

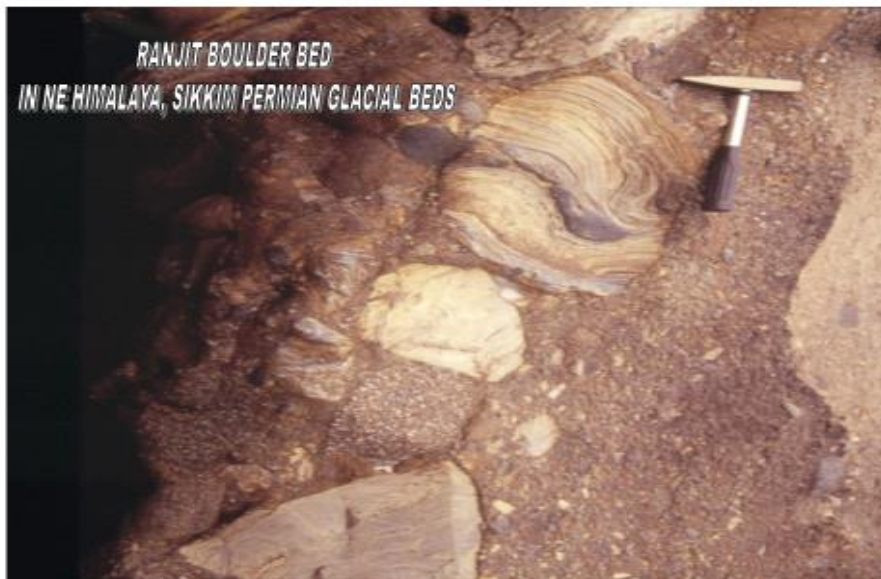
Paper Number: 844

Lower Gondwana Cryosphere of the Sikkim Lesser Himalaya,(Himalayan Gondwana),India

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Gondwana sediments are well developed in the Indian subcontinent in Peninsular India. In the eastern India, the Gondwana rocks occur in the Garo Hills of Meghalaya and represent the easternmost extension of Peninsular Gondwana. The Lower Gondwana sediments have been recorded from the Arunachal and Sikkim Himalaya in the NE region [1,2,3] and popularly known as Himalayan Gondwana. The well preserved glacial diamictites and pebble /boulder slates exposed in the Rangeet River valley, Sikkim Lesser Himalaya (Figure 1) and Lachi Formation in the Sikkim Tethyan realm represents the Lower Gondwana Cryosphere of the major global glaciation covering the entire Gondwanaland of Southern Hemisphere. The Rangeet Boulder Beds of the Sikkim Lesser Himalaya is equivalent of the Talchir Boulder Bed of the Peninsular Gondwana. Himalayan Gondwana also occur as detached outcrops in Kashmir, Spiti, Uttarakhand, Nepal and north of Mount Everest in NW and Central Lesser Himalaya and Darjeeling and Bhutan in the NE Himalaya in South Asian region. The paleoclimatic/ paleoglaciational studies from the Gondwanaland suggest that this supercontinent cryosphere was located near the south pole during Carboniferous-Permian times and India was landlocked on three sides. The sedimentological facies of the Rangeet Boulder Bed and occurrence of invertebrate and plant fossils and coal beds in the overlying Namchi Formation also suggest that it was part of the supercontinent Gondwanaland. Gondwana sedimentation in the Sikkim Lesser Himalaya started with the glacial ice sheet Rangeet Boulder Bed. We present here the detailed paleoclimatic and sedimentological data from the Sikkim Himalaya and its global correlation.



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