Flash Flood Events associated with Northeastern Cutoff Cyclones

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Forecasting the timing and intensity of warm-season flash flood events is a challenging issue across the northeastern United States. Many flash flood reports that affect the Albany County Warning Area (CWA) are associated with cutoff cyclones, making the predictability of flash flooding even more complicated. The purpose of this presentation will be to document flash flood occurrences in association with cutoff cyclones in an attempt to better understand synoptic and mesoscale signatures associated with these events.

Preliminary results from a climatology of cutoff cyclones and associated flash flood events influencing the Albany CWA reveal that the timing and positioning of the cutoff cyclones appear to play the largest role in leading to flash flood occurrences. These attributes are closely related to the moisture flux into the northeast, which is generally a critical component for flash flooding. Following a climatological review of flash flood producing cutoff cyclones, a brief case study on the 30 June–1 July 2009 flash flood event will be presented. This presentation will examine important synoptic and mesoscale features associated with the flash flood environment, such as upper and lower level jet stream strength and orientation, vorticity and thermal advection, low-level moisture transport, and surface boundary location and character. The climatological review and case study aim to increase situational awareness for future instances of cutoff-induced flash flood events.