Foreword
Remote Sensing for Environmental Sustainability in the Asian–Pacific Region

WORLDWIDE urbanization and deforestation are the two main interconnected ways that human activities are continually changing and reshaping the earth's surface. How earth observation and remote sensing technologies can contribute to improve the knowledge of the productivity and sustainability of natural and human ecosystems is an important theme in the global change community. In China, for instance, rapid economic growth and urbanization over the past three decades have resulted in dramatic changes in land use and land cover and have led to severe environmental consequences, which have made China's sustainable development a grand challenge. In the meantime, during the past few decades, environmental changes in the Asian–Pacific region have posed significant challenges to the scientific community. Therefore, the global problem of how earth observation and remote sensing technologies may be applied to assessing, monitoring, modeling, and simulating ecosystems, environments, and resources at various spatial and temporal scales translates into peculiar and very urgent questions and applications in this colossal and dynamic geographical region.

To address these key issues with this specific geographical point of view, we have organized a special issue in the IEEE JOURNAL OF SELECTED TOPICS IN APPLIED EARTH OBSERVATION AND REMOTE SENSING. In this issue, remote sensing technologies are applied to the Asian–Pacific region. The Guest Editors have selected six papers describing some issues of environmental sustainability in the Asian–Pacific region, especially on the following topics:

1) land cover and land use changes;
2) retrieval and analysis of remote sensed data derived land surface biophysical parameters, such as ocean surface chlorophyll-a (Chl-a), particle size in lake, and land surface temperature (LST);
3) monitoring and modeling of local and regional environments, such as wetlands;
4) landscape patterns, processes, and properties, such as landslides;
5) use of remote sensing methods for studies of environmental impacts of land development, and human-environment interactions.

The paper by Cao *et al.* assesses the performance of UAV-LiDAR metrics and applies them to estimate forest structural parameters using a multivariate linear regression method. The physiological principles predicting growth (3-PG) model is parameterized and used to simulate the diameter at breast height, stem density, volume, and above-ground biomass of a planted Ginkgo forest in Eastern China. This method represents an improvement over traditional methods for estimating forest structural parameters because it can more explicitly account for climatic effects included in the 3-PG model.

The paper by Setiawan *et al.* analyzes long-term satellite data (2003–2017) to investigate the variability of ocean surface Chl-a concentration off the Western Lesser Sunda Islands under the influence of the Indonesian–Australian monsoon, the El Niño–Southern Oscillation, and the Indian Ocean Dipole. This paper demonstrates that wind variability is an essential factor in determining the magnitude of the Chl-a maxima off the studied region.

The paper by Lei *et al.* develops a remote sensing based monitoring method for particle size distribution (PSD) slope under the influence of sand dredging activities in the Lake Hongze of the Eastern China using Landsat-8/operational land imager (OLI) data and VIIRS/DNB nighttime light composite data. Sand dredging numbers are evaluated by the accumulated radiance algorithm using the nighttime light composite data of the visible infrared imaging radiometer suite, and the PSD slope is derived by band ratio algorithm of Landsat-8/OLI imagery.

The paper by Hu *et al.* analyzes the spatial and temporal variations of LST based on local climate zones (LCZs) with a case study in Nanjing, China. This study assesses the relationship between LST and LCZ and analyzes LST based on LCZs at the seasonal and diurnal scales.

The paper by Hempattarasuwan *et al.* assesses the Wiang Nong Lom and Nong Luang wetland resources in the Chiang Saen Valley of Chiang Rai Province in Thailand, which has recently been encroached due to the expansion of farmlands and other public uses. This paper proposes a synthesis of quantitative techniques that aim to improve LULC mapping using Landsat imageries and to assess the wetland changes over the past three decades. This study helps to better understand the interactions between wetland changes, human population, and the environment in the area under investigation.

Finally, the paper by Zhang *et al.* proposes a landslide susceptibility index and analytical hierarchy process to assess landslide susceptibility in the Pearl River Delta area, China. Five categories of landslide susceptibly are identified based on nine influencing factors, i.e., standard deviation of elevation, terrain roughness, aspect, curvature, lithology, fault, land use, water, and road density.

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Dr. Weng is an Editor-in-Chief for *ISPRS Journal of Photogrammetry and Remote Sensing*, and is the Series Editor for both Taylor & Francis Series in *Remote Sensing Applications* and Taylor & Francis Series in *Imaging Science*. He has been the Organizer and Program Committee Chair of the biennial IEEE sponsored International Workshop on Earth Observation and Remote Sensing Applications conference series since 2008, and a National Director of ASPRS from 2007 to 2010. In 2008, he received a prestigious NASA senior fellowship. He was the recipient of the Outstanding Contributions Award in Remote Sensing in 2011 from the American Association of Geographers as well as the Willard and Ruby S. Miller Award in 2015 for his outstanding contributions to geography. Furthermore, in 2019, he was given a Taylor & Francis Lifetime Achievements Award, and a fellowship from the Japan Society for the Promotion of Science under the "JSPS Invitational Fellowships for Research in Japan" (Short-term S). In 2005, at Indiana State University, he was selected as a Lilly Foundation Faculty Fellow. In the following year, he also received the Theodore Dreiser Distinguished Research Award. He was the recipient of 2010 Erdas Award for Best Scientific Paper in Remote Sensing (1st place) and the 1999 Robert E. Altenhofen Memorial Scholarship Award, both of which were awarded by the American Society for Photogrammetry and Remote Sensing. He was also the recipient of the Best Student-Authored Paper Award by the International Geographic Information Foundation in 1998. In 2018, he was elected as a fellow of the Institute of Electrical and Electronics Engineers and a member of the EU Academy of Sciences. In 2019, he was elected as a Fellow of the American Association for the Advancement of Science.

Paolo Gamba received the Laurea degree in electronic engineering (*cum laude*) and Ph.D. degree in electronic engineering from the University of Pavia, Pavia, Italy, in 1989 and 1993, respectively.

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Dr. Gamba was the Editor-in-Chief for the IEEE GEOSCIENCE AND REMOTE SENSING LETTERS from 2009 to 2013, and was the Chair of the Data Fusion Committee of the IEEE Geoscience and Remote Sensing Society (GRSS) from October 2005 to May 2009. He has been elected in the GRSS AdCom since 2014, and is currently the GRSS President. He was the organizer and Technical Chair of the biennial GRSS/ISPRS Joint Workshops on "Remote Sensing and Data Fusion Over Urban Areas" from 2001 to 2015. He was also the Technical Co-Chair of the 2010 and 2015 IEEE Geoscience and Remote Sensing Society conferences, in Honolulu, HI, USA, and Milan, Italy, respectively.

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