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NATURAL VEGETATION DISTRIBUTION AND CLIMATE ECOLOGY PREDICTION BASED ON GEOGRAPHIC INFORMATION SYSTEM

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Abstract

The global climate change, especially global warming, has seriously affected our living environment and the terrestrial biosphere. The typical consequences include biosystem destruction, crop failure and the rise of sea level. Therefore, a growing attention has been paid to quantify the relationship and mutual influence between vegetation and climate in the recent decade. In this paper, the vegetation distribution across China is digitized using the geographic information system (GIS) software. The raster data on the distribution of geographical spaces were obtained for 198 species of plants, including 92 species of arbor, 48 species of herbaceous plants and 46 species of shrubs. Besides, the Kriging interpolation was adopted to disclose the relationships between the geographical distribution of plants and different climate factors. The research results show that the selected climate factors can be widely applied to plant and climate prediction models, and used to forecast the response of vegetation to global climate change. The research findings provide reference and theoretical support to the research on natural vegetation distribution and climate ecology prediction.

Keywords: climate ecology, geographic information system (GIS), natural vegetation

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