

Special Section Guest Editorial: Meeting the Challenges of Ecosystem Management using Remote Sensing

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Increasing environmental pollution and climate change have created many challenges for ecosystem management around the world in recent years. Ecological services create a better world by creating better ecosystems for human beings around the world. By analyzing current geographical data, it is possible to create effective conservation plans for maintaining the best environmental health through remote sensing technique, as well as finding the optimal spatial relation between natural resources, human activities, and natural hazards, such as cyclones, tornadoes, and wildfires, in order to maintain the best ecosystem. This data aids ecosystem managers in monitoring ecosystem resources and providing potential solutions to threats to ecosystems by using preventive measures.

Remote sensing technology with dynamic and integrated measurements of ecosystem health can help monitor and manage ecosystem assessments effectively. The ecosystem service contributes to the betterment of natural resources for human well-being around the world. Ecosystem monitoring tools such as geographical information systems can be used to map within a specific area for visualizing spatial and temporal patterns and improve the understanding of changes in the ecosystem. As a result of these data, the future can be forecast better, which leads to better services and policies being implemented. The health of an ecosystem can be determined through remote sensing by observing green vegetation, bare soil, and biological characteristics of vegetation. A remote sensing study of the ecosystem organization includes species diversity and species richness, as well as structural measures, such as tree height.

Although remote sensing can be beneficial to ecosystems around the world in maintaining health, its implementation could pose a number of challenges, including spatial scale issues, transportability of remote sensed data through sensors, and cost-effective data availability for improving quality. Additionally, uncertainty in ecosystem health is one of the potential challenges of remote sensing technology. The challenges of remote sensing must be addressed in order to ensure that ecosystems receive the full benefits of this technology, such as improved accuracy, cost savings, and reliable data. To ensure accuracy, remote sensing technology must be validated and calibrated properly. In addition, a long-term monitoring strategy must be implemented to ensure that data collected is reliable and up to date. Finally, stakeholders must be involved in the process to ensure that the data is used effectively.

The goal of this special section is to address the research gap associated with ecosystem management and remote sensing technology and find potential solutions for overcoming the challenges mentioned above. We thank the authors and reviewers for their contributions.