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Estimation of Carbon Sequestration and Air Quality of Terrestrial Ecosystems Using Remote Sensing Techniques

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Abstract : Forests and grasslands ecosystems play an important role in the global carbon cycle. Land management activities influence both ecosystems and enable them to absorb and sequester carbon dioxide (CO2). Similarly, in Pakistan, these terrestrial ecosystems are well known to mitigate carbon emissions and have a great source to supply a variety of services such as clean air and water, biodiversity, wood products, wildlife habitat, food, recreation and carbon sequestration. Carbon sequestration is the main agenda of developed and developing nations to reduce the impacts of global warming. But the amount of carbon storage within these ecosystems can be affected by many factors related to air quality such as land management, land-use change, deforestation, over grazing and natural calamities. Moreover, the long-term capacity of forests and grasslands to absorb and sequester CO2 depends on their health, productivity, resilience and ability to adapt to changing conditions. Thus, the main rationale of this study is to monitor the difference in carbon amount of forests and grasslands of Northern Pakistan using MODIS data sets and map results using Geographic Information System. Results of the study conclude that forests ecosystems are more effective in reducing the CO2 level and play a key role in improving the quality of air.

Keywords : carbon sequestration, grasslands, global warming, climate change.
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