551.524.36(548.3)

RECORD LOW MEAN MAXIMUM TEMPERATURE SINCE 1961 IN APRIL AND MAY 1999 OVER STATIONS IN KERALA

1. The normal mean maximum temperatures is of the order of 32° C to 33° C over coastal stations of Kerala and is of the order of 35° C to 36° C in inland stations in April and is of the order of 31° C to 32° C in coastal stations and 33° C in inland stations in the month of May. In general, the normal maximum temperatures of May is lower than that of April by about 1° C in coastal stations and by about 2.5° C in inland stations of Kerala. All stations in Kerala are either part time or full time meteorological observatories maintained and inspected by India Meteorological Department. The names of Kerala stations, their locations, their Climatological normals published by India Meteorological Department, availability of data and the range of mean maximum temperatures are given in Table 1.

1.1. It can be easily seen from the table that stations Alappuzha, Kochi, Palakkad and Punalur recorded the lowest mean maximum temperatures since 1961 for the month of April in the year 1999, while Kottayam recorded the lowest mean temperature since 1973 in the year 1999. It can also be seen that all the stations except Thiruvanthapuram city and airport recorded the lowest mean maximum temperatures for the month of May in the year 1999. Stations Alappuzha, Kochi, Kozhikode, Palakkad and Punalur had its lowest mean maximum temperatures since 1961, while Kannur, Kozhikode airport (Karipur) and Kottayam recorded the lowest mean maximum temperature for the month of May in the year 1999 since 1981, 1988 and 1973 respectively.

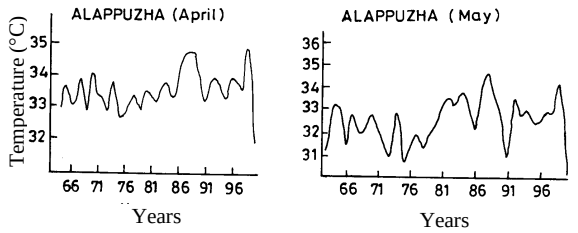

Fig. 1. Mean maximum temperatures at Alappuzha during April & May 1999

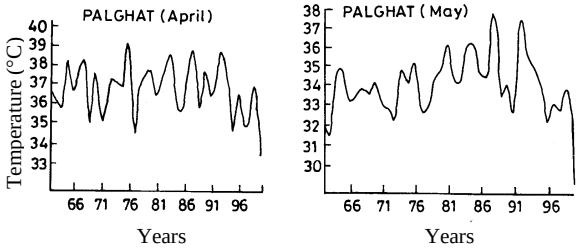

Fig. 2. Mean maximum temperatures at Palghat during April & May 1999

A graph showing the mean maximum temperatures of two Kerala stations in April and May 1999 since 1961 is given as an example in Figs. 1 & 2.

2. In the month of April two upper air cyclonic circulations moved across southern peninsula. The significant synoptic system which brought in a good amount of rainfall to Kerala between 22 and 26 April is a low pressure area which was over Southwest Bay off Tamilnadu coast on 21 April and the movement westwards across south peninsula causing very heavy rainfall in north Tamilnadu on 23 and heavy rainfall in Kerala during 24 to 26 April as pointed by

TABLE 1

Station and availability of data	Location Lat. / Long.	Lowest mean max. temperature (°C)		Highest mean max. temperature (°C)		Normal max. temperature (°C)		Range (°C)	
		April (year)	May (year)	April (year)	May	April	May	April	May
Alapuzzha 1961-99	9° 33′ N/ 76° 25′ E	32.0 (1999)	30.5 (1999)	35.6 (1997)	34.8 (1987)	32.7	31.0	3.6	4.3
Kannur 1981-99	11° 50′ N/ 75° 20′ E	32.4 (1983)	30.8 (1999)	36.5 (1998)	35.5 (1997)	N/A	N/A	4.1	4.7
Kozhikode AP 1988-99	11° 08′ N/ 75° 57′ E	33.1 (1994)	30.5 (1999)	35.8 (1998)	34.6 (1991)	N/A	N/A	2.7	4.1
Kochi AP 1961-99	9° 57′ N/ 76° 16′ E	31.8 (1999)	30.3 (1999)	34.2 (1998)	33.5 (1991)	32.1	30.8	2.4	3.2
Kottayam 1973-99	9° 32′ N/ 76° 36′ E	31.8 (1999)	30.2 (1999)	35.4 (1988)	36.9 (1995)	N/A	N/A	3.6	6.7
Kozhikode 1961-99	11° 15′ N/ 75° 47′ E	32.2 (1976)	30.3 (1999)	35.4 (1998)	34.9 (1998)	32.9	32.5	5.4	4.6
Palakkad 1961-99	10° 46′ N/ 76° 39′ E	33.6 (1999)	30.2 (1999)	39.3 (1975)	37.6 (1991)	36.0	33.4	5.7	7.4
Punalur 1961-99	9° 00′ N/ 76° 55′ E	32.8 (1999)	31.3 (1999)	39.1 (1983)	36.4 (1983)	35.5	32.6	6.3	5.1
Trivandrum AP 1961-99	8° 28′ N/ 76° 57′ E	31.0 (1983)	30.7 (1972)	33.7 (1985 & 1997)	33.7 (1998)	32.3	31.5	2.7	3.0
Trivandrum city 1961-99	8° 29′ N/ 76° 57′ E	31.9 (1969)	30.6 (1972)	34.9 (1998)	33.7 (1991)	32.4	31.8	3.0	3.1

Lakshminarayanan 2001. It will be interesting to note that the monthly rainfall of Kerala and south Interior Karnataka was only normal, otherwise the rainfall of the entire country was either deficient or scanty in April 1999.

In the month of May 1999, a low pressure area formed over Lakshadweep and adjoining north Kerala coast on 11 persisted on 12 and became less marked on 13. A second low pressure area formed over Lakshadweep area and adjoining parts of north Kerala coast on 15. It concentrated into a depression with its centre near latitude 12.5° N and longitude 72.0° E about 300 km west southwest of Mangalore at 1200 UTC of 16. It intensified into a severe cyclonic storm with its centre near latitude 15° N and longitude 67.5° E about 670 km south southwest of Veraval at 1200 UTC of 17. It intensified into a very severe cyclonic storm and lay centred at 0300 UTC of 18 near latitude 17.0° N and longitude 68.0° E about 500 km southwest of Veraval. It moved to a northerly direction and crossed Pakistan coast about

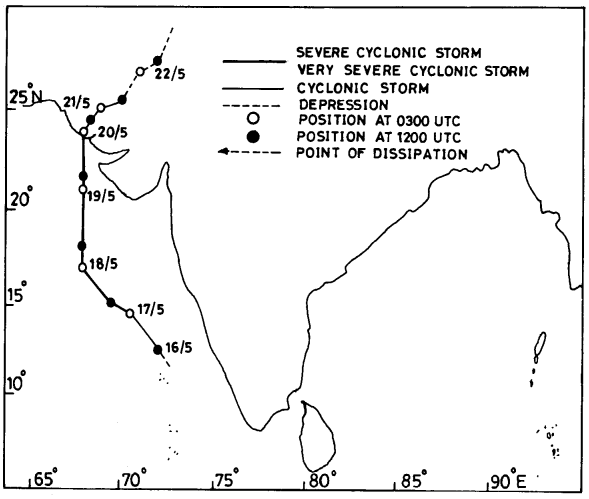

Fig. 3. Track of cyclonic storm formed during May 1999

70 km northwest of Naliya in Gujarat state on 20. Later it slowly weakened into a cyclonic storm and moved in a

northeasterly direction, weakened and became less marked by 24.

The cyclonic storm held sway over the entire Arabian Sea and southern peninsula between 16 & 20. This storm ushered in strong monsoon westerlies over Kerala and associated clouding leading to excellent rainfall from 21 onwards and the southwest monsoon onset was declared on 25. It may be mentioned that the summer season March to May rainfall of Kerala was the highest since 1976 recording a rainfall of 62.3 cm as against a normal of 41.6 cm. The track of severe cyclonic storm is given in Fig. 3.

3. During April – May 1999, the mean of maximum temperatures was lowest for corresponding months for considerable period, preceding and including this year. That this was not an isolated occurrence but was a widespread phenomenon over Kerala suggests the influence of synoptic scale disturbances. The important synoptic features noticed during this period as already pointed detailed in section 2 are :

(*i*) The formation of low pressure area over southwest Bay off Tamilnadu coast and its movement during third/fourth weeks of April 1999.

(*ii*) The formation and movement of a cyclonic storm during the third week of May 1999 in Arabian Sea.

(*iii*) The early onset of monsoon over Kerala on 25 May 1999.

How these synoptic situations were more effective in causing the widespread occurrence of lowest mean maximum temperatures than the synoptic features in other years in influencing the level of mean maximum temperatures requires investigation in detail.

Reference

Lakshminarayanan, R., 2001, "An unusually northern position of ITCZ during the last week of April (21 to 26 April 1999) and associated weather over Tamil Nadu and Kerala", *Mausam*, **52**, 4, 733-735.

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