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DINOSAUR TRACK-BEARING DEPOSITS IN THE CRETACEOUS JINDONG FORMATION, KOREA: OCCURRENCE, PALAEOENVIRONMENTS AND PRESERVATION

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Dinosaur track deposits of the Upper Cretaceous Jindong Formation, Korea, were examined from a sedimentological viewpoint to interpret their palaeoenvironments and conditions of preservation. The general depositional environment of the Jindong Formation was a marginal to shallow lake, and marginal lake deposits comprise most of it. The stable isotope values of the carbonates suggest an open lake. The dinosaur track beds occur as two types. One is the discrete trackway deposit and the other is a dinoturbated deposit. All of the dinosaur trackways in the formation are preserved in interlaminated fine-grained sandstone to siltstone-mudstone deposits, which were deposited on a dry mudflat at the lake margin by sheetfloods and then underwent calcareous pedogenesis. The dinoturbated deposit was originally calcareous silty mud reflecting deposition in a shallow lake of low energy and also modified by calcareous pedogenesis. The trampling traces of dinosaurs in the Jindong Formation are recognized both on bedding surfaces and in sections. In places dinosaur tracks occur as 'overtracks' which are preserved in layers above the true tracks. The Jindong dinosaur track deposits are usually associated with pedogenic calcretes, which indicates that the climate at the time was seasonal and arid. Consequently, it is interpreted that the extensive and frequent preservation of dinosaur tracks in the Jindong Formation is the result of repeated deposition by sheetfloods on a mudflat of a perennial lake, which was utilized by dinosaurs as a persistent water source during drought, and the subsequent development of calcareous pedogenesis in an arid climate.