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理论研究

利用MERIS产品数据反演太湖叶绿素a浓度研究

摘要：

第三代水色传感器MERIS的荧光通道的合理设置为荧光遥感法的应用提供了广阔的发展前景。利用MERIS数据、同步地面光谱和水质监测数据，分别通过基线荧光高度（FLH）、归一化荧光高度（NFH）和最大叶绿素指数（MCI）建立了太湖叶绿素a浓度的荧光遥感估算模型。结果表明：MERIS荧光参数中最大叶绿素指数（MCI）较基线荧光高度（FLH）更适合太湖水体叶绿素a浓度的反演；归一化荧光高度（NFH）与实测叶绿素a浓度间的拟合效果最好。最后选取NFH进行MERIS荧光遥感模型的太湖叶绿素a浓度的反演，其结果客观地反映了太湖水体叶绿素a浓度的空间分布格局。

关键词： 叶绿素a MERIS 荧光遥感 太湖

Monitoring Chlorophyll-a Concentration in Taihu Lake Based on MERIS Data

Abstract:

Remote sensing is a very effective means to monitor water pollution in large areas.MERIS,the 3rd generation water color sensor,which has several reasonable fluorescence channels and provides a broad prospect for fluorescence remote sensing applications.Based on MERIS data, synchronous ground based hyperspectral data and water quality monitoring data, the fluorescence remote sensing models were developed between chlorophyll a concentration and fluorescence line height, normalized fluorescence height and maximum chlorophyll index, respectively. The result showed that the maximum chlorophyll index (MCI) was more suitable for the estimation of chlorophyll a concentration in the water body of Taihu Lake than the fluorescence line height (FLH) in the inversion analysis for the estimation of chlorophyll a concentration using MERIS fluorescence parameters, and the normalized fluorescence height (NLHR681/R665) had the best fit with the measured chlorophyll a concentration. Finally, NLH was selected to inverse the spatial distribution of chlorophyll a concentration using MERIS fluorescence remote sensing model, and the result objectively reflected the spatial distribution pattern of chlorophyll a concentration in Taihu Lake.

Keywords: Chlorophyll-a MERIS fluorescence remote sensing Taihu LakeMODIS

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