

Abstract:

In this study, the upper Tana basin of Kenya was delineated into homogenous hydrological zones based on monthly stream flow records from several river gauge stations in the basin using the empirical orthogonal function analysis technique. Results indicate the study basin to be grouped into four homogenous hydrological zones that seemed to reflect the drainage, geological and climatic patterns of the catchments of the basin. The identified zones would be useful and crucial to understanding the physical and dynamic processes governing hydrology and water use such as hydroelectric power, storage and irrigation potential and other land use characteristics in the different catchments of the basin.