VEGETATION COVERAGE MONITORING

USING LONG TERM NDVI DATA

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Abstract : Pasture vegetation cover is changing accordingly with both of global climate change and anthropogenic effect or human impacts. Using past 20 years (1982-2001) NDVI (normalized difference vegetation index) derived from NOAA satellite, its trend was decreasing in all natural zones differently. The NDVI dataset is unique or main tool to assess the global, multi seasonal, multi annual, and multi spectral changes over the World. These features are useful for environmental studies in particular, for the vegetation coverage monitoring of the country as Mongolia, where are large pastureland and pastoral animal husbandry, which dependant on natural conditions. The main goal of this work was estimating of vegetation cover changes within last 20 years only by NDVI data i.e. how many years the NDVI value was increased or decreased in one place.

The normalized difference vegetation index (NDVI) data is one of the indices, which could indicate green vegetation condition over the year and over the World. The NDVI value could obtain from various satellite data differently, but actually we have used NDVI data derived from AVHRR data of NOAA satellite. The NOAA/NDVI data was selected because of its high frequency, wide coverage for one pass and long duration of data ranging. In this study used 10 days composite NOAA/NDVI 8 km resolution data from 1982 to 2001, provided from NOAA/NASA Pathfinder data set. Using 20 years NDVI data have been applied the new method of 낮wo Years Difference? which is sum of differences between two consequence years?NDVI values.

$$cNDVI = S\{NDVI[i,j,(k-1)]-NDVI(i,j,k)\} \qquad (1)$$

where, i, j, k ?NDVI value of i row and j column in certain k year, k-1 ?previous year. This difference values separated in 2 groups as, negative values are increase or no change (coded as 0) and positive values are decrease (coded as 1), and the summarized values could show the number of years with NDVI decreasing.

The time series analysis showed that, the vegetation condition was changes differently in each 10 days over the study area. For instance, during 20 years in each month from May to September occurred 9 years NDVI decreases over Mongolia in maximum. In 24.4 ?32.71634000f all territory occurred one year decrease of NDVI and in 18Occurred more than 3 years frequent decrease of NDVI.