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WHICH IS THE RAINIEST PLACE IN THE WORLD ?

In the early part of this century, the rainfall at Cherrapunji ($25^{\circ} 15' N$, $91^{\circ} 44' E$, elevation 1303 metres) situated in the State of Meghalaya in northeast India, was considered to be the highest not only in India but also in the world. In recent decades, however, the annual mean rainfall at Waialeale ($22^{\circ} 04' N$, $159^{\circ} 30' W$, elevation 1548 metres), Kauai, Hawaii, (USA) has been noted to be the highest in the world. Based on 40 years data (1923-1962), the annual mean rainfall at Cherrapunji is 11,161 mm (37 years) and at Waialeale is 11,684 mm (32 years). In view of this, recent publications *e.g.* Griffiths (1985), indicate that the highest annual mean rainfall in the world occurs at Waialeale and the second highest annual mean rainfall at Cherrapunji, Raghavan (1960) had also come to the same conclusion.

In this context, it is interesting to examine the rainfall records of Mawsynram, a station about 16 km west of Cherrapunji. A cooperative meteorological observatory functioned at Mawsynram (Lat. $25^{\circ} 18' N$, Long. $91^{\circ} 35' E$, and elevation 1401 metres) from 1940 to 1980 in the precincts of the local Presbyterian School. This was a part-time observatory and recorded rainfall daily at 0830 IST (0300 UTC). The information in this communication is based on the meteorological data from this cooperative meteorological observatory.

Mawsynram is situated on the crest of the southern range of the Khasi Hills in the State of Meghalaya (India) and like Cherrapunji, it also receives most of its annual rainfall during the southwest monsoon season (June to September). During winter, weather is generally fine to fair with occasional light rainfall occurring under the influence of western disturbances which move eastwards across the northern parts of India. Pre-monsoon and post monsoon rainfall is generally associated with thunderstorms. On an average, rainfall occurs in Mawsynram on 147 days in a year.

The annual mean rainfall at Mawsynram based on available data for 26 years during 1941-1979 is 11,873 mm while that over Cherrapunji for 31 years during the same period is 11,542 mm. Only those years are selected for which records are available for all the 365 days of the year. For better comparison, the annual rainfall amounts for the decade (1948-1957) for which complete data sets are available at both the stations for all the years are shown in Fig. 1 from which it is seen that

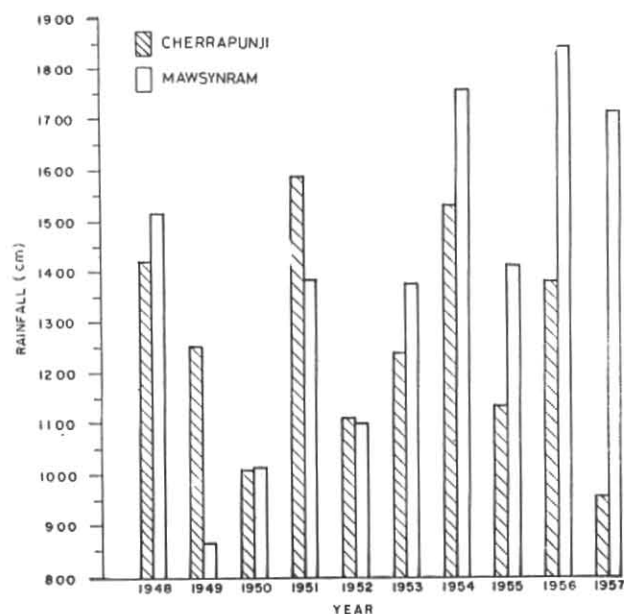


Fig. 1. Annual rainfall at Cherrapunji and Mawsynram for 10 years (1948-1957)

except for three years (1949, 1951 and 1952), the annual rainfall at Mawsynram was higher than that at Cherrapunji. The annual mean rainfall for the decade as a whole at Mawsynram is 13,978 mm and at Cherrapunji it is 12,611 mm. This also suggests that the annual mean rainfall at Mawsynram is higher than that over Cherrapunji.

The available rainfall records during recent decades indicate that the annual mean rainfall figures for Waialeale, Cherrapunji and Mawsynram are 11,684 mm (32 years), 11,763 mm (36 years), 11,873 mm (26 years) respectively. If all the available rainfall records are considered, the annual mean rainfall for Mawsynram is 11,873 mm (1941-1978), Waialeale is 11,438 mm (1911-1973) and Cherrapunji is 11,314 mm (1852-1989). From these data, it appears that the annual mean rainfall at Mawsynram is the highest not only in India but also in the world. It may however, be mentioned that the figures of annual mean rainfall at Mawsynram and Waialeale are based on shorter period data, varying from 26 to 45 years and it does not appear to be proper to compare these rainfall figures with the annual mean rainfall of Cherrapunji which is based on the data of much longer period of 138 years (1852-1989).

It is interesting to note that the highest 24 hours rainfall record for India is also held by Mawsynram which received 989.6 mm rainfall during the 24 hours ending at 0830 IST (0300 UTC) on 10 July 1952. It

may be mentioned that a number of other world records pertaining to the rainfall like, highest, 12 months, 11 months, 6 months, 1 month, 15 days etc. are held by Cherrapunji. It is, however felt that if the self recording instruments are installed at Mawsynram, all these record would be surpassed by the rainfall at Mawsynram.

Higher rainfall at Mawsynram than at Cherrapunji can be attributed to the fact that the former has a higher elevation and is located on the crest of a hill range on the edge of a narrow valley opening towards the south. That is why higher annual rainfall and/or higher 24-hour rainfall might perhaps be occurring at other nearby locations placed in orographic positions even more favourable for higher rain. A meso-scale rain gauge network in this area could bring to light some very interesting features of rainfall distribution

in this part of India and would also help to identify a place in this area which has the distinction of holding the maximum rainfall records in the world.

References

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V. THAPLIYAL

India Meteorological Dept., Pune

S.M. KULSHRESTHA

India Meteorological Dept., New Delhi

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