# PROCEEDINGS OF SPIE

# Fifth International Conference on Geoscience and Remote Sensing Mapping (ICGRSM 2023)

Roman Alvarez Mustafa Upper Editors

13–15 October 2023 Lianyungang, China

Organized by
Jiangsu Ocean University (China)

Sponsored by AEIC—Academic Exchange Information Centre (China)

Published by SPIE

**Volume 12980** 

Proceedings of SPIE 0277-786X, V. 12980

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 SPIEDigitalLibrary.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 Fifth International Conference on Geoscience and Remote Sensing Mapping (ICGRSM 2023), edited by Roman Alvarez, Mustafa Upper, Proc. of SPIE 12980, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

ISSN: 0277-786X

ISSN: 1996-756X (electronic)

ISBN: 9781510672789

ISBN: 9781510672796 (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.



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**

ix Conference Committee

## GEOLOGICAL TECTONICS AND GEOGRAPHIC FEATURE RESEARCH

12980 02	Research on the solution of geomorphic data production in difficult areas [12980-14]
12980 03	Sedimentology characteristics of He 8 member in Southeastern Ordos Basin [12980-54]
12980 04	<b>3D</b> modeling and structural analysis of the quaternary boreholes in the Handan region [12980-9]
12980 05	DINEOF reconstruction and analysis of chlorophyll concentration field in Beibu Gulf [12980-29]
12980 06	Analysis of thermospheric characteristic anomalies from 2021 Mw 7.5 Peru earthquake [12980-23]
12980 07	Research on cultivated land plots extraction method based on ResNet optimization model [12980-43]
12980 08	Research on three-dimensional geologic reconstruction based on implicit neural network [12980-81]
12980 09	Spatial relationship between land surface temperature (LST) and main faults in Nimu, Tibet [12980-22]
12980 0A	Comparative study on gravity anomaly separation methods: take the Jiuquan to Wuwei region as an example [12980-97]
12980 OB	Urban functional area identification and spatial accessibility analysis based on big data [12980-63]
12980 OC	Analysis of the causes of ground subsidence in the plain area of Beijing Municipality [12980-1]
12980 0D	Soybean LAI and plant height monitoring based on UAV spectral information and texture fusion [12980-45]
12980 OE	Analysis and study of bright-temperature weights with different integrated height [12980-34]
12980 OF	Landslide susceptibility of Western Tibet Plateau based on the random forest model [12980-10]
12980 0G	Sandy land classification method by combining decision tree and Wishart classifier [12980-37]

12980 OH	Study of groundwater changes and surface subsidence using GRACE and Sentinel-1 inversion [12980-77]
12980 01	Integrating open geographic data for urban land use classification using graph neural networks from high-resolution remote sensing imagery [12980-113]
12980 OJ	Research on the polynomial atmospheric correction approach of ground-based InSAR for the near-dam high slope [12980-98]
12980 OK	Study on disaster-affected patches extraction based on the segment anything model [12980-86]
12980 OL	Analyses on spatio-temporal changes of spartina alterniflor invasion in the yellow sea wetland world natural heritage (south section) based on RS and GIS [12980-3]
12980 OM	Automatic extraction and analysis of graveyard information based on ENVI deep learning [12980-94]
12980 ON	Vegetation height fusion inversion algorithm based on RVoG model [12980-7]
12980 00	Research and application of semi-automatic geomorphology classification method on Caiwei Seamounts [12980-40]
12980 OP	Long time-series land cover classification study of Xiongan new area based on GEE platform and transfer learning [12980-116]
	REMOTE SENSING MODEL MONITORING AND IMAGE PROCESSING
12980 0Q	REMOTE SENSING MODEL MONITORING AND IMAGE PROCESSING  The evolution characteristics of lakes in the Guangdong-Hong Kong-Macao greater Bay Area based on landsat data [12980-6]
12980 0Q 12980 0R	The evolution characteristics of lakes in the Guangdong-Hong Kong-Macao greater Bay
	The evolution characteristics of lakes in the Guangdong-Hong Kong-Macao greater Bay Area based on landsat data [12980-6]  Analyzing the relationship between vegetation cover and soil erosion in the Minjiang river
12980 OR	The evolution characteristics of lakes in the Guangdong-Hong Kong-Macao greater Bay Area based on landsat data [12980-6]  Analyzing the relationship between vegetation cover and soil erosion in the Minjiang river basin using remote sensing technology [12980-12]  Accuracy assessment of real-time precise point positioning in the marine environment
12980 OR 12980 OS	The evolution characteristics of lakes in the Guangdong-Hong Kong-Macao greater Bay Area based on landsat data [12980-6]  Analyzing the relationship between vegetation cover and soil erosion in the Minjiang river basin using remote sensing technology [12980-12]  Accuracy assessment of real-time precise point positioning in the marine environment [12980-11]  Reconstruction of three-dimensional ship wake by Tiangong-2 interferometric imaging radar
12980 OR 12980 OS 12980 OT	The evolution characteristics of lakes in the Guangdong-Hong Kong-Macao greater Bay Area based on landsat data [12980-6]  Analyzing the relationship between vegetation cover and soil erosion in the Minjiang river basin using remote sensing technology [12980-12]  Accuracy assessment of real-time precise point positioning in the marine environment [12980-11]  Reconstruction of three-dimensional ship wake by Tiangong-2 interferometric imaging radar altimeter [12980-5]  AFC-900 oversized frame imaging aerial camera 1:500 large scale drawing accuracy
12980 OR 12980 OS 12980 OT 12980 OU	The evolution characteristics of lakes in the Guangdong-Hong Kong-Macao greater Bay Area based on landsat data [12980-6]  Analyzing the relationship between vegetation cover and soil erosion in the Minjiang river basin using remote sensing technology [12980-12]  Accuracy assessment of real-time precise point positioning in the marine environment [12980-11]  Reconstruction of three-dimensional ship wake by Tiangong-2 interferometric imaging radar altimeter [12980-5]  AFC-900 oversized frame imaging aerial camera 1:500 large scale drawing accuracy verification [12980-99]  Developing and validating an optimized 19-parameter broadcast ephemeris model for LEO

12980 OY	Based on GIS technology and data-driven epidemic risk assessment methodology [12980-2]
12980 OZ	Pixel-level land cover change detection in the Loess Plateau based on different data [12980-31]
12980 10	Winter wheat phenology classification using stacking ensemble learning algorithm based on Sentinel-1A SAR images [12980-69]
12980 11	Analysis of drought characteristics in Henan Province based on GRACE satellite data [12980-70]
12980 12	Remote sensing monitoring and analysis of ecological environment changes in the southern sandy grassland area of Shenfu coalfield [12980-17]
12980 13	Airborne laser point cloud construction of fine digital elevation model for loess plateau mining area [12980-58]
12980 14	Research on indicator extraction and scene modeling method based on TOD specification [12980-44]
12980 15	Study on a combined threshold selection method of persistent scatterers for ground-based synthetic aperture radar [12980-101]
12980 16	Continental coastline survey and analysis in Shandong Province based on remote sensing and field investigation [12980-41]
12980 17	Analysis of current crustal deformation characteristics of Fenwei Graben system based on global navigation satellite system [12980-21]
12980 18	Periodic analysis and prediction model of broadcast ephemeris orbit error of Beidou-3 satellite [12980-46]
12980 19	Deep transfer learning for dominant tree species classification based on google earth engine Sentinel-2: a case study in Kunming City [12980-33]
12980 1A	Wind turbine extraction utilizing high-resolution satellite imagery [12980-106]
12980 1B	Research progress of remote sensing in the field of ecological services: bibliometric analysis based on CiteSpace [12980-87]
12980 1C	Three-dimensional frequency-domain electromagnetic forward modeling of deep-sea hydrothermal sulfide minerals [12980-91]
12980 1D	Urban modern architecture recognition based on Mask-RCNN and ECA attention mechanism [12980-110]
12980 1E	Deformation extraction of building facade using ground-based interferometric synthetic aperture radar assisted by 3D laser scanning technology [12980-93]
12980 1F	Remote sensing monitoring of coal mining collapse and analysis of ecological restoration model in China [12980-30]

12980 1G	Remote sensing monitoring and analysis of mangrove in typical areas of Thailand: 2000–2020 [12980-78]
12980 1H	Design and implementation of a coordination method for imaging satellite requirements [12980-117]
12980 11	HROF: a high-resolution remote sensing dataset for segmentation of offshore farms [12980-108]
12980 1J	Fusion of Worldview-3 satellite image and its impact on the classification of mangrove forests [12980-35]
12980 1K	Analysis of water reserve changes in Yungui Sichuan region based on GRACE [12980-85]
12980 1L	Study on the interaction of waves with artificial microhabitat structures and its mechanism [12980-120]
12980 1M	The influence of low earth orbit satellite constellation on BeiDou satellite navigation system user integrity improvement [12980-96]
12980 1N	Octree parallel identification method of rock mass structural plane based on point cloud [12980-62]
12980 10	Transformer-based nowcasting model of severe convective weather [12980-8]
12980 1P	Underwater buried target location method based on low signal-to-noise ratio magnetic field signal detection [12980-112]
12980 1Q	Quantitative remote sensing inversion and spatial-temporal analysis of suspended sediment concentration in the Yellow River estuary based on QAA algorithm [12980-60]
	INTELLIGENT MAPPING AND MEASUREMENT DATA ANALYSIS
12980 1R	Dynamic monitoring of the ground surface before and after the Jiashi earthquake by D-INSAR [12980-109]
12980 1S	Application of side scan sonar and shallow strata profiler to seabed obstacle scanning project [12980-4]
12980 IT	Data processing method of high dynamic gravity measurement for unmanned surface vehicle at sea [12980-104]
12980 1U	<b>Definition of hydro-meteorological thresholds for landslides based on a limited dataset</b> [12980-49]
12980 1V	An improved algorithm for solving the geodetic problem [12980-26]
12980 1W	3D inversion and 3D visualization of 2D survey data based on high density electrical method: take Guilester BarQin mining area as an example [12980-102]

12980 1X	Successful early warning of a mid-sized landslide in Gansu Province, northwest China [12980-52]
12980 1Y	Monitoring and analysis of surface subsidence of Chinese Jinan Metro line based on SBAS-InSAR and WT-LSTM [12980-16]
12980 1Z	Four hybrid machine learning algorithms to predict forest fire susceptibility [12980-56]
12980 20	Task management method and software realization of Aerial photogrammetry system [12980-90]
12980 21	Dynamic characteristics detection of ancient pagoda based on normal time-frequency transform [12980-72]
12980 22	Retrieval of tropical cyclone temperature and humidity profiles from FY-3E MWTS and MWHS data using deep learning algorithm [12980-82]
12980 23	Retrieval of atmospheric temperature and humidity profiles from FY-3E MWTS and MWHS data using deep learning neural networks [12980-55]
12980 24	Accuracy evaluation of trimble RTX technology in offshore surveying [12980-53]
12980 25	Research on deformation monitoring of reservoir slope in high-vegetation area based on CR-InSAR technology [12980-88]
12980 26	An intelligent extraction method for production and construction projects [12980-111]
12980 27	Dynamic monitoring of vegetation restoration in coal mining subsidence area: a case in Jiawang District, Xuzhou City [12980-28]
12980 28	Research on chlorophyll concentration inversion in the waters near Hong Kong based on improved BP neural network with whale optimization algorithm [12980-67]
12980 29	Performance verification of Shandong earthquake early warning station network based on spatial analysis [12980-20]
12980 2A	A wellbore deformation monitoring method combining inertial navigation and 3D laser scanning technology [12980-19]
12980 2B	Monitoring of ground subsidence in the Thamama C area of Bab oilfield based on SBAS-InSAR [12980-83]
12980 2C	<b>Deformation monitoring of Shuangwangcheng Reservoir based on time-series InSAR method</b> [12980-103]
12980 2D	Geodetector-based analysis of spatial variation and drivers in urban scale [12980-71]
12980 2E	Ping river morphology and land cover change detection based on ZY-3 images [12980-64]
12980 2F	Characteristics of divergence of tipper in multiple sources semi-airborne frequency domain electromagnetic detection system [12980-48]

12980 2G	The co-seismic deformation field and its source sliding inversion about the Mw7.1 earthquake in the Philippines based on InSAR techinique [12980-118]
12980 2H	An improved building and road detection algorithm based on YOLO8 based algorithm [12980-84]
12980 21	Bathymetry mapping in Luwuk-Banggai Waters, (Eastern Waters of Indonesia) using multibeam echosounder [12980-42]
12980 2J	Time-optimal path for oceanic targeted observation based on multiple mobile platforms using the traveling salesman problem [12980-92]
12980 2K	High-speed videogrammetric measurement of the displacement of suspendome structure node [12980-57]
12980 2L	Characterizing highly-sensitive permeability changes caused by earthquakes, Southwest China, constrained from well RongChang monitoring [12980-73]
12980 2M	Monitoring the spatiotemporal changes in annual cropland area and evapotranspiration analysis in the Yellow River Basin from 2001 to 2021 [12980-100]
12980 2N	Monitoring and analysis of eco-environmental quality in Yulin City from 2000 to 2020 based on Remote Sensing Ecological Index (RSEI) [12980-74]
12980 20	Research on environmental protection and soil conservation supervision technology for power grid construction projects [12980-114]
12980 2P	Enhancing ephemeris accuracy in low earth orbit: a Chebyshev polynomial fitting approach during earth's shadow period [12980-24]
12980 2Q	Using variational mode decomposition for vegetation trend monitoring in Ningxia, China [12980-75]

# **Conference Committee**

#### General Conference Chairs

Jialong Sun, Jiangsu Ocean University (China)
Chao Chen, Suzhou University of Science and Technology (China)
Youmei Han, Jiangsu Ocean University (China)

Technical Program Committee Chair

Tingchen Jiang, Jiangsu Ocean University (China)

### Organizing Committee Chairs

**Haibin Lv**, Jiangsu Ocean University (China) **Youmei Han**, Jiangsu Ocean University (China) **Xiao Wang**, Jiangsu Ocean University (China)

#### **Publication Chair**

**Roman Alvarez**, National Autonomous University of Mexico (UNAM) (Mexico)

#### International Committee Members

Ayad M. Fadhil Al-Quraishi, Tishk International University (Iraq)
Roman Alvarez, National Autonomous University of Mexico (UNAM)
(Mexico)

Mohamed Elhag, King Abdulaziz University (Saudi Arabia)

Alok Porwal, Indian Institute of Technology (India)

**Bihter Erol,** Istanbul Technical University (Turkey)

Rahim Abbaspour, University of Tehran (Iran)

Hormoz Sohrabi, Tarbiat Modares University (Iran)

**Saeed Farzaneh**, University of Tehran (Iran)

Nasir Saeed, United Arab Emirates University (United Arab Emirates)

Majid Kiavarz, University of Tehran (Iran)

**Euclides Lourenco Chuma**, Linköping University (Brazil)

Gabriel Gomes de Oliveira, University of Campinas (Brazil)

## Technical Program Committee Members

Xingwei Jiang, Chinese Academy of Engineering (China)
Xianlin Liu, Chinese Academy of Engineering (China)
Yijun He, Nanjing University of Information Science and Technology
(China)

Yiquan Qi, Hohai University (China)

Wujiao Dai, Central South University (China)

**Jialong Sun**, Jiangsu Ocean University (China)

Tingchen Jiang, Jiangsu Ocean University (China)

Liang Cheng, Nanjing University (China)

**Chuanfa Chen**, Shandong University of Science and Technology (China)

**Jinbao Jiang**, China University of Mining and Technology (China) **Xianglei Liu**, Beijing University of Civil Engineering and Architecture (China)

Chao Chen, Suzhou University of Science and Technology (China)

Rongxin Fang, Wuhan University GNSS Research Center (China)

Yang Huizhen, East China University of Technology (China)

Yongqiang Li, Henan Polytechnic University (China)

Lamei Zhang, Harbin Institute of Technology (China)

Mustafa Upper, Artvin Coruh University (Turkey)