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Application of Remote Sensing in Climate & Vegetation Forecasting

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Introduction

Continuously changing of climate is becoming one of the biggest threat in earth day by day. (Mcpherson et, al., 2022).In this situation cities are the one of the biggest factor to the negative impacts of climate change. The United Nations predict that before 2050, 68% population of world will be living in cities. If this problem will not be well identified and solved, the urban areas as well as the biodiversity will come to an existential stress and it will affect entire earth living system also.

Detection in climate impact:

For detecting the climate impact on urban areas, many smart cities which are also IT infrastructure , have been trying to collect a plenty amount of data which will help to identify the climate stress factors. Consequently, people in many smart cities, Governmental agencies, business, and scientists exchange information for the "Quintuple Helix model" is used to demonstrate this relationship for the benefit of everybody (carayannis et., al.,2012).

About data collection:

Obviously, this results in a lot of data gathering and the artificial intelligence (AI) or machine learning (ML) models are required that may utilize the data to derive information relating to climate and land use indications that might be utilized to develop prediction models. Additionally, we must recognize that not all cities are capable of capture such huge data from the aforementioned dispersed sensor parties who exchange data. Consequently, removing indications wherever possible Using data from satellite photos, prediction algorithms that might be used in every city on the planet.

Remote sensing techniques usage:

Through the use of remote sensing techniques, significant volumes of detailed data may be gathered across broad areas and at various spatio-temporal resolution scales. Remote sensing applications can ultimately enhance food-related policymaking at various levels by

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characterizing natural characteristics on the ground and tracking their changes over time (Sishodia et al., 2020); (Vroege et. al., 2021). In order to map and track changes in land cover and to estimate the geophysical and biophysical properties of the soil, the scientific community has extensively used satellite images (Shanmugapriyaa et al., 2019; Weis et al., 2020).

Conclusion:

Overall, this analysis adds to the expanding body of research using ML algorithms and remotely sensed data to enhance food security assessments and vegetation -climate forecasting. The suggested framework lays the foundation for the establishment of early warning food security systems that include an element of uncertainty and might assist initiatives and regulations aimed at enhancing climate change adaptation and resilience in vulnerable nations. According to this viewpoint, future research might expand the scope of the framework described here to include new crops, additional locations, and depict food commerce and crop replacement processes and vegetation. (Hamand&Felchetta., 2022)

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