

Vegetation Cover Change Using Long Term NDVI Data

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INTRODUCTION

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.

In this paper included some results of long term NOAA/NDVI data analysis over transboundary region Mongolia and Russia.

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.

Using long term 10 days NDVI composite images we can determine the temporal and spatial vegetation changes. According to the long term statistical value of NDVI we have estimate monthly, seasonal and 10 days dynamics over Mongolia.

As Mongolia has short summer season and In general, the peak of vegetation growth fits in August within short duration of growing period, from June to early September. The monthly long term average NDVI within 1982-2001 and 10 days dynamics of 1992 are showing in Fig. In general, 1994 was quite wet year and 2001 was more drought year within above 20 years of study.

Over aimag territory of Mongolia According to the long term NDVI data we could estimate its dynamics over some part of Mongolia as, from aimag level upto soum and bag level.

In Table 1 we included long term mean values from June to August.

We have selected 4 aimags from different natural zones to compare their NDVI dynamics and their NDVI dynamics were completely various from each others.

But all these aimags territories had common characteristics that year of 1994 was occurred as best summering for all aimags.

By NDVI data of NOAA satellite data we could estimate the spatial and temporal changes of pasture vegetation condition over Mongolia and in certain regions. The time series analysis showed that, the vegetation condition was changed differently in various regions over territory. The highest frequency of NDVI decreasing reached 9 years within last 20 years and over 18%of whole territory of Mongolia suffered more than 3 years frequent decreasing of NDVI.

Steppe zone is more sensitive to weather variation than other natural zones of Mongolia.