

Modeling of NDVI and LST to Identify and Compare the Changing Trends in Nepal by Using GEE

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Abstract: Normalized difference vegetation index (NDVI) and Land Surface Temperature (LST) data, in a sample plot each from east, center and west of Nepal, from 2000 to 2015, were analyzed to identify and compare the trends of vegetation and temperature changes during the period. The data were obtained from Moderate Resolutions Imaging Spectroradiometer (MODIS). NDVI characterizes a resolution of 250250 m² and a 16-day composite period while LST has 8 days frequency with resolution of 11 km². The analysis was separate for NDVI and LST. The data were seasonally adjusted and then divided into three groups of five year period each, separate for every region. The generalized estimating equations (GEE) were fitted to each period data. For all three regions, the results showed, there was a trend of significantly rising vegetation in eastern and western sub urban parts while the central urban city had a significant decline in trend. Whereas the temperature showed statistically significant and uniform fluctuating pattern of change in all three regions. However, the results revealed no relationship of trend of changing temperature with that of vegetation.

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