

**Abstract:** Ghatal sub division is situated in Paschim Medinipur district of West Bengal, India, Geographically, this area is located at Lower reach of Shilabati river basin. Annual flood is the natural phenomena in this region. Some of the hydrological variables (rainfall, gauge height and discharge etc.) are so empirically related that some of the standard statistical analyses are quite useful to establish their distribution and relationship. This paper presents unsteady flow hydraulic modeling for both flow routing at three gauging stations namely (Banka, Gadghat and Bandar) and flood level determination at lower reach in Shilabati river basin. Hydraulic routing models have the ability to produce output describing both water level and discharge hydrographs at and between three gauging stations. In the discharge-storage method the storage is determined from weighted values of inflow and outflow discharge. If we consider some hydrologic system with input  $I(t)$ , output  $O(t)$ , and storage  $S(t)$ , then the equation of continuity in hydrologic routing methods is the following. Storage in this case is a function of both outflow and inflow for the routing reach. When the flood wave passes through this river reach, the peak of the outflow hydrograph is usually attenuated and delayed due to channel resistance and storage capacity.