# Crevasse splay evolution and changes in depositional condition of surrounding floodplain inferred from surface deposits of the Kinu River, central Japan

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Crevasse splays are an important component of floodplains and have been suitable topography for human occupation through the prehistorical and historical times because of rapid, intensive aggradation of the specific area in floodplains which in turn produces relatively elevated place against following inundation events. However, more needs to be known about their morphology, time scales of formation, and relationships with surrounding floodplains to clarify the roles for floodplain evolution and human use of crevasse splays.
A crevasse splay diverted from the Kinu River at Obokawa, Joso City, Ibaraki Prefecture was reconstructed by analysis of several drilling cores (up to a depth of 5 m), coupled with ground penetrating radar (GPR) survey and radiocarbon dating. The study area is located 25 km upstream from the confluence of the Kinu River with the Tone River. The Kinu River in this area has a low sinuosity, single channel and a sandy bed with a gradient of about 1/2500. Sadakata (1971) suggests that overbank vertical accretion is dominant in the floodplain there, which is 4–8 km wide and is bordered on both the west and east by the Kinu and Kokai rivers.
The crevasse splay is about 2 m higher than surrounding flood basins, forming a convex-shaped mound. The splay and the trunk channel of the Kinu River were connected by a narrow crevasse channel. The crevasse splay experienced the development of new rice fields since 17th century, indicating the inactivity of the splay since then.
The facies of the cores were roughly divided into three depositional units composing channels (CH), natural levees (LV), and back swamps (BS). Core OBK-01, located in the crevasse channel, had two CH units at the depths of 1–2.5 m and 3–3.5 m, positioned above and below a BS unit. The radiocarbon age determined at Micro Analysis Laboratory, Tandem accelerator, the University of Tokyo suggests this repetitive channel emergence dated back to later than 1000 BC. Cores adjacent to the crevasse channel showed alternate deposition of BS and LV units in 0.5–2 m thick for each unit, indicating that the LV units were associated with development of the crevasse channel and the distribution of alluvial topography had frequently changed in the past. Detailed facies analysis, GPR profiles, and additional radiocarbon ages will be shown in the presentation.

Reference
Sadakata, N.: Formation of the Lower Kinu River Floodplain, Geographical Sciences (Chiri Kagaku), 18, 13–22, 1971 (in Japanese with English abstract).

Keywords: crevasse splay, floodplain, the Kinu River, ground penetrating radar

 