

Synchronicity of rainfall runoff peak flows across elevations during the September 2013 Colorado Front Range floods

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Abstract. The Colorado Front Range, USA experienced extreme flooding in September 2013 during a large and persistent rain storm. This talk will examine the timing and magnitude of event peak discharge values relative to the historical records at 25 stations in the affected region. Although only 2% of the prior annual peak flows in the region had been reported in the fall, the 2013 event produced synchronous annual maximum discharge throughout the Cache la Poudre, Big Thompson, St. Vrain, and Upper and Middle South Platte Basins. Historically, streams above around 2300 m experienced annual peak discharges during snowmelt runoff, but the September 2013 rain events produced rainfall-runoff annual peak flows even in some high elevation catchments above 3000 m. Peak flow magnitudes varied throughout the region, with the areas of highest precipitation in the St. Vrain and Big Thompson basins experiencing station record peak flows.