



Impact of climate change using geoinformatics

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DESCRIPTION

Climate change is a long term global challenge as it is one of the greatest environmental, social and economical threats facing the world. The fourth assessment report of Intergovernmental Panel on Climate Change (IPCC) observed that 'warming of climate system is now unequivocal, as is now evident from the observations of increase in global air and ocean temperatures, widespread melting of snow and ice and global sea level'. These changes and their effects are likely to affect global livelihood and environmental system in various ways. Since climatic factors serve as direct inputs to agriculture, any change in these factors is bound to have a significant impact on crop yield and production. For south Asia, particularly India, warmer temperature and increased variability in rainfall signify decreased yields and the corresponding impact on rural livelihoods and national food security.

Though the dynamic interaction between the human beings and climate is not new, the scale of the interaction has reached unprecedented proportions. Climate change adds to and actively interacts with a variety of other environmental problems that have been caused by overuse of natural resources, which include population increase, induced water stress, deforestation, air pollution, soil mismanagement. These stressors along with climate change directly affect the society in general and in many ways the livelihood opportunities including reduction in agricultural productivity, increase in migration, displacement of livelihood opportunities, environmental degradation and biodiversity loss. Thus, climate change affects almost all aspects of sustainable development of rural livelihoods.

Climate is the characteristic conditions of the atmosphere near the earth's surface. It is the long term weather of that area (atleast 30 years). This includes the region's general pattern of weather conditions, seasons and weather extremes extremes like droughts or rainy periods.

Two of the most important factors determining an area's climate are temperature and precipitation. However, IPCC defined climate as the weather average over a long period of time. It includes temperature, humidity, atmospheric pressure, wind, rainfall, atmospheric particle count and numerous other meteorological elements in a certain region over a long period of time.

Natural and anthropogenic (man made) elements determine a place or region's changes in climate. The natural elements such as the atmosphere, geo-sphere, hydrosphere and biosphere and the human factors like land and its use cause local, regional or even global changes in climate.

United Nations Framework Convention on Climate Change (UNFCCC) justifies a change of climate, which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods. It is the major intervening environmental issue and the single greatest challenge facing environment.

CONCLUSION

Majority of the changes in climate occur because of human activities. The natural variability and the fluctuations of the climate system have always been part of the weather history. However, there have been changes in concentration of greenhouse gases in the atmosphere, which are growing at an exceptional rate and amount. The earth's climate is influenced and changed through natural causes like volcanic eruptions, ocean current, the earth's orbital changes, variation in solar radiation. They can influence the changes in climatic patterns for years by increasing planetary reflectivity causing atmospheric cooling. Tiny particles called aerosols produced by volcanoes reflect solar energy back into space. This leads to cooling effect on the earth surface.