



ISSN 1006-009X
CN 22-1135/TH

Q K 2 1 0 7 0 6 1

气象水文海洋仪器

主办单位：中国仪器仪表学会气象水文海洋仪器分会 长春气象仪器研究所

METEOROLOGICAL, HYDROLOGICAL AND MARINE INSTRUMENTS

1

2021
第38卷
(总137期)

ISSN 1006-009X



03>

9 771006 009212



万方数据

气象水文海洋仪器

第38卷 第1期(总第137期) 2021年3月

目 次

研究与探讨

- SBE 3 海水温度传感器动态响应停振问题研究 武昕竹, 王朋朋, 孟庆军, 等(1)
空气负离子观测数据质量控制方法研究 姜燕敏, 李正泉, 郁珍艳, 等(5)
土壤电阻率测试分析 谭永池, 钟鸣峻, 陈超, 等(11)
基于四元数的机械海流计姿态解算 刘庆鹏, 于雨, 惠力, 等(15)
基于函数链神经网络的智能传感器非线性校正方法 徐桂林, 黄彦, 孙振庭(20)
靖安县雷暴大风天气与回波特征分析 陈丽丽, 马中元, 彭景, 等(23)
雷电天气监测与雷电回波特征分析 宋雄, 马中元, 洪丽霞, 等(27)
丰城两次雷暴大风特征分析 程小娟, 马中元, 陈鲍发, 等(31)
宜丰县短时强降水云图回波数值产品特征分析 洪丽霞, 马中元, 罗燕, 等(36)
PTB330型气压传感器示值误差测量不确定度评定 王旭, 孔诗媛, 张昊喆, 等(42)
南城县气候变化与极端天气研究 石涛, 廖超伦, 谭睿, 等(45)
自动土壤水分传感器实验室校准方法探讨 韩玉婷, 第五朋朋, 雷晓妹(48)
机械式温湿度表不确定度评定 宋媛, 吴丽娜, 第五朋朋(51)
光电式数字日照计安装不规范引起的测量误差分析 赵振东(54)
多种温度对比观测分析 尹佳莉, 张曼, 姜涛, 等(56)
称重式降水传感器现场校准方法研究 魏邦宪, 王晓雷, 杨云芸, 等(60)

设计与应用

- 基于个人任务的气象服务产品人机交互制作发布系统设计与实现 郑玲, 郭广, 马守存, 等(63)
基于多数据源的气象信息显示系统设计与实现 徐峰, 张磊, 沈元德, 等(66)
基于红外测湿传感器的湿度检定箱设计 许超, 杜智涛, 韩桂梅, 等(69)
微波辐射计在降水过程中的应用 林辉, 焦阳, 蔡艺友, 等(72)
毕节市气象灾害监测预警系统的设计与实现 龚雪鹏, 郭江, 胡伟, 等(76)
宁夏农业自动气象站组成与应用 刘晓磊, 张婷婷, 宫军, 等(79)

综述

- 国内海洋仪器设备海上试验技术现状 周凯, 程杰, 贺可海, 等(81)
海温观测方法发展综述 贺亚楠, 朱洪海(85)
新技术在气象探测中的应用 宫军, 刘晓磊, 石菊红, 等(90)

维修与维护

- 724XD 多普勒天气雷达发射机系统故障诊断及检修方法 舒童, 王娟娟, 张新刚, 等(93)
PAMS-I型便携自动气象站的无线传输改造 许杰文, 郭羽翔, 朱克备(97)
地温传感器接线改进方法 廖鑫, 李生慧, 徐泽东(100)
TCYII 1型酸雨自动观测系统校准与故障处理 李力, 张慧, 刘雯, 等(102)
翻斗式雨量传感器的改进方法 魏邦宪, 杨云芸, 苗婷, 等(106)
基于 DZZ4 新型自动气象站的故障快速诊断技术分析 罗红, 李青建, 龚雪鹏(109)
江西省自动气象站无人值守运行模式的问题分析 骆世娟, 卢美玲(112)
长春龙嘉机场气象信息网系统故障分析 杨诗缘, 张伟(115)
大气负离子观测站的结构原理和常见故障维修 黎勋, 魏建军, 蒋冬雁, 等(118)
德鲁克技术在气象行业中的应用 (扉一)
德鲁克 PACE 压力控制器 (扉二)
征稿简则 (41)

Meteorological, Hydrological and Marine Instruments

Vol. 38 No. 1 (Sum 137) Mar. 2021

Contents

Research and Discussion

Study on oscillator death of dynamic response of SBE 3 marine temperature sensor	Wu Xinzhu, Wang Pengpeng, Meng Qingjun, et al. (1)
Study on observation data quality control methods of air negative oxygen ion ...	Jiang Yanmin, Li Zhengquan, Yu Zhenyan, et al. (5)
Analysis of soil resistivity test	Tan Yongchi, Zhong Mingjun, Chen Chao, et al. (11)
Quaternion-based attitude calculation of mechanical current meter	Liu Qingpeng, Yu Yu, Hui Li, et al. (15)
Nonlinear correction method of intelligent sensor based on function chain neural network	Xu Guilin, Huang Yan, Sun Zhenting (20)
Analysis of thunderstorm gale weather and echo characteristics in Jing'an	Chen Lili, Ma Zhongyuan, Peng Jing, et al. (23)
Lightning weather monitoring and lightning echo characteristics analysis	Song Xiong, Ma Zhongyuan, Hong Lixia, et al. (27)
Characteristics analysis for two thunderstorm gales in Fengcheng	Cheng Xiaojuan, Ma Zhongyuan, Chen Baofa, et al. (31)
Analysis of numerical product characteristics of cloud image echo of Yifeng short-term heavy precipitation	Hong Lixia, Ma Zhongyuan, Luo Yan, et al. (36)
Evaluation for measurement uncertainty of indication error of PTB330 pressure sensor	Wang Xu, Kong Shiyuan, Zhang Haozhe, et al. (42)
Study on climate change and extreme weather events in Nancheng	Shi Tao, Liao Chaolun, Tan Rui, et al. (45)
Discussion on laboratory calibration methods of automatic soil moisture sensor	Han Yuting, Diwu Pengpeng, Lei Xiaomei (48)
Uncertainty evaluation of mechanical temperature and humidity meter	Song Yuan, Wu Lina, Diwu Pengpeng (51)
Analysis of measurement error caused by improper installation of photoelectric digital sunshine recorder	Zhao Zhendong (54)
Contrast observation and analysis of various temperatures	Yin Jiali, Zhang Man, Jiang Tao, et al. (56)
Research on field calibration method of weighing precipitation sensor	Wei Bangxian, Wang Xiaolei, Yang Yunyun, et al. (60)

Design and Application

Design and implementation of meteorological service product man-machine interactive production and release system based on personal tasks	Zheng Ling, Guo Guang, Ma Shoucun, et al. (63)
Design and implementation of meteorological information display system based on multi-data sources	Xu Feng, Zhang Lei, Shen Yuande, et al. (66)
Design of humidity calibration chamber based on infrared humidity sensor	Xu Chao, Du Zhitao, Han Guimei, et al. (69)
Application of microwave radiometer in precipitation process	Lin Hui, Jiao Yang, Cai Yiyou, et al. (72)
Design and realization of meteorological disaster monitoring and early warning system in Bijie	Gong Xuepeng, Guo Jiang, Hu Wei, et al. (76)
Composition and application of Ningxia agricultural automatic weather station	Liu Xiaolei, Zhang Tingting, Gong Jun, et al. (79)

Summary

Domestic current situation of marine instrument test technology on the sea	Zhou Kai, Cheng Jie, He Kehai, et al. (81)
Review on the development of sea temperature observation	He Yanan, Zhu Honghai (85)
Application of new technology in meteorological detection	Gong Jun, Liu Xiaolei, Shi Juhong, et al. (90)

Maintenance and Repair

Fault diagnosis and troubleshooting of 724XD Doppler weather radar transmitter system	Shu Tong, Wang Juanjuan, Zhang Xingang, et al. (93)
Wireless transmission reformation of PAMS-I portable automatic weather station	Xu Jiewen, Guo Yuxiang, Zhu Kebei (97)
Modification method of ground temperature sensor	Liao Xin, Li Shenghui, Xu Zedong (100)
Calibration and troubleshooting of TCYII 1 acid rain automatic observation system	Li Li, Zhang Hui, Liu Wen, et al. (102)
Improvement method of tipping bucket precipitation sensor	Wei Bangxian, Yang Yunyun, Miao Ting, et al. (106)
Analysis of fast fault diagnosis technology based on DZZ4 new automatic weather station	Luo Hong, Li Qingjian, Gong Xuepeng (109)
Problem analysis of unattended operation mode of automatic weather station in Jiangxi province	Luo Shijuan, Lu Meiling (112)
Fault analysis of meteorological information network system in Changchun Longjia Airport	Yang Shiyuan, Zhang Wei (115)
Structural principle and common fault maintenance of air negative ion observation station	Li Xun, Wei Jianjun, Jiang Dongyan, et al. (118)

(英文编辑:王明蕊)

- ☆ 中国知网收录期刊
- ☆ 中国学术期刊（光盘版）收录期刊
- ☆ 中文科技期刊数据库收录期刊
- ☆ 万方数据库收录期刊
- ☆ 入选中国科协精品科技期刊示范项目

气象水文海洋仪器 Qixiang Shuiwen Haiyang Yiqi

季刊 1984年创刊
第38卷 第1期 (总137期)
2021年3月

主管单位：中国科学技术协会
主办单位：中国仪器仪表学会
 气象水文海洋仪器分会
 长春气象仪器研究所
主编：王启万
主任：王明蕊
副主编：吴展 李清 赵玉兰
出版发行：《气象水文海洋仪器》编辑部
地址：吉林省长春市北湖科技开发区
 雅安路1888号 130102
电话：13943195552
E-mail：qxswwhybjb@sina.com
网址：www.qxswwhy.com
印刷：长春市现代印务有限公司

Meteorological, Hydrological
and Marine Instruments
Quarterly, started in 1984
Vol.38 No.1 (Sum 137)
Mar 2021

Superintended by: China Science Technology Association
Sponsored by: Meteorological, Hydrological and
 Marine Instruments Branch of China
 Instrumentation Institute,
 Changchun Meteorological
 Instrument Research Institute
Editor-in-Chief: Wang Qiwan
Director: Wang Mingrui
Associate Editor: Wu Zhan Li Qing Zhao Yulan
Published by: Editorial Board of Meteorological,
 Hydrological and Marine Instruments
Add: No.1888 Ya'an Road, Beihu Science and Technology Development
 District, Changchun City, Jilin Province 130102, China
Tel: 13943195552
E-mail: qxswwhybjb@sina.com
http://www.qxswwhy.com
Printed by: Changchun Xiandai Printing Business
 Limited Company