

基于MODIS的陕西黄土高原植被覆盖度变化特征及其驱动分析

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MODIS Based Analysis of Dynamic Variation of Fractional Vegetation Coverage of the Loess Plateau of Shaanxi and Its Driving Forces

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摘要

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摘要 基于MODIS数据,采用混合像元分解模型提取陕西黄土高原2000—2009年的植被覆盖度数据,研究其整体变化趋势,并根据植被覆盖类型、地形、气候和土壤因子进行特征分区,研究不同区域植被覆盖变化及其驱动因子。结果表明,整体而言,10 a间研究区植被覆盖度呈增长趋势,2000—2009年共增长约10个百分点。植被覆盖度为0~10%、>10%~20%、>20%~30%、>30%~40%和>40%~50%的区域面积年平均减少-1.05%、-8.63%、-7.04%、-7.20%和-3.49%,而植被覆盖度为>50%~60%、>60%~70%、>70%~80%、>80%~90%和>90%~100%的区域面积年平均增长6.92%、10.53%、4.05%、0.87%和7.06%。地形和水热状况从宏观上决定植被覆盖类型,并且影响植被疏密程度,土壤侵蚀影响植被受破坏程度,植被覆盖度持续增长的主要原因是退耕还林(草)工程的实施。

关键词: 植被覆盖度 陕西 黄土高原 特征分区 MODIS

Abstract: Fractional vegetation coverage (FVC) of the Loess Plateau of Shaanxi from 2000 to 2009 was extracted from MODIS NDVI using the mixed pixel decomposition model for study of its overall trend and variation of FVC and its driving forces in regions, of which zoning was done in light of factors like type of vegetation coverage, terrain, climate and soil. Results show that on the whole, the FVC of the plateau displayed a rising trend during the period from 2000 to 2009, and increased about 10 percentage point. The area of the zone with FVC being 0-10%, >10%-20%, >20%-30%, >30%-40% and >40%-50% decreased on average by -1.05%, -8.63%, -7.04%, -7.20% and -3.49%, respectively, while the area of the zone with FVC being >50%-60%, >60%-70%, >70%-80%, >80%-90% and >90%-100% increased on average by 6.92%, 10.53%, 4.05%, 0.87% and 7.06%. Terrain and hydrothermal conditions are found macroscopically the major factors determining type of vegetation coverage and its density as well. Soil erosion affects the extent of vegetation damage. The implementation of the "Grain for Green" policy is the major contributor to the continuous growth of the FVC.

Keywords: fractional vegetation coverage Shaanxi the Loess Plateau characteristics-based zoning MODIS

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