



Chemostratigraphy of the Gohan Formation in the eastern central Korea : implications for the Capitanian environmental change

Hyosang Kwon (1), Yong Il Lee (1), and Hyoun Soo Lim (2)

(1) Korea, Republic Of (khs9419@snu.ac.kr), Seoul National University, (2) Korea, Republic Of (tracker@pusan.ac.kr), Pusan National University

The Gohan Formation in the Pyeongan Supergroup in central eastern Korea was deposited in a marginal marine to terrestrial setting in the Capitanian. It is 450 m thick and comprises alternation of gray-greenish medium-grained sandstone and mudrock. A detailed carbon isotope profile along with some paleoenvironmental proxies are presented for the Gohan Formation at Danyang site. CN ratios of organic matters reveal the presence of both vascular and non vascular plants. Excursion of carbon isotope ratios represents disturbance of carbon cycle. Carbon isotope values indicated a 3‰ negative excursion in the lower part of the studied section. This can be interpreted carbon cycle disturbance from the Capitanian extinction event. Mercury concentration is a proxy of volcanic activity. The horizon of a mercury peak near the bottom of the section is consistent with that of negative carbon isotope excursion and the coincidence between negative carbon isotope excursion and high mercury concentration may represent the influence from Emeishan volcanism, which has been regarded as a possible cause of the Capitanian extinction. Two more mercury peaks are noted in the upper part of the section but they are not related to carbon cycle disturbance which suggests effect of local volcanic eruptions as supported by the presence of volcanic rock fragments in coarse-grained sediment. Trace metal redox proxies indicate that the depositional basin was ventilated. TOC values tend to increase when the concentration of redox elements rise. However, the TOC and trace metal redox proxies trends are observed to behave independently of changes in carbon isotope and mercury concentrations suggesting transitions in local paleoenvironmental conditions.