[1]陈立娣,黄韦艮,陆嘉,等.利用海上测量光谱进行赤潮监测[J].自然灾害学报,2007,02:60-63.

CHEN Li-di,HUANG Wei-gen,LU Jia,et al.Monitoring red tide with oceanic surface spectrum measured in maritime observatory [J].,2007,02:60-63.

利用海上测量光谱进行赤潮监测(PDF)

《自然灾害学报》[ISSN:/CN:23-1324/X] 期数: 2007年02期 页码: 60-63 栏目: 出版日期: 1900-01-01

Title: Monitoring red tide with oceanic surface spectrum measured in maritime observatory

作者: 陈立娣; 黄韦艮; 陆嘉; 乐华福

卫星海洋环境动力学国家重点实验室/国家海洋局第二海洋研究所, 浙江杭州310012

Author(s): CHEN Li-di; HUANG Wei-gen; LU Jia; LE Hua-fu

State Key Laboratory of Satellite Ocean Environment Dynamics, Second Institute of Oceanography, State Oceanic Administration, Hangzhou 310012, China

关键词: 反射率; 荧光峰; 平均值; 最佳波段

Keywords: reflectivity fluorescent peak; average; optimal waveband

分类号: X834

DOI: -

文献标识码: -

摘要: 利用太平洋东海岸加拿大温哥华海域56个观测站位现场实测的海洋表面光谱(400-800nm)反射率值和叶绿素、泥沙浓度资料,研究了赤潮发生时海面水体光谱反射率的变化趋势,以了解清洁水体与赤潮水体的不同特征。经过多组数据的比较分析,发现相对于清洁海水的海面光谱反射率,赤潮发生时海面光谱反射率曲线的荧光峰从685nm波长向710nm的红光波长位移;清洁海水海洋表面光谱反射率平均值在400~588nm之间比赤潮海水的平均反射率值大,在波长588nm处两值相交后,清洁海水的反射率值小于赤潮水体的反射率值,而在688nm处清洁海水和赤潮水体反射率值大小相等(大约为0.25),其后保持赤潮海水的反射率值在688-756nm之间一直高于清洁海水的平均反射率值。清洁海水和赤潮水体不同的荧光峰值以及不同的光谱反射率特征之间的差异,可以用于监测赤潮的最佳波段选择。

Abstract: This article distinguishes the different characteristics between the clean water body and red tide using the reflection coefficient value of oceanic surface spectrum as well as the data of chlorophyll and silt density observed by 56 observation stations in Vancouver sea area of Canada,east coast of Pacific Ocean,and investigates the changeable tendency of the reflection coefficient value of oceanic surface spectrum when the red tide takes place.Through the comparison of different groups of datum,it is found that the fluorescent peak of 685nm wavelength of reflection coefficient value of oceanic surface spectrum in the clean water body shifts to 710nm red optical wavelength when the red tide takes place in the clean water body.The average value of the reflection coefficient of oceanic surface spectrum in clean water body is bigger than that

in the red tide for wavelength between 400nm and 588nm,but the former is smaller than that of the latter after 588nm wavelength.At 688nm wave length the values of reflection coefficient for both the clean water body and red tide water body are the same(about, 0.25).The average value of the reflection coefficient of oceanic surface spectrum of red tide water body bewteen 688 nm and 756 nm is bigger than that of the clean water body.The wave length difference of fluorescent peaks between clean water body and red tide water body and their different characteristics of spectrum reflectivity can be used to select the best band for monitoring red tide.

参考文献/REFERENCES

[1] Gower J F R.Chlorophyll a determinations from solar stimulated in vivo fluorescence[M]//R M Brown,G A.Borstad of Seakem Oceanography Ltd.2045 Mills Road Sidney,B.C.V 8L 3S1:Deparmtent of Fisheries and Oceans P.O.Box 6000 Sidncy,B.C.V 8L 3S1,Scientific Au thority:MARCH.DSS File No.04SB.FP833-1-0905,Contract Serial No.O SB811-00211,1982:1-173.

[2] Gower J F.Red Tide Monitoring Using AVHRR.HRPT Imagery From a Local Receiver[J].REMOTE SENSING ENV.1994,48:309-318.

[3] 王正方,张庆,龚敏.海洋原甲藻增殖最适起始密度及其温度的关系[J].海洋环境科学,1993,12(2):44-47.

[4] 黄韦艮,毛显谋.赤潮光谱特性研究[C]//赵冬至.渤海赤潮灾害监测与评估研究论文集.北京:北京海洋出版社,2000.117-120.

[5] 张水浸,杨清良,邱辉煌,等.赤潮及其防治对策[M].北京:海洋出版社,19941-236.

[6] 潘德炉,毛天明,李淑箐,等.卫星遥感监测我国沿海水色环境的研究[J].第四纪研究,2000,20(3):240-245.

备注/Memo: 收稿日期:2006-10-20;改回日期:2007-3-10。

基金项目:国家“十五”科技攻关项目(2001BA603B-06)

作者简介:陈立娣(1951-),女,高级工程师,主要从事海洋遥感应用研究.E-mail:chenlidi2003@yahoo.com.cn