



Burial age and flooding-origin characteristics of coastal deposits of the yellow sea, in Gochang, Korea

Jong Yeon Kim (1), Won Jeong Shin (2), and Dong Yoon Yang (3)

(1) Chungbuk National University, Department of Geography Education, Korea, Republic of (terraic@cbnu.ac.kr), (2) Seoul National University, Department of Geography Education, Korea, Republic of (tlsdnjswjd@snu.ac.kr), (3) Quaternary Geology Department, Korea Institute of Geoscience and Mineral Resources, Korea, Republic of (ydy@kigam.re.kr)

Coastal floods are a threat to coastal human habitation and facilities. The coastline of the Yellow sea appears across South Korea, China and North Korea. The coastal areas of the Yellow sea have a large population and many cities. There is evidence of coastal flooding in the region in historical documents, but empirical studies have been conducted, rarely. As a part of the research activities funded by Korean government, we investigated the evidences found from the west coast of Korean peninsula (eastern coast of the yellow sea) especially from Gochang and Yeonggwang where various records of coastal flooding are found from historical documents.

Samples were collected from the beach within the height of 5m above the mean sea level (msl)(DH) and the top of the coastal terrace of 10~15m msl (KS, KS2) high in Gochang, Korea. To find the origin of the deposit in the coastal area, granulometric analysis and geochemical analysis were performed. The result showed that the DH samples were originated from the reddish soils overlaying weathered bedrock which presented gradual change of chemical composition from the bottom toward the top. These results concluded that the DH samples were found as in-situ weathered materials. The KS and KS2 samples were originated from the soil layer covering gravel layer at the foot slope of the hill along the coast. The KS and KS2 samples contained different chemical compositions from the DH. It is inferred that some of these layers were disturbed or experienced the influx of foreign material from the sea and mass wasting. The particle size of the KS and KS2 samples were different from those found on the beach. The particle size of lower parts of KS site was finer than that on the beach, but the particle size of middle part of the site was coarser than that on the beach. The sorting of the KS and KS2 sites were poorer than that on the beach. Thus, it is inferred that some parts of the layer were formed by short-lived high energy event rather than sustained and continuous action of tidal currents and/or waves. Analysis using an optically stimulated luminescence (OSL) method showed that the burial ages of samples from KS and KS2 site were found 0.65~0.71 ka and 0.35~0.57ka, respectively. Though the characteristics of the sediment layer and forming event in this area should be further studied, it can be inferred that this sedimentary layer formed by coastal flooding with storm.