

Climate science for climate services - Expert Team on Climate Change Detection and Indices (ETCCDI)

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Robust adaptation to climate change requires effective monitoring and understanding of extremes, including the ability to detect changes in their frequency and intensity. Which changes in weather and climate extremes have been observed over recent decades? How certain are we about these changes? Are our data and metrics adequate to address these questions? The joint CCI/CLIVAR/JCOMM Expert Team on Climate Change Detection and Indices (ETCCDI) has helped to design and implement a system of indices and tools that enable a consistent approach to the monitoring, analysis and detection of changes in extremes by countries and regions across the globe. The focus is on weather and climate extremes defined as rare events within the statistical reference distribution of weather elements that are monitored daily at a particular place, such as temperature and precipitation. A key component of this approach is a series of regional workshops that help build the capacity to monitor changes in extremes. Although the extremes in the tails of the distribution are not directly related to environmental disasters, it is very likely that a systematic change in weather and climate extremes will also be accompanied by a systematic change in extreme impact events. This poster will describe the indices approach and summarize the observational evidence for changes in temperature and precipitation extremes in different regions of the world. The poster will also illustrate recent detection results that link changes in some extremes indices to human influence in the climate system.