A Study of Global Temperature Anomalies and their Changing Trends due to Global Warming

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Bikash Sadhukhan ; Somenath Mukherjee ; Raj Kumar Samanta **All Authors**

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Abstract:
The analysis of global temperature trends at various regional and temporal dimensions has received considerable interest from the scientific community over the past century due to the growing awareness of the effects of climate change on the earth. The objective of this research is to determine and analyse the trend of monthly fluctuations in land and ocean temperatures around the world. This was accomplished by scraping a database maintained by the National Oceanic and Atmospheric Administration (NOAA) for monthly global land and ocean temperature anomaly data between 1881 and 2020. This study uses the Mann-Kendall trend test and Sen's estimator for slope to examine the global impact of climate change by comparing the trends of global land temperature anomalies, global ocean temperature anomalies, and their combined global land and ocean temperature anomaly records. The substantial magnitude of several statistical parameters demonstrates that the temperature anomalies (land, ocean, and combined) have significantly increased during the previous five decades, mostly as a consequence of strong anthropogenic sources. This necessitates the development of a proper action plan to limit global warming and the design of policies to reduce the elements that are likely to have detrimental effects on the climate on a local and global scale.

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Bikash Sadhukhan
Department of CSE, Techno International New Town, Kolkata, India

Somenath Mukherjee
Nazrul Center of Social and Cultural Studies, Kazi Nazrul University, Asansol, India

Raj Kumar Samanta
Department of CSE, Dr B.C. Roy Engineering College, Durgapur, India

Contents

Global temperature is a prominent statistic for describing global climate change. The idea of a global average temperature is helpful for determining how the Earth's energy budget changes over time and keeping track of those changes. It depends on the amount of energy the planet collects from the sun and radiates back into space. Scientists begin the process of calculating the global average temperature by collecting temperature readings from different places throughout the world. Temperature anomalies are used to monitor climate change. It is defined as the deviation between the current and historical average temperature for a given region and time period. Researchers from all over the world have analysed surface temperature data independently, and they all show a consistent rising trend [1].

Signature or Cautionary Reading

Authors

Bikash Sadhukhan
Department of CSE, Techno International New Town, Kolkata, India

Somenath Mukherjee
Nazrul Center of Social and Cultural Studies, Kazi Nazrul University, Asansol, India

Raj Kumar Samanta
Department of CSE, Dr B.C. Roy Engineering College, Durgapur, India

Figures

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