

前植物生产层

陆地生态系统净初级生产力的时空动态模拟研究进展

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摘要:

陆地生态系统净初级生产力 (Net Primary Productivity, NPP) 研究是全球变化的核心内容之一, 反映了植被每年通过光合作用所固定的碳总量。近年来将遥感数据引入到NPP的模型设计和估算中已成为了一种新的发展方向, 它利用遥感获得的全覆盖数据, 使区域及全球尺度的NPP估算成为可能。回顾了NPP研究历史, 综合分析了气候相关统计模型、生态系统过程模型和光能利用率模型的优缺点; 以CASA、C FIX和BIOME BGC这3种遥感参数模型为例, 阐述和分析了该类模型的特点以及国内外的研究进展, 提出了NPP模型存在的问题和未来的发展方向。

关键词: 净初级生产力 (NPP); 遥感参数模型; CASA; C FIX; BIOME BGC

Research progress on spatial temporal dynamic simulation model of net primary productivity of terrestrial ecosystems

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Abstract:

Estimation of Net primary productivity (NPP) in terrestrial ecosystems is center issue in the study of global change. NPP is the total carbon fixed by plant photosynthesis in a year. In recent years, remote sensing data were introduced into establishment of NPP model and practice estimation. This already has developed into a new study method and a new trend. The method makes a possibility to estimate NPP in regional or global scales with details from remote sensing technology. In this paper, study history of NPP, the advantages and disadvantages of Statistical climate correlation models, Ecosystem process models and Light utilization efficiency models were reviewed and compared. Characteristics and research progress of three types of spatial temporal dynamic simulation model, CASA, C FIX and BIOME BGC, were explained and analyzed. At the same time, some problems in NPP models were pointed out and studies in further were emphasized.

Keywords: net primary productivity (NPP) remote sensing paramenters model CASA C FIX; BIOME BGC

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- 净初级生产力 (NPP); 遥感参数模型; CASA; C FIX; BIOME BGC

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