

## **Snow cover variability over Hindu Kush Himalayan region using MODIS Terra (2000-2017)**

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Glacial landform is one of the fastest changing landform. Snow cover and Glaciers in Himalayan and Tibetan Plateau is the major source of water for the Asian rivers such as Indus, Ganga and Brahmaputra, which originates from the Himalayas. Remote sensing is one of the most advanced and useful technique for global snow cover monitoring even in inaccessible areas. Snow cover percentage derived from Moderate Resolution Imaging Spectroradiometer (MODIS) on-board Terra at 5 km spatial resolution have been used to study the intra-annual (growing season and melting season) and inter-annual variation of snow and glacial cover during 2000-2017 over the Hindu Kush Himalayan (HKH) region. The HKH region was divided into five different longitudinal zones (west to east) named as zone-1 (60-70 °E), zone-2 (70-80 °E), zone-3 (80-90 °E), zone-4 (90-100 °E) and zone-5 (100-110 °E) respectively. Zone wise snow cover variability and trend analysis show overall decreasing trend (-0.0024 % snow cover/year) over the entire HKH region. However, certain regions also show increasing trend up to +0.186 % snow cover per year. One of the largest gain and loss in the snow cover in 17 years over HKH region, based on the linear trend, is observed upto +3.16% (between 6501 to 7000m above msl) and -2.39% (between 5501 to 6000m above msl) respectively. Changes in snow cover (in %) with respect to growing season and melting season will be discussed in detail.