

前植物生产层

基于AMSR E数据的微波植被指数与MODIS植被指数关系研究

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摘要:

利用青南牧区2007-2010年的AMSR E亮温数据计算了相应的微波植被指数(Microwave Vegetation Index, MVI), 对MVI的月季动态变化特征进行了分析, 同时结合相同时间序列的MODIS NDVI和EVI数据, 对比分析了MVI和MODIS植被指数之间的相关关系, 筛选出NDVI反演模型, 并对模型的精度进行了评价。结果表明, MVI值随着植被的生长而降低; MVI与NDVI、EVI均有显著的线性负相关。其中, 升轨低频MVI与NDVI的相关性最好, 相关系数为0.58 (P<0.001); MVI与MODIS植被指数之间的最优模型为NDVI=-0.85×MVI+0.84; 利用最优模型将反演的NDVI与MODIS NDVI进行比较, 两者差异较小, 说明这一模型能较好地反映2种植被指数的关系。

关键词: 微波植被指数 MODIS植被指数 相关性 反演模型

Relationship between microwave vegetation index based on AMSR E data and vegetation index based on MODIS data

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Abstract:

Microwave Vegetation Indices (MVIs) in the pastoral area of the south of Qinghai Province were calculated by using AMSR E brightness temperature data from 2007 to 2010 and its features of monthly MVI changes were discussed, and then the relationship between microwave vegetation index based on AMSR E data and vegetation index based on MODIS data for same time series was determined in this study. This study showed that the MVI value reduced as the vegetation plant grew and the MVIs was strongly negative correlations with NDVI and EVI, in which the correlation between MVIs and NDVI was the best with the correlation coefficient of 0.58. The optimal model between MVIs and MODIS vegetation indices wasNDVI=-0.85×MVI+0.84, and the comparison result showed that the difference between MODIS NDVI and simulated NDVI from the optimal model was little. This study suggested that the optimal model reflected the relationship of the two vegetation indices.

Keywords: Microwave Vegetation Index MODIS vegetation index correlation simulating model

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