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Accumulation patterns of in-channel modern deposits in the lower Stung Sen River

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The Stung Sen River flows down the central region of Cambodia, is the main tributary in the Tonle Sap drainage basin. It develops fluvial lowland in its downstream and the longitudinal profile is very flat, with the slope of less than 0.1 ‰. Monsoonal precipitation provides seasonal flood every year in the fluvial lowland and cyclic water level changes of the Tonle Sap Lake about 8 m in the river mouth, therefore the river seems to change sediment transportation processes in each season. While meander scrolls formed by channel migration and back marsh are found in the floodplain throughout the year (Nagumo et al., 2013), four types of channel bars are recognized within the river channel about 10 m lower than back marsh during dry season. Outcrop observations at concave type channel bars revealed the alternate layers of reverse-graded sand and mud layers, and inserted plastic pieces with date stamps indicated that the deposits are quite new and have been partly replaced to reflect flow regime changes of the river. Such sedimentary structures suggest that minute fluctuations of water level and discharge control bar construction, and would be important source to understand recent flood history and patterns.

Keywords: fluvial lowland, meander, monsoon, water level fluctuation, Lake Tonle Sap, Cambodia