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Qingxi Tong

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Introduction

The National Symposium on Remote Sensing Technologies is traditionally held every two years. Since the closing of the 16th National Symposium on Remote Sensing Technologies in 2007, and during the compilation of those proceedings, China has suffered numerous and extremely serious natural disasters. Unseasonably low temperatures, heavy rain, and snow/ice disasters occurred during a one month time period in the spring of 2008 within the largest areas of southern China. Immediately following, on 12 May 2008, a tremendously destructive earthquake, measuring at a magnitude of 8.0 on the Richter scale, hit the Sichuan Province. More than 80,000 people were killed as a result of this terrible disaster. Never before in southern China's history has so much devastation occurred over such a short period of time.

Recognizing their responsibilities to those who have been impacted by these disasters, the Chinese community of remote sensing scientists and technicians has devoted themselves to assisting those who are struggling to cope with the impact this tragedy has made on their lives. As a result, the compilation and publishing of these proceedings has unfortunately, to some extent, taken longer to finalize than expected.

This proceedings volume is comprised of papers that have been selected from those presented at the aforementioned 16th National Symposium on Remote Sensing Technologies, held in Beijing on 8–12 September 2007, and the Conference on Remote Sensing of the Environment, held in Dalian 15–18 August 2008. The academic exchanges and discussions at both the symposium and the conference promoted the understanding and development of remote sensing science, technology, and their applications. The integration and combination of remote sensing, GIS, and satellite positioning techniques were also promoted. All papers presented in these sessions were selected and carefully reviewed by a scientific committee organized for the purpose of editing these proceedings, resulting in a total of 43 published papers.

China's remote sensing community has continually progressed over recent years. To a certain extent, the papers presented in these proceedings are a representation of this progress. They cover such major areas of remote sensing as fundamental research, technical development, resource and environmental management, and disaster monitoring. The method of atmospheric correction for hyperspectral data was studied in the areas of fundamental research and technical development. The study on the modeling and inversion for microwave remote sensing was also conducted. The significance of the application of these methods is a direct result of China's first lunar exploration project.

In the hyperspectral domain, the study on quantitative retrieval of mineral abundance based on spectral unmixing and endmember extraction has been carried out. The study of calibration of spaceborne microwave radiometers and a new image method and sampling scheme has been proposed for the development of a microwave sensing system. The studies on quality improvement, including noise removal and image restoration of small satellites, super-resolution image reconstruction, and the shadow elimination for high resolution images were useful in the application of satellite remotely sensed data.

By using the short revisiting characteristics of the Beijing-1 small satellite, techniques that integrate remote sensing images with GPS-based positioning and mapping devices were developed for land surveys so that the regional land use survey and the dynamical analysis could be performed quarterly, or even monthly. The majority of the papers focused on the studies of multidisciplinary applications, including land resources protection, and the environmental and disaster monitoring that was conducted. Some studies also focused on surface water environment and heat island effect in urban areas. The quality of inland, estuary, and offshore water, including chlorophyll, chromophoric dissolved organic matter, spatial distribution, and marine oil spills were studied as well. Special attention was paid to disaster management, such as the forecasting method of forest fire risk rating, detection of the buried fracture in urban areas, and monitoring landslides.

I would like to take this opportunity to express my sincere thanks to the Committee of Remote Sensing for Geology, the Geological Society of China, the Committee on the Environment of Remote Sensing, and the Chinese Society of Geography for their significant contributions in hosting and organizing the very successful aforementioned symposium and conference. Special thanks are also expressed to Dr. Wei Gao, the Chairman of the Remote Sensing Program of SPIE, and Director of the USDA UV-B Monitoring and Research Program and Professor in Department of Soil and Crop Sciences at Colorado State University, Fort Collins, for his support and direction of the meeting and the proceedings. Our sincere thanks also go to the Chinese National Committee for Remote Sensing in addition to other numerous cooperating sponsors, the cooperating and supporting society, associations, organizations, and agencies for their contributions to the success of these events.

In conclusion, it is my great honor to present these proceedings in their final publication.

Qingxi Tong

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