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A Study on Peak Flood Estimation using Flood Frequency Analysis for Panam Dam Reservoir

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Abstract— Floods are the natural calamities which brings devastation to life and property. This paper describes the methods of estimating the peak floods up to 100 years for Panam dam site located at Kel Dazar, Godhra. The flood frequency analysis methods include Gumbel's Method, Log Pearson Type III Distribution and Log Normal Distribution. In addition to the following methods, a new and improved named Design Index Flood Method. For the study purpose, annual peak floods for 19 years i.e. from 2000 to 2018 has been taken into consideration. From the results, it has been observed that the peak floods estimated using Gumbel's method has a proximity towards the observed data as compared to other methods. The RMSE values and the Absolute difference also indicates a lower value for Gumbel's method. From this study, it is concluded that Gumbel's method is the suitable method for predicting the peak floods at the Panam Dam site.

Keywords— Peak Flood, Panam Dam, Flood Frequency Analysis, Design Index Flood, RMSE.