

Height-resolution imaging project of the beach sediments using grand-penetrating radar (GPR) and their results

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The coastal lowland is the most important area on the earth and its landform has been changed by human activities, sea level rising effects, storms and tsunamis. In general, there are many geological or geographical studies about sedimentation and evolution of coastal area. We know modern coastal plains have been received the effect of the sea level change and during past 6000 years. However, imaging techniques of coastal sediments have not been established yet. In our project, we try to establish the high-resolution imaging techniques for modern and past coastal sediments using the grand-penetrating radar (GPR). GPR is a high-resolution geophysical profiling equipment based on propagation and reflection of electromagnetic waves (EM) in the frequency ranges 10-1000 MHz. The GPR method images sedimentary structures in the ground that are related to changes in dielectric properties. We used a SSI pulseEKKO 100 system, which consists of three unshielded antennae such as 50, 100 and 200 MHz, a console unit and a laptop personal computer. Common mid-point (CMP) gathers were measured in order to derive sediment velocities at each track line. Each profile was topographically corrected using elevation data measured by a total station system. In our presentation, we would like to introduce you our project, Height-resolution imaging project of the beach sediments using grand-penetrating radar (GPR) and their main results.