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Spatial Patterns of Severe Rainfall in Southern Ontario

It is generally accepted that one of the predicted effects of climate change will be shifts in the intensity, the frequency and the spatial distribution of severe storm events. Government in regions affected by these changes will need to make adjustments to their water and land management practices and to make use of existing knowledge and technology to adapt to change. The climate in Southern Ontario is expected to shift to earlier snow melt, earlier spring storms and increased storm severity throughout the summer season. The region is particularly vulnerable to the combined effects of these climate factors in the spring months of March, April and May when the risk of flooding and erosion is at its greatest. The predicted increase in summer rainfall intensity will have negative impacts for soil erosion and flood damage. This talk presents an analysis of 46 years of climate data in Southern Ontario. The spatial distribution of intense rainfall is examined to determine the extent to which rainfall exhibits localized patterns and whether there have been changes in the patterns over the period of data. The spatial patterns of severe rainfall between the months of March and September are also examined with the use of 13 years of radar data. A comparison of one hour rainfall measured from NEXRAD radar data to Environment Canada's intensity duration frequency (IDF) data demonstrates a technique of spatial analysis that could aid in revising IDF values and identifying areas that experience a higher frequency of intense rainfall events.