

PROCEEDINGS OF SPIE

Remote Sensing and Modeling of Ecosystems for Sustainability XII

Wei Gao
Ni-Bin Chang
Editors

11–12 August 2015
San Diego, California, United States

Sponsored and Published by
SPIE

Volume 9610

Proceedings of SPIE 0277-786X, V. 9610

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

Remote Sensing and Modeling of Ecosystems for Sustainability XII, edited by Wei Gao,
Ni-Bin Chang, Proc. of SPIE Vol. 9610, 961001 · © 2015 SPIE
CCC code: 0277-786X/15/\$18 · doi: 10.1117/12.2218010

Proc. of SPIE Vol. 9610 961001-1

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.

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 XII*, edited by Wei Gao, Ni-Bin Chang, Proceedings of SPIE Vol. 9610 (SPIE, Bellingham, WA, 2015) Six-digit Article CID Number.

ISSN: 0277-786X
ISSN: 1996-756X (electronic)
ISBN: 9781628417760

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

Copyright © 2015, 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. 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/15/\$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

Paper Numbering: Proceedings of SPIE follow an e-First publication model, with papers published first online and then in print. Papers are published as they are submitted and meet publication criteria. A unique citation identifier (CID) number is assigned to each article at the time of the first 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, print, and electronic versions of the publication. SPIE uses a six-digit CID article numbering system in which:

- The first four 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. The complete citation is used on the first page, and an abbreviated version on subsequent pages.

Contents

vii	Authors
ix	Conference Committee

SESSION 1	ENVIRONMENTAL REMOTE SENSING AND GIS
9610 02	Site suitability evaluation for ecotourism potential areas using RS and GIS: a case study of Wadi Wurayah, Fujairah, UAE (Invited Paper) [9610-1]
9610 03	Evaluations of CMIP5 simulations over cropland (Invited Paper) [9610-2]
9610 04	Combined UV irradiance from TOMS-OMI satellite and UVMRP ground measurements across the continental U.S. (Invited Paper) [9610-3]
9610 06	Continuous evaluation of land cover restoration of tsunami struck plains in Japan by using several kinds of optical satellite image in time series [9610-5]
9610 07	In situ hyperspectral data analysis for canopy chlorophyll content estimation of an invasive species <i>spartina alterniflora</i> based on PROSAIL canopy radiative transfer model [9610-6]
SESSION 2	REMOTE SENSING FOR AGRICULTURE, ECOSYSTEMS, AND HYDROLOGY
9610 0B	Land cover fraction estimation with global endmembers using collaborative SUnSAL [9610-12]
9610 0C	Effects of bias in solar radiation inputs on ecosystem model performance [9610-13]
9610 0E	Using artificial neural network and satellite data to predict rice yield in Bangladesh [9610-15]
9610 0F	Influence of canopy biochemical and biophysical variables on reflectance spectra based on canopy radiative transfer model with adding noise [9610-16]
9610 0G	A study on China's Lucc and carbon-sink response with remote sensing [9610-18]
SESSION 3	REMOTE SENSING AND MODELING APPLICATIONS
9610 0I	Impacts of global non-leading teleconnection signals on terrestrial precipitation across the United States (Invited Paper) [9610-19]
9610 0J	Climate change impacts on the U.S. agricultural economy (Invited Paper) [9610-20]

- 9610 OK **Temporal variation (seasonal and inter-annual) of vegetation indices of maize and soybeans across multiple years in central Iowa** [9610-21]
- 9610 OL **Two-stage reference channel calibration for collocated UV and VIS Multi-Filter Rotating Shadowband Radiometers** [9610-22]
- 9610 OM **Water stress detection of lilac leaves using a polarized laser** [9610-23]
- 9610 ON **Raman spectroscopy for the control of the atmospheric bioindicators** [9610-24]
- 9610 OO **Study of emissivity changes presented by inorganic and organic soil under drying at ambient temperature** [9610-25]
- 9610 OP **A new method to classify hyperspectral data of Landsat TM image** [9610-26]

POSTER SESSION

- 9610 OR **Evaluation of WRF microphysics and cumulus parameterization schemes in simulating a heavy rainfall event over Yangtze River delta** [9610-29]
- 9610 OT **A tool for NDVI time series extraction from wide-swath remotely sensed images** [9610-31]
- 9610 OU **Detecting harmful algal blooms using Geostationary Ocean Color Imager (GOCI) data in Bohai Sea, China** [9610-32]
- 9610 OW **Salinity and soil moisture retrieval algorithms in western Jilin Province of China using passive microwave remote sensing data** [9610-34]
- 9610 OX **Dynamic analysis on coastline and sea reclamation in the efficient ecological economic zone of the Yellow River Delta based on 30-years satellite data** [9610-35]
- 9610 OY **Snow depth retrieval algorithm of saline-alkali land in the western Jilin Province of China using passive microwave remote sensing data** [9610-36]
- 9610 OZ **Study on coastline change in Shandong Province based on geo-information TuPu** [9610-37]
- 9610 10 **Scaling effect on the estimation of chlorophyll content using narrow band NDVIs based on radiative transfer model** [9610-38]
- 9610 11 **Retrieval of aerosol optical depth over Beijing using Landsat8/OLI data** [9610-39]
- 9610 12 **Comparative analysis of land surface emissivity retrieval methods and the impact on the land surface temperature based on Landsat-8 thermal infrared data** [9610-40]

- 9610 13 **Sensitivity of the reference evapotranspiration to key climatic variables in Shandong Province, China** [9610-41]
- 9610 14 **Validation of the OMI-TOMS and OMI-DOAS total ozone column data using ground-based observations over China** [9610-42]
- 9610 15 **Remote estimation of GPP in temperate grassland: implications of the uncertainty in GPP estimation in semi-arid ecosystems using MODIS data** [9610-43]
- 9610 17 **Simulation and analysis of NDVI performance based on vegetation canopy radiative transfer model** [9610-45]
- 9610 18 **Changes on albedo after a large forest fire in Mediterranean ecosystems** [9610-46]
- 9610 1A **Data fusion of CO₂ retrieved from GOSAT and AIRS using regression analysis and fixed rank kriging** [9610-48]
- 9610 1B **The estimation of Aerosol Optical Depth in eastern China based on regression analysis** [9610-49]
- 9610 1C **Optical methods for control of heavy metals impact on aquatic plants** [9610-50]
- 9610 1D **Retrieval of water and heat flux based on fusion of LANDSAT TM/ETM+ and MODIS data** [9610-51]

Authors

Numbers in the index correspond to the last two digits of the six-digit citation identifier (CID) article numbering system used in Proceedings of SPIE. The first four 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.

Abou-Elnour, Ahmad, 02
Abou-Elnour, Ali, 02
Ai, Jinqun, 07, 17
Akhand, Kawsar, 0E
Asadova, A. A., 1C
Asao, Shinichi, 0C
Bai, K., 0I
Bai, Shangbin, 0P
Brunsell, Nathaniel, 15
Calvo, Leonor, 18
Chang, N. B., 0I
Chen, Maosi, 0L
Chen, Wenhui, 07
Davis, John, 04, 0L
Fernández-García, Victor, 18
Fernández-Manso, Alfonso, 18
Fu, Haoyang, 0W, 0Y
Ganguly, Sangram, 0B
Gao, Wei, 04, 07, 0C, 0F, 0J, 0L, 0Z, 14, 1A, 1D
Gao, Zhiqiang, 0G, 0U, 0X, 0Z, 1D
Goldberg, Mitch, 0E
Gonzalez-Vega, A., 0O
Gu, Lingjia, 0W, 0Y
Guan, Qingfeng, 15
Hashiba, H., 06
Hatfield, J. L., 0K
Hernández-Arellano, H., 0O
Hoffman, Forrest, 03
Imen, S., 0I
Kan, Yu, 0R
Kan, Zenghui, 12
Khan, A. S. M. Kabir, 0M
Kogan, Felix, 0E
Kumar, Uttam, 0B
Li, Zhijun, 12
Li, Zhishan, 0T
Liang, Xin-Zhong, 0J
Liu, Chaoshun, 07, 0F, 0G, 0R, 0U, 11, 12, 13, 1B, 1D
Liu, Pudong, 0F, 10, 17
Liu, Shishi, 15
Liu, Xiangyang, 0Z
Liu, Yanan, 0R
Lu, Qingshui, 0X
Ma, Mingliang, 14
Marcos, Elena, 18
Martinez-Torres, P., 0O
Milesi, Cristina, 0B
Nemani, Ramakrishna R., 0B
Ning, Jicai, 0G, 0X, 0Z, 1D
Nizamuddin, Mohammad, 0E
Pallathucheril, Varkki, 02
Peng, Yi, 15
Prueger, J. H., 0K
Quintano, Carmen, 18
Raja, S. Kumar, 0B
Ren, Ruizhi, 0W, 0Y
Roytman, Leonid, 0E
Shamina, L. A., 0N
Shi, Runhe, 07, 0F, 0T, 10, 11, 14, 17, 1A, 1B
Sun, Mingbo, 0Y
Sun, Zhibin, 04, 07, 0C, 0F, 0L, 0P
Tan, Songxin, 0M
Timchenko, E. V., 0N, 1C
Timchenko, P. E., 0N, 1C
Tregub, N. V., 1C
Villaseñor-Mora, C., 0O
Wang, Hong, 0F, 10
Wang, Jing, 1B
Wang, Weile, 0B
Wang, Yixiang, 0P
Wu, You, 0J
Xu, Min, 03
Xu, Mingzhu, 0U
Yang, Jialin, 13
Zeng, Yuyan, 07, 17
Zhang, Chao, 07
Zhang, Lu, 11
Zheng, Xiangyu, 0G, 0X
Zherdeva, L. A., 0N, 1C
Zhou, Cong, 0R, 0T, 10, 11, 12, 13, 17, 1A, 1B

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)

Conference Co-chair

Jinnian Wang, Institute of Remote Sensing Applications (China)

Conference Program Committee

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

Brian Robert Johnson, Raytheon Company (United States)

Thomas U. Kampe, NEON, Inc. (United States)

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

Dennis Ojima, Colorado State University (United States)

John J. Qu, George Mason University (United States)

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

Jiong Shu, East China Normal University (China)

Zhibin Sun, Colorado State University (United States)

Qiao Wang, Ministry of Environmental Protection (China)

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

Xiaobing Zhou, Montana Tech (United States)

Session Chairs

- 1 Environmental Remote Sensing and GIS
Zhibin Sun, Colorado State University (United States)
Ali Abou-Elnour, Ajman University of Science & Technology
(United Arab Emirates)
- 2 Remote Sensing for Agriculture, Ecosystems, and Hydrology
Ni-Bin Chang, University of Central Florida (United States)
Min Xu, Oak Ridge National Laboratory (United States)
- 3 Remote Sensing and Modeling Applications
Xin-Zhong Liang, University of Maryland, College Park (United States)
John H. Prueger, Agricultural Research Service (United States)

