Government of Maharashtra

WATER RESOURCES DEPARTMENT

WATER YEAR BOOK 2006 -2007

HYDROLOGY PROJECT CIRCLE (ANALYSIS)

HYDROMETEOROLOGICAL DATA PROCESSING DIVISION

CHIEF ENGINEER, HYDROLOGY PROJECT (SW), NASHIK

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WATER YEAR BOOK 2006-2007

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CHIEF ENGINEER
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WATER RESOURCES DEPARTMENT
GOVERNMENT OF MAHARASHTRA
NASHIK

FOREWORD

The increasing demand for water from all sections of society has put the supply system in a stressful situation. The selection of choices are reducing drastically, as so-called cheap water is no more reality. This necessitates the need for understanding the facts about water availability, its use by different groups and evolving optimised solution on equitable basis so that everybody is given his/her due share.

The information on rainfall, river discharges and meteorological parameters as well as on surface water quality plays vital role in deriving sustainable solution to the water problem.

This document of water yearbook is a sample of what kind of data available with the State Data Storage Centre (SDSC), Nashik. Those, who are interested in getting detailed data on a particular parameter in a particular area can become HDUG member and obtain the data as per prescribed procedure. Hydrometeorological Data Processing Division (HmDPD) has prepared this water yearbook, which is the backbone of validation and hence play a great role in making available the factual data. I appreciate and would like to put on record the efforts taken by Mr. M. K. Pokale S.E., Hydrology Project Circle (Analysis), and Mr. R. N. Sonawane, E.E, Hydrometeorological Data Processing Division and his team for bringing out this water year book.

(Hiralal T. Mendhegiri)

SUPERINTENDING ENGINEER
HYDROLOGY PROJECT CIRCLE,
(ANALYSYS), NASHIK

PREFACE

This water year book comprises the information regarding Water Quality & Hydro-meteorological field data collection through the Network stations established under WB aided Hydrology Project, which is ready for dissemination at State Data Storage Center Nashik to the users. An accurate HIS information is being disseminated to the users after complete validation, processing by exclusively trained Hydrologists of the processing as well as storage centers of the State.

An accurate HIS information is developed as a result of strict implementation of the standardised protocols for various HIS activities such as station set up, staffing plan, HIS job descriptions, field data collection, O & M of network stations.

The Hydrologists & Expert staffs are working with full enthusiasm & zeal for timely data dissemination to the users. Mr. H. T. Mendhegiri, Chief Engineer Hydrology Project, Nashik is the mastermind behind this spectacular picture.

It is worthwhile to note here "Efforts taken by, Mr. R.N.Sonawane, E. E., Miss C. P. Deshpande AE II, Mr. S. V. Bachhav AE II, Mr. Vitthal Kulkarni AE II, Mr. A. B. Bharamgunde Sec. Eng., Pagare Subhash AE II, Mr. S. K. Kshirsagar Sec. Eng. which resulted into preparation of excellent Water Yearbook of Hydrology Project for the year 2006-2007".

(M.K.Pokale)

1. INTRODUCTION

Water plays crucial role in the socio-economic development of the country. Safe drinking water is required for very large and growing population. Water has also become a major constraining factor for the growth of the agricultural and industrial sectors. In contrast, flooding frequently threaten populations and civil structures. Because of competing demands between users, the state requires proper planning, design and management of water resources and water use systems. The availability of an efficient and comprehensive Hydrological Information System (HIS), comprising a reliable database on all aspects of the hydrological cycle, is a prerequisite for such planning, design and management, to arrive at better decisions as well as to achieve efficiency.

The Hydrological Information System provides information about Hydrological and Hydro meteorological parameters that vary with respect to time and space. The information is regularly updated so that the decision/policy makers, designers and researchers can use this information to make decisions for long term planning, design or can study the water resources system at large or its components.

Earlier, regional Water Resources Department (GOM) was collecting the Hydrological Information System (HIS) Data and was recording manually in the form of registers for the use of Water Resources Department only. In 1995 National Hydrology Project was established in collaboration with Ministry of Water Resources, Government of India, CWC, CGWB, National Institute of Hydrology (Roorkee), CWPRS (Pune), CPCB, India Meteorological Department, with nine states i.e. Maharashtra, Orissa, Tamilnadu, Madhya Pradesh, Chhattisgrah, Andhra Pradesh, Gujrat, Karnataka & Kerala to develop sustainable HIS with following characteristics.

- Demand driven i.e. output is as per the users needs.
- Use of standardized equipments and adequate procedures for data
- collection and processing.
- Computerized, comprehensive and easily accessible database.
- Proper infrastructure to ensure sustainability.

Under this Project since 1995, Hydrology Project (SW) Water Resources Department, Maharashtra State has started to collect the data on these lines and entering it in electronic mode to process it at Primary validation in sub division, Secondary validation in Division office, then Hydrological Validation in State Data Processing Center Nashik. Interagency validation is carried out with Central Water Commission and India Meteorological Department for accuracy and quality. Such finally validated data is then stored in State Data Storage Center, Nashik to make it available to Hydrological Data Users Group (HDUG) members on a line/ offline with nominal cost.

Before National Hydrology Project, State Government was publishing every year rainfall as well as GD data in discrete manner in a shape of hard copy. Now water year book is made available in Electronics format (on CD) as well as in hard copy. This water year book contains graphs showing Isolines of Rainfall, Time series graph of Rainfall, Discharge, & Evaporation, Flood Hydrographs, etc. to get hydrometeorology of the region to the readers and intended users. The sample graphical representation of data given in this Water Year book gives just an idea of type of data available with this organisation. Intended data user, can obtain the requisite data from the

database available with this organisation after registering himself as HDUG member.

The water year book includes the information of the hydrological regime of the Maharashtra State.

1. Extreme rainfall events in the Maharashtra State
2. Districtwise average rainfall.
3. Basinwise daily maximum & annual minimum rainfall in Maharashtra State
4. Basinwise annual Isohytes.

Some significant trends in rainfall and flows of rivers in the state have been included in this water year book to know about the trends of rainfall pattern to the readers.

The idea of preparing and publishing water year book is to communicate the intended data users, the kind of meteorological and hydrological scenario prevailed in the basins of the state during the hydrological year under consideration. Hydro-meteorological and river gauging network is also included in this water year book in the form of maps and list of the stations (Annexure A). Various types of data i.e. rainfall, river water levels, runoff (computed), maximum, minimum, dry bulb, wet bulb temperature, humidity, wind speed, wind direction, pan evaporation, pan water temperature and sunshine duration have been summarized with the help of graphs and data tables for one station in each basin. The intended users can have these data from data bank as per the procedure laid down. Analysis of data is illustrated basin wise and basin is the unit for presentation of this data for Maharashtra State.

2. HYDROLOGICAL REVIEW

2.0 Basins of Maharashtra and network :

There are five river basins in Maharashtra namely Godavari, Krishna, Tapi, Narmada and West Flowing Rivers basin south of Tapi.

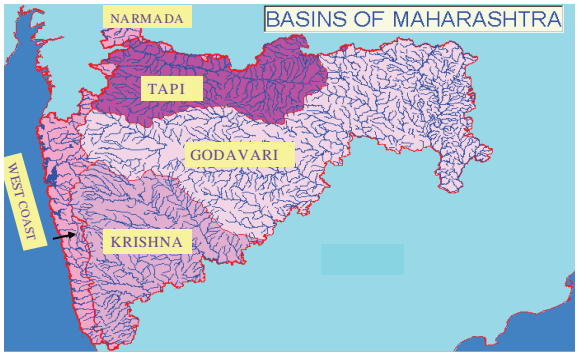

Fig 2.1 Map showing Major River Basins in Maharashtra

Table 2.1 Network of Hydrology Project: Maharashtra

Sr. No.	Name of Basin	ARG	SRG	FCS	GD
1	Godavari	78	96	29	73
2	Tapi	29	33	12	27
3	Narmada	-	3	-	-
4	krishna	25	88	20	50
5	West Flowing Rivers South of Tapi	30	57	6	60
	Total	162	277	67	210

Note: Non-HP network is not included in Table 2.1.

2.1 Maximum Rainfall in Basin

After analysing the daily rainfall data basin wise, it is observed that the maximum daily rainfall is not same as that of the previous years. Also it is observed that the maximum daily rainfall is not occurring on same station. It varies with respect to the location and period. It is also observed that yearly maximum rainfall and maximum daily rainfall is not occurring on the same station. The comparison is shown in the table given below.

Table 2.2 Comparison of Yearly Maximum Rainfall and Maximum Daily Rainfall for year 2006

Sr. No.	Name of basin	Maximum Daily rainfall in mm		Annual Maximum Rainfall in mm	
		Station	Rainfall	Station	Rainfall
1	Godavari	Yeldari	396.00	Kushegaon	3971.00
2	Krishna	Revachiwadi	460.00	Kitwade	8576.41
3	Narmada	Toranmal	315.50	Toranmal	2109.60
4	Tapi	Ambe	415.00	Thanapada	2832.00
5	West Flowing Rivers South of Tapi	Shirawali	385.00	Amboli	7747.60

2.2 Long Term Average Rainfall

A study of Long Term Average Rainfall of Maharashtra State is carried out. For this study data from 1983 to 2005 is used. These long term averages are used for comparing the average rainfall of the year under consideration. Following tables show comparison of the cumulative long term average for the months June to October of the year 1983 to 2005 and average rainfall of Maharashtra occurred in 2006-2007.

Table 2.3 Comparison of cumulative Average Monthly Rainfall of Maharashtra occurred in 2006 with Long Term Average Rainfall (1983-2005)

Month	Long Term Average Rainfall in mm (Data used 1983-05)	Average Rainfall of Year 2006 in mm
June to July	686.00	887.56
June to Aug	1076.00	1492.58
June to Sept	1295.00	1750.97
June to Oct	1361.00	1829.67

Table 2.4 Comparison of Average Monthly Rainfall of Maharashtra occurred in 2006 with Long Term Average Rainfall (1983-2005)

Month	Long Term Average Rainfall in mm (Data used 1983-05)	Average Rainfall of Year 2006 in mm
June	274.00	270.62
July	412.00	616.94
August	390.00	605.02
September	219.00	258.39
October	66.00	78.69

From Table 2.4, it is seen that average rainfall of the year 2006 for the months July, August, September and October is greater than long term averages in respective months.

District wise yearly average rainfall for year 2006 over Maharashtra is shown in following table. Maximum average rainfall occurred in Raigad district and minimum average rainfall occurred in Solapur district.

Table 2.5 District wise average Rainfall for year 2006:

Sr. No.	Name of District	Average Rainfall in mm (Year 2006)
1	Akola	834.31
2	Amarawati	1020.04
3	Aurangabad	909.43
4	Beed	677.59
5	Bhandara	1190.45
6	Buldhana	1082.44
7	Chandrapur	1177.65
8	Dhule	997.68
9	Gadchiroli	1706.27
10	Gondia	1390.93
11	Hingoli	1237.60
12	Jalana	766.73
13	Jalgaon	989.93
14	Kolhapur	3752.42
15	Latur	720.95
16	A'Nagar	753.94
17	Nagpur	1086.55
18	Nanded	993.14
19	Nandurbar	1544.88
20	Nashik	1581.08
21	Osmanabad	721.10
22	Parabhani	848.80
23	Pune	2221.60
24	Raigad	3995.89
25	Ratnagiri	3731.10
26	Sangli	1184.76
27	Satara	2696.51
28	Sindhudurga	3833.34
29	Solapur	663.99
30	Thane	3349.38
31	Wardha	863.80
32	Washim	1205.20
33	Yeotmal	1087.20

Comparison of Rainfall in scarcity zone i.e. rainfall < 750mm shows that in year 2003, 13 districts were in scarcity zone; in year 2004, 19 districts were in scarcity zone; in year 2005, 9 districts and in year 2006, 4 district (refer Table no. 2.8) were in scarcity zone. Districts Akola, Aurangabad, Jalana, A'Nagar and Osmanabad are consistently in scarcity zone. But for year 2006 only Osmanabad is in scarcity zone.

Table 2.6 Comparison of Rainfall in scarcity zone

Sr. No.	Name of District	Rainfall in mm Year 2006	Rainfall in mm Year 2005	Rainfall in mm Year 2004
1	Akola	834.31	685.45	424.52
2	Aurangabad	909.43	361.00	603.64
3	Jalana	766.73	663.9	580.87
4	A'Nagar	753.94	447.00	557.03
5	Osmanabad	721.1	664.36	632.94

2.3 Extreme Rainfall Events

The spatial and temporal distribution of extreme events i.e. maximum daily rainfall and annual minimum rainfall in the basin are as follows.

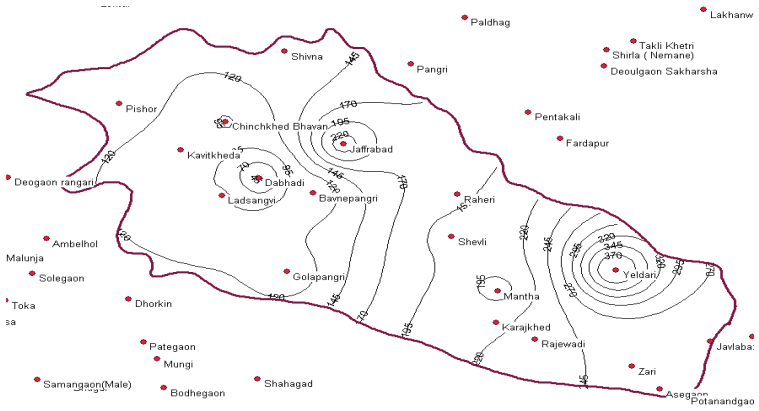

Fig 2.2 Spatial distribution of one-day maximum rainfall on 06/08/2006 at Yeldari 396 mm in Potanandgaon catchment (Godavari Basin)

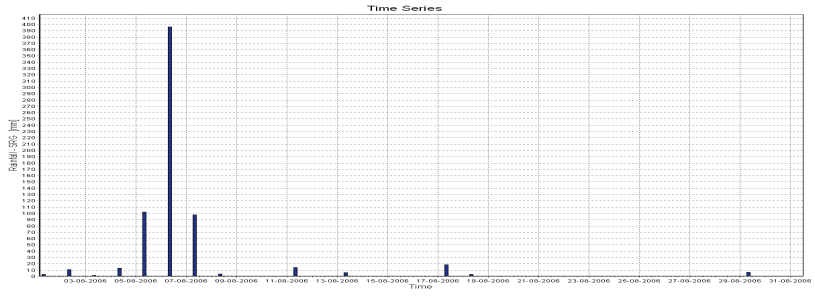

Fig 2.3 Temporal distribution of daily rainfall for August 2006 in Potanandgaon Catchment (Godavari Basin)

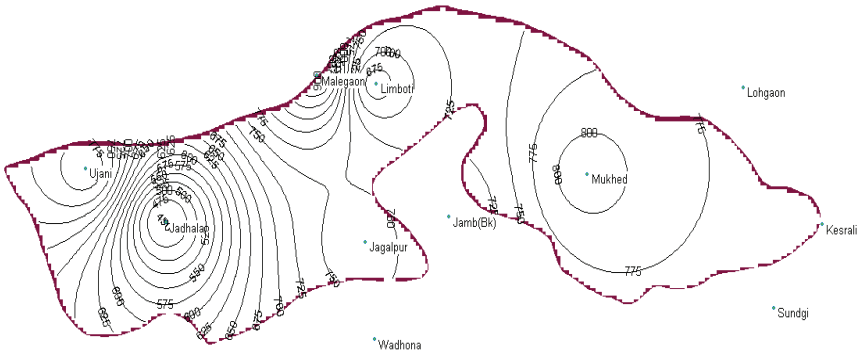

Fig 2.4 Spatial distribution of annual Minimum rainfall at Jadhala 449.60 mm in Kesrali Catchment 2006-07 (Godavari Basin)

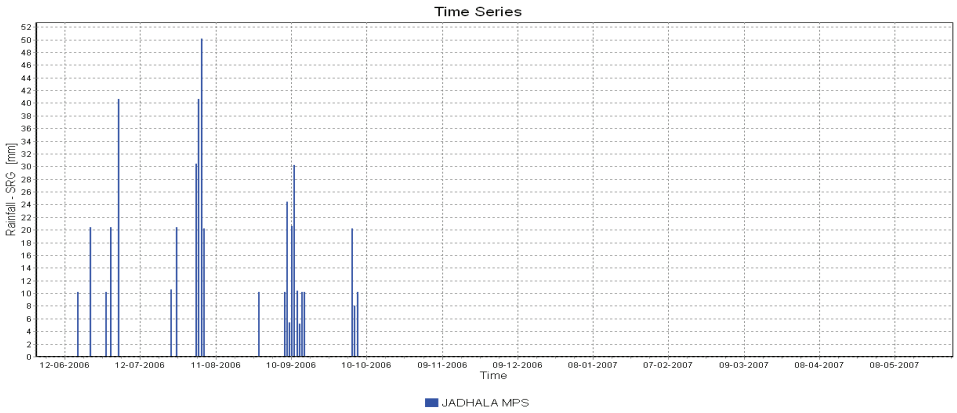

Fig 2.5 Temporal distribution of Daily rainfall at Jadhala in Kesrali Catchment 2006-07 (Godavari Basin)

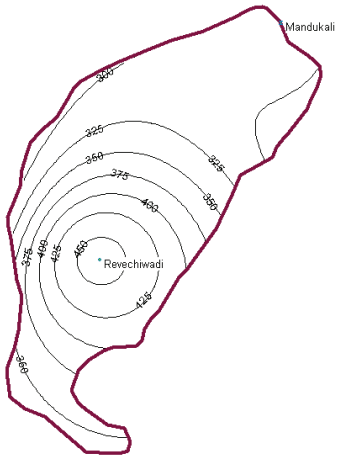

Fig 2.6 Spatial distribution of one-day maximum rainfall on 05/07/2006 at Revachiwadi 460 mm in Mandukli Catchment for 2006-07 (Krishna Basin)

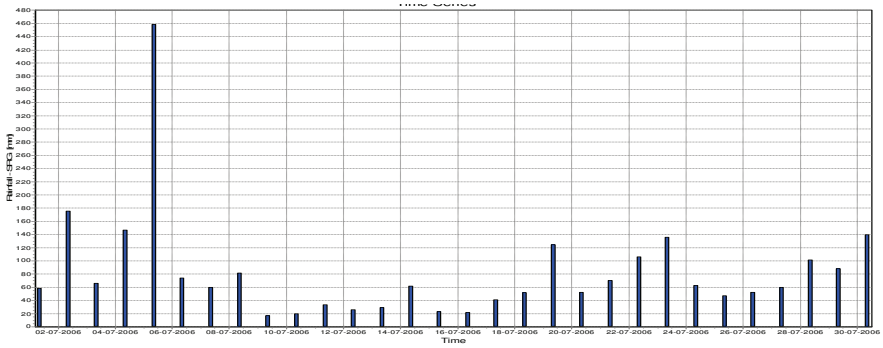

Fig 2.7 Temporal distribution of daily rainfall at Revachiwadi in Mandukli Catchment for July 2006 (Krishna Basin)

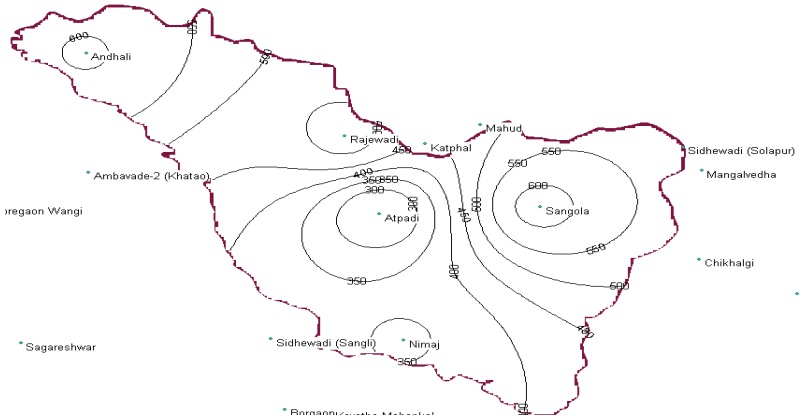

Fig 2.8 Spatial distribution of annual Minimum rainfall (247 mm) at Atpadi for Year 2006-07 in catchment of Sidhewadi (Solapur) (Krishna Basin)

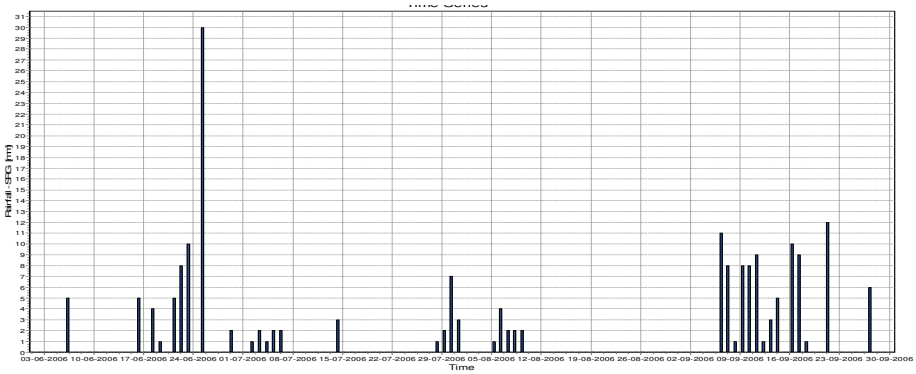

Fig 2.9 Temporal distribution of daily Rainfall at Atpadi for Year 2006-07 in catchment Sidhewadi (Solapur) (Krishna Basin)

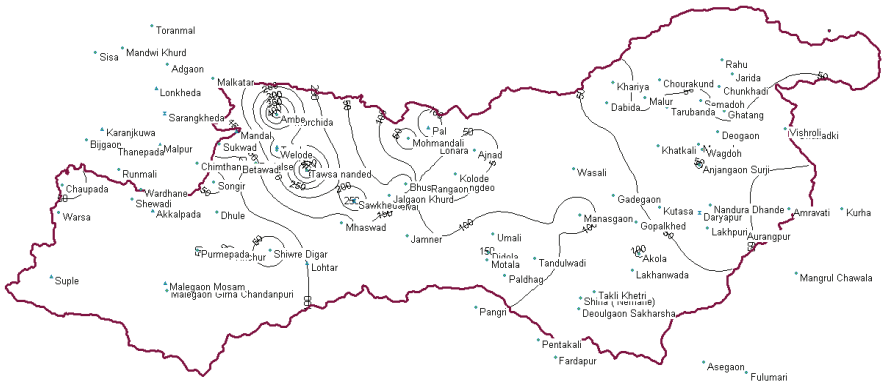

Fig 2.10 Spatial distribution of one-day maximum rainfall 415 mm on 05/07/2006 at Ambe, Sukwad Catchment in Tapi basin

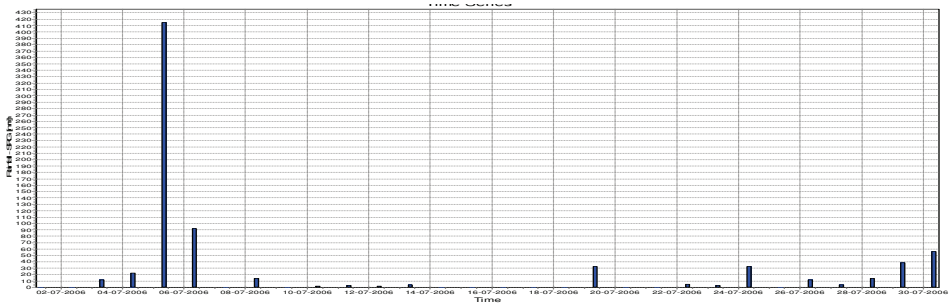

Fig 2.11 Temporal distribution of daily rainfall at Ambe for July 2006, in Sukwad Catchment in Tapi basin

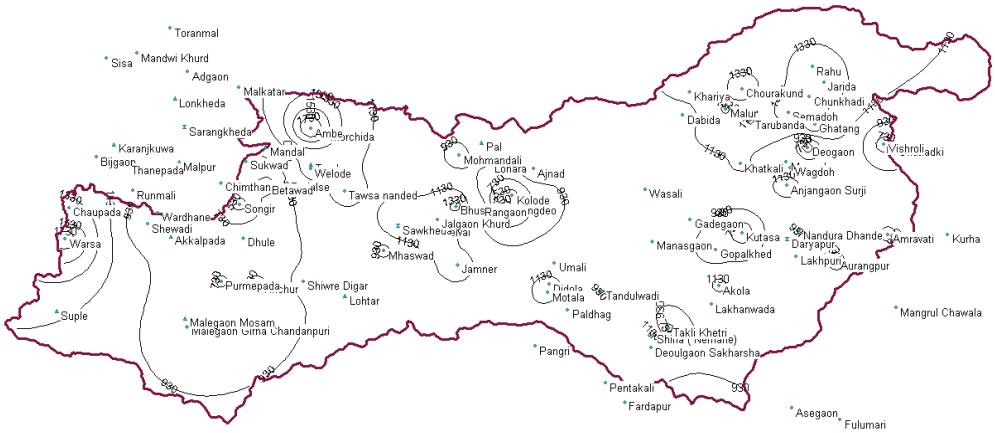

Fig 2.12 Spatial distribution of annual Minimum Rainfall 122 mm at Changdeo in Tapi Basin for year 2006-07

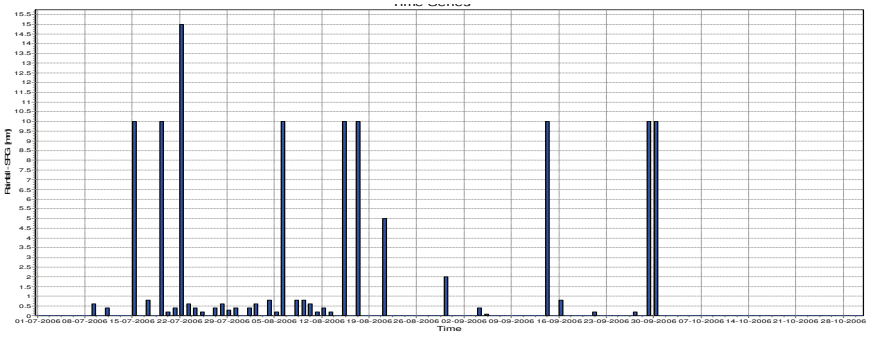

Fig 2.13 Temporal distribution of daily rainfall at Changdeo in Tapi Basin for year 2006-07

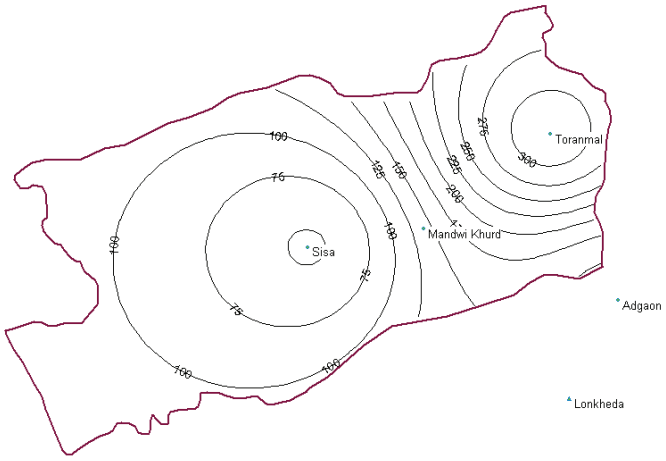

Fig 2.14 Spatial distribution of One-day maximum rainfall on 07/08/2006, 315.5 mm at Toranmal in Narmada basin.

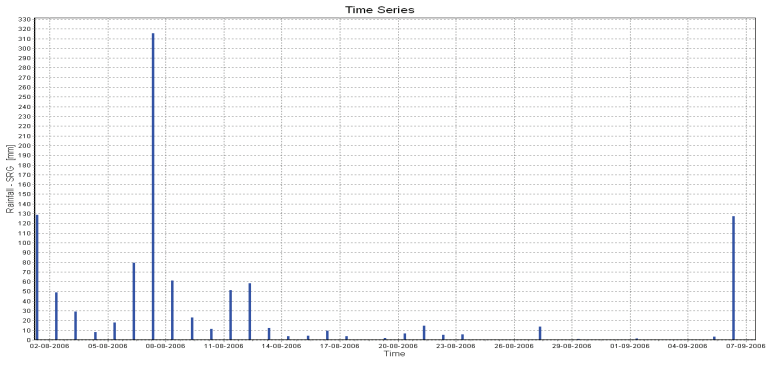

Fig 2.15 Temporal distribution of daily rainfall at Toranmal in Narmada basin for 2006-07.

Fig 2.16 Spatial distribution of annual Minimum Rainfall 895.40 mm at MandaviUdai in Narmada Basin for year 2006-07.

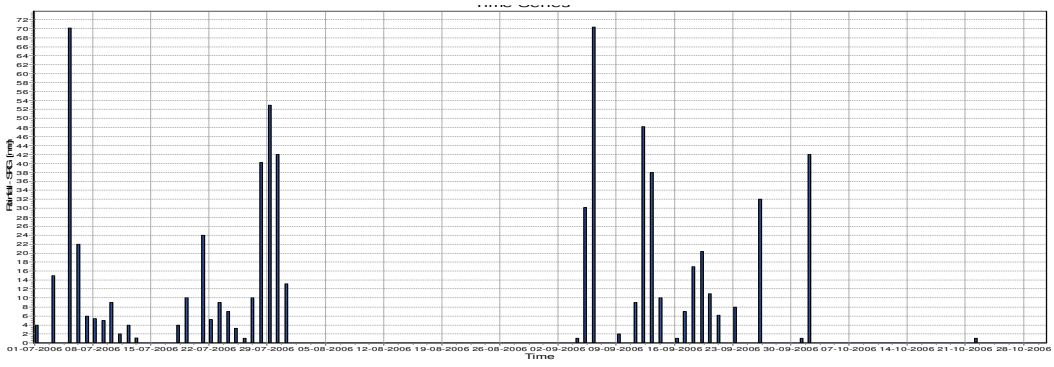

Fig 2.17 Temporal distribution of Daily Rainfall at MandaviUdai in Narmada Basin for year 2006-07.

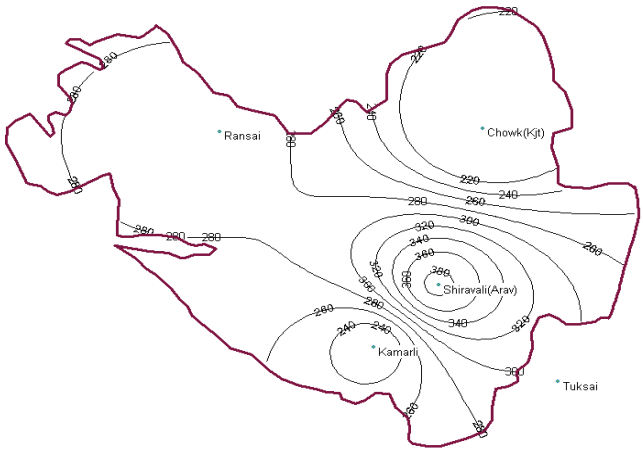

Fig 2.18 Spatial distribution of One Day maximum rainfall of 385 mm on 04/07/2006 at Shirawali in sub basin Patalganga, basin West Flowing Rivers basin South of Tapi.

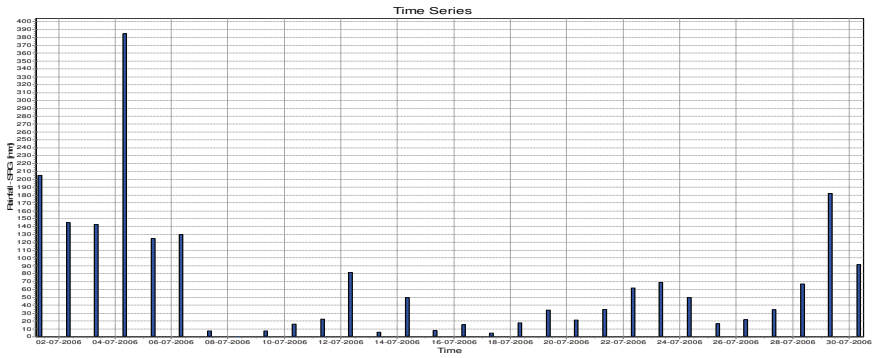

Fig 2.19 Temporal distribution of daily rainfall for July 2006 at Shirawali in sub basin Patalganga, West Flowing Rivers basin South of Tapi.

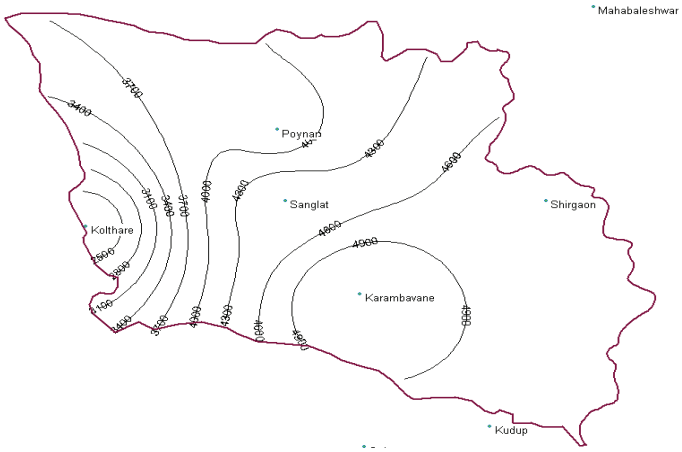

Fig 2.20 Spatial distribution of annual Minimum Rainfall 2267 mm at Kolthare in West Flowing Rivers basin South of Tapi for year 2006-07.

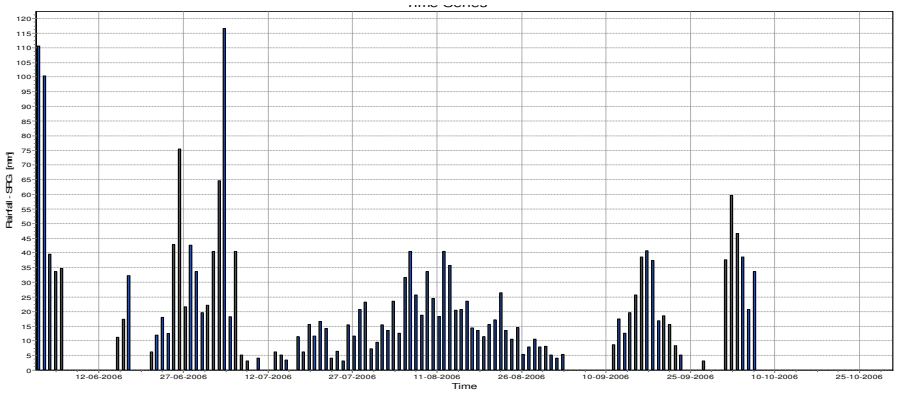

Fig 2.21 Temporal distribution of Daily Rainfall at Kolthare in West Flowing Rivers basin South of Tapi for year 2006-07.

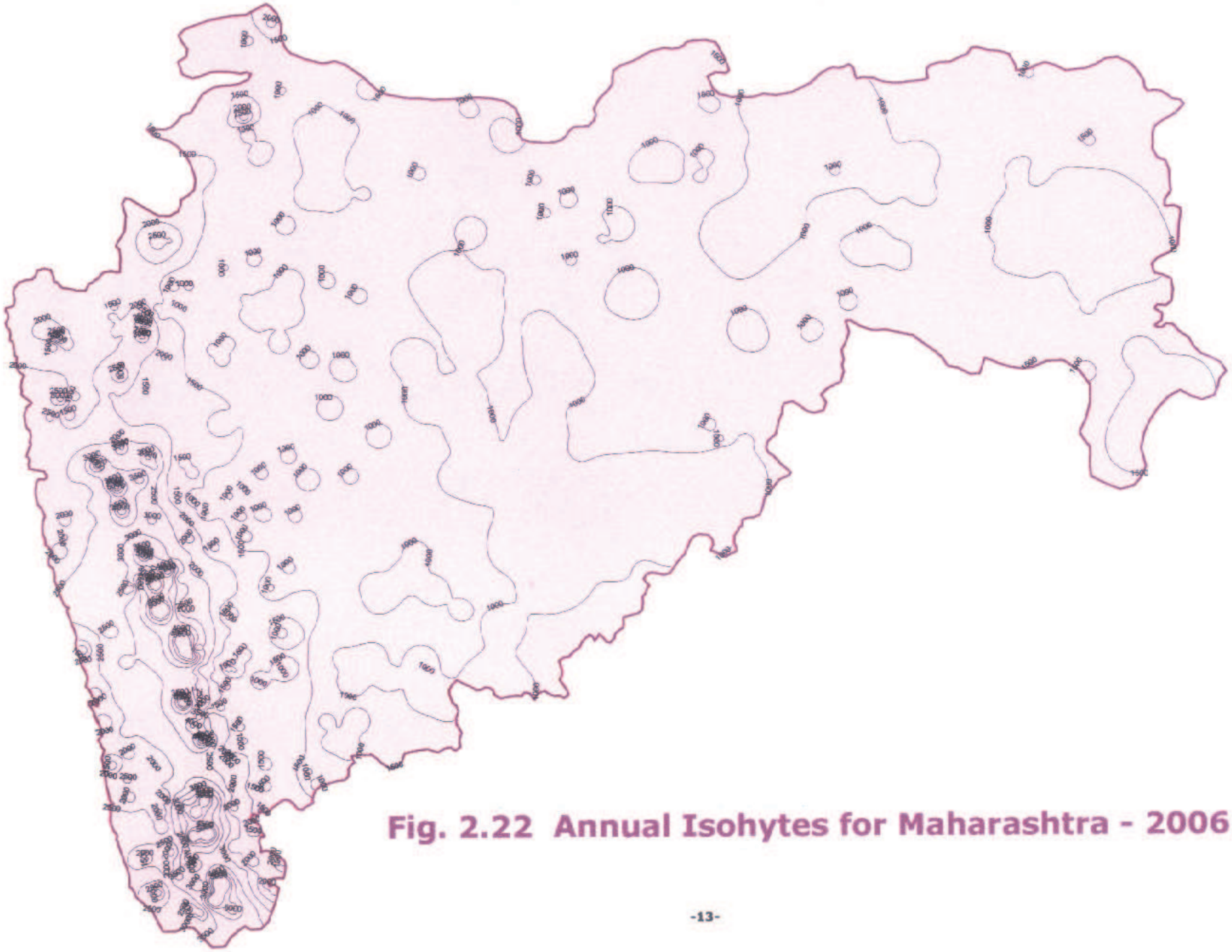

Fig. 2.22 Annual Isohytes for Maharashtra - 2006.

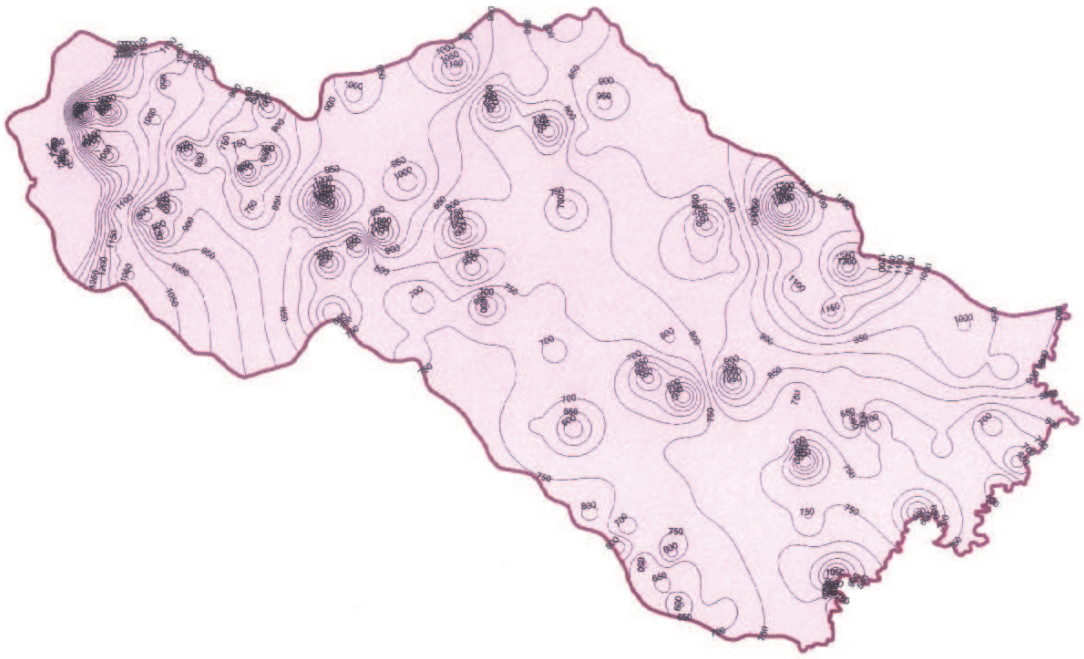

Fig. 2.23 Annual Isohytes for Upper Godavari Basin - 2006.

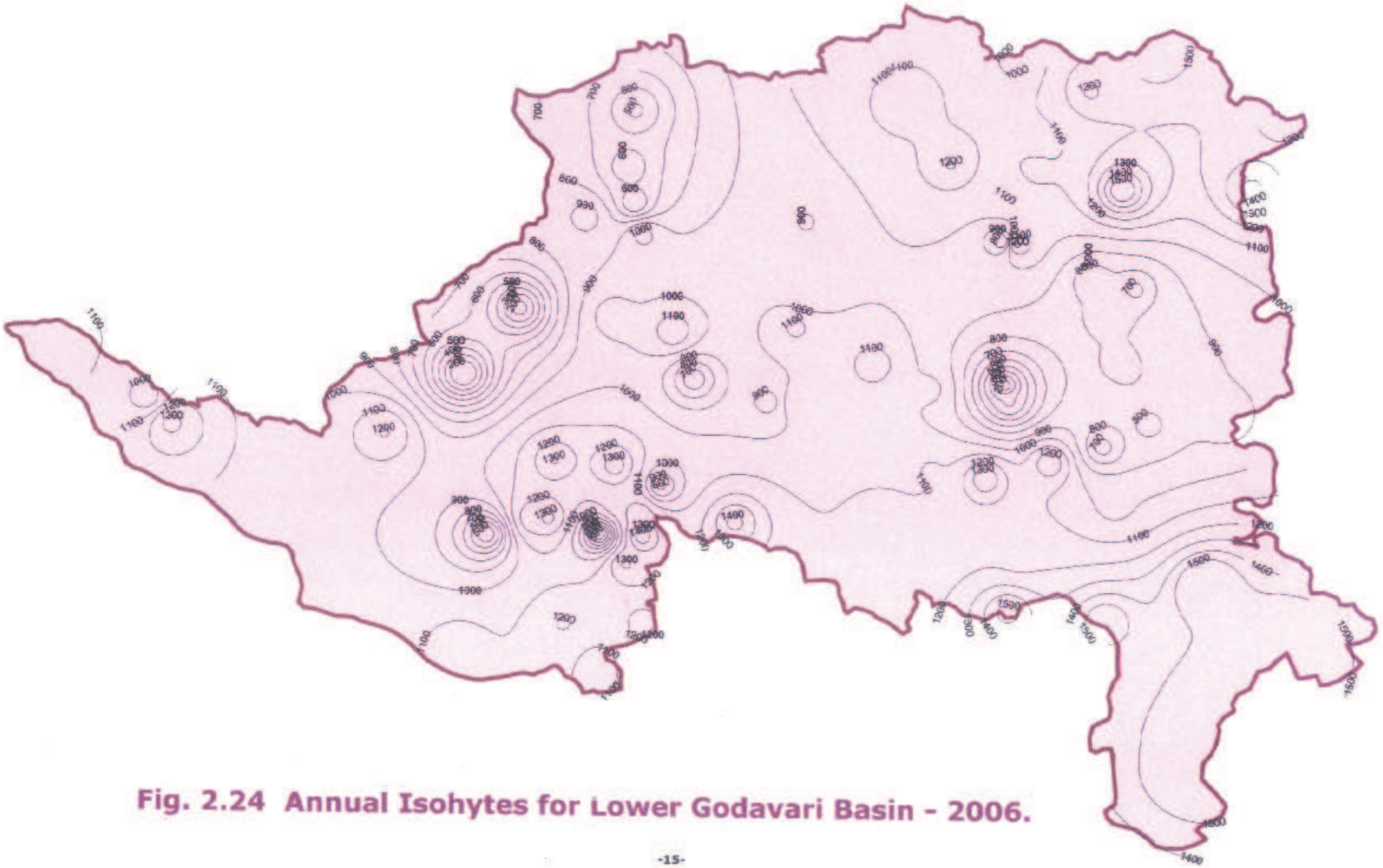

Fig. 2.24 Annual Isohytes for Lower Godavari Basin - 2006.

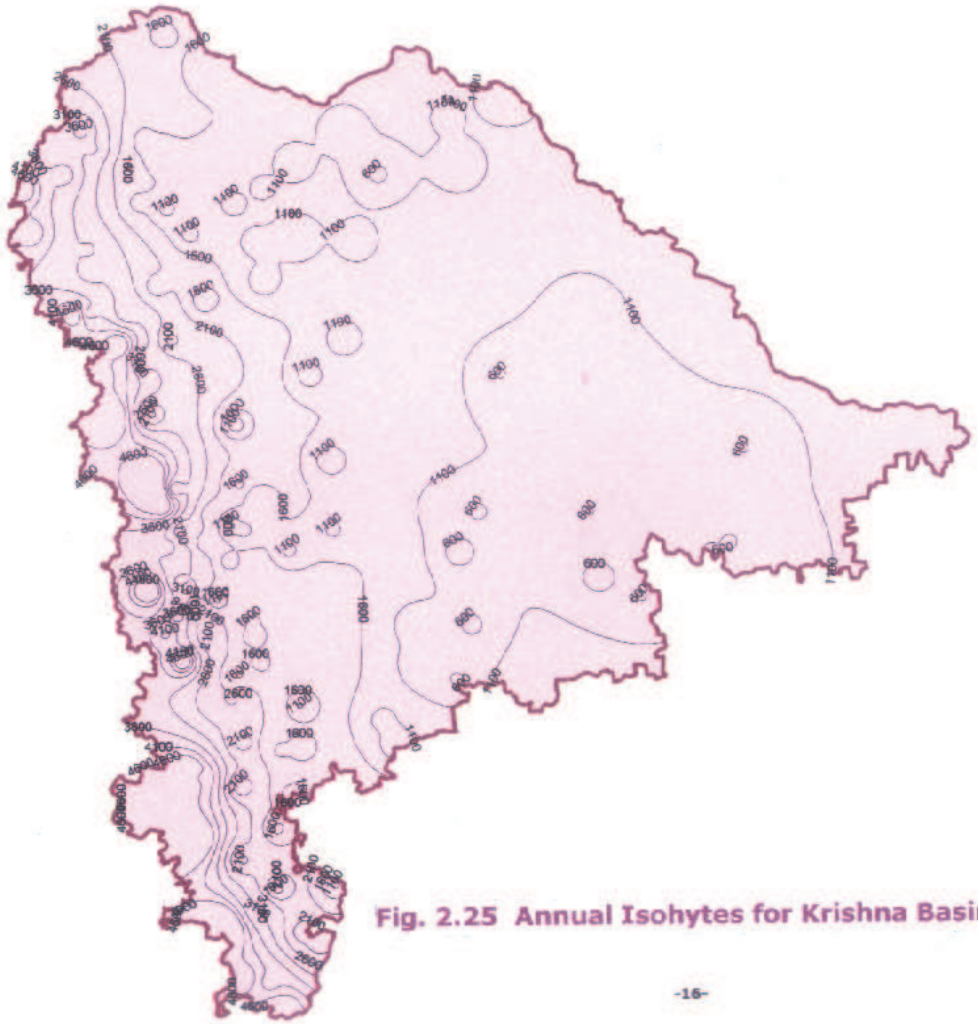

Fig. 2.25 Annual Isohytes for Krishna Basin - 2006.

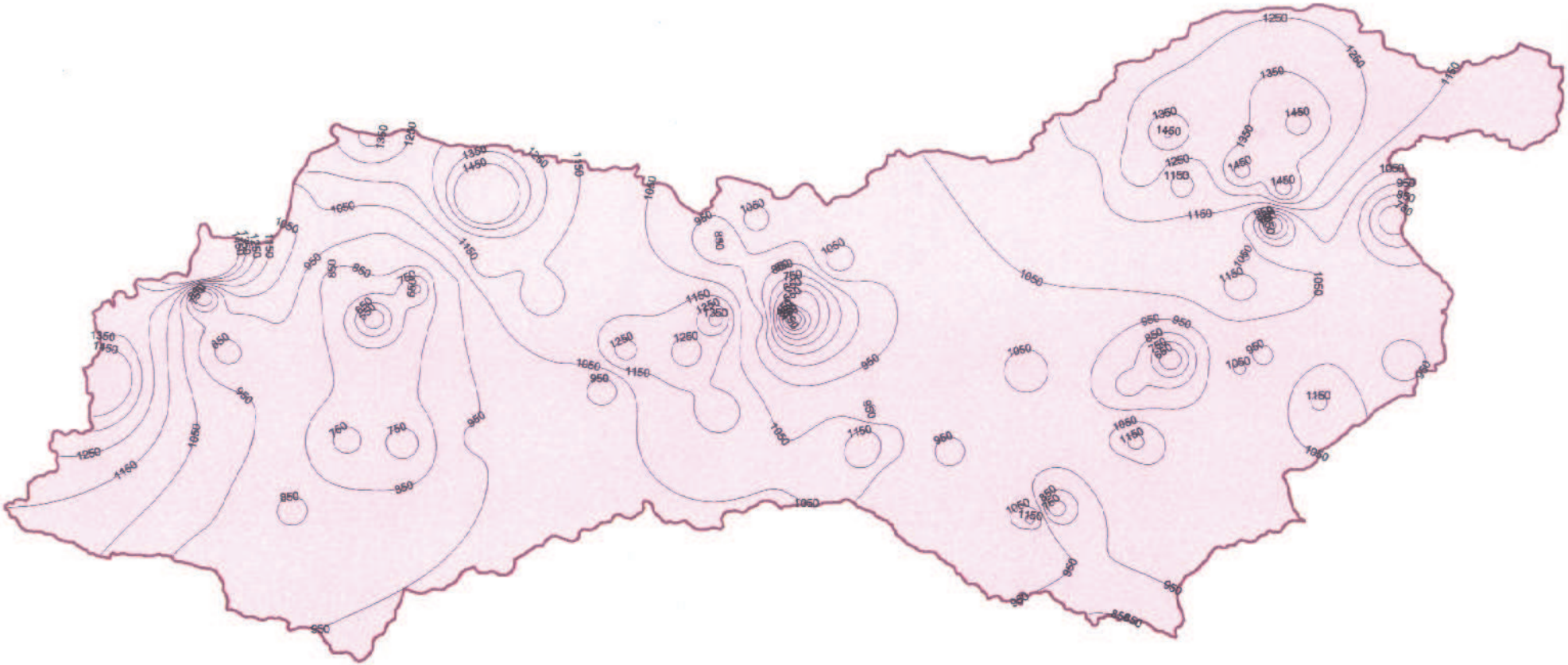

Fig. 2.26 Annual Isohytes for Tapi Basin - 2006.

Fig. 2.27 Annual Isohytes for West Flowing Rivers Basin South of Tapi - 2006.

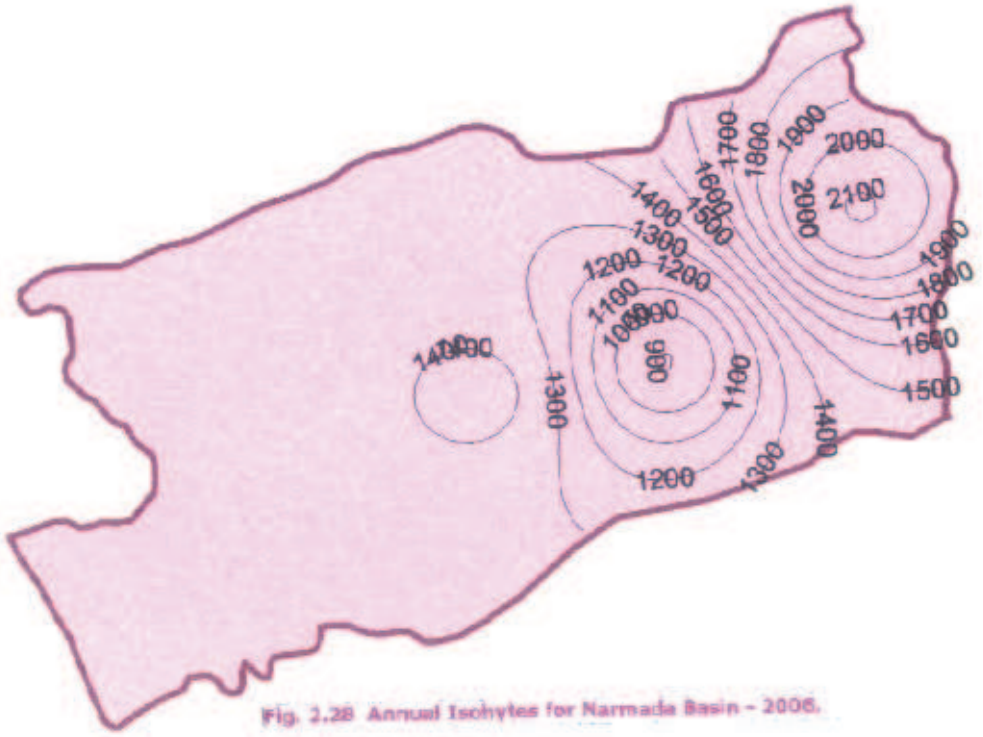

Fig. 2.28 Annual Isohytes for Narmada Basin - 2006.

2.4 Basinwise Rainfall

The Hydrology Project has 506 raingauge stations (HP) in Maharashtra. It is seen from the analysis of the data regarding rainfall and rainy days for the year 2006, that the average annual rainfall in West flowing rivers basin south of Tapi is 3758 mm, in Krishna basin 2159.62 mm., in Godavari basin 1088.88 mm., in Tapi basin 1052.38 mm. & in Narmada basin 1689.74 mm. The pattern of rainfall for year 2006-07 is shown in graphical form for total Maharashtra as well as for each basin (Fig 2.22 to 2.28).

2.5 Monthly Frequency curves for rainfall Year 2006

A convenient way to show the variation of hydrological quantities over the year, by means of frequency curves, where each frequency curve indicates the magnitude of the quantity for a specific probability of non-exceedance.

Figure 2.29 shows the frequency curves for various values (25, 50, 75 and 90%) for each month in the year. Monthly rainfall distribution in the year 2006 is also shown superimposed on this plot for comparison. Minimum and maximum values for each month of the year in the plot gives the range of variation of rainfall in each month.

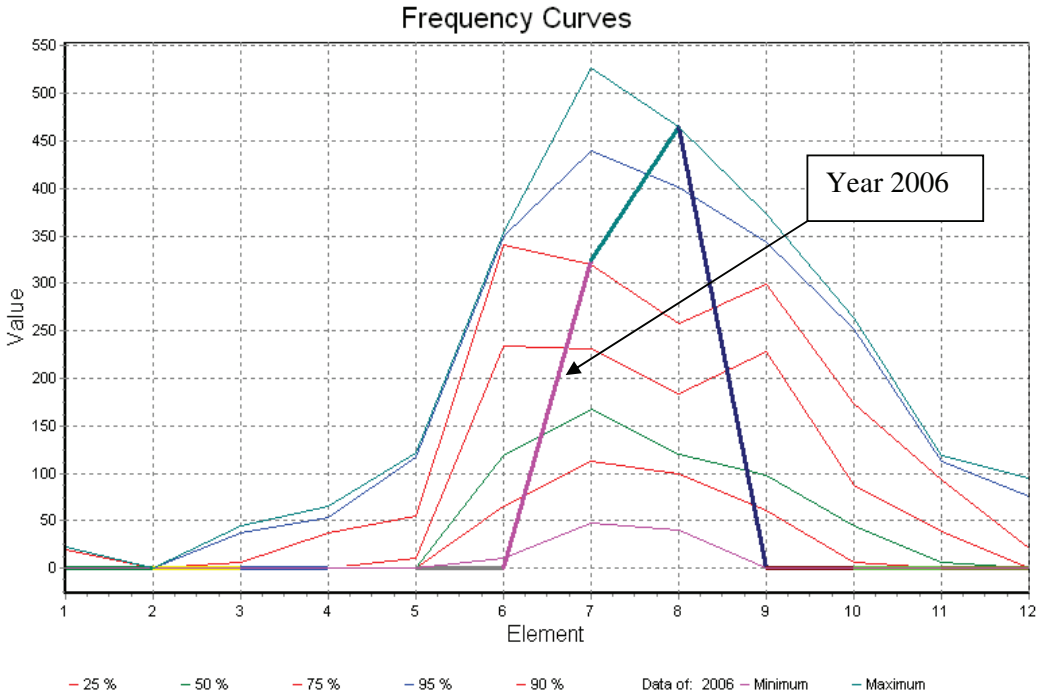

Fig 2.29 Monthly Rainfall of 2006 against Monthly Frequency Curves (Based on 1976-2006) of station Nashik

By plotting the rainfall of a particular year with the frequency curves, one has a proper means to assess how the rainfall in each month in that particular year behaved compared to the long-term rainfall in that month.

2.6 Flooding in the region for Year 2006 – 2007.

Flood is defined as an overflow or inundation that comes from a river or other body of water and causes or threatens damages.

On 5th July 2006, Revachiwadi Station in Mandukali G.D. site catchment of Krishna basin, Kolhapur district recorded maximum 460mm of daily rainfall. The corresponding highest water level observed at Mandukali GD site on 5th July is 8.84 m.

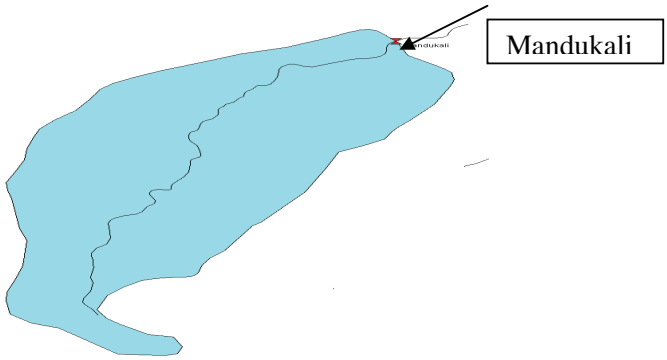

Fig 2.30 Map showing Mandukali GD site, in Krishna Basin

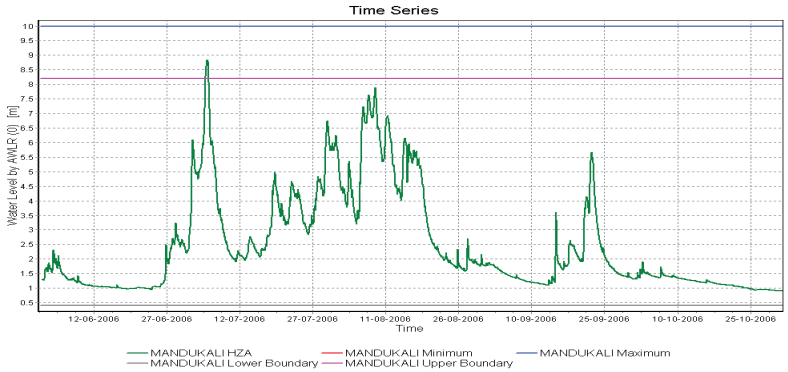

Fig 2.31 Hourly Water Levels by AWLR at Mandukali G.D. Site.

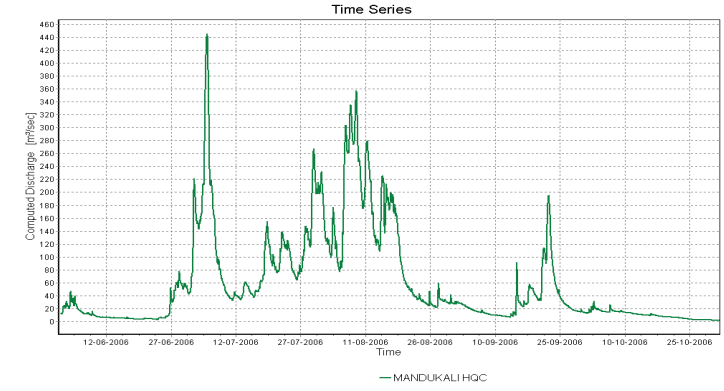

Fig 2.32 Hourly Discharge in Year 2006 at Mandukali GD site, on river Krishna

2.7 Drought in the region for Year 2006 - 2007

Drought represents a situation of water shortage. A prolonged lack of rainfall less than average results in drought situation. Drought can be defined as under :

A) **Meteorological Drought :** A Significant decline in precipitation from average precipitation over large area.
B) **Hydrological Drought :** Prolonged meteorological drought with a marked depletion of water resources and consequent drying of reservoir, lakes, streams & rivers, cessation of spring flows and also fall in ground water level.
C) **Agricultural Drought** : Soil moisture and rainfall are inadequate for a healthy crop and cause crop stress and wilting.
Areas receiving less than 750 mm rainfall per year can be classified as drought prone.

Following table shows the yearly precipitation in Maharashtra state in drought prone area.

Table 2.8 Yearly precipitation in Maharashtra state in drought prone area. (rainfall less than 750mm)

Sr. No.	Name of District	Rainfall in mm (Year 2006)
1	Beed	677.59
2	Latur	720.95
3	Osmanabad	721.10
4	Solapur	663.99

Table 2.9: District wise Monthly average rainfall in mm for Monsoon Season 2006.

Sr.No.	District	Jun	Jul	Aug	Sep	Oct
1	Ahmed Nager	144.49	117.42	180.43	234.60	68.01
2	Akola	66.82	211.33	351.78	113.54	46.39
3	Amrawati	41.98	307.77	378.50	220.87	100.86
4	Aurangabad	122.29	155.68	275.33	261.57	68.68
5	Beed	109.57	63.07	214.36	216.36	39.67
6	Bhandara	134.03	395.86	391.33	113.10	6.46
7	Buldhana	103.99	197.56	485.26	157.15	46.79
8	Chandrapur	125.64	434.52	318.28	190.42	22.13
9	Dhule	81.03	359.29	322.33	194.01	39.53
10	Gadhchiroli	129.91	560.74	560.10	259.71	30.69
11	Gondiya	62.07	497.93	564.83	93.60	12.67
12	Hingoli	207.73	160.40	544.47	233.07	63.47
13	Jalna	139.23	95.80	306.54	193.64	30.33
14	Jalgaon	59.37	282.21	465.68	147.59	44.13
15	Kolhapur	530.13	1434.45	1155.80	320.40	66.80
16	Latur	135.29	105.37	214.14	219.62	40.10
17	Nagpur	95.35	327.36	211.56	174.45	26.77
18	Nanded	149.17	213.16	395.92	214.19	50.89
19	Nandurbar	115.31	538.98	737.50	225.33	37.10
20	Nashik	179.89	531.68	627.36	181.58	63.24
21	Osmanabad	172.50	66.83	185.63	238.62	57.52
22	Parbhani	136.36	115.16	396.34	213.90	39.96
23	Pune	279.54	796.87	757.68	203.39	70.82
24	Raigad	568.27	1622.30	1281.54	360.98	162.79
25	Ratnagiri	922.03	1220.18	894.15	560.15	198.52
26	Sangli	236.89	361.43	276.51	158.84	53.26
27	Satara	434.54	1090.16	775.09	212.63	53.12
28	Sindhudurga	825.32	1169.67	946.03	627.17	244.05
29	Solapur	130.56	31.96	61.11	226.20	71.20
30	Thane	403.07	1277.33	1248.80	339.13	79.88
31	Wardha	86.98	341.58	282.95	168.24	47.17
32	Washim	209.20	236.20	424.60	275.00	34.40
33	Yeotmal	158.16	298.26	388.04	192.67	45.44

3. RIVER FLOWS AND WATER LEVELS

The observed water levels & discharges at various Guage Discharge sites follow same pattern. Some of the graphs are shown as examples in the following figures.

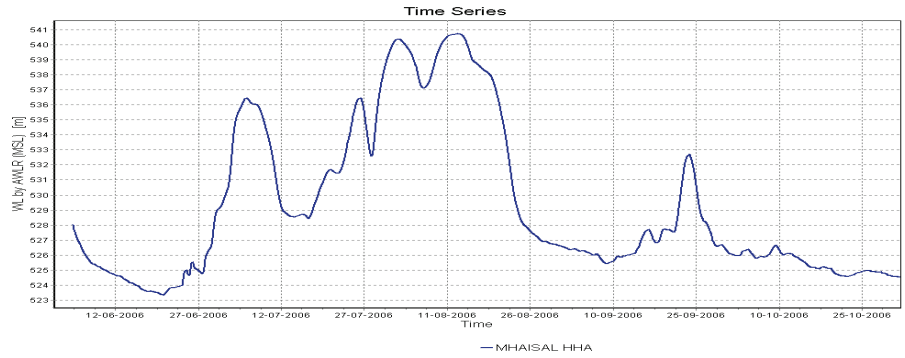

Fig. 3.1 Hourly Water Levels by AWLR at Mhaisal on river Krishna – 2006-2007

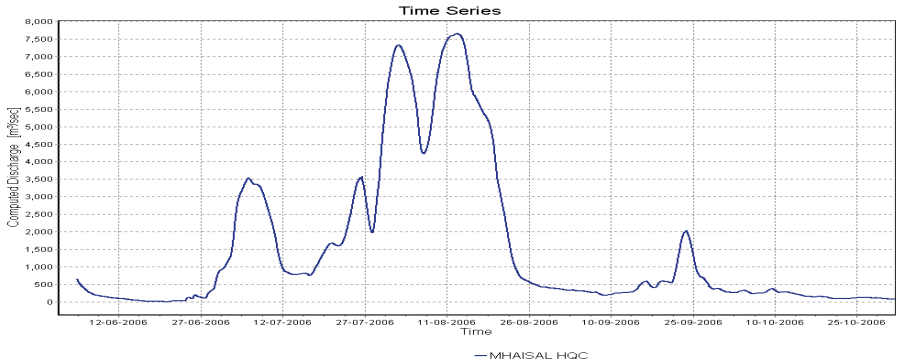

Fig. 3.2 Hourly Computed discharges at Mhaisal on river Krishna – 2006-2007

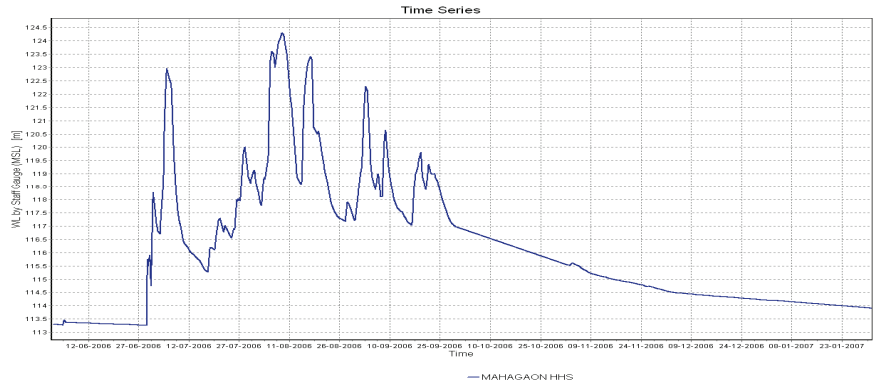

Fig. 3.3 Hourly Water Levels at Mahagaon on River Pranhita – 2006-2007

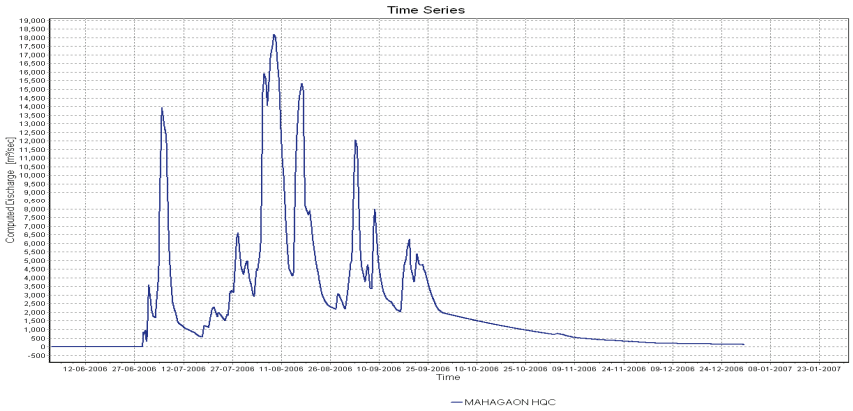

Fig. 3.4 Hourly computed discharges at Mahagaon on River Pranhita – 2006-2007

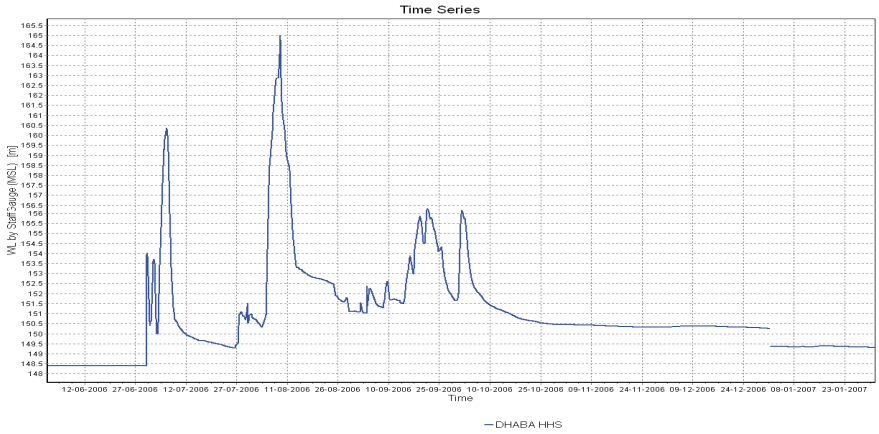

Fig. 3.5 Hourly Water Levels by AWLR at Dhaba on River Wardha – 2006-2007

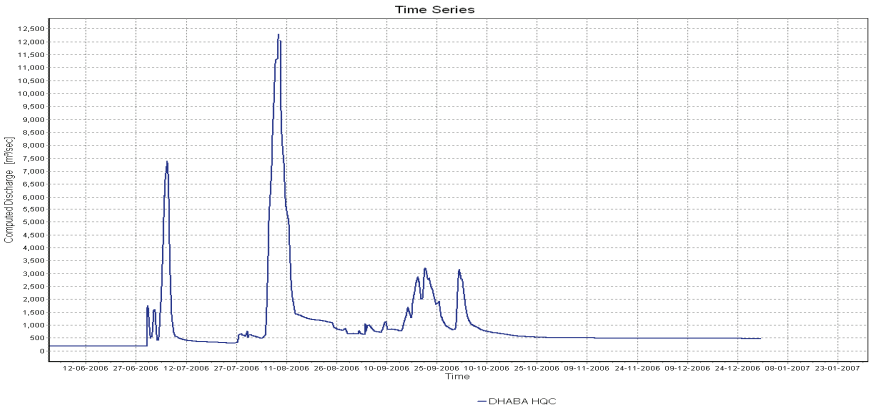

Fig. 3.6 Hourly Computed Discharges at Dhaba on River Wardha – 2006-07

Station Code :Mhaisal
Station Name : Mhaisal
Parameter Code :MPS (Rainfall - SRG in mm)
Sub-Division : Sangli
Local River/Basin :Krishna

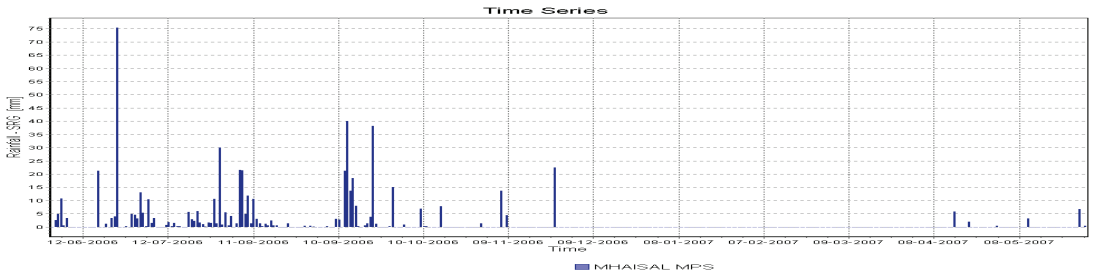

Table 3.1 Daily Rainfall Data

Day	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
1	0	3.2	5.5	0.1	0	0	0	0	0	0	0	0
2	2.5	13	0.6	0	0	0	0	0	0	0	0	0
3	4.8	5.4	4.1	0	0.8	0	0	0	0	0	0	0
4	10.8	0.2	0	0	0	0	0	0	0	0	0	0
5	0.6	10.5	1.3	0	0	0	0	0	0	0	0	0
6	3.3	1.5	21.6	0.2	0	13.6	0	0	0	0	0	0
7	0	3.3	21.4	0	0	0	0	0	0	0	0	0
8	0	0	4.8	0	0	4.4	0	0	0	0	0	0
9	0	0	11.8	3	6.9	0	0	0	0	0	0	0
10	0	0	1.3	2.7	0.2	0	0	0	0	0	0	0
11	0	0.7	10.6	0	0.2	0	0	0	0	0	0	3.2
12	0	1.8	3	21.2	0	0	0	0	0	0	0	0
13	0	0.3	1.3	40	0	0	0	0	0	0	0	0
14	0	1.5	0.3	13.7	0	0	0	0	0	0	0	0
15	0	0.3	1.2	18.4	0	0	0	0	0	0	5.8	0
16	0	0.2	0.5	8	7.8	0	0	0	0	0	0	0
17	21.2	0	2.4	0.2	0	0	0	0	0	0	0	0
18	0	0	0.6	0	0	0	0	0	0	0	0	0
19	0	5.6	0.6	0.5	0	0	0	0	0	0	0	0
20	1.2	2.8	0	1.4	0	0	0	0	0	0	2	0
21	0	2.2	0	3.8	0	0	0	0	0	0	0	0
22	3.4	6	0	38.2	0	0	0	0	0	0	0	0
23	4	1.7	1.4	1.2	0	0	0	0	0	0	0	0
24	75.3	1	0	0	0	0	0	0	0	0	0	0
25	0	0.1	0	0	0	22.4	0	0	0	0	0	0
26	0	1.6	0	0	0	0	0	0	0	0	0	0
27	0.2	1.5	0	0	0	0	0	0	0	0	0	0
28	0	10.6	0	0.3	0	0	0	0	0	0	0	0
29	4.8	1.4	0.4	15	0	0	0	0		0	0	6.7
30	4.6	30	0	0	1.3	0	0	0		0	0.4	0
31		0.8	0.4		0		0	0		0		0.4

Station Code :Mhaisal Station Name : Mhaisal
Parameter Code: HQC (Computed Discharge – Cumecs) Sub-Division : Sangli
Local River/Basin: Krishna

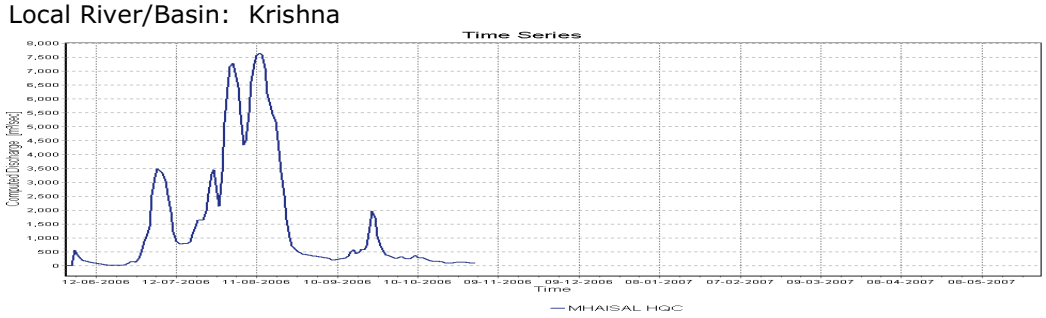

Table 3.2 Daily Computed Flows

Day	Jun	Jul	Aug	Sep	Oct
1	0.0	1040.8	7152.8	343.5	273.4
2	0.0	1400.2	7276.0	329.8	259.4
3	0.0	2543.0	6944.5	322.0	299.5
4	561.4	3178.1	6418.9	310.8	317.6
5	410.6	3475.6	5437.0	292.8	255.0
6	282.7	3399.7	4343.7	270.5	245.2
7	203.5	3319.0	4499.0	253.4	251.8
8	169.3	3047.4	5499.4	192.9	301.2
9	144.4	2545.0	6626.8	196.9	361.7
10	120.3	1936.3	7269.0	233.9	288.9
11	101.1	1219.3	7553.6	249.7	281.0
12	87.8	875.3	7632.1	263.1	268.4
13	71.1	797.4	7588.9	277.4	235.1
14	50.9	781.8	7110.2	341.7	199.7
15	38.7	808.3	6180.1	501.3	159.3
16	24.1	786.6	5768.3	566.2	147.4
17	13.1	849.3	5455.1	436.0	146.1
18	11.1	1116.1	5182.5	476.5	148.4
19	7.4	1399.9	4516.7	584.5	132.8
20	3.7	1630.5	3355.5	564.8	98.1
21	14.9	1634.0	2529.0	706.9	86.3
22	24.1	1628.5	1646.1	1397.8	85.7
23	29.2	1956.8	1006.3	1959.5	96.4
24	91.5	2590.1	713.6	1734.3	111.7
25	131.1	3298.4	608.1	1052.2	122.6
26	151.5	3444.1	530.5	715.3	121.2
27	112.8	2612.7	470.0	566.9	115.2
28	253.9	2136.3	420.9	387.7	110.9
29	465.1	3363.9	403.0	375.1	97.5
30	873.7	5157.2	385.1	321.7	85.1
31		6416.1	366.2		80.7

4. INTERPRETATION OF VARIOUS STATISTICS PRESENTED IN THE WATER YEARBOOK

Some important terms used in interpretation of various statistics are explained as follows:

4.1 Daily rainfall –Time frame of daily rainfall refers to:

All rainfall observations are made at 0830 hrs IST daily. The quantity of rainfall recorded at 0830 hrs is the rainfall of the preceding 24 hours ending at 0830 hrs of the observation day (Today's date). In other words, the rainfall of the day is the total rainfall collected in the rain gauge from 0830 hrs IST of previous day to 0830 hrs IST of the day and is recorded (entered) against today's date.

4.2 Mean Daily Runoff –The mean daily runoff is computed as follows:

To facilitate comparison between rainfall and runoff, it is usual practice to express values of rainfall and runoff in similar terms. Both may be expressed as a total volume over a specified period (in metre cube, thousand metre cube (TCM), or million metre cube (Mcum). Alternatively, discharge may be expressed as a depth in millimetres over the catchment.

Volume is simply the rate in metre cube /sec (Cumecs), multiplied by the duration of the specified period in seconds, i.e. for daily volumes in cubic metres with respect to daily mean flow *Qd* in cumecs following equation may be used:

$$Vd\ (m^3) = (24 \times 60 \times 60 \text{ seconds})\ Qd(\text{cumecs}) = 86400\ Qd \quad (m^3)$$

Runoff depth (Rd) is the volume expressed as depth over the specified catchment area with a constant to convert units to millimeters; i.e. for daily runoff:

$$Rd(mm) = \frac{Vd(m^3)*10^3}{area(km^2)*10^6}$$

$$= \frac{Vd(m^3)}{area(km^2)*10^3}$$

$$= \frac{86.4Qd\ (\text{Cumecs})}{area(km^2)}$$

5. WATER QUALITY MONITORING IN MAHARASHTRA

5.1 Introduction

The Water Quality Monitoring is carried out by various agencies in the Maharashtra State viz Central Water Commission (SW), Central Pollution Control Board, Groundwater Surveys & Development Agency (GW), Hydrology Project (SW), Maharashtra Pollution Control Board, Central Ground Water Board (GW), Directorate of Irrigation Research & Development (DIRD). Hydrology Project takes care of surface water quality through sampling points spread over the State throughout the year. DIRD monitors dug wells in the command area of major and medium Irrigation Projects. Ground Water Surveys & Development Agency also monitors the dug wells as well as ground water levels of the State intermittently.

Agency wise Water Quality Monitoring Details:

Sr. No.	Monitoring Agency	Water Quality Monitoring Sites
(A)	**State**	
1.	Water Resources Department, Hydrology Project (SW)	127
2.	Groundwater Surveys & Development Agency (GW)	1871
(B)	**Central**	
3.	Central Pollution Control Board (CPCB) (SW) through Maharashtra Pollution Control Board (MPCB)	48
4.	Central Water Commission (SW)	12
5.	Central Pollution Control Board (CPCB) (GW) through Maharashtra Pollution Control Board (MPCB)	25
6.	Central Ground Water Board (CGWB, NHNS) (GW)	803
	Total no. of stations for surface water	187
	Total no. of stations for ground water	2699

5.2 Hydrology Project and HIS

Hydrology Project (SW) aims at establishing a Hydrological Information System (HIS) in the state and the HIS includes Water Quality Monitoring of Surface Water. The basic objectives for WQ Monitoring are:

a) Monitoring for establishing baseline water quality.

b) Observing trend in water quality changes.

c) Calculating flux of water constituents of interest.

d) Control and management of water pollution.

Distribution of 127 WQ sampling locations is done amongst 5 Level-II laboratories located at different places i.e. Pune-25, Nashik-25, Nagpur-25, Aurangabad-20, and Kolhapur-32.

The WQ Sampling location category & frequency of sampling designed for SW, Maharashtra:-

WQ Sampling Location Category	Sampling Frequency upto first 3 years	After 3 years monitoring
Baseline - 50 no.	Monthly One Sample	Break for 3 years
Trend - 65 no.	Fortnightly One Sample	After classification as 'Trend' monthly one sample
Flux - 09 no.	Fortnightly One Sample	After classification as 'Flux' fortnightly one sample
Trend / Flux – 03 no.	Fortnightly One Sample	After classification as 'Trend/Flux' fortnightly one sample.

Statement showing Frequency of Sampling & Parameters to be analyzed

Station	Sampling Frequency	Test Parameters	Remark
Baseline	Once in a month first 3 years	30 parameters for 1st sample 20 Parameters for remaining Sample	After 3 years monitoring break for 3 years
Baseline after 3 years break and classification as baseline stations	Once in 2 months	30 parameters for 1st sample 20 Parameters for remaining Sample	One year monitoring again break for 3 years.
Trend	Twice a month	--do--	Initially 3 year monitoring
Trend (after classification as trend)	Once in a month	-- do --	Continuous monitoring
Flux	Twice a month	-- do --	Initially 3 year monitoring
Flux (after classification as Flux)	Twice a month	-- do --	Continuous monitoring with flow measurements
Reservoir and lakes (treated as Trend)	Twice a month	32 parameters for 1st samples. 22 parameters for remaining sample	Continuous monitoring

Note: - The parameters to be analyzed as mentioned above are minimal requirement. This is not however restricted. Additional parameters shall be analyzed as per the requirement or on the basis of geographical location of stations or certain circumstances.

List of Parameters

Sr. No.	Parameter 32	Parameter 30	Parameter 22	Parameter 20
1	Colour	Colour	Colour	Colour
2	Odour	Odour	Odour	Odour
3	Temperature	Temperature	Temperature	Temperature
4	pH	pH	pH	pH
5	Electric Conductivity	Electric Conductivity	Electric Conductivity	Electric Conductivity
6	Dissolved Oxygen	Dissolved Oxygen	Dissolved Oxygen	Dissolved Oxygen
7	Turbidity	Turbidity	Total Solids	Total Solids
8	Total Solids	Total Solids	Dissolved Solids	Dissolved Solids
9	Dissolved Solids	Dissolved Solids	NO2	NO2
10	Suspended Solids	Suspended Solids	NO3	NO3
11	NH3-N	NH3-N	B.O.D.	B.O.D.
12	NO2	NO2	C.O.D.	C.O.D.
13	NO3	NO3	Total Coliforms	Total Coliforms
14	Total Phosphorous	Total Phosphorous	Faecal Coliforms	Faecal Coliforms
15	B.O.D.	B.O.D.	Turbidity	Turbidity
16	C.O.D.	C.O.D.	NH3-N	NH3-N
17	Potassium K+	Potassium K+	Total Phosphorous	Total Phosphorous
18	Sodium (Na)	Sodium (Na)	Chloride (Cl)	Chloride (Cl)
19	Calcium (Ca)	Calcium (Ca)	Alkalinity	Alkalinity
20	Magnesium	Magnesium	Sodium	Sodium
21	Carbonate (CO3)	Carbonate (CO3)	Total Kjeldhal Nitrogen	

22	Bi-Carbonate (H CO3)	Bi-Carbonate (H CO3)	Chlorophyll	
23	Chloride (Cl)	Chloride (Cl)		
24	Sulphate (SO4)	Sulphate (SO4)		
25	Fluoride	Fluoride		
26	Boron	Boron		
27	Total Coliforms	Total Coliforms		
28	Faecal Coliforms	Faecal Coliforms		
29	Alkalinity	Alkalinity		
30	Total hardness	Total hardness		
31	Total Kjeldhal Nitrogen			
32	Chlorophyll			

It is also decided to monitor water quality testing of reservoirs, lakes considering separate issue & frequency of sampling for such locations are considered twice in a month continuously & parameters are to be analyzed 32 for the first sample in the water year (June to May) and 30 parameters for rest of the samples.

6. DATA DISSEMINATION

6.1 Introduction

In the set up of the Hydrological Information System, the first question to be addressed is the type of information to be provided. This determines the layout of the observation network (parameters, network density, observation frequency, equipment, etc.) and the data available in the databases. The type of information to be provided requires an analysis of the potential hydrological data users. The Central and State Government agencies, which support the Hydrological Information System, are the major users of the generated information. There are sources of other governmental, non-governmental and private agencies also, which make good use of this information. It is obvious that the hydrological data needs of the users also change over time. Therefore, it is very important to identify the potential data users and regularly analyse their data needs. Normally, it is expected that the hydrological information service agencies satisfy most of the genuine data needs of the potential users in particular and society at large. For ensuring an optimal use of the public resources spent for maintaining such a Hydrological Information Service, it is therefore very essential to have a proper balance between the data needs of various users and mandate of various services supporting the hydrological information system. To ensure that the HIS output remains at all times **'demand driven'** each state/agency has to constitute a **Hydrological Data Users Group** (HDUG). These HDUGs must represent all potential users within the State or intended to be covered by an agency.

Hydrological Data Users Group is a State or National Level Representative Group of current & potential large scale and repeat users of HIS data who have a stake in water resources utilization, assessment & management.

Purpose

1) To provide a common platform for discussion between hydrology data users & data provider.
2) To create awareness amongst users about Hydrological Information System (HIS) data & educate them.
3) To understand, analyze & update information on the changing needs of data users.
4) To review & recommend addition /deletion in the data collection networks related to HIS, if appropriate.

Stage discharge data is measured on GD stations. Hourly & Daily rainfall is measured on ARG & SRG stations respectively. On FCS station climatic parameters namely minimum & Maximum temperature, dry & wet bulb temperature, humidity, pan evaporation, wind direction & wind velocity, pan water temperature are measured. On water quality sampling stations water samples are collected and tested in the laboratory for turbidly, BOD, COD, PH etc.

All these data is observed either daily, twice daily or hourly & entered into computer using SWDES software. This data is then validated using HYMOS software & after final validation, it is ready for dissemination.

Table 6.1 The extent of data availability

Sr. No.	Data Type	No. of stations	Data Availability
1	Rainfall	506	Since 1976
2	River gauge	210	Since 1980
3	Climatic	67	Since 1980
4	Water Quality	127	Since 1999

6.2 The user can request for the data as below

The HDUG member can request the data by filling the request form. (Please see Annexure-B). Data is made available online/offline through any available media such as E-mail, Floppy, CD, Tape or hard copy against payment for the required data. Catalogue services are being lunched on central NIC server, shortly and will be available on Internet.

The registration form may be downloaded from our website

http://www.mahahp.org

6.3 The pricing of data from date 27/06/2005

- ARG Data..... Rs.225 /Station/Year
- SRG Data..... Rs.225 /Station/Year
- FCS Data..... Rs.225 /Station/parameter/Year
- GD Data..... Rs.600 /Station/Year
- Sedimentation Data….. Rs.600 /Station/Year
- W.Q.Data ..... Rs.240 /Station/ parameter/Year

Discounts: -

- For Research or Academic purpose, 25 % of above sanctioned rates will be charged.
- Individual students having no grants for research from any source, data will be supplied free of cost.
- For individual farmers, 50 % of above sanctioned rates will be charged.
- For Private organisations, double of the above sanctioned rates will be charged as the data is used for commercial purpose.

6.4. The members of HDUG can be

- Government Institutions.
- Voluntary Non Government Organizations.
- Universities, Educational & Research Institutions
- Associations - Farmers, Water users, Industrial
- Individuals engaged in Operational Research & Development
- All Professional Bodies
- Consulting Representatives

Annexure : A

List of Station Network sorted by District Name

ARG: Autographic Raingauge Station

SRG: Standard Raingauge Station

GD: Gauge Discharge Station

FCS: Full Climatic Station

S: Sediment Station

Q: Water Quality Station

Sr. No	Station Name	District	Tahsil / Taluka	River	Tributary	Station Setup
1	Adhala	Ahmednagar	Akola	Godavari	Adhala	ARG
2	Bhagur	Ahmednagar	Shevgaon	Godavari	Nani	GDS,ARG
3	Bhandardara	Ahmednagar	Akola	Godavari	Pravara	Q
4	Bhavarwadi	Ahmednagar	Newasa	Godavari	Godavari	SRG
5	Bodhegaon	Ahmednagar	Shevgaon	Godavari	Godavari	SRG
6	Brahmangaon	Ahmednagar	Kopargaon	Godavari	Godavari	SRG
7	ChichondiPatil	Ahmednagar	Ahmednagar	Krishna	Bhima	SRG
8	Jamkhed	Ahmednagar	Jamkhed	Krishna	Bhima	SRG
9	Kashti	Ahmednagar	Shrigonda	Krishna	Bhima	GDSQ,FCS
10	Kolgaon	Ahmednagar	Shrigonda	Krishna	Bhima	SRG
11	Kopargaon	Ahmednagar	Kopargaon	Godavari	Godavari	GDSQ,FCS
12	Kotul	Ahmednagar	Akola	Godavari	Mula	ARG
13	Manikdoundi	Ahmednagar	Pathardi	Krishna	Bhima	SRG
14	Manjur(Handewadi)	Ahmednagar	Kopargaon	Godavari	Godavari	ARG
15	Mhaladevi(Induri)	Ahmednagar	Akola	Godavari	Pravara	GDS,ARG
16	Mungi	Ahmednagar	Shevgaon	Godavari	Godavari	ARG
17	Newasa	Ahmednagar	Newasa	Godavari	Parvara	GDSQ,FCS
18	Nimgaon Gangurde	Ahmednagar	Karjat	Krishna	Bhima	Q,ARG
19	Padhegaon	Ahmednagar	Kopargaon	Godavari	Godavari	ARG
20	Panegaon	Ahmednagar	Newasa	Godavari	Mula	GDS,ARG
21	Rahata	Ahmednagar	Kopargaon	Godavari	Godavari	SRG
22	Samangaon(Male)	Ahmednagar	Shevgaon	Godavari	Godavari	GDS,ARG
23	Sangamner(Waghap	Ahmednagar	Sangamner	Godavari	Pravara	GDS,FCS
24	Supa	Ahmednagar	Parner	Krishna	Bhima	SRG
25	Toka	Ahmednagar	Newasa	Godavari	Parvara	Q,SRG
26	Wadalamahadev	Ahmednagar	Shrirampur	Godavari	Godavari	SRG
27	Akola	Akola	Akola	Tapi	Purna	ARG
28	Aurangpur	Akola	Murtizapur	Tapi	Purna	GDS,FCS
29	Gadegaon	Akola	Telhara	Tapi	Purna	SRG
30	Gopalkhed	Akola	Akola	Tapi	Purna	SRG
31	Kawtha	Akola	Balapur	Tapi	Purna	Q
32	Khatkali	Akola	Akot	Tapi	Tapi	SRG
33	Kutasa	Akola	Akot	Tapi	Purna	SRG
34	Lakhpuri	Akola	Murtizapur	Tapi	Purna	Q,ARG
35	Takli Khetri	Akola	Patur	Tapi	Purna	Q,ARG
36	Warkhed	Akola	Telhara	Tapi	Purna	Q
37	Amravati	Amravati	Amravati	Tapi	Purna	ARG
38	Anjangaon Surji	Amravati	Chikhaldara	Tapi	Purna	ARG

Sr. No	Station Name	District	Tahsil / Taluka	River	Tributary	Station Setup
39	Chourakund	Amravati	Dharni	Tapi	Tapi	ARG
40	Chunkhadi	Amravati	Chikhaldara	Tapi	Tapi	SRG
41	Dabida	Amravati	Dharni	Tapi	Tapi	SRG
42	Daryapur	Amravati	Daryapur	Tapi	Purna	GDSQ,ARG
43	Deogaon	Amravati	Achalpur	Tapi	Purna	ARG
44	Ghatang	Amravati	Chikhaldara	Tapi	Tapi	ARG
45	Ghatladki	Amravati	Chandur Bazar	Tapi	Purna	SRG
46	Jarida	Amravati	Chikhaldara	Tapi	Tapi	SRG
47	Khariya	Amravati	Dharni	Tapi	Tapi	GDSQ,FCS
48	Kurha	Amravati	Tiwasa	Godavari	Wardha	SRG
49	Malur	Amravati	Dharni	Tapi	Tapi	SRG
50	Mangrul Chawala	Amravati	Nandgaon Kh.	Godavari	Wardha	ARG
51	Morgad	Amravati	Chikhaldara	Tapi	Purna	SRG
52	Nandura Dhande	Amravati	Daryapur	Tapi	Purna	ARG
53	Rahu	Amravati	Chikhaldara	Tapi	Tapi	SRG
54	Semadoh	Amravati	Chikhaldara	Tapi	Tapi	ARG
55	Tarubanda	Amravati	Chikhaldara	Tapi	Tapi	ARG
56	Vishroli	Amravati	Chandur Bazar	Tapi	Purna	Q,ARG
57	Wagdoh	Amravati	Achalpur	Tapi	Purna	SRG
58	Warud Bagaji	Amravati	Tiwasa	Godavari	Wardha	GDQ,FCS
59	Ambelhol	Aurangabad	Gangapur	Godavari	Shivna	SRG
60	Chinchkhed Bhavan	Aurangabad	Sillod	Godavari	Purna	GDS,FCS
61	Deogaon rangari	Aurangabad	Kannad	Godavari	Godavari	SRG
62	Dhorkin	Aurangabad	Paithan	Godavari	Godavari	SRG
63	Kavitkheda	Aurangabad	Sillod	Godavari	Girja	SRG
64	Ladsangvi	Aurangabad	Aurangabad	Godavari	Purna	SRG
65	Loni(Kh)	Aurangabad	Vaijapur	Godavari	Godavari	SRG
66	Nagamthan	Aurangabad	Vaijapur	Godavari	Godavari	GDS,ARG
67	Pategaon	Aurangabad	Paithan	Godavari	Godavari	Q,FCS
68	Pishor	Aurangabad	Kannad	Godavari	Purna	Q,SRG
69	Shivna	Aurangabad	Sillod	Godavari	Purna	SRG
70	Solegaon	Aurangabad	Gangapur	Godavari	Shivna	GDS,ARG
71	Wadvali	Aurangabad	Paithan	Godavari	Godavari	Q
72	Dhalegaon	Beed	Majalgaon	Godavari	Godavari	Q
73	Digholamba	Beed	Kaij	Godavari	Manjara	SRG
74	Hirapur	Beed	Georai	Godavari	Sindhphana	Q,SRG
75	Kuppa	Beed	Dharur	Godavari	Sindhphana	ARG
76	Limbaganesh	Beed	Beed	Godavari	Manjara	SRG
77	Limbla	Beed	Beed	Godavari	Godavari	SRG

Sr. No	Station Name	District	Tahsil / Taluka	River	Tributary	Station Setup
78	Manoor	Beed	Majalgaon	Godavari	Sindhphana	FCS
79	Patoda	Beed	Patoda	Godavari	Sindhphana	Q
80	Shirur	Beed	Patoda	Godavari	Sindhphana	Q
81	Ujani	Beed	Ambejogai	Godavari	Manjara	SRG
82	Yellamghat	Beed	Beed	Godavari	Manjara	SRG
83	Bonde	Bhandara	Sakoli	Godavari	Wainganga	ARG
84	Chichghat	Bhandara	Bhandara	Godavari	Wainganga	GD,ARG
85	Gosekhurd	Bhandara	Pauni	Godavari	Wainganga	FCS
86	Kardha	Bhandara	Bhandara	Godavari	Wainganga	GDSQ,ARG
87	Kothurna	Bhandara	Bhandara	Godavari	Wainganga	ARG
88	Lakhandur	Bhandara	Lakhandur	Godavari	Wainganga	GD,ARG
89	Mahalgaon	Bhandara	Tumsar	Godavari	Wainganga	GDS,SRG
90	Sitekasa	Bhandara	Bhandara	Godavari	Wainganga	GD,ARG
91	Deoulgaon	Buldhana	Mehkar	Tapi	Purna	ARG
92	Didola	Buldhana	Motala	Tapi	Purna	ARG
93	Fardapur	Buldhana	Mehkar	Godavari	Painganga	GDS,FCS
94	Lakhanwada	Buldhana	Khamgaon	Tapi	Purna	ARG
95	Manasgaon	Buldhana	Shegaon	Tapi	Purna	GDSQ,FCS
96	Motala	Buldhana	Motala	Tapi	Purna	SRG
97	Paldhag	Buldhana	Motala	Tapi	Purna	SRG
98	Pangri	Buldhana	Buldhana	Godavari	Painganga	ARG
99	Pentakali	Buldhana	Chikhali	Godavari	Painganga	ARG
100	Raheri	Buldhana	Sindhkhed Raja	Godavari	Purna	GDSQ
101	Shirla (Nemane)	Buldhana	Khamgaon	Tapi	Purna	GDS,FCS
102	Tandulwadi	Buldhana	Khamgaon	Tapi	Purna	SRG
103	Umali	Buldhana	Malkapur	Tapi	Purna	ARG
104	Wasali	Buldhana	Sangrapur	Tapi	Purna	ARG
105	Ajaypur	Chandrapur	Chandrapur	Godavari	Wainganga	ARG
106	Aksapur	Chandrapur	Gondpipri	Godavari	Wardha	SRG
107	Dhaba	Chandrapur	Gondpipri	Godavari	Wardha	GDSQ,SRG
108	Dindora(Soit)	Chandrapur	Warora	Godavari	Wardha	GDSQ,SRG
109	Gadbori	Chandrapur	Sindewahi	Godavari	Wainganga	GD,SRG
110	Nandgur	Chandrapur	Chandrapur	Godavari	Wainganga	GD
111	Padmapur	Chandrapur	Chandrapur	Godavari	Wardha	SRG
112	Ratnapur	Chandrapur	Sindewahi	Godavari	Wainganga	ARG
113	Sakhara (Raja)	Chandrapur	Warora	Godavari	Wardha	SRG
114	Tadoba	Chandrapur	Bhadrawti	Godavari	Wardha	SRG
115	Tekadi	Chandrapur	Mul	Godavari	Wainganga	ARG
116	Wadsa (Chincholi)	Chandrapur	Bramhapuri	Godavari	Wainganga	GDSQ,FCS

Sr. No	Station Name	District	Tahsil / Taluka	River	Tributary	Station Setup
117	Wagholi -Butti	Chandrapur	Saoli	Godavari	Wainganga	GDSQ,FCS
118	Akkalpada	Dhule	Sakri	Tapi	Panzara	GDSQ
119	Ambe	Dhule	Shirpur	Tapi	Aner	SRG
120	Betawad	Dhule	Shindkheda	Tapi	Panzara	SRG
121	Chaupada	Dhule	Sakri	Tapi	Panzara	SRG
122	Chimthane	Dhule	Shindkheda	Tapi	Burai	GDS,FCS
123	Dhule	Dhule	Dhule	Tapi	Panzara	GDSQ,FCS
124	Malkatar	Dhule	Shirpur	Tapi	Arunawati	SRG
125	Malpur	Dhule	Shindkheda	Tapi	Amravati	GDS
126	Mandal	Dhule	Shirpur	Tapi	Arunawati	GD
127	Purmepada	Dhule	Dhule	Tapi	Bori	SRG
128	Runmali	Dhule	Sakri	Tapi	Burai	SRG
129	Shewadi	Dhule	Sakri	Tapi	Panzara	ARG
130	Songir	Dhule	Dhule	Tapi	Panzara	ARG
131	Sukwad	Dhule	Shirpur	Tapi	Tapi	GDSQ,FCS
132	Tonda	Dhule	Shirpur	Tapi	Aner	GD
133	Vinchur	Dhule	Dhule	Tapi	Bori	GDS,SRG
134	Wardhane	Dhule	Sakri	Tapi	Burai	ARG
135	Warsa	Dhule	Sakri	Tapi	Panzara	ARG
136	Armori	Gadchiroli	Armori	Godavari	Wainganga	GD,ARG
137	Bamni	Gadchiroli	Dhanora	Godavari	Wainganga	GD,ARG
138	Bhamragad	Gadchiroli	Bhamragad	Godavari	Indrawati	GDS,FCS
139	Bhimkund	Gadchiroli	Chamorshi	Godavari	Wainganga	GD,FCS
140	Bori	Gadchiroli	Aheri	Godavari	Pranhita	GD,FCS
141	Chavela	Gadchiroli	Dhanora	Godavari	Wainganga	ARG
142	Damrencha	Gadchiroli	Aheri	Godavari	Indrawati	GDSQ,ARG
143	Dechali	Gadchiroli	Aheri	Godavari	Indrawati	GD,FCS
144	Kurkheda	Gadchiroli	Kurkheda	Godavari	Wainganga	ARG
145	Magdatola	Gadchiroli	Armori	Godavari	Wainganga	GD,SRG
146	Mahagaon	Gadchiroli	Aheri	Godavari	Pranhita	GDQ,ARG
147	Parsewada	Gadchiroli	Shironcha	Godavari	Pranhita	GD,SRG
148	Petta	Gadchiroli	Ettapalli	Godavari	Indrawati	GDQ,ARG
149	Shivni	Gadchiroli	Armori	Godavari	Wainganga	GD,ARG
150	Deori	Gondia	Gondia	Godavari	Wainganga	GDQ,FCS
151	Gothangaon -Bori	Gondia	Arjuni -Morgaon	Godavari	Wainganga	GD,ARG
152	Mandwi	Gondia	Tirora	Godavari	Wainganga	GD,ARG
153	Pipriya	Gondia	Setekasa	Godavari	Wainganga	GD,ARG
154	Sirpur	Gondia	Deori	Godavari	Wainganga	GD,ARG
155	Javlabazar	Hingoli	Basmat	Godavari	Purna	SRG

Sr. No	Station Name	District	Tahsil / Taluka	River	Tributary	Station Setup
156	Takalkhopa	Hingoli	Aundha	Godavari	Purna	SRG
157	Ajnad	Jalgaon	Raver	Tapi	Tapi	SRG
158	Belval	Jalgaon	Bhusawal	Tapi	Waghur	GDS,FCS
159	Bhusawal	Jalgaon	Bhusawal	Tapi	Tapi	GDSQ,FCS
160	Changdeo	Jalgaon	Edlabad	Tapi	Tapi	SRG
161	Hingona	Jalgaon	yawal	Tapi	Mor	Q
162	Jalgaon Khurd	Jalgaon	Jalgaon	Tapi	Waghur	ARG
163	Jamner	Jalgaon	Jamner	Tapi	Panzara	GDS,FCS
164	Kolode	Jalgaon	Rawer	Tapi	Suki	ARG
165	Lohara	Jalgaon	Rawer	Tapi	Suki	SRG
166	Lohtar	Jalgaon	Pachora	Tapi	Girna	GDS
167	Mhaswad	Jalgaon	Jalgaon	Tapi	Girna	SRG
168	Mohmandali	Jalgaon	Rawer	Tapi	Mor	ARG
169	Morchida	Jalgaon	Chopda	Tapi	Aner	GDS
170	Padalse	Jalgaon	Amalner	Tapi	Tapi	GDSQ,FCS
171	Pal	Jalgaon	Rawer	Tapi	Suki	GDS,SRG
172	Rangaon	Jalgaon	Rawer	Tapi	Tapi	ARG
173	Sawkheda	Jalgaon	Jalgaon	Tapi	Girna	GDSQ,ARG
174	Shiwre Digar	Jalgaon	Parola	Tapi	Bori	SRG
175	Tawsa nanded	Jalgaon	Chopda	Tapi	Tapi	SRG
176	Welode	Jalgaon	Chopda	Tapi	Aner	ARG
177	Bavnepangri	Jalna	Jalna	Godavari	Dudhna	ARG
178	Dabhadi	Jalna	Badnapur	Godavari	Girja	SRG
179	Golapangri	Jalna	Jalna	Godavari	Dudhna	GDS,ARG
180	Jaffrabad	Jalna	Jaffrabad	Godavari	Purna	GDS,FCS
181	Mantha	Jalna	Mantha	Godavari	Purna	SRG
182	Shahagad	Jalna	Ambad	Godavari	Godavari	GDSQ,FCS
183	Shevli	Jalna	Jalna	Godavari	Dudhna	SRG
184	Ajara Ramtirth	Kolhapur	Ajara	Krishna	Ghatprabha	GDS,SRG
185	Ardal	Kolhapur	Ajara	Krishna	Ghatprabha	SRG
186	Bubnal	Kolhapur	Shirol	Krishna	Krishna	GDSQ
187	Dajipur	Kolhapur	Radhanagari	Krishna	Dudhganga	ARG
188	Gargoti	Kolhapur	Bhudargad	Krishna	Dudhganga	SRG
189	Ichalkaranji	Kolhapur	Hatkanangale	Krishna	Panchganga	GDS
190	Jambhur	Kolhapur	Shahuwadi	Krishna	Warna	SRG
191	Jambre Umgaon	Kolhapur	Chandgad	Krishna	Ghatprabha	GDS,FCS
192	Kadal	Kolhapur	Gadhinglaj	Krishna	Ghatprabha	GDS,ARG
193	Kagal (NH4)	Kolhapur	Kagal	Krishna	Dudhganga	GDS,SRG
194	Khadakewada	Kolhapur	Kagal	Krishna	Chikotra	GDS

Sr. No	Station Name	District	Tahsil / Taluka	River	Tributary	Station Setup
195	Kitwade	Kolhapur	Ajara	Krishna	Ghatprabha	ARG
196	Kolik	Kolhapur	Chandagad	Tillari	Tillari	SRG
197	Kothali	Kolhapur	Karveer	Krishna	Panchganga	ARG
198	Kurundwad (Wadi)	Kolhapur	Shirol	Krishna	Krishna	Q
199	Mandukali	Kolhapur	Gaganbawada	Krishna	Panchganga	GDS,SRG
200	Nadgadwadi	Kolhapur	Chandgad	Krishna	Ghatprabha	GDS,FCS
201	Nitawade	Kolhapur	Karveer	Krishna	Panchganga	GDS,FCS
202	Patane	Kolhapur	Chandgad	Krishna	Ghatprabha	ARG
203	Patryachiwadi	Kolhapur	Panhala	Krishna	Panchganga	GDS,FCS
204	Radhanagari Dam	Kolhapur	Radhanagari	Krishna	Panchganga	ARG
205	Revechiwadi	Kolhapur	Gaganbawada	Krishna	Panchganga	ARG
206	Rukadi	Kolhapur	Hatkanangale	Krishna	Panchganga	SRG
207	Sarud	Kolhapur	Shahuwadi	Krishna	Warna	GDS,SRG
208	Satve Savarde	Kolhapur	Panhala	Krishna	Warna	SRG
209	Songe Bange	Kolhapur	Kagal	Krishna	Dudhganga	ARG
210	Tarewadi	Kolhapur	Gadhinglaj	Krishna	Ghatprabha	GDS,SRG
211	Wadange(R.T)	Kolhapur	Karveer	Krishna	Panchganga	GDSQ,FCS
212	Aurad (Sh)	Latur	Nilanga	Godavari	Manjara	GDS,ARG
213	Gharni Project	Latur	Chakur	Godavari	Manjara	SRG
214	Jadhala	Latur	Chakur	Godavari	Manjara	SRG
215	Jagalpur	Latur	Jalkot	Godavari	Manjara	SRG
216	Killari	Latur	Ausa	Godavari	Terna	Q
217	Matola	Latur	Ausa	Godavari	Manjara	SRG
218	Nalegaon	Latur	Udgir	Godavari	Manjara	SRG
219	Nitur	Latur	Nilanga	Godavari	Manjara	SRG
220	Takli	Latur	Devni	Godavari	Manjara	GDSQ,FCS
221	Wadhona	Latur	Udgir	Godavari	Manjara	SRG
222	Gothangaon(Pauni)	Nagpur	Bhiwapur	Godavari	Wainganga	SRG
223	Hardoli	Nagpur	Kuhi	Godavari	Wainganga	ARG
224	Jalalkheda	Nagpur	Narkhed	Godavari	Wardha	SRG
225	Kamtheekhairi	Nagpur	Parseoni	Godavari	Wainganga	GDQ,FCS
226	Kanholibara	Nagpur	Hingna	Godavari	Wardha	ARG
227	Mathani	Nagpur	Mouda	Godavari	Wainganga	GDSQ,FCS
228	Tembhurdoh	Nagpur	Saoner	Godavari	Wainganga	GDQ,ARG
229	Wadgaon	Nagpur	Umred	Godavari	Wardha	SRG
230	Ambadi	Nanded	Kinwat	Godavari	Painganga	SRG
231	Barad	Nanded	Mudkhed	Godavari	Godavari	SRG
232	Jamb(Bk)	Nanded	Mukhed	Godavari	Manar	SRG
233	Kesrali	Nanded	Biloli	Godavari	Manar	GDSQ,ARG

Sr. No	Station Name	District	Tahsil / Taluka	River	Tributary	Station Setup
234	Limboti	Nanded	Loha	Godavari	Manar	GDS,ARG
235	Lohgaon	Nanded	Biloli	Godavari	Godavari	SRG
236	Mahur	Nanded	Kinwat	Godavari	Painganga	SRG
237	Malegaon	Nanded	Loha	Godavari	Manar	SRG
238	Malkoutha	Nanded	Mudkhed	Godavari	Godavari	SRG
239	Mandvi	Nanded	Kinwat	Godavari	Painganga	SRG
240	Mukhed	Nanded	Mukhed	Godavari	Manar	SRG
241	Nanded(Nagapur)	Nanded	Nanded	Godavari	Godavari	GDSQ,FCS
242	Patoda	Nanded	Kinwat	Godavari	Painganga	SRG
243	Purnabridge	Nanded	Nanded	Godavari	Purna	Q
244	Ravankola	Nanded	Mukhed	Godavari	Lendi	SRG
245	Sarkhani	Nanded	Kinwat	Godavari	Painganga	SRG
246	Shivani	Nanded	Kinwat	Godavari	Godavari	SRG
247	Sundgi	Nanded	Degloor	Godavari	Lendi	GDSQ,FCS
248	Taklidhangar	Nanded	Nanded	Godavari	Godavari	Q
249	Tamsa	Nanded	Hadgaon	Godavari	Painganga	SRG
250	Umri	Nanded	Bhokar	Godavari	Godavari	SRG
251	Yelli	Nanded	Nanded	Godavari	Godavari	Q
252	Adgaon	Nandurbar	Shahada	Tapi	Gomai	SRG
253	Bijgaon	Nandurbar	Nawapur	Tapi	Nisu	SRG
254	Karanjkuwa	Nandurbar	Akrani	Tapi	Girna	GDS
255	Lonkheda	Nandurbar	Shahada	Tapi	Gomai	GDS,SRG
256	Mandwi Khurd	Nandurbar	Akrani	Narmada	Udai	SRG
257	Sarangkheda	Nandurbar	Shahada	Tapi	Tapi	GDSQ,ARG
258	Sisa	Nandurbar	Akrani	Narmada	Udai	SRG
259	Thanepada	Nandurbar	Nandurbar	Tapi	Amravati	SRG
260	Toranmal	Nandurbar	Shahada	Narmada	Udai	SRG
261	Ambai	Nashik	Nashik	Godavari	Godavari	ARG
262	Ambedindori	Nashik	Dindori	Godavari	Kadwa	SRG
263	Anjaneri	Nashik	Nashik	Godavari	Godavari	ARG
264	Aswali	Nashik	Igatpuri	Godavari	Darana	SRG
265	Bhanwad	Nashik	Dindori	Godavari	KADWA	SRG
266	Bhawali(Bk)	Nashik	Igatpuri	Godavari	Darna	SRG
267	Bhojapur	Nashik	Sinnar	Godavari	Pravara	SRG
268	Bolthan	Nashik	Nandgaon	Godavari	Godavari	SRG
269	Charose	Nashik	Dindori	Godavari	Kadwa	SRG
270	Darna Dam	Nashik	Igatpuri	Godavari	Darna	ARG
271	Deogaon	Nashik	Niphad	Godavari	Godavari	SRG
272	Dhodambe	Nashik	Chandwad	Godavari	Kadwa	SRG

Sr. No	Station Name	District	Tahsil / Taluka	River	Tributary	Station Setup
273	Diksal	Nashik	Peth	Par	Par	GD
274	Dongarpada	Nashik	Nashik	Godavari	Godavari	SRG
275	Dugaon	Nashik	Chandwad	Godavari	Godavari	SRG
276	Gangapur Dam	Nashik	Nashik	Godavari	Godavari	Q
277	Indore	Nashik	Igatpuri	Godavari	Kadwa	SRG
278	Karanjkhed	Nashik	Dindori	Godavari	Kadwa	SRG
279	Khadak Ozar	Nashik	Chandwad	Godavari	Kadwa	SRG
280	Khirdisathe	Nashik	Yeola	Godavari	Godavari	SRG
281	Kolgaon Mal	Nashik	Sinnar	Godavari	Godavari	SRG
282	Kushegaon	Nashik	Igatpuri	Godavari	Darna	SRG
283	Mahalkheda	Nashik	Yeola	Godavari	Godavari	SRG
284	Mahirawani	Nashik	Nashik	Godavari	Godavari	ARG
285	Malegaon Girna	Nashik	Malegaon	Tapi	Girna	GDS,FCS
286	Malegaon Mosam	Nashik	Malegaon	Tapi	Girna	GDSQ
287	Nandur Shingote	Nashik	Sinnar	Godavari	Godavari	SRG
288	Nashik	Nashik	Nashik	Godavari	Godavari	GDSQ,FCS
289	Niphad(Kundewadi)	Nashik	Niphad	Godavari	Kadwa	GDS,ARG
290	Padali (Mukane)	Nashik	Nashik	Godavari	Aundh nall	FCS
291	Pimpalgaon(Dk)	Nashik	Igatpuri	Godavari	Kadwa	Q,ARG
292	Rajur Bahula	Nashik	Nashik	Godavari	DARNA	SRG
293	Ramshej	Nashik	Dindori	Godavari	Godavari	SRG
294	Samangaon	Nashik	Nashik	Godavari	Darna	GDS,ARG
295	Somthan	Nashik	Sinnar	Godavari	Godavari	SRG
296	Suple	Nashik	Kalwan	Tapi	Girna	GDSQ
297	Thangaon	Nashik	Sinnar	Godavari	Pravara	SRG
298	Usthale (Hedpada)	Nashik	Peth	Daman Ganga	Damaganga	GD
299	Waghera	Nashik	Nashik	Godavari	Godavari	SRG
300	Alni	Osmanabad	Osmanabad	Godavari	Manjara	SRG
301	Awadshirpur	Osmanabad	Kallamb	Godavari	Manjara	FCS
302	Bembli	Osmanabad	Osmanabad	Godavari	Manjara	ARG
303	Karajkheda	Osmanabad	Osmanabad	Godavari	Manjara	SRG
304	Makni	Osmanabad	Lohara	Godavari	Manjara	ARG
305	Padoli	Osmanabad	Osmanabad	Godavari	Manjara	SRG
306	Pangaon	Osmanabad	Kallamb	Godavari	Manjara	ARG
307	Sarola	Osmanabad	Osmanabad	Godavari	Manjara	ARG
308	Tadola	Osmanabad	Osmanabad	Godavari	Manjara	SRG
309	Yeoti	Osmanabad	Osmanabad	Godavari	Manjara	SRG
310	Asegaon	Parbhani	Jintur	Godavari	Karpara	GDS,ARG
311	Dighol Islampur	Parbhani	Sonpeth	Godavari	Godavari	SRG

Sr. No	Station Name	District	Tahsil / Taluka	River	Tributary	Station Setup
312	Karajkhed	Parbhani	Selu	Godavari	Dudhna	SRG
313	Masoli	Parbhani	Gangakhed	Godavari	Masoli	ARG
314	Palam	Parbhani	Palam	Godavari	Godavari	ARG
315	Potanandgaon	Parbhani	Parbhani	Godavari	Purna	GDS,FCS
316	Rajewadi	Parbhani	Selu	Godavari	Dudhana	GDS,FCS
317	Yeldari	Parbhani	Jintur	Godavari	Purna	SRG
318	Zari	Parbhani	Parbhani	Godavari	Dudhana	GDSQ,ARG
319	Aamdabad	Pune	Shirur	Krishna	Bhima	GDS
320	Alandi	Pune	Khed	Krishna	Bhima	SRG
321	Ambegaon (D/S	Pune	Junnar	Krishna	Bhima	Q
322	Ambeghar (Karanje)	Pune	Bhor	Krishna	Bhima	GDSQ,SRG
323	Askheda	Pune	Khed	Krishna	Bhima	GDS,SRG
324	Barhanpur	Pune	Baramati	Krishna	Bhima	GDS,SRG
325	Budhawad (Velholi)	Pune	Maval	Krishna	Bhima	GDS,SRG
326	Bundgarden Bridge	Pune	Haveli	Krishna	Bhima	Q
327	Chaskman	Pune	Khed	Krishna	Bhima	GDSQ,FCS
328	Dattawadi	Pune	Haveli	Krishna	Krishna	GDSQ
329	Daund	Pune	Daund	Krishna	Bhima	Q
330	Deoghar-2	Pune	Bhor	Krishna	Bhima	GDS,ARG
331	Ghisar	Pune	Velhe	Krishna	Bhima	ARG
332	Kale Colony	Pune	Maval	Krishna	Bhima	Q
333	Katraj Tunnel	Pune	Haveli	Krishna	Bhima	SRG
334	Khamgaon	Pune	Daund	Krishna	Bhima	GDSQ,SRG
335	Khandala	Pune	Maval	Krishna	Bhima	ARG
336	Khed	Pune	Khed	Krishna	Bhima	ARG
337	Kodapur	Pune	Velhe	Krishna	Bhima	ARG
338	Koliye	Pune	Khed	Krishna	Bhima	SRG
339	Kumbheri	Pune	Mulshi	Krishna	Bhima	SRG
340	Kurwandi	Pune	Ambegaon	Krishna	Bhima	SRG
341	Late	Pune	Baramati	Krishna	Bhima	GDS,SRG
342	Malshiras	Pune	Purandar	Krishna	Bhima	SRG
343	Mulshi	Pune	Mulshi	Krishna	Bhima	SRG
344	Narsinhpur	Pune	Indapur	Krishna	Bhima	Q,SRG
345	Nighoje	Pune	Khed	Krishna	Bhima	GDSQ,SRG
346	Pangari	Pune	Bhor	Krishna	Bhima	ARG
347	Pargaon	Pune	Daund	Krishna	Bhima	GDS,FCS
348	Paud	Pune	Mulshi	Krishna	Bhima	GDSQ,SRG
349	Pimpale Gurav	Pune	Haveli	Krishna	Bhima	GDSQ,FCS
350	Pimpalgaon Joga	Pune	Junner	Krishna	Bhima	SRG

Sr. No	Station Name	District	Tahsil / Taluka	River	Tributary	Station Setup
351	Pimpalwandi	Pune	Junner	Krishna	Bhima	ARG
352	Rakshewadi	Pune	Shirur	Krishna	Bhima	GDSQ,SRG
353	Ranjangaon Ganpati	Pune	Shirur	Krishna	Bhima	SRG
354	Sakhar	Pune	Velhe	Krishna	Bhima	GDS,FCS
355	Saswad	Pune	Purandar	Krishna	Bhima	SRG
356	Shikrapur	Pune	Shirur	Krishna	Bhima	SRG
357	Shirgaon	Pune	Bhor	Krishna	Bhima	SRG
358	Shirur	Pune	Shirur	Krishna	Bhima	GDS,SRG
359	Thitewadi	Pune	Shirur	Krishna	Bhima	SRG
360	Umbre (Kasurdi)	Pune	Bhor	Krishna	Bhima	GDS,SRG
361	Velhe	Pune	Velhe	Krishna	Bhima	GDS,SRG
362	Wagholi	Pune	Haveli	Krishna	Bhima	ARG
363	Wegre (Muthe)	Pune	Mulshi	Krishna	Bhima	GDS,FCS
364	Whiram	Pune	Khed	Krishna	Bhima	SRG
365	Ambiwali	Raigad	Mahad	Savitri	Nageshwari	ARG
366	Bhave	Raigad	Mahad	Savitri	Kal	GD,SRG
367	Birwadi	Raigad	Mahad	Savitri	Kal	GDS,ARG
368	Burmali	Raigad	Sudhagad	Amba	Walki	GD
369	Chowk(Kjt)	Raigad	Khalapur	Patalganga	Dhavari	GD,ARG
370	Gadhi	Raigad	Panvel	Panvel	Kalundri	GD
371	Goregaon	Raigad	Mahad	Savitri	Kal	Q
372	Kalamb	Raigad	Karjat	Ulhas	Poshir	GD,ARG
373	Kamarli	Raigad	Pen	Patalganga	Bhogeshwari	GD,ARG
374	Kangule	Raigad	Poladpur	Savitri	Savitri	GDQ,ARG
375	Kanpoli	Raigad	Panvel	Panvel	Navdi	GD
376	Kokare	Raigad	Mahad	Savitri	Gandhari	GD
377	Kolhare	Raigad	Karjat	Ulhas	Ulhas	GD
378	Kondhane	Raigad	Karjat	Ulhas	Ulhas	GD
379	Kotheri	Raigad	Mahad	Savitri	Kotheri nala	SRG
380	Kothurde	Raigad	Mahad	Savitri	Gandhari	GD
381	Mahan	Raigad	Alibag	Kundalika	Sambarkund	GD,ARG
382	Manghar	Raigad	Panvel	To Sea	To Sea	GD
383	Naldhe	Raigad	Karjat	Ulhas	Shilhar	GD,ARG
384	Olman	Raigad	Karjat	Ulhas	Poshir	ARG
385	Pali	Raigad	Sudhagad	Amba	Amba	GDSQ,FCS
386	Payarachiwadi	Raigad	Sudhagad	Amba	Walki	SRG
387	Ransai	Raigad	Uran	Patalganga	Ransai	GD,ARG
388	Sajgaon	Raigad	Khalapur	Patalganga	Patalganga	GD

Sr. No	Station Name	District	Tahsil / Taluka	River	Tributary	Station Setup
389	Salinde	Raigad	Pen	Amba	Nigade	GD
390	Shiravali(Arav)	Raigad	Pen	Patalganga	Balganga	SRG
391	Sudkoli	Raigad	Roha	Kundalika	Mhasadi nala	GD,FCS
392	Tuksai	Raigad	Khalapur	Amba	Amba	GD,ARG
393	Turade	Raigad	Panvel	Patalganga	Patalganga	GDSQ
394	Undergaon	Raigad	Murud	To Sea	To Sea	ARG
395	Varandoli	Raigad	Mahad	Savitri	Gandhari	ARG
396	Varasgaon	Raigad	Roha	Kundalika	Kundalika	Q
397	Wadi	Raigad	Pen	Patalganga	Balganga	GD
398	Waki (Kd)	Raigad	Mahad	Savitri	Kal	ARG
399	Anjanari	Ratnagiri	Lanja	Kajvi	Kajvi	Q
400	Asga	Ratnagiri	Lanja	Kajvi	Karanguli	GD
401	Barewadi	Ratnagiri	Lanja	Bav	Bav	Q
402	Beni(BK)	Ratnagiri	Lanja	Muchkundi	Muchkundi	SRG
403	Chatav	Ratnagiri	Khed	Vashisti	Jagbudi	GDQ
404	Gulvane	Ratnagiri	Chiplun	Shastri	Shastri	SRG
405	Harcheri	Ratnagiri	Ratnagiri	Kajvi	Kajvi	SRG
406	Hardkhala	Ratnagiri	Lanja	Muchkundi	Muchkundi	SRG
407	Hedvi	Ratnagiri	Guhaghar	To Sea	To Sea	SRG
408	Kakewadi	Ratnagiri	Rajapur	Waghotan	Mahadeo nala	GD
409	Karak	Ratnagiri	Rajapur	Kodavali	Arjuna	GD,FCS
410	Karambavane	Ratnagiri	Chiplun	Vashisti	Vashisti	SRG
411	Kheravase	Ratnagiri	Lanja	Kajvi	Kajvi	SRG
412	Kolthare	Ratnagiri	Dapoli	To Sea	To Sea	SRG
413	Kudup	Ratnagiri	Chiplun	Vashisti	Vashisti	SRG
414	Kumbharkhani	Ratnagiri	Sangmeshwar	Shastri	Gad	GDQ
415	Lajul	Ratnagiri	Ratnagiri	Shastri	Shastri	SRG
416	Latwan	Ratnagiri	Mandangad	Bharja	Bharja	GDQ
417	Malgund	Ratnagiri	Ratnagiri	To Sea	To Sea	SRG
418	Mirvane	Ratnagiri	Chiplun	Shastri	Kapashi	GD
419	Pastewadi	Ratnagiri	Sangmeshwar	Kajvi	Kajvi	GDQ
420	Pawarwadi	Ratnagiri	Lanja	Muchkundi	Muchkundi	GDSQ,ARG
421	Pawas	Ratnagiri	Ratnagiri	To Sea	To Sea	SRG
422	Pimpali	Ratnagiri	Chiplun	Vashishti	Vashishti	Q
423	Poynar	Ratnagiri	Khed	Vashisti	Nirgudi	GD,ARG
424	Raipatan	Ratnagiri	Rajapur	Kodavali	Arjuna	GDQ
425	Sanglat	Ratnagiri	Khed	Vashisti	Jagbudi	SRG
426	Shembavane	Ratnagiri	Rajapur	Kodavali	Arjuna	GD
427	Shirgaon	Ratnagiri	Khed	Vashisti	Jagbudi	SRG

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428	Solgaon	Ratnagiri	Rajapur	Kodavali	Kodavali	SRG
429	Soliwade	Ratnagiri	Rajapur	Kodavali	Kodavali	SRG
430	Agran Dhulgaon	Sangli	Kavathe Mahankal	Krishna	Agrani	GDS,FCS
431	Atpadi	Sangli	Atpadi	Krishna	Bhima	SRG
432	Borgaon	Sangli	Kavathe Mahankal	Krishna	Agrani	ARG
433	Chandoli Bk	Sangli	Shirala	Krishna	Warna	SRG
434	Kasegaon (Sangli)	Sangli	Walva	Krishna	Krishna	SRG
435	Kavathe Mahankal	Sangli	Kavathe Mahankal	Krishna	Agrani	SRG
436	Mangle	Sangli	Shirala	Krishna	Warna	SRG
437	Mhaisal	Sangli	Miraj	Krishna	Krishna	GDSQ,FCS
438	Miraj	Sangli	Miraj	Krishna	Krishna	SRG
439	Morna Colony	Sangli	Shirala	Krishna	Warna	SRG
440	Nimaj	Sangli	Kavathe Mahankal	Krishna	Agrani	SRG
441	Rajewadi	Sangli	Atpadi	Krishna	Bhima	SRG
442	Rathare Dharan	Sangli	Shirala	Krishna	Krishna	SRG
443	Sagareshwar	Sangli	Walva	Krishna	Krishna	SRG
444	Sangli	Sangli		Krishna	Krishna	Q
445	Shigaon	Sangli	Walva	Krishna	Warna	GDSQ,FCS
446	Shirala	Sangli	Shirala	Krishna	Warna	SRG
447	Sidhewadi (Sangli)	Sangli	Tasgaon	Krishna	Yerala	SRG
448	Umadi	Sangli	Jath	Krishna	Bhima	SRG
449	Ambale (Awarde)	Satara	Patan	Krishna	Tarali	GDS,SRG
450	Ambavade-1 (Karad)	Satara	Karad	Krishna	Koyna	SRG
451	Ambavade-2	Satara	Khatav	Krishna	Yerala	GDSQ,FCS
452	Andhali	Satara	Man	Krishna	Bhima	SRG
453	Belwade	Satara	Patan	Krishna	Koyna	GDS,FCS
454	Bhuinj, D/S of Dhom	Satara	Wai	Krishna	Krishna	Q
455	Davari	Satara	Patan	Krishna	Koyna	SRG
456	Goregaon Wangi	Satara	Khatav	Krishna	Yerala	SRG
457	Gudhe	Satara	Patan	Krishna	Koyna	GDS,SRG
458	Gureghar	Satara	Patan	Krishna	Koyna	SRG
459	Jawalwadi	Satara	Satara	Krishna	Shumbhi	SRG
460	Kas	Satara	Satara	Krishna	Urmodi	ARG
461	Keral	Satara	Patan	Krishna	Koyna	SRG
462	Mahabaleshwar	Satara	Mahabaleshwar	Krishna	Krishna	ARG
463	Marali	Satara	Karad	Krishna	Tarali	SRG
464	Mendh	Satara	Patan	Krishna	Koyna	SRG
465	Nagewadi	Satara	Wai	Krishna	Krishna	SRG
466	Nagthane	Satara	Satara	Krishna	Urmodi	SRG

Sr. No	Station Name	District	Tahsil / Taluka	River	Tributary	Station Setup
467	Padloshi	Satara	Patan	Krishna	Koyna	SRG
468	Parali	Satara	Satara	Krishna	Urmodi	GDSQ,FCS
469	Rasati, D/S Of Koyana Dam	Satara	Patan	Krishna	Koyna	Q
470	Sandavali	Satara	Satara	Krishna	Urmodi	SRG
471	Shirdhon	Satara	Koregaon	Krishna	Wasna	ARG
472	Shivade	Satara	Karad	Krishna	Krishna	GDSQ,ARG
473	Surul	Satara	Patan	Krishna	Koyna	GDS
474	Targaon	Satara	Koregaon	Krishna	Krishna	SRG
475	Thoseghar	Satara	Satara	Krishna	Tarali	SRG
476	Upshinge	Satara	Koregaon	Krishna	Krishna	SRG
477	Varye. D/S Kanher	Satara	Satara	Krishna	Venna	Q
478	Warunji	Satara	Karad	Krishna	Koyna	Q
479	Wathar	Satara	Karad	Krishna	Wang	SRG
480	Wathar Station	Satara	Koregaon	Krishna	Shumbhi	SRG
481	Yelgaon	Satara	Karad	Krishna	Krishna	SRG
482	Ainari	Sindudurg	Vaibhavwadi	Waghotan	Sukh	SRG
483	Akhavane	Sindudurg	Vaibhavwadi	Waghotan	Aruna	SRG
484	Amboli	Sindudurg	Sawantwadi	Terekhol	Terekhol	SRG
485	Arye	Sindudurg	Devgad	Achara	Achara	Q
486	Awalegaon	Sindudurg	Kudal	Karli	Pith Dhaval	GD,FCS
487	Banda	Sindudurg	Sawantwadi	Terekhol	Terekhol	Q,SRG
488	Baparde	Sindudurg	Deogad	Deoghar	Local nala	Q,ARG
489	Belane	Sindudurg	Kankawali	Gad	Gad	Q
490	Deogad	Sindudurg	Deogad	Deoghar	Deoghar	SRG
491	Dhangarwadi	Sindudurg	Dodamarg	Mandvi	Sakindrapad	SRG
492	Digawale	Sindudurg	Kankawali	Gad	Gad	SRG
493	Dodamarg	Sindudurg	Dodamarg	Tillari	Tillari	SRG
494	Dukanwadi	Sindudurg	Kudal	Karli	Karli	GD
495	Ghonsari(L)	Sindudurg	Kankawali	Deoghar	Kharada	GDQ
496	Girye	Sindudurg	Deogad	Waghotan	Waghotan	SRG
497	Golvan	Sindudurg	Malvan	Gad	Gad	SRG
498	Het	Sindudurg	Vaibhavwadi	Waghotan	Aruna	GD,SRG
499	Kankawali	Sindudurg	Kankawali	Gad	Gad	SRG
500	Kasal	Sindudurg	Kudal	Gad	Kasal	SRG
501	Kerawade	Sindudurg	Kankawali	Karli	Karli	Q
502	Kharepatan	Sindudurg	Kankawali	Waghotan	Waghotan	SRG
503	Kudal	Sindudurg	Kudal	Karli	Karli	Q
504	Nardave	Sindudurg	Kankawali	Gad	Gad	SRG
505	Nerur	Sindudurg	Kudal	Karli	Karli	SRG

Sr. No	Station Name	District	Tahsil / Taluka	River	Tributary	Station Setup
506	Palsamb	Sindudurg	Malvan	Gad	Gad	SRG
507	Phondaghat	Sindudurg	Kankawali	Deoghar	Kharada	SRG
508	Sangulwadi	Sindudurg	Vaibhavwadi	Waghotan	Sukh	GD
509	Sarambala	Sindudurg	Sawantwadi	Terekhol	Dabhil	GD,ARG
510	Sawantwadi	Sindudurg	Sawantwadi	Terekhol	Terekhol	SRG
511	Shirshingi	Sindudurg	Sawantwadi	Terekhol	Terekhol	GDQ,SRG
512	Shivdav	Sindudurg	Kankawali	Gad	Gad	GDQ
513	Talere	Sindudurg	Kankawali	Deoghar	Kharada	SRG
514	Tarandale	Sindudurg	Kankawali	Gad	Gad	SRG
515	Tillariwadi	Sindudurg	Dodamarg	Tillari	Tillari	GDQ
516	Virdi	Sindudurg	Dodamarg	Mandvi	Halther nala	GD,SRG
517	Walawal	Sindudurg	Kudal	Karli	Karli	SRG
518	Bandalgi	Solapur	S.Solapur	Krishna	Bhima	GDSQ,SRG
519	Barur (Takali)	Solapur	S.Solapur	Krishna	Bhima	GDSQ,FCS
520	Chikhalgi	Solapur	Mangalvedha	Krishna	Bhima	SRG
521	Devikavathe	Solapur	Akkalkot	Krishna	Bhima	GDSQ,SRG
522	Dhavals	Solapur	Karmala	Krishna	Bhima	SRG
523	Diksal	Solapur	Mohol	Krishna	Bhima	ARG
524	Hingangaon	Solapur	Madha	Krishna	Bhima	SRG
525	Kasegaon (Solapur)	Solapur	S.Solapur	Krishna	Bhima	SRG
526	Katphal	Solapur	Sangola	Krishna	Bhima	SRG
527	Madha	Solapur	Madha	Krishna	Bhima	ARG
528	Mahud	Solapur	Sangola	Krishna	Bhima	SRG
529	Mangalvedha	Solapur	Mangalvedha	Krishna	Bhima	SRG
530	Pandharpur	Solapur	Pandharpur	Krishna	Bhima	Q
531	Pathari Tank	Solapur	Barshi	Krishna	Bhima	SRG
532	Rosa(Kolgaon)	Solapur	Karmala	Krishna	Bhima	GDS,FCS
533	Sangola	Solapur	Sangola	Krishna	Bhima	ARG
534	Sarati	Solapur	Malshirus	Krishna	Bhima	Q
535	Sidhewadi (Solapur)	Solapur	Pandharpur	Krishna	Bhima	GDS,FCS
536	Tembhurni	Solapur	Madha	Krishna	Bhima	SRG
537	Alman	Thane	Wada	Vaitarna	Vaitarna	GDQ
538	Andhari	Thane	Jawhar	Vaitarna	Pinjal	GD
539	Bhatsanagar	Thane	Shahapur	Ulhas	Bhatsa	FCS
540	Chinchara	Thane	Wada	Vaitarna	Surya	Q
541	Chinchghar	Thane	Jawhar	Vaitarna	Deherji	SRG
542	Dhamni	Thane	Bhiwandi	Ulhas	Varna nala	ARG
543	Gaheli	Thane	Jawhar	Daman Ganga	Wagh	GD
544	Gonde(Kd)	Thane	Mokhada	Daman Ganga	Wagh	ARG

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545	Jamsar	Thane	Jawhar	Daman Ganga	Wagh	SRG
546	Jugalwadi	Thane	Mokhada	Vaitarna	Pinjal	ARG
547	Juni Jawhar	Thane	Jawhar	Daman Ganga	Jawhar	SRG
548	Kaman(Deokhindpad	Thane	Vasai	Ulhas	Kaman	GD
549	Kambe	Thane	Kalyan	Ulhas	Ulhas	Q
550	Karalgaon	Thane	Palghar	Vaitarna	Deherji	GD
551	Kasa (Thane)	Thane	Wada	Vaitarna	Surya	Q
552	Khadadi	Thane	Jawhar	Daman Ganga	Wagh	GDQ,ARG
553	Khadkhad	Thane	Jawhar	Daman Ganga	Wagh	GDQ
554	Khapari	Thane	Murbad	Ulhas	Kalu	GDQ,ARG
555	Khodala	Thane	Mokhada	Vaitarna	Pinjal	SRG
556	Khutal	Thane	Wada	Vaitarna	Deherji	SRG
557	Kochara	Thane	Murbad	Ulhas	Bhatsa	GD
558	Manda	Thane	Shahapur	Ulhas	Bhatsa	Q
559	Nandyachapada	Thane	Jawhar	Vaitarna	Deherji	ARG
560	Ogade	Thane	Wada	Vaitarna	Pinjal	SRG
561	Parali	Thane	Wada	Vaitarna	Pinjal	GD
562	Payarchapada	Thane	Jawhar	Vaitarna	Surya	SRG
563	Pimplas(kl)	Thane	Bhiwandi	Ulhas	Ulhas	SRG
564	Pise	Thane	Bhiwandi	Ulhas	Bhatsa	GD
565	Pundas	Thane	Bhiwandi	Ulhas	Kamvadi	SRG
566	Saivan	Thane	Vasai	Vaitarna	Tansa	GD
567	Savarkhand	Thane	Wada	Vaitarna	Dhandela	SRG
568	Shendrun	Thane	Shahapur	Ulhas	Bhatsa	SRG
569	Shindyachapada	Thane	Mokhada	Daman Ganga	Wagh	GDQ,ARG
570	Suksale	Thane	Jawhar	Vaitarna	Deherji	FCS
571	Suryamal	Thane	Mokhada	Vaitarna	Pinjal	ARG
572	Temburli	Thane	Shahapur	Ulhas	Kalu	ARG
573	Titwala	Thane	Kalyan	Ulhas	Bhatsa	GD
574	Tulai	Thane	Murbad	Ulhas	Murbadi	SRG
575	Umberpada	Thane	Murbad	Ulhas	Kalu	ARG
576	Valvande	Thane	Jawhar	Vaitarna	Deherji	ARG
577	Waghivali	Thane	Wada	Vaitarna	Tansa	Q
578	Yeur	Thane	Thane	Ulhas	Ulhas	ARG
579	Arvi(Big)	Wardha	Arvi	Godavari	Wardha	ARG
580	Drugwada	Wardha	Ashti	Godavari	Wardha	Q,SRG
581	Hamdapur	Wardha	Samudrapur	Godavari	Wardha	GD,ARG
582	Hinganghat	Wardha	Hinganghat	Godavari	Wardha	GD,ARG
583	Sirpur	Wardha	Deoli	Godavari	Wardha	GDS,FCS

Sr. No	Station Name	District	Tahsil / Taluka	River	Tributary	Station Setup
584	Talegaon	Wardha	Arvi	Godavari	Wardha	ARG
585	Wardha	Wardha	Wardha	Godavari	Wardha	ARG
586	Asegaon	Washim	Risod	Godavari	Painganga	ARG
587	Fulumari	Washim	Manora	Godavari	Painganga	ARG
588	Adan Dam	Yavathmal	Darwha	Godavari	Painganga	ARG
589	Anantwadi	Yavathmal	Mahagaon	Godavari	Painganga	GDQ,ARG
590	Arni	Yavathmal	Arni	Godavari	Painganga	ARG
591	Khadka	Yavathmal	Arni	Godavari	Painganga	GD,ARG
592	Kolgaon	Yavathmal	Wani	Godavari	Painganga	GDSQ,ARG
593	Koli(BK)	Yavathmal	Ghatanji	Godavari	Painganga	GD,ARG
594	Lower Pus	Yavathmal	Pusad	Godavari	Painganga	ARG
595	Murli	Yavathmal	Umarkhed	Godavari	Painganga	GD,ARG
596	Nandura(BU)	Yavathmal	Babhulgaon	Godavari	Painganga	GD,ARG
597	Saiphal	Yavathmal	Ghatanji	Godavari	Painganga	GDSQ,ARG
598	Sharad	Yavathmal	Ghatanji	Godavari	Painganga	ARG
599	Takali	Yavathmal	Zari Jamni	Godavari	Painganga	GD,SRG
600	Upper Pus	Yavathmal	Pusad	Godavari	Painganga	ARG
601	Wadki	Yavathmal	Ralegaon	Godavari	Wardha	SRG

Annexure : B

Ref: No. : **Date: / / 200**

DATA REQUEST FORM

To, The Superintending Engineer,
Data Analysis Circle,
Hydrology Project (SW)
Nashik- 422 004

Sub: Data Request Form

Sir,

The DRF is submitted herewith for the following data.

Sr. No	Site Name	Tahasil	District	Data Type	Frequency of Data	Period	
						From	To
1							
2							
3							
4							
5							
6							

Name:	**Organization:**
Phone Number:	**Email:**
Postal Address:	

Media for Dissemination *	Floppy / Hard Copy / CD / DAT Cartridge
Format for Dissemination *	MS Access / MS Excel / CSV
Purpose of Data *	Academic / Research / Design of Water Resource Structures / Design of Roads, Rail, Bridges etc / Navigational Purpose / Hydro Power Potential / Irrigation Management / Sedimentation / Water Quality / Other (Specify)
Communication method for password of protected file. *	Telephone / E-Mail / Post

* *Tick √ Whichever is applicable*

Terms and Conditions:

I / We agreed hereby to abide by the following conditions in respect of the data requested:

1. The data will be used strictly for the said purpose for which the data has been asked for.
2. The data will not be supplied to any governmental/non-governmental or public sector undertaking without the prior concurrence/fresh permission from the owner agency.
3. The data will not be published in any form without the prior permission of the owner agency.
4. The data shall not be used for commercial purpose.
5. The data will not be put on Internet or NIC Net.
6. Any inference drawn based on these data will be the sole responsibility of the Users and the Owner agency will not be responsible for any kind of loss or damage in any form occurring due to the use of data.

Please send the Demand note of data pricing at the above address by Post / Email.

This DRF form can be downloaded from the download section of the website http://www.mahahp.org

Email: sdsc@mahahp.org Phone:0253-2531777

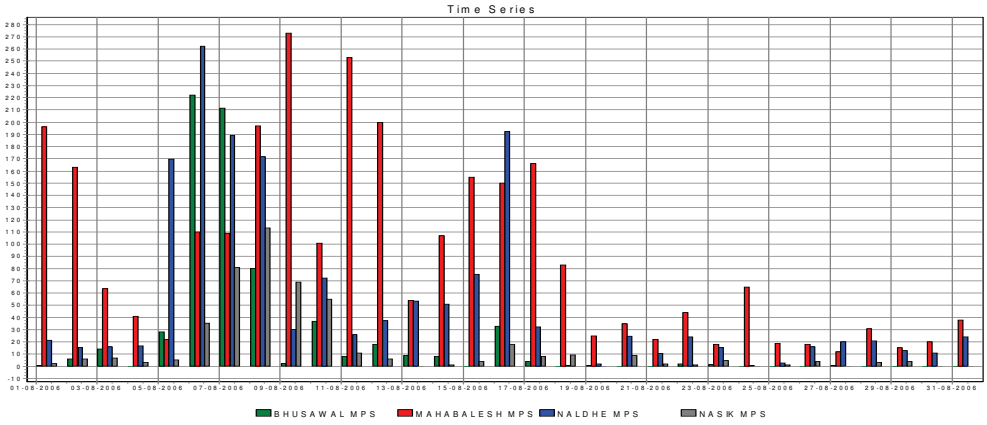
Signature
Name .....

For Office Use:

HDUG Reg. No		Joining Date:		Category:	

Annexure : C

Sample Daily Rainfall of Year 2006

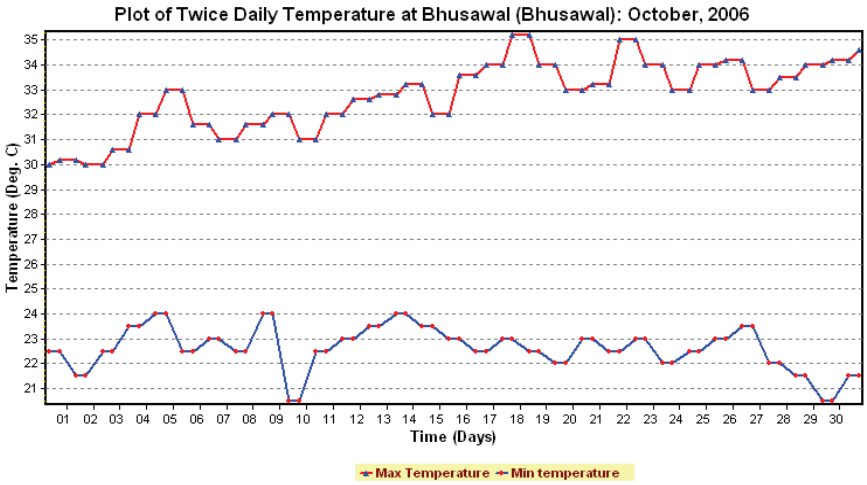


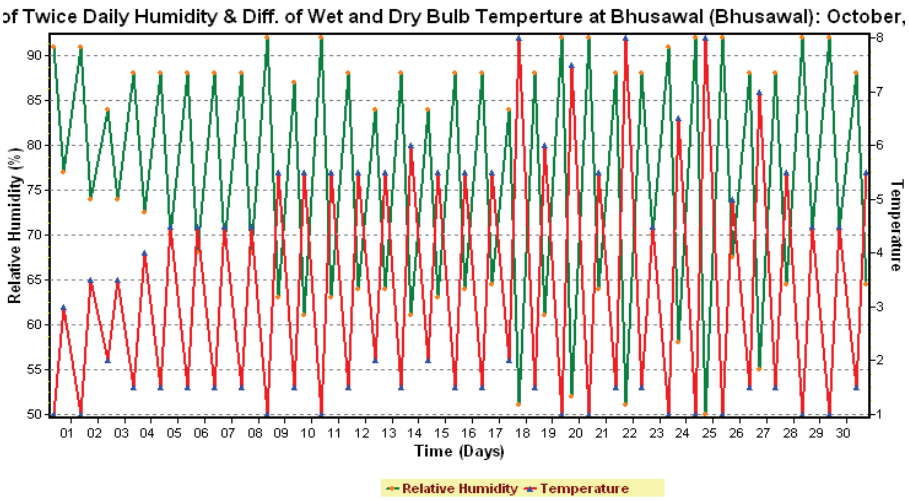
Date	Bhusawal (Tapi)	Mahabaleshwar (Krishna)	Naldhe (WFR)	NASIK (Godawari)
01/08/2006	0.8	196	21.2	2.2
02/08/2006	6	163	15.4	6
03/08/2006	14.4	64	16	7
04/08/2006	0	41	17	3
05/08/2006	28.3	22	169.8	5.3
06/08/2006	222	110	262.2	35.2
07/08/2006	211.6	109	189	81.2
08/08/2006	80.2	197	172	113.2
09/08/2006	2.5	273	30.4	69
10/08/2006	36.8	101	72.4	55
11/08/2006	8	253	26	11.2
12/08/2006	18	200	37.4	6.2
13/08/2006	9	54	53.6	0
14/08/2006	8.2	107	51	1.2
15/08/2006	0	155	75.2	4
16/08/2006	33	150	192.6	18
17/08/2006	4	166	32.4	8
18/08/2006	0	83	0.6	9.3
19/08/2006	0.6	25	1.8	0
20/08/2006	0	35	24.6	9
21/08/2006	0	22	10.6	2
22/08/2006	1.8	44	24.4	1
23/08/2006	1.5	18	15.6	5
24/08/2006	0	65	0.8	0
25/08/2006	0	19	2.6	1
26/08/2006	0	18	15.8	4.2
27/08/2006	0.7	12	20.2	0
28/08/2006	0	31	20.8	3
29/08/2006	0	15	13	4.2
30/08/2006	0	20	11	0
31/08/2006	0	38	24.2	0

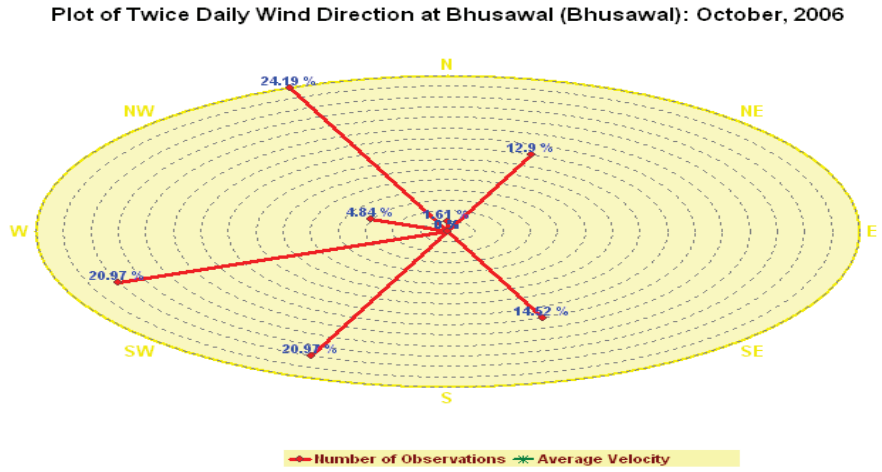
Twice Daily Climatic Data, October 2006

Station Code : Bhusawal **Station Name : Bhusawal**
Local Tapi **Sub-Division : SDDPC,W.R.Sub-Dn No-5,Jalgaon**

Day	Hour	Abs. Pressure	Pan Water	Min. At.Temp.	Max. At. Temp.	Dry bulb Temp.	Wet bulb Temp.	Relative Humidity	Inst. Wind speed	Av. Wind Speed	Wind Direction	Rainfall	Pan Evaporation.	Temp.
1	08:30	..		22.5	30.0	24.0	23.0	91.0	..	2.6	NNE	18.4	2.40	23.0
	17:30	..		22.5	30.2	28.0	25.0	77.0	..	1.0	NNW	9.5	5.50	27.0
2	08:30	..		21.5	30.2	23.5	22.5	91.0	..	3.1	WSW	22.5	2.50	23.0
	17:30	..		21.5	30.0	29.0	25.5	74.0	..	2.0	SSW	-	5.00	28.0
3	08:30	..		22.5	30.0	26.0	24.0	84.0	..	5.8	SSE	-	3.00	25.0
	17:30	..		22.5	30.6	29.0	25.5	74.0	..	1.3	NNW	-	5.00	28.0
4	08:30	..		23.5	30.6	28.0	26.5	88.0	..	4.0	WSW	-	4.00	27.0
	17:30	..		23.5	32.0	31.0	27.0	72.5	..	2.8	SSE	-	7.00	30.0
5	08:30	..		24.0	32.0	27.0	25.5	88.0	..	2.9	SSW	-	4.00	26.0
	17:30	..		24.0	33.0	32.0	27.5	70.0	..	4.2	WSW	-	7.00	31.0
6	08:30	..		22.5	33.0	25.0	23.5	88.0	..	2.8	NNE	-	3.00	24.0
	17:30	..		22.5	31.6	30.0	25.5	68.0	..	3.1	NNW	-	5.00	29.0
7	08:30	..		23.0	31.6	26.0	24.5	88.0	..	4.1	WSW	-	3.00	25.0
	17:30	..		23.0	31.0	29.0	24.5	69.0	..	2.2	SSW	3.0	4.00	28.0
8	08:30	..		22.5	31.0	25.0	23.5	88.0	..	6.0	SSE	.5	3.50	24.0
	17:30	..		22.5	31.6	30.0	25.5	68.0	..	2.7	NNE	-	6.00	29.0
9	08:30	..		24.0	31.6	26.0	25.0	92.0	..	2.3	NNW	-	4.00	25.0
	17:30	..		24.0	32.0	31.0	25.5	63.0	..	3.3	WNW	-	6.00	30.0
10	08:30	..		20.5	32.0	23.0	21.5	87.0	..	7.5	SSW	-	4.00	22.0
	17:30	..		20.5	31.0	29.0	23.5	61.0	..	2.5	NNW	-	5.00	28.0
11	08:30	..		22.5	31.0	26.0	25.0	92.0	..	4.3	WSW	-	3.00	25.0
	17:30	..		22.5	32.0	31.0	25.5	63.0	..	2.6	SSW	-	6.00	30.0
12	08:30	..		23.0	32.0	27.0	25.5	88.0	..	4.3	SSE	-	4.00	26.0
	17:30	..		23.0	32.6	32.0	26.5	64.0	..	2.4	NNE	-	7.00	31.0
13	08:30	..		23.5	32.6	26.0	24.0	84.0	..	4.7	NNW	-	3.00	25.0
	17:30	..		23.5	32.8	32.0	26.5	64.0	..	3.3	SSE	-	6.00	31.0
14	08:30	..		24.0	32.8	27.0	25.5	88.0	..	6.0	SSW	-	4.00	26.0
	17:30	..		24.0	33.2	32.0	26.0	61.0	..	6.0	WSW	-	5.00	31.0
15	08:30	..		23.5	33.2	26.0	24.0	84.0	..	5.0	NNW	-	3.00	25.0
	17:30	..		23.5	32.0	31.0	25.5	63.0	..	2.7	NNE	-	7.00	31.0
16	08:30	..		23.0	32.0	26.0	24.5	88.0	..	7.0	SSE	-	4.00	25.0
	17:30	..		23.0	33.6	32.0	26.5	64.0	..	1.6	NNW	-	6.00	31.0
17	08:30	..		22.5	33.6	25.0	23.5	88.0	..	1.7	SSW	-	3.00	24.0
	17:30	..		22.5	34.0	33.0	27.5	64.5	..	1.9	SSW	-	6.00	32.0
18	08:30	..		23.0	34.0	27.0	25.0	84.0	..	2.8	WSW	-	4.00	26.0
	17:30	..		23.0	35.2	34.0	26.0	51.0	..	3.3	NNW	-	6.00	33.0
19	08:30	..		22.5	35.2	27.0	25.5	88.0	..	2.7	WSW	-	3.00	26.0
	17:30	..		22.5	34.0	32.0	26.0	61.0	..	2.1	SSW	-	5.00	31.0
20	08:30	..		22.0	34.0	25.0	24.0	92.0	..	6.1	SSE	-	4.00	24.0
	17:30	..		22.0	33.0	32.0	24.5	52.0	..	3.3	NNE	-	6.00	31.0
21	08:30	..		23.0	33.0	25.0	24.0	92.0	..	5.0	NNW	-	3.00	24.0
	17:30	..		23.0	33.2	32.0	26.5	64.0	..	4.0	N	-	5.00	31.0
22	08:30	..		22.5	33.2	25.0	23.5	88.0	..	5.2	SSE	-	3.00	24.0
	17:30	..		22.5	35.0	34.0	26.0	51.0	..	4.2	SSW	-	6.00	33.0
23	08:30	..		23.0	35.0	27.0	25.5	88.0	..	8.1	WSW	-	4.00	26.0
	17:30	..		23.0	34.0	32.0	27.5	70.0	..	7.2	WNW	-	6.00	31.0
24	08:30	..		22.0	34.0	24.0	23.0	91.0	..	6.8	NNW	-	4.00	23.0
	17:30	..		22.0	33.0	32.0	25.5	58.0	..	3.4	SSW	-	5.00	31.0
25	08:30	..		22.5	33.0	25.0	24.0	92.0	..	5.8	WSW	-	3.00	24.0
	17:30	..		22.5	34.0	33.0	25.0	50.0	..	2.7	NNW	-	6.00	32.0
26	08:30	..		23.0	34.0	25.0	24.0	92.0	..	5.9	NNE	-	4.00	24.0
	17:30	..		23.0	34.2	33.0	28.0	67.5	..	4.1	SSE	-	7.00	32.0
27	08:30	..		23.5	34.2	26.0	24.5	88.0	..	5.7	SSW	-	3.00	25.0
	17:30	..		23.5	33.0	32.0	25.0	55.0	..	4.4	WSW	-	5.00	31.0
28	08:30	..		22.0	33.0	27.0	25.5	88.0	..	5.3	NNW	-	4.00	26.0
	17:30	..		22.0	33.5	33.0	27.5	64.5	..	3.1	WNW	-	6.00	32.0
29	08:30	..		21.5	33.5	26.0	25.0	92.0	..	5.5	NNE	-	4.00	25.0
	17:30	..		21.5	34.0	33.0	28.5	70.5	..	5.3	NNW	-	7.00	32.0
30	08:30	..		20.5	34.0	26.0	25.0	92.0	..	8.1	WSW	-	3.00	25.0
	17:30	..		20.5	34.2	33.0	28.5	70.5	..	4.9	SSW	-	7.00	32.0
31	08:30	..		21.5	34.2	27.0	25.5	88.0	..	5.7	WSW	-	4.00	26.0
	17:30	..		21.5	34.6	33.0	27.5	64.5	..	5.3	NNW	-	6.00	32.0
Average				22.6	32.8	28.7	25.3	76.5		4.1		..	..	27.7
Total		..		..	..	..	..	..	..	..		53.9	288.9	..


Plot of Twice Daily Temperature at Bhusawal (Bhusawal): October, 2006
Temperature (Deg. C)
Time (Days)
Max Temperature
Min temperature


of Twice Daily Humidity & Diff. of Wet and Dry Bulb Temperture at Bhusawal (Bhusawal): October,
Relative Humidity (%)
Temperature
Time (Days)
Relative Humidity
Temperature

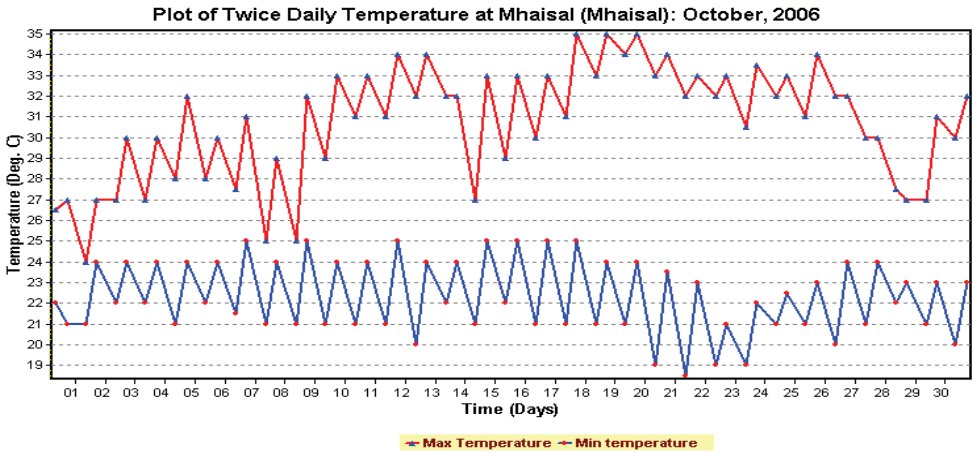

Plot of Twice Daily Wind Direction at Bhusawal (Bhusawal): October, 2006
N
NE
E
SE
S
SW
W
NW
24.19 %
12.9 %
4.84 %
4.61 %
20.97 %
14.52 %
20.97 %
Number of Observations
Average Velocity

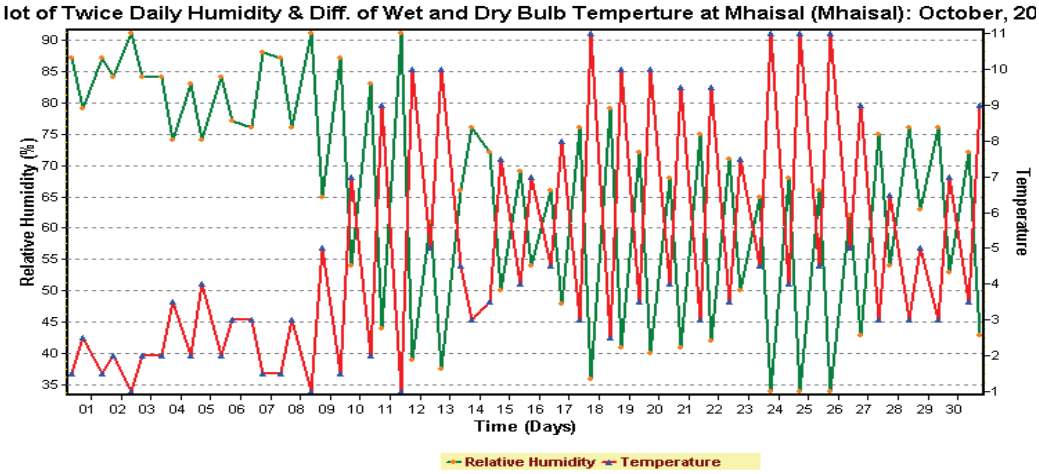
Twice Daily Climatic Data, October 2006

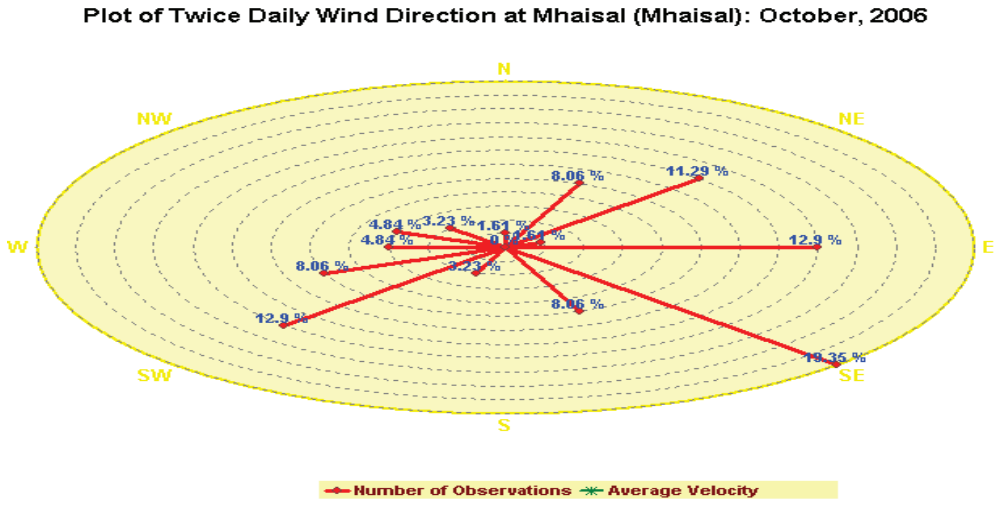
Station Code **Mhaisal** **Station Name** **Mhaisal**
Local **Krishna** **Sub-Division** **SDDPC,Sangli**

Day	Hour	Abs. Pressure Pan Water	Min. At.Temp	Max. At. Temp.	Dry bulb	Wet bulb	Relative Humidit	Inst. Wind speed	Av. Wind Speed	Wind Directio	Rainfall	Pan Evaporatio	Temp.
1	08:30	..	22.0	26.5	24.0	22.5	87.0	4.0	5.5	WNW	-	.80	20.5
	17:30	..	21.0	27.0	23.0	20.5	79.0	14.0	14.1	W	-	2.00	23.0
2	08:30	..	21.0	24.0	23.5	22.0	87.0	6.0	5.4	W	-	1.10	20.0
	17:30	..	24.0	27.0	25.0	23.0	84.0	5.0	5.6	SSW	-	2.00	25.0
3	08:30	..	22.0	27.0	23.5	22.5	91.0	2.0	1.9	SE	-	.80	20.0
	17:30	..	24.0	30.0	25.0	23.0	84.0	3.0	3.0	W	-	2.40	27.0
4	08:30	..	22.0	27.0	25.0	23.0	84.0	2.0	1.9	SW	-	1.50	21.0
	17:30	..	24.0	30.0	28.0	24.5	74.0	6.0	8.4	WSW	-	2.80	28.0
5	08:30	..	21.0	28.0	24.0	22.0	83.0	2.0	3.1	WNW	-	1.60	21.0
	17:30	..	24.0	32.0	29.0	25.0	74.0	6.0	6.9	SW	-	3.20	29.0
6	08:30	..	22.0	28.0	25.0	23.0	84.0	2.0	2.0	SW	-	1.40	21.0
	17:30	..	24.0	30.0	27.0	24.0	77.0	8.0	9.3	SSW	-	2.80	27.5
7	08:30	..	21.5	27.5	25.0	22.0	76.0	4.0	3.9	WNW	-	1.60	21.0
	17:30	..	25.0	31.0	26.0	24.5	88.0	6.0	6.6	NW	-	2.40	26.5
8	08:30	..	21.0	25.0	23.5	22.0	87.0	2.0	3.3	WSW	-	.80	20.5
	17:30	..	24.0	29.0	26.0	23.0	76.0	4.0	3.3	NE	-	2.00	26.0
9	08:30	..	21.0	25.0	24.0	23.0	91.0	2.0	1.9	WSW	-	1.40	21.0
	17:30	..	25.0	32.0	30.0	25.0	65.0	3.0	2.3	NW	-	2.60	28.0
10	08:30	..	21.0	29.0	24.0	22.5	87.0	0.0	1.6	SSE	-	1.20	21.0
	17:30	..	24.0	33.0	31.0	24.0	54.0	4.0	2.8	SE	-	3.00	30.0
11	08:30	..	21.0	31.0	24.0	22.0	83.0	2.0	2.0	SW	-	1.60	21.0
	17:30	..	24.0	33.0	32.0	23.0	44.0	3.0	1.3	SSE	-	3.00	30.0
12	08:30	..	21.0	31.0	23.0	22.0	91.0	2.0	1.8	SW	-	1.50	21.0
	17:30	..	25.0	34.0	33.0	23.0	39.0	3.0	2.2	SE	-	3.30	30.0
13	08:30	..	20.0	32.0	25.0	20.0	61.0	1.0	1.0	WSW	-	1.60	21.0
	17:30	..	24.0	34.0	31.0	21.0	37.5	5.0	4.9	SE	-	3.30	28.0
14	08:30	..	22.0	32.0	26.5	22.0	66.0	2.0	.9	SSE	-	1.70	22.0
	17:30	..	24.0	32.0	26.0	23.0	76.0	4.0	4.4	WSW	-	2.40	25.0
15	08:30	..	21.0	27.0	25.5	22.0	72.0	2.0	.4	E	-	1.50	21.0
	17:30	..	25.0	33.0	30.0	22.5	50.0	4.0	4.2	SE	-	2.80	27.0
16	08:30	..	22.0	29.0	26.0	22.0	69.0	2.0	.5	E	-	1.60	21.0
	17:30	..	25.0	33.0	31.0	24.0	54.0	5.0	4.5	SE	-	2.70	27.0
17	08:30	..	21.0	30.0	26.5	22.0	66.0	2.0	1.0	NE	-	1.70	21.0
	17:30	..	25.0	33.0	31.0	23.0	48.0	6.0	5.4	NNE	-	3.00	27.5
18	08:30	..	21.0	31.0	25.0	22.0	76.0	0.0	.3	NE	-	1.80	21.0
	17:30	..	25.0	35.0	34.0	23.0	36.0	4.0	3.1	SE	-	3.40	29.0
19	08:30	..	21.0	33.0	24.0	21.5	79.0	2.0	1.1	SW	-	2.00	20.0
	17:30	..	24.0	35.0	34.0	24.0	41.0	4.0	5.0	ENE	-	3.40	30.0
20	08:30	..	21.0	34.0	25.0	21.5	72.0	2.0	.6	E	-	2.20	21.0
	17:30	..	24.0	35.0	33.0	23.0	40.0	4.0	3.9	SSE	-	3.30	30.0
21	08:30	..	19.0	33.0	25.0	21.0	68.0	3.0	1.6	SE	-	2.30	20.0
	17:30	..	23.5	34.0	32.0	22.5	41.0	3.0	5.2	E	-	3.00	29.0
22	08:30	..	18.5	32.0	23.0	20.0	75.0	0.0	.7	N	-	2.00	19.0
	17:30	..	23.0	33.0	33.0	23.5	42.0	4.0	4.6	SE	-	3.00	29.0
23	08:30	..	19.0	32.0	23.0	19.5	71.0	2.0	.9	NNE	-	2.00	19.0
	17:30	..	21.0	33.0	30.0	22.5	50.0	4.0	5.0	NE	-	2.70	26.0
24	08:30	..	19.0	30.5	25.0	20.5	65.0	0.0	.7	NNE	-	1.60	19.0
	17:30	..	22.0	33.5	32.0	21.0	34.0	6.0	5.6	NE	-	3.40	28.0
25	08:30	..	21.0	32.0	25.0	21.0	68.0	2.0	.9	E	-	2.00	19.0
	17:30	..	22.5	33.0	32.0	21.0	34.0	6.0	5.1	NNE	-	3.60	28.5
26	08:30	..	21.0	31.0	26.0	21.5	66.0	2.0	.9	SE	-	2.20	20.0
	17:30	..	23.0	34.0	32.0	21.0	34.0	4.0	4.7	NE	-	3.40	29.0
27	08:30	..	20.0	32.0	26.0	21.0	62.0	2.0	1.0	SSE	-	2.30	20.0
	17:30	..	24.0	32.0	31.0	22.0	43.0	4.0	4.7	E	-	3.00	28.0
28	08:30	..	21.0	30.0	24.0	21.0	75.0	2.0	1.3	E	-	1.70	20.0
	17:30	..	24.0	30.0	29.0	22.5	54.0	4.0	4.2	NNE	-	2.00	26.5
29	08:30	..	22.0	27.5	25.0	22.0	76.0	0.0	1.1	SE	-	1.10	20.5
	17:30	..	23.0	27.0	27.0	22.0	63.0	3.0	1.8	SW	-	2.00	25.0
30	08:30	..	21.0	27.0	25.0	22.0	76.0	1.0	.5	E	-	1.00	20.0
	17:30	..	23.0	31.0	30.0	23.0	53.0	4.0	4.3	NE	-	2.60	27.0
31	08:30	..	20.0	30.0	25.0	21.5	72.0	2.0	.8	SE	-	1.50	20.5
	17:30	..	23.0	32.0	31.0	22.0	43.0	3.0	3.6	SW	-	3.00	28.0
Average			22.3	30.7	27.2	22.3	65.8	3.3	3.2		..	..	24.1
Total		..	..	..	..	..	..	..	..		0.0	136.6	..

Note : Rainfall at 17:30 hrs is pertaining to previous day


Plot of Twice Daily Temperature at Mhaisal (Mhaisal): October, 2006
Temperature (Deg. C)
Time (Days)
Max Temperature
Min temperature


lot of Twice Daily Humidity & Diff. of Wet and Dry Bulb Temperture at Mhaisal (Mhaisal): October, 20
Relative Humidity (%)
Temperature
Time (Days)
Relative Humidity
Temperature


Plot of Twice Daily Wind Direction at Mhaisal (Mhaisal): October, 2006
N
NE
E
SE
S
SW
W
NW
8.06 %
11.29 %
4.84 %
3.23 %
1.61 %
4.84 %
12.9 %
8.06 %
3.23 %
8.06 %
12.9 %
19.35 %
Number of Observations
Average Velocity

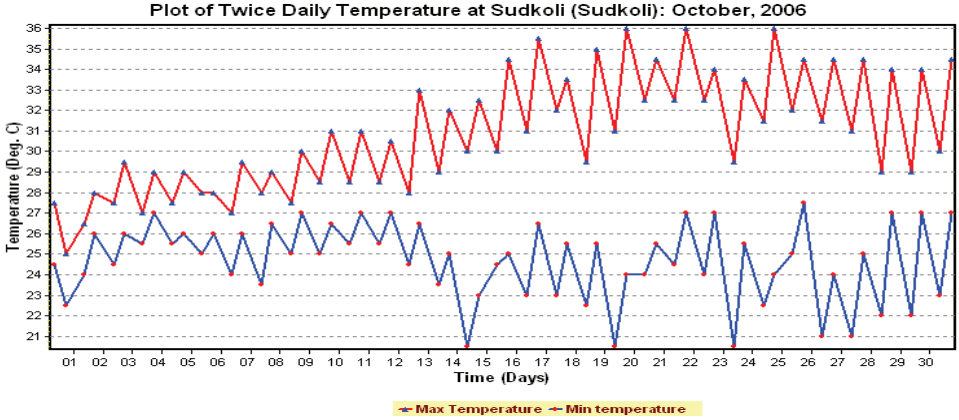
Twice Daily Climatic Data, October 2006

Station Code **Sudkoli** **Station** **Sudkoli**
Local **Mhasadi nala** **Sub-Division** **SDDPC,Kolad**

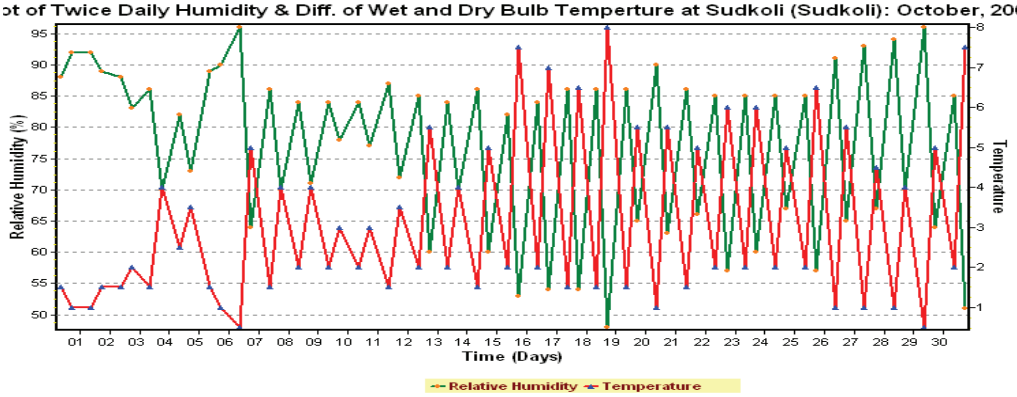
Da	Hou	Abs. Pressur	Min. At.Tem	Max. At.	Dry bulb	Wet bulb	Relativ e	Inst. Wind	Av. Wind	Wind Directio	Rainfall	Pan Evaporati	Temp. Pan
1	08:3	..	24.5	27.5	26.0	24.5	88.0	2.0	2.4	NE	29.4	1.70	26.0
	17:3	..	22.5	25.0	25.0	24.0	92.0	4.0	5.4	NNE	30.6	2.50	26.0
2	08:3	..	24.0	26.5	26.0	25.0	92.0	4.0	3.1	NE	54.6	1.40	26.0
	17:3	..	26.0	28.0	27.5	26.0	89.0	6.0	4.5	NE	24.6	3.00	29.0
3	08:3	..	24.5	27.5	26.5	25.0	88.0	4.0	2.7	NE	-	1.90	26.0
	17:3	..	26.0	29.5	26.5	24.5	83.0	6.0	5.6	NE	.5	2.70	27.0
4	08:3	..	25.5	27.0	27.0	25.5	86.0	2.0	2.6	SE	1.1	2.00	27.0
	17:3	..	27.0	29.0	27.0	23.0	70.0	4.0	4.6	SSE	-	2.90	28.0
5	08:3	..	25.5	27.5	27.5	25.0	82.0	2.0	2.5	SSE	28.4	1.90	27.0
	17:3	..	26.0	29.0	26.0	22.5	73.0	4.0	4.2	SE	11.2	3.00	27.0
6	08:3	..	25.0	28.0	26.5	25.0	89.0	2.0	2.6	NW	3.9	1.70	26.0
	17:3	..	26.0	28.0	27.0	26.0	90.0	4.0	4.9	NNW	-	2.90	28.0
7	08:3	..	24.0	27.0	26.0	25.5	96.0	2.0	2.7	SSW	-	1.90	26.0
	17:3	..	26.0	29.5	28.0	23.0	64.0	4.0	4.5	SW	-	3.10	30.0
8	08:3	..	23.5	28.0	26.5	25.0	86.0	2.0	2.3	SW	-	2.00	26.0
	17:3	..	26.5	29.0	27.5	23.5	70.0	4.0	4.5	SW	-	3.20	29.0
9	08:3	..	25.0	27.5	27.0	25.0	84.0	2.0	2.2	NW	-	2.10	27.0
	17:3	..	27.0	30.0	28.5	24.5	71.0	4.0	4.3	NW	-	3.30	29.0
10	08:3	..	25.0	28.5	26.5	24.5	84.0	2.0	2.1	NNW	-	2.20	26.0
	17:3	..	26.5	31.0	28.5	25.5	78.0	4.0	4.3	NW	-	3.30	30.0
11	08:3	..	25.5	28.5	26.5	24.5	84.0	2.0	2.0	NE	-	2.30	26.0
	17:3	..	27.0	31.0	28.0	25.0	77.0	6.0	4.1	NW	-	3.20	30.0
12	08:3	..	25.5	28.5	27.0	25.5	87.0	2.0	2.1	NW	-	2.40	27.0
	17:3	..	27.0	30.5	27.5	24.0	72.0	2.0	3.6	NE	-	3.50	29.0
13	08:3	..	24.5	28.0	27.0	25.0	85.0	0.0	1.9	ENE	-	2.50	27.0
	17:3	..	26.5	33.0	26.5	21.0	60.0	2.0	3.7	ENE	-	3.60	28.0
14	08:3	..	23.5	29.0	25.0	23.0	84.0	0.0	1.8	NE	-	2.30	25.0
	17:3	..	25.0	32.0	26.5	22.5	70.0	2.0	4.0	NE	.2	3.50	28.0
15	08:3	..	20.5	30.0	23.0	21.5	86.0	0.0	1.7	NE	-	2.10	23.0
	17:3	..	23.0	32.5	25.5	20.5	60.0	2.0	3.5	NE	-	3.60	27.0
16	08:3	..	24.5	30.0	25.0	23.0	82.0	0.0	1.7	NE	-	2.20	25.0
	17:3	..	25.0	34.5	31.0	23.5	53.0	2.0	3.1	NNW	-	3.70	33.0
17	08:3	..	23.0	31.0	26.5	24.5	84.0	0.0	1.7	SW	-	2.30	26.0
	17:3	..	26.5	35.5	32.0	25.0	54.0	4.0	3.3	SW	-	3.80	34.0
18	08:3	..	23.0	32.0	25.5	24.0	86.0	0.0	1.6	NW	-	2.50	25.0
	17:3	..	25.5	33.5	29.5	23.0	54.0	2.0	2.9	SW	-	3.80	31.0
19	08:3	..	22.5	29.5	25.5	24.0	86.0	0.0	1.6	NNW	-	2.50	25.0
	17:3	..	25.5	35.0	31.0	23.0	48.0	2.0	3.2	NW	-	3.50	33.0
20	08:3	..	20.5	31.0	24.0	22.5	86.0	0.0	1.6	NE	-	2.50	25.0
	17:3	..	24.0	36.0	32.5	27.0	65.0	2.0	2.9	NW	-	3.80	34.0
21	08:3	..	24.0	32.5	25.5	24.5	90.0	0.0	1.7	SW	-	2.50	26.0
	17:3	..	25.5	34.5	32.5	27.0	63.0	2.0	2.8	SW	-	3.70	34.0
22	08:3	..	24.5	32.5	27.5	26.0	86.0	0.0	1.8	NE	-	2.50	27.0
	17:3	..	27.0	36.0	32.5	27.5	66.0	0.0	2.8	NNE	-	3.90	34.0
23	08:3	..	24.0	32.5	27.0	25.0	85.0	0.0	2.0	NNW	-	2.50	27.0
	17:3	..	27.0	34.0	29.5	23.5	57.0	0.0	2.7	NW	-	3.70	31.0
24	08:3	..	20.5	29.5	25.5	23.5	85.0	2.0	1.9	NW	10.7	2.40	25.0
	17:3	..	25.5	33.5	31.0	25.0	60.0	2.0	4.1	NW	-	3.50	33.0
25	08:3	..	22.5	31.5	24.0	22.0	85.0	0.0	1.8	SE	-	2.40	24.0
	17:3	..	24.0	36.0	32.0	27.0	67.0	2.0	3.4	NW	-	3.80	34.0
26	08:3	..	25.0	32.0	27.5	25.5	85.0	0.0	2.0	SSW	-	2.60	27.0
	17:3	..	27.5	34.5	31.5	25.0	57.0	2.0	3.3	SSW	-	3.70	33.0
27	08:3	..	21.0	31.5	24.0	23.0	91.0	0.0	2.1	NE	-	2.30	24.0
	17:3	..	24.0	34.5	31.0	25.5	65.0	2.0	3.0	SW	-	3.70	33.0
28	08:3	..	21.0	31.0	25.0	24.0	93.0	0.0	2.1	NE	-	2.30	25.0
	17:3	..	25.0	34.5	29.0	24.5	67.0	2.0	2.8	ENE	-	3.60	31.0
29	08:3	..	22.0	29.0	27.0	26.0	94.0	0.0	2.0	NE	-	2.40	27.0
	17:3	..	27.0	34.0	29.0	25.0	70.0	4.0	2.9	ENE	-	3.70	31.0
30	08:3	..	22.0	29.0	27.0	26.5	96.0	0.0	1.6	NE	-	2.40	27.0
	17:3	..	27.0	34.0	30.0	25.0	64.0	4.0	2.7	NW	-	3.70	32.0
31	08:3	..	23.0	30.0	27.0	25.0	85.0	0.0	1.9	NE	-	2.50	27.0
	17:3	..	27.0	34.5	31.0	23.5	51.0	4.0	2.5	NE	-	3.70	33.0
Average			24.7	30.9	27.5	24.4	77.1	2.0	2.9		..	..	28.3
Total		..	..	..	..	..	..	..	..		195.2	175.8	..

Note : Rainfall at 17:30 hrs is pertaining to previous

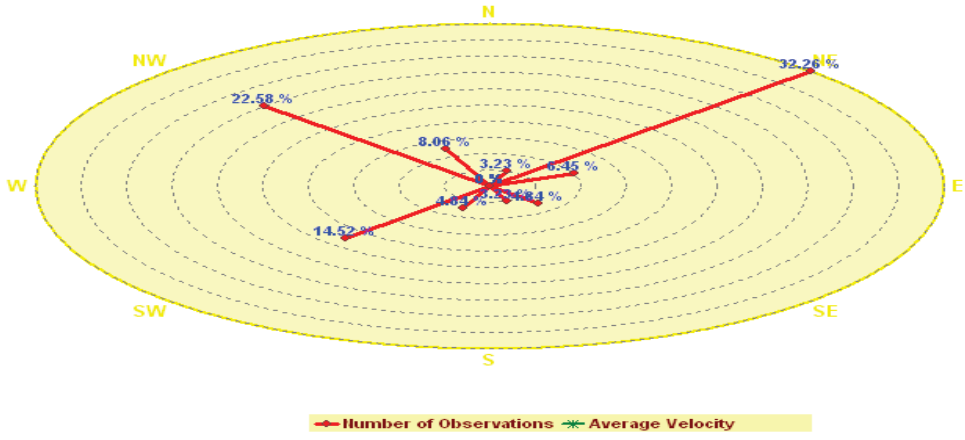
Plot of Twice Daily Temperature at Sudkoli (Sudkoli): October, 2006



ɔt of Twice Daily Humidity & Diff. of Wet and Dry Bulb Temperture at Sudkoli (Sudkoli): October, 2006



Plot of Twice Daily Wind Direction at Sudkoli (Sudkoli): October, 2006



Twice Daily Climatic Data, October 2006

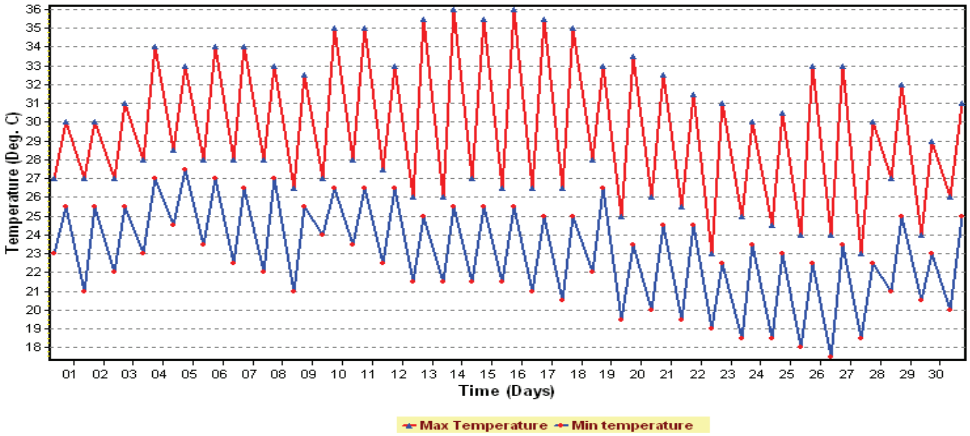
Station Code : Deori **Station Name : Deori**

Local River/Basin: Wainganga **Sub-Division : SDDPC,Nagpur**

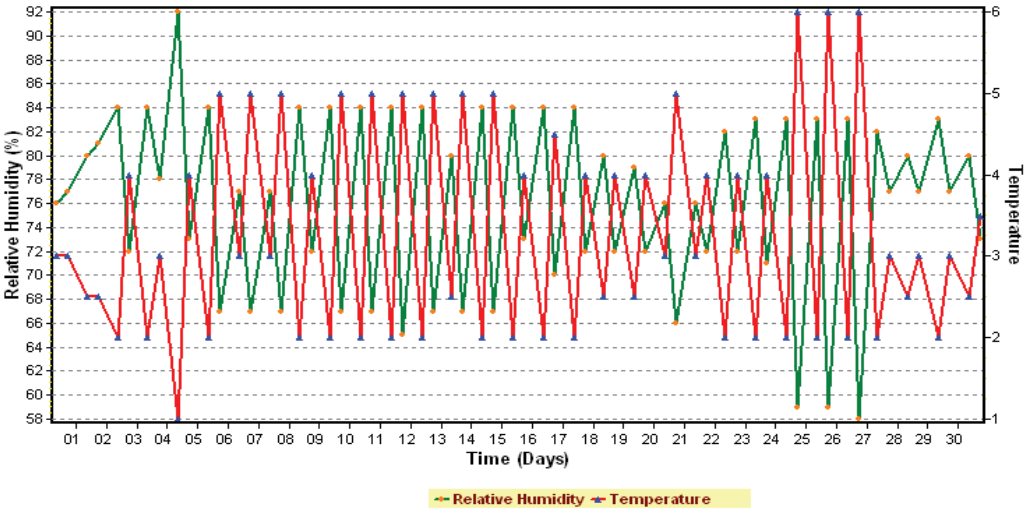
Day	Hour	Abs. Pressure Pan Water	Min. At.Temp	Max. At. Temp.	Dry bulb	Wet bulb	Relative Humidit	Inst. Wind speed	Av. Wind Speed	Wind Directio	Rainfall	Pan Evaporation	Temp.
1	08:30	..	23.0	27.0	26.0	23.0	76.0	12.0	6.1	ESE	-	.80	19.0
	17:30	..	25.5	30.0	27.0	24.0	77.0	4.0	7.7	SSE	-	1.00	23.5
2	08:30	..	21.0	27.0	25.5	23.0	80.0	4.0	2.1	NNE	-	.90	18.0
	17:30	..	25.5	30.0	27.0	24.5	81.0	4.0	5.1	SSW	-	1.20	24.0
3	08:30	..	22.0	27.0	26.0	24.0	84.0	2.0	2.2	ESE	-	1.10	19.0
	17:30	..	25.5	31.0	30.0	26.0	72.0	4.0	6.6	SSW	-	2.00	27.0
4	08:30	..	23.0	28.0	27.0	25.0	84.0	2.0	1.9	SSW	-	1.40	20.0
	17:30	..	27.0	34.0	30.0	27.0	78.0	4.0	7.5	WSW	-	2.20	28.0
5	08:30	..	24.5	28.5	27.0	26.0	92.0	6.0	2.2	WNW	-	1.80	21.0
	17:30	..	27.5	33.0	32.0	28.0	73.0	4.0	8.8	SSW	-	2.50	28.5
6	08:30	..	23.5	28.0	27.0	25.0	84.0	6.0	3.6	SW	-	1.30	20.0
	17:30	..	27.0	34.0	33.0	28.0	67.0	2.0	3.8	WSW	-	2.70	22.5
7	08:30	..	22.5	28.0	27.0	24.0	77.0	4.0	1.9	ENE	-	1.50	20.0
	17:30	..	26.5	34.0	32.0	27.0	67.0	2.0	5.3	SSW	-	2.80	30.0
8	08:30	..	22.0	28.0	27.0	24.0	77.0	6.0	6.2	NNE	-	1.40	19.0
	17:30	..	27.0	33.0	32.0	27.0	67.0	2.0	5.7	SSW	4.6	2.50	29.0
9	08:30	..	21.0	26.5	25.0	23.0	84.0	4.0	2.5	WNW	-	1.00	19.0
	17:30	..	25.5	32.5	31.0	27.0	72.0	2.0	4.9	SSE	-	2.20	28.5
10	08:30	..	24.0	27.0	26.0	24.0	84.0	2.0	2.2	ESE	-	1.50	19.0
	17:30	..	26.5	35.0	33.0	28.0	67.0	0.0	4.6	WSW	-	2.00	28.0
11	08:30	..	23.5	28.0	26.0	24.0	84.0	6.0	2.8	NNE	-	1.30	18.0
	17:30	..	26.5	35.0	33.0	28.0	67.0	0.0	4.8	NNW	-	2.20	29.5
12	08:30	..	22.5	27.5	27.0	25.0	84.0	4.0	2.9	NNE	-	1.60	20.0
	17:30	..	26.5	33.0	31.5	26.5	65.0	4.0	5.9	NNE	-	2.00	28.5
13	08:30	..	21.5	26.0	25.0	23.0	84.0	4.0	1.8	NE	-	2.00	17.5
	17:30	..	25.0	35.5	32.0	27.0	67.0	2.0	5.4	SW	-	2.70	27.0
14	08:30	..	21.5	26.0	25.5	23.0	80.0	4.0	2.3	NNE	-	1.80	18.0
	17:30	..	25.5	36.0	33.0	28.0	67.0	2.0	4.7	WSW	-	2.20	28.0
15	08:30	..	21.5	27.0	25.5	23.5	84.0	4.0	2.2	ESE	-	1.80	18.0
	17:30	..	25.5	35.5	32.0	27.0	67.0	2.0	4.2	NNW	-	2.00	29.0
16	08:30	..	21.5	26.5	25.5	23.5	84.0	4.0	2.0	NNE	-	1.60	19.0
	17:30	..	25.5	36.0	32.5	28.5	73.0	2.0	3.8	WSW	-	1.70	28.0
17	08:30	..	21.0	26.5	25.0	23.0	84.0	0.0	1.8	NNE	-	2.00	18.0
	17:30	..	25.0	35.5	31.5	27.0	70.0	4.0	4.4	SW	-	2.00	28.5
18	08:30	..	20.5	26.5	25.0	23.0	84.0	2.0	1.7	ENE	-	1.60	17.5
	17:30	..	25.0	35.0	31.0	27.0	72.0	2.0	6.7	SSW	-	2.20	27.0
19	08:30	..	22.0	28.0	26.5	24.0	80.0	4.0	3.3	ESE	-	1.50	18.0
	17:30	..	26.5	33.0	30.0	26.0	72.0	2.0	7.9	NE	-	2.00	25.0
20	08:30	..	19.5	25.0	23.5	21.0	79.0	6.0	3.4	NNW	-	1.90	16.0
	17:30	..	23.5	33.5	30.0	26.0	72.0	4.0	4.5	SW	-	2.00	26.0
21	08:30	..	20.0	26.0	25.0	22.0	76.0	2.0	2.8	ENE	-	2.00	17.0
	17:30	..	24.5	32.5	31.0	26.0	66.0	2.0	4.7	NNE	-	2.10	25.0
22	08:30	..	19.5	25.5	25.0	22.0	76.0	4.0	2.4	ESE	-	2.00	17.0
	17:30	..	24.5	31.5	30.0	26.0	72.0	4.0	5.3	WSW	-	2.00	26.5
23	08:30	..	19.0	23.0	22.0	20.0	82.0	4.0	3.4	NNW	-	1.80	16.0
	17:30	..	22.5	31.0	30.0	26.0	72.0	4.0	5.0	NNW	-	2.00	26.0
24	08:30	..	18.5	25.0	24.0	22.0	83.0	2.0	3.2	NNE	-	1.70	16.0
	17:30	..	23.5	30.0	29.0	25.0	71.0	0.0	4.1	ENE	-	2.20	25.0
25	08:30	..	18.5	24.5	23.0	21.0	83.0	6.0	1.9	ENE	-	1.30	15.0
	17:30	..	23.0	30.5	30.0	24.0	59.0	0.0	5.3	NNW	-	2.00	25.0
26	08:30	..	18.0	24.0	23.0	21.0	83.0	4.0	2.3	NNE	-	1.60	15.0
	17:30	..	22.5	33.0	30.0	24.0	59.0	0.0	4.5	NNW	-	2.00	25.0
27	08:30	..	17.5	24.0	23.0	21.0	83.0	4.0	2.0	ENE	-	1.40	15.0
	17:30	..	23.5	33.0	29.0	23.0	58.0	4.0	5.3	NNE	-	2.00	19.5
28	08:30	..	18.5	23.0	22.5	20.5	82.0	2.0	1.4	NNW	-	1.60	18.5
	17:30	..	22.5	30.0	27.0	24.0	77.0	4.0	6.0	ESE	-	1.60	23.0
29	08:30	..	21.0	27.0	25.0	22.5	80.0	10.0	3.7	NNE	-	1.20	17.0
	17:30	..	25.0	32.0	28.0	25.0	77.0	4.0	8.0	NNE	-	2.00	25.0
30	08:30	..	20.5	24.0	23.0	21.0	83.0	4.0	2.1	NNE	-	1.70	16.0
	17:30	..	23.0	29.0	28.0	25.0	77.0	4.0	8.0	ENE	-	1.80	24.0
31	08:30	..	20.0	26.0	25.0	22.5	80.0	6.0	4.0	NNE	-	1.50	17.0
	17:30	..	25.0	31.0	27.5	24.0	73.0	6.0	9.4	ENE	-	2.00	23.0
Average			23.1	29.5	27.8	24.5	76.0	3.5	4.2		..	..	22.0
Total		..	..	..	..	..	..	..	..		4.6	111.4	..

Note : Rainfall at 17:30 hrs is pertaining to previous day

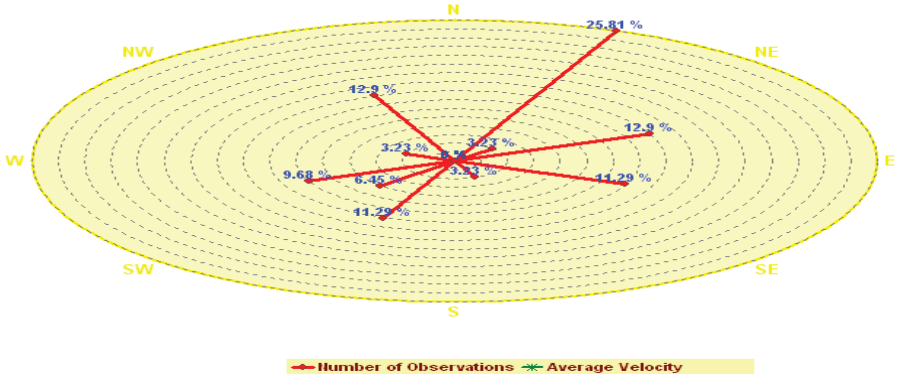
Plot of Twice Daily Temperature at Deori (Deori): October, 2006



Plot of Twice Daily Humidity & Diff. of Wet and Dry Bulb Temperture at Deori (Deori): October, 2006



Plot of Twice Daily Wind Direction at Deori (Deori): October, 2006

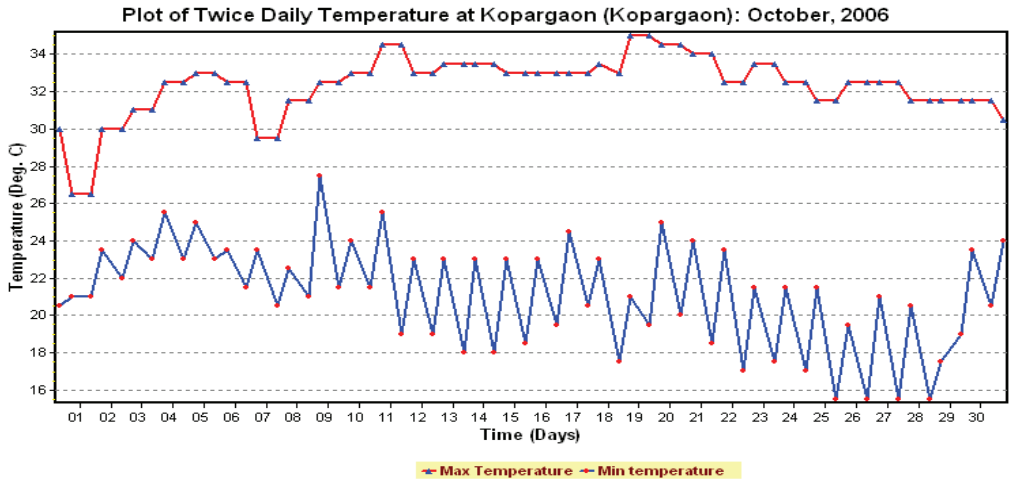


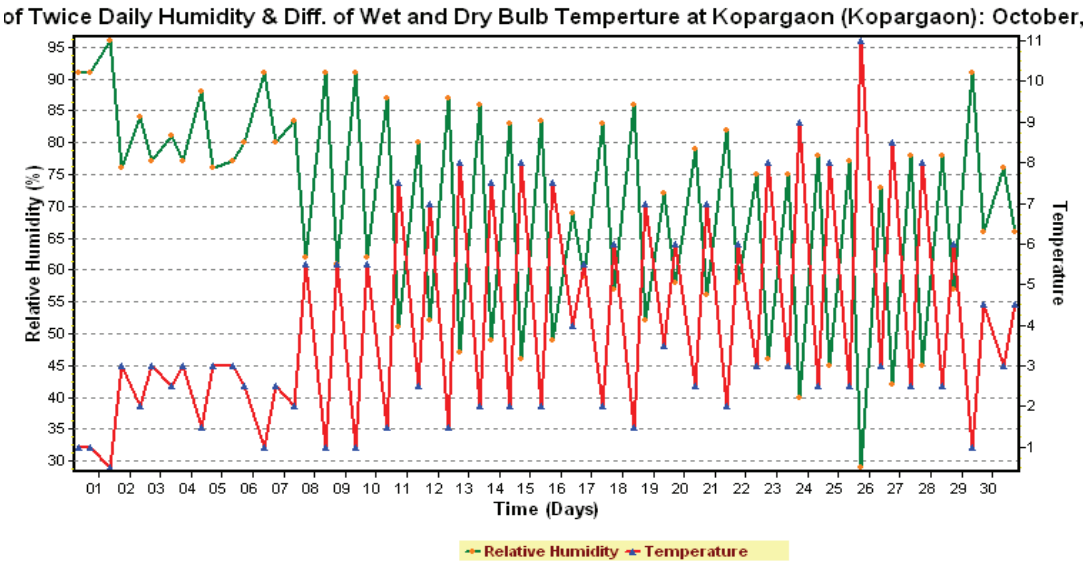
Twice Daily Climatic Data, October 2006

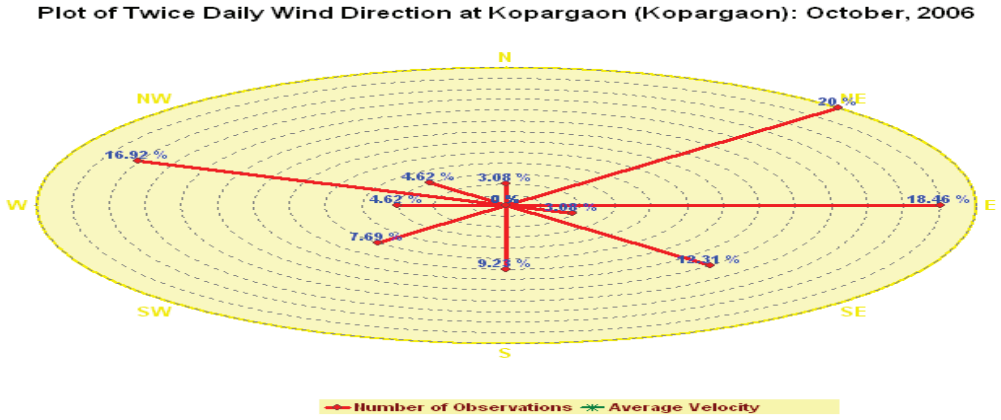
Station Code : Kopargaon **Station Name : Kopargaon**
Local River/Basin: Godavari **Sub-Division : SDDPC,Nashik**

Day	Hour	Abs. Pressure Pan Water	Min. At.Temp	Max. At. Temp.	Dry bulb	Wet bulb	Relative Humidity	Inst. Wind speed	Av. Wind Speed	Wind Directio	Rainfall	Pan Evaporation	Temp.
1	08:30	..	20.5	30.0	21.5	20.5	91.0	4.0	9.3	WNW	14.6	.70	19.5
	17:30	..	21.0	26.5	24.5	23.5	91.0	0.0	10.7	WNW	-	1.50	20.5
2	08:30	..	21.0	26.5	23.5	23.0	96.0	2.0	1.1	NW	5.2	.80	18.0
	17:30	..	23.5	30.0	26.5	23.5	76.0	0.0	1.3	E	-	1.50	25.0
3	08:30	..	22.0	30.0	25.5	23.5	84.0	2.0	0.0	E	.4	1.00	20.5
	17:30	..	24.0	31.0	28.0	25.0	77.0	0.0	1.3	E	-	1.20	25.5
4	08:30	..	23.0	31.0	27.0	24.5	81.0	2.0	.1	SW	8.0	1.20	21.0
	17:30	..	25.5	32.5	28.5	25.5	77.0	0.0	1.1	WNW	-	1.50	26.0
5	08:30	..	23.0	32.5	26.0	24.5	88.0	2.0	1.4	E	-	1.00	20.5
	17:30	..	25.0	33.0	25.5	22.5	76.0	0.0	2.3	WNW	-	1.30	25.0
6	08:30	..	23.0	33.0	28.0	25.0	77.0	2.0	3.7	W	-	1.10	20.5
	17:30	..	23.5	32.5	26.0	23.5	80.0	0.0	4.3	WNW	-	1.50	24.0
7	08:30	..	21.5	32.5	23.5	22.5	91.0	2.0	6.2	NW	-	1.20	18.5
	17:30	..	23.5	29.5	26.0	23.5	80.0	0.0	7.6	WNW	-	1.60	24.5
8	08:30	..	20.5	29.5	23.5	21.5	83.5	2.0	2.3	NE	-	1.20	19.0
	17:30	..	22.5	31.5	30.0	24.5	62.0	0.0	2.2	WNW	-	1.70	28.0
9	08:30	..	21.0	31.5	23.0	22.0	91.0	2.0	.1	SE	-	1.20	19.0
	17:30	..	27.5	32.5	29.5	24.0	61.0	0.0	2.1	WNW	-	1.50	26.0
10	08:30	..	21.5	32.5	24.0	23.0	91.0	2.0	.4	SE	-	1.10	20.0
	17:30	..	24.0	33.0	30.0	24.5	62.0	0.0	1.6	SW	-	1.30	27.5
11	08:30	..	21.5	33.0	24.5	23.0	87.0	2.0	.3	E	-	1.00	20.5
	17:30	..	25.5	34.5	31.5	24.0	51.0	0.0	.6	NW	-	1.50	28.0
12	08:30	..	19.0	34.5	26.0	23.5	80.0	0.0	.2	NE	-	1.10	20.0
	17:30	..	23.0	33.0	29.0	22.0	52.0	0.0	1.0	N	-	1.30	28.0
13	08:30	..	19.0	33.0	24.5	23.0	87.0	2.0	0.0	NE	-	1.00	19.0
	17:30	..	23.0	33.5	30.0	22.0	47.0	0.0	2.3	SW	-	1.50	27.0
14	08:30	..	18.0	33.5	23.5	21.5	86.0	2.0	0.0	SE	-	1.10	18.5
	17:30	..	23.0	33.5	29.5	22.0	49.0	0.0	3.7	NE	-	1.80	26.0
15	08:30	..	18.0	33.5	23.0	21.0	83.0	0.0	0.0	SE	-	1.00	19.0
	17:30	..	23.0	33.0	29.5	21.5	46.0	0.0	.7	SW	-	1.80	26.0
16	08:30	..	18.5	33.0	23.0	21.0	83.3	2.0	.7	SE	-	1.00	18.5
	17:30	..	23.0	33.0	29.5	22.0	49.0	0.0	2.1	NE	-	1.70	26.5
17	08:30	..	19.5	33.0	26.0	22.0	69.0	2.0	0.0	E	-	1.00	19.0
	17:30	..	24.5	33.0	27.5	22.0	59.0	0.0	1.7	WNW	-	1.80	26.0
18	08:30	..	20.5	33.0	23.5	21.5	83.0	0.0	.2	NE	-	.90	19.5
	17:30	..	23.0	33.5	28.0	22.0	57.0	0.0	.9	E	-	2.00	26.5
19	08:30	..	17.5	33.0	21.5	20.0	86.0	0.0	.1	N	-	1.00	17.5
	17:30	..	21.0	35.0	29.0	22.0	52.0	0.0	1.0	E	-	2.00	27.0
20	08:30	..	19.5	35.0	25.0	21.5	72.0	0.0	.1	E	-	1.00	18.5
	17:30	..	25.0	34.5	29.5	23.5	58.0	0.0	2.5	E	-	2.00	27.0
21	08:30	..	20.0	34.5	23.0	20.5	79.0	0.0	.2	S	-	1.00	18.5
	17:30	..	24.0	34.0	30.0	23.0	56.0	0.0	.3	NE	-	2.00	27.5
22	08:30	..	18.5	34.0	22.5	20.5	82.0	0.0	.1	WNW	-	1.00	18.5
	17:30	..	23.5	32.5	29.5	23.5	58.0	0.0	1.0	NE	-	2.00	27.0
23	08:30	..	17.0	32.5	23.5	20.5	75.0	0.0	.9	WNW	-	1.10	17.0
	17:30	..	21.5	33.5	29.5	21.5	46.0	0.0	1.5	S	-	2.00	27.5
24	08:30	..	17.5	33.5	24.5	21.5	75.0	2.0	.2	SW	-	1.20	17.5
	17:30	..	21.5	32.5	29.5	20.5	40.0	0.0	2.7	S	-	1.80	26.0
25	08:30	..	17.0	32.5	22.0	19.5	78.0	2.0	0.0	W	-	1.10	16.0
	17:30	..	21.5	31.5	28.0	20.0	45.0	0.0	2.3	W	-	1.90	22.0
26	08:30	..	15.5	31.5	20.0	17.5	77.0	0.0	0.0	NE	-	1.00	15.0
	17:30	..	19.5	32.5	29.0	18.0	29.0	0.0	.8	NE	-	2.00	26.5
27	08:30	..	15.5	32.5	21.5	18.5	73.0	0.0	.5	NE	-	1.00	17.0
	17:30	..	21.0	32.5	28.5	20.0	42.0	0.0	1.4	NE	-	2.00	25.5
28	08:30	..	15.5	32.5	21.0	18.5	78.0	0.0	.3	SE	-	.80	16.5
	17:30	..	20.5	31.5	28.0	20.0	45.0	0.0	1.7	NE	-	1.90	25.0
29	08:30	..	15.5	31.5	21.0	18.5	78.0	2.0	.7	E	-	.90	17.0
	17:30	..	17.5	31.5	28.0	22.0	57.0	0.0	4.1	E	-	1.80	24.5
30	08:30	..	19.0	31.5	24.0	23.0	91.0	0.0	.5	SE	10.8	.80	18.5
	17:30	..	23.5	31.5	27.0	22.5	66.0	0.0	2.8	ESE	-	1.80	26.5
31	08:30	..	20.5	31.5	25.0	22.0	76.0	2.0	.1	SE	.6	.90	20.0
	17:30	..	24.0	30.5	26.0	21.5	66.0	0.0	2.8	ESE	-	1.90	24.0
Average			21.2	32.3	26.0	22.0	70.4	0.6	1.6		..	..	22.3
Total		..	..	..	..	..	..	..	..		39.6	84.5	..

Note : Rainfall at 17:30 hrs is pertaining to previous day


Plot of Twice Daily Temperature at Kopargaon (Kopargaon): October, 2006
Temperature (Deg. C)
Time (Days)
Max Temperature
Min temperature


of Twice Daily Humidity & Diff. of Wet and Dry Bulb Temperture at Kopargaon (Kopargaon): October,
Relative Humidity (%)
Temperature
Time (Days)
Relative Humidity
Temperature


Plot of Twice Daily Wind Direction at Kopargaon (Kopargaon): October, 2006
N
NW
NE
W
E
SW
SE
S
16.92 %
20 %
4.62 %
3.08 %
4.62 %
18.46 %
7.69 %
19.31 %
Number of Observations
Average Velocity