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Philip E. Ardanuy
Jeffery J. Puschell
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Introduction

This volume contains the proceedings for the SPIE conference on Remote Sensing System Engineering II. This conference was held in San Diego, California during 2009, August 4–5, as part of the Optical Engineering + Applications section of SPIE Optics + Photonics.

The goals of this conference were to discuss existing and emerging design approaches, engineering methods, tools, and future trends for engineering of remote sensing systems. This topic included: (1) system architecture and design, (2) requirements, performance metrics and measures of success, (3) modeling and simulation tools and methods, (4) design and integration of distributed architectures, (5) use of commercial assets in future remote sensing systems, and (6) the end user, effective data/information/system utilization, and optimum return on investment.

To achieve these goals, papers were solicited in, but not limited to, the following areas:

- system architecture and design for current and future experimental, research, and operational Earth and space remote sensing programs and experiments
- system engineering metrics and measures of success leading to optimal system design
- methods and approaches for system requirements identification, definition and allocation for operational programs and experiments
- end-to-end system modeling and simulation methods and tools
- system engineering approaches for optimizing transition of research systems to operational use
- distributed remote sensing system architectures
- evolution of systems to networks
- integrated system of systems: engineering approaches and methods
- remote sensors as secondary payloads onboard satellite communication systems such as Intelsat and Iridium NEXT
- use of commercial visualization software such as Google Earth and Microsoft Virtual Earth in remote sensing systems.

A total of 24 papers were presented in six sessions, including a joint session with the Satellite Data Compression, Communication, and Processing V conference. We enjoyed the participation of a diverse group of international researchers from government, academia and industry. The range of topics was remarkable and included future space-based remote sensing systems like GOES-R, SeaWiFS-2 and sensors onboard commercial assets such as Iridium NEXT, future processing and decision support architectures such as using FPGAs and GPUs in real-time

processing of data from remote sensing systems, remote sensing of fire, advanced technology such as the first space-qualified digital imager, system modeling and simulation methods including the EVEREST simulation for end-to-end system engineering of environmental remote sensing systems and the PICASSO project for implementing use of a general image quality equation in design and evaluation of imaging systems.

We thank all of the participants who made this conference successful, especially the cochairs, program committee, and authors.

Philip E. Ardanuy
Jeffery J. Puschell