

Land use change in the Loess Plateau of North-Shaanxi and East-Gansu Province, China

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The Loess Plateau in China has some problems about erosion, desertification and economical problems. Erosion has a major influence on agriculture, forestry and grazing, because it cut the cropland and ruin the ecosystem (Matsunaga 2013, Saito 2008a).

From the end of 1990s, the Conversion of cropland to forest and grassland, namely the afforestation project to steep slope, started by the Chinese government for deal with these problems. However, these are not only the fruits (Saito 2008b). The reason, the Loess Plateau has diversity about the environment and humanity due to extensive.

From 2000, there are many investigations about the Land use change in the Loess Plateau. They made the quantitative spread about the green land clear caused by the Conversion of cropland to forest and grassland in China. However the quantitative land use change in the wide area of the Loess Plateau is unknown, because the study areas of the investigations are each basin of the Yellow River. Their compared years are deferent. The compared years are 2 after 1980s.

This study cleared the land use change by remote sensing in North-Shaanxi and East-Gansu Province of the Loess Plateau. In addition, I made the division map based on the change of forest and grassland. Used satellite photos are Landsat/MSS, TM. I did supervised classification by Maximum likelihood estimation. Moreover I did logical disjunction operation using the ArcGIS.

The following results were obtained : 1. There are conflicting differences to changes of the forest in Huanglong Mountains and Ziwu Mountains. 2. There are differences about more than one degree of desertification in the adjacent area of Mu Us desert. 3. Since 1990s, there are conflicting differences to changes about desertification in the hilly-gullied loess region as administrative boundary of Gansu and Shaanxi province. Moreover I estimated the first factor due to local differences using the SRTM.

Keywords: the Loess Plateau, land use change, Landsat, ArcGIS

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Miniature LiDAR DEM data smoothing techniques and effects

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