

Paper Number: 628

Depositional changes from Holocene Nakdong River deltaic sediments, South Korea

Cheong, D.¹, Paik, S.^{1,2}, Shin, S.¹

¹. Dept. of Geology, Kangwon National University, Chuncheon, 24341, Korea, dkcheong@kangwon.ac.kr

². Korean National Oil Corporation, Ulsan, 44538, Korea .

The Holocene delta core sediments (ND-01, ND-02) which were acquired from the Nakdong River Delta as a rotary-style sediment core in southeastern Korea is divided into four sedimentary units based on sedimentary structure, texture, and occurrence of microfossils.

Unit A (18.8~33.54 m of ND-01) is mostly homogeneous mud and shell fragments are well observed. Marine microfossils such as ostracods, diatoms, and sponge spicules decrease towards the top of the core sediments. Unit B (16.6~18.8 m of ND-01) is generally laminated mud and laminated sand. Marine microfossils disappear at the top of Unit B, but wood fragments contents increase towards the top. At Unit C (14.2~16.6 m of ND-01), mud content is lower than Unit B and laminated sand is well developed. Unit D (8~14.2 m of ND-01) is mostly homogeneous sand and shows better sorting than lower unit. The sedimentary environments of the sequence are supposed to be a progradational delta system.

Unit A which is composed of homogeneous mud is subdivided into three subunits on the basis of organic geochemical data such as TN, TC, TOC, CaCO₃ contents and C/N ratio. Unit A1 (29.84 ~ 33.54 m, 8.0 ka) which shows high TN, TC contents and low C/N ratio was deposited during the stage of rapid sea level rise. At Unit A2 (26.64 ~ 29.84 m, 5.4~8.0 ka), decrease of TN, TC, CaCO₃ contents reflects deceleration of sea level rise or increase of fresh water inflow. Unit A3 (15.4 ~ 26.64 m, 2.5~5.4 ka) was formed in a prodeltaic environment influenced by continuous inflow from Nakdong River drained through the southern Korean Peninsula, showing relatively high sedimentation rate. Decrease of $\delta^{18}\text{O}$ towards the top at Unit A is mostly due to the salinity decreases indicating increasing input of fresh water during the Holocene time.

