

Ground penetrating radar profile of the Holocene beach deposits in the Kujukurihama strand plain

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Ground penetrating radar (GPR) is a tool for geophysical survey of the subsurface sediment structure by transmitting electric waves and receiving their reflection. As wave reflection occurs where the density, mineral and grain size of sediment change, this method is effective in visualizing the sedimentary structure of the beach deposits. A GPR survey was carried out on the Holocene beach deposits in the subsurface Kujukuri strand plain, Pacific coast of eastern Japan. The radar profile clearly shows the difference in sedimentary structure between the foreshore and shoreface deposits. Across the Kujukurihama strand plain, the elevation of the boundary between the foreshore and shoreface deposits lowers seaward because the relative sea level fell several times in response to the coastal uplift during the Holocene. The radar profile also reflects this trend, and thus is thought to be a proxy for relative sea-level history in the strand plain. Erosion surfaces develop within the foreshore deposits at horizontal intervals of several tens of meters. Based on the average rate of the shoreline progradation (1.5 m/year) at the Kujukurihama coast, the radar profile of the foreshore deposits is thought to record the decadal scale progradation and retrogradation of the shoreline.