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RS-GIS Based Assessment of River Dynamics of Brahmaputra River in India

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ABSTRACT

The Brahmaputra River is one of the largest alluvial rivers in the world characterized by frequent bank erosion leading to channel pattern changes and shifting of bank line. This study is aimed at quantifying the actual bank erosion/deposi- tion along the Brahmaputra River within India for a period of eighteen years (1990-2008). The entire course of Brah- maputra River in Assam from upstream of Dibrugarh up to the town Dhubri near Bangladesh border for a stretch of around 620 kms has been studied using an integrated approach of Remote Sensing and Geographical Information Sys- tem (GIS). The channel configuration of the Brahmaputra River has been mapped for the years 1990 and 2008 using IRS 1A LISS-I, and IRS-P6 LISS-III satellite images respectively. The analysis of satellite data has provided not only the information on the channel configuration of the river system on repetitive basis but also has brought out several sig- nificant facts about the changes in river morphology, stable and unstable reaches of the river banks and changes in the main channel. The results provide latest and reliable information on the dynamic fluvio-geomorphology of the Brah- maputra River for designing and implementation of drainage development programmes and erosion control schemes in the north eastern region of the country.

KEYWORDS

Remote Sensing; GIS, NDWI; Brahmaputra River; Bank Erosion/Deposition

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