

# Precipitation and Storm Changes

## Precipitation Changes

According to the IPCC, an increase in the average global temperature is very likely to lead to changes in precipitation and atmospheric moisture because of changes in atmospheric circulation and increases in evaporation and water vapor.

Climate models suggest (IPCC, 2007):

- An increase in global average annual precipitation during the 21st century, although changes in precipitation will vary from region to region.
- An increase in the intensity of precipitation events, particularly in tropical and high-latitude regions that experience overall increases in precipitation.
- Annual average precipitation increases over most of northern Europe, the Arctic, Canada, the northeastern United States, tropical and eastern Africa, the northern Pacific, and Antarctica, as well as northern Asia and the Tibetan Plateau in winter.
- Annual average precipitation decreases in most of the Mediterranean, northern Africa, northern Sahara, Central America, the American Southwest, the southern Andes, as well as southwestern Australia during winter.
- Reduced rainfall over continental interiors during summer due to increases in evaporation.

However, regional precipitation projections from climate models must be considered with caution since they demonstrate limited skill at small spatial scales.

## Storm Changes

Mid-latitude storm tracks are projected to shift toward the poles, with increased intensity in some areas but reduced frequency. Tropical storms and hurricanes are likely to become more intense, produce stronger peak winds, and produce increased rainfall over some areas due to warming sea surface temperatures (which can energize these storms) (IPCC, 2007). The relationship between sea surface temperatures and the *frequency* of tropical storms is less clear. There is currently no scientific consensus on how future climate change is likely to affect the frequency of tropical storms in any part of the world where they occur. (WMO, 2006)

From: <http://www.epa.gov/climatechange/science/futurepsc.html>