

National - Journal  
Registration No. 3341/2010

**IJS** Impact Factor (IIFS) 6.625  
Vol. No. 27, January 2022  
ISSN No. 2277-4858

# THE KONKAN GEOGRAPHER

Interdisciplinary Peer Review Refereed  
National Research Journal

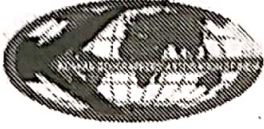
Half-Yearly



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**KONKAN GEOGRAPHERS' ASSOCIATION OF INDIA**  
**SINDHUDURG, MAHARASHTRA - 416602**



Journal Volume No. 27, January 2022

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ISSN No.2277-4858, Impact Factor *IIFS* 6.625

National Interdisciplinary Peer Review Refereed Research Journal of the  
KONKANI GEOGRAPHERS' ASSOCIATION OF INDIA

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## Study of Rainfall Variability in Sindhudurg District, Maharashtra

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Research Paper Accepted on 26-12-2021 Edited on 05-01-2022

### Abstract :

*Water is basic resource for human for the all living organism such as, animal, natural vegetation, human-being and development of agriculture, and also influenced the industrial as well as economical sector of the country. Sindhudurg is the southern part of Maharashtra and also known as Konkan. Rainfall distribution presented with variable and irregular pattern in the study area with spatial variation due to the physical setting, existence of Sahyadri hills and changing in climatically condition.*

### Introduction:

Water is basic need for human being for drinking as well as for agriculture, for industries etc. Rainfall distribution has influenced the agricultural practice, industrial sector as well as other economic sector in the country. In Indian sub-continent the most important factor i. s. rainfall or precipitation, which has influenced agricultural production and their progress because, Indian agriculture depend upon only on Monsoon. In the study area there is uneven distribution of rainfall presented with variability from tehsil to tehsil. In the monsoon period precipitation having large scale in the study area. So, water utilization is also important to the crop production.

### Study Area:

Sindhudurg district is the southernmost part of Maharashtra coastal area that is known as the Konkan. Sindhudurg District situated between 15 37' North latitude to 16 40' North latitudes and 73 19' east longitude to 74 13' East longitudes. It is bordered by Ratnagiri district on the north, Arabian sea on the west, Goa state on the south, Belgaum district of Karnataka state and Kolhapur district on the east also. The total area of the district is 5087 sq. km. the topography of the Sindhudurg district as a part of Kankan. Physiographical Sindhudurg district has also divided in to three section that is, Khalati, Valati and Sahyadry hilly region respectively. The coastal strip of the district is called, Khalati and Valati having width of 20 to 25 km respectively. Sindhudurg district has 8,48,868 (Male-4,16,695, Female-4,32,173) population as per 2011 census. Mean monthly



minimum temperature near about 16.6<sup>0</sup> C and mean monthly maximum temperature near about 33.5<sup>0</sup> C. In the study area annual rainfall range is 2500 to 3500 mm.

**Objectives:**

- 1) To study the rainfall distribution in Sindhudurg district.
- 2) To study the tehsil wise variability of rainfall distribution in Sindhudurg district.

**Data Base And Methodology:**

In the present study mostly used secondary data collected through socio-economic abstract of Sindhudurg district (1981- 2005) and used years of 1995 to 2005 annual rainfall data for the investigation. Gazetteer of Sindhudurg district also used for basic information. To understanding the distribution of rainfall and its characteristics and also used simple statistical method such as mean and percentage, and calculated the tehsil wise variability it is calculated by deviation from average rainfall. For the showing variability of rainfall also used choropleth map technique.

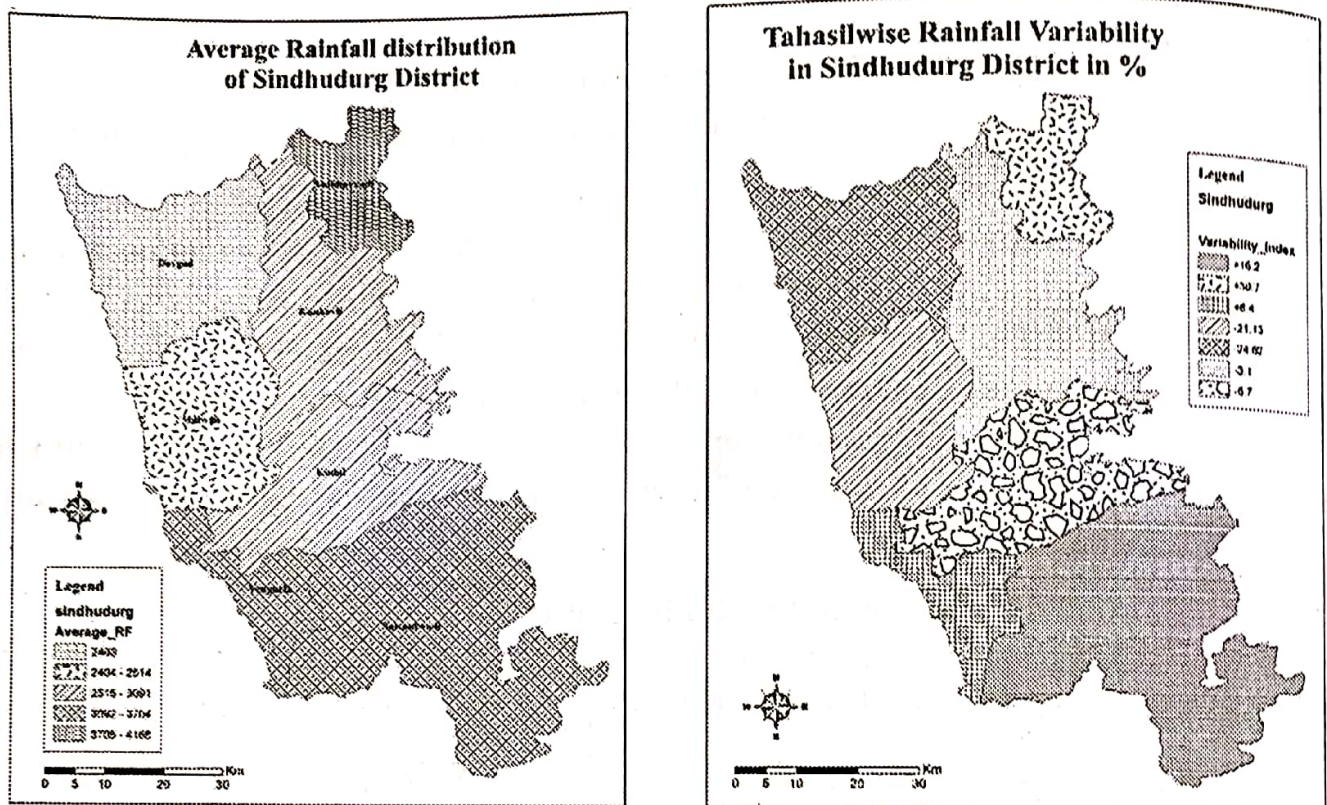
**Rainfall distribution in Sindhudurg district (from 1995 to 2005)**

Sr. No.	Years	Devgad	Vaibhavwadi	Kankavli	Malvan	Vengurla	Kudal	Savantwadi
1	1995-96	2226	4300	3400	2098	9714	3273	3700
2	1996-97	2426	4378	3500	2498	2914	3473	3760
3	1997-98	2661	4217	3678	2640	3031	3711	3894
4	1998-99	2423	5645	3827	2383	3251	3027	4702
5	1999-00	2489	4909	3529	2620	3291	3266	4497
6	2000-01	2994	3328	2891	3313	3489	2824	3926
7	2001-02	1740	3233	2480	2684	2159	2404	3076
8	2002-03	2137	3096	2275	2337	2198	2132	2937
9	2003-04	2289	4049	2509	2617	2694	2785	3198
10	2004-05	2553	4405	2670	2463	2874	2916	3671
11	2005-06	2524	4272	3246	2001	2425	2218	4028
Average		2402.90	4166.5	3091.3	2514	3458.1	2975.3	3704.5

*Source- Indian Metrological Department (IMD), Pune*



## Rainfall distribution and Rainfall variability in Sindhudurg district (from 1995 to 2005)



*Source- Indian Metrological Department (IMD), Pune*

As per above bar-graph are showing the rainfall distribution in Sindhudurg district for year of 1995 to 2005. It has also showed the highest rainfall in this period in the Vaibhavwadi tehsil, and follow by high rainfall regarding at Savantwadi and Vengurla Tehsil respectively. The lowest rainfall accrues in Devgad tahsil and average rainfall of Sindhudurg District is about 3187.5 mm. It has shown the tehsil wise rainfall distribution in Sindhudurg district for year of 1995 to 2005 with choropleth map. Up to 3000 mm rainfall also found in Devgad (2402.9), Malvan (2514) and Kudal (2975.3) tehsil. Kankavali (3091.3), Vengurla (3458.1) and Sawantwadi (3704.5) tehsil has accrues rainfall between 3000 mm to 4000mm. One of the tehsils has accurse above 4000 mm rainfall i.s. Vaibhavwadi tehsil (4166.5).

### Rainfall Variability:

Variability of rainfall is calculated by the computing the rainfall data for 11 years (1995-2005) at every tehsil of Sindhudurg district. Variability also calculated average rainfall of district to average rainfall of tehsil, and variability calculated by using the following formula.

$$\text{Variability of Rainfall} = X \text{ -- \% of precipitation from mean} \times 100$$

Here,

X = Mean of Rainfall of Sindhudurg district during 1995 to 2005



### Tehsil wise Variability Index in Sidhudurg District

Sr. No.	Name of the Tehsil	% of Precipitation from Mean (X)	Variability in %
1	Devgarah	75.38 %	-24.62
2	Vaibhavwadi	130.7 %	+30.7
3	Kankavli	96.9 %	-3.1
4	Malvan	78.87 %	-21.13
5	Vengurla	108.4 %	+8.4
6	Kudal	93.3 %	-6.7
7	Sawantwadi	116.2 %	+16.2

*Source- Compiled by researcher*

In this chart shows the tehsil wise rainfall variability in Sindhudurg district. It has also showed the rainfall, rainfall accurse in uneven form with varies from tehsil to tehsil. The less rainfall or the highest variability found in Devgad tehsil (75.38), which is nearabout -25% from average rainfall of district. In Malvan tehsil variability of rainfall is high i.s. -21%. The lowest Variability in the tehsil of Vaibhavwadi i.s. + 30.7 %. Followed by Sawantwadi tehsil (+16.2), then another tehsil accurses, Kankavali (-3.1%), Vengurla (+8.4%), and Kudal (-6.7%) during the 1995 to 2005.

#### Conclusion:

In the study region we are found high rainfall range, spatial distribution of rainfall is varying tehsil to tehsil because, the intensity and regularity of monsoon is varying. The annual and monthly rainfall presented with varies form. It has reveals that, the highest rainfall in the Vaibhavwadi tehsil. The lowest rainfall accrues in Devgad tahsil and average rainfall of Sindhudurg District is about 3187.5 mm. The highest variability in rainfall found in Devgad tehsil which is nearabout -25% from average rainfall of district. In Malvan tehsil variability of rainfall is high i.s. -21%. The lowest Variability in the tehsil of Kankavali (-3.1%), Vengurla (+8.4%), and Kudal (-6.7%) during the 1995 to 2005.

#### References:

- Gadgil, A,(2002): Rainfall characteristics of sever rainstorms of India. Theoretical And Applied Climatology, v. 50, pp. 95-100.
- Hire, P. S, and Gunjal, R. P, (2007): Detection of changes in the annual rainfall of the Nashik District: Maharashtra. Maharashtra Bhugolshashtra Parishad, v. 20
- Hire, P. S, and Gunjal, R. P,(2007): Regimes Characteristics of Rainfall of the Nashik District: 29<sup>th</sup> National conference of Maharashtra Bhugolshashtra Parishad, ISBN 978-93-81354-40-7, pp.74-85.
- Kremer, H, Pacyna, J, and Pirrone, N, (2002): Regimes of regional and global change. Journal of Reg. Environmental change 3: 2-4pp.