

Monitoring and Analysis of Land use/cover change in Kashigar region Based on Landsat and Spot vegetation Data

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The spatio-temporal changes of land use / cover (LUCC) and its driving forces in Kashigar region, Xinjiang Province were analysed by satellite remote sensing data. Main goal of this paper was to quantify drivers of LUCC using long term Landsat and Spot Vegetation data from 1972 to 2014. First, we produced LUCC map by using Landsat images in 1972, 1990, 2000 and 2014. Land use information from Landsat data was collected using maximum likelihood classification method. A hierarchical classification system of 16 land cover subclasses was applied to the Landsat data. The 16 subclasses of land cover were further grouped into 6 aggregated classes of land cover: urban, cropland, water, grass, bare land and glacier. Land use change was studied based on the change detection method of land use types. Second, Normalised Difference Snow Index (NDSI) values were calculated by Spot Vegetation data from 1999 to 2014. According to the snow index confirmed snow conditions of study area which is used to screen the LUCC and climate changes after snow cover map drawn. Third, driving forces were analysed according to climate changes and socioeconomic development. The climate data was obtained from CRU TS 3.21 about temperature and precipitation data. According to these data climate changes were compared with NDSI value, while the socioeconomic data was from the Xinjiang Statistical Yearbook (1984-2014). The study indicates that the increase of land use benefits was given more attention. The study suggests that the land use should be based on the sustainable protection of arid environment on the Kashigar region.

キーワード: Land use /cover change, driving force, snow index, Kashigar region

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