



## **Late Pleistocene climatic variations recorded in the stalagmite of the Eden Cave, Korea**

K. S. Woo (1), K. N. Jo (1), R. L. Edwards (2), H. Cheng (2), and Y. Wang (3)

(1) Kangwon National University, Geology, Chuncheon, Republic Of Korea (wooks@kangwon.ac.kr), (2) Department of Geology and Geophysics, University of Minnesota, USA (edwar001@umn.edu), (3) College of Geography Science, Nanjing Normal University, Nanjing, P. R. China (yjwang@njnu.edu.cn)

Textural and geochemical investigation was carried out to delineate the paleoclimatic variations from the late Pleistocene stalagmite of the Eden cave in Korea. Based on U-series age dating, the stalagmite started to grow from 537 kaBP and the growth ceased at 96ka. The inside of the stalagmite can be divided into 5 units (A, B, C, D & E) according to the growth. Especially, Unit C shows the different texture compared to other units. This unit is characterized by fibrous and spherulitic calcite crystals with a minor contribution of fibrous aragonite, while the rest of the units is composed of columnar calcite. The Unit C in the Eden stalagmite show the enriched carbon and oxygen isotope values (15 and 5 per mil, respectively) that has the same bimodal pattern, significantly. This textural and isotopic difference indicates that the cave coral grew at this interval while the dripping water ceased to be supplied from the ceiling showing kinetic effects. However, as water started to drip again, the stalagmite continued to grow over the cave corals. Based on the frequency and density of growth laminae, the stalagmite shows three orders of cycles, and each cycle reflects various climatic changes with different periods of growth. Comparing with Marine Isotope Stage (MIS) based on the textural data, the stalagmite grew from MIS14 to MIS4, and the Unit C belongs to the MIS 8. High-resolution stable isotope analyses reveals that oxygen and carbon isotope values fluctuate between the range of -9 and -6 ‰ (PDB) and -11 and 0 per mil (PDB), respectively. Especially, carbon isotopes are clearly distinctive between glacial and interglacial periods with the difference 2 to 6 ‰. It is notable that MIS 6 & 8 are more clearly shown than previous glacial intervals. This study suggests that the stalagmite of the Eden Cave contains significant textural and isotopic information on several glacial periods in the past, and also suggests that a variety of paleoclimatic evidences can be revealed from the textural studies of speleothems.