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WEEKLY POTENTIAL EVAPOTRANSPIRATION OVER INDIA

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Introduction

Evaporation plays an important role in maintaining hydrological cycle. Knowledge of evaporation on various time scale is very essential in different fields, such as water resource management, rainfall run-off modelling, estimation of crop water requirement, economic irrigation scheduling etc. Potential evapotranspiration (PET) is the amount of water that evaporates from the soil and transpires from a grass field supplied with unlimited water. Potential evapotranspiration of a place in short time scale is very much useful for agricultural management. Direct measurement is very difficult, but its estimation using semi-empirical equation that takes account of the impact of various parameters responsible for loss of water can solve many practical oriented problems, especially water requirement of field crops. Water requirement of a crop grown in a particular place is directly related to PET of that place. This estimation over short period can serve as an essential information for scientific workers.

Rao et al (1971) computed monthly and annual PET values for about 300 stations in and near India. For want of weekly normals, the monthly PET values were interpolated and used for subsequent computations. Khambete and Biswas (1984) have compared the PET values obtained using different methods and found that the interpolated values are underestimated and the method in which weekly meteorological normals are used is the efficient one. Hence modified Penman method has been used to compute weekly PET in this study.

2. Method

Penman (1948) has defined potential evapotranspiration (PET) and estimated it using the formula:

$$PET = \frac{\frac{\Delta}{\gamma}\left\{R_A(1-r)\left(a+b\frac{n}{N}\right)-\sigma T^4\left(0.56-0.092\sqrt{e_d}\right)\left(0.10+0.90\frac{n}{N}\right)\right\}+0.35\left(e_a-e_d\right)\left(1+\frac{U}{100}\right)}{\frac{\Delta}{\gamma}+1}$$

Symbols

PET = Potential evapotranspiration in mm per day.

R_A = Incident radiation outside the atmosphere on a horizontal surface expressed in mm of evaporable water per day.

r = Reflection coefficient or albedo.

n/N = Ratio of actual hours of sunshine to theoretical duration of sunshine.

σ = Stefan-Boltzman constant.

a and b = constants

T = Mean temperature in degrees absolute.

T^4 = Black body radiation at mean temperature.

e_a = Saturation vapour pressure in mm of mercury.

e_d = Actual mean vapour pressure in mm of mercury.

U = Wind speed at 2 metres above ground in miles per day.

Δ = Rate of change of saturation vapour pressure with temperature in mb per degree centigrade.

γ = Psychrometric constant in mb per degree centigrade.

$R_A(1-r)(a+b\frac{n}{N})$ represents the incoming shortwave radiation and $\sigma T^4(0.56-0.092\sqrt{e_d})(0.10+0.9\frac{n}{N})$ the outgoing longwave radiation. Reflection coefficient r (albedo) is taken as 0.25 for vegetation on the basis of Monteith's (1959) measurements. The aerodynamic term $0.35\ (1+\frac{U}{100})\ (e_a-e_d)$ is the drying power of the atmosphere based on saturation deficit, air movement and extra roughness of vegetation cover compared to water surface. The factor $\frac{\Delta}{\gamma}$ makes allowance for the relative significance of net radiation and aerodynamic terms.

Rao et al.(1971) made following modifications in this formula.

(i) According to recent studies $\frac{\Delta}{\gamma}$ depends not only mean air temperature but on altitude also. Therefore, weighing factor is taken as $\frac{P_0}{P_h}$ where P_0 is standard sea level pressure and P_h is station level pressure in mbs.

(ii) For $(a+b\frac{n}{N})$ the term $(0.29\cos\phi+0.52\frac{n}{N})$ is used for incoming radiation. ϕ is being the latitude of the station.

The formula is thus modified and taken as :

$$PET=\frac{(\frac{P_0}{P_h})\frac{\Delta}{\gamma}\left[R_A(1-\gamma)\left\{0.29\cos\phi+0.52\frac{n}{N}\right\}\right]-\sigma T^4(0.56-0.092\sqrt{e_d})\left\{0.10+0.90\frac{n}{N}\right\}+0.35(e_a-e_d)(1+\frac{U}{100})}{(\frac{P_0}{P_h})\frac{\Delta}{\gamma}+1}$$

P_o is taken as 1013.2 mb & P_h the normal station level pressure of 0830 hrs. IST observation. Temperature (T) is the average of daily maximum and minimum temperatures. Vapour pressure (e_d) is the average of 0730 and 1430 LMT observations. is taken as 0.66. Saturation vapour pressure (e_a) is calculated using Goff-Gratch formula given in Smithsonian tables (1951). R_A the incident radiation is interpolated for the latitude of the station using Table 12 of Duranbos & Pruitt (1975). Extra-terrestrial radiation is expressed in equivalent evaporation in mm/day. The mean wind speed U_h in kmph, reported at the anemometer level (10 ft) is converted into wind speed in miles per day at 2 metres level by using the relationship

$$U = U_h \ (2/3)^{0.17} \ X \ 5/8 \ X \ 24 \ miles/day.$$

3. Data

It is seen from above methodology that in computation of PET values by Penman formula weekly meteorological parameters like radiation, vapour pressure deficit etc. are required which are not available for all the agromet stations. Therefore it was not possible to compute the weekly PET values for all the agromet stations. Mean daily PET values for 52 weeks are computed using weekly meteorological normals for 62 stations. These are presented in Table 1.

4. Discussion

The variation of annual and seasonal PET values are given in Fig.1 and Fig.2 respectively. Isolines of weekly PET values for one representative week of each month is also incorporated in Fig.3. The salient features of variation of PET values in different time scale are stated below:

4.1 Annual Variation of PET values

A large part of the dry farming tract experiences PET more than 180 cm. and it increases towards west. High values of the order of 240 cm are observed around Jalgaon (Maharashtra) and Bellary (Karnataka). Maximum value about 870 cm is found in Saurashtra area. Over the Plains of Gangetic belt, east M.P. and Orissa, PET is of the order of 160 cm. Minimum about 120 cm is estimated from Assam and adjoining parts.

4.2 Seasonal variation of PET values

Isolines of seasonal totals of PET values from 23rd to 39th weeks (4th June to 30th Sept.) are depicted in Fig.2. High values (70-80 cms) of PET are observed in the interior part of Karnataka (Bellary) and Maharashtra (Solapur). Values of these order are also observed in Rajasthan, North of Gujarat and South Eastern part of Tamilnadu. Low values (30-45cms) are found at the coastal parts of Maharashtra, Karnataka and Kerala as well as West Bengal, Assam and adjoining Eastern States. In major portion of India Seasonal PET values vary between 50 to 70 cms during the rainy season.

4.3 Weekly variations

Weekly variations of PET values is depicted in Fig.3 for one representative week of each month. Prominent features of variations are as follows :

Week No.3 (15-21 Jan.)

PET values in this week give the idea of variation in January. The high values of the order of 30 mm are found in are encircling Solapur, Raichur and Bellary and also in Saurashtra. The highest about 40 mm is observed at Ollukara (Kerala). The values are decreasing towards north and are of the order of 10 to 15 mm in northern part of Bihar, U.P., Rajasthan, Haryana and Punjab. It is even less than 10 mm at the foothills of Himalayas, in Himachal Pradesh and eastern part of the country.

Week No.7 (12-18 Feb.)

PET values started increasing throughtout the country. These vary from 13 mm in norsthern part to 43 mm in south (Kerala coast). The areas of high value are almost same as were in the third week.

Week No.11(12-18 Mar.)

The PET values around Bellary, Solapur and Raichur as well as in area over Jalgaon are still higher and are of the order of 50 mm. These are decreasing towards north and are of the order of 20 mm. The values are also high over Saurashtra and Rajasthan and vary from 35 to 42 mm.

Week No.16 (16-22 Apr.)

In this week, the core of high PET values has been shifted to around Jalgaon amounting to 72 mm. The values reduce to 40 mm to Kerala as well as in Haryana and Punjab whereas, in eastern side it is of the order of 25-30 mm.

Week No.20 (14-20 May)

The core of high PET values is still over Jalgaon of the order of 90 mm. Low value is found over Kerala coast. The minimum (25-35 mm) is observed over Assam and Meghalaya region and at foothills of Himalayas.

Week No.24 (11-17 June)

PET values vary from 18 to 75 mm over the country. Low values are observed in Assam, northern part of West Bengal, Hilly area of UP and along the Kerala coast. The highest value (75 mm) is observed at Jalgaon. Areas of high value (more than 60 mm) are found at Bellary, over north Gujarat, and Rajasthan region.

Week No.29 (16-22 July)

By this week SW monsoon has set in over almost whole of the country. PET values are of the order of 30 to 35 mm over the major parts of the country. High values (40-45 mm) are observed over areas around Solapur and Raichur and also over Rajasthan and more than 50 mm at Bellary. Along Kerala coast, PET values vary from 20 to 25 mm.

Week No.33 (13-19 Aug.)

The pattern of PET is almost the same as was found in 29th week. It varies between 35 to 40 mm along the dry farming tract. It is less than 30 mm over the remaining areas.

Week No.37 (10-16 Sept.)

PET values of the order of 40 mm are observed over the region of Kutch and West Rajasthan and around Bellary. It is gradually descreased towards south and east and the lowest about 17-20 mm is found in eastern part of the country.

Week No.42 (15-21 Oct.)

PET values are found to be increased in many parts of the country due to withdrawal of SW monsoon. High values of the order of 35 mm are observed in Maharashtra (except Konkan), Gujarat and Rajasthan. These vary between 25 to 30 mm over the remaining parts of the country.

Week No.46 (12-18 Nov.)

The values become much less in this week than that of the week discussed earlier. It varies from 15-35 mm and the high value of the order of 35 mm is observed in an area comprising of Jalgaon, Solapur, Bellary and Raichur and also around Jamnagar.

Week No.51 (17-23 Dec.)

PET values have been reduced to 30 mm over the Peninsula and to 25 mm over Gujarat Region whereas on the remaining part, these vary from 10-20 mm.

Summary of PET distribution over India

High PET value of the order of 40 mm per week in the month of January is found over Kerala and it is gradually, shifted towards north with the advancement of time. Maximum weekly value (65-70mm) is observed in West Rajasthan and over an area comprising of Jalgaon, Solapur, Bellary and Raichur in the 20th week (Fig....) and minimum value about 30 mm in this week is reported from Assam region and foothills of Himalayas. Values of the order of 10 mm are found in the North India, Assam and adjoining parts in the 3rd week of January. After onset of monsoon, PET usually decreases over the country but high weekly PET of the order of 50 mm is observed in the 24th to 26th week from Tamilnadu.

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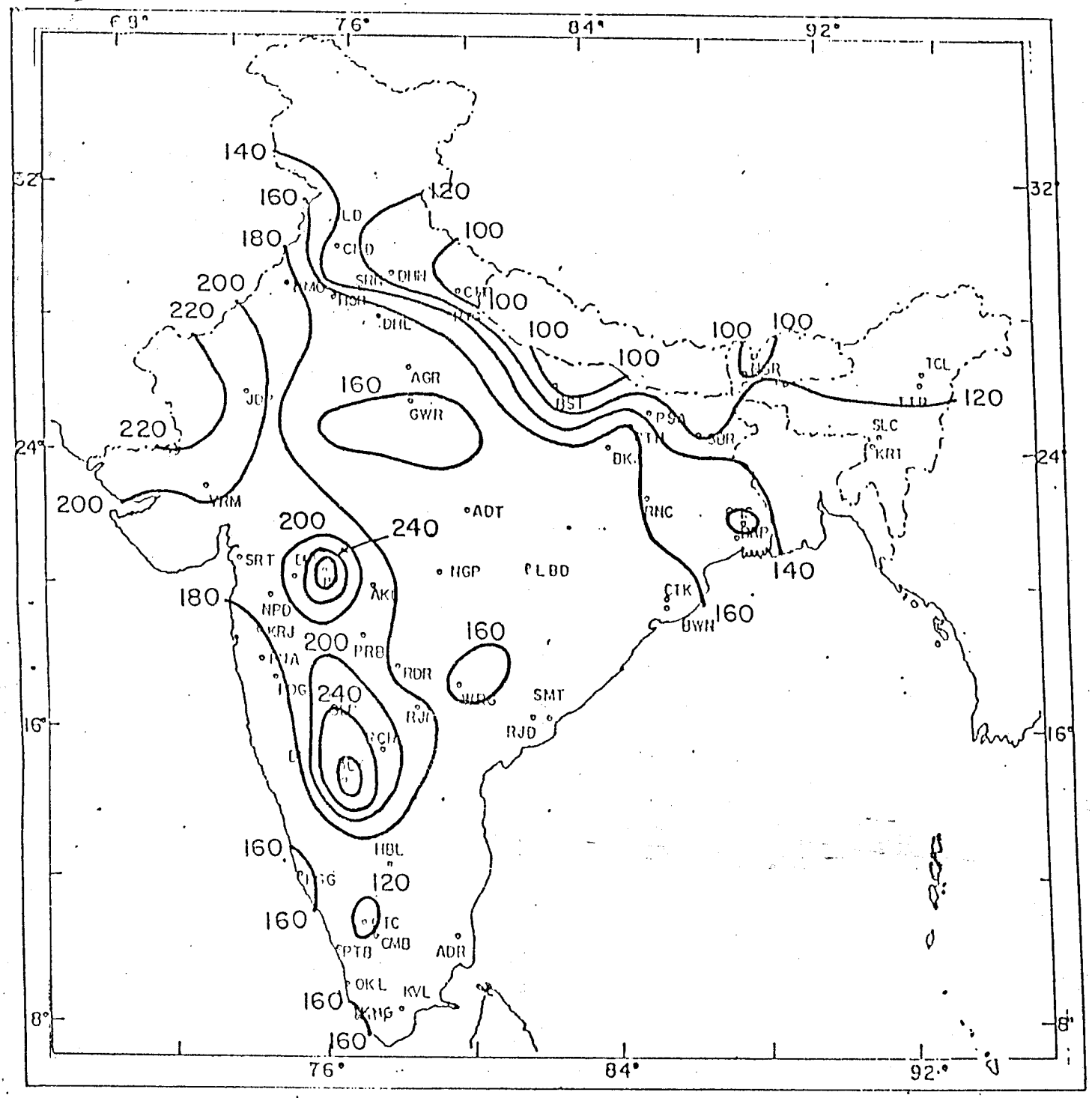

FIG. I : ANNUAL PET VALUES (Cms)

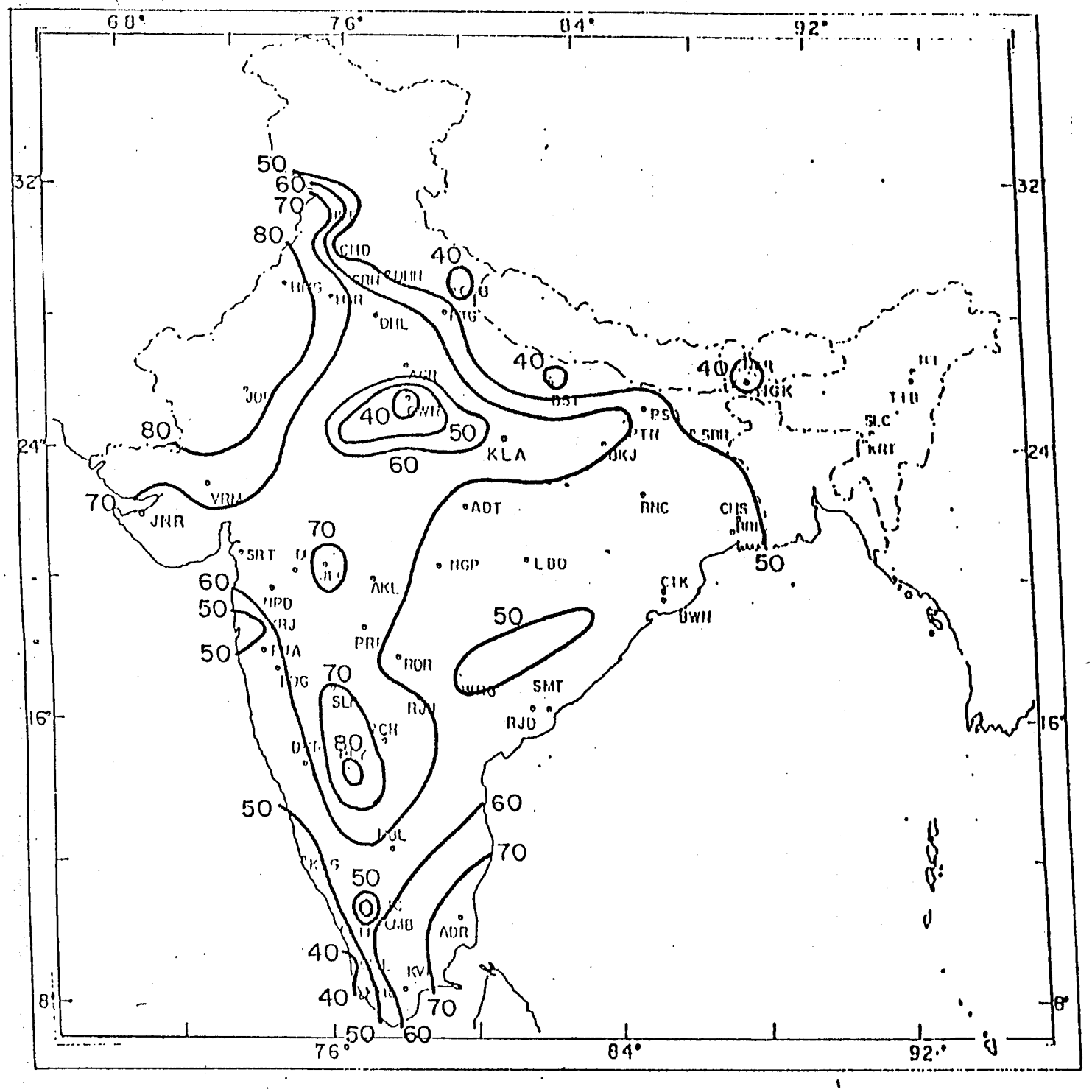

FIG.2: SEASONAL PET VALUES (Cms)

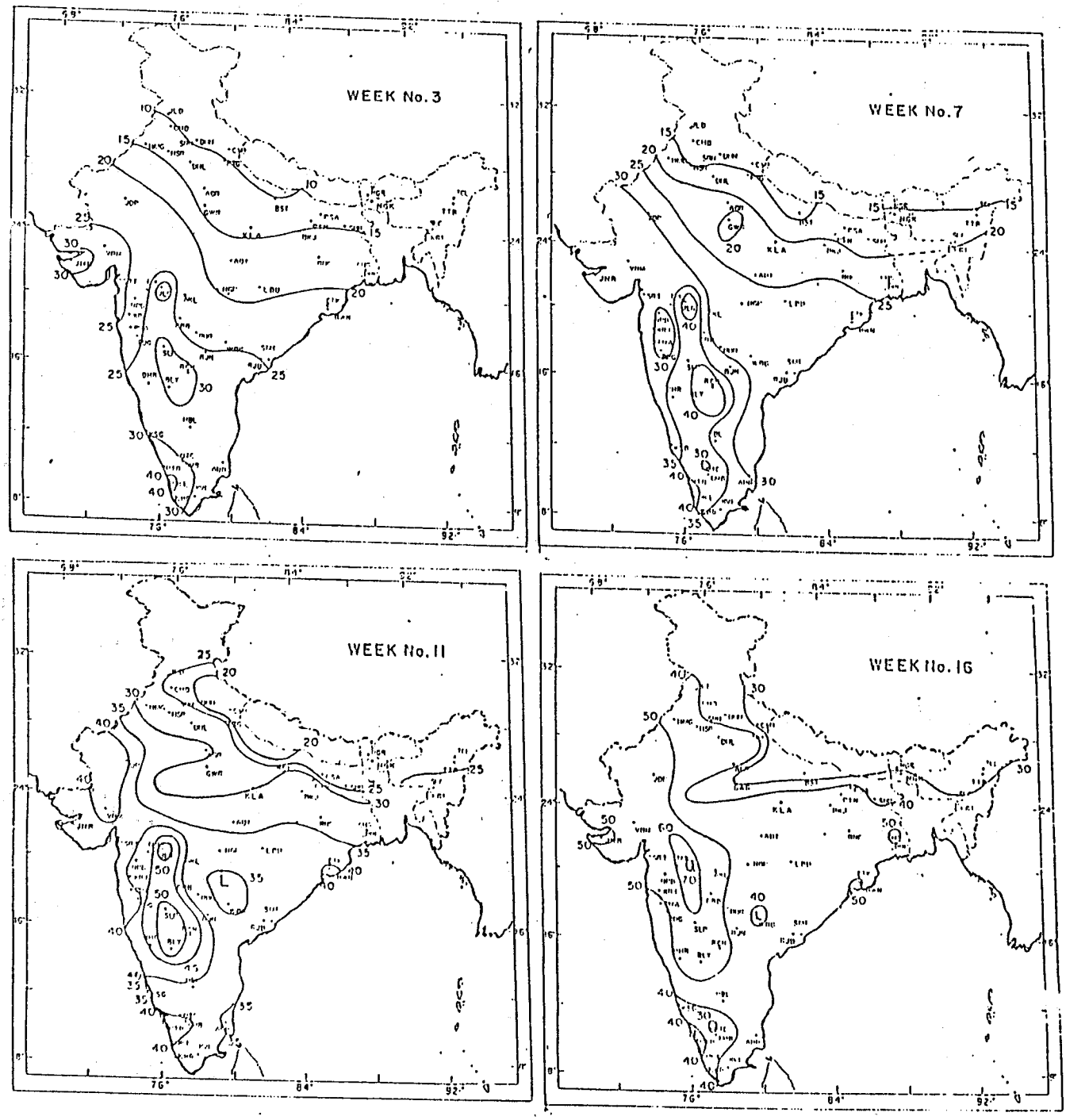

FIG.3 : WEEKLY PET VALUES (mm)

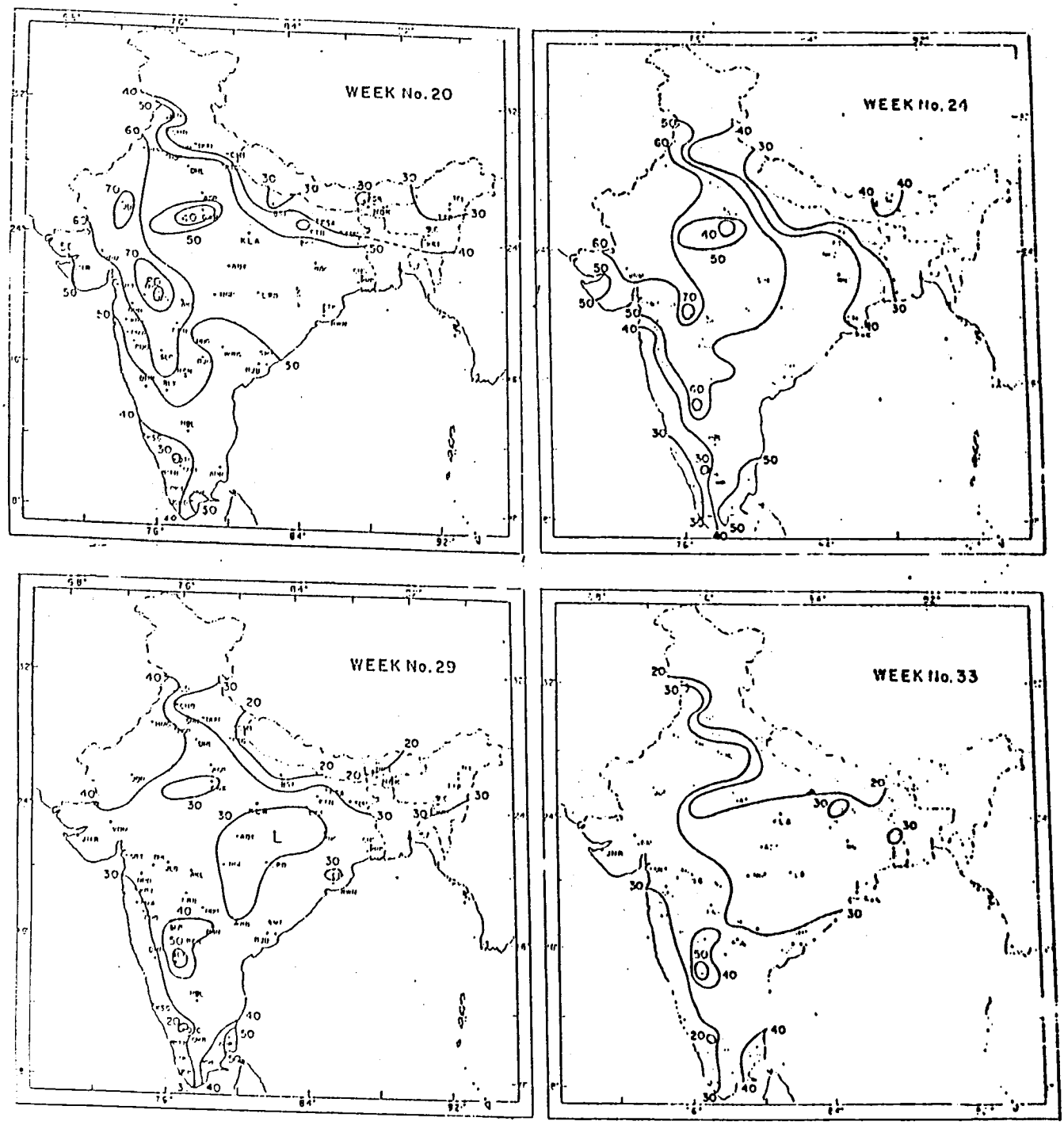

FIG. 3: WEEKLY PET VALUES (mm)

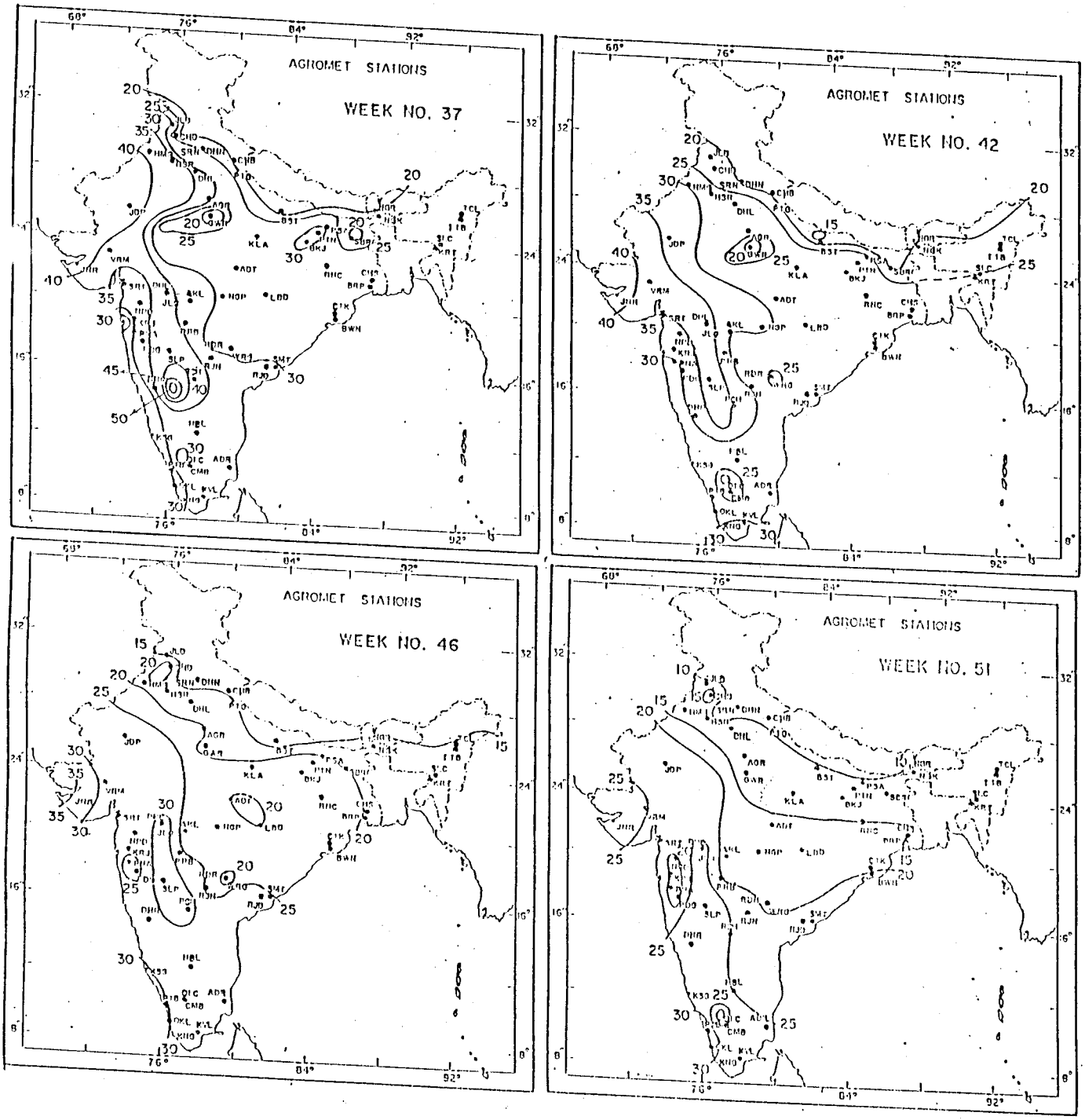

FIG.3 : WEEKLY PET VALUES (mm)

Table-1: Mean Daily Potential Evapotranspiration in mm

WEEKS →				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Andhra Pradesh																					
Samalkot	East Godavari	SMT		3.3	3.3	3.3	3.4	3.4	4.1	4.2	4.3	4.4	5.1	5.2	5.3	5.4	5.9	6.2	6.3	6.6	6.4
Rajendra-nagar	Hyderabad	RJN		3.1	3.4	3.5	3.8	4.1	4.3	4.6	4.8	5.2	5.4	5.7	6.0	6.3	6.3	6.5	6.7	6.8	6.9
Rudrur	Nizamabad	RDR		3.3	3.3	3.4	3.6	3.7	4.0	4.2	4.4	4.7	4.8	5.1	5.3	5.4	5.6	5.8	6.3	6.2	6.5
Warangal	Warangal	WRG		2.8	2.9	3.0	3.1	3.4	3.6	3.8	4.0	4.3	4.4	4.6	4.8	4.8	5.1	5.0	5.2	5.8	5.8
Rajmundry	East Godavari	RJD		3.3	3.4	3.5	3.6	3.8	4.0	4.2	4.5	4.9	5.0	5.3	5.5	5.8	6.0	6.2	6.2	6.5	6.7
Assam																					
Karimganj	Cachar	KRJ		2.0	2.0	2.0	2.1	2.1	2.6	2.8	3.0	3.1	3.8	4.0	4.0	4.1	4.8	4.7	4.3	5.1	4.6
Silicoori	Cachar	SLC		1.9	2.0	2.0	2.2	2.4	2.5	2.7	3.1	3.3	3.5	4.0	4.1	4.2	4.4	4.5	4.4	4.9	4.6
Titabar	Sibsagar	TTB		1.5	1.6	1.6	1.8	1.9	2.0	2.3	2.4	2.8	3.1	3.1	3.3	3.6	3.7	3.5	3.6	4.1	3.7
Tocklai	Sibsagar	TCL		1.5	1.5	1.6	1.7	1.8	2.0	2.2	2.4	2.7	2.9	3.2	3.4	3.5	3.6	3.6	3.5	3.9	3.5
Bihar																					
Sabour	Bhagalpur	SBR		1.7	1.8	1.8	1.8	2.0	2.1	2.4	2.8	2.9	3.1	3.1	4.1	4.6	5.0	5.2	5.5	5.3	5.2
Pusa	Darbhanga	PSA		1.5	1.5	1.6	1.7	1.8	2.0	2.3	2.6	2.8	3.1	3.0	3.7	4.1	4.3	4.7	4.9	5.0	5.3
Patna	Patna	PTN		1.8	1.8	1.8	2.0	2.2	2.4	2.8	3.2	3.6	3.9	4.4	4.9	5.2	5.6	6.3	6.5	6.9	7.1
Ranchi (Kanke)	Ranchi	RNC		2.3	2.4	2.3	2.6	2.7	3.0	3.2	3.8	3.9	4.2	4.5	4.8	5.1	5.7	6.3	6.6	6.8	7.2
Bikramganj	Shahabad	BKJ		2.1	2.1	2.2	2.2	2.4	2.7	3.0	3.6	3.6	4.0	4.6	5.0	5.6	6.0	6.8	6.6	6.9	7.4
Gujarat																					
Viramgam	Ahmedabad	VRM		3.5	3.5	3.7	3.8	4.1	4.3	4.6	5.0	5.4	5.7	6.0	6.3	6.7	7.2	7.8	8.3	9.0	9.2
Surat	Surat	SRT		3.5	3.5	3.6	3.7	4.0	4.1	4.5	4.6	5.0	5.3	5.1	5.9	6.4	6.1	6.9	7.3	7.6	8.0
Jamnagar	Jamnagar	JNR		4.3	4.3	4.3	4.3	4.3	4.1	4.5	4.7	5.0	5.0	5.1	5.4	5.7	5.7	5.8	6.0	6.1	6.6
Haryana																					
Hissar	Hissar	HSR		1.3	1.4	1.8	1.6	1.8	2.2	2.2	2.5	2.8	2.8	3.5	4.1	4.7	5.1	5.7	6.3	7.2	7.1
Karnataka																					
Hebbal	Bangalore	HBL		3.7	3.9	4.1	4.2	4.4	4.7	4.8	5.1	5.4	5.7	5.8	5.9	6.2	6.1	6.3	6.3	6.4	6.4
Bellary	Bellary	BLY		4.4	4.5	4.7	4.9	5.3	5.6	6.0	6.3	6.8	7.0	7.3	7.3	7.7	7.7	7.9	8.2	8.2	8.5
Dharwar	Dharwar	DHR		3.9	4.1	4.2	4.2	4.6	4.9	5.3	5.5	6.0	6.2	6.5	6.7	6.8	6.7	7.0	7.2	7.0	7.3
Raichur	Raichur	RCH		4.1	4.2	4.5	4.6	4.8	5.3	5.7	5.6	6.2	6.7	6.9	7.0	7.3	7.4	7.6	7.8	7.6	7.9

Table-1: Mean Daily Potential Evapotranspiration in mm.

WEEKS →			19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Andhra Pradesh																				
Samalkot	East Godavari	SMT	7.0	6.8	6.5	6.7	6.3	6.0	5.2	4.6	4.3	4.8	4.6	4.3	4.5	4.5	4.6	4.4	4.5	4.1
Rajendra-nagar	Hyderabad	RJN	7.1	7.8	7.5	7.7	7.9	7.4	6.8	6.0	5.9	6.3	5.7	5.3	5.5	5.6	5.4	5.1	5.1	5.0
Rudrur	Nizamabad	RDR	6.3	6.1	6.1	6.0	5.9	5.5	5.0	4.3	4.1	4.5	4.4	4.3	4.1	4.3	4.3	4.2	4.2	4.1
Warangal	Warangal	WRG	6.1	5.7	6.5	7.0	6.1	5.7	4.7	4.1	3.9	3.9	3.8	3.7	3.6	3.6	3.4	3.3	3.3	3.3
Rajmundry	East Godavari	RJD	7.0	7.0	6.8	7.0	7.0	6.5	5.6	4.9	4.7	5.0	4.7	4.7	4.6	4.6	4.6	4.4	4.5	4.6
Assam																				
Karimganj	Cachar	KRJ	5.0	5.0	4.8	4.6	4.2	3.4	3.8	4.6	4.3	3.7	4.1	4.2	4.3	4.0	4.1	4.0	4.1	4.1
Silicoori	Cachar	SLC	4.4	4.6	4.6	4.3	4.1	3.5	3.7	4.3	4.2	4.2	3.8	3.8	3.9	3.9	4.1	4.0	3.9	4.1
Titabar	Sibsagar	TTB	3.8	3.8	4.1	4.0	3.9	3.7	3.7	4.0	4.2	3.9	3.9	3.9	3.9	3.8	4.0	3.9	3.8	3.9
Tocklai	Sibsagar	TCL	3.6	3.7	4.0	3.9	4.1	3.8	3.7	4.0	4.0	3.9	3.9	3.7	3.8	3.8	4.0	2.8	3.8	3.8
Bihar																				
Sabour	Bhagalpur	SBR	5.1	5.3	5.1	5.0	4.6	4.2	4.6	4.2	3.7	3.7	3.6	3.1	3.2	3.2	2.9	2.9	3.0	2.9
Pusa	Darbhanga	PSA	5.4	5.6	5.7	5.7	5.2	4.9	5.2	4.9	4.7	4.9	4.5	4.3	4.3	4.2	4.1	4.1	4.2	4.1
Patna	Patna	PTN	7.2	7.3	7.3	7.2	6.8	6.2	6.8	6.2	5.7	5.9	5.3	4.7	4.9	4.8	4.5	4.6	4.7	4.5
Ranchi (Kanke)	Ranchi	RNC	7.3	7.3	7.3	7.1	6.9	6.2	6.9	6.2	5.6	4.9	4.3	3.8	3.9	3.9	3.9	3.8	3.9	3.9
Dhanbad	Shahabad	DBD	7.3	7.1	7.4	7.3	7.1	6.4	7.1	6.4	5.5	4.9	4.3	4.9	4.6	4.5	4.3	4.3	4.2	4.2
Gujarat																				
Vijapur	Ahmedabad	VJP	9.6	9.8	10.3	10.2	9.9	9.4	8.7	7.5	6.5	6.1	5.4	5.7	5.0	4.6	4.7	4.9	5.1	4.9
Surat	Surat	SRT	8.0	8.0	8.2	8.1	7.9	7.4	6.2	5.4	4.9	4.8	4.6	4.7	4.2	4.2	4.4	4.8	4.6	4.5
Jamnagar	Jamnagar	JMN	6.4	6.7	6.7	6.7	6.6	6.4	6.0	5.3	5.0	5.5	5.0	4.8	4.5	4.7	4.5	4.5	6.1	6.6
Haryana																				
Hissar	Hissar	HSR	7.9	7.9	8.5	8.2	8.2	9.4	8.4	7.3	7.2	6.5	5.8	7.1	5.9	4.9	5.2	5.4	5.8	5.5
Karnataka																				
Hebbal	Bangalore	HBL	6.7	6.0	6.1	6.3	5.9	5.8	5.5	5.3	5.0	5.3	5.0	4.7	4.7	5.0	4.7	4.6	4.6	4.8
Bellary	Bellary	BLY	9.2	8.4	9.2	9.5	8.8	8.7	8.2	8.1	8.2	8.1	7.4	7.2	7.6	7.5	7.4	7.3	7.3	7.1
Dharwar	Dharwar	DHR	7.5	6.9	6.3	6.6	5.8	5.4	4.7	4.2	4.0	4.1	3.9	3.8	3.9	4.0	3.9	3.9	4.2	4.2
Raichur	Raichur	RCH	8.4	8.1	7.8	8.0	6.9	6.8	6.2	5.8	5.8	5.8	5.1	4.7	5.2	5.4	5.4	5.4	5.1	5.0

Table-1 : Mean Daily Potential Evapotranspiration in mm

WEEKS →			37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	Annual total in cm
Andhra Pradesh																			
Samalkot	East Godavari	SMT	4.3	4.1	4.2	3.8	3.8	3.9	3.8	4.2	3.5	3.6	3.4	3.4	3.2	3.1	3.1	3.1	167
Rajendra-nagar	Hyderabad	RJN	4.7	4.6	4.4	4.4	4.4	4.3	4.1	4.0	3.8	3.5	3.4	3.3	3.1	3.0	3.0	3.1	186
Rudrur	Nizamabad	RDR	4.2	4.1	3.9	3.9	3.9	3.9	3.7	3.9	3.8	3.8	3.5	3.4	3.4	3.2	3.2	3.3	163
Warangal	Warangal	WRG	3.2	3.2	3.2	3.2	3.1	3.2	3.1	3.0	2.8	2.8	2.8	2.7	2.6	2.6	2.6	2.8	144
Rajmundry	East Godavari	RJD	4.6	4.2	4.1	4.1	3.9	4.1	4.1	4.1	4.1	4.0	3.8	3.6	3.6	3.4	3.3	3.3	175
Assam																			
Karimganj	Cachar	KRJ	3.7	3.6	4.1	3.3	3.2	3.6	3.3	3.3	2.7	2.5	2.5	2.5	2.1	2.0	2.0	1.9	129
Silicoori	Cachar	SLC	3.8	3.7	3.8	3.4	3.3	3.6	3.3	3.0	2.5	2.6	2.6	2.4	2.2	2.0	1.9	1.9	126
Timbar	Sibsagar	TTB	3.7	3.5	3.3	3.2	3.0	3.0	2.8	2.5	2.3	2.1	2.0	1.8	1.8	1.6	1.5	1.5	112
Tocklai	Sibsagar	TCL	3.7	3.5	3.4	3.1	3.0	3.0	2.8	2.5	2.3	2.2	2.0	1.8	1.7	1.5	1.5	1.4	110
Bihar																			
Sabour	Bhagalpur	SBR	2.9	2.9	2.8	2.8	2.7	2.6	2.5	2.4	2.4	2.3	2.3	2.2	2.1	2.0	1.7	1.7	118
Pusa	Darbhanga	PSA	4.1	4.1	3.6	4.0	3.7	3.5	3.7	3.5	3.1	2.9	2.6	2.4	2.2	2.0	1.4	1.4	133
Patna	Patna	PTN	4.6	4.6	4.3	4.2	4.1	3.8	3.9	3.8	3.4	3.2	2.9	2.6	2.3	2.1	1.7	1.7	161
Ranchi (Ranke)	Ranchi	RNC	3.8	3.7	3.8	4.0	3.7	3.8	3.9	3.5	3.3	3.1	3.0	2.8	2.6	2.4	2.1	2.1	159
Bikramganj	Shahabad	BKJ	4.3	4.5	4.3	4.2	4.0	3.8	3.9	3.5	3.4	3.2	2.9	2.7	2.5	2.4	1.9	1.9	163
Gujarat																			
Viramgam	Ahmedabad	VRM	5.2	5.5	5.5	5.5	5.4	5.2	5.0	4.8	4.5	4.2	4.2	3.9	3.8	3.6	3.5	3.5	207
Surat	Surat	SRT	4.7	5.0	4.7	5.1	5.1	5.0	4.8	4.5	4.3	3.9	3.8	3.7	3.5	3.4	3.4	3.3	188
Jamnagar	Jamnagar	JNR	6.2	6.2	6.1	6.5	6.3	6.1	5.7	5.2	5.5	5.1	4.9	4.5	4.4	4.2	4.2	4.1	195
Haryana																			
Hissar	Hissar	HSR	5.2	5.0	4.9	4.5	4.1	3.9	3.5	3.1	2.7	2.3	2.1	1.7	1.8	1.5	1.4	1.5	168
Karnataka																			
Hebbal	Bangalore	HBL	4.6	4.2	4.3	4.1	4.2	3.9	3.3	4.1	3.6	3.7	3.5	3.7	3.6	3.5	3.6	3.4	175
Bellary	Bellary	BLY	7.1	5.7	5.7	5.5	5.3	5.2	6.0	4.7	4.6	4.3	4.1	4.1	4.0	4.0	4.1	4.2	240
Dharwar	Dharwar	DHR	4.3	4.3	4.1	4.3	4.3	4.3	4.2	4.2	4.0	3.9	3.8	3.8	3.9	4.0	4.1	4.2	180
Raichur	Raichur	RCH	5.3	4.9	4.9	4.9	4.9	4.8	4.9	5.0	4.6	4.6	4.3	4.2	4.0	3.5	3.6	3.8	206

Table-1: Mean Daily Potential Evapotranspiration in mm

WEEKS→			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Kerala																				
Kasargod	Cannanore	KSG	3.9	3.9	4.1	4.1	4.3	4.4	4.5	4.6	4.8	4.8	5.0	5.2	5.3	5.3	5.5	5.6	5.7	5.4
Koyangu-lam	Quilan	KNG	4.3	4.5	4.6	4.6	4.8	4.8	5.0	5.0	5.2	5.3	5.4	5.4	5.5	5.4	5.4	5.4	5.3	5.0
Pattambi	Palghat	PTB	4.9	5.0	5.3	5.3	5.4	5.6	5.7	5.5	5.8	5.9	6.1	6.1	6.1	6.0	5.9	6.0	5.9	5.4
Ollukara	Trichur	OLK	5.2	5.4	5.9	5.6	6.0	6.0	6.1	5.6	5.8	5.9	5.9	5.7	5.8	5.5	5.7	5.7	5.6	5.0
Madhya Pradesh																				
Gwalior	Gwalior	GWR	1.6	1.6	1.7	1.6	1.8	1.9	2.1	2.2	2.6	2.7	3.0	3.2	3.5	3.7	3.9	4.0	4.2	4.4
Adhartal	Jabalpur	ADT	2.3	2.4	2.6	2.7	2.9	3.0	3.3	3.8	4.0	4.4	4.7	5.0	5.3	5.8	6.3	7.0	7.2	7.7
Kotmalia	Rewa	KTA	1.8	1.9	1.9	2.1	2.2	2.4	2.8	3.2	3.5	3.9	4.2	4.8	5.3	5.8	6.4	6.8	7.3	7.7
Labbandi	Raipur	LBD	2.5	2.6	2.7	2.7	2.9	3.6	3.8	4.2	4.2	5.0	5.3	5.5	5.7	6.4	6.9	7.0	7.5	7.9
Maharashtra																				
Akola	Akola	AKL	3.0	3.2	3.3	3.5	3.7	3.9	4.3	4.7	5.0	5.4	5.7	6.1	6.5	6.9	7.4	7.8	8.2	9.1
Dhulia	Dhulia	DLI	3.2	3.4	3.4	3.6	4.0	4.3	4.6	5.0	5.4	5.9	6.1	6.7	7.4	7.7	8.2	8.7	9.5	9.6
Jalgaon	Jalgaon	JLG	4.3	4.3	4.4	4.5	5.1	5.4	5.8	6.1	6.6	7.4	7.6	8.0	8.6	9.1	9.7	10.3	10.7	12.0
Karjat	Colaba	KRJ	3.4	3.6	3.5	3.7	3.9	4.1	4.4	4.7	5.0	5.4	5.7	6.0	6.5	6.7	7.0	7.1	7.3	7.4
Nagpur	Nagpur	NGP	2.7	2.9	2.9	3.4	3.9	4.1	3.9	4.3	4.7	5.1	5.3	5.4	5.7	6.4	6.5	6.8	7.0	7.7
Niphad	Nasik	NPD	3.0	3.0	3.2	3.3	3.6	3.8	4.2	4.7	4.9	5.3	5.8	6.2	6.7	7.2	7.5	7.9	8.6	8.9
Parbhani	Parbhani	PRB	3.1	3.3	3.4	3.5	3.8	4.0	4.3	4.7	5.0	5.3	5.7	5.9	6.3	6.8	7.2	7.4	7.8	8.2
Poona	Poona	PNA	3.1	3.2	3.3	3.3	3.7	4.0	4.2	4.3	4.7	5.3	5.5	5.7	6.0	6.4	6.6	6.8	7.1	7.5
Padegaon	Satara	PDG	2.9	3.0	3.2	3.3	3.6	3.8	4.1	4.5	4.9	5.2	5.6	6.0	6.2	6.5	6.9	7.0	7.5	7.7
Solapur	Solapur	SLP	4.0	4.2	4.4	4.7	4.9	5.1	5.4	5.9	6.2	6.6	7.1	7.2	7.7	8.0	8.2	8.4	8.9	9.2
New Delhi	New Delhi	DLH	1.7	1.7	1.8	1.7	2.1	2.5	2.6	2.8	3.4	3.9	4.2	4.4	4.7	5.6	6.1	6.5	6.8	7.4
Orissa																				
Cuttuck	Cuttuck	CTK	2.8	2.9	3.0	3.1	3.3	3.6	3.9	4.4	4.6	4.8	5.1	5.4	5.8	6.1	6.5	6.7	7.0	7.3
Bhubaneshwar	Puri	BWN	3.1	3.2	3.2	3.3	3.7	4.0	4.3	4.7	5.1	5.4	5.8	6.2	6.7	6.9	7.8	7.7	8.1	8.1
Punjab																				
Chandigarh	Ambala	CHD	1.5	1.6	1.7	1.6	1.8	1.9	2.2	2.5	2.6	3.0	3.4	3.6	4.0	4.4	4.8	5.0	5.6	5.7
Jullundar	Jullundar	JLD	1.3	1.3	1.3	1.3	1.5	2.0	2.2	2.3	2.6	3.4	3.6	3.6	3.8	5.0	5.5	5.9	6.4	6.6

Table-1: Mean Daily Potential Evapotranspiration in mm

Table-1: Mean Daily Potential Evapotranspiration in mm

WEEKS→			19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Kerala																				
Kasargod	Cannanore	KSG	5.6	4.7	4.5	4.3	3.9	3.5	3.3	2.9	2.9	3.1	3.1	3.1	3.1	3.4	3.3	3.5	3.8	3.8
Kayangu-lam	Quilan	KNG	5.1	4.6	4.3	4.2	3.7	3.8	3.6	3.4	3.4	3.6	3.6	3.6	3.9	3.9	3.9	3.9	3.9	3.9
Pattambi	Palghat	PTB	5.6	4.8	4.5	4.3	3.7	3.7	3.3	3.2	3.0	3.1	3.5	3.2	3.3	3.6	3.5	3.7	4.1	4.2
Ollukara	Trichur	OLK	5.0	4.4	4.1	4.1	3.7	3.5	3.3	3.2	2.9	3.1	3.0	3.1	3.1	3.3	3.3	3.4	3.6	3.9
Madhya Pradesh																				
Gwalior	Gwalior	GWR	4.4	4.5	4.4	4.4	4.3	4.4	4.2	3.9	3.2	3.0	3.0	3.0	2.9	2.6	2.6	3.1	2.7	2.7
Adhartal	Jabalpur	ADT	8.0	8.0	8.1	8.2	8.0	7.6	6.8	5.5	4.5	4.1	3.9	4.1	4.4	3.3	3.4	4.1	3.9	3.8
Kuthulia	Rewa	KLA	8.2	8.3	8.3	8.1	8.2	7.7	7.6	6.2	5.1	4.3	4.4	4.5	4.4	3.9	4.1	4.2	4.3	4.4
Labhandi	Raipur	LBD	8.1	8.3	8.4	8.4	7.9	7.0	6.1	5.1	4.5	4.5	4.3	4.1	4.1	3.8	3.9	3.9	4.4	3.9
Maharashtra																				
Akola	Akola	AKL	9.5	9.6	10.2	10.3	9.5	8.5	7.1	6.2	5.3	5.3	4.7	4.7	4.3	4.4	4.5	4.6	4.5	4.1
Dhulia	Dhulia	DHL	10.2	10.2	10.5	10.0	8.7	7.9	7.0	6.1	5.5	5.5	4.9	5.2	4.4	4.4	4.3	4.5	4.4	4.3
Jalgaon	Jalgaon	JLG	13.3	12.7	13.5	13.2	11.9	10.7	8.7	7.2	6.3	6.1	5.5	5.6	5.0	4.7	4.9	5.0	5.1	4.6
Karjat	Colaba	KRJ	7.4	7.1	6.9	6.7	5.8	5.0	4.2	3.5	3.4	3.4	3.3	3.1	3.0	3.2	3.1	3.1	3.3	3.1
Nagpur	Nagpur	NGP	8.6	8.0	8.2	8.5	7.9	7.3	6.0	5.1	4.5	4.4	4.1	4.1	4.0	3.9	3.9	4.0	4.0	3.9
Niphad	Nasik	NPD	9.4	9.4	9.4	9.2	8.5	7.8	6.5	5.7	5.3	5.0	4.8	4.8	4.4	4.5	4.4	4.6	4.4	4.3
Parbhani	Parbhani	PRB	8.7	8.8	8.9	8.7	8.3	7.6	6.6	6.0	5.4	5.5	5.2	5.1	4.7	4.9	5.0	4.9	5.0	4.5
Poona	Poona	PNA	7.8	7.5	7.5	7.5	6.9	6.2	5.4	4.9	4.5	4.5	4.2	4.1	3.9	3.9	3.9	4.1	3.9	4.0
Padegaon	Satara	PDG	8.2	7.6	7.5	7.4	6.8	6.2	5.5	4.9	4.5	4.5	4.2	4.2	4.1	4.1	4.2	4.5	4.2	4.5
Solapur	Solapur	SLP	9.5	9.5	9.0	9.1	8.2	7.7	7.0	6.5	6.3	6.4	5.7	5.4	5.4	5.6	5.7	5.5	5.7	5.2
New Delhi	New Delhi	DLH	7.9	7.6	7.8	8.3	8.1	8.5	8.1	6.9	6.7	5.6	5.1	5.6	4.9	4.4	4.5	4.8	5.0	4.8
Orissa																				
Cuttuck	Cuttuck	CTK	7.2	7.2	7.3	6.8	6.1	5.4	4.9	4.6	4.2	4.0	3.8	4.1	4.0	3.9	3.9	4.2	4.0	4.1
Bhubaneshwar	Puri	BWN	8.1	8.1	8.3	7.4	6.7	5.8	5.5	4.6	4.1	4.4	4.3	4.6	4.4	4.2	4.1	4.4	3.8	4.0
Punjab																				
Chandigarh	Ambala	CHD	5.9	5.2	5.6	5.6	5.5	5.1	4.8	4.2	3.9	3.3	3.3	3.2	3.1	2.9	2.9	2.8	2.9	2.9
Jullundar	Jullundar	JLD	7.6	7.5	7.8	8.3	8.4	8.3	8.4	8.0	7.2	6.0	6.0	5.9	5.7	5.0	4.8	5.3	5.4	4.4

Table-1 : Mean Daily Potential Evapotranspiration in mm

WEEKS →			37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	Annual total in cm
Kerala																			
Kasargod	Cannanore	KSG	3.9	3.7	3.8	3.8	4.0	3.9	3.9	4.0	4.1	4.5	4.1	4.0	4.0	3.9	4.0	4.0	151
Kayanpu-lam	Quilan	KYQ	4.2	4.5	4.2	4.2	4.1	4.3	4.2	4.0	4.0	4.1	4.2	4.3	4.2	4.0	4.1	4.2	160
Pattambi	Palghat	PTB	4.3	4.2	4.0	4.0	4.1	4.0	4.1	4.1	4.4	4.4	4.5	4.6	4.5	4.5	4.7	4.9	168
Ollukara	Trichur	OLK	3.8	3.6	3.6	3.8	3.8	3.7	3.8	3.9	4.2	4.4	4.5	4.6	4.4	4.6	4.8	5.1	163
Madhya Pradesh																			
Gwalior	Gwalior	GWR	2.6	2.6	2.6	2.5	2.6	2.6	2.6	2.5	2.4	2.2	2.2	2.0	1.9	1.8	1.7	1.7	105
Adhartal	Jabalpur	ADT	3.7	4.5	4.3	4.1	3.9	4.0	3.5	3.3	3.1	2.8	2.6	2.4	2.4	2.2	2.3	2.3	162
Kuthulia	Rewa	KLA	4.2	4.6	4.5	4.4	4.3	4.1	3.8	3.4	3.1	2.8	2.5	2.2	2.1	1.9	1.8	1.8	162
Labhandi	Raipur	LBD	3.9	4.2	4.4	4.0	3.9	3.9	3.8	3.7	3.0	2.9	2.8	2.8	2.5	2.4	2.4	2.4	168
Maharashtra																			
Akola	Akola	AKL	4.6	4.6	4.6	4.7	4.4	4.3	4.1	3.9	3.6	3.4	3.2	3.1	2.9	2.7	2.7	2.9	191
Dhulia	Dhulia	DLI	4.9	5.3	5.0	5.2	5.2	5.1	4.9	4.4	4.1	3.7	3.7	3.4	3.4	3.2	3.1	3.2	205
Jalgaon	Jalgaon	JLG	5.3	5.6	5.4	5.1	5.4	5.4	5.5	5.0	4.7	4.6	4.5	4.3	4.2	4.0	4.0	3.9	246
Karjat	Colaba	KRJ	3.5	3.7	3.6	4.0	4.2	4.4	4.3	4.2	4.0	3.9	3.7	3.7	3.6	3.4	3.3	3.3	165
Nagpur	Nagpur	NGP	4.1	4.5	4.7	4.3	4.3	4.4	4.2	3.7	3.4	3.2	3.1	2.9	2.6	2.6	2.5	1.9	172
Niphad	Nasik	NFD	4.7	4.8	4.6	4.8	4.7	4.5	4.5	4.3	4.0	3.7	3.4	3.2	3.1	2.9	2.9	2.9	191
Parbhani	Parbhani	PRB	4.9	4.8	4.5	4.6	4.6	4.5	4.2	4.0	3.8	3.6	3.3	3.2	3.0	2.9	2.9	2.9	187
Poona	Poona	PNA	4.3	4.2	4.2	4.2	4.3	4.2	4.2	3.8	3.4	3.4	3.3	3.2	3.0	2.9	2.9	2.9	171
Padegaon	Satara	PDG	4.7	4.5	4.4	4.5	4.5	4.4	4.1	3.9	3.6	3.4	3.2	3.1	3.0	2.8	2.8	2.9	174
Solapur	Solapur	SLP	5.3	4.9	4.9	4.9	5.1	5.1	4.8	5.0	4.9	4.6	4.5	4.1	4.1	3.9	3.9	3.9	219
New Delhi	New Delhi	DLH	4.7	4.9	4.7	4.1	4.0	4.0	3.9	3.3	2.8	2.7	2.5	2.3	2.0	1.9	1.8	1.8	164
Orissa																			
Cuttuck	Cuttuck	CTK	4.0	4.1	3.9	3.9	4.0	4.0	3.9	3.8	3.6	3.4	3.1	3.1	2.9	2.8	2.7	2.7	162
Bhubanesh-war	Puri	BHN	4.2	4.1	4.2	4.1	4.0	4.2	3.3	3.1	3.6	3.5	2.6	3.3	3.2	3.1	2.9	2.9	176
Punjab																			
Chandigarh	Ambala	CHD	2.8	2.8	3.0	3.1	3.2	3.1	3.0	3.0	2.9	2.8	2.6	2.5	2.4	2.4	2.3	2.3	122
Jullundar	Jullundar	JLD	4.4	4.5	4.4	3.5	3.5	3.3	3.1	2.9	2.0	1.9	1.8	1.7	1.3	1.3	1.3	1.2	155

Table-1: Mean Daily Potential Evapotranspiration in mm

WEEKS→			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Rajasthan																				
Hanuman-garh	Ganganagar	HNG	1.7	1.7	1.8	1.8	1.9	2.3	2.6	2.8	3.2	3.6	4.1	4.7	5.2	5.7	6.1	6.6	7.6	7.6
Jodhpur	Jodhpur	JDP	3.5	3.2	3.2	3.3	3.6	3.9	4.3	4.6	4.8	5.9	5.9	6.0	6.2	7.4	7.5	7.9	8.6	8.7
Kota	Kota	KTA	3.1	3.3	3.3	3.3	3.4	3.4	3.6	3.8	4.0	4.0	4.2	4.5	4.7	4.7	5.0	5.3	5.5	5.8
Tamil Nadu																				
Coimbatore	Coimbatore	CMB	4.1	4.2	4.5	4.6	4.8	5.0	5.4	5.3	5.7	6.7	5.9	6.0	5.9	5.8	5.7	5.6	5.6	5.5
Ootacamund	Nilgiri	OTC	3.0	3.0	3.0	2.9	3.1	3.1	3.1	3.2	3.4	3.8	4.2	4.3	4.5	4.0	4.2	4.0	4.2	3.9
Adutural	Tanjore	ADR	3.7	3.6	3.8	3.9	4.0	4.1	4.3	4.2	4.4	4.9	4.9	5.2	5.5	5.6	5.9	6.0	6.1	6.5
Kovilpatti	Tirunelvel-li	KVL	3.1	3.4	3.5	3.8	4.0	4.3	4.6	4.8	5.2	5.4	5.7	6.0	6.3	6.3	6.5	6.7	7.0	7.0
Uttar Pradesh																				
Agra	Agra	AGR	1.9	1.9	2.0	2.1	2.5	2.8	3.0	3.4	3.8	4.2	4.6	5.1	5.4	6.0	6.5	6.9	7.1	7.5
Chaubattia	Almora	CHB	1.3	1.3	1.2	1.3	1.4	1.6	1.8	1.9	2.2	2.4	2.7	2.8	3.1	3.4	3.7	4.0	4.1	4.4
Basti	Basti	BST	1.4	1.4	1.4	1.5	1.6	1.7	1.8	2.1	2.3	2.5	2.8	2.9	3.1	3.5	3.6	3.7	3.6	3.6
Dehra Dun	Dehra Dun	DHN	1.1	1.2	1.2	1.3	1.4	1.6	1.9	2.0	2.4	2.6	2.9	3.1	3.4	3.8	4.3	4.6	4.8	5.1
Pantnagar	Nainital	PTG	1.4	1.6	1.7	1.7	1.9	2.2	2.5	2.8	3.3	3.5	3.9	4.2	4.7	5.2	5.9	6.3	7.0	7.1
Sahranpur	Sahranpur	SRN	1.3	1.3	1.4	1.4	1.7	1.9	2.1	2.4	2.9	3.1	3.5	3.7	4.2	4.5	5.0	5.4	5.6	5.8
West Bengal																				
Nagri	Darjiling	NGR	1.4	1.5	1.5	1.5	1.6	1.7	1.9	2.3	2.6	2.9	3.3	3.6	3.6	3.7	3.6	3.5	3.5	3.3
Chinsurah	Hugali	CHS	2.4	2.4	2.4	2.5	2.5	3.3	3.4	3.8	3.9	4.8	5.2	5.4	5.7	6.7	7.2	7.3	7.5	7.1
Barreckpore	24 Parganas	BRP	2.2	2.3	2.2	2.3	2.4	3.1	3.3	3.6	3.7	4.6	4.9	5.0	5.4	6.4	6.9	6.7	6.5	6.9
Japerkatta	Jalpaiguri	NGK	2.0	2.0	2.0	2.0	2.0	2.5	2.7	3.0	3.1	4.0	4.1	4.2	4.3	4.9	4.8	4.5	4.7	4.4

Table-1: Mean Daily Potential Evapotranspiration in mm

WEEKS →			19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Rajasthan																				
Hanumangarh	Ganganagar	HNG	7.9	8.7	8.9	8.9	9.1	9.3	9.8	8.8	8.2	7.7	7.1	7.2	6.9	6.1	6.1	6.5	6.3	6.0
Jodhpur	Jodhpur	JDP	9.3	10.1	10.1	9.8	10.1	9.7	10.0	8.2	8.1	7.2	6.5	7.2	6.5	5.7	5.5	5.9	5.9	5.5
Kota	Kota	KTA	5.8	6.0	6.4	6.7	6.7	6.6	6.1	5.2	4.3	4.1	3.5	3.3	3.3	2.9	2.7	3.0	3.2	3.4
Tamil Nadu																				
Coimbatore	Coimbatore	CMB	5.7	5.2	5.4	5.7	5.9	5.8	6.0	6.1	5.3	5.4	5.4	5.4	5.9	5.9	5.4	5.6	5.1	5.6
Ootacamund	Nilgiri	OTC	4.0	3.4	3.6	3.6	3.3	3.0	3.0	2.7	2.5	2.7	2.7	2.6	2.8	2.9	2.8	2.9	3.0	3.0
Adutural	Tanjore	ADR	7.3	6.9	7.5	8.0	8.2	7.9	7.6	7.8	7.3	7.2	7.1	6.8	7.0	6.7	6.2	5.9	6.0	5.7
Kovilpatti	Tirunel-velli	KVL	7.6	7.3	8.3	8.2	7.9	7.4	6.8	6.0	5.9	6.3	5.7	5.3	5.5	5.7	5.4	5.1	5.1	5.0
Uttar Pradesh																				
Agra	Agra A	AGR	7.7	7.8	8.1	8.2	8.1	8.1	8.0	6.8	6.5	5.5	5.3	5.4	4.9	4.3	4.5	4.7	4.9	4.7
Chaubattia	Almora	CHB	4.4	4.5	4.7	4.4	4.2	4.0	3.7	3.2	2.9	2.7	2.8	2.6	2.5	2.4	2.5	2.4	2.5	2.4
Basti	Basti	BST	3.7	3.6	3.7	3.9	3.7	3.4	3.0	2.8	2.7	2.7	2.6	2.6	2.5	2.5	2.5	2.4	2.4	2.4
Dehra Dun	Dehra Dun	DHN	5.3	5.3	5.6	5.6	5.4	5.2	4.7	4.4	4.4	3.6	3.6	3.5	3.4	3.2	3.2	3.4	3.4	3.3
Pantnagar	Nainital	PTG	7.5	7.3	7.6	7.6	7.0	6.6	6.1	5.3	5.2	4.8	4.7	4.4	4.2	4.2	4.3	4.2	4.3	4.2
Sahranpur	Sahranpur	SRN	6.3	6.3	6.5	6.8	6.6	6.5	6.3	5.8	5.4	4.5	4.7	4.6	4.3	4.0	4.0	4.1	4.2	4.1
West Bengal																				
Nagri	Darjiling	NGR	3.2	3.2	3.3	3.2	2.9	2.6	2.6	2.7	2.6	2.7	2.7	2.5	2.5	2.8	3.0	2.8	2.6	2.8
Chinsurah	Hugali	CHS	7.6	7.8	7.4	6.9	6.2	5.5	5.2	5.0	4.9	4.7	4.6	4.7	4.4	4.4	4.3	4.5	4.6	4.2
Barrackpore	24 Parganas	BRP	6.8	7.4	6.8	6.3	6.0	5.3	4.8	4.7	4.2	3.9	4.5	4.5	4.2	4.2	4.1	4.2	4.5	3.9
Nagarkatta	Nagarkatta	NGK	4.7	4.6	4.8	4.4	4.3	3.5	3.6	3.8	3.7	3.6	3.6	3.5	3.6	3.6	3.7	3.7	3.6	3.4

Table-1: Mean Daily Potential Evapotranspiration in mm

Table-1: Mean Daily Potential Evapotranspiration in mm

WEEKS →			37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	Annual total in cm.
Rajasthan																			
Hanumangarh	Ganganagar	HMG	5.6	5.2	5.0	5.0	4.4	4.2	3.6	3.4	3.0	2.7	2.4	2.0	2.0	1.8	1.7	1.8	185
Jodhpur	Jodhpur	JDP	5.7	5.9	5.9	5.1	5.1	4.9	4.9	4.1	3.6	3.7	3.9	3.5	3.2	3.2	3.2	3.2	216
Kota	Kota	KTA	3.6	3.9	3.9	4.4	4.2	4.1	4.0	3.8	3.9	3.8	3.6	3.4	3.5	3.5	3.3	3.3	153
Tamil Nadu																			
Coimbatore	Coimbatore	CMB	5.6	5.1	5.0	4.7	4.3	3.9	3.8	4.4	3.8	3.9	4.3	3.8	3.8	3.8	4.0	3.9	186
Ootacamund	Nilgiri	OTC	3.0	2.8	2.8	2.8	2.9	2.7	2.7	2.7	2.6	2.7	2.7	2.7	2.6	2.7	2.9	2.9	115
Adutturai	Tanjore	ADR	5.6	5.2	5.0	4.7	4.4	3.9	4.1	4.0	3.9	3.7	3.8	3.8	3.7	3.6	3.7	3.6	196
Kovilpatti	Tirunel-veli	KVL	4.7	4.6	4.4	4.4	4.4	4.3	4.1	4.0	3.8	3.5	3.4	3.3	3.1	3.0	3.1	3.1	189
Uttar Pradesh																			
Agra	Agra	AGR	4.8	4.9	4.7	4.5	4.3	4.1	3.7	3.5	3.1	2.9	2.6	2.4	2.2	2.0	1.8	1.9	171
Chaubattia	Almora	CHB	2.3	2.4	2.4	2.4	2.4	2.3	2.1	2.0	1.9	1.7	1.5	1.4	1.4	1.2	1.3	1.3	94
Basti	Basti	BST	2.3	2.3	2.3	2.1	2.2	2.2	2.2	2.0	2.0	1.9	1.8	1.7	1.6	1.4	1.4	1.4	90
Dehra Dun	Dehra Dun	DHN	3.2	3.4	3.3	3.1	2.9	2.6	2.5	2.2	2.0	1.8	1.6	1.4	1.3	1.1	1.1	1.1	111
Pantnagar	Nainital	PTG	3.9	4.2	4.1	3.7	3.7	3.5	3.1	2.8	2.5	2.3	2.0	1.9	1.8	1.6	1.4	1.4	147
Saharanpur	Saharanpur	SRN	4.0	4.1	3.9	3.6	3.4	3.1	2.9	2.6	2.3	2.1	1.8	1.6	1.6	1.3	1.3	1.2	135
West Bengal																			
Nagri	Darjiling	NGR	2.5	2.5	2.5	2.6	2.4	2.6	2.6	2.2	2.3	2.0	2.0	1.8	1.9	1.5	1.5	1.5	93
Chinsurah	Hugali	CHS	4.1	4.3	4.3	3.7	3.7	3.9	3.5	3.6	2.9	2.8	2.7	2.6	2.4	2.3	2.3	2.2	161
Barrackpore	24 Parganas	BRP	3.8	4.1	4.1	3.5	3.6	3.7	3.4	3.6	2.8	2.8	2.7	2.6	2.2	2.2	2.1	2.1	154
Nagarkatta	Nagarkatta	NGK	3.3	3.4	3.5	3.0	3.1	3.3	3.3	3.1	2.5	2.4	2.3	2.3	2.0	1.9	1.9	1.8	122

Sa/-