

PROCEEDINGS OF SPIE

# ***Remote Sensing and Modeling of Ecosystems for Sustainability XIV***

**Wei Gao**  
**Ni-Bin Chang**  
**Jinnian Wang**  
*Editors*

**9 August 2017**  
**San Diego, California, United States**

*Sponsored and Published by*  
SPIE

**Volume 10405**

Proceedings of SPIE 0277-786X, V. 10405

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

Remote Sensing and Modeling of Ecosystems for Sustainability XIV, edited by Wei Gao,  
Ni-Bin Chang, Jinnian Wang, Proc. of SPIE Vol. 10405, 1040501 · © 2017 SPIE  
CCC code: 0277-786X/17/\$18 · doi: 10.1117/12.2295979

Proc. of SPIE Vol. 10405 1040501-1

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](http://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 *Remote Sensing and Modeling of Ecosystems for Sustainability XIV*, edited by Wei Gao, Ni-Bin Chang, Jinnian Wang, Proceedings of SPIE Vol. 10405 (SPIE, Bellingham, WA, 2017) Seven-digit Article CID Number.

ISSN: 0277-786X  
ISSN: 1996-756X (electronic)

ISBN: 9781510612679  
ISBN: 9781510612686 (electronic)

Published by

**SPIE**

P.O. Box 10, Bellingham, Washington 98227-0010 USA  
Telephone +1 360 676 3290 (Pacific Time) · Fax +1 360 647 1445  
[SPIE.org](http://SPIE.org)

Copyright © 2017, Society of Photo-Optical Instrumentation Engineers.

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 copying fees. The Transactional Reporting Service base fee for this volume is \$18.00 per article (or portion thereof), which should be paid directly to the Copyright Clearance Center (CCC), 222 Rosewood Drive, Danvers, MA 01923. Payment may also be made electronically through CCC Online at [copyright.com](http://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. The CCC fee code is 0277-786X/17/\$18.00.

Printed in the United States of America.

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

**SPIE. DIGITAL LIBRARY**  
[SPIDigitalLibrary.org](http://SPIDigitalLibrary.org)

---

**Paper Numbering:** *Proceedings of SPIE* follow an e-First publication model. A unique citation identifier (CID) number is assigned to each article 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 | <i>Authors</i>              |
| ix  | <i>Conference Committee</i> |

---

## **SESSION 1 REMOTE SENSING, MODELING APPLICATION, AND GIS I**

---

- 10405 03 **Using deep recurrent neural network for direct beam solar irradiance cloud screening** [10405-2]
- 10405 04 **Comparison of two satellite imaging platforms for evaluating quasi-circular vegetation patch pattern in the Yellow River Delta, China** [10405-3]

---

## **SESSION 2 REMOTE SENSING, MODELING APPLICATION, AND GIS II**

---

- 10405 06 **Using input feature information to improve ultraviolet retrieval in neural networks** [10405-4]
- 10405 07 **Total ozone column retrieval from UV-MFRSR irradiance measurements: evaluation at Mauna Loa station** [10405-5]
- 10405 08 **An integrated hyperspectral and SAR satellite constellation for environment monitoring** [10405-6]

---

## **SESSION 3 REMOTE SENSING FOR AGRICULTURE, ECOSYSTEMS, AND HYDROLOGY**

---

- 10405 0A **Quality assurance of the UV irradiances of the UV-B Monitoring and Research Program: the Mauna Loa test case** [10405-8]
- 10405 0B **Spatio-temporal anomaly detection for environmental impact assessment: a case of an abandoned coal mine site in Turkey** [10405-9]
- 10405 0C **SPR based hybrid electro-optic biosensor for  $\beta$ -lactam antibiotics determination in water** [10405-10]
- 10405 0D **Effects of microphysics parameterization on simulations of summer heavy precipitation in the Yangtze-Huaihe Region, China** [10405-11]

---

## **POSTER SESSION**

---

- 10405 0G **Relationship between Aleutian Low and sea surface heat flux during North Pacific winter** [10405-14]
- 10405 0H **Estimating reclamation-induced carbon loss in coastal wetlands using time series GF-1 WVF data: a case study in the Yangtze Estuary** [10405-15]

- 10405 0I **Comparison of snow depth retrieval algorithm in Northeastern China based on AMSR2 and FY3B-MWRI data** [10405-16]
- 10405 0J **Research on snow cover monitoring of Northeast China using Fengyun Geostationary Satellite** [10405-17]
- 10405 0K **Analysis of relationships between NDVI and land surface temperature in coastal area** [10405-18]
- 10405 0L **Comparative study of waterline extraction method in Southern Jiangsu Province** [10405-19]
- 10405 0M **Mapping of green tide using true color aerial photographs taken from a unmanned aerial vehicle** [10405-20]
- 10405 0N **Multi-resource data-based research on remote sensing monitoring over the green tide in the Yellow Sea** [10405-21]
- 10405 0Q **The extraction of coastal windbreak forest information based on UAV remote sensing images** [10405-24]
- 10405 0R **Remote sensing of the Yellow Sea green tide in 2014 based on GOCI** [10405-25]
- 10405 0T **Trends of tropospheric NO<sub>2</sub> over the Yangtze River Delta region and the possible linkage to rapid urbanization** [10405-27]
- 10405 0U **Estimating fine particulates less than 2.5 microns in aerodynamic diameter (PM<sub>2.5</sub>) in Northeastern China: a model approach** [10405-28]
- 10405 0V **Potential inundated coastal area estimation in Shanghai with multi-platform SAR and altimetry data** [10405-29]
- 10405 0W **Impacts of climate change on peanut yield in China simulated by CMIP5 multi-model ensemble projections** [10405-30]
- 10405 0X **Residual settlements detection of ocean reclaimed lands with multi-platform SAR time series and SBAS technique: a case study of Shanghai Pudong International Airport** [10405-31]
- 10405 0Y **Estimating chlorophyll content of *spartina alterniflora* at leaf level using hyper-spectral data** [10405-32]
- 10405 0Z **Calculation of mean solar exo-atmospheric irradiances of GF-4** [10405-33]
- 10405 10 **Spatiotemporal variation vegetation cover and their relationship to climate in Yangtze River watershed area** [10405-34]
- 10405 11 **Effects of distribution density and cell dimension of 3D vegetation model on canopy NDVI simulation base on DART** [10405-35]
- 10405 12 **Comparison of AIRS/AMSU temperature and moisture retrievals with matched ERA-interim and radiosonde measurements over East China** [10405-36]

- 10405 13 **Numerical simulation analysis of the valley wind of the Mount Huangshan based on Noah and MYJ scheme** [10405-37]
- 10405 14 **Quantifying potential yield and water-limited yield of summer maize in the North China Plain** [10405-38]



## Authors

Numbers in the index correspond to the last two digits of the seven-digit citation identifier (CID) article numbering system used in Proceedings of SPIE. The first five digits reflect the volume number. Base 36 numbering is employed for the last two digits and indicates the order of articles within the volume. Numbers start with 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B...0Z, followed by 10-1Z, 20-2Z, etc.

Ai, Jinquan, 0H, 0M, 0R  
An, Jun, 08  
Cao, Siying, 12  
Cennamo, Nunzio, 0C  
Chang, Ni-Bin, 06  
Chen, Bo, 0D  
Chen, Maosi, 03, 06, 07, 0A, 0H, 0K, 0L, 0M, 0N, 0Q, 0R, 0W, 0Y, 0Z, 10, 12, 14  
Chen, Yan, 13  
Cristea, Cecilia, 0C  
Cui, Linli, 10  
Davis, John M., 03, 07, 0A  
Dong, Hongbin, 0V, 0X  
Durham, Bill, 0A  
Düzgün, H. Şebnem, 0B  
Fan, Dongli, 0W  
Fan, Xintong, 0I  
Feier, Bogdan, 0C  
Fragkos, Konstantinos, 07  
Galatus, Ramona, 0C  
Gao, Wei, 03, 06, 07, 0A, 0H, 0T, 0U, 11, 13  
Gao, Zhiqiang, 0H, 0K, 0L, 0M, 0N, 0Q, 0R  
Gong, Junqiang, 0G  
Gu, Lingjia, 0I, 0J  
Gu, Yaru, 12  
Guo, Chunying, 0Z  
He, Xiaogang, 0W  
Huang, Chong, 04  
Janson, George, 0A  
Jiang, Mingnuo, 14  
Jiang, Xiaopeng, 0M, 0Q  
Kan, Yu, 0D  
Koz, Alper, 0B  
Kubanek, Julia, 0V  
Liang, Li, 04  
Liu, Chaoshun, 03, 0D, 0G, 13, 14  
Liu, Gaohuan, 04  
Liu, Pudong, 0Y  
Liu, Qingsheng, 04  
Liu, Qiyang, 0T  
Liu, Yan-An, 12  
Ma, Guanyu, 0V  
Ma, Mingliang, 0T  
Ning, Jicai, 0K, 0M  
Niu, Yilong, 0W  
Olson, Becky, 0A  
Pepe, Antonio, 0V, 0X  
Qiao, Fengxue, 0D  
Ren, Fuhu, 08  
Ren, Ruizhi, 0I, 0J  
Shang, Weitao, 0Q  
Shen, Tao, 0D  
Shen, Zhenxiang, 13  
Shi, Jun, 10  
Shi, Runhe, 0H, 0T, 0U, 0W, 0Y, 0Z, 11  
Si, Cunyou, 12  
Simpson, Scott, 0A  
Song, Debin, 0H, 0M, 0N, 0R  
Song, Yue, 0T  
Soydan, Hilal, 0B  
Straube, Jonathan, 0A  
Sun, Zhibin, 03, 06, 07, 0A, 0G, 0V, 0X  
Tao, Zhu, 11  
Tian, Zhan, 0W  
Tong, Zhanbo, 08  
Wang, Jiapeng, 0Y  
Wang, Jinnian, 08  
Wei, Peipei, 10  
Wei, Xiaoli, 0U  
Wu, Tong, 0J  
Xie, Chou, 08  
Xu, Fuxiang, 0H, 0M, 0N, 0R  
Xu, Hanqing, 0W  
Yang, Tianliang, 0V, 0X  
Yu, Lei, 0X  
Zempita, Melina Maria, 03, 06, 07, 0A  
Zeng, Yuyan, 11  
Zeni, Luigi, 0C  
Zhang, Bowen, 10  
Zhang, Chao, 0H, 0Y  
Zhang, Deying, 0T, 0U  
Zhang, Yuanyuan, 0L  
Zhao, Qing, 0V, 0X  
Zheng, Xiangyu, 0M, 0N, 0R  
Zhong, Honglin, 0W  
Zhou, Jiayuan, 0T  
Zhou, Tingting, 0I, 0J  
Zhou, Yunyun, 0Z





# Conference Committee

## *Program Track Chair*

**Allen H.-L. Huang**, University of Wisconsin-Madison (United States)

## *Conference Chairs*

**Wei Gao**, Colorado State University (United States)

**Ni-Bin Chang**, University of Central Florida (United States)

**Jinnian Wang**, CHINARS SHENZHEN Institute for Satellite Applications  
Innovation (China)

## *Conference Program Committee*

**May Chui**, The University of Hong Kong (Hong Kong, China)

**E. Raymond Hunt Jr.**, Agricultural Research Service (United States)

**Brian Robert Johnson**, National Snow and Ice Data Center  
(United States)

**Thomas U. Kampe**, Ball Aerospace & Technologies Corporation  
(United States)

**Xin-Zhong Liang**, University of Maryland, College Park (United States)

**Dennis Ojima**, Colorado State University (United States)

**David Riaño**, University of California, Davis (United States)

**Runhe Shi**, East China Normal University (China)

**Jiong Shu**, East China Normal University (China)

**Zhibin Sun**, Colorado State University (United States)

**Hongjie Xie**, The University of Texas at San Antonio (United States)

**Xiaobing Zhou**, Montana Tech (United States)

## *Session Chairs*

- 1 Remote Sensing, Modeling Application, and GIS I

**Zhibin Sun**, Colorado State University (United States)

**Jinnian Wang**, CHINARS SHENZHEN Institute for Satellite Applications  
Innovation (China)

- 2 Remote Sensing, Modeling Application, and GIS II

**Zhibin Sun**, Colorado State University (United States)

**Jinnian Wang**, CHINARS SHENZHEN Institute for Satellite Applications  
Innovation (China)

- 3 Remote Sensing for Agriculture, Ecosystems, and Hydrology  
**Ni-Bin Chang**, University of Central Florida (United States)  
**Ramona M. Galatus**, Technical University of Cluj Napoca (Romania)