

目录

多次反射法透射式能见度测量系统研究

赵力, 万晓正, 齐勇, 付晓, 曹乃锋, 陈世哲

山东省海洋环境监测技术重点实验室, 山东省科学院海洋仪器仪表研究所, 山东 青岛 266001

摘要:

针对透射式能见度测量系统占地面积大、长距离光路上不能有遮挡的不足, 提出一种多次反射法透射式能见度测量系统。利用反射镜组构成开放式采样气室, 使光线多次反射达到测量所需的光程, 具备透射法能见度检测高精度优点的同时, 大大缩小系统占地面积; 采用位移调节器实现差分大气消光系数测量, 具有抗环境污染能力强和测量灵敏度可调等独特优点, 有效提高系统的适应性和可靠性。对设计的系统进行精度估算, 证明了方法的可行性, 为能见度测量提供了新方法。

关键词: 能见度 透射式 多次反射 差分测量

Design of multi reflection transmission method based visibility measurement system

ZHAO Li, WANG Xiao-Zheng, QI Yong, FU Xiao, CAO Nai-Feng, CHEN Shi-Zhe

Shandong Provincial Key Laboratory of Ocean Environment Monitoring Technology, Institute of Oceanographic Instrumentation, Shandong Academy of Sciences, Qingdao 266001, China

Abstract:

This paper presents a multi reflection transmission method based atmospheric visibility measurement system in view of such disadvantages as big area occupation and no obstruction on a long-distance lightpath for a traditional transmission visibility meter. The system employs an array of reflectors to construct an open air chamber and to achieve the needed optical distance, which can reserve high-precision visibility detection of transmission method and dramatically decrease area occupation. The system also employs a displacement regulator to achieve differential measurement of atmospheric extinction coefficient. The system has such unique advantages as strong contamination resistance capability and adjustable measurement sensitivity. Its accuracy estimation proves that its design method is feasible and a new method is provided for visibility measurement.

Keywords:

收稿日期 2011-08-16 修回日期 网络版发布日期

DOI: 10.3976/j.issn.1002-4026.2011.06.017

基金项目:

山东省科学院科技发展基金项目(200604); 国家863计划资助课题(2007AA092103)

通讯作者: 陈世哲(1975-), 男, 博士, 研究员, 研究方向为光电检测及海洋测控技术。

作者简介: 赵力(1958-), 女, 高级实验师, 研究方向为海洋测控技术。Email: cekongzhaoli@163.com

作者Email: chenshizhe1975@163.com

扩展功能

本文信息

- ▶ Supporting info
- ▶ PDF(1318KB)
- ▶ [HTML全文]
- ▶ 参考文献[PDF]
- ▶ 参考文献

服务与反馈

- ▶ 把本文推荐给朋友
- ▶ 加入我的书架
- ▶ 加入引用管理器
- ▶ 引用本文
- ▶ Email Alert
- ▶ 文章反馈
- ▶ 浏览反馈信息

本文关键词相关文章

- ▶ 能见度
- ▶ 透射式
- ▶ 多次反射
- ▶ 差分测量

本文作者相关文章

- ▶ 赵力
- ▶ 万晓正
- ▶ 齐勇
- ▶ 付晓
- ▶ 曹乃锋
- ▶ 陈世哲

PubMed

- ▶ Article by Zhao, L.
- ▶ Article by Wang, X. Z.
- ▶ Article by Qi, Y.
- ▶ Article by Fu, X.
- ▶ Article by Cao, N. F.
- ▶ Article by Chen, S. Z.

参考文献:

