



Annual Average Temperature & Rainfall in Jalna District: A Geographical Analysis

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Introduction:

The climate of the study region is generally dry except rainy season. The climate of Jalna district is pleasant during the greater part of the year. The climate may be divided into four short seasons. The cold season from December to February is followed by the hot season from March to May. The period from June to September constitutes the south west Monsoon season. October to November forms the post – monsoon season.

Study Area:

For the study Jalna district has been selected. It is located between $19^{\circ}15'$ and $20^{\circ}32'$ North latitudes and $75^{\circ}36'$ to $76^{\circ}45'$ east longitudes. The north-south extension of Jalna district is 150 Kms and east-west stretch of the district is 110 kilometers. Jalna district has a significant location on Deccan plateau. Except Ajanta and Satamala range and river basins, majority part of the district comes under plateau region. The region has major portion under flat topography, hence it supports high concentration of population.

OBJECTIVES:

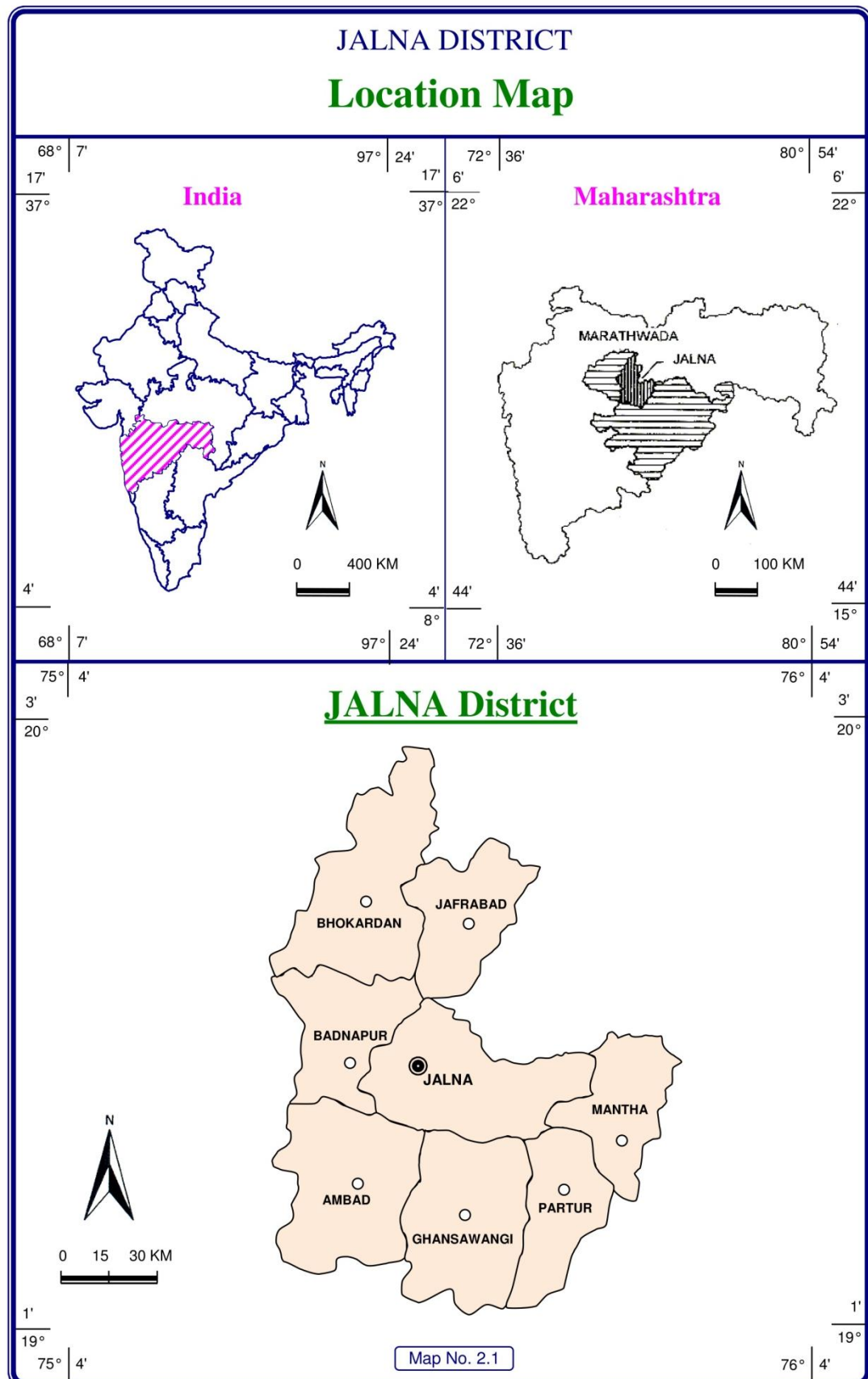
- 1) Annual Average Temperature in Jalna District
- 2) Tahsilwise to study the Mean Annual Rainfall & Co-efficient of Rainfall Variability in Jalna District

DATABASE & METHODOLOGY:

For the present study only secondary data has been considered. Jalna District Socio-Economic Abstract-2013, the information regarding district has been collected from the website of Jalna district. Annual average temperature & rainfall data relevant statistics of Jalna district was collected from Government Gazetteer of the district. The help of District Statistical Office was taken in order to collect the data. To include the tahsilwise data regarding, Annual District Statistic Book was used.



JALNA DISTRICT - LOCATION MAP





Temperature:

Temperature conditions have been far less erratic from year to year than rainfall conditions. There is no meteorological observatory in the district but it is located at Chikalhana (Aurangabad) and the records of this observatory may be taken as representative of the meteorologically conditions prevailing in the district in general.

December is the coldest month of the year. The mean daily minimum temperature is 13⁰ C. From the beginning of the month of March, there is a rapid rise in the both day and night temperatures. May is the hottest month of the year with the mean daily maximum temperature 39.8⁰C and mean daily minimum temperature 24.4⁰C. During the hot season, the heat is often intense and the dry temperature on individual days may rise about 45⁰C. With the withdrawal of monsoon by about the end of September, the day temperature increases a little. Nevertheless, night temperature decrease progressively, after the withdrawal of the monsoon. After October both day and night, temperature steadily decreases.

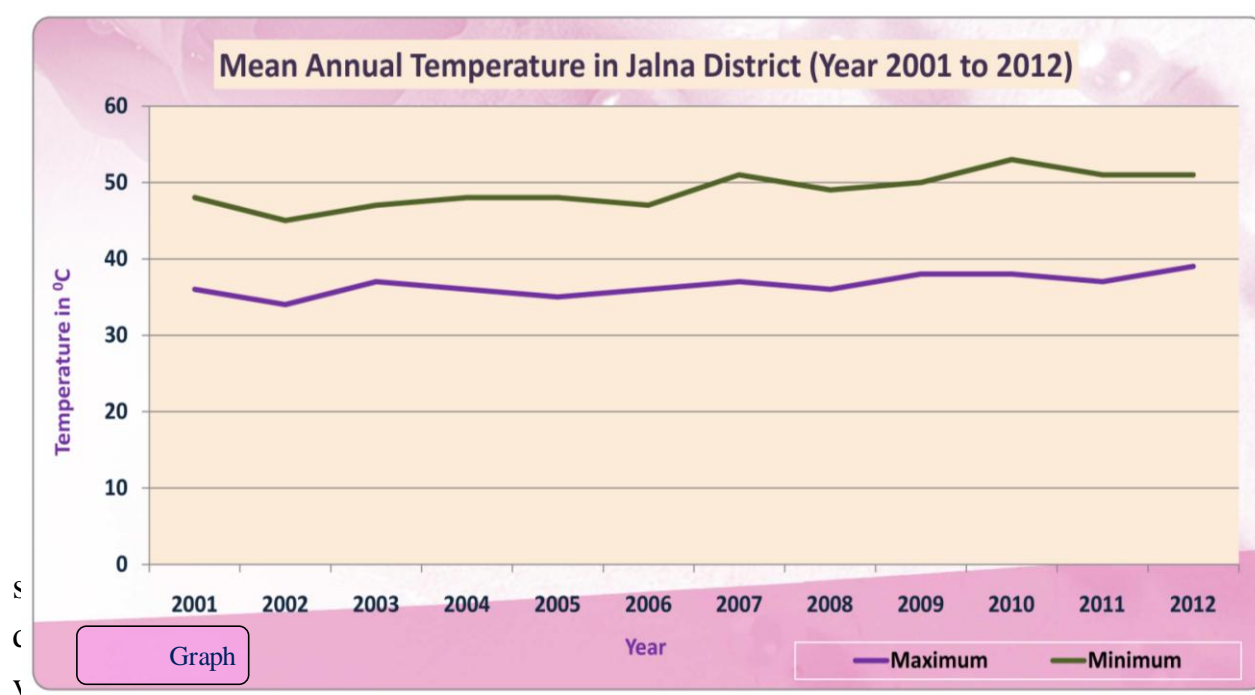
The detail annual average temperature in Jalna district is shown in table 1 with a period of year 2001 to 2012.

Table 1
Annual Average Temperature in Jalna District
(Year 2001 to 2012)

Year	Annual Average Temperature in ⁰ C	
	Maximum	Minimum
2001	36	12
2002	34	11
2003	37	10
2004	36	12
2005	35	13
2006	36	11
2007	37	14
2008	36	13
2009	38	12
2010	38	15
2011	37	14
2012	39	12

Source: Jalna District Socio-Economic Abstract-2013

The statistics of temperature of Jalna district shows fluctuation during 2001 to 2012. The highest annual temperature is found in the year 2012 and that is 39°C on the contrary lowest annual temperature is observed for the year 2002 and 2006 which is only 11°C. It has been observed that, year by year, the temperature is increasing. The study of 12 years reveals 2°C increase in temperature in the district which is a sign danger.



Rainfall:

More than 85 percent of annual rainfall on the study region receives from south-west monsoon. The rainiest month being July and August, July and August gets the heaviest rainfall from southwest monsoon winds. The south-west monsoon is the pivot around which almost the entire farm life and economy swings. Rainfall has control and for this reason is a seasonal rhythm of conditions influencing the patterns of landuse.

In order to find out the trend of rainfall, researcher has calculated co-efficient of variability using the date from 2001 to 2012. Following formula of is used to calculate the variability:

$$\text{Co-efficient of rainfall variability} = \frac{S}{\text{—}} \times 100$$



X

Where S = the standard deviation

\bar{X} = the mean of the rainfall of study period

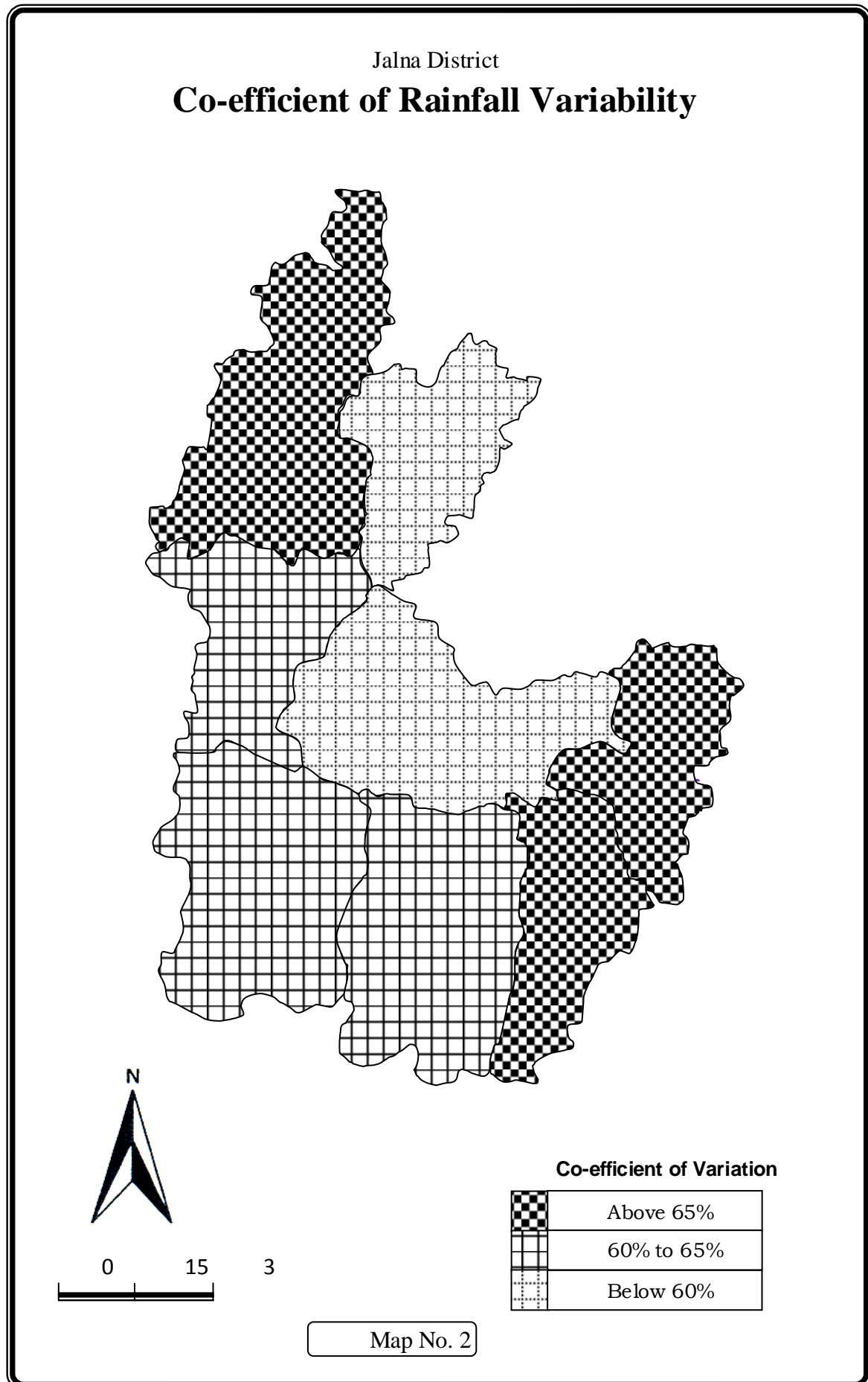
The record of the rainfall in the district is available for the period ranging from 2001 to 2012. The detail of mean annual rainfall and rainfall co-efficient of variation is given in table 2

Table 2

**Mean Annual Rainfall & Co-efficient of Rainfall Variability in Jalna District
(Year 2001 to 2012)**

Sr. No.	Tahsil	Mean Annual Rainfall in M.M.	Co-efficient of Variability in %
1	Partur	702.3	69.54
2	Bhokardan	675.97	68.79
3	Mantha	690.33	65.73
4	Badnapur	711.26	63.11
5	Ghansawangi	648.84	61.36
6	Ambad	705.74	60.24
7	Jafrabad	656.89	59.95
8	Jalna	698.5	59.25
Jalna District		686.22	63.34

Source: Computed by the Author.





The mean annual rainfall in the region varies from 690 mm to 711 mm. It has been observed from table 2.2 that, co-efficient of rainfall variability ranges from 59.25% to 69.54% in study region. Rainfall variability in percentage is observed highest in Partur tahsil (69.54%) whereas lowest variability is found in Jalna tahsil (59.25%) during the period of investigation. Map 2.4 indicates that Partur, Bhokardan & Mantha tahsils has above 65% variability and Badnapur, Ghansawangi and Ambad comes under 60% to 65% variability and below 60% variability is observed in Jafrabad & Jalna tahsils.

Other weather phenomena:

a) Humidity: Except during the south-west monsoon season, when the relative humidity are high and the air is generally dry over the entire study region. The summer monsoons are the driest when the relative humidity is generally between 20% to 25% in the afternoon.

b) Cloudiness: During the south-west monsoon the skies are generally heavily clouded or overcast. In the rest of the year, the skies are mostly clear.

c) Winds: Winds are generally light to moderate with increase in speed during the latter half of the hot season and in the monsoon season.

i) Special weather phenomena: Thunderstorms occur in all months of the year. They occur more frequently during April to June and from September to October. Dust storm occurs sometimes during summer afternoon in the study region.

References:

- 1) Chandna, R. C. (2003): Geography of Population, Kalyani Publishers, New Delhi.
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- 3) Socio-Economic Review and District Statistical Abstract of Jalna District, 2013.
- 4) The Maharashtra Census Directorate (1995): District Census Handbook.