Abstract Title: Suitability analysis of various gridded products estimating winter precipitation over North-western Himalaya

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Abstract

Climate change is a reality today and its impact is more discernible over high altitude areas of the world. Since glaciers are considered as most sensitive indicators of climate change; they are found to be retreating/receding in most parts of the world. In contrast, the glaciers in Karakoram Himalaya are found to have advanced/ attained stability in recent decades as proposed by many researchers. But climatic trends over snow bound high altitude regions of north western Himalayas (Western Himalaya and Karakoram Himalaya) are not much explored spatially since station density is scarce and much of the stations are clustered in valley locations. Gridded products (reanalysis, gauged data and satellite products) are seen as a better alternative to ground based observations since they provide the users with a better spatial coverage. In this study, the precipitation data of available gridded products viz., TRMM, GPCC, GPCP, UDEL, ERA-Interim, CRU-TS and APHRODITE were validated against ground based observations over North West Himalayan Region in Indian Territory where elevation ranges between 2000m-6000m. The analysis was carried out at various spatial as well as temporal scales and the performance was assessed using various statistical measures. ERA-Interim is found to better represent the spatial variability of precipitation over Northwest Himalayan region whereas many other products performed at par with it at different temporal scales. Gauged products like APHRODITE has no single station over altitude of 5000m, thus considerable amount of bias was observed in the results.

Keywords—*Climate change, gridded data, APHRODITE, ERA-Interim, Himalayas*

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- **Qualifications :**

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- Junior Research Fellow at Punjab Remote Sensing Center, Ludhiana (Sep 2013-May-2015)
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Publications :

- Kanda, N., Negi, H.S., Rishi, M.S. and Shekhar, M.S., Performance of various techniques in estimating missing climatological data over snow bound mountainous areas of Karakoram Himalaya. ***Meteorol. Apps***., 2017 (online); doi:10.1002/met.1699

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