

PROCEEDINGS OF SPIE

***Second International Conference
on Environmental Remote Sensing
and Geographic Information
Technology (ERSGIT 2023)***

**Jun Qin
Wenjin Yu**
Editors

**10–12 November 2023
Xi'an, China**

Organized by
Chang'an University (China)
Global Scientific Research Association (China)

Published by
SPIE

Volume 12988

Proceedings of SPIE 0277-786X, V. 12988

SPIE is an international society advancing an interdisciplinary approach to the science and application of light.

The papers in this volume were part of the technical conference cited on the cover and title page. Papers were selected and subject to review by the editors and conference program committee. Some conference presentations may not be available for publication. Additional papers and presentation recordings may be available online in the SPIE Digital Library at SPIDigitalLibrary.org.

The papers reflect the work and thoughts of the authors and are published herein as submitted. The publisher is not responsible for the validity of the information or for any outcomes resulting from reliance thereon.

Please use the following format to cite material from these proceedings:

Author(s), "Title of Paper," in *Second International Conference on Environmental Remote Sensing and Geographic Information Technology (ERSGIT 2023)*, edited by Jun Qin, Wenjin Yu, Proc. of SPIE 12988, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

ISSN: 0277-786X

ISSN: 1996-756X (electronic)

ISBN: 9781510672949

ISBN: 9781510672956 (electronic)

Published by

SPIE

P.O. Box 10, Bellingham, Washington 98227-0010 USA

Telephone +1 360 676 3290 (Pacific Time)

SPIE.org

Copyright © 2024 Society of Photo-Optical Instrumentation Engineers (SPIE).

Copying of material in this book for internal or personal use, or for the internal or personal use of specific clients, beyond the fair use provisions granted by the U.S. Copyright Law is authorized by SPIE subject to payment of fees. To obtain permission to use and share articles in this volume, visit Copyright Clearance Center at copyright.com. Other copying for republication, resale, advertising or promotion, or any form of systematic or multiple reproduction of any material in this book is prohibited except with permission in writing from the publisher.

Printed in the United States of America by Curran Associates, Inc., under license from SPIE.

Publication of record for individual papers is online in the SPIE Digital Library.

**SPIE. DIGITAL
LIBRARY**

SPIDigitalLibrary.org

Paper Numbering: A unique citation identifier (CID) number is assigned to each article in the Proceedings of SPIE at the time of publication. Utilization of CIDs allows articles to be fully citable as soon as they are published online, and connects the same identifier to all online and print versions of the publication. SPIE uses a seven-digit CID article numbering system structured as follows:

- The first five digits correspond to the SPIE volume number.
- The last two digits indicate publication order within the volume using a Base 36 numbering system employing both numerals and letters. These two-number sets start with 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B ... 0Z, followed by 10-1Z, 20-2Z, etc. The CID Number appears on each page of the manuscript.

Contents

vii *Conference Committee*
ix *Introduction*

ENVIRONMENTAL REMOTE SENSING MONITORING AND DATA FUSION

- 12988 02 **Comprehensive assessment of ecological environment sensitivity in Guangdong Province based on GIS** [12988-33]
- 12988 03 **Health assessment of the Yellow River and Nansi Lake basins in Shandong Province** [12988-38]
- 12988 04 **Research on vector road data matching method based on flat curve** [12988-37]
- 12988 05 **The impact of water storage capacity curve based on SMAP data on the simulation effect of Hymod model** [12988-7]
- 12988 06 **Study of wetland sample discrimination using a long time series of SAR data** [12988-47]
- 12988 07 **Research on application quick collection elements based on realistic 3D model** [12988-60]
- 12988 08 **Water body detection of South Dongting Lake based on remote sensing images from 2018 to 2022** [12988-19]
- 12988 09 **Analysis of spatiotemporal differentiation characteristics of rural ecological environment in Shaoguan City, a resource-exhausted city** [12988-52]
- 12988 0A **External deformation monitoring method for rockfill dam: a case study of the Henan Tianchi pumped storage power station** [12988-15]
- 12988 0B **Study on multiple cropping index of North China Plain based on LAI time series** [12988-39]
- 12988 0C **Research on the communication strategy of data hub** [12988-6]
- 12988 0D **Study on vegetation changes in Baoji City based on remote sensing images** [12988-49]
- 12988 0E **Inversion of sea surface ocean current in South China Sea, based on machine learning method** [12988-13]
- 12988 0F **Retrieval and validation of asymmetric hurricane intensity by CYGNSS** [12988-44]
- 12988 0G **Linking feature combination and Swin Transformer model for extracting dragon fruit from Sentinel-2A remote sensing image** [12988-43]
- 12988 0H **MLANet: a multi-level attention-based change detection method for remote sensing images** [12988-55]

- 12988 OI **Automated extraction of active offshore oil/gas platforms based on high-spatial resolution SDGSAT-1/GLI data: a case study in the Northern Gulf of Mexico** [12988-35]
- 12988 OJ **Spatial distribution and influencing factors analysis of Hainan's tropical marine cultural landscape** [12988-34]
- 12988 OK **Ecological sensitivity analysis of the Julian Mountain scenic area based on multi-source DEM remote sensing data** [12988-5]
- 12988 OL **Research on extraction method of non-food cropland based on temporal remote sensing and continuous change detection** [12988-77]

GEOLOGICAL TECTONIC EVOLUTION AND DISASTER PREDICTION

- 12988 OM **Temporal analysis of land use transformation and carbon emission patterns in Shanghai from 2000 to 2020** [12988-41]
- 12988 ON **Temporal and spatial characteristics of evapotranspiration in Dawen River Basin based on SEBS model** [12988-26]
- 12988 OO **Planning response to flood disaster based on spatial and temporal simulation of rainfall and flood in county urban watershed** [12988-48]
- 12988 OP **Spatial variability of contents of nicotine in flue-cured tobacco leaves and soil fertility factors in tobacco planting fields in central Henan Province, China** [12988-59]
- 12988 OQ **Analysis of land use/cover change and landscape patterns based on remote sensing** [12988-71]
- 12988 OR **GIS-based sensitivity analysis of urban land ecology: a case study of Hangzhou City** [12988-3]
- 12988 OS **Suitability analysis of sea sand mining in Guangdong Province based on subjective and objective weighting method** [12988-74]
- 12988 OT **Assessment of geological hazard susceptibility based on remote sensing images** [12988-27]
- 12988 OU **The spatial variability of tobacco's water-soluble total sugar content and soil fertility factor in tobacco planting fields in central Henan Province** [12988-62]
- 12988 OV **Distribution study of damage caused by the 2015 Mw7.8 Gorkha earthquake in Nepal** [12988-31]
- 12988 OW **Analysis of annual average daily concentration of PM_{2.5} particles in Urumqi and prediction of average daily concentration in the next 5 years based on time series model** [12988-4]
- 12988 OX **Monitoring mine deformation by Integrating SBAS-InSAR and probabilistic integral method** [12988-67]

- 12988 0Y **Study on the spatial-temporal dynamic change of land use and coverage change in the Xiliaohe River Basin during 2000 to 2020** [12988-70]
- 12988 0Z **Landslide susceptibility assessment based on improved frequency ratio and XGBoost integrated model: a case study of Yingshan County** [12988-46]
- 12988 10 **Application of CSAMT method in fine exploration of karst collapse columns in coal mines: a case study of Shanxi Province, China** [12988-12]
- 12988 11 **Monitoring construction expansion of urban towns based on GF1 images with different resolutions** [12988-54]
- 12988 12 **A smart emergency platform for earthquake disasters based on multisource monitoring data: a case study of Lanzhou City** [12988-9]
- 12988 13 **The relationship between agricultural land utilization and industrial development in characteristic water towns** [12988-21]
- 12988 14 **Prospects and applications of 3S technology in the field of risk monitoring in mining areas** [12988-18]

SATELLITE NAVIGATION AND INFORMATION PROCESSING TECHNOLOGY

- 12988 15 **Evaluation of satellite-based SMAP, ASCAT, and ESACCI soil moisture products using seven multi-scale in-situ observation networks** [12988-42]
- 12988 16 **Experimental study on satellite image adjustment based on rational function model** [12988-56]
- 12988 17 **Research on directional accuracy of pushbroom images based on different ground resolutions** [12988-61]
- 12988 18 **Rapid construction of indoor and outdoor three-dimensional scenes and augmented reality navigation design and application** [12988-53]
- 12988 19 **Development of broad area target search system based on deep learning** [12988-69]
- 12988 1A **Multi-level feature fusion for remote sensing image building segmentation method** [12988-10]
- 12988 1B **Ice thickness detection method for overhead transmission lines based on remote sensing satellite data and SVM algorithm** [12988-72]
- 12988 1C **Analysis of altitude inversion accuracy of various reflector receivers based on global navigation satellite system interferometry reflectometry** [12988-57]
- 12988 1D **Research on orbital foreign object intrusion detection method based on image segmentation** [12988-73]
- 12988 1E **An adaptive polarization calibration method independent of corner reflectors** [12988-51]

- 12988 1F **Research on fast and accurate topographic map correction method based on OpenCV**
[12988-76]
- 12988 1G **Analysis of obstacle superelevation in airport clearance area based on Cesium** [12988-58]
- 12988 1H **Changes of nighttime lights in the Guanzhong region of China during the COVID-19 pandemic**
[12988-8]
- 12988 1I **Visualization and visual analysis of cyberspace metaphors based on continuous cartogram**
[12988-17]
- 12988 1J **Parcel-level discrimination of rocky desertification cropland based on time-series images**
[12988-84]
- 12988 1K **Research and implementation of surface water information extraction method based on high-resolution remote sensing images** [12988-32]
- 12988 1L **Research on monitoring fault activity using spaceborne synthetic aperture differential interferometry radar, taking Handan area as an example** [12988-40]
- 12988 1M **Analysis of search and rescue positioning accuracy based on improved particle swarm optimization algorithm** [12988-82]
- 12988 1N **Accuracy analysis of oblique photogrammetry technology in earthwork survey of complex terrain** [12988-85]
- 12988 1O **Research on web map file services based on GeoWebCache and MongoDB** [12988-83]