LITERATURE SURVEY

EXPLORATORY ANALYSIS OF RAINFALL DATA IN INDIA FOR AGRICULTURE

ABSTRACT

India is an agriculture country, the economics growth of each year depends on the amount of duration of monsoon rain, bad monsoon can lead to destruction of some crops, which may result in scarcity of some agricultural products which in turn can cause food inflation, insecurity and public unrest.

In our analysis we are trying to understand the behaviour of rainfall in India over the years, by months and different subdivisions.

INTRODUCTION

Data science applications for farming includes convolutional neural networks to detect crop disease and deploy internet of things (IOT)-connected sensors to monitor health. Farmers can achieve even greater predictive power by combining site-specific data and third-party sources on weather and other factors.

PROBLEM STATEMENT

Basically, during the summers, the Indian subcontinent heats up more as compared to the Indian ocean as the sun is directly over the landmass. Flooding in key agriculture production areas can lead to widespread damage to crops, fencing and loss of livestock. This affects the farming community just as much as a famine does. As if the crop losses through rain damage, soils that are waterlogged and delayed harvesting are not enough, all these problems are further compounded by transportation problems caused by flooded roads and other damaged infrastructures like fallen trees and electric poles, farmers are often challenged not just by a dearth of water for irrigation but also by floods or an over-abundance of water. Flooding can ruin fields and destroy crops by causing erosion and soil displacement.

SIGNIFICANCE

Climate is irregular and change unpredictably. Farmers pray for good rain every year as it provides the necessary irrigation to set agriculture in motion. Excessive rainfall can affect crop productivity in various ways, including direct physical damage, delayed planting and harvesting, restricted root growth, oxygen deficiency and nutrient loss. Balancing proper watering is key to the best crops possible.

OVERVIEW

Weather plays a very important role in agriculture production and has an influence on the growth development, and yield of crops. Weather aberration can cause physical damage to crops and soil erosion. The quality of crops from the field to the market depends on the weather. Bad weather can adversely affect the quality of crop during transportation or storage. The findings brought about by shifting through databases and studies to conclude things like this in agricultural processes can bring about remarkable changes.

LITERATURE SURVEY

Machine learning takes weather data and builds relationships between the available data and the relative predictors.ML can help improve physically grounded models, and by combining both approaches, they can get accurate results. Sophisticated models and ML are used to forecast the weather using a combination of physical models and measured data on huge computer systems

TECHNIQUES USED

We will be using the classification of algorithms such as Decision tree, Random Forest, KNN and Boost. We will train and test data with these algorithms. Data set is collected. After the analysis of collected data, then do the exploratory analysis. Classify the data and testing was done. Some of the Machine Learning library are imported. Analysis the classification algorithm at the forest area, costal area. Then finally rainfall analysis was identified

CONCLUSION

Main idea is to understand normal rainfall, default rainfall, excess rainfall and seasonal rainfall. This analysis will provide useful information for farmers to access the availability of water and create the storage accordingly. The scientific research and the analysis paved the way to determine the proper onset and withdrawal of monsoon results which were used for land preparation and sowing.

LITERATURE REVIEW

Time Series Analysis and Forecasting of Rainfall for Agricultural Crops in India: An Application of Artificial Neural Network (Debasis Mithiya November 6, 2020)

Indian agriculture depends heavily on rainfall. It not only influences agricultural production but also affects the prices of all agricultural commodities. The study has attempted to forecast monthly rainfall in India with the help of time series analysis using monthly rainfall data. The non-linear model - Artificial Neural Network (ANN) has been chosen instead of linear models to forecast rainfall.

Rainfall Prediction Using Machine Learning Algorithms for the Various Ecological Zones of Ghana (EMMANUEL AHENE December 28, 2021)

Accurate rainfall prediction has become very complicated in recent times due to climate change and variability. This research executed rainfall prediction in Ghana covering all the ecological zones using five classification algorithms. To ensure effective rainfall prediction, input datasets went through the exploratory data analysis by which chained equations algorithm was used to replace missing data, outliers were removed from the datasets and normalized before the classification stage.

Designing a Rule-Based Hourly Rainfall Prediction Model

Rainfall prediction is important in many aspects of our economy and general livelihood by preventing any serious natural disasters. This study has proposed a computer-aided rule-based rainfall prediction model using CART and C4.5. As outcomes, rules for rainfall prediction are provided. The study believes that the generated rules are useful for predicting the chance of rain and quantitatively

measuring hourly rainfall. The study identified that the generated reliable rules with decision tree algorithms are important and efficient for future rainfall prediction with maintaining high accuracy

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