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Multispectral, Hyperspectral, and Ultraspectral Remote Sensing Technology, Techniques and Applications V

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

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Introduction

Accurately calibrated multi-, hyper-, and ultra-spectral 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. They cover 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 ultra-spectral 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 V" conference was run within SPIE's Ninth International Asia-Pacific Symposium on Remote Sensing of the Atmosphere, Environment, and Space, held in Beijing, China, 13–16 October 2014. 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 75 oral and poster presentations delivered from authors of diverse international affiliations (i.e., China, United States, Japan, Canada, India, Taiwan, Egypt, Mexico, and the Russian Federation). The conference presentation structure was composed of nine oral and one poster sessions. Several of the oral presentations had different aspects of their topical areas also covered in the poster session. The session content addressed atmospheric, land, and vegetation remote sensing, other remote sensing applications, image and data processing, sensor calibration and characterization, and new measurement systems.

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 hosts and meeting sponsors in Beijing whose contributions were all essential to the success of this conference.

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