Geophysical Research Abstracts
Vol. 18, EGU2016-5392, 2016
EGU General Assembly 2016

Seismic facies of incised-channel fill deposits of paleo-Seomjin River in the South Sea, Korea

Sung Ho Bae (1), Gee Soo Kong (1), Dae Choul Kim (2), Gwang Soo Lee (1), and Dong Geun Yoo (1)

(1) Petroleum&Marine Resources Division, Korea Institute of Geoscience Mineral Resources(KIGAM)Korea, Republic Of (shbae@kigam.re.kr), (2) Department of Energy Resources Engineering, Pukyong National University(PKNU)Korea, Republic Of

High-resolution (Chirp and Sparker system) seismic profiles and piston core samples were analyzed to investigate the depositional environment of paleo-channel in the continental shelf of South Sea. Approximately 1,940 line-km data of chirp and sparker profiles was acquired. Along with seismic profiles, 20 piston core and 10 box core samples collected in 2015. The paleo-channel of Seomjin River is distributed in the continental shelf, with approximately 109 km long, 800-5,000 m wide, and more than 890 km2. The paleo-channel of meandering and straight type is dominant in the inner shelf while changed to braided type in the outer shelf. The paleo-channels in sparker seismic data formed presumably as fluvial systems when the shelf was exposed during the Last Glacial Maximum (LGM). The seismic facies of incision fill divided into five types basis of an erosional surface and internal seismic reflectors: (1) transparent to semi-transparent incised channel fill, (2) parallel to sub-parallel incised channel fill, (3) complex incised channel fill, (4) divergent incised channel fill, and (5) chaotic incised channel fill. The chaotic incised channel fill deposits are consists of gravel with shell fragments in the outer shelf and indicate the LGM to early transgressive (fluvial lag deposits). The complex incised channel fill deposits are dominated by sand and gravel with shell fragments in the mid to outer shelf. The cores which were obtained above the transparent to semi-transparent and parallel to sub-parallel incised channel fill deposits are dominated by mud. These types are dominant in the upstream (inner shelf). The acoustically transparent zones of this type with low-energy, passively infilling depositional environment, suggest the presence of basin muddy deposits. These muddy sediments were likely deposited during a more advanced stage of the Holocene transgression. Thus, the paleo-channel of Seomjin River is strongly controlled by sea-level change and sediment transport.