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

PARCHA, S.K.<sup>1</sup>, KRYSYTN, L.<sup>2</sup>, HORACEK, M.<sup>3</sup>, PANDEY, S.<sup>1</sup>

<sup>1</sup> Wadia Institute of Himalayan Geology, 33, GMS Raod, Dehradun, India, email: parchask@gmail.com

<sup>2</sup> University of Vienna, Department for Paleontology, Althanstraße 14, 1090 Vienna, Austria

<sup>3</sup> BLT Wieselburg, Lehr- und Forschungszentrum Francisco Josephinum, Rottenhauserstraße 1, 3250 Wieselburg, Austria and University of Vienna, Department for Lithospheric Research, Althanstraße 14, 1090 Vienna, Austria

The present study focuses 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 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 and 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, widely distributed throughout the section and mostly belonging to arthropods and annelids, showing behavioral activity, mainly dwelling and feeding, evidencing 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.

This is a contribution to IGCP572.