

Remote Sensing Monitoring of Land Use/Cover Change in the Nakhon Ratchasima Plateau, Thailand Based on Long Time Sequence Landsat

Satellite Imagery

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ABSTRACT: As the north-eastern part of Thailand, the Nakhon Ratchasima Plateau is the main planting area of jasmine rice in Thailand, and it is also one of the potentials “two-migration” pests (brown planthopper and rice leaf roller) in China. Therefore, this paper selects the Landsat series of images during 1989-2017, with an average annual interval of 10 years. The land use change information is extracted by visual interpretation and support vector machine method. the classification accuracy is over 88%, and the Kappa coefficient is 0.86. And using a variety of land use change analysis models and indices to analyse the trend of land use coverage types This study focuses on the changes of forests, farmland and water conservancy facilities in the past 30 years, and explores their relationship and driving factors. The results show that from 1989 to 2017, the area of cultivated land, reservoirs and ponds increased, and the growth rate was faster: the amount of cultivated land was radiated around the surrounding area of the reservoir; the growth rate of construction land and roads was slow; and the area and quantity of forest land decreased, with a fast speed. The distribution of forest land and cultivated land and the regional differences between them are obvious. It occurs mostly in the northwest, central and southwestern parts of the province. In general, the comprehensive utilization level of land continues to increase. This achievement provides an important basis for the habitat information of the insect source outside China, the spatial and temporal distribution information of the insect source, and the dynamic law of the early migration of the two-shifted pests in the southern rice region of China. And it also will provide essential data basic for effective forecasting and control of rice planthopper.

KEY WORDS: Long Time-Series Landsat; Land Use/Cover Analysis; Nakhon Phanom; Support vector machine; Transfer Matrix