

Climate Change Trends for Park Planning in the Washington, DC Region

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Historical Trends

During the 20th century, temperature has increased across North America (Figure 1, Table 1) and shown a statistically significant increase at Washington National Airport (Figure 2).

Precipitation has increased (Figure 3, Table 1). Sea level has shown a statistically significant increase at the tidal gauge on the Southwest waterfront (Figure 4, Table 1).

Future Projections

The Intergovernmental Panel on Climate Change (IPCC) has coordinated research groups in projecting possible future climate under defined greenhouse gas emissions scenarios (IPCC 2007). Scenario A1B is the medium emissions scenario and traces a path slightly below current emissions. Temperature in the 21st century could increase four times the warming already observed in the 20th century (Table 1). Twenty-first century precipitation and sea level could continue to increase at the rates observed in the 20th century (Table 1).

Table 1. Climate and sea level trends for the Washington, DC region. Climate is given for a 150 km x 150 km square area surrounding DC (Mitchell and Jones 2005, IPCC 2007, Gonzalez et al. 2010). Historical sea level data from the National Oceanic and Atmospheric Administration for the tidal gauge Southwest waterfront. Sea level projection is for the global average (IPCC 2007).

	mean	SD	min.	max.	units
Historical					
temperature 1901-2002	0.8	0.1	0.7	0.9	°C/century
precipitation 1901-2002	5	4	0	13	%/century
sea level 1931-2009(DC)	36	22			cm/century
Projected					
temperature 1990-2100, A1B scenario	3.5	0.1	3.3	3.7	°C/century
precipitation 1990-2100, A1B scenario	8	1	7	9	%/century
sea level 2000-2100, A1B scenario (global)	35	14			cm/century

Figure 1.

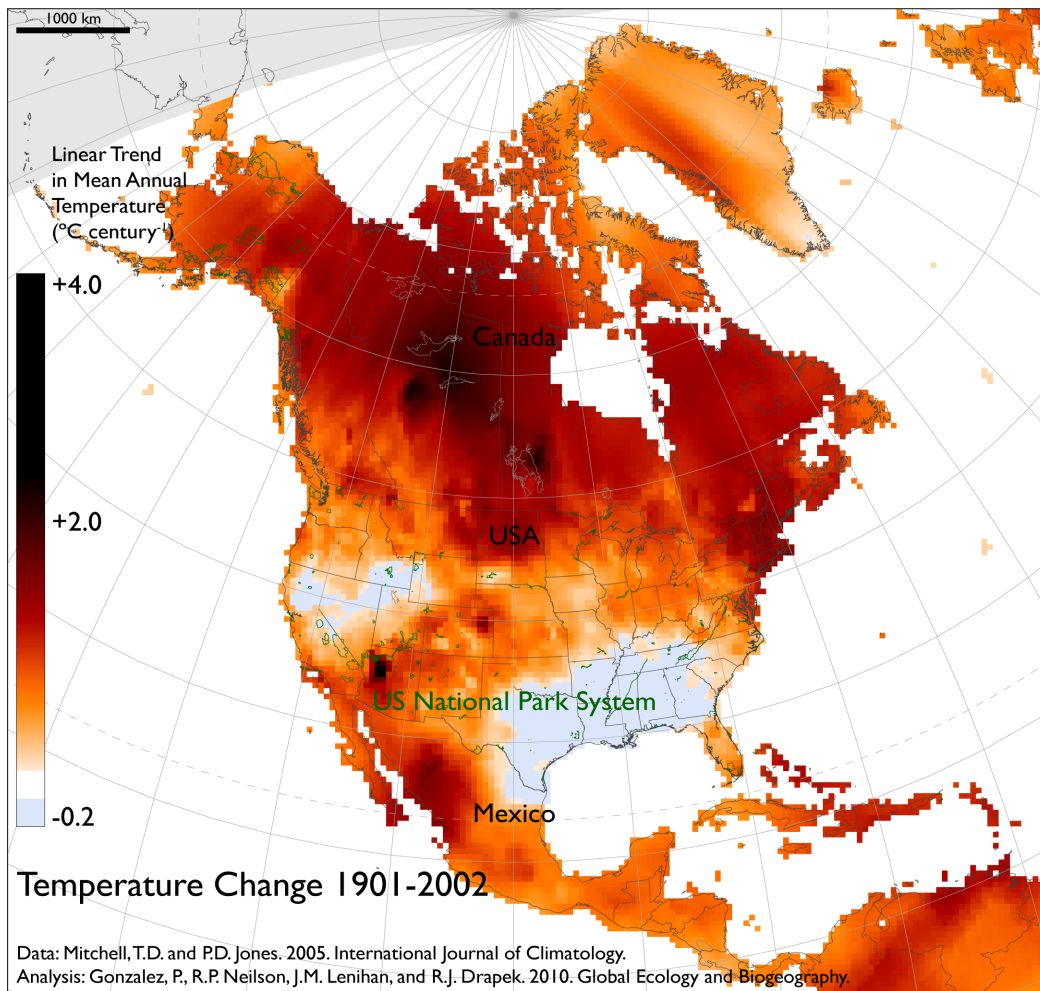


Figure 2.

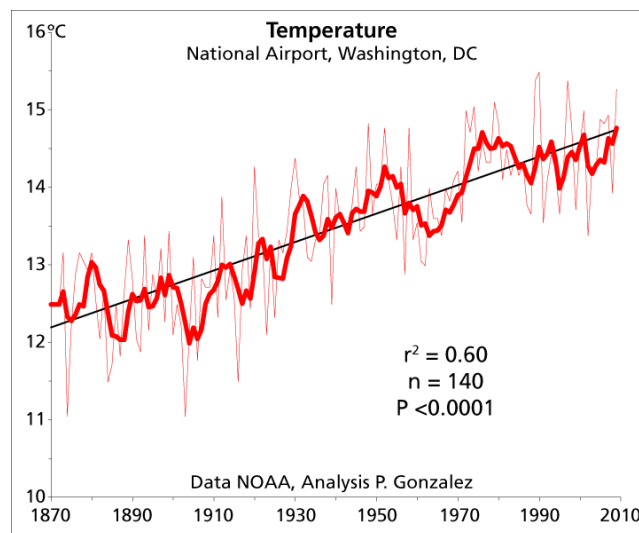


Figure 3.

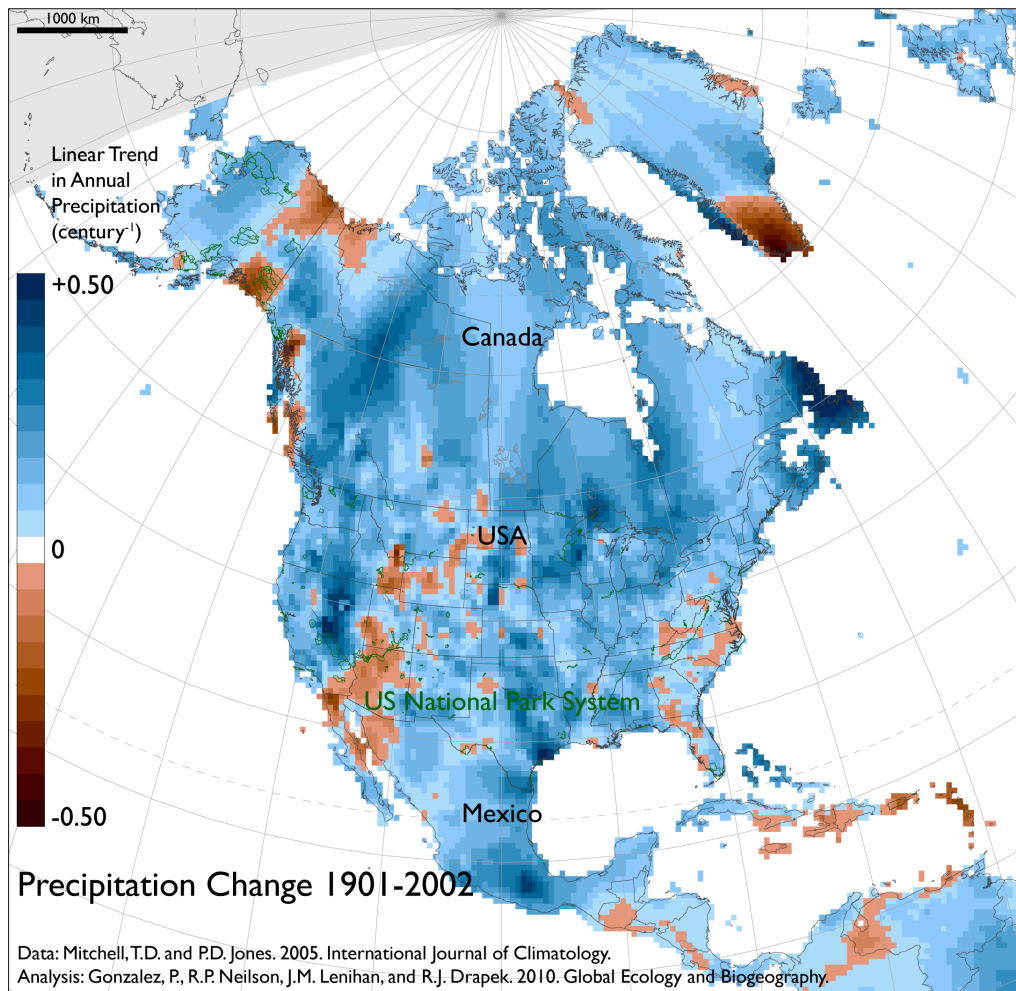
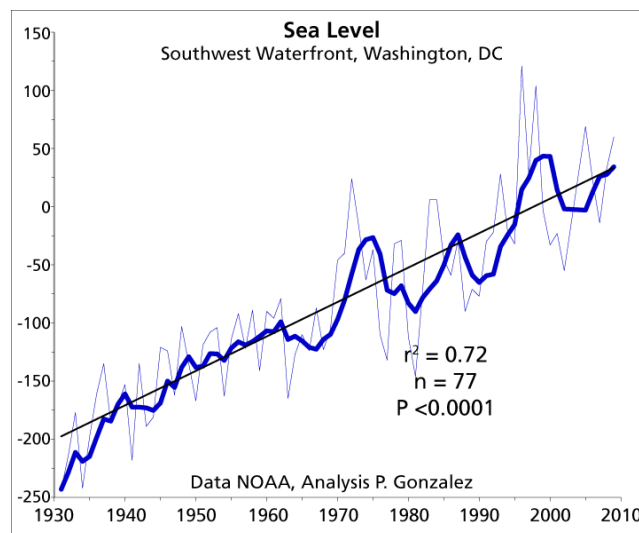


Figure 4.



References

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- 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.