

## Relative sea level change in the last 500 years recorded in coastal deposit in the Sendai Plain, northeastern Japan

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Based on tide gauge data of Ayukawa and Soma, the Sendai Plain is tectonically subsiding in recent 50 years due to subducting motion of the Pacific Plate. Although the Miyagi-ken-oki earthquake has repeatedly occurred at every 30-40 years, no remarkable crustal movement was accompanied. Therefore crustal strain has not been released by coseismic uplift associated with historical earthquakes. This suggests an existence of historically unidentified earthquake accompanied with uplift.

To detect such unidentified earthquake geologically, this study focuses on the height distribution of foreshore deposit which is a good sea level indicator because it is deposited on intertidal environment. We conducted ground penetrating radar (GPR) survey to image shallow subsurface structure and Handy-Geo-Slicer (HGS) excavation to obtain dating samples.

1100-1200 m long of survey line was set on E-W direction in Kasano, the southern part of the Sendai Plain. Obtained profile of GPR image shows distinct seaward dipping reflection surface. The height distribution of top of reflection surface is almost uniform but abruptly changes ca. 50 cm at 400 m from present shoreline and then gradually rises seaward. At the abruptly changed point and adjacent area, we excavated and observed the HGS cores. Stratigraphy from surface to 150 cm depth is cultivate soil, humic silt, massive fine sand and parallel laminated fine sand. The lower sand layer is characterized by trace fossil, *Macaronichunus segredatis* which is formed only in intertidal zone, and thus indicates foreshore deposit. Seeds and charcoal obtained from deposit were dated to AD 1450-1670 in 2 sigma calibrated  $^{14}\text{C}$  age.

As above results, it is concluded that relative sea level fall of ca. 50 cm occurred abruptly at 500 years ago or earlier. This event may indicate coseismic uplift associated with the unidentified earthquake. Followed gradual sea level rise is consistent with recent subsidence identified from tide gauge data.