

PROCEEDINGS OF SPIE

# ***Multispectral, Hyperspectral, and Ultraspectral Remote Sensing Technology, Techniques and Applications VII***

**Allen M. Larar  
Makoto Suzuki  
Jianyu Wang**  
*Editors*

**24–26 September 2018  
Honolulu, Hawaii, United States**

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SPIE

**Volume 10780**

Proceedings of SPIE 0277-786X, V. 10780

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

Multispectral, Hyperspectral, and Ultraspectral Remote Sensing Technology, Techniques and Applications VII,  
edited by Allen M. Larar, Makoto Suzuki, Jianyu Wang, Proc. of SPIE Vol. 10780, 1078001  
© 2018 SPIE · CCC code: 0277-786X/18/\$18 · doi: 10.1117/12.2520774

Proc. of SPIE Vol. 10780 1078001-1

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).

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

Author(s), "Title of Paper," in *Multispectral, Hyperspectral, and Ultraspectral Remote Sensing Technology, Techniques and Applications VII*, edited by Allen M. Larar, Makoto Suzuki, Jianyu Wang, Proceedings of SPIE Vol. 10780 (SPIE, Bellingham, WA, 2018) Seven-digit Article CID Number.

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

ISBN: 9781510621350  
ISBN: 9781510621367 (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

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## Introduction

Accurately calibrated multi-, hyper-, and ultraspectral remote sensing measurement systems are rapidly becoming the instruments of choice for observing a wide variety of geophysical variables from ground-, aircraft-, and satellite-based platforms. New data processing and analysis techniques are emerging for the optimum interpretation of resultant radiance measurements obtained by these spectrometer systems, covering a spectral range from the visible to the far infrared, to enable a wide range of research and operational applications. Geophysical applications include, for example, surface and cloud property characterizations along with retrievals of atmospheric state, dynamics, and composition, all at high spatial resolution while simultaneously covering large areas. Geophysical remote sensing data products from multi- to ultraspectral remote sensing systems promise to accelerate scientific research on environmental processes, enable efficient monitoring of environmental variables, and lead to improved predictive capability for such parameters and how they respond to natural and anthropogenic external forcings. New and improved technologies and techniques promise smaller and lighter next-generation sensor systems for enhancing current and enabling new future measurement capabilities.

The Multispectral, Hyperspectral, and Ultraspectral Remote Sensing Technology, Techniques and Applications VII conference was run within the eleventh SPIE Asia-Pacific Remote Sensing symposium on the application of remote sensing technologies for environmental monitoring held in Honolulu, Hawaii (United States), 24–26 September 2018. The objective of this conference was to bring together the scientific, engineering, and data user communities to provide an international forum for exchanging information about the development, application of, and experimental results from multi-, hyper- and ultra-spectral resolution remote sensing measurement systems. Primary focus areas were associated with the design, development, and implementation of, as well as analysis and usage of data from, such remote sensing systems intended for environmental monitoring applications. The conference was very successful with approximately 40 oral and poster presentations delivered from authors of diverse international affiliations (i.e., United States, Japan, China, France, Taiwan, Czech Republic, Republic of Korea, and Australia). The conference presentation structure was composed of one poster and nine oral sessions. Several of the oral presentations had different aspects of their topical areas also covered in the poster session. The session content addressed advanced sounders and imagers, remote sensing for agricultural, land cover classification and characterization, enabling technology and approaches for new measurements, new techniques and remote sensing applications, characterization and calibration of remote sensing systems, and image processing.

We would like to express our sincere appreciation to the program committee and session chairs, to colleagues who participated in the conference, to the SPIE staff, and to all our local organizing committee members and hosts and meeting sponsors in Honolulu (United States) whose contributions were all essential to the success of this conference.

**Allen M. Larar  
Makoto Suzuki  
Jianyu Wang**