

Letters to the Editor

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CLIMATOLOGY OF FOOT REGION OF SHIVALIK HILLS

In order to observe climatological elements a class 'B' observatory was established in 1952 under U.P. Irrigation Research Institute, Roorkee at Bahadrad, 20 km on Roorkee-Hardwar road. It is located at Lat. $29^{\circ} 55.5' E$, Long. $78^{\circ} 2.25' N$ at height of 275 m above the mean sea level. Since 1955 the observatory is engaged in collecting data in respect of temperature, relative humidity, rainfall, period of sunshine, atmospheric pressure, wind velocity etc. A brief account of different elements for the period 1955-77 has been given here under. Monthly ever maximum, ever minimum and average values for the above period in respect of rainfall, temperature, relative humidity have been shown in Fig. 1.

2. *Rainfall*—An average rainfall of the order of 1200 mm yearly was recorded at this station, out of which 80 per cent was received during southwest monsoon period from 15 June to 15 September. July and August are the months of heaviest rainfall. In winter scanty rainfall is experienced in association with western disturbances. The highest monthly rainfall of 655.1 mm was recorded in July 1958 while there were many years when November received no rainfall. As regards the highest rainfall in a day, 230.9 mm was recorded on 31 July 1958.

3. *Temperature*—The monthly average temperature was minimum in January while it was maximum in June; the two values being $13^{\circ} C$ and $32^{\circ} C$ respectively. Ever minimum and maximum temperatures of $-1.7^{\circ} C$ and $45.6^{\circ} C$ were recorded on 29 January 1964 and 17 June 1958 respectively during the last 23 years. In the summers, the monthly maximum temperature varied from $30.3^{\circ} C$ to $45.6^{\circ} C$ while its value for minimum temperature varied from $4.2^{\circ} C$ to $22.7^{\circ} C$. The above values varied from $21.6^{\circ} C$ to $36.4^{\circ} C$ and $-1.7^{\circ} C$ to $15.6^{\circ} C$ respectively

in winters. March, April and May were the months of large diurnal variation of temperature when nights were cooler and days were comparatively hotter. The diurnal variation in the temperature remained minimum, *i.e.*, $12^{\circ} C$ during August. In the rainy season, the monthly maximum and minimum temperatures varied from $33.6^{\circ} C$ to $41.3^{\circ} C$ and $15.0^{\circ} C$ to $26.6^{\circ} C$ respectively. During the period from July to September the monthly average remained almost constant at $28^{\circ} C$.

4. *Relative humidity*—During rainy season the monthly average of relative humidity remained 75 per cent while its maximum and minimum values were 100 and 45 per cent respectively. 100 per cent relative humidity was observed on 5 to 8 days in the month of July and August during each year. April and May were comparatively dry months when the value of maximum and minimum relative humidity was of the order of 70 and 10 per cent respectively. The minimum relative humidity of 2 per cent only was observed on 24 April 1969. It was the driest day in the period under study.

5. *Period of sunshine*—It has an important bearing on the growth of crops and health of human beings. The monthly average was minimum during January, July and August when its value comes out to 7 hours/day. In the later months, the average is lower due to cloudy sky. In the month of May its duration was longest (10 hr/day). Sun was seen for more than 12 hours on many days in the months of May and June. Sun was seen for a maximum period of 12.9 hours on 20, 22 and 24 May 1963 and 24 and 25 May 1964.

6. *Wind Velocity*—Wind velocity is observed at heights of 0.61, 3.05, 4.88 and 9.14 m from the ground level. The velocities at a height of 4.88 m have been given here under. It was minimum during November while it was maxi-

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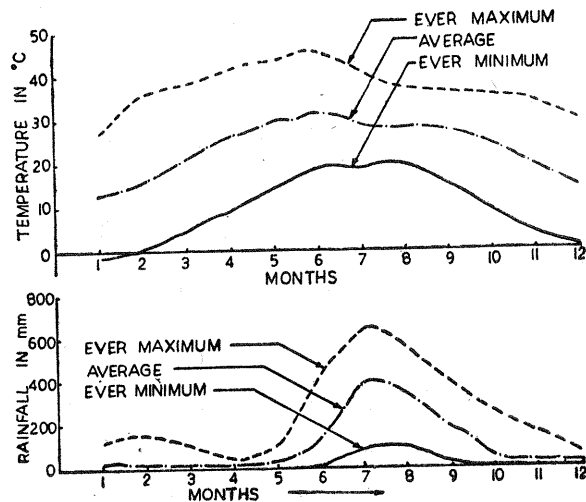


Fig. 1. Temperature and rainfall during 1955-1977

mum during May, in general. The average values worked out to 3 km/hr and 5.5 km/hr respectively. Wind velocity of more than 12 km/hr was

noted on several days during the month of May. Instantaneous maximum velocity of 115 km/hr with its direction westnorthwest was recorded.

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