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Coastal Environmental Change During Sea-Level Highstands: A Global Synthesis with implications for management of future coastal change

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## Late Quaternary Stratigraphy and Depositional Environment of the Coastal Sediments along Moonamni, Kangwon Province, Korea

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## Abstract

A detailed sedimentological study was conducted for the trench sections from the Moonamni Neolithic site and also for the three deep-drilled cores obtained in the coastal area in Kangwon Province, Korea. The main objectives are to establish the Late Quaternary stratigraphy and to interpret the depositional environments in the eastern coastal areas of Korea.



The Neolithic sites in the Moonamni area are located in middle Holocene coastal dunes, which have developed via active aeolian movement of sands from adjacent beaches. The vertical sections are characterized by three major stratigraphic-depositional units of lower(Unit-3), mid(Unit-2) and upper (Unit-1) part.

Unit-3 is composed of massive, muddy sand sediments in about 170 cm thickness. Unit-2 is characterized by the cross-bedding, and include archaeological remains such as pottery shards. This unit can be further divided into two sub-units of about 40cm muddy sand in the lower part (Unit-2L) and about 30cm thickness coarser-grained sand in the upper part (Unit-2U). It is considered that the Unit-2 is a typical dune deposit showing well-sorted fine sand. Unit-1 occupies the top section and consists of modern dune sediment.

Stratigraphic, sedimentological and paleontological data from three cores (MA1, MA2 and MA3) are used to evaluate the depositional histories of the Moonamni coastal zone during the Quaternary. Six different depositional units can be identified from the cores MA1 and MA2, and three units from MA3.

The classified depositional units and the interpretations of environment are summarized as follows in ascending order:

1) Core MA1

Unit: LCU(lower clastic unit)  $\rightarrow$  LOU(lower organic unit)  $\rightarrow$  MCU-L(middle clastic unit-lower)  $\rightarrow$  UOU(upper organic unit)  $\rightarrow$  MCU-U(middle clastic unit-upper)  $\rightarrow$ UCU(upper clastic unit).

Interpretations : alluvial-fluvial  $\rightarrow$  nearshore beachlagoonal  $\rightarrow$  alluvial-fluvial  $\rightarrow$  coastal dune

2) Core MA2

Unit: LCU(lower clastic unit)  $\rightarrow$  LOU(lower organic unit)  $\rightarrow$  MCU-L(middle clastic unit- lower)  $\rightarrow$  UOU(upper organic unit)  $\rightarrow$  MCU-U(middle clastic unit-upper)  $\rightarrow$ UCU(upper clastic unit)

*Interpretations* : alluvial-fluvial  $\rightarrow$  nearshore beachlagoonal  $\rightarrow$  alluvial-fluvial

3) Core MA3

Unit : LCU(lower clastic unit)  $\rightarrow$  MCU-U(middle clastic unit-upper)  $\rightarrow$  UCU(upper clastic unit)

Interpretation : fluvial  $\rightarrow$  nearshore beach-lagoonal  $\rightarrow$  alluvial-fluvial

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