

Impact of climate change on precipitation pattern in NE United States

Changes in global climate and alteration of Earth's hydrological cycle have resulted in increased heavy precipitation with consequent increased surface runoff and flooding risk, which is likely to continue in the future. Anthropogenic climate change is expected to change the distribution, frequency and intensity of precipitation and result in increased intensity and frequency of floods and droughts, with damaging effects on environment and society. Earlier studies show that annual-mean precipitation and annual-maximum precipitation respond differently to the changes in climate, which indicates that changes in climate will result in consequent changes in precipitation pattern. Such changes in precipitation pattern can affect the capability of reservoirs to capture excessive surface run-off and/or the rainwater harvesting systems (RWHS) to capture the excessive rainwater. Failure of the available storages to capture the designed amounts the annual precipitation might also result in less total annual amount of water stored in the storages, hence less available fresh water resources. In this study, we will investigate the historical changes in annual-mean and annual maximum daily precipitation in North-East United States and compare the results to study the possible changes in precipitation pattern. Weather station observational data from GHCN-daily can be used as precipitation data for this study.