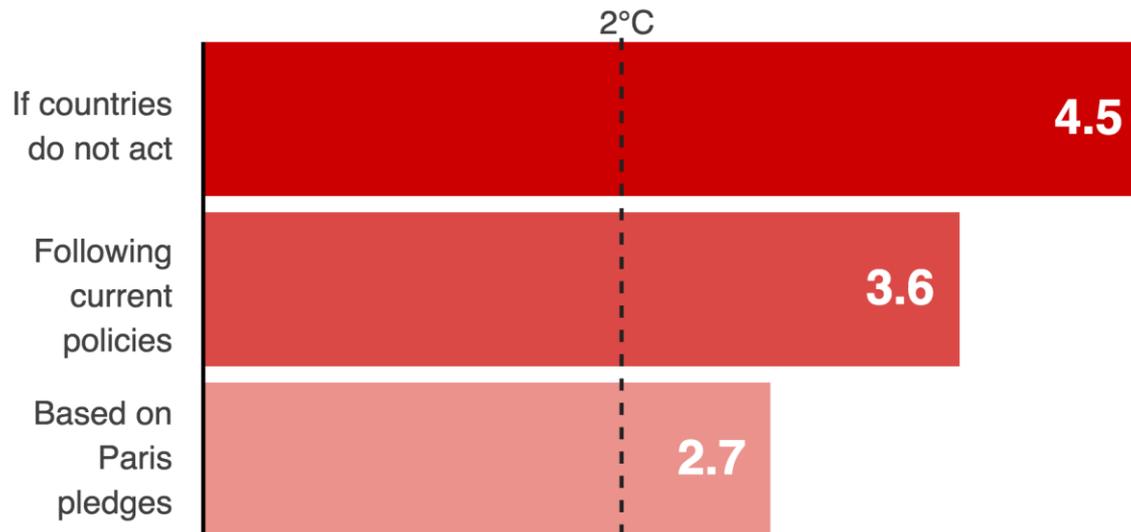
Projected changes in rainfall in summer are uncertain.



Climate Summit in Paris [COP21]

Immediate action on local and global scales is required to limit the global mean temperature increase to 2°C (3.6°F).

Average warming (°C) projected by 2100



Source: Climate Action Tracker, data compiled by Climate Analytics, ECOFYS, New Climate Institute and Potsdam Institute for Climate Impact Research.

Strategies and Actions

National Climate Assessment:

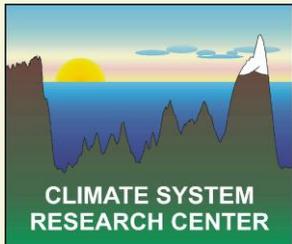
The National Climate Assessment summarizes the impacts of climate change in the US, now and in the future.

Integrating Climate Change into State Wildlife Action Plan (SWAP):

The goals of SWAP are to generate proactive, comprehensive wildlife conservation strategies that assess the health, challenges, and potential actions each State would like to accomplish during the coming decade and beyond.

Climate and Health Assessment:

This scientific assessment examines how climate change is already affecting human health in the US and the changes that may occur in the future.



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