

Fluvial dynamics of the Stung Sen River and geomorphic development processes in lower Mekong basin

NAGUMO, Naoko^{1*}, SUGAI, Toshihiko¹, KUBO, Sumiko²

¹Graduate School of Frontier Sciences, The University of Tokyo, ²School of Education, Waseda University

We conducted six drill core analyses and outcrop observations at two investigation sites of KC and KPT at the Stung Sen River downstream in lower Mekong basin. Study area is situated in low-latitude tropic region highly influenced by monsoon, and floodplain environment dramatically changes during each dry and monsoon season. The Stung Sen River is the biggest influent tributary of the Lake Tonle Sap, and its base level of erosion is water surface level of the lake. River longitudinal gradient in the downstream of the Stung Sen River where fluvial plain is developed is very gentle, around 0.06/1000. Floodplain landform of the Stung Sen River is surrounded by upland with less than 5-meter relative elevation, and is roughly divided into back marsh and meander belt consisting of meander scroll and abandoned channel. Sedimentary units of A, B, C, and D are recognized above sandstone basement rock. AMS-¹⁴C ages explain that back marsh (Unit A, B and C) has been accumulated in increments of 0.1 mm/yr since the late Pleistocene whereas deposits in meander belt (Unit D) are relatively new and have replaced in decennial to centennial time scale. Coarser deposits at upper KC site and more plant materials at lower KPT site came to accumulate after ca.11 ka, is probably due to rainfall increase derived from monsoon intensity. Landform development pattern diverges at downstream site of KPT. Lowest back marsh III was formed due to the Stung Sen's erosion of higher back marsh II at least after middle Holocene. This geomorphic process might be related to initiation of monsoon reverse flow between the Mekong and Lake Tonle Sap.

Keywords: fluvial landform, meander, drill cores, Stung Sen River, lower Mekong basin