

CLIMATE CHANGE ANALYSIS USING SATELLITE DATA AND ADAPTATION STRATEGIES

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Global climate is projected to continue to change over this century and beyond. The magnitude of climate change beyond the next few decades depends primarily on the amount of heat-trapping gases emitted globally, and how sensitive the Earth's climate is to those emissions. Climate change is impacting the natural ecosystems and is expected to have substantial adverse effects mainly on agriculture, water storage and glaciers and snow cover leading to sea-level rise threatening coastal and island habitations. Climate change is also expected to lead to increased frequency of extreme events such as floods, and droughts. Over the past four decades, the satellite based remote sensing technology has developed rapidly leading to information revolution in terms of digital data, images and quantitative change detection. The high resolution, multispectral data provided by satellites has made it possible to characterise dynamic resources like water, vegetation and land use with very high precision. The meteorological satellites is providing an instant view of global circulation and weather parameters such as temperature, humidity, winds, cloud cover and rainfall. A time series analysis of the satellite derived parameters helps in estimation of global change indicators at global, regional and locale scales. The paper reviews the critical role played by satellite data in providing information on land – atmosphere-ocean system. In particular, the status of space technology use in India through the operational satellites INSAT and IRS has been discussed. Results of some of the unique studies carried out using IRS data such as biosphere reserve monitoring, Mapping of glacial lakes and water bodies in Himalayas, biodiversity mapping, drought and severe weather events is presented. The studies help in developing suitable adaptation strategies to reduce the adverse impacts of global change. The available series of data on various climate related parameters is summarized.

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