19. The loess-paleosol stratigraphy of Daecheon area, West Coast, South Korea

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This study aims to identify loess-paleosol sequences at Daecheon area first of all, secondly to clarify chronology of marine terraces of West coast in Korea based on it, lastly, to investigate the origin of aeolian sediments through the differences between Korean- and Chinese loess-paleosol sequences by geochemical analysis. The Loess-paleosol layer at Daecheon area is overlaid about 3 m thick on T2 gravel layer of marine terrace (22.88 m asl). The analyses such as the soil color and magnetic susceptibility values in field observation showed some clear characteristics related to the loess-paleosol sequence. Although any absolute ages didn’t be gained from the section, we could confirm loess-paleosol sequence from Layer 1 to Layer 6 from the top (Layer 1, 3 and 5 of paleosol and Layer 2, 4 and 6 of loess). MS values were low in loesses, but high in paleosols as a result of the pedogenesis. The element ratios of SiO$_2$ vs. Al$_2$O$_3$, SiO$_2$ vs. CaO and Al$_2$O$_3$ vs. K$_2$O show clear differences between Chinese and Korean ones. But Al$_2$O$_3$ vs. Fe$_2$O$_3$ is difficult to distinguish each other. And Korean loess-paleosol samples show lack correlation except SiO$_2$ vs. Al$_2$O$_3$ ratio (R$^2$ of SiO$_2$ vs. Al$_2$O$_3$ is 0.7082, SiO$_2$ vs. CaO is 0.0814, Al$_2$O$_3$ vs. K$_2$O is 0.467 and Al$_2$O$_3$ vs. Fe$_2$O$_3$ is 0.244). It can be explained by two possible reasons; stability of major elements and different source area of Korean loess-paleosol (not only Chinese Loess Plateau, but others are possible). Comparing to Dukso (Shin, 2003), based on
magnetic susceptibility, Layer 1 is not so clear, but Layer 2 is correlated to L1L2 (MIS 4) and Layer 3, 4, 5 and 6 to S1 (MIS 5), L2 (MIS 6), S2 (MIS 7) and L3 (MIS 8), respectively. Therefore, marine terraces T2 of this region are estimated to be developed during MIS 9.

Key words: loess, paleosol, major elements, magnetic susceptibility

21. Vegetation environmental change using pollen data during the Holocene in the South Korea: including human impact

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Isopollen map is chosen as a mapping method of pollen data to clarify the past temporal-spatial vegetation change and Human activities during the Holocene. It is presented for 5 time slices 6,000, 4,000, 3,000, 2,000 and 1,000 y. B.P. by four indices (Alnus, Pinus, Quercus and NAP/AP) based on the data of 29 sites in the South Korea. (1) Alnus is useful indicator of human disturbance. At 6 ka BP, it shows high percentages from 60 to 70% in the west lowland and low percentages of 10% in the east area. At 3 ka y BP it is decreased to 20–30% to west coastal line coincided with agriculture activities and deforestation of the Bronze Age. At 1 ka y Bp, it was much lower. (2) Pinus distribute oppositely to Alnus. Pinus as second forest indicating a warm and dry condition increased at 3–2 ka y BP to 60–80% during the bronze age and distributed as similar pattern between east and west coastal areas. Pinus flourished to 76% from 2 to 1 ka y BP and continued up to date. (3) Quercus doesn’t show a clear tendency between east and west costal regions. Alnus and Quercus fluctuate symmetrically each other in the west regions as well as Pinus and Quercus in the east regions. (4) The spatial and temporal patterns of the forest change are caused by climate changes or human impact strongly. AP-dominance at 6 ka y BP represents natural vegetation condition without human influence. NAP vs. AP value shows serious human interference during 1.6–2.0 ka BP. The cultivation type was contrasted between the Neolithic Age and the Bronze Age. Isopollen map has changed abruptly by serious human influence since the Bronze Age Vegetation history of the South Korea was classified the AP-dominant period (6–4 ka y BP: natural condition), the transitional period (3 ka y BP), and the NAP-dominant period (2–1 ka y BP: human influence).

Keywords: isopollen map, the Holocene, four indices, human influence

22. Development of marine terraces along southeast coast in Korea, with the special reference to Gampo area

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Marine terrace on the subject of distributional characteristics and chronology is one of the main topics in Korea. several surfaces of Higher-, Middle- and Lower surfaces of marine terraces are distributed typically at Gampo area, the southeast coast with a large headland protruded seaward. Especially the highest surfaces on the ridges of hills around 200 m asl are very wide and flat. Generally they have been known to uplifted peneplain to the present. This study aims to report marine terraces of 175-245 m on much higher levels than none in