

HRE032-P05

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## Desertification in Xilinguole grassland, Inner Mongolia, Based on Remote Sensing Data

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Xilinguole grassland in Inner Mongolia exemplifies that grassland degradation has increased significantly in recent years. Several large-scale projects aimed at combating desertification have been initiated since 2002. However, analyses in many previous studies were limited to annual data, and conclusions on the progress and causes of desertification were drawn from particular year data.

In this study, the normalized difference vegetation index (NDVI) derived from long-term satellite datasets (AVHRR/GIMMS [1981-2006] and MODIS/TERRA [2000-2010]) was used to estimate vegetation changes in the Xilinguole grassland. To investigate the causes of the vegetation change, we analyzed the temperature, precipitation data, and statistical data regarding the grazing pressure and afforestation area approximately 30 years. Moreover, a field survey was conducted to investigate the changes in the vegetation type, which is difficult to assess by remote sensing.

The findings of this study are as follows. The NDVI values during a period of luxuriant growth were highly correlated with the June-July precipitation and May temperature of the same year, and the April-June precipitation of the previous year. Over the consecutive dry years in 1999-2001, the increase in grazing pressure and intensity sand storms and locust infestations led to a dramatic decrease in the NDVI. However, over the subsequent consecutive wet years, the decrease in grazing pressure and increase in the coverage of bushes and annual grass species, led to an increase in the NDVI.

Keywords: desertification, climatic change, human activity, remote sensing, vegetation index