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Understanding cultivated land dynamics and its driving forces in northern China during 1983-2001

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Based on the long-term serial NOAA/NDVI dataset during 1983-1999 and SPOT/VGT dataset in 2001, the land use/cover change information in the 13 provinces of northern China was extracted based on the analysis of the cultivated landscape characteristics at first, then the effects of human activities on cultivated land process were explored by GIS and the driving forces of cultivated land change were investigated. The conclusions can be drawn as follows: (1) The constant increase of weak ecological function land as desert and cultivated land and the decrease of the ecological function land of forest and shrub were the main characteristics of the land use/cover change in the 13 provinces from 1983 to 1999, which showed the effects on the ecological adjustment function. However, such situations were changed to some extent in the 2000s because of the eco-construction policy of the government. (2) From 1983 to 2001, the Barycenter of cultivated land tended to move from northeast to southwest with the topography and transportation situations being the main influences on the cultivated land distribution. It is found that the cultivated land use intensity decreased noticably with the increase of distance from the main communication arteries. (3) The improvement of the people´s living standard is closely related with the cultivated land change. The structural adjustment in the agricultural land caused by economic development and the improvement of the people´s living standard is an important factor affecting the cultivated land change in northern China from 1983 to 2001.

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关键词： cultivated land change; spatial process; driving forces; northern China doi: 10.1360/gs050401