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Historical study of flood events in the lower Niger River Basin, Nigeria

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In this study, occurrence of flood events and its frequency at the lower Niger basin was estimated using hydrological data including river discharges, runoff records and meteorological data from different gauging stations within the basin. The data collected were subjected to various statistical analyses and plotting position and probability distributions were determined. The results showed that various plotting positions and probability distributions could be used to fit the available discharge records of River Niger. It was also observed that there was no universal technique for the entire stretch of Rivers Niger and Kaduna. This apparently results from variable drainage and weather condition over the basin and the uncontrolled release of water from the three dams built within the basin. The Gumbel distribution was the best of the applied models for peak average reservoir inflow and peak discharge at River Kaduna (Wuya Gauging Station). The Log Normal distribution best predict the peak runoff discharge of River Niger (Lokoja Gauging station) and peak discharge at Baro Gauging Station. This study could serve as a guide to the responsible institutions and dam managers in averting loss of life and properties along flood plains and would be a veritable too for preventive flood forecasting.