

## Sequence Stratigraphy of Tertiary Sedimentary Sequences in the SW margin of Ulleung Basin, East Sea (Sea of Japan).

K.S. Shin\*, K.D. Kim, Technical Department, Korea National Oil Corp.

K.M. Yu, Dept. of Earth System Science, Yonsei University

K.S. Park, Petroleum and Marine Resources Division, KIGAM

The study area, located in the southwestern shelf of the Ulleung Basin, exhibits thick prism of Tertiary sediments. The sequence analysis was performed based on seismic, well log and biostratigraphic data as well as seismic facies analysis and litho-facies analysis to interpret the depositional environment of each sequence. It is proposed that total thirteen sedimentary units be designated in the study area. They seem to have close genetic relationships with regional tectonic movements which affected the area.

The tectonic movements include extensional tectonics which caused a separation of Japan arc from the Korean mass, and thrusting due to trans-compression and finally wrench fault tectonics. Each of these structural movement formed a distinct package of Neogene sediments namely as Syn-rift megasequence, Post-rift megasequence, Syn-compressional megasequence, and Post-compressional megasequence. Especially the Post-rift megasequence can be subdivided into sequences with sequence stratigraphic approach.

Unit 1 and 2 were deposited during the syn-rift basin opening time and is called Syn-rift megasequence. They fill the half-graben formed by the extensional normal fault. The sequences are composed of non-marine sediments. They can be correlated with Miocene deposits onshore Pohang area and Daiju Group on Tsushima Island.

Unit 3 through Unit 9 were deposited during the post-rifting stage and is called to Post-rift megasequence. They are mostly composed of terrestrial sediments deposited on the continental shelf to slope area which was affected by tectonic subsidence and show subsequent basinward progradation of the shelf. A series of transgressive to regressive package of sediments are developed during the deposition of Post-rift megasequence. It was the relative sea level change that affect the style of sedimentation in the area. The seismic reflectors are characterized by sigmoid-oblique progradation on the shelf margin.

Unit 10 and Unit 11 correspond to Syn-compressional megasequence. They are composed of mostly clastic sediments of transitional environment ranging from fluvio-lacustrine to shallow marine deltaic one. The stacked incised valleys developed in it indicate that they are subjected to severe erosional activity due to the basin uplift. They are affected by the compressional tectonic due to the subduction of Phillipine plate. The sequence continued its sedimentation until they reach the 6.3 Ma unconformity.

Unit 12 and Unit 13 formed after the major compressional tectonics and is called to Post-compressional megasequence.