

Depositional facies and radiocarbon ages of the KS core from the Mekong River lowland near Phnom Penh, Cambodia

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To clarify the sedimentary environments of the Mekong River delta system during the Holocene, depositional facies analysis and radiocarbon dating were carried out on the KS borehole core obtained from the present Mekong River lowland at Kean Svay, near Phnom Penh, Cambodia (elevation ca. 7 m). The KS core is 30.7 m long and penetrated five depositional facies, units A to E in ascending order. Facies unit A is cross-laminated fluvial sand deposited before 9 ka. Facies unit B is composed of very fine sand characterized by mud-draped, horizontal to low-angle cross-lamination and dates to 9.0 to 7.5 ka. Facies unit C consists of alternating layers of peat and inversely graded sand and formed from 7.5 to 7.2 ka. Facies unit D is greenish gray clay deposited from 7.2 to 0.7 ka. Facies unit E is reddish brown soil, which accumulated after 0.7 ka. Facies unit B is interpreted as aggradational tide-influenced sediments, 16.5 m thick, deposited during the rapid rise of sea level in the early Holocene. The maximum flooding surface is in this interval. Facies units C and D are tide-influenced salt marsh to flood-plain deposits formed during the subsequent slowly rising and then falling sea level. There are no marine or freshwater mollusks or diatoms in the cores. Although it is difficult to precisely determine the paleo-shoreline location at the maximum flooding from only the KS core, the presence of tide-influenced deposits (Facies B) implies that the core site was near the shoreline and experienced strong tidal influence in the early to middle Holocene.