Study on the relationship between land use and wind erosion dynamics of the middle part of mongolia plateau

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The study region locates in the middle part of Mongolia Plateau, and the climate of the region is continental arid and semi-arid seasonal wind type of temperate zone, so the region becomes the typical zone of global change study and the key area of the land use and land cover change research with strong wind erosion and rapid land use change. It covers the grassland-cropland transition zone and the over-grazing grasslands. Deserted croplands and dry-farming cropland of Mongolia Plateau were the source regions of dust-storm which affected North and East China, Korea, Japan and America in 2000. Based on 2 sets of land-use data and the correspondent wind erosion data interpreted from Landsat-TM image, the static spatial distribution and the dynamic spatial changes are outlined. According to the features of static and dynamic spatial distributions, the sub-regions of Middle Mongolia Plateau are divided. The details about the land-use dynamics and wind erosion dynamics are discussed in each specific sub-region, and the driving-droved relationship between the two dynamics is then analyzed. It can be inferred that the basic patterns of both land-use and wind erosion in the middle part of Mongolia Plateau did not change greatly during late 1990s. However, the main types of land-use change are degradation of grasslands and the expansion of croplands, and the wind erosion is intensified in general. The degradation of grasslands and the expansion of croplands caused obviously intensified wind erosion, while the amendment of grasslands and the shrink of croplands affected wind erosion slightly. All of which show that there exist non-balanced influences on wind erosion caused by different land-use change orientation.