

Climate Changes in North America Since 1951: Key Findings

Temperature -- What happened?

- From 1951 to 2006 the yearly average temperature for North America increased by 1.6° Fahrenheit. Virtually all of this warming has occurred since 1970.
- Six of the ten warmest summers in the continental United States since 1951 occurred between 1997 and 2006.
- The largest yearly average regional temperature increases have occurred over northern and western North America, with up to 3.6°F warming in 56 years over Alaska, the Yukon Territories, Alberta, and Saskatchewan.
- No significant yearly average temperature changes have occurred in the southern United States and eastern Canada.

Why?

- More than half of the warming averaged over all of North America is *likely* (more than 66 percent chance) the result of human activity.
- Regional differences in summertime surface temperature trends across North America are *unlikely* (less than 33 percent chance) to be the result of human activity alone. The temperature trends *likely* have been influenced by regional variations in sea surface temperature.

Precipitation -- What Happened?

- There has not been a significant trend, either up or down, in North American precipitation since 1951, although there have been substantial changes from year to year and even decade to decade.

Why?

- The regional and seasonal differences in precipitation changes are *unlikely* to be the result of human activity alone. Some of the variations that have occurred are *likely* the result of regional variations in sea surface temperatures.
- Part of this variability is *likely* the result of regional variations in sea surface temperatures, which influence precipitation patterns.

Drought -- What Happened?

- It is *unlikely* that a fundamental change has occurred in either how often or where severe droughts have occurred over the continental United States during the past half-century.
- Drought impacts over North America have likely become more severe in recent decades.

Why?

- It is *likely* that changes in sea surface temperatures have contributed to multi-year droughts that have affected North America during the past half-century.
- It is *likely* that warming due to human activity has increased drought impacts over North America in recent decades through increased water stresses associated with warming land surface temperatures.