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A Geomorphological Approach to Geodiversity and Geotourism in Uttarakhand Himalaya, India: A Pilot Survey

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Himalaya is the greatest heritage of India. The objective of this paper is to present a view of the geomorphological heritage of the Himalaya.Uttarakhand state (77°35'5"-81°2'25" E and 28°43'45"-31°8'18"N, Area: 53,066 sq.km.) lies almost wholly within the realm of the Himalaya and is a distinct geographical entity. The state is a land of vast geological and topographic diversities and a realm with rich geo-wealth and geoheritage. Geological and geomorphological features occurring in different parts of Uttarakhand Himalaya are part of the natural assets and are precious state heritage (geoheritage), worthy of conservation. Apart from rock monuments and fossil parks, geomorphological features or geomorphosites have great potential to exert a pull on tourists. These sites have noteworthy impact on the geoscience education and research. Geotourism is growing rapidly all over the world and Himalaya region is no exception to this. To promote geotourism in the Himalayan State of Uttarakhand, comprehensive information about geomorphosites should be made available to the tourists by way of websites. For this, first a peer-reviewed state inventory of geomorphosites and their classification, mapping and assessment is required. Geodiversity in Uttarakhand State can best be understood in the form of the rise of Himalayan mountains from the bed of Tethys Sea which gave rise to four distinct tectonic units largely varying in lithology and structure. The relief was fragmented into four major morphosculptural units which signify the mountainous part of the state: viz. i. the Tethys zone or the Trans-Himalaya ii. the Greater Himalaya iii. the Lesser Himalaya and iv. the Siwalik. Apart from this mountainous region of the State, there is outlying region of the state, which incompasses : iv. Bhabhar and Tarai (a sub-montane tract) - a landscape feature along the foothills, v. Dun Valleys – valleys of tectonic origin and vi. Plains of North India - the lowest part in Uttarakhand with an altitude of 200 m. These geological units recognised on the basis of evolutionary history, stratigraphic sequences and component rock units and reveal identical topographic and climatic characteristics. These units are separated by various tectonic boundaries. Apart from geodiversity, the geomorphological diversity can be assessed in the form of towering snow peaks, awe-inspiring horned peaks with natural grandeur, widely distributed stretches of wide and fertile valleys, valleys of tectonic origin-canoe shaped longitudinal valleys, lofty snow capped peak surrounded by several small and big snowfields, glaciers and lakes, mountain passes and elevated zones packed in a series of multi-level distinctive waterfalls. Thus, being the youngest mountain of the world, this Himalayan State has geotouristic potential from the point of view of its geomorphological heritage.

Keywords: Himalaya**,** geodiversity , geomorphological heritage, geomorphosites, geotourism.