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Approach for understanding the Holocene upheaval and subsidence in the Miyazaki Plain

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Holocene uplift rate of the Miyazaki Plain was estimated based on the elevations and depositional ages of four terrace surface (Shimotajima I to IV surfaces; Nagaoka et al., 1991). However, age data are still poor except for the Shimotajima I surface. We report new data of detailed description of abandoned lagoon sediments of the Shimotajima II to IV surfaces.

Nagaoka et al. (1991) suggested that the uplift of the Miyazaki Plain was not seismic because there had been no historical records mentioned rapid uplifts due to large earthquakes. They inferred that it was controlled by isostacy, involved with the subduction of Kyusyu-Palao ridge, relatively light crust. However, deep seismicity data (Uehira et al., 2001) and seismic tomography (Wang and Chao, 2006) show high-angle subduction of the Phillipine Sea Plate in the southern Kyusyu, which seems to be inconsistent with the isostacy hypothesis. Our study will contribute to in-depth discussion concerning the trigger of the Holocene uplift of the Miyazaki Plain.

In the Shimotajima II surface, we studied outcrop sequences exposed due to the river improvement work. Depositional ages will be identified based on close-packed flakes of floodwoods intercalated in sand and silt, as well as sediments themselves. In the Shimotajima III surface, we did multiple borings in the abandoned lagoon sediments. Based on the core observation, terrestrial sediments including pumice fall deposits are covered with sand beach sediments including shell fragments and ichnolites. The succession of strata means an event of subsidence or sea level rise. In the Shimotajima IV surface, we did borings near the pond in the inland side of a sandy ridge. The boring core includes coaly swamp sediments interbeded in sand. We are doing microfossil and tephra analyses, radiometric carbon dating, organic carbon analysis, quality analysis of interstitial water, as well as detailed observation of the sediments. These results will be presented in this session.