

Climate Trends, Ulysses S. Grant National Historic Site, Missouri

Patrick Gonzalez

Natural Resource Stewardship and Science, National Park Service, Washington, DC

January 10, 2014

Historical and projected climate trends (Gonzalez et al. 2010, IPCC 2007, Mitchell and Jones 2005) for the area that includes the national park.

	mean	SD	mean	SD
Historical (1901-2002)				
temperature annual average	13	0.8 °C	55	1.4 °F.
temperature linear trend	0.3	N.S. °C/century	0.5	N.S. °F./cent.
precipitation annual average	900	170 mm/y	35	6 in./year
precipitation linear trend	16	Sig. %/century	16	Sig. %/century
Projected (1990-2100)				
IPCC B1 scenario (lower emissions)				
temperature annual average trend	2.9	1.2 °C/century	5	2 °F./cent.
precipitation annual average trend	0	8 %/century	0	8 %/century
IPCC A1B scenario (medium emissions)				
temperature annual average trend	4.2	1.2 °C/century	7.6	2 °F./cent.
precipitation annual average trend	-1	8 %/century	-1	8 %/century
IPCC A2 scenario (higher emissions)				
temperature annual average trend	4.7	1.2 °C/century	8	2 °F./cent.
precipitation annual average trend	-3	8 %/century	-3	8 %/century

SD = standard deviation; Sig. = statistically significant; N.S. = not statistically significant

References

- Gonzalez, P., R.P. Neilson, J.M. Lenihan, and R.J. Drapek. 2010. Global patterns in the vulnerability of ecosystems to vegetation shifts due to climate change. *Global Ecology and Biogeography* 19: 755-768.
- Intergovernmental Panel on Climate Change (IPCC). 2007. *Climate Change 2007: The Physical Science Basis*. Cambridge University Press, Cambridge, UK.
- Mitchell, T.D. and P.D. Jones. 2005. An improved method of constructing a database of monthly climate observations and associated high-resolution grids. *International Journal of Climatology* 25: 693-712.

For More Information

- Kunkel, K.E, L.E. Stevens, S.E. Stevens, L. Sun, E. Janssen, D. Wuebbles, K.T. Redmond, and J.G. Dobson. 2013. *Regional Climate Trends and Scenarios for the U.S. National Climate Assessment. Part 4. Climate of the U.S. Great Plains*. U.S. National Oceanic and Atmospheric Administration, Technical Report NESDIS 142-4, Washington, DC.
- http://www.nesdis.noaa.gov/technical_reports/NOAA_NESDIS_Tech_Report_142-4-Climate_of_the_U.S.%20Great_Plains.pdf