

Title : Lateral Migration Rate of Ping River at Frequently Change Spots in Mae Taeng, San Sai, and Mae Rim Districts, Chiang Mai Province

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ABSTRACT

The processes of river erosion and sediment deposition occur cyclically, leading to the continuous evolution of meandering channels until pronounced river bends are formed. Since human settlements have long been closely linked to river systems, geomorphological changes resulting from the meander evolution directly impact human livelihood, often cause damages to lives and properties. This study aimed to analyze the rate and the factors influencing lateral migration of the Ping in areas with frequent morphological changes, specifically in Mae Taeng, San Sai, and Mae Rim districts of Chiang Mai Province. The research involved mapping the channel morphology of the Ping River using Landsat 1-8 satellite imagery from 1972 to 2024, processed with Erdas Imagine 2014 and ArcGIS Pro, along with supplementary satellite images from Google Earth Pro. The lateral migration distance of the river was quantified and analyzed in relation to historical rainfall data and flood events. The findings indicate that over the past 52 years, the highest rate of lateral migration occurred during 2023-2024. The primary factors influencing the river's lateral migration include both natural processes, such as flooding and bank erosion, and anthropogenic activities, such as the development of hydraulic structures, dredging and sand mining. The results of this study can be contribution to land-use planning, flood hazard mitigation, and sustainable river management strategies to minimize potential socio-economic impacts.

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