

The August 21, 2009 Chelsea, VT Flash Flood – Case Study and Radar Considerations

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On August 21, 2009 heavy rainfall produced flash floods in portions of east central and southeast Vermont. A stalled frontal boundary provided a focus for convection, and deep subtropical moisture was in place. Precipitable water values were around 2 inches, roughly double the normal amount. Thunderstorms produced 4 inches of rain in 2 hours, and flooded Chelsea Village in Vermont. While flash flooding is not uncommon in Vermont, further study is warranted based on the geographic placement of the storms and the resulting radar sampling issues. We found that the High Resolution Precipitation Estimator (HPE) required further configuration to be fully effective in FFMP (Flash Flood Monitoring and Prediction). For offices in complex terrain, missing radar bin files derived from radar climatology should be optimized and included in FFMP processing. This presentation will examine the meteorological conditions leading up to the flash flood event, radar beam blockage issues, and range effects that created challenges for the warning process. A comparison of various radar products used as input to the Flash Flood Monitoring and Prediction (FFMP) will be presented.