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## Climate Impact on Snow Extent Variability in Lesotho (Southern-Africa)

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Snow cover in Lesotho is not only highly relevant to the climate system, but also affects socio-economic factors such as water storage for irrigation or hydro-electricity. However, in-situ snow information remains limited with only 2-3 measurement stations reporting snow depth for some winters. Satellite imagery were used to fill this gap in order to provide the needed snow cover information. Methodologically, the NDSI was calculated based on MODIS data and a post-processing procedure (temporal and spatial gap-filling under cloudy conditions) was applied. The snow extent variability from 2000 – 2014 has been analyzed: For the first time, the high annual variability of snow distribution in Lesotho could be shown based on this consistent time series. It is related to weather patterns and their associated temperature and precipitation fields resulting in distinct snow accumulation patterns in the highest altitudes, rarely in the lowlands. Finally, climate scenarios will be discussed related to snow distribution in Lesotho.