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Influence of Springtime Snow over the Himalayan-Tibetan Plateau on the Onset of the Indian Summer Monsoon in the NOAA/CIRES 20th Century Reanalysis during the post-1950s period

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The springtime snowpack over the Himalayan-Tibetan Plateau (HTP) region and Eurasia has been suggested to be an influential factor in the seasonal predictability of the Indian Summer Monsoon. However, many observational and modelling studies remained inconclusive as to the reliability and the stationarity of this snow-monsoon relationship, and the nature of the spatio-temporal teleconnection patterns involved.

Here, we re-visit the snow-monsoon relationship using the NOAA/CIRES 20th Century Reanalysis, which are the longest global reanalysis dataset available and covers the period 1871-2010. We use data for the post-1950s period to show that heavy snow in spring over HTP can delay the onset of the monsoon over the Indian sub-continent by about 6 days and therefore can constitute an important component of the inter-annual variability of the monsoon.