

Title : Comparison of Sedimentation Rate of Ping River at Mae Taeng and Mae Rim Districts, Chiang Mai Province Using Single Aliquot Regeneration Optically Stimulated Luminescence Technique

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ABSTRACT

The Ping River exhibits a meandering pattern, with significant lateral movement observed in Mae Taeng District, decreasing in Mae Rim District, and no movement observed on the course through Mueang District. It is hypothesized that the river's movement correlates with sedimentation rates. To investigate this, five point-bars sediment samples from Mae Taeng and eight from Mae Rim were collected for age determination using Optically Stimulated Luminescence (OSL) dating with the Single Aliquot Regeneration (SAR) technique. This study aimed to evaluate the effectiveness of OSL dating in age determination of the Ping River sediments and to compare sedimentation rates between the two areas. In the laboratory under red light, grains smaller than 425–150 μm were separated, and magnetic minerals were removed. Samples were treated with 12% hydrogen peroxide (H_2O_2), 37% hydrochloric acid (HCl), and 48% hydrofluoric acid (HF) to ensure only quartz grains remain for the equivalent doses (D_E) measurement. The dose rates (D_R) were also measured from the groups of grains smaller than 250 μm . The obtained OSL ages along with sediment layer thickness were used to calculate the sedimentation rates. The values obtained were used to compare sedimentation rates between the two areas.

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