技术应用

基于TM影像数据的五日生化需氧量浓度估计

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摘要：

湖泊的水体污染往往伴随着富营养化现象，水体中叶绿素a、透明度、全磷、全氮、化学需氧量及五日生化需氧量等水质参数

的相关性很强。前人的研究成果表明，由于存在事实上的强相关性，可以直接建立全磷、全氮的遥感反演模型。基于这样的技术思想

，洪泽湖水体内的五日生化需氧量与全磷、全氮有较强的相关性，本研究应用TM遥感影像数据直接建立了五日生化需氧量的半经验估

算模型。该模型简便易用，是建立水质参数反演模型的成功尝试。

关键词：　TM　遥感反演　五日生化需氧量

THE ESTIMATION OF BIOCHEMICAL OXYGEN DEMAND AFTER FIVE DAYS BASED ON TM IMAGE DATA

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Abstract:

: Water pollution in the lake always occurs along with eutrophication. Strong correlation has been found

between such water quality parameters as chlorophyll-a, SD, TP, TN, COD and BOD5 in the water body. TP and TN

directly control the growth and propagation of phytoplankton, and theoretically speaking, TP and TN affect

chlorophyll-a and SD indirectly, whereas chlorophyll-a and SD are primary parameters that can influence spectral

reflectance characteristics. Previous research results indicate that retrieval models of TP and TN can be developed

directly using remote sensing data because of their strong correlation with chlorophyll-a and SD. Based on this

technical idea, the authors derived the BOD5 retrieval model in the Hongze Lake using TM images according to its

strong correlation with TP and TN. The result demonstrates that the model is simple and feasible. This study proves

to be a successful experiment in the construction of the retrieval model of water quality parameters.

Keywords: TM　Remote sensing retrieval　Biochemical oxygen demand after 5 days

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