Geophysical Research Abstracts
Vol. 14, EGU2012-6969, 2012
EGU General Assembly 2012

Geoacoustic model of surface sediments in the southwestern Ulleung basin, the East Sea of Korea

S.H. Kim (1), D.C. Kim (1), G.S. Lee (1), S.P. Kim (2), and S.H. Bae (1)

(1) Department of Energy Resources Engineering, Pukyong National University, Busan, Republic of Korea (hello_shkim@pknu.ac.kr), (2) Department of Petroleum and Marine Resources, Korea Institute of Geoscience and Mineral Resources, Daejeon, Republic of Korea (spkim@kigam.re.kr)

To realization of geoacoustic model in the southwestern Ulleung basin, the East Sea of Korea, eighty-two piston core samples and sixty-six box core samples were collected. Sediment texture (mean grain size and sand, silt, and clay contents), physical properties (porosity, water content, bulk density, and grain density), and acoustic properties (compressional wave velocity and attenuation) were measured using surface sediments below 40 cm from the surface. As the results, the study area is divided into five sub-areas based on acoustic property of sediments: (1) Area I is composed of muddy sediments that affected directly by the Nakdong River discharge. The velocity is almost 1490 m/s. (2) Area II is generally characterized by hemi-pelagic muds and partially mixed with intermittent sandy sediments originated from the outer shelf and upper slope. The velocity approximately ranges from 1490 to 1500 m/s. (3) Area III is comprised of muddy sand sediments that are corresponds to the boundary between recent sediments and relict sediments. The velocity ranges from 1500 to 1600 m/s. (4) Area IV is dominated by coarse-grained relict sediments. The velocity ranges from 1600 to 1700 m/s. And (5) Area V consists of very coarser sediments. The velocity is higher than 1700 m/s. The sediment velocity generally decreases with increasing porosity or decreasing mean grain size and bulk density.