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GEOSPATIAL TECHNOLOGY*

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Editors' Note

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A NOTE FROM THE EDITORS

The Earth, a complex and dynamic system, constantly undergoes changes that shape its landscapes and impact the environment. As humanity grapples with unprecedented challenges such as climate change, resource management, and urbanization, the importance of advanced technologies in understanding and monitoring the Earth's surface becomes increasingly apparent. This special issue, titled "Earth from Above: AmericaView, Remote Sensing, and Geospatial Technology," delves into the realm of cutting-edge geospatial technologies that provide a unique perspective on our planet and living environment.

At the heart of this special issue is AmericaView (<https://www.AmericaView.org>), a consortium of remote sensing scientists, geographers, and professionals dedicated to advancing the use of satellite and aerial imagery for societal benefit. The collaborative efforts of AmericaView have played a pivotal role in fostering geospatial technology innovation and applications across the United States. This special issue, prepared by GeorgiaView, AlaskaView, and MarylandView consortiums, showcases some of the organization's achievements, highlighting its role in promoting research, education, and public outreach in the field of remote sensing and geospatial technology.



Remote sensing technologies have revolutionized our ability to observe and analyze the Earth's surface from vantage points beyond human reach. The articles within this special issue explore how remote sensing techniques, including satellite imagery, LiDAR, and aerial photography, contribute to our understanding of landscapes, ecosystems, and human activities. Authors discuss the applications of remote sensing in monitoring environmental changes, assessing natural disasters, and supporting sustainable resource management. In addition, geospatial technology, encompassing Geographic Information Systems (GIS), plays a crucial role in translating raw data into actionable insights. This special issue delves into the applications of GIS in various domains, such as urban planning, agriculture, and disaster response. Authors discuss how geospatial technology facilitates informed decision-making by providing spatial intelligence, mapping spatiotemporal patterns, and predicting trends. The articles also explore the integration of geospatial data with other datasets to create comprehensive models for addressing complex challenges.

Following a meticulous peer-review process, ten papers were selected for inclusion in this special issue. Alattar's study introduces a Python-based workflow, accessible as open-source, designed for the identification, modeling, and analysis of urban green spaces (UGSs). Lopez et al. employ various machine learning techniques to underscore the potential of Unmanned Aerial Systems (UAS) in detecting and prioritizing management strategies for beech bark disease infection. Salzmann et al. investigate the drivers of the 2021 Chamoli flooding in India that took 200 lives, utilizing satellite imagery and digital elevation models, stressing the exigency for early warning systems in high-mountain regions. Lerma et al. explore cloud fraction predictions impacting Earth's energy balance and solar energy transmission through linear regression, random forest regression, and deep neural network models. Kim's research confronts the prediction of vehicle congestion patterns using time-series deep learning models, concentrating on a frequently congested road section in Atlanta, Georgia. Agbozo et al. scrutinize the impact of war on Ukraine's agricultural vegetation land cover through satellite imagery analysis. Cich et al. investigate microtopography recovery in restored tallgrass prairies, comparing crop fields, fallow fields, newer, and older restored prairies using LiDAR-derived elevation data. Jang et al. predict the potential effects of rising ocean temperatures on seagrass habitats around the Korean Peninsula, employing the Maximum Entropy Model under varying sea temperature increase scenarios. Wang et al. address the crucial issue of forest fires, underscoring the significance of precise and energy-efficient detection methods for on-site applications with low-power devices like drones. They propose multiple deep neural network models, including Convolutional Neural Network, Deep Belief Network, Auto Encoder, and U-Net. Lastly, Stober and Seong analyze big-data on vehicle crashes in the metro Atlanta area to identify spatiotemporal patterns of such incidents to aid urban planning that may help reduce vehicle crashes.

"Earth from Above: AmericaView, Remote Sensing, and Geospatial Technology" may serve as a broad exploration of the transformative impact that advanced technologies have on our understanding of the Earth and our communities. We also hope that the articles within this special issue offer a glimpse into the future, where remote sensing and geospatial technology continue to play a pivotal role in addressing local-to-global challenges and shaping sustainable solutions for the benefit of humanity and the planet.

We express our deep gratitude to Dr. Nancy Pullen and Dr. Mark Patterson, the esteemed editors of The

Geographical Bulletin (TGB), for providing us with the opportunity to publish this special issue and for their invaluable assistance throughout the preparation process. We extend our thanks to the dedicated teams at the TGB office for their efforts in preparing layouts and facilitating online publication. Finally, we express our thanks to the AmericaView Board of Directors, staff, and StateView consortium members for their invaluable support and contributions. Without their assistance, the publication of this special issue would not have been possible.



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