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# Spatial-temporal changes of ecosystem services in the Shunyi District

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The spatial heterogeneity of ecosystems strongly influences ecosystem functions. This study evaluates the ecosystem functions in the Shunyi District, northeast of Beijing, China, using the findings of Xiao Yu et al and relates these to the regional ecosystem characteristics and landscape. Landsat TM images from the 1990s and 2000s were used to measure spatial and temporal changes in the land use and land cover and landscape patterns. The results show that the ecosystem services in the Shunyi district were 16.9×10<sup>8</sup> yuan·a<sup>-1</sup> in 1991, 13.9×10<sup>8</sup> yuan·a<sup>-1</sup> in 1999, and 9.7×10<sup>8</sup> yuan·a<sup>-1</sup> in 2005. Thus, the ecosystem services decreased significantly from 1991 to 2005 on both regional and local scales. Two most significant reasons for this significant decline in the regional ecosystem services are the reduction in area as a result of land use and land cover changes and the reduction of ecosystem service per unit land area because of ecosystem degeneration.

【Key Words】 : **ecosystem services remote sensing technology the Shunyi District**

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