



Trace fossil evidence for late Permian shallow water condition in Guryul ravine, Kashmir, India

Suraj Parcha (1), Micha Horacek (2,4), Leopold Krystyn (3), and Shivani Pandey (1)

(1) Wadia Institute of Himalayan Geology, 33, GMS Raod, Dehradun, India, (2) BLT Wieselburg, HBLFA Francisco-Josephinum, Rottenhauserstr. 1, Wieselburg, Austria, (3) Department of Paleontology, Vienna University, Althanstr. 14, 1090 Vienna, Austria, (4) Department of Lithospheric Research, Vienna University, Althanstr. 14, 1090 Vienna, Austria

The present study is focused on the Late Permian (Changhsingian) succession, present in the Guryul ravine, Kashmir Basin. The basin has a complete Cambro-Triassic sequence and thus contains a unique position in the geology of Himalaya. The Guryul Ravine Permian mainly comprises of mixed siliciclastic–carbonate sediments deposited in a shallow-shelf or ramp setting. The present assemblage of Ichnofossils is the first significant report of trace fossils in the Guryul ravine since early reports in the 1970s. The Ichnofossils reported from this section include: Diplichnites, Dimorphichnus, Monomorphichnus, Planolites, Skolithos along with burrow, scratch marks and annelid worm traces?. The ichnofossils are mainly preserved in medium grain sandstone-mudstone facies. The Ichnofossils are widely distributed throughout the section and are mostly belonging to arthropods and annelid origin, showing behavioral activity, mainly dwelling and feeding, and evidence the dominant presence of deposit feeders. The vertical to slightly inclined biogenic structures are commonly recognized from semi-consolidated substrate which are characteristic features of the near shore/foreshore marine environment, with moderate to high energy conditions. The topmost layer of silty shale contains trace fossils like Skolithos and poorly preserved burrows. The burrow material filled is same as that of host rock. The studied Zewan C and D sequence represents the early to late part of the Changhsingian stage, from 40 to 5 m below the top of Zewan D member with bioturbation still evident in some limestone layers till 2 metres above. No trace fossils could be recognized in the topmost 3 m beds of Zewan D due to their gliding related amalgamated structure. The widespread distribution of traces and their in situ nature will be useful for interpretation of the paleoecological and paleoenvironmental conditions during the late Permian in the Guryul ravine of Kashmir.