Quantitative Precipitation Estimation (QPE) for the Tanzhang Canyon Flash Flood

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Analyses and descriptions of the quantitative precipitation estimation (QPE) for the devastating flash flood in the Tanzhang canyon on 11 July 2009 are presented. This canyon, located in the Chongqing Municipality (southwest of China), is 20km long, ranges in width from 2 to 20m with complex and steep terrain. The canyon is cut by a stream from west to east with the elevation of the bottom about 400 m vs. the banks around 800~1000m. 35 budget travel people were in the canyon when the flash flood occurred at around 15:30 BST（Beijing Standard Time）on 11 July 2009, and 19 lives were claimed. Analyses of the QPE for the rainfall which resulted in the Tanzhang canyon flash flood showed that (i) there is a big difference between rain gauge estimates and those derived from weather radar although two rain gauges located near both ends of the canyon, and point (rain gauge) measurements are useful when calibrating the QPE based on radar data, and (ii) in this flash flood event, a severe thunderstorm that moved slowly down the canyon drainage may produce the spectacular "wall of water". In addition to improving upon the absolute magnitude of the rainfall amount, radar would provide most valuable information upon the spatial variation and evolution of the precipitation events. Using storm tracking information derived from weather radar, Quantitative Precipitation Forecast (QPF) based on QPE calls for further investigation.

References

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