EXPLORATORY ANALYSIS OF RAIN FALL DATA IN INDIA FOR

AGRICULTURE

Abstract

Rainfall has been a major concern these days. Weather conditions have been changing for time being. Rainfall forecasting is important otherwise, it may lead to many disasters. Irregular heavy rainfall may lead to the destruction of crops, determine the rainfall for effective use of water resources, crop productivity, and pre-planning of water structures.

Today rainfall is not regular fashion so farmers are not more dependent much more on rainfall. The source of irrigation, mechanization and knowledge of current situation of weather and climate change related pattern and adaptation of technology is maintain to crops yield trend.

Introduction:

Rainfall is an important vital parameter for climatic phenomenon. It gives direct affect on agricultural production. It is the main source for river and domestic water use for agriculture in the india having plain topography, leading to great variation in rainfall spatially and temporally. The rainfall pattern is notas previous pattern. Now the rainfall pattern change suddenly to disturb livelihood and biodiversity. The key drivers for the successful management of risk must be an awareness of threat, a sense of responsibility plus a belief that the threat can be managed or at least reduced. The comparison of three methods for meteorological evaluation of droughts and rainfall anomaly index (RAI) and that the precipitation is the dominant drought-occurrence factor. Consequently, simple methods based on rainfall analysis only, can be considered to be as good as very complex drought indices Oladipo. They found a very good agreement between all-India summer monsoon rainfall series constructed by them and IITM rainfall data series.

Methodology:

The rainfall data (annual and south west rainfall) collected and arranged in the MS Excel. The different type of statistical data analysis viz. Mean (M), Standard Deviation (SD), Coefficient of Variation (CV), Correlation of Coefficient (R2 ) and Trend Analysis to given important scenario of change pattern of time series data. The rainfall indices are used for analysis of data.

Time series analysis of the annual and South-west rainfall values were used to illustrate the trend in the behaviour of rainfall and in estimating seasonal variation. Linear regression analysis was also employed using Microsoft Excel statistical tool as it has proved effective in investigating trends in many climatic time series. One of the important indices standardized anomalies was evaluated. Several statistics are applied to monthly rainfall series such as Mean, Variance, Standard Deviation and Coefficient of Variation (CV). For identifying the trend in the rainfall data, the statistical analysis of linear regression was used.

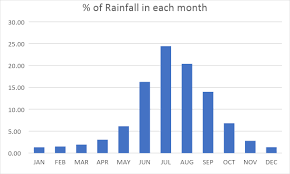
Rainfall deviation from normal was calculated as:

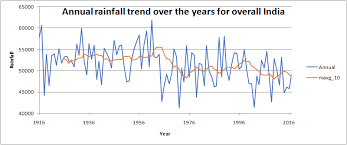
Rainfall deviation = (Actual rainfall − Normal rainfall)/Normal rainfall×100 The lowest value of the rainfall deviation is −100%, reflecting the occurrence of zero rainfall and the uppermost value cannot be defined. If the actual rainfall is twice the amount of normal rainfall, the rainfall deviation is 100% and the actual rainfall is thrice the amount of normal, the rainfall deviation is 200% and so on. Standardized anomalies, also referred to as normalized anomalies, are calculated by dividing anomalies by the climatological standard deviation.

Where x is the annual rainfall totals, is the mean of the entire series and STD is the standard deviation from the mean of the series. In the present study, the indies are used for variation of rainfall data analysis in india was analysed on the basis

of monthly and yearly dataset of 20 years (1999-2018) in terms of indices namely, Rainfall deviation and Standard Index of Annual Precipitation (SIAP).

Proposed work:





This is our proposed work. First the user want to load the webpage. In that user want to upload the image. After uploading the image our proposed system will predict weather the rainfall data can be trend over the india for agriculture purpose not.

Future scope:

In future, expected annual rainfall may be less in year 2030observed 1025 mm in the Districts. The south west rainfall in the year 2030; expected rainfall may be 922.8 mm. The trends are showing increasing trend pattern from year 2019 to 2030. The trend analysis gives the scenario of current to expected future situation. Water is a vital component for agricultural crops and in abnormal period crops are irrigated by available source viz. tube well, submersible, canal, irrigation channels and other sources. The statistical analysis of annual and south west rainfall of the study area will help to better water management. Today rainfall is not regular fashion so farmers are not more dependent much more on rainfall. The source of irrigation, mechanization and knowledge of current situation of weather and climate change related pattern and adaptation of technology is maintain to crops yield trend.

Conclusion:

The average annual rainfall of region during 1999-2018 is 1051. mm. and south west monsoon rainfall 925.9 mm observed. The maximum annual rainfall recoded 1633 mm in year 2008 and lowest rainfall recoded 533 mm in year 2001. The maximum South west rainfall recoded 1564 mm in year 2008 and lowest rainfall recoded 439 mm in year 2001.The south west monsoon plays a vital role in rainfall for water cycle. It contributes the highest percentage of rainfall and kharif season crops are most of dependent on rainfall. The annual rainfall in year 2007 showing the highest positive rainfall anomaly (2.31) while the other years show rainfall below normal with 2009 Showing the lowest negative rainfall deviation (-2.03). and the South west (1999 to 2018) rainfall of Haridwar District in year 2018 showing the highest positive rainfall anomaly (2.15) while the other years show rainfall below normal with 2009 Showing the lowest negative rainfall deviation