

# Development of maximum depth-area-duration curve for Udaipur district using Remote Sensing and GIS platform

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■ **ABSTRACT** : Rainfall rarely occurs uniformly over a large area. Variations in intensity and total depth of fall occur from the centers to the peripheries of storms. Rainfall depth is decreases from center of the eye of the storm to its peripheries. Knowing the magnitude of this centric point rainfall is very important for water resource or water conservation engineers. Using the temporal and spatial information of the storm, maximum rainfall depth in each area and corresponding duration (1 day, consecutive 2, 3 and 4 days) can be obtained. Daily rainfall data and locations from 17 raingauge covering entire Udaipur district for the period of 41 years is collected. The isohyets maps of one to four day duration were drawn for dominant and severe most storms using Arcmap 10.3. Calculating area between two isohyet lines the average rainfall of each area (covering two isohyets) can be calculated. A curve is drawn between maximum depth of rainfall and coverage area for various durations. The curves showed that the ratio of the amount of rainfall at the center to the area of 11724 km<sup>2</sup> is 2.13, 1.51, 1.45 and 1.47 for the durations of 1, 2, 3 and 4 days, respectively. Areal reduction factor s are 0.687, 0.785 and 0.803 for 01, 02, 03 and 04 day, respectively.

■ **KEY WORDS** : Arcmap 10.3, Isohyets, IDW, Reclassifying

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