Relationship between sea-level change and incised-valley fill deposits at the Zengwen River, western Taiwan

*Kazuaki Hori[1], Eito Takahashi[1], Susumu Tanabe[2], Wanchung Lu[3], Chichao Huang[3]

1. Department of Geography, Graduate School of Environmental Studies, Nagoya University, 2. AIST, 3. Central Geological Survey, MOEA

Eustatic sea-level change since around the Last Glacial Maximum (LGM) has been studied based on dated, shallow marine clastic sediment and corals. However, the sea-level change especially before 14 ka is still unclear due to the lack of data. This study focuses on incised-valley fill deposits at the Zengwen River, western Taiwan where tectonic subsidence has been dominant and huge fluvial sediment supply has occurred to clarify the sea-level change especially between the LGM and 14 ka. We obtained a new borehole core (NU-TN-1), 300 m long, near the river mouth in 2015. We performed sediment facies analysis, radiocarbon dating, measurement of grain size and electric conductivity (EC), and small macro- and microfossil analyses (mollusc shell, foraminifera, and ostracoda). Incised-valley fill deposits of the NU-TN-1 since the LGM are very thick, reaching 180 m, which is much larger than the amplitude of sea-level change, ~130 m. The core sediments can be divided into nine facies (A to I) in ascending order, and six of them (D to I) formed since around the LGM. Age–elevation plots of faces D to I were located below the estimated relative sea-level curve. Relatively slow accumulation rates of facies E between 17.5 and 15 ka may respond to slow sea-level rise. Facies F probably formed close to sea level contributes to reconstruct sea-level change between 14 and 12 ka. Retreat of the river mouth since the LGM might be very limited due to huge sediment supply.

Keywords: sea-level change, sediment supply, Last Glacial Maximum

