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# A GEOGRAPHICAL STUDY OF RAINFALL VARIATION IN SOLAPUR DISTRICT OF MAHARASHTRA STATE

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**Abstract-** Rainfall is the primary ecological parameter encouraging a variety of farming enterprises, types or systems of the world. It is a dominant single weather element influencing grape vine cultivation. It also becomes a climatic hazard to agriculture when it is characterized with scantiness, concentration, intensity, variability and unreliability. The quantum of rainfall and time of rainy days may be quite sufficient to meet the annual requirement of successful cultivation. In Solapur District average annual is tremendously varies year to year and tahsil to tahsil which is directly affects on agriculture land and also affect human activities in Solapur District. So the present paper try to study analyzes the spatio-temporal variation in Solapur District which is helpful to famers, planners, geographers and scientists.
**Keywords-** Rainiest month, Thunder showers, Rainfall region, Intensity

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## Introduction

Rainfall as the primary ecological parameter has created a variety of farming enterprises types or systems of agriculture . It is the dominant single weather element influencing the intensity and location of farming system and the farmers choice of enterprises .It also becomes a climatic hazard to farming when it is characterized with scantiness, concentration, intensity, variability and unreliability.

## Objective

In the present study is an attempt to look into the spatio-temporal variation in rainfall in Solapur District. Another purpose to identify the assured rainfall zone in study region.

## Study Area

The Solapur district is bounded by 17º05' North latitudes to 18º 32' North latitudes and 74º42' east to 76º15' East longitudes. The total geographical area of Solapur district is 14895 K.m². divided into eleven tahsils. Climate of the district is dry. The daily mean maximum temperature range between 30º C to 35º C and minimum temperature range between 18ºC to 21ºC. The highest temperature is 47º C recorded in the month of May. The average annual rainfall is registered 510 mm. The soil of the district essentially derived from the Deccan trap. The soil of the district can broadly classify into three groups shallow, medium and deep soil.

## Data Base and Methodology

Present study mostly relies on the secondary data collected through District statistical Department of Solapur, District socio-economic abstract of Solapur District and censes handbook of Solapur District. For the present investigation, District is selected as in general and tahsils in particular. The actual rainfall change of specific decade is obtained by dividing the difference between the 1991 to 2005. The collected data are analyzed by statistical and cartographic techniques.

## Explanation

Solapur district comes under rain shadow area, yet, an average annual rainfall of the district is about 584.3 millimeter. The south eastern parts of the district gets slightly more rainfall than the west of the district. Most of the rainfall is received during the southwest monsoon during June to September. This rainfall accounts for

about 75 percent of the normal annual rainfall and about seventeen percent of the rainfall in the district is received during post monsoon or retreating monsoon season during October and November. The rest eight percent annual rainfall is received during the pre-monsoon along with thunderstorm. There are wide variations in the amount of rainfall through time and space. The maximum rainfall is about 690 mm at Akkalkot in the southeastern border of the district, while the minimum amount of rainfall is recorded of 448.8 mm at Akluj near the western border of the district. Some rainfall in the form of thunder showers occurs during the months of April and May.

**Temporal variation in Rainfall**

The variation in the annual rainfall from year to year is quite large due to unpredictable and erroneous nature of monsoon. The average annual rainfall is between 550 mm. to 650 mm. It shows that Solapur district is located in drought prone area. Intensity of rainfall is more effective for the farm system and crop productivity because of its insecurity and invariability.

*Table 1- Solapur District Annually Average Rainfall (1991-2005)*

| Year | Average Rainfall in mm | Year | Average Rainfall in mm |
|---|---|---|---|
| 1991 | 610.3 | 1999 | 500.9 |
| 1992 | 490.7 | 2000 | 601.7 |
| 1993 | 580.4 | 2001 | 512.8 |
| 1994 | 520.8 | 2002 | 474.5 |
| 1995 | 1004.8 | 2003 | 265.7 |
| 1996 | 766.7 | 2004 | 506.8 |
| 1997 | 438.5 | 2005 | 577.4 |
| 1998 | 1131.2 | | |

*Source- Socio–Economic Abstract of Solapur District [1991to2005] and C-5/C drive /Nirali /Parjan /Sheet2.*

Table No 1 and graph shows that the average rainfall of Solapur district changes from year to year . The average annual rainfall in Solapur district is 603.79 mm . About 80 % of the annual rainfall in the district is in the South –West monsoon season . The rainiest month being July the variation in annual rainfall in Solapur district is recorded in 1996 and 1998,in two years high rained rainfall that is 1004.4 mm and 1131.2 mm . The low annual rainfall in Solapur district is in 2003 that is only 265.7 mm .

**Spatial Variation in Rainfall-** The rainfall of Solapur district is very low and uneven. The distribution of rainfall in Solapur district is characterized by three types of rainfall region .

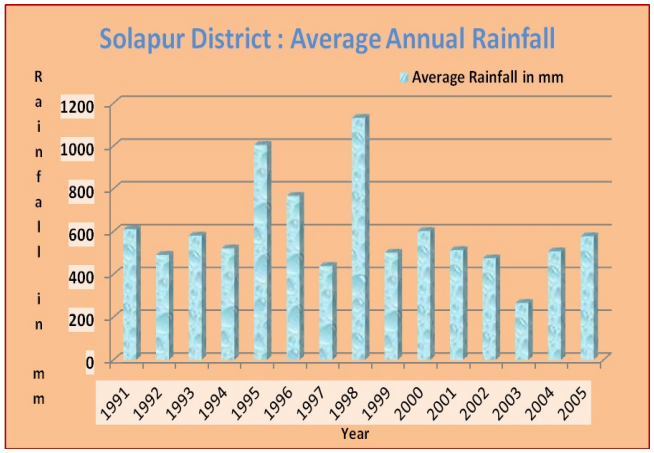
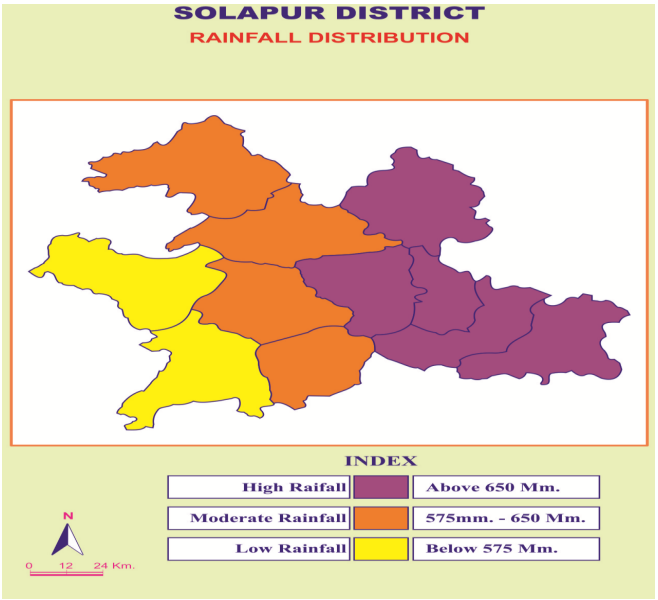



*Table 2- Rainfall distribution (2005)*

| Sr | Taluka | Rainfall in mm | Sr | Taluka | Rainfall in mm |
|---|---|---|---|---|---|
| 1 | North Solapur | 697.6 | 7 | Mangalwedha | 656.4 |
| 2 | South Solapur | 697.6 | 8 | Sangola | 369.6 |
| 3 | Barshi | 757.5 | 9 | Madha | 631 |
| 4 | Akkalkot | 508.6 | 10 | Mohol | 538.2 |
| 5 | Pandharpur | 519.7 | 11 | Karamala | 571.3 |
| 6 | Malshiras | 324.3 | | Region Average | 577.4 |

Source :- C-5/ C drive / Nirali / Parjan / sheet 2




**High Rainfall Region [more than 600 mm]-** The highest rainfall taluka in Solapur district is Barshi and in this tahsil 757.5 mm rainfall was reduced in 2005.North Solapur, South Solapur, Mangalwedha and Madha are considered in this range of rainfall region .This area is located in the North –East part of Solapur District .

**Medium Rainfall Region [Rainfall between 500-600 mm]-** The medium rainfall region is bounded between 500 mm and 600 mm rainfall . In this range of rainfall Akkalkot , Karmala , Pandharpur and Mohol tahsil are include .This area is located in the North – West part of Solapur District . But this area is more irrigated by canal .

**Low Rainfall Region [rainfall less than 500 mm] -** The rainfall less than 500 mm is in low rainfall region . The Malshiras taluka is the lowest rainfall tahsil in Solapur District . In this tahsil 324.3 mm rainfall is recorded .But in this tahsil agriculture is more developed by irrigation of canal and water available from Bhima river and its tributaries .The Sangola tahsil is also a low rainfall tahsil and in this tahsil 369.6 mm rainfall is recorded. In this tahsil pomegranate cultivation is more developed by drip irrigation.

**Conclusion**

Solapur district comes under rain shadow area, yet, an average annual rainfall of the district is about 584.3 millimeter. The average annual rainfall is between 550 mm. to 650 mm. It shows that Solapur district is located in drought prone area. The low annual rainfall in Solapur district is in 2003 that is only 265.7 mm. and high rainfall in 1998 i,e, 1131.2 mm. The highest rainfall taluka in Solapur district is Barshi and Malshiras taluka is the lowest rainfall tahsil in Solapur District.

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