

Shallow subsurface structure in Magame - Katakai area, Kujukuri coastal plain, Chiba prefecture

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A shallow seismic reflection survey was conducted in the Kujukuri coastal plain, Chiba prefecture, targeting between a dozen meters and 300 m in depth to reveal the location and shape of buried valley topography inferred below the Alluvial sediment. The survey area is along the coast between Magame and Katakai of Kujukuri town where a buried valley is inferred from an existing geological map. The survey parameters are as follows. Line length:4486m, seismic source:P-wave Yuatsu impactor(JMI200), vertical stack:10, source point interval:2m, no. of source point:2242, receiver:GS20-DM(28Hz single), receiver point interval:2m, no. of receiver point:2244, spread:roll along from the first to 48th station for 192 fixed receivers, maximum offset:382m, recorder:DSS-12, no. of recording ch:192. First breaks arrive to the maximum offset and the deepest reflection waves appear down to 500ms in two way time in the vertical stacked and gained shot records. Source and receiver couplings to the ground seem good on a sandy beach. Reflectors are perceived between a dozen ms and 250ms in the CMP stacked time section. A reflector is strong and continuous, dips northward very gently between 20ms and 30ms in the whole seismic section. It seems obscure at two parts. Assuming that the velocity is 1.6km/s, this reflector is between -16m and -24m below sea level. This is 10m to 20m shallower than the Alluvial depths of the above geological map, but almost the same as those of the compiled boring data. This reflector is considered as the Alluvial base. In the southern obscure part, first breaks of near offset traces are superimposed by coherent noise. Discontinuous reflectors of 100m to 200m in length exist between 40ms and 70ms dispersively. These may have something to do with natural gas (Uwa gas). Reflectors are obscure between 100ms and 170ms and reflectors are strong and uneven between 170ms and 250ms. Below the Alluvial sediment are strata of the Kazusa group.

Keywords: Kujukuri coastal plain, seismic reflection survey, Alluvial base, buried valley