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Progress in detecting anthropogenic influence on temperature and precipitation extremes

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Progress in Detecting Anthropogenic Influence on Temperature and Precipitation Extremes Francis Zwiers, Director, Pacific Climate Impacts Consortium, University of Victoria There is a well established approach to detecting and attributing the causes of observed changes in mean climatic conditions that has been applied progressively from global scales to regional scales to temperature, precipitation and other climate variables. While this research has provided a great deal of useful information about the causes of climate change observed during the past century or more, policy makers and others have also been demanding answers about whether there are attributable changes in the frequency and/or intensity of extreme weather and climate events. The statistical techniques required to respond to these questions are only now begin developed. This talk will describe several approaches that have been proposed to assess whether there is a detectable human influence in the far tails of the distribution of climate variables such as daily maximum air temperature or daily precipitation amount. We also describe initial applications of these approaches, and discuss limitations and further areas of improvement. These applications suggest that human influence on the climate system has affected the extremes of daily maximum and minimum temperatures, and extreme daily precipitation amounts, altering the waiting times for events of a fixed amplitude.