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RIVER CHANNEL CHANGE OF BARAK RIVER AND ITS SEVEN TRIBUTARIES, BARAK VALLEY, NORTH-EAST INDIA

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Abstract

Sequential changes in bankline position of Barak River have been studied using topographic maps of 1933, 1955 and 1972 and satellite data of 1999 and 2011, and GIS. Among the four periods under study, i.e. 1933-1955, 1955-1972, 1972-1999 and 1999-2011 respectively, the number of changes of the meander bends of Barak River is observed to be maximum during 1972-1999, which amounts to 34.78% of the total changes. Factors responsible for this large-scale change during this period may be related to the Cachar Earthquake of 1984 (magnitude of 5.8 on the Richter scale), which was followed by seven aftershocks. Moreover, the bankline changes of the seven tributaries of Barak River viz. Sonai, Ghagra, Katakhal, Dhaleswari, Chiri, Madhura and Jatinga, have been determined from the position of the superimposed bankline of two sequences of topographic maps and satellite data for the two periods, viz. 1933-1972, and 1972-2011. The movements of the tributaries of Barak River are mainly translation, rotation and extension as compared to neck cut-off and lateral movement. The tributaries have maintained the meander bends unchanged as they occur in synclinal areas between narrow anticlines and hence cannot easily migrate laterally. All types of movements of the meander bend, e.g. translation, extension, rotation and change in wavelength, lateral movement and the complex change of Barak River and its seven tributaries have been recognized within the selected study period of 1933 to 2011. This study will be helpful in predicting future changes of the channels and will be useful for major constructions like bridges, and highways on Barak Valley.

Keyword: Barak Valley, GIS, Changes of the meander bend.