



**CLIMATE
OF
ANDHRA PRADESH**

1162

GOVERNMENT OF INDIA

INDIA METEOROLOGICAL DEPARTMENT



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FOREWORD

The importance of meteorology for the economic and social benefits of man is being increasingly realised all over the world. In recent years the various multi-purpose projects undertaken by the Central and State Governments as well as agriculture, aviation, shipping, industrial and other interests have been making heavy demands on this department for climatological information pertaining to different parts of the country for planning and executing various projects with a view to take the maximum advantage of favourable meteorological conditions. Keeping these demands in view, it has been decided to publish Climatological Summaries for each State in the country incorporating the district climatological summaries. The second in the series 'State Climatological Summaries' is the 'Climate of Andhra Pradesh'. It is hoped that these climatological summaries will also serve as educational material in the schools and colleges in the State.

The Climatological Summaries in the publication have been prepared by the Office of the Deputy Director General of Observatories (Climatology and Geophysics), Poona, under the direction of Shri M. Gangopadhyaya, Deputy Director General.

P. KOTESWARAM,

Director General of Observatories

NEW DELHI

Date : 16th Nov., 1973

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CLIMATE OF ANDHRA PRADESH

INTRODUCTION

The meteorological conditions of Andhra Pradesh as a whole are described in the first Chapter followed by detailed description of the climate of each district in the succeeding chapter. The district summaries are grouped under the respective meteorological subdivisions and arranged alphabetically.

The normals of meteorological elements used for describing the climate are generally based on data for the period 1931 to 1960 except in the case of rainfall. For rainfall, normals using all available data for 1901 to 1950 have been used. In preparing charts showing the extremes of temperature data up to 1965 have been utilized.

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CHAPTER I

CLIMATE OF ANDHRA PRADESH

CLIMATE OF ANDHRA PRADESH

GENERAL DESCRIPTION

Andhra Pradesh, which lies between 13°N and 20°N , experiences tropical climate with slight variations depending upon elevation and maritime influence. The Eastern Ghats separate the Deccan plateau from the coastal belt. The plateau slopes from the interior towards the east from elevations of less than 1 km. and is drained by two major river systems of the Godavari and Krishna which scoop out vast low-lying areas. In the south, in Chittoor, Anantapur and Cuddapah districts, the Eastern Ghats, breaking into various ranges e.g., Vellikonda, Nallamala, Palkonda etc., form a general plateau with elevations rising to 1 km. In the north, in the Vishakhapatnam district, the Eastern Ghats are more cohesive and have higher elevations not exceeding 2 kms. The low-lying coastal belt extends to about 100 kms. in the south and narrows to 40 kms. in the north. The wide deltaic region of the Godavari and the Krishna forms the central part of the coastal belt. These orographic features influence to some extent the climate of the State, the plateau regions experiencing more temperate climate than the low-lying valleys and the coastal belt. Frontpiece gives the orographic features of Andhra Pradesh.

Meteorological Subdivisions:

The state is divided into three subdivisions:

- (a) Coastal Andhra Pradesh consisting of the districts of Nellore, Guntur, Prakasam, Krishna, West Godavari, East Godavari, Vishakhapatnam and Srikakulam. Out of these the districts of Guntur, Prakasam and Krishna, belonging to the deltaic region extend farthest into the interior to a distance of 100—150 kms. where maritime influence on climate is reduced;
- (b) Rayalaseema consisting of Chittoor, Cuddapah, Anantapur and Kurnool districts; and
- (c) Telangana consisting of districts of Adilabad, Karimnagar, Nizamabad, Medak, Hyderabad, Mahbubnagar, Nalgonda, Warangal and Khammam.

Climate

The climate of Andhra Pradesh may be broadly classified as (1) Tropical Rainy and (2) Hot Steppe. The general characteristics of the first type are that the mean daily temperature for the coldest month is above 18°C with annual rainfall of less than 250 cms., most of it occurring during the summer south/west monsoon. In Hot Steppe regions the mean annual temperature is above 18°C ; summer is hot and dry followed by monsoon rains. In case of Andhra Pradesh, however, considerable rainfall occurs outside this period also in the Southern and Coastal parts.

The climatic classification of Andhra Pradesh is shown in fig. 1.

SEA LEVEL PRESSURE AND WIND

During January atmospheric pressure is high over north India and decreases to the south. Over Andhra Pradesh the pressure gradient is weak—hardly one mb. Winds are mostly light and east to northeasterly.

Pressure thereafter decreases and by March it is nearly uniform over the State. Winds are light and easterly to southeasterly strengthening towards evening. In April, with the establishment of a low over Bihar and adjoining parts of the country, a reversal in the pressure gradient occurs.

The gradient over the State, however, continues to be weak. Winds are mostly southeasterly, becoming southwesterly over the northern coastal districts. With the advance of summer, seasonal low over north India deepens and shifts towards the northwest. The pressure gradient over Andhra Pradesh generally increases. Winds strengthen and are westerly to north westerly except over coast where they are south to southwesterly till September. October is a month of transition when reversal of pressure gradient takes place. Winds weaken and take a northerly component. The seasonal low begins to establish itself over the Bay of Bengal and conditions revert to the winter pattern. Pressures thereafter, continue to rise till January. See breeze is generally felt over the coastal belt throughout the year during the afternoon and evening.

Table 1 gives the monthly mean daily wind speed in Km.p.h. for the observatory stations in the three sub-divisions. In addition, predominant wind directions in the morning and evening have been included. For each sub-division, the mean monthly wind speed is given at the bottom of the respective subdivisional table.

TEMPERATURE

Table 2 gives the mean daily maximum and minimum temperatures at the observatory stations and for each of the three sub-divisions.

Figures 2(a) to 5 show the distribution of mean maximum and mean minimum temperatures for representative months and the highest and lowest temperatures recorded in the State.

2.i. Coastal Andhra Pradesh

The climate of most of the region is Tropical Rainy. The western portions of Prakasam and adjoining parts of Guntur and Nellore districts belong to the Hot Steppe type of climate. The chief feature is that the area is warm throughout the year. The mean temperature is always above 22°C. During the hottest part of the year—April to June—the mean temperature ranges between 29°C and 35°C, increasing towards the interior and to the south. With the onset of the south west monsoon, temperatures fall appreciably, particularly in July.

The mean maximum temperature ranges from 27°C to 30°C in January and 34°C to 41°C in May, which is the hottest month. Maximum temperature generally increases towards the interior and to the south along the coast. Maximum temperatures of 47°—48°C have been recorded at a number of stations. Nidadavole has recorded the highest temperature of 48.9°C on 26-5-1962 in the whole of Andhra Pradesh.

Mean minimum temperature varies widely from 17° to 20°C in December, which is the coolest month, to 27° or 28°C in May and June. Mean minimum temperature increases from north to south along the coast and also from coast to the interior. The lowest minimum on individual days has ranged between 10 °C to 14°C.

The mean diurnal range of temperature for the year as a whole is 8°—10°C at Coastal stations increasing to 12°C at interior locations. The maximum range is generally reached in March and is 15°C over the area away from coast and 9°—11°C along the coast, with an increase towards the south. The minimum range of 7° to 9°C occurs in the monsoon month of July.

2.ii. Rayalaseema

The climate of this region is warm all the year round, and may be mainly classified as hot and dry Steppe type outside Chittoor district which comes under the Tropical Rainy type but having considerable rainfall in October to December also. The mean temperature is always above 23°C over the plains and above 20°C over the elevated area to the south. During April—May, the hottest part of the year, mean temperatures range between 32° to 35°C over the plains. At Arogyavaram, an elevated station, mean temperature is 29°C. With the onset of the south-west monsoon, temperatures fall considerably being 28°C in July over the plains.

Mean maximum temperatures range from 30°C in December to 40°C in May, decreasing considerably with elevation over the southern hilly region. Maximum temperatures of 45° to 47°C have been recorded on individual days except over plateau area in the south where recorded temperatures are less than 40°C .

Mean minimum temperatures are lowest in December and January being 17° — 19°C over the plains decreasing over the plateau region where mean minimum temperature does not exceed 25°C even in summer. Temperatures as low as 7°C may be reached on individual days particularly in the northern parts of the sub-division.

The mean diurnal variation of temperature for the year as a whole is 10° — 12°C . The maximum variation of 13° — 15°C occurs in February and March. It is the least being 9°C during the monsoon months of July and August.

Over the plains the climate is generally comfortable during November to January. April and May are uncomfortable being hot and dry. June and July also remain uncomfortable due to increased humidity. The plateau region is relatively more comfortable throughout the year and is pleasant from November to February.

2.iii. Telangana

Tropical rainy type of climate prevails over most of Telangana, hot and Hot Steppe type being confined to the districts of Mahbubnagar, Hyderabad and adjoining Nalgonda. Telangana is the hottest part of the State during summer and coldest in winter. The mean daily temperature varies from 30° — 36°C during April to June and from 20° to 24°C in cold weather months of December and January.

Mean maximum temperature ranges between 40° to 43°C in May. On individual days maximum temperatures touch 47°C over most of the region. Maximum temperatures after decreasing during the monsoon rise slightly after its withdrawal due to increased insolation.

Mean minimum temperature is 13° to 17°C in December and January rising to 26° — 29°C in May. The minimum temperatures fall rapidly after October and values lower than 10°C have been recorded on individual days. Nizamabad has recorded the lowest temperature of 4.4°C on 17-12-1897 in the whole of Andhra Pradesh.

The mean diurnal variation is 12°C for the year as a whole. It is 13° — 15°C in February and March and 8°C in the monsoon months of July and August.

The climate is pleasant from November to February. Summer months of April and May are uncomfortable with oppressive heat. The period July to September is warm and humid, and uncomfortable.

HUMIDITY

Table 3 gives the mean relative humidity at 0830 and 1730 hrs. IST for individual stations and the three sub-divisions.

Humidity is high in the coastal belt with average of 70 to 80 per cent in the morning throughout the year decreasing in the afternoon by 10-15 per cent. In the interior, the afternoon values are low and humidity drops sometimes even below 30 per cent.

High humidity of 70 to 80 per cent prevails in the morning over Rayalaseema during July to November. The humidity is about 50 to 60 per cent in the morning and 25 to 35 per cent in the afternoon during February to May. March is the driest month, when relative humidity may drop to below 20 per cent in the afternoon.

In Telangana also, humidity in the morning is very high exceeding 80 per cent from July to September. In the driest months, March to May, Humidity is generally low with averages of 25 to 30 per cent, decreasing to 20 per cent at individual stations.

CLOUDINESS

In Coastal Andhra Pradesh, during May to October the skies are more than half covered, being overcast on about half of the days in July and August. The averages for these two months are 6.5 and 6.2 okta (eighths of sky). Clouding is minimum in winter months being only 2—3 okta.

Over Rayalaseema, more than half the sky remains clouded from May to November, with an average of 6 to 7 okta during June to September when a third to half of the days are with overcast skies. December to March are the months of minimum clouding of 1—3 okta. In these months about a third to half of the days have clear skies in the morning.

In Telangana, June to October is the period when more than half of the sky is covered with clouds, while only about 2/8 of skies are clouded in January to March. Half the days in July and August have overcast skies. In the clear weather months of January to March 10—13 days are free from clouds.

Tables 4 and 4(a) give the monthly total cloud and number of days with clear and overcast skies at 0830 and 1730 hrs. IST. for individual stations and for each sub-division as a whole.

RAINFALL

General

The annual rainfall varies from less than 60 cm in Western Rayalaseema to more than 100 cms in the north and northeastern parts of the State, and reaching 150 cms close to the northeastern border. An important feature is that, excepting Telangana, the State receives substantial amounts of rain during the northeast monsoon period also. This is specially so in the southern coastal belt which receives 50 to 75 cms during October to December. In the Vishakhapatnam district and neighbourhood, the unbroken range of Eastern Ghats lying to the west about 40 kms. inland and rising steeply exerts significant influence on rainfall and its distribution as it acts as a barrier to the rainbearing easterly winds blowing in association with depressions from the Bay of Bengal during the southwest monsoon. The rainfall here increases inland towards west from 100 cms near the coast to 150 cms along portions of the northern boundary, while over the rest of the State it decreases inland. The heaviest rainfall of 51 cm in 24 hours was recorded at Gajapatinagaram (Vishakhapatnam district) on 14th October 1931, in the State.

Table 5 gives monthly and annual rainfall and rainy days and Figs. 6 and 6(a) to 6(d) show the annual and seasonal distribution of rainfall.

3.ii. Coastal Andhra Pradesh

The annual rainfall is 70 to 150 cms. The coastal belt north of 16° lat. is the rainiest with 100 to 150 cms. Nellore district receives 50 to 60 per cent of its rain from northeast monsoon in October and November, each accounting for 25 per cent of the annual, while only 30 per cent is received during the southwest monsoon period. The rest of the sub-division receives 60 per cent during the southwest monsoon. The advent of northeast monsoon is conspicuous over the southern coastal belt where rainfall increases from 11 cms in September to 23 cms in October.

The rainiest month in the northern districts of Srikakulam and Vishakhapatnam is September, July in the Central Coastal belt, October in the more Southern districts of Prakasam and Guntur and November in the southern most district of Nellore.

3.iii. Rayalaseema

The rainfall over the western third of the sub-division is less than 60 cms being as low as 55 cms in Anantapur and adjoining Kurnool districts. This is the driest part of the whole State. Most of the Rayalaseema gets 30 to 50 cms of rain during southwest monsoon season—June to September. This is 40—70 per cent of the annual. Rainfall during the northeast monsoon period October to December is less than 15 cms in the northwest and increases to 50 cms in the southeast. The rainfall of this period is 20 to 40 per cent of the annual. September is generally the rainiest month, except in the Chittoor district where it is October.

3. iv Telangana

The annual rainfall increases from less than 75 cm. in the southern half to over 100 cms in the northern half. More than 75 per cent of this rain is received during the southwest monsoon season, June to September. July is the rainiest month, except in the southwestern districts of Nalgonda, Hyderabad and Mahbubnagar where September is the rainiest. The southwest monsoon sets in by 7th June, the advent being sudden, rainfall increasing from less than 5 per cent (of the annual) in May to 15 per cent in June.

4. Rainfall variability

The variability of rainfall during the southwest monsoon season (June to September) is 25 per cent over Telangana and the coastal belt outside Nellore district and increases to 40 per cent for Rayalaseema and Nellore districts. The variability of rainfall of October to December season is higher and increases to 50 to 60 per cent for Rayalaseema and coastal belt and to 80 per cent over Telangana. Monthly rainfall is highly variable particularly in Rayalaseema and adjoining areas.

The annual variability is about 20 to 25 percent for Telangana and northern half of the coastal belt and 25 to 30 per cent for Rayalaseema and rest of the coastal belt.

Fig. 7 gives the coefficient of variation (per cent) of rainfall for southwest monsoon season (June to September), northeast monsoon season (October—December) and for the year as a whole.

5. Droughts and excessive rainfall

Droughts

Meteorological drought is defined as a year or season in which total rainfall is less than 75 per cent of the normal. It may further be classified as a year of 'moderate drought', if rainfall deficit is between 26 per cent and 50 per cent and a year of 'severe drought' when it is more than 50 per cent. When, during a long period of years, droughts as defined above, occur on at least 20 per cent of the years over an area, that area may be classified as a 'drought area'. If the frequency is 40 per cent or more, the area may be termed as chronically drought affected area.

During the 50 year period 1901—1950 drought conditions prevailed over Andhra Pradesh as follows. Probabilities of occurrence of low rainfall are also described.

(a) *Coastal Andhra Pradesh*.—All the districts experienced 4-6 years of moderate drought. The two consecutive years 1904—1905, were drought years for most of the districts. It may be mentioned that the districts of East Godavari, West Godavari and Krishna had each a spell of six consecutive years when annual rainfall was less than normal. The probability of occurrence of annual rainfall less than 75 per cent (drought) of normal, over the sub-division is about 16 per cent e.g. once in six years, while the probability of occurrence of rainfall less than 50 per cent (severe drought) is 3 per cent or once in 33 years. The corresponding figures for less than 75 per cent of normal rain during southwest monsoon are 25 per cent in the southern parts decreasing to 10 per cent in the northern parts of the subdivision, while for rainfall of less than 50 per cent of the normal during this season, the probability is about 10 per cent in the southern coastal belt. For northeast monsoon period, October—December, the probability of occurrence of drought is 35 per cent and for severe drought it is 20 per cent.

(b) *Rayalaseema*.—Anantapur district experienced seven drought years, while the other three districts had 2 or 3 such years. Cuddapah district experienced 'severe drought' in 1904, when the rainfall was 49 per cent of the annual normal. The probability of occurrence of drought is once in six years and for severe drought once in about 30 years. The probability of drought during the south-west monsoon season is once in four years and of severe drought once in 10 years. Drought during northeast monsoon season may be once in 3 years becoming severe once in five years.

(c) *Telangana*.—Warangal and Medak experienced 11 drought years and one year of severe drought. This districts can, therefore, be classified as drought areas. For rest of the sub-division, the number of drought years ranged from 2 to 5, except for Karimnagar district which had seven such years. Karimnagar and Adilabad experienced 1—2 years of severe drought. It may be mentioned that the year 1920 was a year of severe drought for the area comprising of the four districts of Medak, Warangal, Karimnagar and Adilabad. Medak district had a spell of seven consecutive years (1918—1924) when annual rainfall was less than normal and Adilabad had two such spells of six years each (1904—09, 1911—16) and Nizamabad one (1922—27). For the sub-division as a whole drought is likely once in 7 to 8 years. Severe drought is rare—once in 30 to 50 years.

Excessive rainfall

It may generally be said that rainfall, sufficiently in excess of the normal is a predominant factor for occurrence of floods. For the purposes of the present description annual rainfall exceeding 125 per cent of the normal is considered as excessive rain.

During the 50 year period, 1901—50, excessive rainfall over Andhra Pradesh was as follows.

(a) *Coastal Andhra Pradesh*.—Nellore district experienced eleven years of excessive rain, out of which, in two years (1930, 1946), rainfall exceeded 150 per cent of the normal. Prakasam and Guntur each had ten such years, two years (1903, 1916) being the years with rainfall of more than 150 per cent, in case of Guntur district and one year (1903) in case of Parkasam, district. In the remaining districts 5 to 6 years recorded excessive rainfall. Rainfall, exceeding 150 per cent of the normal occurred in Krishna district in 1903 and 1916 and over west Godavari in 1916.

(b) *Rayalaseema*.—Excessive rainfall was recorded in 7 to 9 years, Chittoor district experiencing more than 150 cent of normal rainfall four times, viz. in 1903, 1930, 1943 and 1946, Anantapur thrice in 1903, 1916 and 1917 and remaining districts of Cuddapah and Kurnool only once in 1903 and 1916 respectively.

(c) *Telangana*.—Mahbubnagar district had ten years of excessive rain, four of which (1903, 1906, 1916, 1917) were with rain exceeding 150 per cent of normal. Nalgonda and Warangal had nine such years, rainfall being more than 150 per cent in three years (1903, 1915, 1916) over Nalgonda and once over Warangal (1903). Khammam had 8 such occasions; in two years (1903, 1917) rainfall exceeded 150 per cent of the normal. Rest of the districts recorded excessive rain in 4—6 years. In the particular case of Hyderabad, out of 6 years of excessive rain, as many as four years (1903, 1915, 1916, 1933) were with rainfall of more than 150 per cent. Generally speaking 1903 was a year of more than 150 per cent of rainfall, for the State as a whole.

CLIMATIC CLASSIFICATION

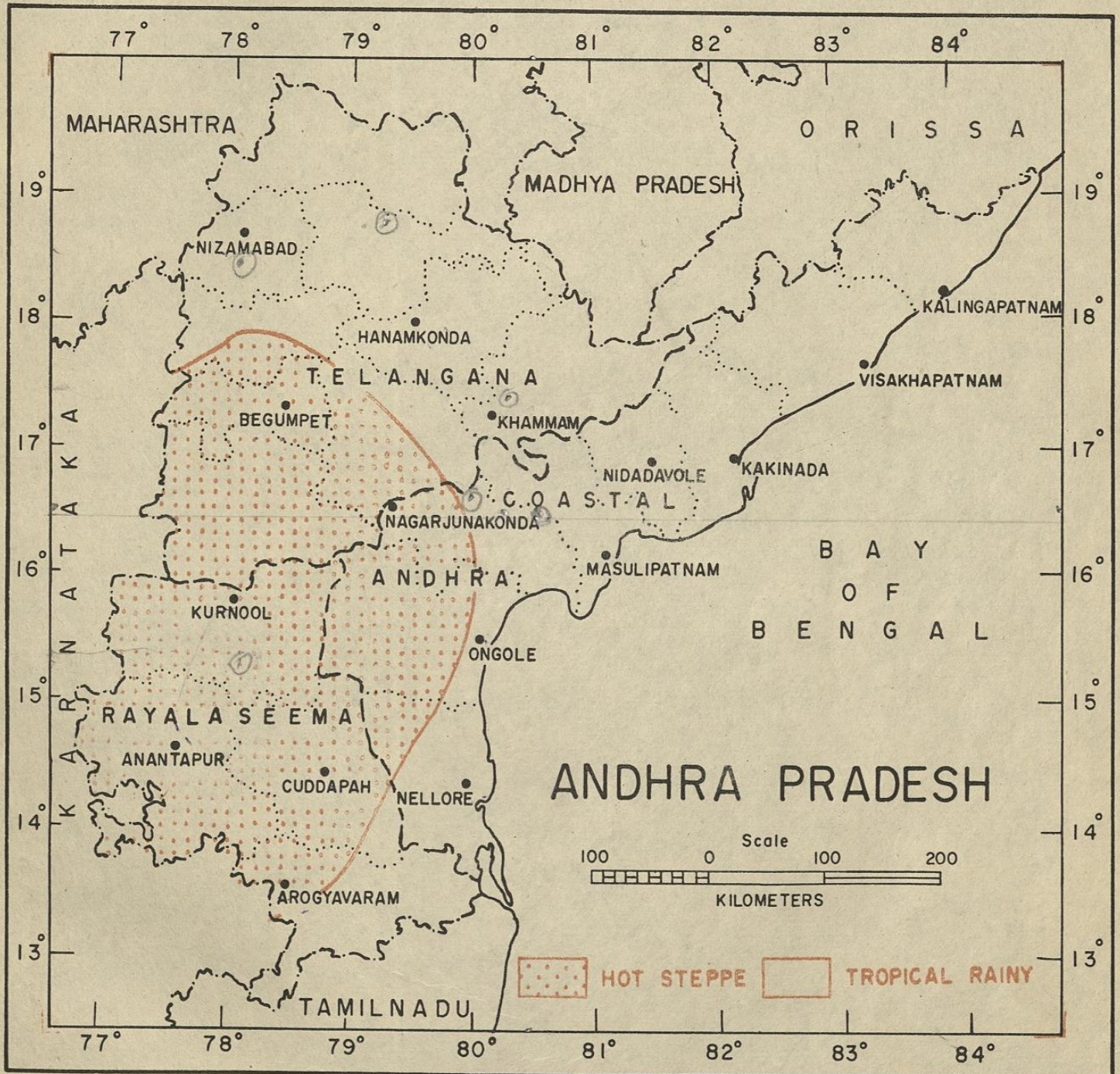


FIG. I

MEAN MAXIMUM TEMPERATURE ($^{\circ}\text{C}$)

JANUARY

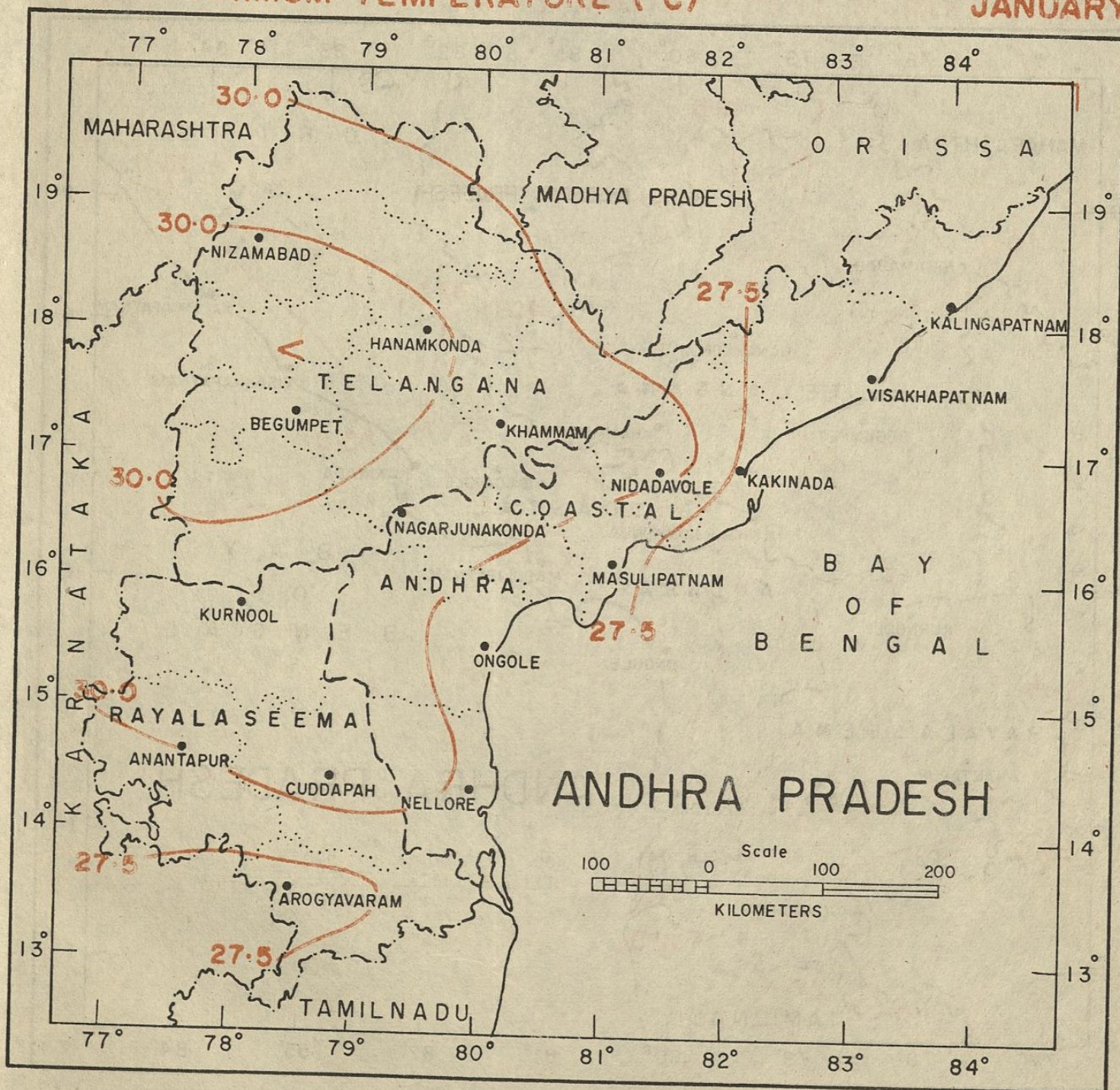


FIG. 2(a)

MEAN MAXIMUM TEMPERATURE ($^{\circ}\text{C}$)

MAY

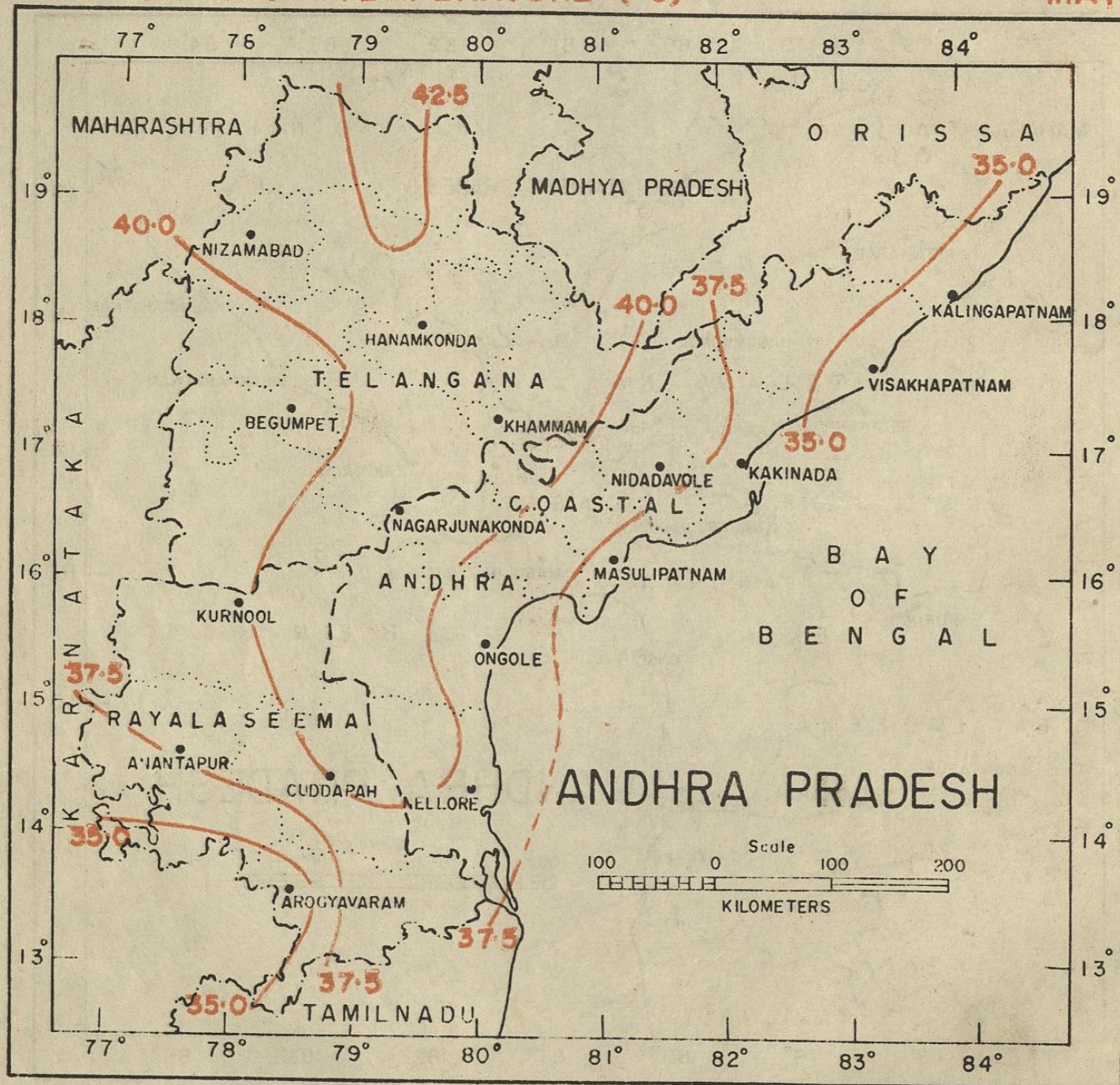


FIG. 2(b)

MEAN MAXIMUM TEMPERATURE ($^{\circ}\text{C}$)

JULY

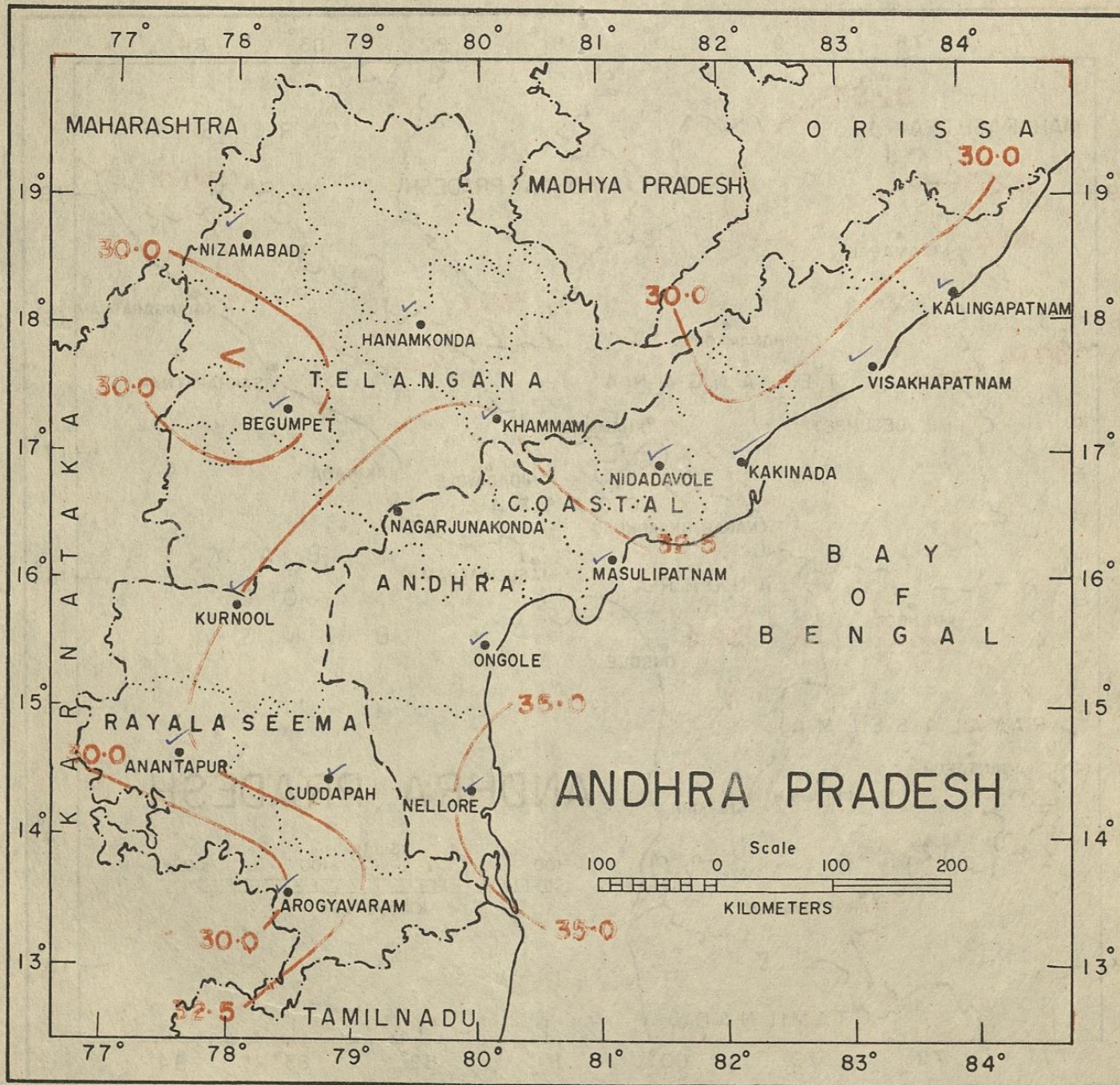


FIG. 2(c)

MEAN MAXIMUM TEMPERATURE ($^{\circ}\text{C}$)

OCTOBER

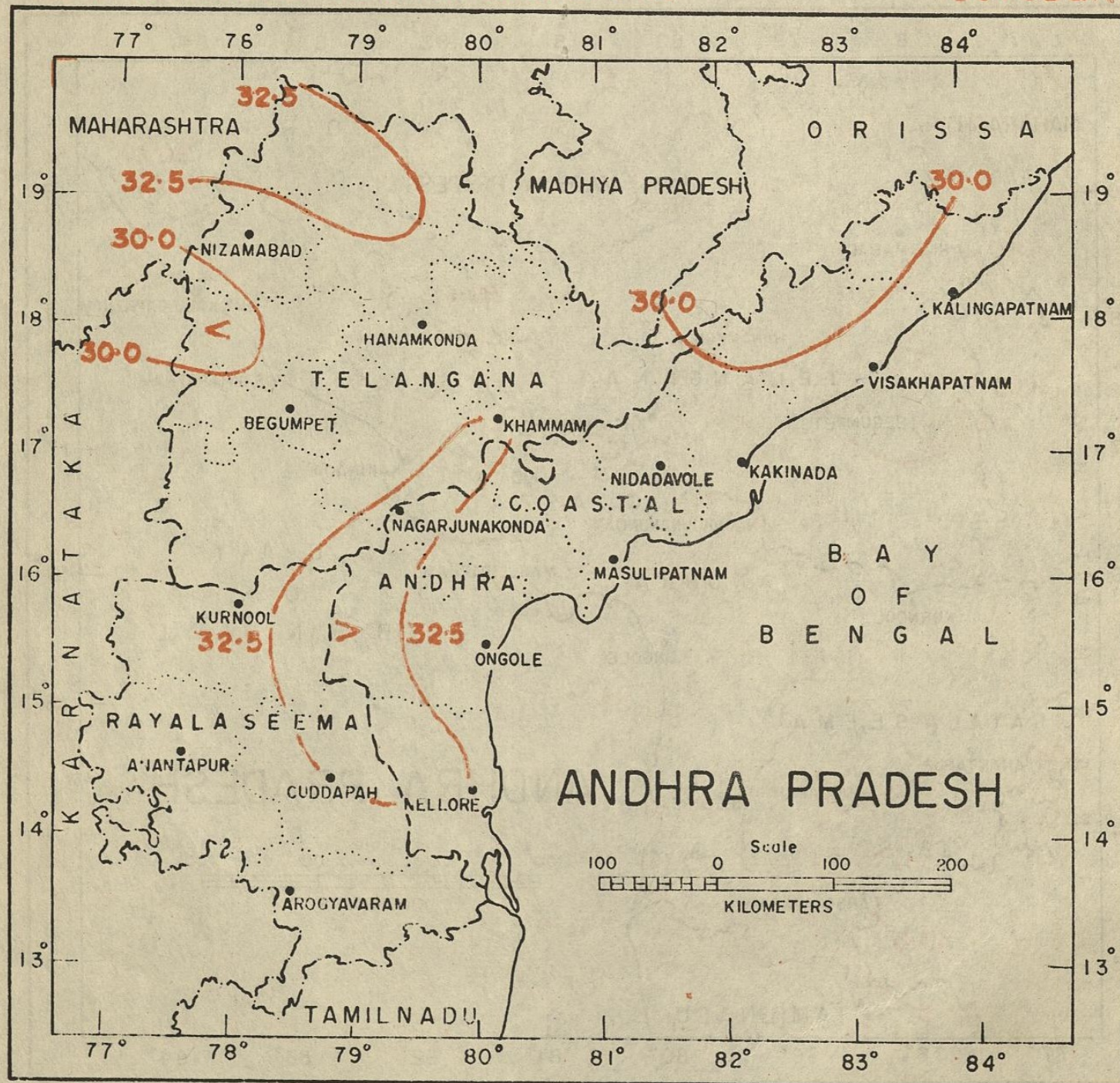


FIG. 2 (d)

MEAN MINIMUM TEMPERATURE ($^{\circ}\text{C}$)

JANUARY

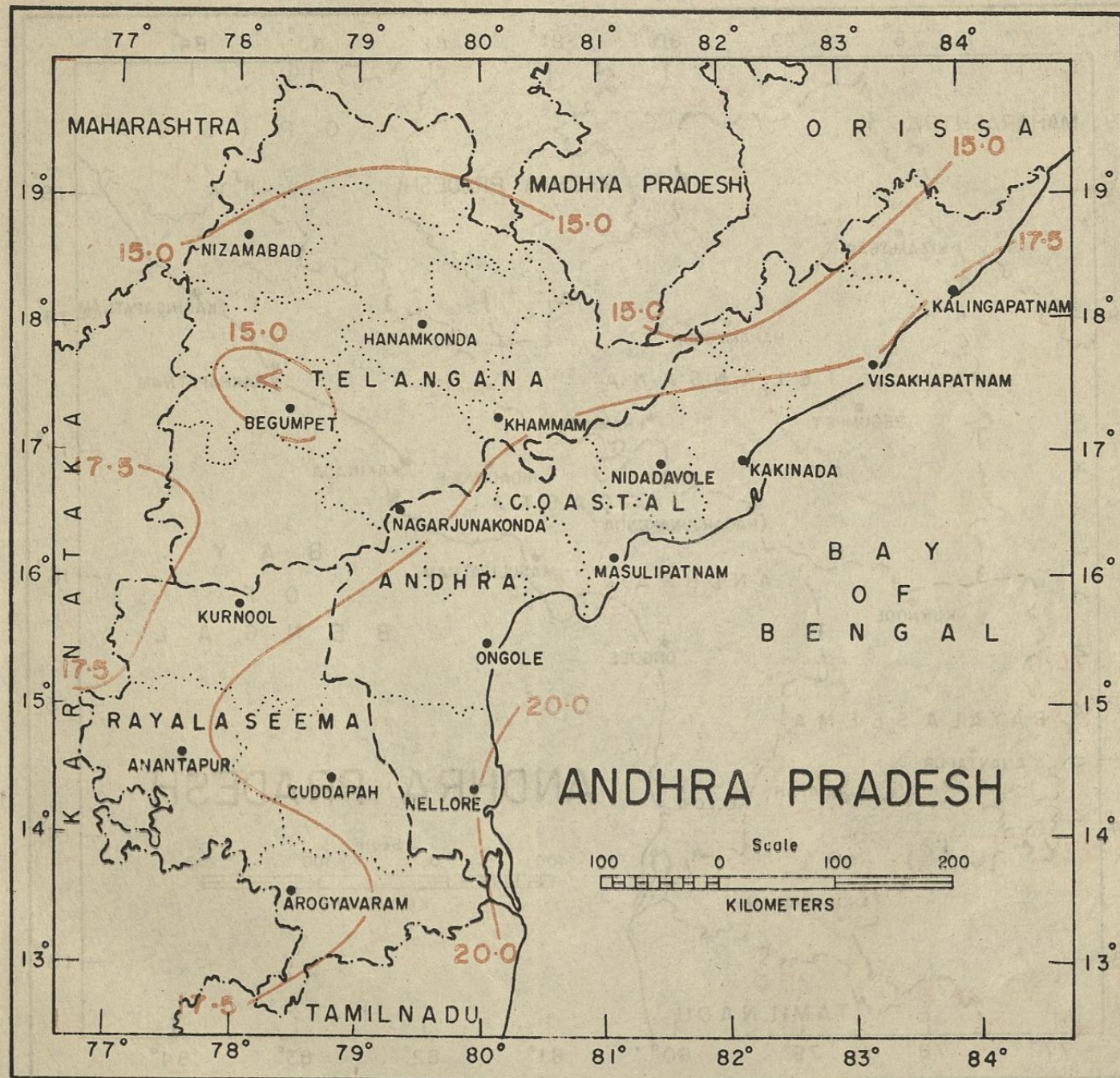


FIG. 3(a)

MEAN MINIMUM TEMPERATURE ($^{\circ}\text{C}$)

APRIL

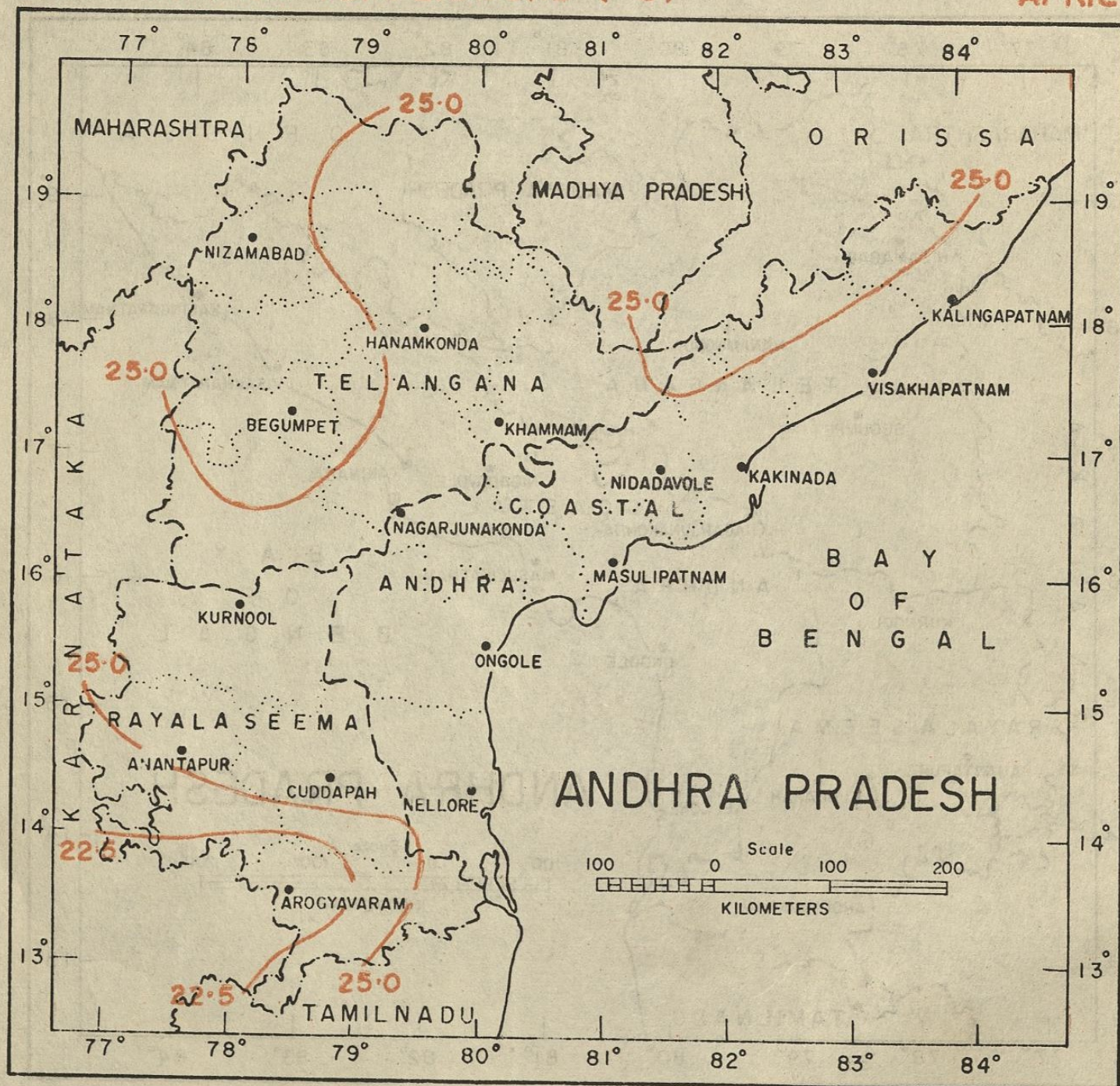


FIG. 3(b)

MEAN MINIMUM TEMPERATURE ($^{\circ}\text{C}$)

JULY

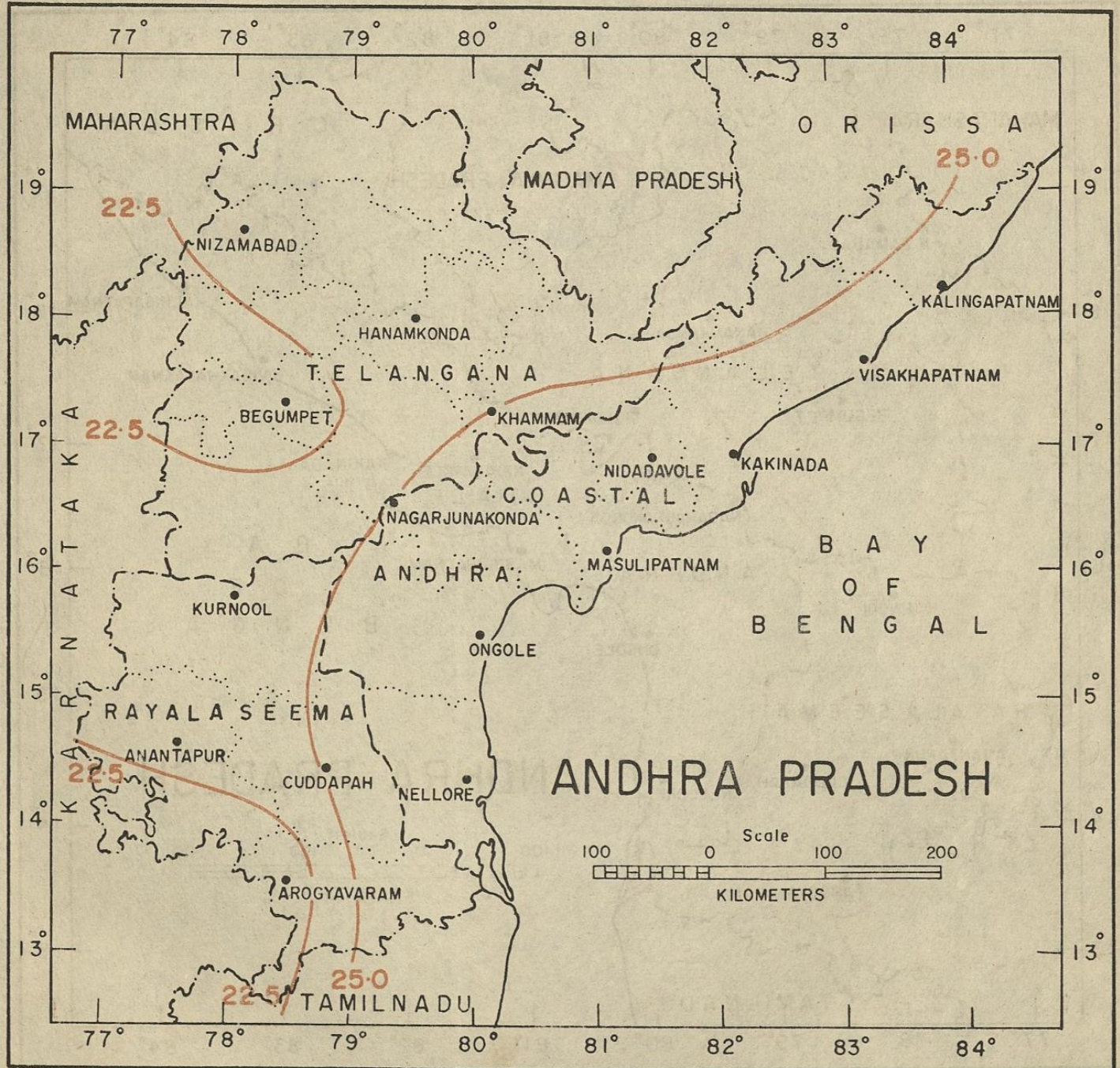


FIG. 3(c)

MEAN MINIMUM TEMPERATURE ($^{\circ}\text{C}$)

OCTOBER

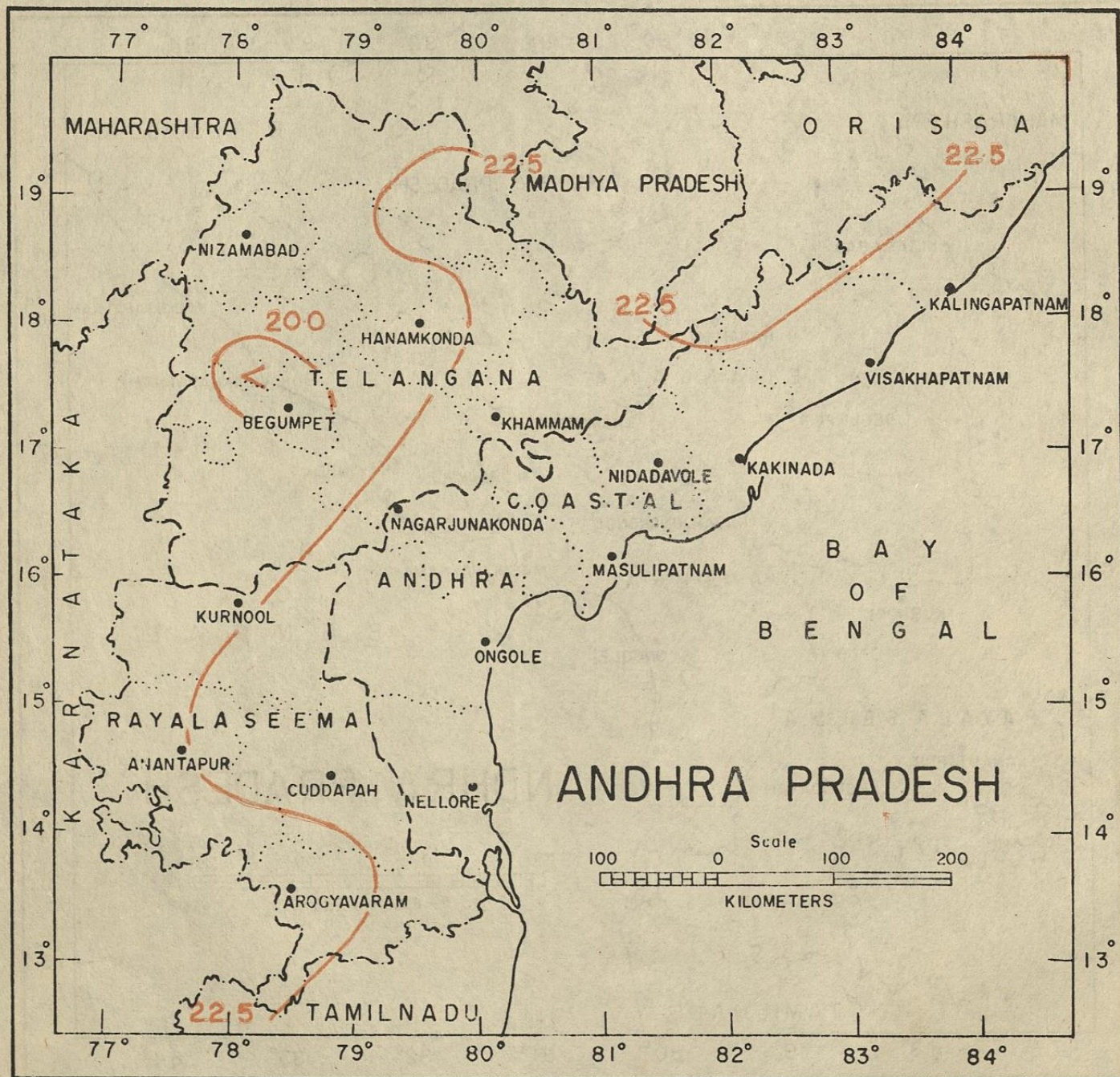


FIG. 3(d)

HIGHEST MAXIMUM TEMPERATURE ($^{\circ}\text{C}$)

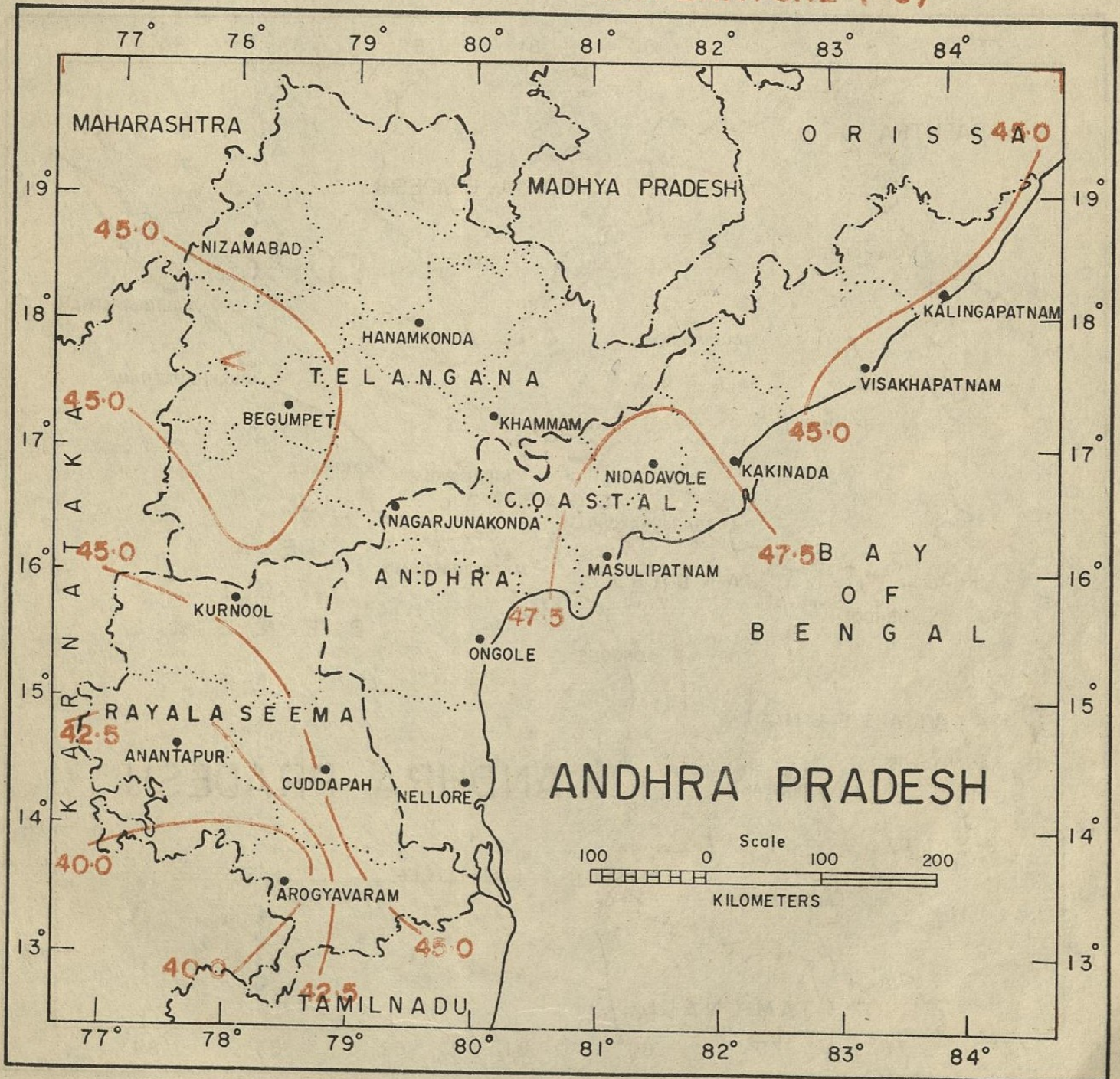


FIG. 4

LOWEST MINIMUM TEMPERATURE (°C)

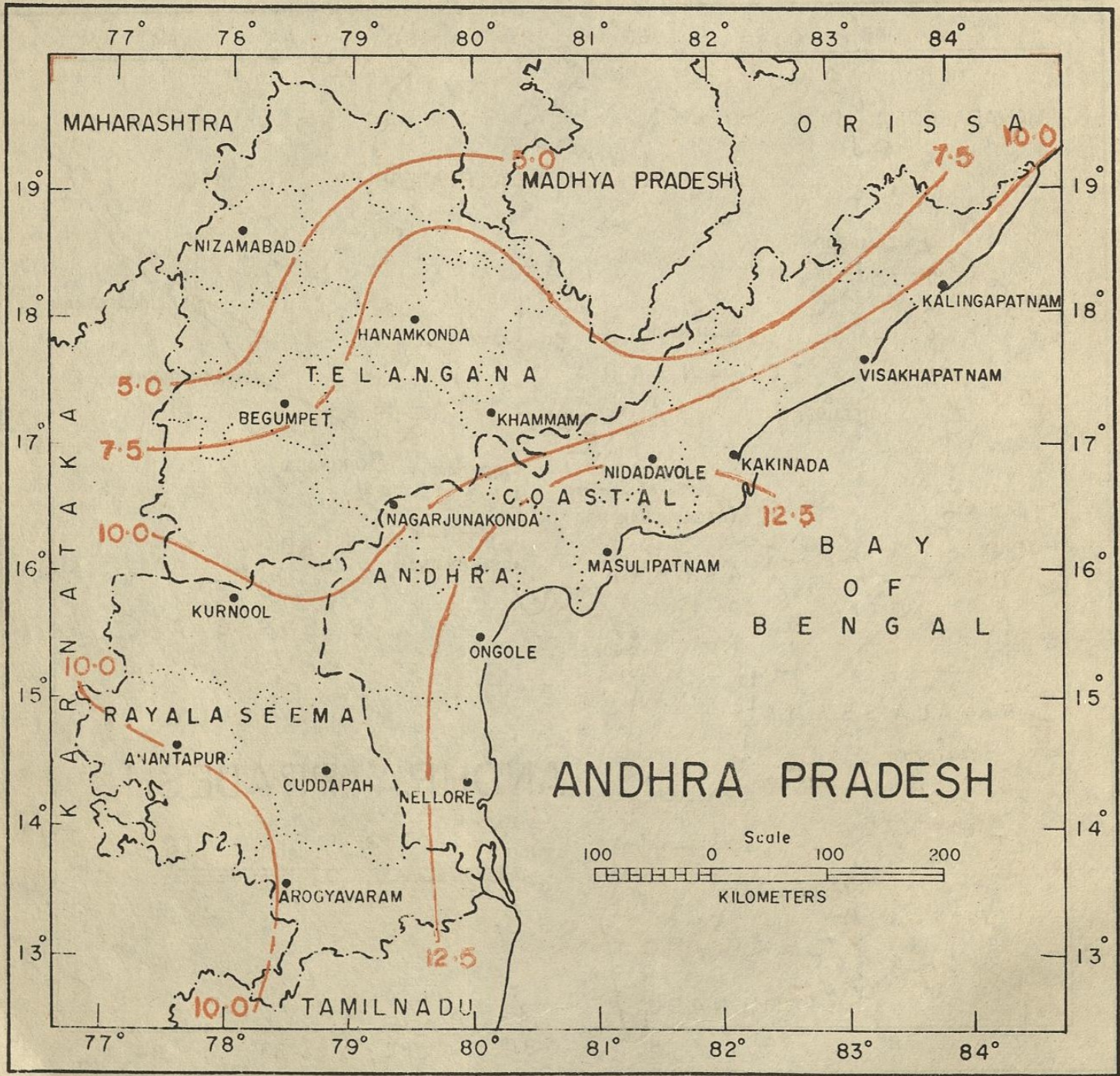


FIG. 5

ANNUAL NORMAL RAINFALL (Cm)

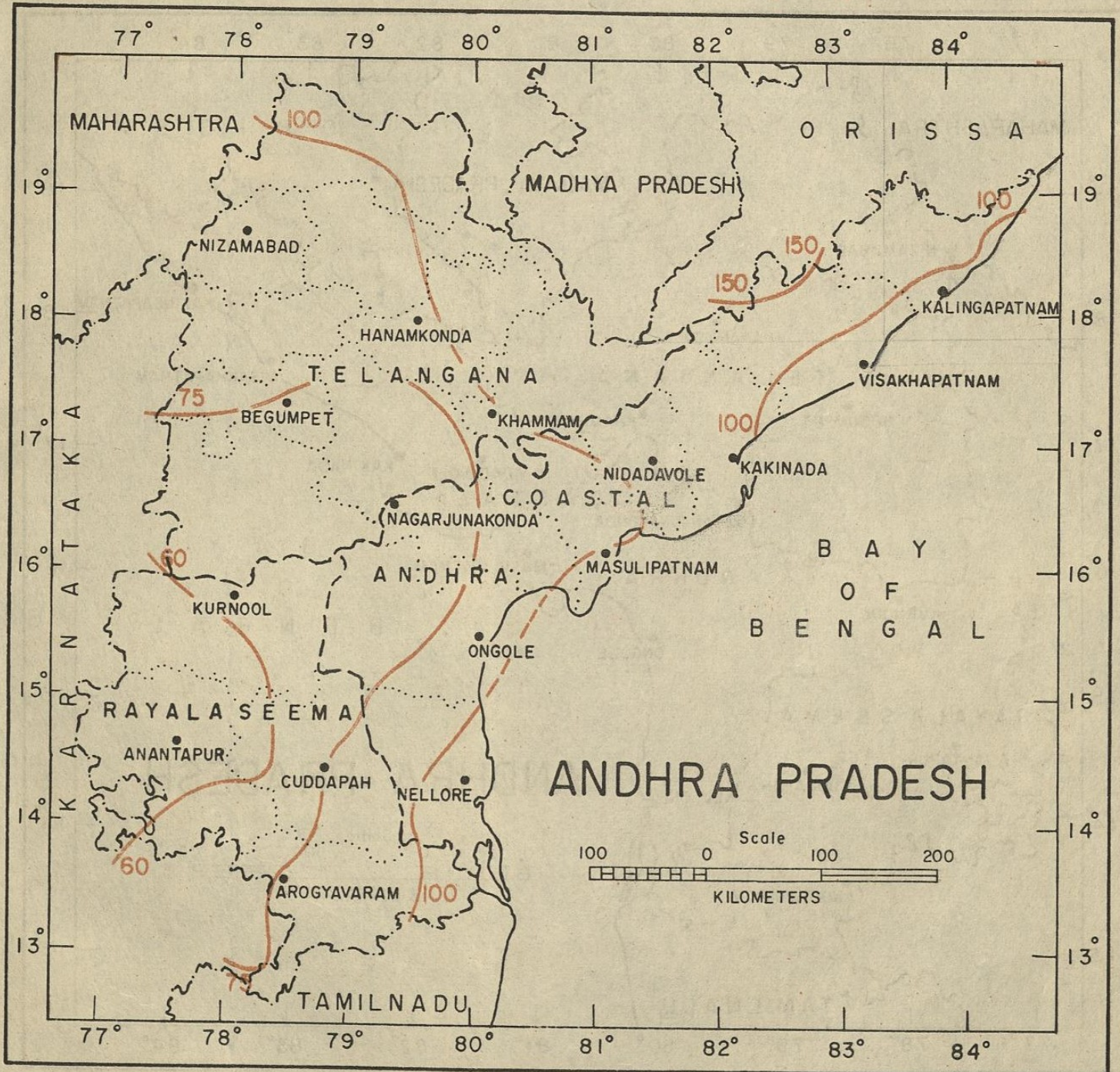


FIG. 6

RAINFALL (Cm)

JAN-FEB

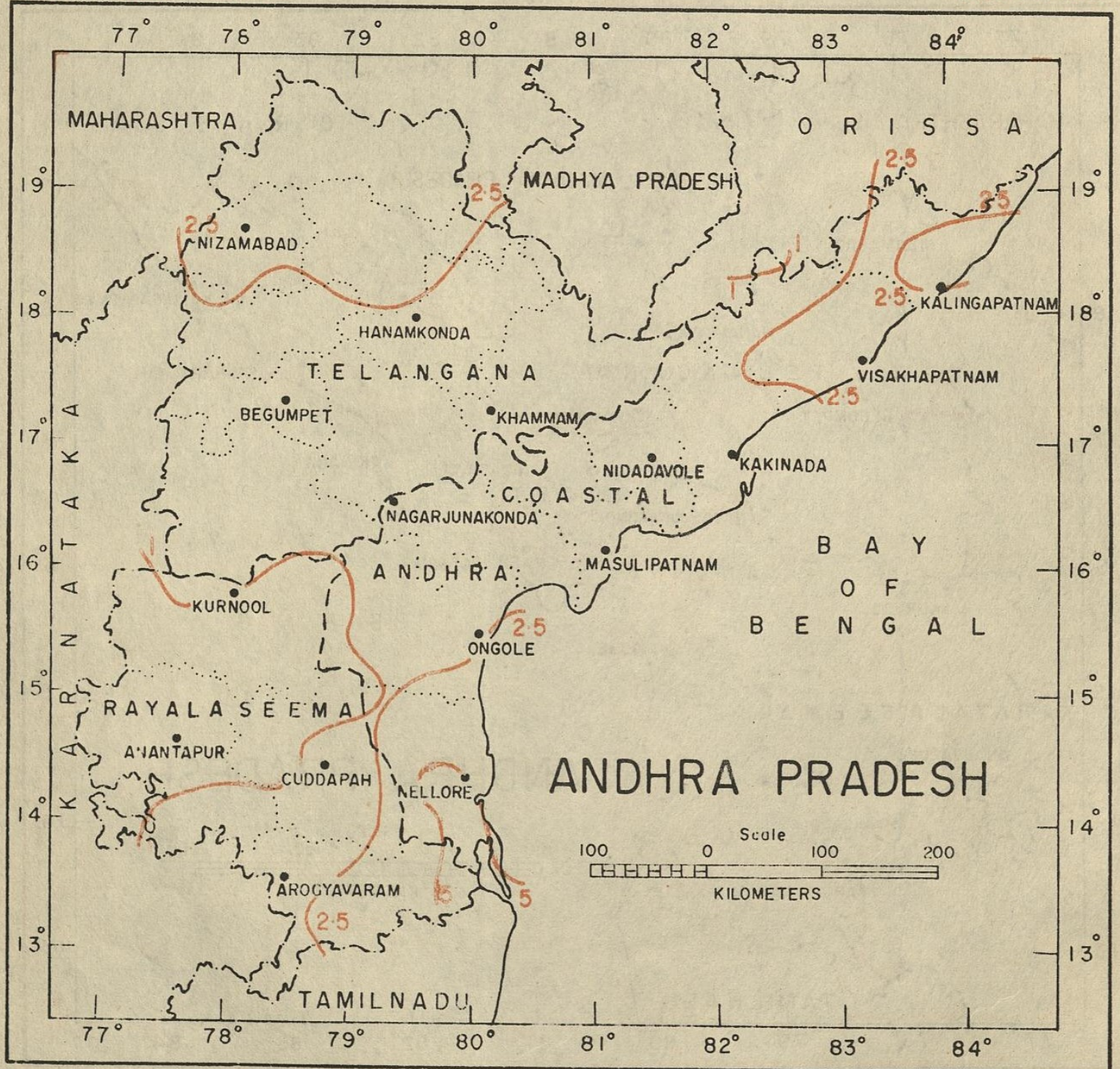


FIG. 6(a)

RAINFALL (Cm)

MAR-MAY

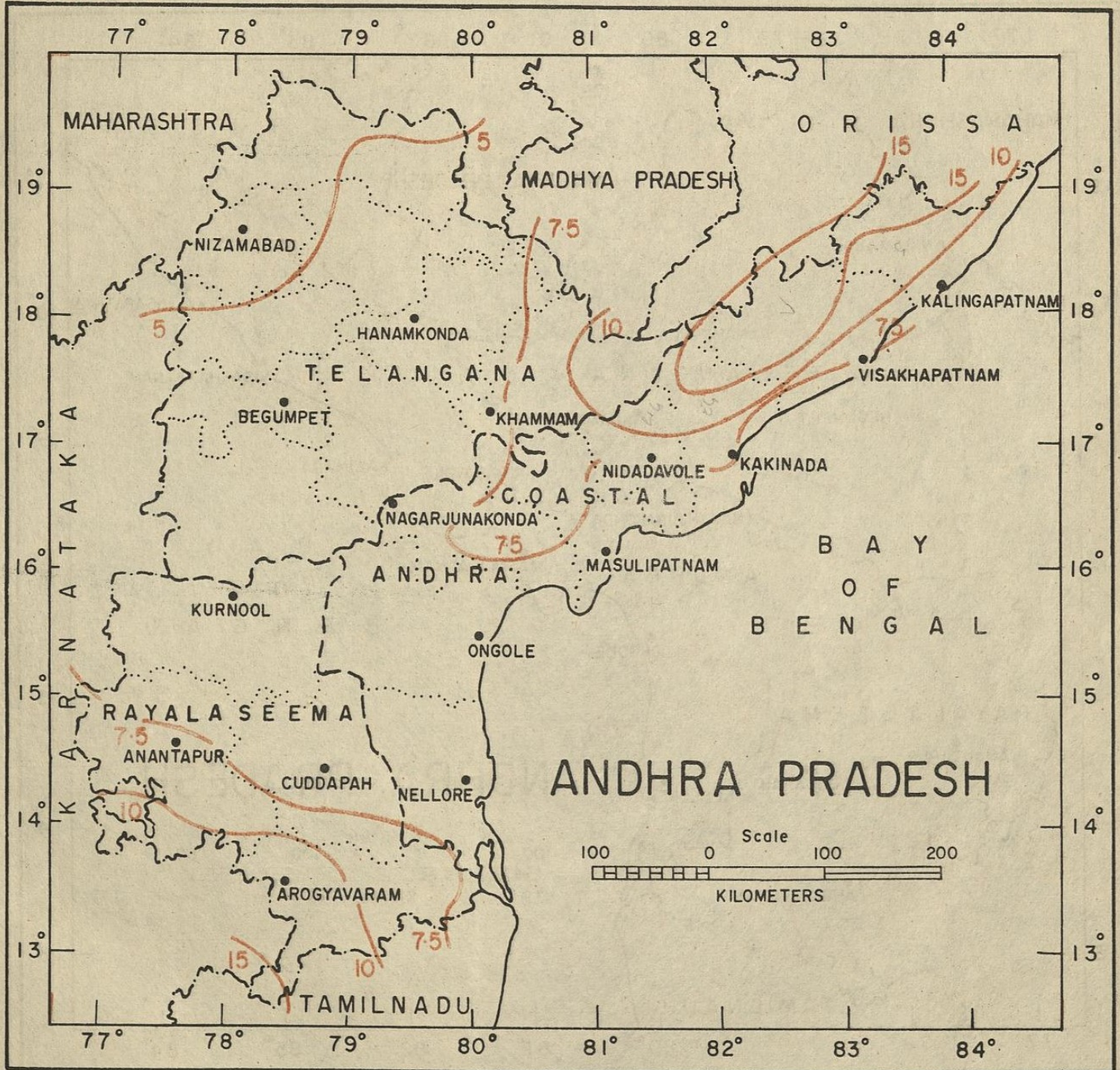


FIG. 6(b)

RAINFALL (Cm)

JUN-SEP

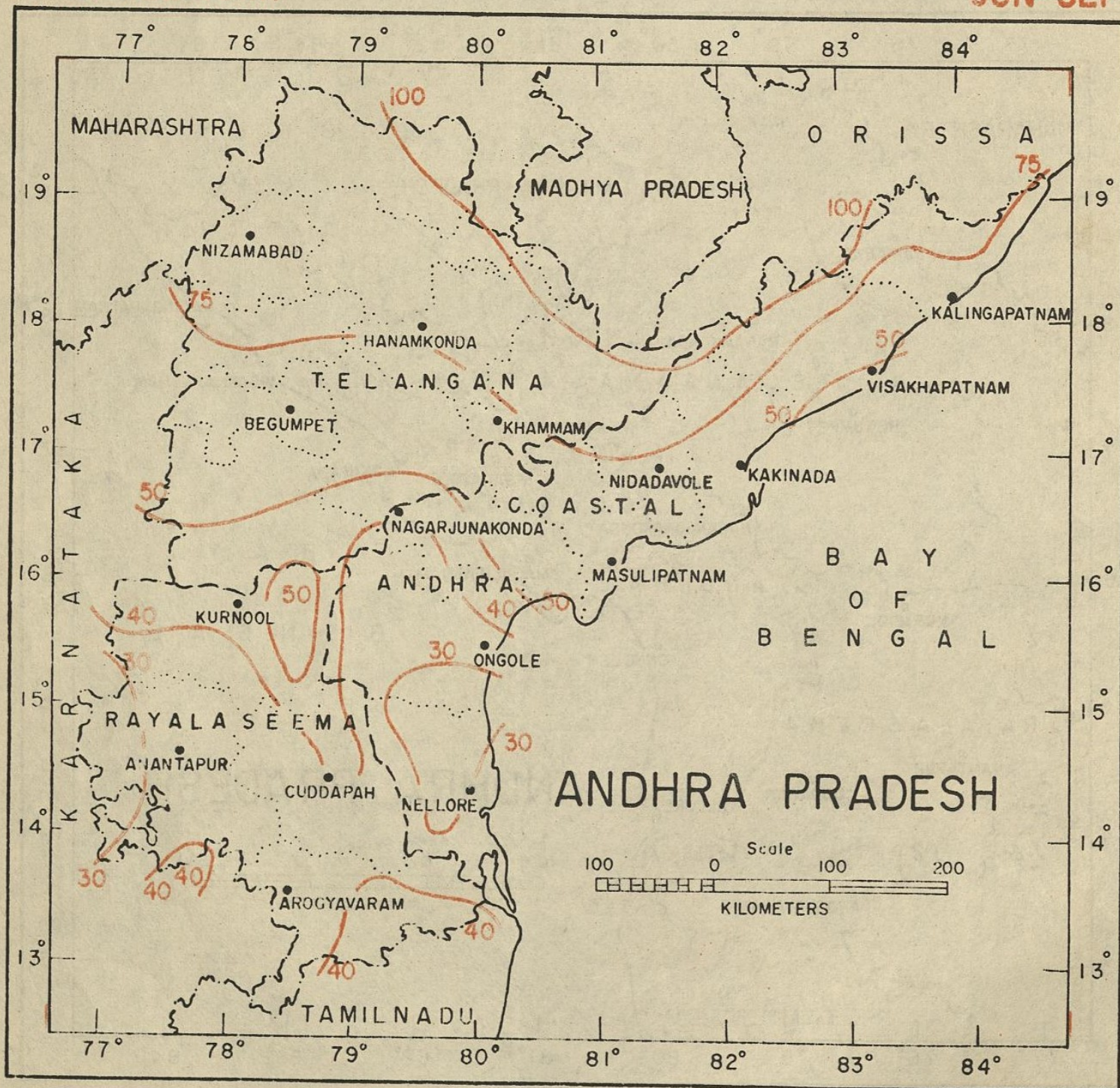


FIG. 6(c)

RAINFALL (Cm)

OCT-DEC

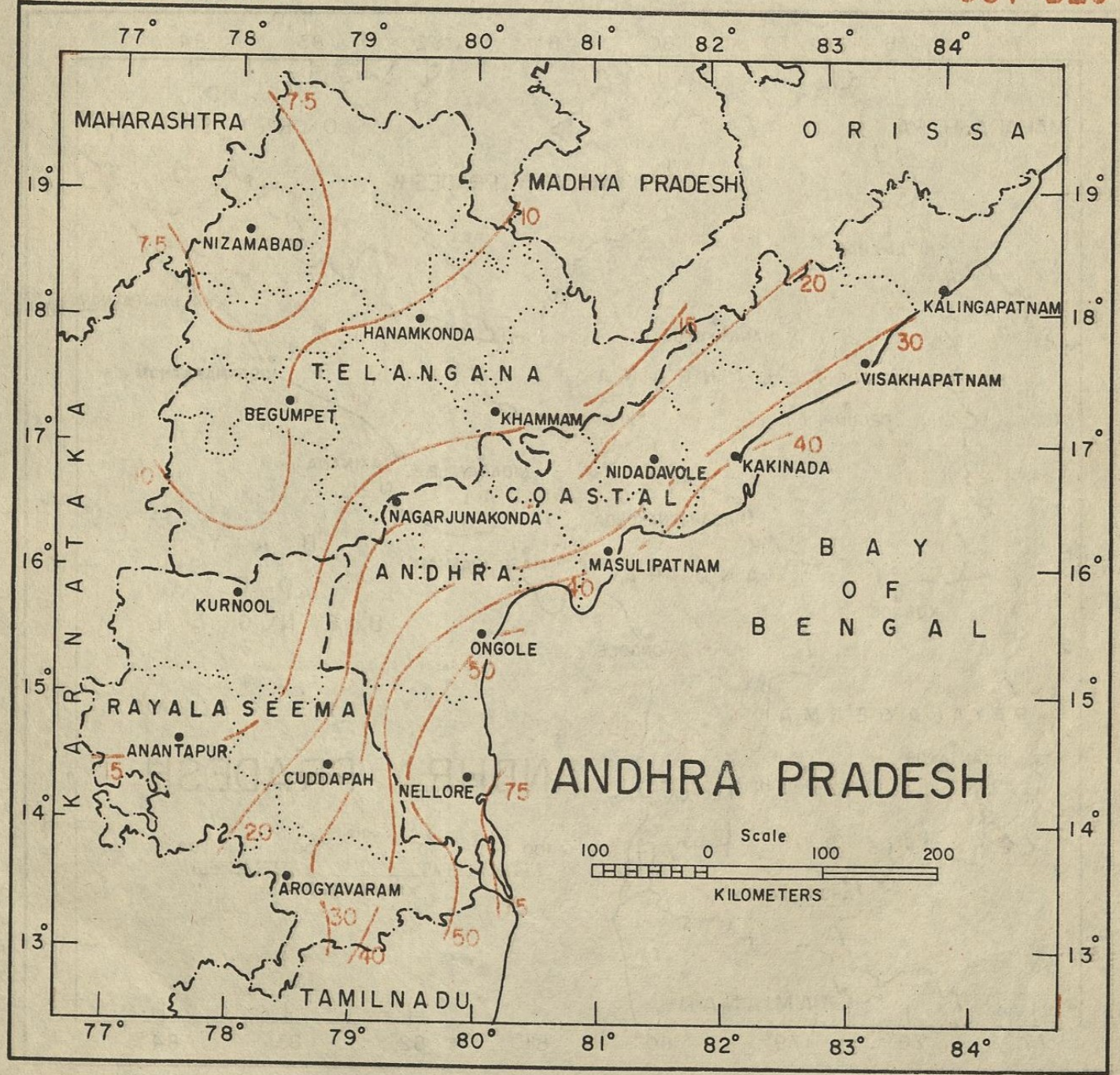


FIG. 6(d)

COEFFICIENT OF VARIATION OF RAINFALL (%)

JUN-SEP

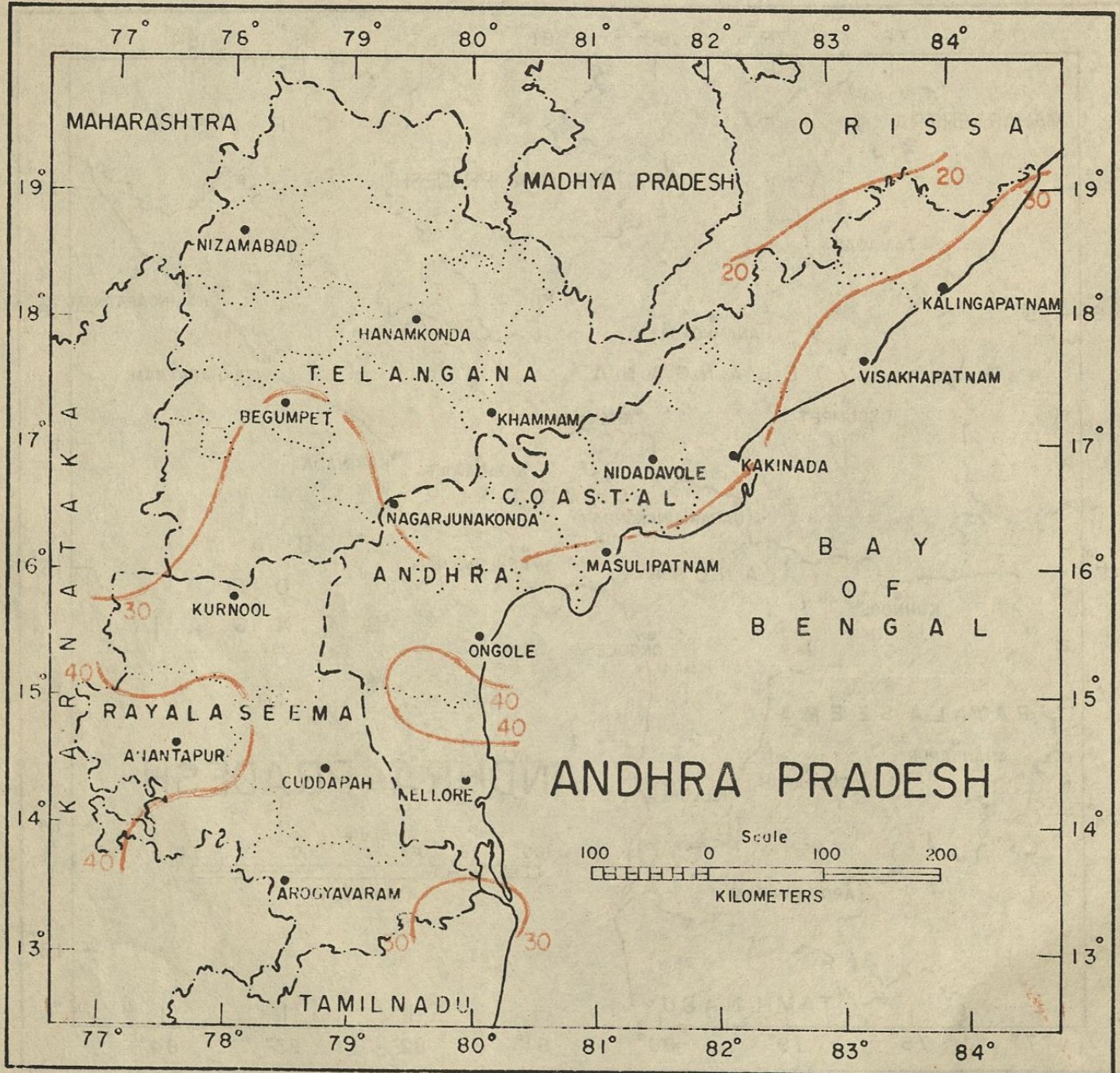


FIG. 7(a)

COEFFICIENT OF VARIATION OF RAINFALL (%)

OCT-DEC

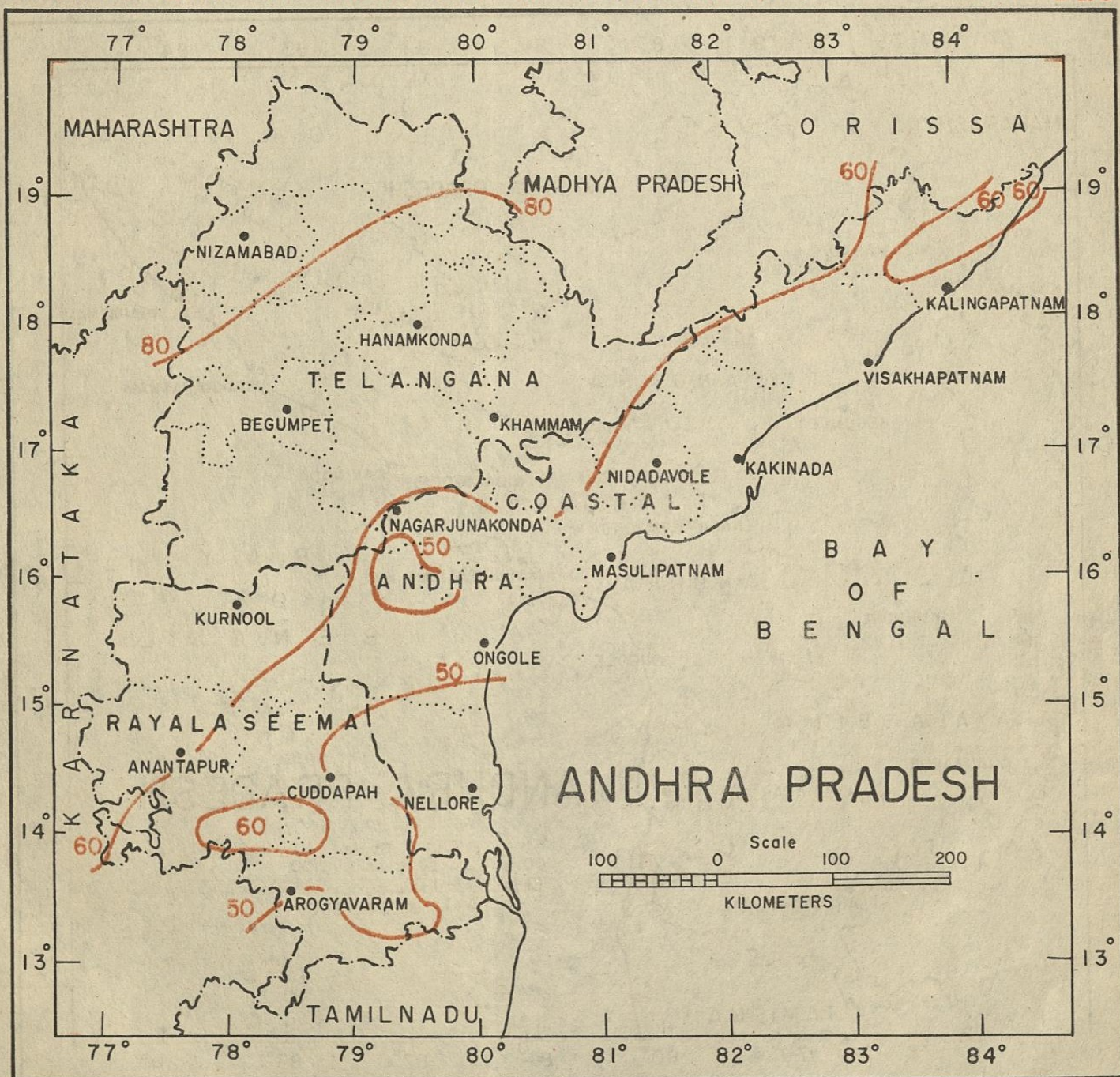


FIG. 7(b)

COEFFICIENT OF VARIATION OF RAINFALL

ANNUAL



FIG. 7(c)

WEATHER HAZARDS

Storms and Depressions

In late October and November, depressions and storms from the Bay of Bengal cross the Andhra Coast or recurve towards north or northeast and travel parallel to the coast close to it. Heavy rains in the coastal belt and the interior occur in association with these disturbances.

The following table gives the total number of depressions/storms which affected each of the three sub-divisions during the 80 year period ending 1970. For this purpose, depressions affecting more than one sub-division have been counted separately for each sub-division. The coastal belt is further sub-divided into (1) south coast upto Ongole, (2) central coast from Ongole to Kakinada and (3) north coast from Kakinada northwards, so as to give an idea of the incidence of the disturbances over different parts of the coast. The last column gives the total number of depressions/storms which affected the State as a whole during this period. For this purpose, each depression is counted as one, even though it may have affected more than one sub-division.

TABLE
Depressions/Storms affecting Andhra Pradesh during 1891 to 1970

Month	Coastal Andhra Pradesh			Rayalaseema	Telangana	State as a whole
	South	Central	North			
January	2	..	..	..	..	2
February	..	..	..	..	..	..
March	..	..	..	..	..	..
April	2	..	..	3	..	5
May	2	7	2	3	1	11
June	..	2	9	..	1	10
July	..	..	5	..	..	5
August	..	1	9	..	..	10
September	1	18	25	1	19	42
October	13	28	16	11	14	54
November	12	12	4	5	1	24
December	2	4	1	..	..	5
TOTAL	34	72	71	23	36	168

The Bay disturbances affecting Andhra Pradesh are generally rare during December to April and July. September to November are the principal months when the coastal belt is much affected. On an average at least one disturbance affects the coastal belt in a year.

Other Weather Phenomena

Thunderstorm activity is pronounced over the State in May and June before the onset of the southwest monsoon and again in September and October, in association with the onset of the northeast monsoon. The average is 4-6 days in each of these months. Duststorms are rare. A maximum frequency of 1-2 days over Telangana in May has been observed. Fog is of rare occurrence.

TABLE I
Mean Wind Speed (Km p.h.) and Predominant Wind Direction

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
COASTAL ANDHRA PRADESH														
Kakinada	a	10.3	8.8	8.3	9.1	11.1	12.1	12.3	11.0	8.6	9.5	12.0	11.3	10.4
	M	NE	NNE	SW	SW	SW	SW	SW	SW	SW	NE	NE	NE	
	E	SE	SE	SE	SSE	SSE	SW	SW	SW	SW	SE/NE	ENE	ESE	
Ren tachintala	a	5.0	6.5	8.1	8.8	10.4	14.5	13.3	11.8	7.9	4.8	4.0	3.8	8.2
	M	C/ESE	C/SSE	C/SSE	SSE	WSW	W	W	W	WSW	C/WNW	C/ENE	C/Var	
	E	ESE	ESE	ESE	ESE	W/ESE	W	W	W	WNW	NNE	NE	ENE	
Gannavaram	a	9.8	9.3	10.7	12.5	15.5	17.6	16.2	15.3	11.1	9.0	10.2	9.4	12.2
	M	ENE	ENE	ESE	SSE	S	W	WSW	WSW	W	NE	NE	NE	
	E	ESE	SSE	SSE	SSE	SSE	W	W	WNW	WNW	ESE	E	ESE	
Masulipatam	a	8.7	8.2	9.1	11.4	13.8	14.5	12.8	11.0	8.8	7.7	8.8	9.1	10.3
	M	NNE	NNE	SSE	S	SSW	W	W	WSW	W	NNE	NNE	NNE	
	E	ESE	SSE	SSE	SSE	SSE	SW	WNW	WNW	WNW	SE	ESE	SSE	
Nellore	a	5.4	6.4	8.6	10.0	10.3	9.8	9.6	9.2	7.7	5.6	6.0	6.1	7.9
	M	C/NW	C/SSE	SSE	SSE	SW	W	WSW	WSW	WNW	C/WNW	NNW	NNW	
	E	ENE	ESE	ESE	ESE	ESE	W	WSW	WSW	WNW	ENE	ENE	ENE	
Ongole	a	5.0	6.5	8.4	9.8	10.3	11.6	10.7	10.3	6.8	4.4	4.9	4.7	7.8
	M	C/NNE	C/SSE	C/SSE	SSE	SSE	W	WSW	WSW	WSW	C/NNW	NNE	NNE	
	E	ESE	ESE	ESE	SE	SE	WSW	WSW	WSW	WSW	ESE	ENE	E	
Kalingapatam	a	9.6	9.5	11.6	15.1	17.0	15.0	14.0	11.8	9.1	10.0	11.2	11.3	12.1
	M	NNW	NNW	WNW	WSW	SW	WSW	WSW	WSW	WNW	NW	NNW	NNW	
	E	ESE	SSE	SSW	SSW	SSW	SSW	SSW	SW	SSW	ESE	ENE	E	
Vishakhapatnam	a	6.3	6.4	9.6	14.7	15.9	13.7	16.5	13.5	9.5	8.1	8.1	7.5	10.8
	M	C/NW	C/W	C/WSW	WSW	WSW	WSW	WSW	WSW	C/WSW	C/WNW	C/NNE	C/NNW	
	E	ESE	SSE	SSW	SSW	SSW	SSW	WSW	WSW	SSW	ENE	ENE	ENE	
Nidadavole	a	6.5	5.7	5.4	5.9	7.8	12.2	12.7	11.0	8.0	5.9	7.1	7.0	7.9
	M	NNE	NNE	ENE	Var/SW	SW	WSW	WSW	WSW	WSW	NNE	NNE	NNE	
	E	ESE	SSE	SSW	SSW	S	WSW	WSW	WSW	WSW	ESE	E	E	
Sub. Div. Mean	a	7.4	7.5	8.9	10.8	12.5	13.4	13.1	11.7	8.6	7.2	8.0	7.8	9.7

RAYALASEEMA

Anantapur .	a	10.0	9.2	9.9	10.2	12.2	18.4	18.9	18.0	13.1	7.9	8.5	8.9	12.1
	M	C/ESE	C/SE	C/SSW	WSW	WSW	W	W	W	W	C/WNW	C/ENE	C/E	
	E	ENE	ENE	ENE	ENE	WNW	W	W	W	WNW	ENE	ENE	ENE	
Arogyavaram	a	5.9	7.1	8.6	8.1	9.9	13.8	13.8	13.4	9.9	5.8	5.1	5.0	8.9
	M	C/SSE	C/SSE	SSE	SSE	WNW	WNW	WNW	WNW	WNW	C/NNW	C/NE	C/NE	
	E	ENE	ENE	ENE	E	NNW	WNW	WNW	WNW	WNW	NNW	NE	ENE	
Cuddapah .	a	10.0	11.2	11.2	10.0	8.7	9.9	10.4	8.7	6.8	5.0	5.4	4.3	8.5
	M	C/ESE	C/ESE	C/ESE	C/ESE	WNW	WNW	WNW	WNW	C/WNW	C/WNW	C/E	C/E	
	E	ESE	ESE	ESE	ESE	C/WNW	WNW	WNW	WNW	C/WNW	C/ENE	C/E	ENE	
Kurnool .	a	6.1	6.9	7.7	8.7	13.4	21.1	21.3	18.4	12.6	6.0	5.1	4.9	11.0
	M	C/ESE	C/ESE	C/ESE	SW	W	W	WSW	WSW	WSW	C/W	C/ENE	C/ENE	
	E	ESE	ESE	C/ESE	ESE	WNW	W	WNW	WNW	WNW	C/ENE	ENE	ESE	
Sub. Div. Mean	a	8.0	8.6	9.3	9.3	11.1	15.8	16.1	14.6	10.6	6.2	6.0	5.8	10.1

TELANGANA

Begampet .	a	8.1	8.9	9.6	10.9	12.4	23.8	22.1	18.3	12.6	8.9	8.0	7.4	12.6
	M	C/ESE	C/ESE	C/ESE	C/SSE	WNW	W	W	WNW	WNW	C/NE	C/E	C/E	
	E	ESE	ESE	ESE	ESE	NW	W	W	WNW	WNW	NE	ENE	ENE	
Ramagundam	a	5.0	5.7	6.9	7.9	8.4	9.0	7.2	6.3	5.0	4.4	4.3	3.4	6.1
	M	C/Var	C/SSE	SSE	SSE	SSE	WNW	W	WNW	WNW	NNW	N	C/NE	
	E	NE	NNE	SSE	SSE	SSE	W	W	W	C/NW	NNE	NNE	NNE	
Bhadrachalam	a	4.6	5.7	7.6	9.1	9.0	9.0	8.0	6.4	4.8	4.0	4.0	3.7	6.3
	M	C/NE	C/ENE	SSE	SSE	SSE	W	WSW	WSW	Var/WSW	NE	NE	C/NE	
	E	ENE	ENE	SSE	SSE	SE	W	W	WNW	N	NE	NE	NE	
Khammam	a	5.6	7.2	8.8	8.7	9.7	10.9	9.7	8.1	5.7	4.4	4.0	4.0	7.2
	M	C/ESE	ESE	ESE	SSE	SSE	W	W	W	W	C/N	N	C/N	
	E	ESE	ESE	SE	SE	SE	W	W	WNW	NW	NE	ENE	ENE	

TABLE 1—Contd.

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Mahbubnagar	a	8.8	8.0	7.8	8.1	11.0	14.4	13.5	12.5	9.8	8.0	9.8	9.3	12.1
	M	ENE	ENE	ESE	SW	WNW	W	WSW	W	WNW	ENE	ENE	ENE	
	E	E	E	ESE	ESE	Var	WSW	WSW	W	WNW	ENE	ENE	E	
Nizamabad	a	4.1	4.7	5.1	5.4	6.7	8.9	8.6	7.1	5.4	4.2	3.9	3.5	5.6
	M	C/Var	C/Var	C/SE	C/SW	WSW	WSW	WSW	WSW	C/WSW	C/NE	C	C	
	E	C/NNE	C/NNE	C/NNE	C/Var	W/NW	WSW	WSW	WSW	C/W	C/NNE	C/NNE	C/NNE	
Hanamkonda	a	7.2	9.1	9.7	10.9	12.1	13.1	12.4	10.7	8.5	6.1	5.3	5.1	9.2
	M	SSE	SSE	SSE	SSE	SSE	WNW	WNW	WNW	WNW	NNW	NNE	SSE	
	E	SSE	SSE	SSE	SSE	NNW	WNW	WNW	WNW	NNW	NNE	NNE	NNE	
Sub. Div. Mean (a)		6.2	7.0	7.9	8.7	9.9	12.7	11.6	9.9	7.4	5.7	5.6	5.2	8.1

(a) Mean wind speed in Kms. per hour.

(M) Predominant direction in the morning.

(E) Predominant direction in the evening.

(Var) Variable.

(C) Calm. The next predominant direction is also indicated when calm is mentioned.

TABLE—2

Mean Maximum and Mean Minimum Temperature (°C)

Station		Jan.	Feb.	Mar.	Apr.	May	June.	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual	
		COASTAL ANDHRA PRADESH													
Kakinada	Max.	27.3	29.6	33.0	35.3	36.9	35.9	31.8	31.8	32.0	30.8	28.7	27.1	31.7	
	Min.	19.1	20.7	23.1	25.8	27.7	27.1	25.4	25.6	25.5	24.5	21.6	19.2	23.8	
Rentalchintala	Max.	31.2	34.1	37.5	39.6	41.5	37.8	34.1	33.9	33.4	32.9	30.8	29.9	34.7	
	Min.	17.3	19.9	23.0	26.1	28.6	27.8	25.3	25.6	24.8	23.2	19.6	16.8	23.2	
Gannavaram	Max.	30.1	32.9	35.6	37.8	39.7	37.5	32.6	32.1	32.4	31.5	30.7	29.7	33.5	
	Min.	19.1	20.0	22.3	25.6	27.7	27.3	25.3	25.1	25.2	24.2	21.1	19.1	23.5	
Masulipatam	Max.	27.8	29.6	31.9	34.0	36.5	36.4	32.6	32.2	31.8	30.8	29.0	27.8	31.7	
	Min.	19.4	20.8	22.9	25.9	28.0	27.4	25.7	25.8	25.7	24.9	22.1	19.8	24.0	
Nellore	Max.	29.8	32.0	34.5	37.1	39.6	38.2	35.6	35.2	34.7	32.5	29.6	28.7	34.0	
	Min.	20.0	21.1	23.1	25.7	27.8	28.2	26.7	26.5	26.0	24.7	22.3	20.4	24.4	
Ongole	Max.	28.7	30.6	32.3	34.4	38.2	37.4	34.1	34.1	33.7	31.7	29.8	28.6	32.8	
	Min.	19.7	20.9	23.3	26.0	28.0	28.4	26.5	26.3	25.8	24.7	21.8	19.9	24.3	
Kalingapatam	Max.	27.4	29.6	31.9	33.1	33.9	33.6	31.6	31.9	31.8	30.7	28.5	26.8	30.9	
	Min.	17.7	19.8	22.8	25.7	27.4	27.1	25.9	26.0	25.8	24.5	20.4	17.6	23.4	
Vishakhapatnam	Max.	27.7	29.2	31.2	32.8	34.0	33.7	31.7	32.0	31.6	30.9	29.3	27.7	31.0	
	Min.	17.5	19.3	22.6	25.9	27.8	27.4	26.0	26.0	25.6	24.5	21.2	18.3	23.5	
Nidadavole	Max.	30.1	32.2	34.1	35.8	38.2	36.7	31.5	31.1	31.6	31.3	30.4	29.5	32.0	
	Min.	18.0	19.4	22.2	25.0	26.9	26.7	25.1	25.0	24.9	23.6	20.7	18.3	23.07	
Sub. Div. Mean	Max.	28.9	31.1	33.6	35.5	37.6	36.4	32.8	32.7	32.6	31.5	29.6	28.4	32.6	
	Min.	18.6	20.2	22.8	25.7	27.8	27.5	25.8	25.8	25.5	24.3	21.2	18.8	23.7	

TABLE 2—Concl'd.

Station		Jan.	Feb.	Mar.	Apr.	May	June	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
RAYALASEEMA														
Anantapur	Max.	30.4	33.4	36.8	38.4	38.1	34.7	32.4	32.4	32.5	31.4	30.0	29.1	33.3
	Min.	17.3	18.6	21.6	25.7	25.8	24.7	23.7	23.5	23.1	22.5	19.4	17.2	21.9
Arogyavaram	Max.	27.1	30.1	33.2	34.7	34.7	32.0	30.0	30.0	29.8	28.3	26.5	25.5	30.2
	Min.	15.3	16.7	19.1	22.0	23.5	22.7	21.7	21.7	21.2	20.1	17.6	15.5	19.8
Cuddapah	Max.	30.9	34.3	37.7	39.8	40.3	37.0	34.5	34.0	33.3	32.5	30.4	29.5	34.5
	Min.	19.2	21.0	24.0	27.4	28.7	26.9	25.6	25.4	25.0	23.9	21.3	19.1	24.0
urnool	Max.	31.3	34.3	37.5	39.3	40.0	35.6	32.5	32.1	31.9	32.4	31.0	30.3	34.0
	Min.	17.0	19.3	22.5	26.0	27.2	25.0	23.8	23.5	23.3	22.4	19.2	16.6	22.1
Sub. Div. Mean	Max.	29.9	33.0	36.3	38.1	38.3	34.8	32.3	32.1	31.9	31.1	29.5	28.6	33.0
	Min.	17.2	18.9	21.8	25.3	26.3	24.8	23.7	23.5	23.1	22.2	19.4	17.1	21.9
TELANGANA														
Begampet	Max.	28.6	31.2	34.8	36.9	38.7	34.1	29.8	29.5	29.7	30.3	28.7	27.8	31.7
	Min.	14.6	16.7	20.0	23.7	26.2	24.1	22.3	22.1	21.6	19.8	16.0	13.4	20.0
Ramagundam	Max.	31.1	34.1	37.7	40.3	42.8	38.6	32.1	31.3	32.0	32.5	30.7	30.2	34.5
	Min.	16.1	18.8	22.7	26.9	29.7	28.2	24.7	24.4	24.4	22.8	17.5	15.0	22.6
Bhadrachalam	Max.	30.8	34.0	37.1	39.0	41.0	37.4	32.1	31.6	32.3	32.3	30.9	30.0	34.0
	Min.	16.9	19.1	22.8	25.6	28.0	27.4	25.0	24.7	24.4	23.0	18.7	16.1	22.6
Khammam	Max.	31.0	33.6	36.8	39.0	41.3	37.6	32.6	32.2	32.6	32.5	30.6	30.1	34.2
	Min.	17.6	20.0	23.1	25.9	28.1	27.2	24.9	24.7	24.4	22.9	19.1	16.7	22.9
Mahbubnagar	Max.	29.3	32.4	35.5	37.5	38.7	34.2	30.1	29.9	30.4	30.7	29.4	28.6	32.2
	Min.	16.5	18.0	21.2	24.5	26.3	24.1	22.5	22.3	22.1	21.1	18.2	16.7	21.1
Nizamabad	Max.	30.0	32.6	36.4	39.2	41.5	36.2	30.5	30.1	30.6	31.5	29.7	28.9	33.1
	Min.	15.3	17.5	21.0	24.8	27.7	25.4	23.2	23.0	22.7	20.6	16.2	13.8	20.9
Hanamkonda	Max.	29.9	32.4	35.9	38.3	40.8	36.5	31.2	30.9	31.2	31.7	29.9	29.0	33.1
	Min.	17.2	19.2	22.2	25.3	28.1	26.7	24.4	24.2	23.9	22.2	18.4	16.1	22.3
Sub. Div. Mean.	Max.	30.1	32.9	36.3	38.6	40.7	36.4	31.2	30.8	31.3	31.6	30.0	29.2	33.3
	Min.	16.3	18.5	21.9	25.2	27.7	26.2	23.9	23.6	23.4	21.8	17.7	15.4	21.8

TABLE 3

Mean Relative Humidity(%)

Station		Jan.	Feb.	Mar.	Apr.	May	Jun.	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
COASTAL ANDHRA PRADESH														
Kakinada	M	72	73	73	73	71	72	81	81	80	78	71	71	75
	E	70	67	62	65	64	61	73	74	76	74	69	69	69
Rentachintala	M	71	67	63	61	55	61	70	70	74	76	74	73	68
	E	33	31	28	28	31	43	54	55	61	57	50	41	43
Gannavaram	M	74	77	76	72	65	64	79	79	81	81	70	71	74
	E	54	44	44	45	43	48	65	69	71	76	62	56	56
Masulipatam	M	81	81	78	75	71	69	80	80	82	83	79	78	78
	E	69	67	67	71	65	69	70	69	73	76	72	69	69
Nellore	M	84	79	74	69	60	57	65	66	69	79	84	84	73
	E	64	59	59	62	54	46	51	54	60	72	75	70	61
Ongole	M	81	78	79	78	74	71	78	73	75	74	75	78	76
	E	70	67	72	77	74	62	70	65	68	69	67	66	69
Kalingapatam	M	82	81	79	77	76	79	83	83	84	83	81	80	81
	E	69	69	72	76	77	77	82	81	80	75	68	66	74
Vishakhapatnam	M	77	77	74	73	75	80	84	82	81	78	68	70	77
	E	78	73	71	80	83	83	82	83	84	79	73	74	79
Nidadavole	M	79	76	77	77	73	75	85	86	86	85	79	77	80
	E	55	49	52	56	50	56	74	77	78	76	67	58	62
Sub. Div. Mean.	M	78	77	75	73	69	70	78	78	79	80	76	76	76
	E	62	58	59	62	60	59	69	70	72	73	67	63	65

1		2	3	4	5	6	7	8	9	10	11	12	13	14
RAYALASEEMA														
Anantapur	M	69	54	47	52	62	69	73	74	74	76	70	72	66
	E	36	26	19	23	32	47	53	53	52	56	47	44	41
Arogyavaram	M	79	62	59	66	60	67	72	71	72	79	79	81	71
	E	47	31	26	34	38	48	57	55	54	66	64	58	48
Cuddapah	M	68	60	53	56	57	63	67	68	71	72	74	72	65
	E	54	46	36	40	41	49	58	57	61	65	71	61	53
Kurnool	M	70	57	48	49	54	69	75	75	76	74	72	72	66
	E	32	24	21	24	27	46	57	56	57	53	44	37	40
Sub. Div. Mean.	M	71	58	52	56	58	67	72	72	73	75	74	74	67
	E	42	32	25	30	35	47	56	55	56	60	57	50	45
TELANGANA														
Begampet	M	79	64	54	51	50	71	83	82	82	73	68	71	69
	E	36	35	30	31	33	54	69	70	71	58	48	42	48
Ramagundam	M	64	54	52	50	44	59	79	81	80	76	66	68	64
	E	35	26	23	23	23	42	67	69	67	58	44	41	43
Bhadrachalam	M	78	73	73	70	60	65	82	84	85	83	79	79	76
	E	41	30	29	32	30	48	69	73	74	68	56	49	50
Khammam	M	80	73	75	73	67	69	81	80	81	81	77	78	76
	E	40	33	32	31	33	49	67	70	69	66	50	44	49
Mahbubnagar	M	67	52	47	51	53	73	83	82	81	72	64	66	66
	E	37	27	24	28	31	51	68	66	66	59	46	42	45
Nizamabad	M	64	53	42	41	37	65	79	80	81	72	66	67	62
	E	32	28	21	21	22	47	68	70	68	53	41	33	42
Hanamkonda	M	75	71	66	62	51	62	77	78	79	75	69	71	70
	E	36	29	25	26	24	46	65	67	68	56	48	41	44
Sub. Div. Mean.	M	72	63	58	57	52	66	81	81	81	76	70	71	69
	E	37	30	26	27	28	48	68	69	69	60	48	42	46

* M—Morning.

E—Evening.

TABLE 4

Mean Cloud amount (okta) and Mean Number of days of Clear and Overcast skies at 0830 hrs. IST.

Station		Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
COASTAL ANDHRA PRADESH														
Kakinada	a	9	9	9	3	2	1	0	1	1	2	5	9	4.3
	b	0	0	0	0	1	5	10	6	4	4	2	1	2.7
	c	2.0	2.2	2.3	3.7	4.3	5.1	6.1	5.6	5.4	4.5	3.4	2.2	3.9
Rentachintala	a	7	7	9	4	3	0	0	0	0	2	3	6	3.4
	b	2	2	2	2	6	13	18	16	11	7	5	3	7.3
	c	2.5	2.5	2.2	3.2	4.2	6.5	7.0	6.6	5.9	4.8	4.0	2.9	4.4
Gannavaram	a	10	7	5	1	1	0	0	0	0	2	4	10	3.3
	b	0	1	1	1	4	11	16	13	9	5	3	2	5.5
	c	1.7	2.4	2.8	4.1	4.1	5.8	6.7	6.5	5.7	4.7	3.3	2.2	4.2
Masulipatam	a	9	7	7	3	4	2	1	1	1	3	5	10	4.4
	b	0	1	0	1	2	6	11	9	7	6	3	1	3.9
	c	2.1	2.5	2.7	3.8	3.8	5.0	5.9	5.6	5.5	4.5	3.5	2.5	3.9
Nellore	a	0	1	3	1	1	0	0	0	0	0	0	0	0.5
	b	1	1	1	1	3	8	14	10	7	5	6	3	5.0
	c	3.1	2.7	2.3	3.2	4.3	5.8	6.7	6.0	5.4	5.0	4.8	4.0	4.4
Ongole	a	11	10	12	5	7	2	1	0	1	2	5	9	5.4
	b	1	1	1	1	3	9	15	11	9	6	4	4	5.4
	c	2.1	2.1	2.3	3.2	3.4	5.0	6.2	5.8	5.4	5.0	3.8	2.9	3.9
Kalingapatam	a	10	8	9	4	2	0	0	0	1	3	7	10	4.5
	b	1	1	1	1	3	10	14	12	9	8	3	2	5.4
	c	2.6	2.8	2.7	3.6	4.4	5.9	6.4	6.2	5.8	4.9	3.6	2.7	4.3
Vishakhapatnam.	a	9	9	10	4	2	0	0	0	0	2	6	9	4.3
	b	1	1	1	1	5	12	16	13	10	6	3	2	5.9
	c	2.0	2.1	2.1	3.1	4.4	6.1	6.9	6.4	5.8	4.5	3.5	2.5	4.1
Nidadavole	a	8	8	4	1	1	0	0	0	0	3	3	5	2.7
	b	2	2	2	3	5	13	18	16	12	8	5	3	7.4
	c	2.8	2.8	3.7	5.5	5.6	6.3	6.9	6.8	6.3	4.9	3.9	3.4	4.9
Sub. Div. Mean.	a	8.1	7.3	7.6	2.9	2.6	0.6	0.2	0.2	0.4	2.1	4.2	7.6	3.7
	b	0.9	1.1	1.0	1.2	3.6	9.7	14.7	11.8	8.7	6.1	3.8	2.3	5.4
	c	2.3	2.5	2.6	3.7	4.3	5.7	6.5	6.2	5.7	4.8	3.8	2.8	4.2
RAYALASEEMA														
Anantapur	a	15	14	19	10	6	3	1	1	1	3	6	10	7.4
	b	1	1	0	1	3	8	13	11	8	5	3	2	4.7
	c	1.6	1.7	1.2	2.9	4.3	5.9	6.9	6.6	5.7	5.1	3.5	2.5	4.0
Arogyavaram	a	6	8	14	4	2	1	0	0	0	1	2	5	3.6
	b	2	1	1	1	5	10	16	13	10	8	7	5	6.6
	c	3.2	3.0	1.9	3.5	5.1	6.0	6.9	6.7	5.9	6.0	4.8	4.0	4.7
Cuddapah	a	12	15	20	13	8	1	0	0	1	3	4	7	7.0
	b	1	0	0	1	2	7	14	12	9	6	6	3	5.1
	c	2.2	1.6	1.3	2.3	3.4	5.4	6.7	6.2	5.6	4.6	4.2	3.1	3.9
Kurnool	a	15	14	17	9	4	1	0	1	1	3	5	11	6.7
	b	2	1	1	2	6	13	20	18	13	8	5	3	7.7
	c	1.7	1.6	1.4	2.4	4.0	6.1	6.9	6.6	6.0	4.4	3.6	2.3	3.9
Sub. Div. Mean.	a	12.0	12.7	17.5	9.0	5.0	1.5	0.3	0.5	0.7	2.5	4.3	8.3	6.2
	b	1.5	0.7	0.5	1.3	4.0	9.5	15.7	13.5	10.0	6.7	5.3	3.3	6.0
	c	2.2	2.0	1.5	2.8	4.2	5.9	6.9	6.5	5.8	5.0	4.0	3.0	4.1

TABLE 4—Contd.

Station					Jan.	Feb.	March	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
TELANGANA																	
Begampet	a	11	12	16	7	4	0	0	0	1	4	6	10	5.9			
	b	2	1	1	1	3	9	17	13	9	5	3	2	5.5			
	c	2.4	2.2	1.6	2.5	3.5	5.8	7.0	6.6	5.7	4.1	3.5	2.5	3.9			
Ramagundam . . .	a	15	15	15	11	9	3	0	0	1	6	10	17	8.5			
	b	2	2	2	2	3	9	16	16	12	5	3	1	6.1			
	c	2.1	1.7	2.1	3.0	3.2	5.5	6.9	6.9	5.8	4.0	2.5	1.8	3.8			
Bhadrachalam . . .	a	12	10	8	4	6	1	0	0	1	5	9	10	5.5			
	b	3	3	5	5	4	14	19	16	15	8	5	5	8.5			
	c	2.5	2.7	3.2	4.0	3.6	5.8	6.8	6.5	6.2	4.7	3.4	3.0	4.4			
Khammam	a	11	8	8	4	3	1	0	0	0	3	5	10	4.4			
	b	1	1	1	1	2	7	13	10	7	4	2	2	4.3			
	c	2.0	2.5	3.1	3.5	3.5	5.5	6.5	6.2	5.6	4.2	3.3	2.1	4.0			
Mahbubnagar . . .	a	16	15	18	11	6	1	0	0	1	5	8	11	7.7			
	b	2	1	1	3	6	13	20	16	14	7	5	4	7.7			
	c	2.1	1.9	1.6	2.8	4.1	6.4	7.1	6.8	6.2	4.4	3.6	3.1	4.2			
Nizamabad	a	13	14	16	11	7	1	1	0	1	6	8	12	7.5			
	b	0	0	0	0	0	4	10	8	5	2	1	0	2.5			
	c	1.6	1.4	1.4	2.0	2.5	4.6	5.9	5.5	5.1	3.0	2.4	1.7	3.1			
Hanamkonda . . .	a	10	10	13	6	4	1	0	0	1	5	7	11	5.7			
	b	1	1	1	1	1	5	12	9	5	2	1	1	3.3			
	c	2.1	2.3	2.0	2.5	2.7	4.9	6.4	5.8	5.1	3.3	2.6	1.9	3.5			
Sub.Div. Mean . . .	a	12.6	12.0	13.4	7.7	5.6	1.1	0.1	0.0	0.9	4.9	7.6	11.6	6.5			
	b	1.6	1.3	1.6	1.9	2.7	8.7	15.3	12.6	9.6	4.7	2.9	2.1	5.4			
	c	2.1	2.1	2.1	2.9	3.3	5.5	6.7	6.3	5.7	4.0	3.0	2.3	3.8			

(a) Days with clear sky.

(b) Days with sky overcast.

(c) Mean cloud amount.

TABLE—4 (a)

Mean Cloud Amount (okta) and Mean Number of days of Clear and Overcast Skies at 1730 hrs. IST.

Station		Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
COASTAL ANDHRA PRADESH														
Kakinada	a	13	13	17	9	7	1	0	0	0	1	4	9	4.3
	b	0	0	0	0	1	4	9	5	3	4	2	1	2.4
	c	1.5	1.5	1.3	2.3	3.0	5.1	6.0	5.7	5.5	4.8	3.6	2.2	3.5
Rentachintala	a	6	6	8	4	1	0	0	0	0	1	3	5	2.8
	b	2	1	1	3	5	12	19	17	16	9	5	3	7.7
	c	2.8	2.7	2.3	3.6	4.8	6.3	7.1	6.9	6.8	5.8	4.4	3.0	4.7
Gannavaram	a	4	8	12	6	1	0	0	0	0	0	1	4	3.0
	b	1	0	0	0	4	10	15	13	10	8	4	3	5.7
	c	1.9	1.8	1.6	2.6	4.0	6.1	6.7	6.9	6.4	5.7	4.0	2.7	4.2
Masulipatam	a	9	10	16	9	6	1	0	0	0	1	3	6	5.1
	b	0	0	1	0	3	7	11	11	9	7	5	2	4.7
	c	1.5	1.5	1.2	1.9	2.8	5.1	5.9	5.8	5.6	4.9	3.9	2.6	3.5
Nellore	a	1	3	7	3	1	0	0	0	0	0	0	0	1.3
	b	1	0	0	1	3	8	14	10	7	6	5	3	4.8
	c	2.9	2.2	2.0	3.0	4.1	6.1	6.7	6.3	5.5	5.3	5.0	4.0	4.4
Ongole	a	14	15	18	11	5	1	0	0	0	1	6	10	6.7
	b	1	0	1	1	3	9	14	12	11	8	5	3	5.7
	c	1.5	1.5	1.5	2.4	3.5	5.4	6.2	6.2	5.8	5.2	3.6	2.7	3.8
Kalingapatam	a	9	8	8	3	1	0	0	0	0	1	6	10	3.8
	b	1	0	1	2	4	10	13	13	11	9	4	2	5.8
	c	2.7	2.9	2.9	4.2	4.8	6.2	6.8	6.8	6.5	5.7	3.8	2.7	4.7
Vishakhapatnam	a	9	10	11	3	1	0	0	0	0	1	5	8	4.0
	b	1	1	2	2	5	14	17	15	13	9	5	3	7.3
	c	2.0	1.7	2.2	3.9	4.7	6.5	7.0	6.5	6.4	5.2	3.7	2.7	4.1
Nidadavole	a	5	7	6	3	3	0	0	0	0	2	3	3	2.7
	b	2	1	1	2	5	13	18	17	14	11	6	4	7.8
	c	3.3	2.7	2.6	3.5	4.4	6.5	7.1	6.9	6.8	6.0	4.6	4.0	4.9
Sub. Div. Mean.	a	7.8	8.9	11.4	5.7	2.9	0.3	0.0	0.0	0.0	0.9	3.4	6.1	3.9
	b	1.0	0.3	0.8	1.2	3.7	9.7	14.4	12.5	10.4	7.9	4.6	2.7	5.8
	c	2.2	2.1	2.0	3.0	4.0	5.9	6.6	6.4	6.1	5.4	4.1	3.0	4.2
RAYALASEEMA														
Anantapur	a	7	9	12	2	1	0	0	0	0	1	3	6	3.4
	b	0	0	0	2	5	8	14	11	8	6	3	2	4.9
	c	2.1	2.0	1.9	3.7	4.8	6.2	6.9	6.9	6.4	5.8	4.0	2.9	4.5
Arogyavaram	a	5	6	10	2	0	0	0	0	0	0	1	3	2.3
	b	1	1	0	3	7	12	16	14	11	12	6	4	7.3
	c	3.6	3.1	2.4	4.7	5.8	6.9	7.2	7.1	6.7	6.6	5.2	4.3	5.3
Cuddapah	a	9	12	16	7	4	1	0	0	0	1	3	6	4.9
	b	0	0	0	2	3	8	12	10	7	7	5	3	4.7
	c	2.6	1.9	1.9	3.2	4.1	5.7	6.6	6.3	5.8	5.4	4.6	3.5	4.3
Kurnool	a	9	10	11	3	2	1	0	0	0	1	4	9	4.2
	b	2	1	1	3	5	14	20	18	15	10	6	3	8.2
	c	2.3	2.1	2.1	3.5	4.2	6.3	7.1	6.8	6.4	5.4	4.1	2.8	4.4
Sub. Div. Mean.	a	7.5	9.3	12.3	3.5	1.7	0.5	0.0	0.0	0.0	0.7	2.7	6.0	3.7
	b	0.7	0.5	0.3	2.5	5.0	10.5	15.5	13.3	10.3	8.7	5.0	3.0	6.3
	c	2.7	2.3	2.1	3.8	4.7	6.3	6.9	6.8	6.3	5.8	4.5	3.4	4.6

TABLE 4(a)—Contd.

Station		Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual.
TELANGANA														
Begampet	a	9	9	10	2	1	0	0	0	0	1	5	9	3.8
	b	0	0	0	1	2	8	15	13	10	4	2	1	4.7
	c	2.1	2.1	2.1	3.7	4.4	6.2	7.0	6.7	6.4	4.8	3.7	2.5	4.3
Ramagundam	a	11	12	12	5	3	0	0	0	0	2	9	12	5.5
	b	1	0	1	2	2	7	13	14	9	4	2	1	4.7
	c	2.0	1.9	2.5	3.8	4.1	5.5	6.6	6.5	6.0	4.6	2.8	2.0	4.0
Bhadrachalam	a	12	12	13	6	4	1	0	0	0	3	9	11	5.9
	b	1	1	2	2	5	15	21	21	16	10	4	2	8.3
	c	2.3	2.2	2.3	3.5	4.5	6.6	7.2	7.2	6.7	5.2	3.3	2.7	4.5
Khammam	a	7	7	10	4	1	0	0	0	0	1	3	7	3.3
	b	0	0	1	1	3	8	15	13	9	6	3	1	5.0
	c	2.2	2.2	2.0	3.1	4.3	6.2	7.0	6.9	6.5	5.7	3.7	2.7	4.4
Mahbubnagar	a	12	13	14	4	2	0	0	0	0	2	6	9	5.2
	b	2	1	1	4	7	16	21	20	17	11	7	5	9.3
	c	2.3	1.9	1.9	3.9	5.1	6.7	7.4	7.3	6.8	5.3	3.9	3.2	4.6
Nizamabad	a	9	10	10	4	2	1	0	0	1	2	6	10	4.6
	b	0	0	0	1	1	4	10	7	4	1	0	0	2.3
	c	2.0	1.7	2.2	2.9	3.3	5.1	6.3	5.7	5.5	4.3	2.6	2.0	3.6
Hanamkonda	a	10	10	12	5	2	0	0	0	0	2	6	10	4.7
	b	0	0	0	0	1	5	12	9	7	3	1	1	3.3
	c	1.6	1.6	1.8	2.5	3.2	5.3	6.5	6.0	5.8	3.5	2.7	2.1	3.5
Sub. Div. Mean.	a	10.0	10.4	11.6	4.3	2.1	0.3	0.0	0.0	0.1	1.9	6.3	9.7	4.7
	b	0.6	0.3	0.7	1.6	3.0	9.0	15.3	13.9	10.3	5.6	2.7	1.6	5.4
	c	2.1	1.9	2.1	3.3	4.1	5.9	6.9	6.6	6.2	4.8	3.2	2.5	4.1

(a) Days with clear sky.

(b) Days with sky overcast.

(c) Mean cloud amount.

TABLE—5

Mean Rainfall (mm) and Number of rainy days

District			Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
COASTAL ANDHRA PRADESH															
East Godavari	a		5.8	13.0	12.8	25.3	52.1	133.6	203.0	174.8	186.5	214.0	108.1	8.6	1137.6
	b		0.4	0.8	0.7	1.6	3.0	6.9	12.0	10.0	9.4	8.0	3.8	0.5	57.1
Guntur	a		5.9	11.3	9.5	17.8	42.8	90.2	133.9	138.0	128.8	140.3	83.2	12.1	813.8
	b		0.4	0.7	0.5	1.2	2.5	5.7	9.4	8.3	8.4	6.7	4.0	0.7	48.5
Krishna	a		6.4	11.1	11.6	18.4	41.8	108.4	185.3	165.8	159.6	157.8	88.2	8.0	962.4
	b		0.4	0.6	0.6	1.1	2.4	6.5	11.5	9.9	8.9	6.6	3.6	0.5	52.6
Nellore	a		36.9	9.8	9.7	15.0	39.6	41.8	73.6	75.5	102.9	251.9	293.5	92.4	1042.6
	b		1.4	0.5	0.4	0.8	1.6	3.3	5.9	5.5	5.8	8.9	8.8	3.4	46.3
Prakasam	a		8.7	9.5	9.9	15.8	38.7	50.0	87.5	87.2	124.0	170.7	134.8	23.0	759.8
	b		0.6	0.6	0.5	1.0	2.3	3.9	7.2	6.1	7.0	7.2	5.3	1.2	42.9
Srikakulam	a		7.5	18.6	14.0	33.7	63.1	127.6	158.3	186.7	200.1	179.7	74.1	11.4	1074.8
	b		0.5	1.2	0.9	2.2	3.6	7.3	9.8	10.4	10.0	6.9	2.6	0.5	55.9
Vishakhapatnam	a		7.8	20.7	14.8	36.0	65.0	115.5	138.8	144.2	190.9	199.6	87.8	11.5	1032.7
	b		0.6	1.3	1.0	2.3	3.6	6.9	9.5	8.9	9.7	7.9	3.2	0.6	55.5
West Godavari	a		4.4	11.2	10.8	20.7	46.1	137.4	220.9	192.4	177.2	173.3	80.0	7.3	1081.7
	b		0.3	0.7	0.6	1.3	2.7	7.0	13.0	11.0	9.5	7.5	3.5	0.5	57.6
Sub. Div. Mean	a		10.4	13.1	11.6	22.8	48.7	100.6	150.2	145.6	158.7	185.9	118.7	21.8	988.1
	b		0.6	0.8	0.7	1.4	2.7	5.9	9.8	8.8	8.6	7.5	4.3	1.0	52.1
RAYALASEEMA															
Anantapur	a		3.5	5.0	4.3	19.2	54.3	47.0	53.2	78.8	131.8	92.8	46.3	7.9	544.1
	b		0.3	0.3	0.3	1.4	3.5	3.4	4.5	5.1	6.8	5.3	3.1	0.6	34.6
Chittoor	a		20.3	7.3	10.4	24.0	62.4	56.4	79.1	102.2	126.8	149.3	143.2	46.0	827.5
	b		1.2	0.4	0.6	1.5	3.3	3.9	5.5	6.2	6.5	7.4	6.6	2.5	45.6
Cuddapah	a		9.5	3.5	6.0	15.4	44.9	58.3	84.8	97.0	132.9	114.4	95.3	23.5	685.5
	b		0.6	0.2	0.3	1.2	2.7	4.2	6.3	6.5	7.3	6.6	5.0	1.7	42.6
Kurnool	a		3.3	5.8	5.5	17.7	36.9	70.9	101.7	103.1	149.6	84.7	33.7	4.4	617.3
	b		0.2	0.4	0.3	1.4	2.8	4.9	7.7	7.2	8.1	4.9	2.3	0.4	40.6
Sub. Div. Mean	a		9.2	5.4	6.6	19.1	49.6	58.2	79.7	95.3	135.3	110.3	79.6	20.5	668.8
	b		0.6	0.3	0.4	1.4	3.1	4.1	6.0	6.3	7.2	6.1	4.3	1.3	41.1

TABLE 5—Contd.

District		Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
TELANGANA														
Adilabad	a	6.6	19.1	13.3	17.5	14.0	155.6	307.6	211.1	174.5	52.1	20.1	3.6	995.1
	b	0.5	1.4	1.1	1.4	1.3	8.6	15.7	11.7	9.8	3.0	1.3	0.4	56.2
Hyderabad	a	4.3	9.3	11.8	26.1	27.5	112.6	158.9	143.0	186.2	60.5	24.9	4.8	769.9
	b	0.3	0.8	0.8	1.9	2.0	6.8	11.0	9.3	9.7	3.7	1.5	0.4	48.2
Karimnagar	a	5.0	21.9	11.7	23.1	22.2	137.7	251.6	178.7	173.8	64.6	20.5	3.4	914.2
	b	0.4	1.4	0.8	1.3	1.5	7.5	14.1	10.5	8.9	2.9	1.3	0.2	50.8
Khammam	a	4.1	14.9	12.4	28.8	38.6	140.5	283.0	209.9	180.6	94.9	33.0	5.7	1046.4
	b	0.2	0.9	0.8	1.9	2.3	7.8	14.8	11.7	9.2	5.4	2.1	0.3	57.4
Mahbubnagar	a	3.8	7.4	6.1	16.3	26.2	93.0	138.3	126.5	160.3	67.7	25.3	2.4	673.3
	b	0.2	0.4	0.5	1.2	2.0	5.8	10.7	9.2	8.7	4.0	1.4	0.2	44.3
Medak	a	3.7	14.0	12.9	24.9	21.7	147.3	226.2	191.8	186.1	50.5	18.7	5.9	903.7
	b	0.3	1.1	0.9	1.8	1.7	8.5	13.5	11.6	10.2	3.3	1.4	0.2	54.5
Nalgonda	a	2.7	9.4	8.9	25.7	29.6	100.4	129.9	120.3	156.8	90.6	29.9	7.1	711.3
	b	0.3	0.7	0.7	1.8	1.8	6.3	10.3	8.1	8.7	4.9	2.3	0.4	46.3
Nizamabad	a	5.2	19.8	12.6	17.8	11.7	149.4	283.5	240.8	208.7	54.4	16.4	3.4	1023.8
	b	0.4	1.3	1.0	1.3	1.1	8.7	15.9	12.5	9.7	3.0	1.2	0.3	56.4
Warangal	a	6.0	17.5	11.4	25.5	34.9	157.2	277.2	202.3	188.6	67.7	23.4	4.1	1015.8
	b	0.4	1.0	0.7	1.8	1.9	8.3	15.7	11.9	9.7	3.9	1.8	0.3	57.4
Sub. Div. Mean	a	4.6	14.8	11.2	22.9	25.2	132.6	228.5	180.5	179.5	67.0	23.6	4.5	894.9
	b	0.3	1.0	0.8	1.6	1.7	7.6	13.5	10.7	9.4	3.8	1.6	0.3	52.3

(a) Mean rainfall.

(b) Mean number of rainy days (days with rain of 2.5 mm or more).

CHAPTER II
DISTRICT CLIMATOLOGICAL SUMMARIES

COASTAL ANDHRA PRADESH

EAST GODAVARI DISTRICT

The climate of this district is characterised by high humidities nearly all the year round, and oppressive summer season and good seasonal rainfall. The summer season is from March to May. This is followed by the southwest monsoon season lasting up to September. October and November constitute the post monsoon or retreating monsoon season. December to February is the season of generally fine weather.

Rainfall

Records of rainfall in the district are available for 16 raingauge stations for sufficiently long periods. The details of the rainfall at these stations and for the district as a whole are given in tables 1 and 2. The average annual rainfall in the district is 1137.6 mm. In the southern portion of the district south of the line joining Rajahmundry and Kakinada the rainfall gradually decreases from the southwestern coast towards the interior. But in the northern portion of the district the rainfall rapidly increases as one proceeds from the coast towards the interior. Both the southwest monsoon and the retreating monsoon bring rains to the district. The rainfall during the southwest monsoon months, June to September amounts to about 61 per cent of the annual rainfall and that during the retreating monsoon constitutes about 28 per cent of the annual rainfall. October is the rainiest month. In the fifty year period, 1901 to 1950, the highest annual rainfall amounting to 139 per cent of the normal occurred in 1916. The lowest annual rainfall which was 63 per cent of the normal occurred in 1905. During this 50 year period the annual rainfall in the district was less than 80 per cent of the normal in 9 years of which two were consecutive. But at some stations, two consecutive years of such low rainfall occurred more than once. Even 3 consecutive years of such low rainfall occurred once or twice at five stations in the district. At Mummidivaram the rainfall in four consecutive years 1911—1914 was less than 80 per cent of the normal. It will be seen from table 2 that the annual rainfall in the district was between 900 and 1400 mm *i.e.* roughly within 20 per cent of the normal in 35 years out of 50.

On an average there are 57 rainy days (*i.e.* days with rainfall of 2.5 mm or more) in a year in the district. This number varies from 53 at Tuni to 68 at Chodavaram.

The highest rainfall in 24 hours recorded at any station in the district was 508.0 mm at Amalapuram on 6th September 1895.

Temperature

The only meteorological observatory in the district is at Kakinada and the records of this observatory may be taken as fairly representative of the meteorological conditions prevailing over the coastal regions of the district. In the interior of the district the temperatures in summer are about 2 to 3°C higher than in the coastal region. From February temperatures rise rapidly till May which is the hottest month with the mean daily maximum temperature at about 37°C and the mean daily minimum at about 28°C. The heat is very trying particularly in the coastal region where humidities are generally higher. In May and the early part of June before the onset of the monsoon maximum temperatures may on some days go above 46°C. The sea breezes afford some relief during the afternoons in the coastal areas. The thunder showers which occur on some days during the afternoons bring welcome relief. With the onset of the monsoon temperatures decrease appreciably in June but remain steady thereafter till September; and the weather is comparatively milder. After the withdrawal of the southwest monsoon early in October temperatures begin to decrease progressively. December is the coolest part of the year with the mean daily maximum temperature at about 27°C and the mean daily minimum at 19°C.

The highest maximum temperature recorded at Kakinada was 47.2°C on 8th June, 1923 and the lowest minimum was 13.9°C on 29th December 1902.

Humidity

The air is generally humid throughout the year. But in the interior of the district the humidities are slightly less than in the coastal regions.

Cloudiness

Skies are generally heavily clouded to overcast during the southwest monsoon season. There is moderate cloudiness in the post monsoon season. In the rest of the year skies are mostly clear or lightly clouded.

Winds

Winds are light to moderate in speed with some strengthening during the early southwest monsoon and in November. In the period October to February winds are northerly or northeasterly in the mornings and are from directions between northeast and southeast in the afternoons. In the summer season winds from directions between southeast and southwest are most common. In the southwest monsoon season winds are from the southwest or west.

Special Weather Phenomena

Storms and depressions originating in the Bay of Bengal during the post monsoon season cross the east coast in the neighbourhood of the district causing widespread heavy rain and strong winds. Thunderstorms occur during the period March to November. The interior of the district experiences more thunderstorms than in the coastal region.

Tables 3, 4 and 5 give the temperature and humidity, mean wind speed and special weather phenomena for Kakinada.

TABLE I

Normal and extreme Rainfall

Station	No. of years of data	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual	Highest annual rainfall as % of normal & year**	Lowest annual rainfall as % of normal & year**	Heaviest rainfall in 24 hours *	
		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Amount (mm)	Date
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Tuni	50 a	4.6	17.3	10.4	28.2	57.4	115.6	157.0	128.8	186.2	169.2	80.8	8.1	963.6	156 (1925)	41 (1918)	262.4	1928 Oct. 22
	b	0.4	1.0	0.8	1.8	3.5	6.9	10.5	8.2	9.5	7.3	3.1	0.4	53.4				
Pithapuram	50 a	4.6	11.2	10.7	24.9	43.4	128.3	173.7	149.3	161.3	193.0	91.4	5.1	996.9	147 (1925)	51 (1922)	289.6	1892 Oct. 18
	b	0.3	0.7	0.7	1.6	3.0	6.8	11.1	9.3	9.0	7.1	3.1	0.3	53.0				
Prathipadu	50 a	3.8	12.5	12.7	40.4	65.5	132.6	197.1	162.1	203.7	181.1	73.9	4.8	1090.2	163 (1949)	61 (1912)	293.6	1936 Oct. 29
	b	0.3	1.0	0.9	2.6	4.1	7.5	12.2	10.0	10.3	8.1	3.0	0.3	60.3				
Peddapuram	50 a	5.8	12.2	11.9	25.4	48.3	130.6	196.9	160.3	164.3	180.3	92.2	5.3	1033.5	141 (1936)	58 (1920)	238.3	1936 Oct. 29
	b	0.4	0.8	0.8	1.7	3.2	5	12.5	10.1	8.6	6.8	3.3	0.3	56.0				
Rajahmundry	50 a	5.3	16.0	12.5	28.5	53.3	141.2	214.9	179.3	175.3	167.4	58.2	5.3	1057.2	151 (1947)	57 (1920)	333.5	1908 Sep. 26
	b	0.3	0.8	0.7	1.8	3.3	7.4	12.6	10.7	9.7	7.8	2.9	0.3	58.3				
Alamuru	50 a	4.1	14.0	11.7	20.1	45.2	135.6	218.9	190.7	179.3	205.5	106.7	5.1	1136.9	156 (1939)	51 (1905)	388.1	1908 Sep. 26
	b	0.3	0.8	0.7	1.0	2.4	6.8	12.0	10.4	8.8	7.3	3.5	0.4	54.4				
Ramachandrapuram	50 a	8.9	12.7	13.2	19.3	44.2	126.0	199.6	174.7	164.1	213.6	120.9	11.4	1108.6	137 (1924)	56 (1905)	369.1	1908 Sep. 27
	b	0.4	0.7	0.7	1.3	2.7	6.9	12.4	10.0	9.4	7.9	4.4	0.6	57.4				
Kakinada	50 a	8.1	9.1	11.7	20.3	42.4	121.7	190.7	145.0	151.9	237.7	141.0	15.1	1095.1	161 (1936)	56 (1905)	501.4	1941 Jun. 2
	b	0.6	0.8	0.7	1.4	2.7	7.3	12.1	9.7	8.9	8.7	4.6	0.8	58.3				

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
Coringa . . .	50	a	6.9	10.9	12.9	19.8	49.3	124.2	182.4	154.4	174.2	252.5	148.6	15.0	1151.1	145 (1936)	34 (1947)	397.5	1902 Oct. 30
		b	0.6	0.5	0.6	0.9	2.3	5.4	10.9	8.8	8.2	8.2	4.3	0.7	51.4				
Mummidivaram . . .	50	a	6.3	15.0	12.2	11.9	41.4	144.0	202.4	190.7	205.0	288.0	168.1	11.7	1296.7	176 (1930)	41 (1905)	369.3	1941 Jun. 2
		b	0.5	0.7	0.5	0.9	2.1	6.0	11.3	9.4	9.3	8.8	4.8	0.7	55.0				
Kothapeta . . .	50	a	2.3	10.9	9.7	16.8	47.2	147.8	211.3	184.7	187.2	214.6	101.1	11.9	1145.5	164 (1915)	53 (1905)	339.1	1907 Jun. 15
		b	0.3	0.7	0.6	1.1	2.3	6.7	12.0	10.0	10.0	8.0	4.0	0.5	56.2				
Amalapuram . . .	50	a	5.8	11.9	10.7	11.9	46.2	138.7	188.0	185.2	188.5	279.4	153.7	7.9	1227.9	196 (1930)	46 (1905)	508.0	1895 Sep. 26
		b	0.5	0.5	0.6	0.8	2.1	6.5	11.9	10.3	9.7	9.0	5.1	0.7	57.7				
Razole . . .	50	a	4.3	9.7	6.3	8.1	40.4	139.9	199.4	186.7	182.4	261.4	142.5	12.2	1193.3	175 (1925)	57 (1937)	467.4	1878 Oct. 29
		b	0.4	0.6	0.4	0.6	1.9	6.4	12.6	10.5	9.2	9.0	4.6	0.9	57.1				
Biccavole . . .	36	a	7.6	12.5	12.7	15.2	50.5	110.2	204.5	155.5	182.6	199.1	112.3	3.8	1066.5	152 (1923)	59 (1935)	431.8	1958 Oct. 20
		b	0.3	0.8	0.7	1.1	2.7	6.3	11.6	9.7	8.4	7.7	3.7	0.3	53.3				
Chodavaram . . .	50	a	6.6	17.0	24.1	48.3	79.0	150.4	266.2	228.6	239.3	205.2	74.4	9.9	1349.0	155 (1917)	55 (1905)	257.8	1933 Oct. 19
		b	0.4	1.0	1.1	3.2	4.7	7.6	14.0	12.1	11.6	8.9	3.1	0.6	68.3				
Yellavaram . . .	50	a	8.4	15.5	21.3	66.5	80.3	150.6	245.6	221.5	239.5	176.5	64.0	4.8	1294.5	214 (1919)	68 (1918)	327.1	1949 Sep. 26
		b	0.5	1.0	1.2	3.5	4.7	7.7	12.9	11.0	10.4	7.9	3.0	0.3	64.1				
East Godavari (District)		a	5.8	13.0	12.8	25.3	52.1	133.6	203.0	174.8	186.5	214.0	108.1	8.6	1137.6	139 (1916)	63 (1905)		
		b	0.4	0.8	0.7	1.6	3.0	6.9	12.0	10.0	9.4	8.0	3.8	0.5	57.1				

(a) Normal rainfall in mm. (b) Average number of rainy days (days with rain of 2.5 mm or more).

**Years of occurrence given in brackets.

* Based on all available data upto 1965.

TABLE 2

Frequency of Annual Rainfall in the District

(DATA 1901-1950)

Range in mm	No. of years	Range in mm	No. of years
701—800	4	1201—1300	3
801—900	4	1301—1400	9
901—1000	7	1401—1500	4
1001—1100	10	1501—1600	3
1101—1200	6		

TABLE 3

Normal Temperature and Relative Humidity

(KAKINADA)

Month	Mean Maximum Temperature	Mean Minimum Temperature	Highest Maximum ever recorded	Lowest Minimum ever recorded		*Relative Humidity	
	°C	°C	°C	Date	°C	Date	%
January	27.3	19.1	32.8	1950 Jan. 31	12.0	1962 Jan. 6	72
February	29.6	20.7	37.8	1896 Feb. 29	15.6	1918 Feb. 1	73
March	33.0	23.1	38.9	1934 Mar. 31	17.2	1906 Mar. 19	73
April	35.3	25.8	42.8	1947 Apr. 25	18.9	1942 Apr. 7	73
May	36.9	27.7	46.7	1934 May 29	21.1	1917 May 10	71
June	35.9	27.1	47.2	1923 Jun. 8	21.7	1940 Jun. 1	72
July	31.8	25.4	41.7	1897 Jul. 2	21.1	1938 Jul. 14	81
August	31.8	25.6	37.8	1902 Aug. 8	21.7	1955 Aug. 19	81
September	32.0	25.5	37.2	1920 Sep. 13	21.7	1958 Sep. 22	80
October	30.8	24.5	37.2	1907 Oct. 9	17.2	1949 Oct. 28	78
November	28.7	21.6	33.9	1951 Nov. 28	15.6	1910 Nov. 27	71
December	27.1	19.2	32.7	1965 Dec. 15	13.9	1902 Dec. 29	71
Annual	31.7	23.8					75

* Hours I. S. T.

TABLE 4

Mean Wind Speed in Km./hr.

(KAKINADA)

Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
10.3	8.8	8.3	9.1	11.1	12.1	12.3	11.0	8.6	9.5	12.0	11.3	10.4

TABLE 5
Special Weather Phenomena
(KAKINADA)

*Mean No. of days with	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual			
Thunder	.	.	.	0	0	0.2	1.1	2	2	1.1	1.4	2	1.7	0	0.1	12
Hail	.	.	.	0	0	0	0	0	0	0	0	0	0	0	0	0
Dust-Storm	.	.	.	0	0	0	0.2	0.3	0.1	0	0	0	0	0	0.1	0.7
Squall	.	.	.	0	0	0	0	0	0	0	0.1	0	0	0	0.1	0.1
Fog	.	.	.	0.2	0	0	0	0	0	0	0	0.1	0	0	0	0.3

*No. of days 2 and above are given in whole numbers.

GUNTUR DISTRICT

The district has a hot climate, the summer specially being very trying. The year may be conveniently divided into four seasons. The summer season starts by about March and continues till May. The southwest monsoon season follows thereafter and extends upto September. Northeast monsoon sets in by mid-October. During the period the coastal belt is particularly liable to damages due to cyclonic storms. The period from December to February is the cold weather season of generally fine weather.

Rainfall

Records of rainfall are available for 13 stations for fairly long periods for most of the stations. The details of the rainfall at these stations and for the district as a whole are given in tables 1 and 2. The average annual rainfall in the district is about 81 cms. The rainfall in general, decreases from the east to the west in the district. It varies from about 65 cms. in the west to about 100 cms in the east. Both the southwest monsoon and the north east monsoon bring rains to the district. While the rainfall in the monsoon season accounts for 60 per cent of the annual total, the rainfall in the north east monsoon season amounts to about 27 per cent. October is the rainiest month. In the rest of the months May gets the maximum rain. January is the least rainy month. The variation in the rainfall in the district from year to year is appreciable. In the fifty year period from 1901 to 1950 the highest annual rainfall amounting to 161 per cent of the normal was received in 1903. The lowest rainfall which was 64 per cent of the normal occurred in 1904. In 9 years out of fifty, the district received rainfall of less than 80 per cent of the normal, two of them being consecutive years. Two consecutive years of such low rainfall have occurred twice or thrice at most of the stations, and three consecutive years of such low rainfall have occurred at Bapatla. Even six consecutive years of rainfall less than 80 per cent of the normal (1904—09) have occurred once at Repalle. It will be seen from table 2 that in 34 years out of fifty the rainfall was between 600 and 1000 mm *i.e.* within 25 per cent of the annual normal.

On an average there are 49 rainy days (*i.e.* days with rainfall of 2.5 mm or more) in a year. 66 per cent of these occur during June-September and 22 per cent during October-November. This number varies from 41 (about 85 per cent of the average) at Macherla in the west to 54 (about 112 per cent of the average) at Tenali in the east.

The highest rainfall in 24 hours recorded in the district was 386.1 mm on 19th November 1879 at Sattenapalli.

Temperature

The district has one meteorological observatory at Rentachintala. The meteorological data for Rentachintala may be taken as representative of conditions in the interior of the district. In the interior, the day temperatures are higher by 3 to 5 degrees celsius in summer and the night temperatures lower by 2 or 3 degrees celsius in the winter, than in the coastal parts. From February temperatures rise till May which is the hottest month when the mean maximum temperature is about 42°C in the interior and about 38°C over the coastal region while the mean minimum temperature is about 29°C and 28°C over these parts respectively. The heat during the summer months is very trying; in the coastal regions, however, sea breeze in the late afternoons gives a little relief. Temperatures decrease with the onset of the southwest monsoon more rapidly over the interior than over the coast. They continue to decrease further till December or January which is the coolest part of the year, when the mean maximum temperature is about 30°C in the interior and about 29°C in the coastal parts, the mean minimum temperature being 17°C and 20°C respectively over these regions.

The highest maximum temperature recorded was 47.2°C at Rentachintala on 18th May 1948 and on 3rd June 1953. The lowest minimum temperature recorded was 10.0°C on 31st December 1936 at Rentachintala.

Humidity

The coastal region is humid throughout the year. In the interior humidities are much lower particularly in the afternoons in winter and the summer seasons when the range between 30 to 40 per cent.

Cloudiness

Skies are generally heavily clouded to overcast during the southwest monsoon season. There is moderate cloudiness in the northeast monsoon season. In the rest of the year, skies are mostly clear or lightly clouded.

Winds

Winds are light to moderate in speed except in late summer and early southwest monsoon season when they strengthen. In the period October to March, winds are variable in direction in the mornings and from directions between north and southeast in the afternoons, in the interior, while over the coastal belt winds in the morning are variable in October and February and north to north-easterly during November to January. They are mostly northeasterly to southeasterly in the afternoons during October to February. In March and April the directions are between east and south. Southwesterly to northwesterly winds appear over the interior in May and over the coastal parts in June and these continue in the southwest monsoon season.

Special Weather Phenomena

Storms and depressions originating in the Bay of Bengal during the post monsoon season cross the east coast in the neighbourhood of the district, causing widespread heavy rain and strong winds. Thunderstorms occur mostly during April to October and coast may be affected by associated tidal waves. The frequency of thunderstorms increase from coast to the interior.

Tables 3, 4 and 5 give the temperature and humidity, mean wind speed and frequency of special Weather phenomena for Rentachintala.

TABLE I
Normal and extreme Rainfall

Station	No. of years of data	Jan.	Feb.	Mar	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual	Highest	Lowest	Heaviest Rainfall		
															Annual rain- fall as % of normal & year**	Annual rain- fall as % of normal & year**	in 24 Amount (mm)	hours* Date	
Guntur	50	a	6.1	13.5	14.5	15.7	58.4	105.4	150.6	148.3	149.9	142.0	81.8	11.2	897.4	150 (1903)	56 (1942)	188.0	1895 Sep. 6
		b	0.4	0.7	0.6	1.2	3.2	6.7	10.6	9.0	9.2	6.5	3.9	0.7	52.7				
Mangalagiri	50	a	4.8	12.9	8.1	24.9	46.0	125.2	171.5	160.5	145.0	128.0	67.6	7.4	901.9	186 (1903)	62 (1905)	215.9	1958 Aug. 12
		b	0.4	0.6	0.6	1.5	2.4	6.5	10.7	9.1	8.0	5.7	3.3	0.4	49.2				
Sattenapalli.	50	a	0.4	15.0	11.9	26.9	42.2	92.7	143.0	129.8	133.1	115.1	74.4	6.9	800.4	180 (1903)	53 (1929)	386.1	1879 Nov. 19
		b	0.4	0.7	0.6	1.6	3.0	6.0	10.2	8.6	8.3	5.9	3.7	0.5	49.5				
Tenali	50	a	7.4	9.1	9.7	18.5	55.4	106.4	172.5	167.4	157.2	149.1	83.6	10.2	946.5	179 (1916)	57 (1926)	247.9	1917 Nov. 15
		b	0.3	0.6	0.5	1.1	2.8	6.8	11.4	10.0	9.0	7.1	3.9	0.8	54.3				
Repalle	50	a	4.8	14.7	8.9	14.0	45.5	85.9	147.3	151.4	157.7	197.6	128.0	17.0	972.8	167 (1916)	47 (1926)	308.6	1952 May 24
		b	0.4	0.8	0.5	0.9	1.9	5.6	10.2	8.9	8.9	8.4	4.8	0.8	52.1				
Ponnur	50	a	4.1	12.5	11.4	10.2	46.7	93.7	150.9	144.5	158.2	148.1	93.7	11.2	885.2	170 (1916)	57 (1905)	226.1	1958 Oct. 15
		b	0.4	0.8	0.5	0.7	2.1	5.4	10.1	8.7	8.5	7.0	4.3	0.8	49.3				
Bapatla	50	a	4.8	12.7	8.6	9.9	42.2	75.9	133.9	144.3	168.1	169.2	119.1	13.2	901.9	173 (1903)	50 (1942)	274.3	1927 Nov. 2
		b	0.3	0.7	0.3	0.7	2.2	5.0	8.9	8.5	8.5	7.5	5.2	0.9	48.7				
Gurzala	50	a	4.3	8.6	7.9	15.2	31.7	91.9	116.1	116.8	143.3	115.3	43.9	8.6	703.6	174 (1915)	42 (1904)	171.5	1945 Oct. 19
		b	0.5	0.6	0.4	1.4	2.4	6.0	8.9	7.2	8.1	5.7	3.1	0.5	44.8				

TABLE I—*contd.*

Station		No. of years of data	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual	Highest annual rain- fall as % of normal & year**	Lowest annual rain- fall as % of normal & year**	Heaviest Rainfall in 24 hours*	
																Amount (mm)	Date		
Macherla . . .	a	50	4.1	5.3	9.9	16.8	34.3	77.0	97.3	93.0	129.8	110.7	51.1	11.7	641.0	162 (1903)	45 (1904)	190.5	1945 Oct. 19
	b		0.3	0.5	0.5	1.2	2.4	4.9	7.2	6.5	7.7	5.9	3.2	0.7	41.0				
Narsaraopet . . .	a	50	6.9	11.4	11.9	23.1	46.7	79.0	121.4	112.8	128.5	123.7	71.6	14.0	751.0	181 (1903)	57 (1942)	203.2	1882 Nov. 30
	b		0.5	0.8	0.5	1.4	3.1	5.9	9.3	7.8	8.6	6.4	4.1	0.7	49.1				
Venukonda . . .	a	50	6.3	11.2	10.2	20.1	35.8	61.0	86.1	86.4	133.1	126.0	87.6	23.9	687.7	171 (1906)	64 (1904)	319.8	1906 Dec. 20
	b		0.5	0.7	0.5	1.3	2.5	4.2	6.8	6.2	7.6	6.6	4.7	0.8	42.4				
Rentachintala . . .	a	15	0.5	7.9	7.1	23.1	36.3	85.6	107.9	116.1	137.9	123.9	46.7	6.6	699.6	132 (1947)	71 (1942)	154.9	1954 Sep. 28
	b		0.1	0.6	0.5	1.8	2.5	6.3	8.3	7.7	8.3	6.7	3.1	0.5	46.4				
Nizampatam . . .	a	23	12.9	12.5	3.1	13.2	35.6	92.7	142.7	163.3	133.1	175.3	122.9	15.7	923.0	156 (1903)	51 (1914)	259.1	1902 Oct. 2 ⁹
	b		0.9	0.7	0.3	0.8	1.7	5.1	9.0	9.2	8.0	7.4	5.0	1.0	49.1				
Guntur (District) . . .	a		5.9	11.3	9.5	17.8	42.8	90.2	133.9	138.0	128.8	140.3	83.2	12.1	813.8	161 (1903)	64 (1904)		
	b		0.4	0.7	0.5	1.2	2.5	5.7	9.4	8.3	8.4	6.7	4.0	0.7	48.5				

(a) Normal rainfall in mm. (b) Average number of rainy days (days with rain of 2.5 mm or more).

*Based on all available data up to 1965.

**Years given in brackets.

TABLE 2

Frequency of Annual Rainfall in the District

(DATA 1901-1950)

Range in mm	No. of years	Range in mm	No. of years
501—600	5	901—1000	3
601—700	7	1001—1100	7
701—800	14	1101—1200	1
801—900	10	1201—1300	2
		1301—1400	1

TABLE 3

Normal Temperature and Relative Humidity

(RENTACHINTALA)

Month	Mean Maximum Temperature	Mean Minimum Temperature	Highest ever recorded	Maximum ever recorded	Lowest ever recorded	Minimum ever recorded	Relative Humidity
	°C	°C	°C	Date	°C	Date	% 0830 1730*
January	31.2	17.3	35.0	1964 Jan. 28	10.6	1946 Jan. 9	71 33
February	34.1	19.9	39.4	1959 Feb. 26	12.8	1949 Feb. 8	67 31
March	37.5	23.0	44.4	1953 Mar. 28	15.6	1952 Mar. 1	63 28
April	39.6	26.1	46.1	1941 Apr. 30	18.3	1937 Apr. 9	61 28
May	41.5	28.6	47.2	1948 May 18	18.3	1955 May 6	55 31
June	37.8	27.8	47.2	1953 Jun. 3	21.7	1947 Jun. 22	61 43
July	34.1	25.3	40.6	1952 Jul. 9	21.7	1956 Jul. 28	70 54
August	33.9	25.6	39.4	1950 Aug. 20	21.7	1958 Aug. 13	70 55
September	33.4	24.8	38.3	1946 Sep. 21	21.3	1958 Sep. 25	74 61
October	32.9	23.2	39.0	1965 Oct. 7	16.7	1950 Oct. 25	76 57
November	30.8	19.6	36.1	1951 Nov. 6	12.2	1950 Nov. 26	74 50
December	29.9	16.8	34.7	1963 Dec. 14	10.0	1936 Dec. 31	73 41
Annual	34.7	23.2					68 43

*Hours I. S. T.

TABLE 4

Mean Wind Speed in Km/hr.

(RENTACHINTALA)

Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
5.0	6.5	8.1	8.8	10.4	14.5	13.3	11.8	7.9	4.8	4.0	3.8	8.2

TABLE 5

Special Weather phenomena

(RENTACHINTALA)

* Mean No. of days with	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Thunder . . .	0	0.5	1.3	4	7	5	3	4	7	6	1.2	0	39
Hail . . .	0	0	0	0	0	0	0	0	0	0	0	0	0
Dust-Storm . . .	0	0	0.1	0	0.3	0	0	0	0	0	0	0	0.4
Squall . . .	0	0	0	0	0.2	0	0.1	0	0	0	0	0	0.3
Fog . . .	0	0	0	0	0	0	0	0	0	0	0.1	0	0.1

*No. of days 2 and above are given in whole numbers.

KRISHNA DISTRICT

The climate of this district is characterised by an oppressive summer and good seasonal rainfall. The year may be divided into four seasons. The period from March to May is the summer season. This is followed by the southwest monsoon season which continues till September. October and November constitute the post monsoon or retreating monsoon season. December to February is the season of generally fine weather.

Rainfall

Records of rainfall in the district are available for 13 rain gauge stations for long periods. The details of the rainfall at these stations and for the district as a whole are given in tables 1 and 2. The average annual rainfall in the district is 962.4 mm. The rainfall generally increases from the west towards the east. The district receives rain both in the southwest and retreating monsoon seasons. The rainfall in the southwest monsoon season amounts to about 64 per cent of the annual rainfall and that during the retreating monsoon period about 26 per cent of the annual rainfall. Although considering the district as a whole July is the rainiest month in the coastal region October is the rainiest month. In the fifty year period from 1901 to 1950 the highest annual rainfall amounting to 154 per cent of the annual normal occurred in 1916, while the lowest annual rainfall which was 60 per cent of the normal occurred in 1905. In the same 50 year period the annual rainfall was less than 80 per cent of the normal in 10 years, two of them being consecutive. But at individual stations, two consecutive years of such low rainfall have occurred twice or thrice at most stations. Even 3 consecutive years of such low rainfall occurred during the period 1907-1909 at Vijayavada, Gudivada and Gannavaram. At Pandraka the four consecutive years 1905-1908 were years of rainfall less than 80 per cent of the normal. It will be seen from table 2 that the annual rainfall in the district was between 700 and 1200 mm *i.e.* within about 25 per cent of the normal in 40 years out of 50.

On an average there are 53 rainy days (*i.e.* days with rainfall of 2.5 mm or more) in a year in the district. Except in the western most corner of the district where the number of rainy days is about 48 it is more or less uniform in the rest of the district and is about 54 days.

The heaviest annual rainfall in 24 hours recorded at any station in the district was 502.4 mm at Bandar on 26th October 1949.

Temperature

There are two meteorological observatories one at Gannavaram and the other at Masulipatam in the district. The records of the observatory at Gannavaram may be taken as representative of the climatological conditions in the interior of the district and those of Masulipatam as representative of the conditions in the coastal region. From February temperatures begin to rise and by May, the hottest month, the mean daily maximum temperature is about 37°C at Masulipatam, and about 40°C at Gannavaram while the mean minimum temperature is about 28°C at both the places. The heat is very trying during this season. But in the coastal tracts the afternoon sea breezes bring a little relief. Thunderstorms which occur on a few days in the coastal region and more often in the interior also bring temporary relief from the heat. After the onset of the southwest monsoon in June the day temperatures decrease appreciably particularly over the interior and the weather is comparatively milder. After the withdrawal of the monsoon early in October, temperatures decrease gradually. December and January are usually the months with the lowest temperatures during the year. In the coastal region the mean daily maximum temperature in these two months is about 28°C while the mean daily minimum is about 19°C. But in the interior of the district the maximum temperature is on the average a couple of degrees higher than in the coastal tracts while the minimum temperature is about the same.

The highest maximum temperature recorded was 47.8°C on 25th May 1906 at Masulipatam and 46.7°C on 10th May 1956 and 11th June 1953 at Gannavaram. The lowest minimum was 13.9°C at Masulipatam on 10th November 1934 and 7th January 1945 while at Gannavaram it was 14.2°C on 20th December 1953.

Humidity

The relative humidities are generally high throughout the year particularly in the coastal region. But in the interior during the period February to June the relative humidities in the afternoons are between 40 and 50 per cent.

Cloudiness

Skies are generally heavily clouded to overcast during the southwest monsoon season. There is moderate cloudiness in the post monsoon season. In the rest of the year the skies are mostly clear or lightly clouded.

Winds

Winds are generally light with some strengthening in force during the summer and southwest monsoon seasons. In the period October to February winds blow mostly from the north or northeast in the mornings while the afternoon winds are southeasterly or easterly. In the summer season winds are mainly from directions between southeast and southwest. During the southwest monsoon season the winds blow mainly from directions between the southwest and northwest.

Special Weather Phenomena

Storms and depressions originating in the Bay of Bengal in the post monsoon season cross the east coast of the district or its neighbourhood causing widespread heavy rain and strong winds. Thunderstorms occur during the period March to November being more common in the interior of the district.

Tables 3, 4 and 5 give the temperature and humidity, mean wind speed and special weather phenomena for Masulipatam and Gannavaram.

Temperature

TABLE I
Normal and Extreme Rainfall

Station	No. of years of data													Highest annual rainfall as % of normal & year**	Lowest annual rainfall as % of normal & year**	Heaviest rainfall in 24 hours*		
		Jan.	Feb.	Mar.	Apr.	May	June	July	August	Sep.	Oct.	Nov.	Dec.	Annual	Amount (mm)	Date		
Tiruvur	50 a	4.3	11.7	13.2	27.4	39.4	128.5	234.2	212.6	176.8	102.6	45.5	4.1	1000.3	158 (1917)	50 (1920)	200.7	1906 Jun. 19
	b	0.2	0.6	0.7	1.5	2.2	7.0	13.1	11.1	9.2	5.2	2.6	0.3	53.7 (1920)				
Jaggayapeth	50 a	6.1	8.1	9.7	21.6	32.0	107.7	158.0	141.7	154.4	111.3	41.9	4.3	796.8	180 (1903)	51 (1901)	176.0	1925 Oct. 13
	b	0.4	0.5	0.7	1.4	2.0	6.3	10.4	8.9	8.4	5.1	2.3	0.3	46.7 (1903)				
Nandigama	50 a	5.8	8.1	8.6	19.6	33.0	111.5	163.1	161.3	153.4	110.5	46.2	5.3	826.4	184 (1916)	49 (1905)	257.3	1936 Oct. 29
	b	0.3	0.5	0.4	1.3	2.3	6.6	11.0	9.4	8.7	5.4	2.6	0.3	48.8 (1916)				
Vijayavada	50 a	5.6	12.5	9.7	21.8	50.0	119.4	198.4	181.1	147.6	132.8	74.9	5.6	959.4	186 (1917)	48 (1905)	323.9	1925 May 17
	b	0.4	0.7	0.6	1.2	2.7	6.7	11.6	9.9	8.2	6.1	3.2	0.5	51.8 (1917)				
Nuzvid	36 a	7.9	9.9	17.5	19.3	49.0	115.8	223.5	182.4	170.7	138.7	67.1	4.1	1005.9	144 (1917)	65 (1926)	170.0	1964 Sep. 29
	b	0.4	0.7	0.6	1.5	2.7	7.2	13.2	10.5	9.3	7.0	3.2	0.2	56.5 (1917)				
Gudivada	50 a	6.6	9.1	12.2	25.4	47.7	112.3	187.5	166.4	145.8	160.8	89.9	6.9	970.6	156 (1940)	53 (1905)	235.7	1878 Oct. 29
	b	0.3	0.5	0.4	1.3	2.7	6.7	11.5	9.9	8.7	6.7	3.7	0.6	53.0 (1940)				
Bandar	50 a	5.1	15.0	13.5	18.5	39.1	93.7	177.0	152.4	162.1	234.4	138.2	18.3	1067.3	165 (1917)	58 (1907)	502.4	1949 Oct. 26
	b	0.4	0.6	0.6	1.1	2.2	6.1	11.4	9.9	9.7	8.1	4.6	0.8	55.5 (1917)				
Avanigedda	50 a	7.4	13.2	11.2	14.2	40.9	87.9	154.7	157.0	158.7	222.3	144.8	15.7	1028.0	170 (1915)	49 (1926)	327.7	1939 Oct. 30
	b	0.5	0.7	0.4	0.7	2.0	5.1	10.1	8.9	8.4	7.8	4.6	0.8	50.0 (1915)				

TABLE 1—contd.

																Highest annual rainfall as % of normal & year**	Lowest annual rainfall as % of normal & year**	Heaviest rainfall 24 hours*		
																as % of normal	as % of normal	Amount (mm)	Date	
No. of years of data	Jan.	Feb.	Mar	Apr.	May.	June	July	August	Sep.	Oct.	Nov.	Dec.	Annual							
Kaikalur]	. .	50	a	6.3	9.4	10.2	13.7	40.4	109.5	182.6	169.9	156.5	161.5	77.5	5.6	943.1	166 (1916)	47 (1918)	240.8	1933 Oct. 19
			b	0.3	0.5	0.6	1.0	2.3	6.3	11.1	10.2	8.6	6.7	3.5	0.5	51.6				
Pandraga	. .	50	a	4.3	10.4	12.9	13.5	38.9	103.1	175.3	153.2	153.4	191.5	107.4	9.1	973.0	146 (1949)	53 (1913)	383.0	1949 Oct. 28
			b	0.3	0.7	0.6	0.8	1.9	6.1	11.5	9.8	9.0	7.5	4.5	0.7	53.4				
Manginapudi .	. .	50	a	3.6	15.7	10.2	13.7	38.1	105.4	182.6	144.8	156.2	203.2	117.1	13.7	1004.3	162 (1915)	59 (1913)	297.7	1902 Oct. 29
			b	0.3	0.8	0.6	0.9	2.0	6.6	11.8	9.7	9.0	7.5	4.2	0.7	54.1				
Gannavaram .	. .	50	a	5.6	10.4	13.5	17.3	45.0	109.2	197.9	173.7	160.5	119.9	77.2	5.6	935.8	186 (1916)	48 (1905)	233.7	1895 Sep. 6
			b	0.3	0.8	0.6	1.2	2.8	6.6	12.0	10.2	8.7	5.7	3.5	0.5	52.9				
Pamaru .	. .	17	a	15.2	10.9	8.6	13.2	49.8	104.9	174.0	159.5	178.6	161.5	118.9	5.8	1000.9	154 (1930)	59 (1920)	149.9	1930 Oct. 28
			b	0.6	0.7	0.7	0.8	3.0	6.6	11.0	10.2	9.7	7.3	4.6	0.6	55.8				
Krishna (District)	. .		a	6.4	11.1	11.6	18.4	41.8	108.4	185.3	165.8	159.6	157.8	88.2	8.0	962.4	154 (1916)	60 (1905)		
			b	0.4	0.6	0.6	1.1	2.4	6.5	11.5	9.9	8.9	6.6	3.6	0.5	52.6				

(a) Normal rainfall in mm. (b) Average number of rainy days (days with rain of 2.5 mm or more).

*Based on all available data up to 1965. **Years of occurrence given in

TABLE 2
Frequency of Annual Rainfall in the District
 (DATA 1901-1950)

Range in mm	Lowest Minimum ever recorded	No. of years	Range in mm	Lowest Minimum ever recorded	No. of years
501—600	.	1	1001—1100	.	8
601—700	.	4	1101—1200	.	8
701—800	.	9	1201—1300	.	1
801—900	.	10	1301—1400	.	1
901—1000	.	5	1401—1500	.	3

TABLE 3

Normal Temperature and Relative Humidity
 (MASULIPATAM)

Month	Mean Maximum Temperature	Mean Minimum Temperature	Highest Maximum ever recorded	Lowest Minimum ever recorded	Relative Humidity
	°C	°C	°C	°C	%
January	27.8	19.4	33.3 1946	13.9 1945	81 69
February	29.6	20.8	37.2 1927	14.4 1889	81 67
March	31.9	22.9	42.2 1892	16.7 1906	78 67
April	34.0	25.9	44.4 1892	18.3 1926	75 71
May	36.5	28.0	47.8 1906	19.4 1893	71 65
June	36.4	27.4	46.1 1924	20.0 1961	69 59
July	32.6	25.7	41.7 1897	19.4 1893	80 70
August	32.2	25.8	38.3 1920	21.7 1952	80 69
September	31.8	25.7	37.8 1888	20.6 1895	82 73
October	30.8	24.9	37.2 1888	18.9 1895	83 76
November	29.0	22.1	34.4 1891	13.9 1934	79 72
December	27.8	19.8	33.0 1965	14.4 1937	78 69
Annual	31.7	24.0			78 69

*Hours I.S.T.

TABLE 3—contd.
Normal Temperature and Relative Humidity
(GANNAVARAM)

Month	Mean Maximum Temperature	Mean Minimum Temperature	Highest Maximum ever recorded		Lowest Minimum ever recorded		Relative Humidity	
			°C	Date	°C	Date	0830	1730*
							%	%
January	30.1	19.1	34.4	1952 Jan. 15	14.2	1962 Jan. 8	74	54
February	32.9	20.0	37.8	1954 Feb. 14	15.4	1963 Feb. 13	77	44
March	35.6	22.3	43.3	1953 Mar. 29	17.2	1952 Mar. 1	76	44
April	37.8	25.6	44.4	1956 Apr. 26	20.6	1963 Apr. 12	72	45
May	39.7	27.7	46.7	1956 May 10	20.3	1964 May 31	65	43
June	37.5	27.3	46.7	1953 Jun. 11	20.6	1951 Jun. 7	64	48
July	32.6	25.3	39.4	1952 Jul. 9	21.5	1957 Jul. 25	79	65
August	32.1	25.1	36.7	1952 Aug. 2	22.0	1959 Aug. 21	79	69
September	32.4	25.2	36.7	1957 Sep. 26	18.2	1957 Sep. 6	81	71
October	31.5	24.2	36.1	1951 Oct. 18	18.3	1952 Oct. 29	81	76
November	30.7	21.1	35.0	1951 Nov. 26	16.2	1960 Nov. 28	70	62
December	29.7	19.1	34.2	1965 Dec. 14	15.0	1961 Dec. 29	71	56
Annual	33.5	23.5					74	56

*Hours L.S.T.

TABLE 4

Mean Wind Speed in Km/hr.

Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
MASULIPATAM												
8.7	8.2	9.1	11.4	13.8	14.5	12.8	11.0	8.8	7.7	8.8	9.1	10.3
GANNAVARAM												
9.8	9.3	10.7	12.5	15.5	17.6	16.2	15.3	11.1	9.0	10.2	9.4	12.2

TABLE 5

Special Weather phenomena

*Mean No. of days with	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
MASULIPATAM													
Thunder . . .	0	0.1	0.4	1.3	2	4	3	4	5	7	1.4	0	28
Hail . . .	0	0	0	0	0	0	0	0	0	0	0	0	0
Dust-Storm . . .	0	0	0	0.1	0.1	0.1	0	0	0	0	0	0	0.3
Squall . . .	0	0	0	0	0.2	0	0	0	0	0	0	0	0.2
Fog . . .	0.3	0.2	0.5	0	0	0	0	0	0	0	0	0	1.0
GANNAVARAM													
Thunder . . .	0	0.2	1.2	3	8	6	5	5	10	8	2	0.1	49
Hail . . .	0	0	0.1	0	0	0	0	0	0	0	0	0	0.1
Dust-Storm . . .	0	0	0	0.1	0.4	0	0	0	0	0	0	0	0.5
Squall . . .	0	0	0.1	0.2	0.4	0.1	0.5	0.3	0.1	0.1	0	0	1.8
Fog . . .	0.4	3	0.9	0.2	0	0	0	0.1	0.1	0.1	0.1	0.4	5

*No. of days 2 and above are given in whole numbers.

On an average there are 10 rainy days (10 days with rainfall of 0.5 mm or more) in a year in the district. Of these 45 per cent is accounted for by each of the seasons June to September and October to December. In the case of rainfall the number of rainy days decreases generally from the southeast towards the northwest in the district. It varies from about 40 to 80 per cent of the average for Andhra to 50 (or 45 per cent of the average) for Tada.

The highest rainfall in 24 hours recorded at any station in the district was 119.0 mm at Tada on 8th October 1913.

Temperature

The only meteorological observatory in the district is at Nellore and the record of this observatory may be taken as fairly representative of the meteorological conditions prevailing in the district. In the interior parts of the district the day temperatures may be higher and the night temperatures lower by one or two degrees in the coastal parts. From February the day temperatures progressively increase and by May which is the hottest month the mean maximum temperature is about 40°C and the mean minimum 28°C. The heat during the summer months is trying. In the coastal region sea breezes in the afternoon bring some relief from the heat. After June there is some decrease in temperature. After September temperatures decrease further and by December which is the coolest month the mean daily maximum temperature is of the order of 29°C and the mean daily minimum about 20°C.

The highest maximum temperature recorded at Nellore was 46.7°C on 15th May 1892 and the lowest minimum was 11.1°C on 10th December 1892.

NELLORE DISTRICT

The district has a hot climate, the summer specially being very trying. The year may conveniently be divided into four seasons. The summer season from March to May is followed by the southwest monsoon season till September. October to December constitute the northeast monsoon season, which sets in by mid-October. During this period the coastal belt is particularly liable to damage due to cyclonic storms. January to February is the cold weather period of generally fine weather.

Rainfall

Records of rainfall in the district are available for 11 stations for long periods. The details of the rainfall at these stations and for the district as a whole are given in tables 1 and 2. The average annual rainfall in the district is about 104 cms. The rainfall in the district, in general decreases from the southeast towards the northwest and varies from 81 cms at Atmakur to 126 cms at Tada near the southeastern corner of the district. The rainfall is even less than 75 cms in the extreme west and northwest of the district. The district gets the benefit of rainfall both in the southwest and the northeast monsoon seasons. The rainfall during the southwest monsoon season amounts to about 30 per cent of the annual normal rainfall while about 60 per cent of the annual rainfall is received during the northeast monsoon season. The period January to April is dry. October and November are the rainiest months each month receiving more than 25 per cent of the annual total. The onset of the northeast monsoon in October is noticeable in this district when the rainfall increases from 10 cms in September to 25 cm in October. February and March are the driest months, while January and May each get small but significant amount of rainfall. The variation in the rainfall in the district from year to year is appreciable. In the fifty year period 1901 to 1950 the highest annual rainfall amounting to 156 per cent of the normal occurred in 1946. The lowest annual rainfall which was 51 per cent of the normal occurred in 1904. The annual rainfall in the district was less than 80 per cent of the normal in 12 years. Two consecutive years of low rainfall in the district as a whole occurred thrice in the district; considering the rainfall at the individual stations also, two consecutive years of such low rainfall occurred 2 to 5 times at 13 out of 16 stations and three consecutive years occurred once each at Sulpurpet and Venkatagiri. It will be seen from table 2 that the annual rainfall in the district was between 800 and 1200 mm *i.e.* within about 20 per cent of the normal in only 28 years out of fifty.

On an average there are 46 rainy days (*i.e.* days with rainfall of 2.5 mm or more) in a year in the district, of these 45 per cent is accounted for by each of the seasons June to September and October to December. As in the case of rainfall, the number of rainy days decreases generally from the southeast towards the northwest in the district. It varies from about 41 to 81 per cent of the average for Atmakur to 54 (or 117 per cent of the average) for Tada.

The highest rainfall in 24 hours recorded at any station in the district was 419.9 mm at Tada on 8th October 1943.

Temperature

The only meteorological observatory in the district is at Nellore and the records of this observatory may be taken as fairly representative of the meteorological conditions prevailing in the district. In the interior parts of the district the day temperatures may be higher and the night temperatures lower by a degree or two, than in the coastal parts. From February the day temperatures progressively increase and by May which is the hottest month, the mean maximum temperature is about 40° C and the mean minimum 28° C. The heat during the summer months is trying. In the coastal region sea breeze in the afternoons bring some relief from the heat. After June there is some decrease in temperatures. After September temperatures decrease further and by December, which is the coolest month, the mean daily maximum temperature is of the order of 29° C and the mean daily minimum about 20° C.

The highest maximum temperature recorded at Nellore was 46.7° C on 15th May 1892 and 1st June 1894. The lowest minimum was 14.4° C on 10th December 1895.

Humidity

The air is generally humid throughout the year. The driest part of the year is from May to August when the humidity is on the average between 45 and 55 per cent in the afternoons.

Cloudiness

During the southwest and northeast monsoon seasons skies are generally heavily clouded to overcast. In the rest of the year skies are lightly or moderately clouded.

Winds

Winds are generally light with some strengthening in force during the summer and monsoon seasons. In the southwest monsoon season winds are mostly from directions between southwest and northwest. In the period October to January winds are northwesterly to northeily in the mornings and northeasterly to easterly in the afternoons. In the period February to May winds are mainly from directions between east and south.

Special Weather Phenomena

In the post monsoon season storms and depressions originating in the Bay of Bengal pass through the district or its neighbourhood causing wide spread heavy rain and gusty winds. Thunderstorms occur during the period April to November, being more frequent during the latter half of the southwest monsoon season and in the early part of the northeast monsoon season.

Tables 3, 4 and 5 give the temperature and humidity, mean wind speed and special weather phenomena respectively for Nellore.

TABLE I
Normal and extreme Rainfall

Station			No. of years of data	Jan.	Feb.	Mar.	Apr.	May	June	July	August	Sep.	Oct.	Nov.	Dec.	Annual	Highest annual rain- fall as % of normal & year**	Lowest annual rain- fall as % of normal & year**	Heaviest rainfall in 24 hours*	
																	Amount (mm)	Date		
Nellore	.	.	50 a	32.0	6.9	6.9	9.7	36.6	36.6	70.6	75.9	110.2	266.2	317.5	88.1	1057.2	171 (1946)	49 (1947)	356.9	1936 Nov. 7
			b	1.4	0.4	0.4	0.6	1.6	3.0	5.5	5.2	5.6	8.7	9.0	3.2	44.6				
Iskapalle	.	.	50 a	23.9	10.7	5.3	10.7	36.6	37.6	57.9	75.7	107.4	283.7	299.0	74.7	1023.2	158 [(1925)]	52 [(1947)]	302.8	1912 Oct.
			b	1.2	0.5	0.3	0.6	1.7	3.0	5.3	5.9	5.8	9.2	8.5	3.1	45.1				
Atmakur	.	.	50 a	27.7	7.9	7.6	15.0	41.1	37.3	56.6	54.1	93.2	198.6	213.4	52.6	805.1	160 [(1944)]	49 [(1945)]	238.8	1907 Nov. 27
			b	1.2	0.5	0.4	0.8	1.9	2.9	5.0	4.3	5.4	8.4	7.1	2.6	40.5				
Tada	.	.	50 a	45.2	13.7	10.7	15.0	35.6	52.8	94.5	95.8	116.3	292.6	357.4	127.8	1257.4	193 [(1930)]	46 [(1904)]	419.9	1943 Oct. 8
			b	1.8	0.8	0.5	0.8	1.2	4.5	7.4	6.8	6.4	9.3	10.2	4.3	54.0				
Gudur	.	.	50 a	41.7	9.9	5.1	12.9	42.9	44.2	74.9	78.2	89.4	234.7	298.5	106.4	1038.8	180 [(1946)]	47 [(1904)]	304.8	1893 Nov. 7
			b	1.4	0.6	0.4	0.6	1.5	3.4	6.6	6.0	6.3	9.1	8.9	3.8	48.6				
Rapur	.	.	50 a	46.7	10.7	12.2	17.5	40.9	43.7	71.6	69.6	91.7	214.9	275.3	109.5	1004.3	205 [(1946)]	36 [(1904)]	343.7	1882 Nov. 30
			b	1.6	0.5	0.5	0.9	1.9	3.6	6.0	4.9	5.8	9.2	9.0	3.6	47.5				
Udayagiri	.	.	50 a	38.1	12.7	20.1	29.2	57.9	37.3	69.1	61.5	101.9	198.9	229.9	60.7	917.3	198 (1925)	40 (1904)	262.9	1944 Mar. 6
			b	1.5	0.7	0.6	1.4	2.4	2.9	5.9	5.0	5.8	8.2	7.5	2.7	44.6				

Vrishnapatnam	50	a	36.6	7.9	6.1	12.5	37.1	40.4	85.1	85.1	106.9	293.4	348.0	94.2	1153.3	177	49	398.3	1950	Oct. 18
		b	1.3	0.4	0.3	0.5	1.3	3.3	6.2	5.8	5.8	9.1	9.5	3.6	47.1	(1925)	(1904)			
Sulurpet	50	a	40.6	9.9	10.9	14.0	31.5	49.5	83.3	84.1	113.3	269.2	338.1	119.6	1164.0	189	51	378.7	1957	Nov. 5
		b	1.5	0.5	0.5	0.7	1.2	3.2	6.0	5.8	5.9	9.2	9.4	3.9	47.8	(1946)	(1904)			
Kenkatagiri	50	a	47.5	10.4	9.9	17.0	44.7	41.7	80.8	85.1	91.4	234.7	287.0	113.3	1063.5	197	29	273.1	1882	Nov. 30
		b	1.7	0.6	0.4	0.9	1.6	3.3	6.0	5.7	5.4	8.8	9.2	4.0	47.6	(1930)	(1904)			
Kavali	50	a	25.9	7.1	11.7	11.9	31.2	38.3	65.5	65.5	110.7	283.7	264.9	69.3	985.7	173	50	340.4	1873	Oct. 20
		b	1.1	0.4	0.3	0.5	1.4	2.9	5.4	5.1	5.9	8.8	8.0	2.6	42.4	(1902)	(1947)			
Nellore (District)		a	36.9	9.8	9.7	15.0	39.6	41.8	73.6	75.5	102.9	251.9	293.5	92.4	1042.6	166	51			
		b	1.4	0.6	0.4	0.8	1.6	3.3	5.9	5.5	5.8	8.9	8.8	3.4	46.3	(1946)	(1904)			

(a) Normal rainfall in mm. given in brackets. (b) Average number of rainy days (days with rain of 2.5 mm or more).

*Based on all available data upto 1965. **Years of occurrence

TABLE 2
Frequency of Annual Rainfall in the District
 (DATA 1901-1950)

Range in mm	No. of years	Range in mm	No. of years
501—600	1	1001—1100	5
601—700	3	1101—1200	3
701—800	5	1201—1300	2
801—900	8	1301—1400	4
901—1000	12	1401—1500	3
		1501—1600	2
		1601—1700	1
		1701—1800	1

TABLE 3
Normal Temperature and Relative Humidity
 (NELLORE)

Month	Mean Maxi- mum Tempe- rature °C	Mean Mini- mum Tempe- rature °C	Highest Maximum ever recorded		Lowest Minimum ever recorded		Relative Humi- dity	
			°C	Date	°C	Date	0830	1730*
							%	%
January	29.8	20.0	35.6	1936 Jan. 27	15.0	1946 Jan. 9	84	64
February	32.0	21.1	39.4	1927 Feb. 16	16.1	1891 Feb. 5	79	59
March	34.5	23.1	43.9	1892 Mar. 26	17.2	1910 Mar. 1	74	59
April	37.1	25.7	45.6	1895 Apr. 30	20.6	1934 Apr. 21	69	62
May	39.6	27.8	46.7	1892 May 15	20.2	1965 May 23	60	54
June	38.2	28.2	46.7	1894 Jun. 1	21.1	1912 Jun. 4	57	46
July	35.6	26.7	42.2	1899 Jul. 30	22.2	1943 Jul. 5	65	51
August	35.2	26.5	40.6	1899 Aug. 6	21.7	1912 Aug. 21	66	5
September	34.7	26.0	41.7	1899 Sep. 3	21.7	1945 Sep. 28	69	60
October	32.5	24.7	39.4	1900 Oct. 10	18.9	1895 Oct. 25	79	72
November	29.6	22.3	36.7	1915 Nov. 2	16.7	1939 Nov. 25	84	75
December	28.7	20.4	35.0	1909 Dec. 5	14.4	1895 Dec. 10	84	70
Annual	34.0	24.4					73	61

*Hours I.S.T.

TABLE 4
Mean Wind Speed in Km/hr
 (NELLORE)

Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
5.4	6.4	8.6	10.0	10.3	9.8	9.6	9.2	7.7	5.6	6.0	6.1	7.9

TABLE 5
Special Weather phenomena
 (NELLORE)

*Mean No. of days with	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Thunder . . .	0	0.1	0.5	1.2	2	1.7	1.3	3	3	4	1.4	0.1	18
Hail . . .	0	0	0	0	0	0	0	0	0	0	0	0	0
Dust-Storm . .	0	0	0	0	0.1	0	0	0	0	0	0	0	0.1
Squall . . .	0	0	0	0	0	0	0.2	0.2	0	0	0	0	0.4
Fog . . .	0.1	0	0	0	0	0	0	0	0	0	0.2	0	0.3

*No. of days 2 and above are given in whole numbers.

CLIMATE OF PRAKASAM DISTRICT

The district has a hot climate, the summer specially being trying. The year may be divided into four seasons. The summer season starts by about March and continues till May. This is followed by the southwest monsoon season which extends upto September. October and November form the northeast monsoon season. Northeast monsoon rains set in by mid-October. During this season, coastal belt is liable to damages due to cyclonic storms. The cold weather period from December to February is a season of generally fine weather.

Rainfall

Records of rainfall for fairly long periods are available in respect of 14 stations. Details of rainfall at these stations are given in tables 1 and 2. The average annual rainfall in the district is about 76 cms. The rainfall in general increases from west to east varying from about 60 cm in the west to slightly over 90 cm in the east. Both the southwest and the northeast monsoons bring rains to this district. For the district as a whole, the rainfall during June to September is about 45 per cent of the annual and 40 per cent during October and November. October is generally the rainiest month and about 22 per cent of the average annual rainfall occurs during the month. Rainfall rapidly decreases in December. January is generally the driest month. In the rest of the months, May receives significant rainfall. During the 50 year period 1901—50 the highest annual rainfall amounting to 146 per cent of the annual total occurred in 1917 and the lowest one of 61 per cent occurred in 1925. In 12 years out of 50 the district received less than 80 per cent of the normal rainfall. Of these 12 years, there were 3 spells of 2 consecutive years. Two consecutive years of such low rainfall have occurred twice or thrice at most of the stations, the three consecutive years of less than 80 per cent of normal occurred once each at Chinaganjam and Kanuparthi. Such low rainfall for four consecutive years occurred at Kumbum. It would be seen from table 2 that the rainfall was within 25 per cent of the normal (i.e. between 600 and 900mm) during 23 years out of 50.

Heaviest rainfall in 24 hours recorded at any station in the district was 304.8-mm at Pakala on 29th October, 1939.

On an average there are 43 rainy days (i.e. days with rainfall of 2.5 mm or more); of these 56 per cent occurs during the period June to September and 29 per cent during October-November. The number varies from 37 at Podilli and Darsi to 47 at Santaravur i.e. from 86 per cent to 109 per cent of the average.

Temperature

The district has one meteorological observatory at Ongole. This may be taken as representative of the conditions in coastal regions of the district. The temperatures begin to rise from February to May. May is the hottest month, when the mean maximum temperature is about 38° C over the coastal region and 42° C in the interior, the mean minimum being at 28° C or 29° C everywhere. The heat during the summer is very trying particularly in the interior of the district. The coastal regions get some relief due to the effect of the sea breeze in the late afternoons. Temperatures decrease with the onset of the southwest monsoon more rapidly over the interior than over the coast. They continue to decrease till December or January which are the coolest months of the year with the mean maximum temperature at about 29-30° C over the district and the mean minimum at about 20° C over the coastal belt and 17° C in the interior. Generally speaking, in the interior day temperatures are higher by 3-5° C in summer and night temperatures lower by 2 or 3° C in winter than in the coastal parts.

The highest maximum temperature recorded at Ongole was 46.6° C on 30 May 1964 and the lowest minimum temperature recorded was 14.0° C on 6th January 1962. In the interior, maximum temperature may occasionally reach 48° C in summer, while the minimum may touch 10° C in winter.

Humidity

The coastal region is humid throughout the year while the interior is humid during July to November. In the interior of the district humidity in the afternoon becomes as low as 30-40 per cent during December to May.

Cloudiness

The skies are generally heavily clouded to overcast during the southwest monsoon season. There is moderate cloudiness in the northeast monsoon season. In the rest of the year skies are mostly clear or lightly clouded.

Winds

Winds are generally light to moderate except during late summer and early southwest monsoon season, when they strengthen. In the period October to February winds are variable in direction in the mornings and blow between north and southeast in the afternoons in the interior, while over the coastal belt winds in the mornings are variable in October and February and north or northeasterly during November to January. They are mostly northeasterly to southeasterly in the afternoons during October to February. In March and April the direction are between east and south. Southwesterly to westerly winds appear over the interior in May and over the coastal belt in June and these continue throughout the southwest monsoon season.

Special Weather Phenomena

During October—November storms and depressions originating in the Bay of Bengal and moving westwards cross into the district or the neighbourhood, causing widespread heavy rain, gusty winds and associated tidal waves along the coast. Thunderstorms occur mostly in April to October being most frequent during May, September and October. Thunderstorms are more frequent over the interior than over the coast.

Tables 3, 4 and 5 give the temperature and humidity, mean wind speed and frequency of special weather phenomena for Ongole.

TABLE I
Normal and Extreme Rainfall

Station			No. of years of data		Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual	Highest annual rain fall as % of normal & year**	Lowest annual rain- fall as % of normal & year**	Haviest rainfall in 24 hours*	
					Amount (mm)	Date															
Ongole	.	.	50	a	9.9	8.1	12.5	12.9	35.1	49.0	81.8	86.9	134.9	212.1	173.5	26.2	842.9	198 (1903)	48 (1909)	265.4	1895 Oct. 28
				b	0.6	0.6	0.4	0.6	1.9	4.2	6.9	6.6	7.9	8.2	6.0	1.3	45.2				
Santaravur	.	.	46	a	6.6	9.9	7.4	18.5	32.3	63.5	110.2	123.2	163.1	189.2	119.1	14.0	857.0	192 (1916)	44 (1942)	221.0	1949 Sep. 22
				b	0.4	0.6	0.3	0.9	2.2	4.5	7.6	7.6	8.7	8.1	5.0	1.0	46.9				
Chinaganjam	.	.	50	a	5.8	12.9	9.7	11.4	40.9	61.0	100.3	116.3	141.7	197.4	142.7	20.1	860.2	184 (1917)	49 (1914)	257.8	1917 Oct. 20
				b	0.5	0.6	0.5	0.9	2.1	4.5	7.8	6.9	7.9	7.3	5.4	1.1	45.5				
Addanki	.	.	50	a	7.6	7.9	8.1	10.7	39.9	59.4	94.0	104.9	150.1	151.6	112.0	19.6	765.8	151 (1914)	54 (1926)	235.5	1927 Nov. 2
				b	0.4	0.5	0.5	0.8	2.2	4.0	6.7	6.3	7.3	6.7	4.3	0.9	41.1				
Kanuparthi	.	.	50	a	9.9	15.2	10.2	13.2	40.9	51.3	99.6	105.2	131.8	234.9	180.9	24.9	918.0	193 (1903)	49 (1926)	287.0	1939 Oct. 2
				b	0.7	0.6	0.5	0.8	2.1	4.3	7.7	6.4	7.3	8.0	6.0	1.5	45.9				
Pakala	.	.	50	a	15.5	9.4	14.2	12.5	38.1	39.1	65.8	79.5	120.9	242.3	220.3	34.8	892.1	202 (1903)	48 (1907)	304.8	1939 Oct. 2
				b	0.9	0.6	0.4	0.6	2.0	3.5	6.4	5.7	6.8	8.8	7.2	1.9	44.8				
Kandukur	.	.	50	a	17.5	8.1	12.9	11.4	39.9	43.2	66.3	70.6	116.3	226.8	202.4	35.3	850.7	213 (1903)	42 (1948)	280.7	1915 Jan. 17
				b	0.9	0.6	0.4	0.6	1.9	3.3	5.7	5.4	6.4	8.0	6.6	1.7	41.5				
Darsi	.	.	50	a	6.1	9.1	10.7	15.2	37.6	50.8	73.7	74.2	109.0	126.2	93.5	23.6	629.7	155 (1902)	39 (1904)	287.0	1882 Dec.
				b	0.5	0.6	0.5	0.9	2.5	3.6	5.7	4.9	6.2	6.3	4.3	1.0	37.0				

Kanigiri	.	.	.	50	a	12.9	8.1	8.4	20.3	44.5	45.0	80.0	66.3	115.1	160.3	142.0	27.9	730.8	170 (1946)	51 (1904)	248.9	1906	Dec. 19
					b	0.8	0.4	0.3	1.3	2.4	3.5	7.0	5.3	6.5	7.5	5.6	1.3	41.9					
Podilli	.	.	.	50	a	10.7	12.2	12.5	14.7	38.3	39.1	65.3	63.3	105.2	143.8	126.7	27.4	659.2	173 (1915)	53 (1904)	228.3	1906	Dec. 20
					b	0.6	0.6	0.5	0.9	2.4	3.0	5.2	4.6	6.0	6.9	4.9	1.2	36.8					
Markapur	.	.	.	50	a	5.8	12.2	8.4	20.1	40.9	41.9	83.8	68.8	110.5	133.9	101.9	23.9	652.1	160 (1940)	53 (1926)	228.1	1949	Sep. 22
					b	0.6	0.7	0.5	1.3	2.7	3.9	7.9	5.9	7.0	6.5	5.0	1.3	43.3					
Cumbum	.	.	.	46	a	6.6	4.8	8.1	16.3	34.5	48.8	99.3	68.8	104.1	125.0	98.3	14.0	628.6	202 (1947)	39 (1928)	203.2	1949	Sep. 23
					b	0.5	0.4	0.4	1.1	2.2	3.7	8.4	6.0	5.9	6.0	4.4	0.8	39.8					
Giddalore	.	.	.	50	a	5.3	5.3	7.9	22.3	36.6	59.2	137.7	110.5	112.8	99.1	80.3	14.5	691.5	170 (1916)	56 (1945)	232.7	1895	Oct. 2
					b	0.5	0.4	0.5	1.4	2.8	5.1	10.7	8.4	7.1	5.9	4.8	1.0	48.6					
Yerragondapalem	.	.	.	22	a	2.0	9.7	7.6	21.3	42.9	49.0	67.8	82.8	119.9	147.1	93.2	16.3	659.6	149 (1947)	45 (1932)	173.5	1949	Sep. 22
					b	0.3	0.8	0.6	1.4	3.0	4.0	6.9	5.6	6.8	7.1	4.5	0.8	41.8					
prakasam (District)	.	.	.		a	8.7	9.5	9.9	15.8	38.7	50.0	87.5	87.2	124.0	170.7	134.8	23.0	759.8	146 (1917)	61 (1925)			
					b	0.6	0.6	0.5	1.0	2.3	3.9	7.2	6.1	7.0	7.2	5.3	1.2	42.9					

(a) Normal rainfall in mm (b) Average number of rainy days (days with rain of 2.5 mm or more), *Based on all available data up to 1965

**Years of occurrence given in brackets.

TABLE 2
Frequency of Annual Rainfall in the District
 (DATA 1901-1950)

Range in mm	No. of years	Range in mm	No. of years
401—500	2	901—1000	6
501—600	12	1001—1100	5
601—700	6	1101—1200	1
701—800	13	1201—1300	1
801—900	4		

TABLE 3
Normal Temperature and Relative Humidity
 (ONGOLE)

Month	Mean Maximum Temperature			Mean Minimum Temperature		Highest Maximum ever recorded		Lowest Minimum ever recorded		Relative Humidity	
	°C			°C		°C	Date	°C	Date	0830 %	1730* %
January	.	.	.	28.7	19.7	33.9	1946 Jan 29	14.0	1962 Jan 6	81	70
February	.	.	.	30.6	20.9	38.3	1954 Feb 14	14.4	1945 Feb 22	78	67
March	.	.	.	32.3	23.3	43.3	1953 Mar 29	18.3	1945 Mar 11	79	72
April	.	.	.	34.4	26.0	44.4	1956 Apr 26	19.4	1945 Apr 14	78	77
May	.	.	.	38.2	28.0	46.6	1964 May 30	16.1	1949 May 22	74	74
June	.	.	.	37.4	28.4	46.1	1953 Jun 4	22.4	1961 Jun 19	71	62
July	.	.	.	34.1	26.5	40.0	1952 Jul 9	21.2	1957 Jul 25	78	70
August	.	.	.	34.1	26.3	39.6	1965 Aug 9	21.7	1956 Aug 27	73	65
September	.	.	.	33.7	25.8	38.9	1952 Sep 4	21.6	1964 Sep 29	75	68
October	.	.	.	31.7	24.7	39.5	1965 Oct 7	18.3	1947 Oct 24	74	69
November	.	.	.	29.8	21.8	35.3	1965 Nov. 3	16.7	1955 Nov 17	75	67
December	.	.	.	28.6	19.9	33.9	1951 Dec 13	15.1	1959 Dec 27	78	66
Annual	.	.	.	32.8	24.3					76	69

* Hours I.S.T.

TABLE 4
Mean Wind Speed in Km/hr.
(ONGOLE)

Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
5.0	6.5	8.4	9.8	10.3	11.6	10.7	10.3	6.8	4.4	4.9	4.7	7.8

TABLE 5
Special Weather phenomena
(ONGOLE)

*Mean No. of days with	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Thunder . . .	0	0.1	0.3	1.3	4	3	1.7	1.9	3	4	1.1	0.1	21
Hail . . .	0	0	0	0	0	0	0	0	0	0	0	0	0
Dust-Storm . . .	0	0	0	0	0.1	0.3	0	0	0.1	0	0	0	0.5
Squall . . .	0	0	0	0	0.1	0.1	0.3	0	0.1	0.1	0	0.1	0.8
Fog . . .	0	0.1	0.4	0	0	0	0	0	0	0.1	0.3	0.2	1.1

*No. of days 2 and above are given in whole numbers.

SRIKAKULAM DISTRICT

The climate of this district is characterised by high humidities nearly all the year rounds oppressive summer and good seasonal rainfall. The summer season is from March to May. This is followed by the southwest monsoon season which lasts till September. The period from October to November constitutes the post-monsoon or retreating monsoon season. December to mid February is the season of generally fine weather.

Rainfall

Records of rainfall in the district are available for 13 raingauge stations for long periods. The details of the rainfall at these stations and for the district as a whole are given in tables 1 and 2. The average annual rainfall in the district is 1074.8 mm. The rainfall in the district increases in general from the southeast towards the northwest and varies from 854.4 mm at Kuppili near the coast in the southeastern corner of the district to 1286.2 mm at Parvatipur near the north-western border of the district. The rainfall during the period June to October, amounts to about 79 per cent of the annual normal rainfall. September is the rainiest month. The variation in the annual rainfall from year to year is not large. In the fifty year period, 1901-1950, the highest annual rainfall amounting to 136 per cent of the normal occurred in 1914, while the lowest annual rainfall which was 70 per cent of the normal occurred in 1920. In the same fifty year period the rainfall in the district was less than 80 per cent of the normal in six years, two of them being consecutive. Considering the rainfall at individual stations, two or three consecutive years of such low rainfall occurred more than once at seven out of the thirteen stations. It will be seen from table 2 that the annual rainfall in the district was between 900 and 1300 mm i.e. within 20 per cent of the normal in as many as 31 years out of fifty.

On an average there are 56 rainy days (i.e. days with rainfall of 2.5 mm or more) in a year in the district. This number varies from 47 at Kuppili to 71 at Parvatipur.

The heaviest rainfall in 24 hours recorded at any station in the district was 464.8 mm at Chepurupalli on 22nd October 1870

Temperature

There is a meteorological observatory at Kalingapatam and the records of this observatory may be taken as fairly representative of the meteorological conditions prevailing in the district in general. But in the interior of the district particularly the northwestern portions, temperature in the summer season may be higher by a degree or two than in the coastal regions. In the coolest part of the year, December to January, temperatures may be a little lower in the interior. Temperatures begin to increase after February. May is the hottest month with the mean daily maximum temperature at about 34° C and the mean daily minimum at about 27° C at Kalingapatam. During the summer season till the onset of the southwest monsoon the heat is oppressive and the day temperatures in May and June sometimes reach 43° C even in the coastal regions. It is likely to be hotter in the interior parts of the district. Thundershowers and sea breezes in the afternoons in the coastal tracts bring some relief from the heat. With the onset of the southwest monsoon by about the middle of June day temperatures decrease initially and remain more or less steady during July to September. The decrease in the night temperatures is only slight. After the withdrawal of the southwest monsoon by about the middle of October both day and night temperature decrease progressively. December is the coldest month with the mean daily maximum temperature at about 27° C and the mean daily minimum at about 18° C.

The highest maximum temperature recorded at Kalingapatam was 45.0° C on 7th May 1923. The lowest minimum was 12.1° C on 6th January 1962.

Humidity

The air is generally humid throughout the year. In the interior parts of the district the air is slightly less humid than in the coastal parts, especially in the summer season.

Cloudiness

The skies are generally heavily clouded to overcast during the southwest monsoon season. Moderate clouding prevails in the post monsoon season. In the rest of the year the skies are mostly clear or lightly clouded.

Winds

Winds are generally light to moderate in speed with some strengthening during the summer and early part of the southwest monsoon seasons. In the summer and the southwest monsoon seasons winds are mostly from directions between south and west. In the period from October to December winds are northerly or northwesterly in the mornings and from directions between north-east and southeast in the afternoons. In January and February the morning winds are from directions between west and north. The afternoon winds are from directions between east and south in January and between southeast and southwest in February.

Special Weather Phenomena

During the latter part of the southwest monsoon and the retreating monsoon seasons storms and depressions originating in the Bay of Bengal affect the district and its neighbourhood causing widespread rains and high winds. Thunderstorms occur mostly during April to September. Fogs or mists occur in the coastal areas occasionally in the period December to February.

Tables 3, 4 and 5 give the temperature and humidity, mean wind speed and frequency of special weather phenomena for Kalingapatam.

TABLE I
Normal and extreme Rainfall

Station			No. of years of data	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual	Highest Annual rain- fall as % of normal & year**	Lowest annual rain- fall as % of normal & year**	Heaviest rainfall in hours*					
																	Amount (mm)		Date					
Parvatipur	.	.	50	a	11.4	26.4	21.8	54.6	93.2	181.6	212.6	252.2	220.0	154.7	48.8	8.9	1286.2	155 (1910)	65 (1907)	273.8	1914	Jun.	25	
				b	0.8	1.7	1.4	3.8	5.4	9.8	12.9	13.9	11.6	7.1	2.4	0.5	71.3							
Palakonda.	.	.	50	a	6.9	20.3	20.3	51.1	77.0	163.3	206.3	246.1	233.4	151.4	51.6	7.1	1234.8	152 (1914)	60 (1911)	278.9	1923	Nov.	18	
				b	0.5	1.4	1.1	3.1	4.4	8.8	11.6	11.9	12.1	7.2	2.2	0.3	64.6							
Bobbili	.	.	50	a	6.9	23.1	16.5	46.2	83.6	140.2	170.4	192.0	197.1	163.6	55.1	11.4	1106.1	134 (1903)	65 (1907)	282.5	1931	Oct.	14	
				b	0.6	1.6	1.2	3.1	4.7	8.6	11.0	11.8	10.8	7.4	2.7	0.4	63.9							
Salur	.	.	50	a	9.7	14.7	15.5	45.0	84.3	144.3	166.4	182.1	192.3	180.9	73.7	11.4	1120.3	134 (1938)	60 (1920)	416.6	1870	Oct.	22	
				b	0.7	1.2	1.0	2.9	5.3	8.7	11.3	11.3	10.5	7.0	3.1	0.6	63.6							
Chepurupalli	.	.	50	a	6.6	17.0	11.9	29.2	71.6	132.3	147.6	190.5	205.0	178.3	64.5	8.9	1063.4	149 (1938)	56 (1907)	464.8	1870	Oct.	22	
				b	0.5	1.2	0.7	1.8	3.8	7.7	9.6	10.9	10.5	7.2	2.6	0.4	56.9							
Ichchapuram	.	.	50	a	7.9	21.1	12.9	36.6	53.9	119.6	171.5	194.1	209.5	206.0	106.7	15.7	1155.5	165 (1923)	64 (1935)	351.0	1923	Nov.	19	
				b	0.6	1.2	1.0	2.1	3.2	7.7	9.3	10.2	9.6	6.8	2.7	0.6	55.0							
Srikakulam	.	.	50	a	4.3	16.0	8.9	21.6	54.1	104.9	123.7	162.8	187.5	173.7	69.3	11.2	938.0	138 (1928)	60 (1950)	340.4	1878	Dec.	7	
				b	0.4	1.2	0.6	1.6	2.8	6.2	8.4	9.2	8.9	6.4	72.6	0.4	48.7							
Narasannapeta	.	.	50	a	4.8	14.2	9.7	23.4	55.6	121.2	146.6	177.5	206.8	194.3	72.6	8.4	1035.1	160 (1943)	60 (1907)	317.0	1923	Nov.	18	
				b	0.4	0.9	0.6	1.5	2.7	6.3	8.4	9.3	9.3	6.8	2.4	0.4	49.0							

Tekkali	50	a	7.9	17.8	15.7	25.4	53.3	119.4	162.1	188.7	229.1	191.5	83.3	10.2	1104.4	152 (1915)	52 (1935)	239.7	1875	Sep. 17
		b	0.6	1.1	0.9	1.9	3.0	6.4	9.5	10.7	10.8	6.9	2.7	0.5	55.0					
Kalingapatam	45	a	5.3	14.7	11.2	20.6	54.6	112.5	137.7	172.2	175.8	201.2	84.1	14.5	1004.4	171 (1912)	61 (1922)	327.7	1878	Dec. 7
		b	0.6	1.1	0.6	1.5	2.9	6.1	8.7	9.1	9.1	7.4	2.8	0.5	50.4					
Pundi	50	a	8.1	20.6	13.5	22.6	39.9	110.5	140.7	158.7	171.2	175.0	72.1	12.7	945.6	152 (1930)	50 (1911)	254.0	1943	Nov. 1
		b	0.4	1.1	0.7	1.4	2.5	5.8	9.0	8.7	8.6	6.1	2.5	0.4	47.2					
Sompeta	50	a	9.7	23.4	18.0	39.6	60.2	127.8	166.4	173.5	204.2	195.6	93.0	12.7	1124.1	160 (1919)	53 (1935)	285.0	1955	Oct. 22
		b	0.5	1.4	1.1	2.3	3.2	7.0	9.8	9.9	9.2	7.0	2.7	0.5	54.6					
Kuppili	25	a	7.6	11.9	5.6	21.8	39.4	81.8	106.2	137.2	169.9	169.4	87.9	15.7	854.4	150 (1914)	63 (1908)	353.1	1878	Dec. 7
		b	0.4	1.0	0.4	1.6	2.7	5.6	7.8	8.3	9.0	6.6	3.0	0.6	47.0					
Srikakulam (District)		a	7.5	18.6	14.0	33.7	63.1	127.6	158.3	186.7	200.1	179.7	74.1	11.4	1074.8	136 (1914)	70 (1920)			
		b	0.5	1.2	0.9	2.2	3.6	7.3	9.8	10.4	10.0	6.9	2.6	0.5	55.9					

(a) Normal rainfall in mm, (b) Average number of rainy days (days with rain of 2.5 mm or more). *Based on all available data up to 1965. **Years of occurrence given in brackets.

TABLE 2
Frequency of Annual Rainfall in the District
(DATA 1901-1950)

Range in mm	No. of years	Range in mm	No. of year
701—800	4	1101—1200	7
801—900	4	1201—1300	11
901—1000	8	1301—1400	4
1001—1100	11	1401—1500	1

TABLE 3
Normal Temperature and Relative Humidity
(KALINGAPATAM)

Month	Mean Maximum Temperature		Mean Minimum Temperature		Highest Maximum ever recorded		Lowest Minimum ever recorded		Relative Humidity	
									0830	173*
	°C	°C	°C	°C	°C	Date	°C	Date	%	%
January	27.4	17.7	33.9	1911 Jan 19	12.1	1962 Jan 6	82	69		
February	29.6	19.8	37.8	1922 Feb 18	12.8	1918 Feb 1	81	69		
March	31.9	22.8	38.9	1946 Mar 14	16.1	1952 Mar 1	79	72		
April	33.1	25.7	41.7	1947 Apr 26	18.3	1930 Apr 1	77	76		
May	33.9	27.4	45.0	1923 May 7	20.6	1951 May 3	76	77		
June	33.6	27.1	43.9	1923 Jun 8	19.8	1960 Jun 23	79	77		
July	31.6	25.9	38.9	1911 Jul 23	21.5	1963 Jul 4	83	82		
August	31.9	26.0	36.7	1923 Aug 25	21.4	1962 Aug 5	83	81		
September	31.8	25.8	36.7	1920 Sep 28	20.9	1961 Sep 12	84	80		
October	30.7	24.5	35.6	1965 Oct 8	18.3	1952 Oct 28	83	75		
November	28.5	20.4	33.9	1914 Nov 10	13.3	1926 Nov 30	81	68		
December	26.8	17.6	31.7	1951 Dec 13	12.2	1937 Dec 5	80	66		
Annual	30.9	23.4					81	74		

* Hours I.S.T.

TABLE 4
Mean Wind Speed in Km/hr.
(KALINGAPATAM)

Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
9.6	9.5	11.6	15.1	17.0	15.0	14.0	11.8	9.1	10.0	11.2	11.3	12.1

TABLE 5
Special Weather Phenomena
(KALINGAPATAM)

*Mean No. of days with	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Thunder . . .	0.9	0.6	0.6	1.7	2	3	2	3	5	1.5	0.4	0.3	21
Hail . . .	0	0	0	0	0	0	0	0	0	0	0	0	0
Dust-Storm . .	0	0	0	0.8	0.7	0	0	0	0	0	0	0	1.5
Squall . . .	0	0	0	0	0	0	0	0	0	0	0	0	0
Fog . . .	3	1.5	1.2	0.2	0.8	0.2	0	0	0	0	0.4	1.0	8

*No. of days 2 and above are given in whole numbers.

VISAKHAPATNAM DISTRICT

The climate of this district is characterised by high humidities nearly all the year rounds, oppressive summer and good seasonal rainfall. The climate of the hilly parts of the district to the west and northwest is different from that of the plains, the hilly regions getting heavier rainfall are cooler than the plains. The summer season is from March to May. This is followed by the southwest monsoon season which continues up to September. October and November constitute the post monsoon or retreating monsoon season. December to February is the season of generally fine weather.

Rainfall

Records of rainfall in the district are available for 15 rain gauge stations for long periods for most of them. The details of the rainfall at these stations and for the district as a whole are given in tables 1 and 2. The average annual rainfall in the district is 1032.6 mm. The rainfall in the district increases from the coastal region towards the west and northwestern parts of the district which are hilly. The district gets rain both during the southwest monsoon and retreating monsoon season. The rainfall during the southwest monsoon months June to September amounts to 57 per cent of the annual normal rainfall and that during the post monsoon months of October and November amounts to 28 per cent of the annual normal. September and October are the rainiest months each of which accounts for about 19 per cent of annual rainfall. Significant rain of about 10 per cent also occurs during the premonsoon months of April and May. The variation in the annual rainfall from year to year is small. During the fifty year period, 1901 to 1950 the highest annual rainfall in the district as a whole amounting to 136 per cent of the normal occurred in 1931. The lowest annual rainfall which was 60 per cent of the normal rainfall occurred in 1935. The annual rainfall in the district was less than 80 per cent of the normal in 8 years, two of them being consecutive. Two or three consecutive years of rainfall less than 80 per cent of the normal occurred more than once at 7 out of the 15 stations. It will be seen from table 2 that the annual rainfall in the district was between 800 and 1300 mm i.e. within about 26 per cent of the normal in as many as 41 years out of 50.

On an average there are 55 rainy days (i.e. days with rainfall of 2.5 mm or more) in a year in the district. This number varies from 41 at Lamesinghi to 73 at Chintapalli.

The heaviest rainfall in 24 hours recorded at any station in the district was 510.5 mm at Gajapatnagaram on 14th October 1931.

Temperature

The only meteorological observatory in the district is at Visakhapatnam and the records of this observatory may be taken as fairly representative of the meteorological conditions prevailing in the district. In the interior low level tracts of the district the temperatures in summer are about 2 to 3° C higher than in the coastal region. In the hilly tracts the temperature in general may be lower than in the coastal region by about a couple of degrees or so, depending on elevation. From February the temperatures rise progressively till May which is the hottest month with the mean daily maximum temperature of about 34° C and the mean daily minimum of about 28° C over the coastal region. The weather is very oppressive particularly in the coastal region where humidities are generally high. During May and the early part of June before the onset of the monsoon the day temperatures may occasionally exceed 43° C. The sea breeze affords some relief during the afternoons in the coastal areas. Afternoon thundershowers during this period also brings welcome relief from the heat. With the onset of the southwest monsoon in June the day temperatures begin to fall progressively. The period December—January is the coldest part of the year with the mean daily maximum temperature at about 27° C and a mean daily minimum at 18° C over the coastal plains. In the interior, especially in the hilly regions, the temperatures are likely to be a few degrees lower. During the cold season the night temperatures may sometimes drop down to about 10° C over the plains.

The highest maximum temperature recorded at Visakhapatnam was 44.4°C on 9th June 1923 and the lowest minimum was 10.5°C on 6th January 1962.

Humidity

The air is generally humid throughout the year. Throughout the southwest monsoon season the humidity exceeds 80 per cent over the coastal region.

Cloudiness

During the southwest monsoon season, the skies are generally heavily clouded to overcast. Moderate cloudiness prevails in the post monsoon season. In the rest of the year, skies are mostly clear or lightly clouded.

Winds

Winds are generally light to moderate in speed with some strengthening during the summer and early southwest monsoon seasons. In the summer season, winds are southwesterly or westerly in the mornings and southerly or southwesterly in the afternoons. In the southwest monsoon season also, winds are mostly from directions between south and west. In October, winds are variable in direction. In the next two months, northerly or northeasterly winds predominate in the mornings while in the afternoons winds are northeasterly or easterly. In January and February winds are variable in direction.

Special Weather Phenomena

Storms and depressions originating in the Bay of Bengal during the post monsoon season cross the east coast in the neighbourhood of the district causing widespread heavy rain and strong winds. Thunderstorms occur commonly during the period April to October, the thunderstorms during the summer and monsoon period being occasionally associated with squalls.

Tables 3, 4 and 5 give the temperature and humidity, mean wind speed and special weather phenomena respectively for Visakhapatnam.

TABLE I
Normal and extreme Rainfall

Station		No. of years of data	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Highest annual rain- fall as % of normal & year**	Lowest annual rain- fall as % of normal & year**	Heaviest rainfall in 24 hours*	
																Amount (mm)	Date		
Gajapatinagaram	. 50 a		8.4	19.6	12.9	31.2	78.7	131.1	133.6	160.3	193.8	192.3	67.8	11.4	1041.1	148 (1931)	64 (1935)	510.5	1931 Oct 14
	b		0.8	1.5	0.9	2.0	4.2	8.0	9.6	10.4	10.1	7.5	2.8	0.6	58.4				
Vizianagaram .	. 50 a		6.9	22.6	12.9	28.2	71.4	132.3	142.7	151.1	210.1	192.5	72.9	10.9	1054.5	157 (1931)	67 (1935)	358.1	1931 Oct 14
	b		0.5	1.3	0.8	1.6	3.5	7.1	9.4	9.1	10.2	7.6	2.8	0.5	54.4				
Srungavarapukota	. 50 a		10.4	26.2	21.1	47.5	86.4	141.0	150.9	176.8	202.7	207.8	81.5	14.5	1166.8	143 (1931)	53 (1935)	256.5	1931 Oct 14
	b		0.9	1.8	1.5	2.9	4.5	8.7	10.5	11.1	10.9	8.0	3.2	0.7	64.7				
Narasapatam .	. 50 a		7.1	23.4	31.5	55.9	81.5	128.3	160.0	154.9	213.1	190.7	74.4	7.4	1128.2	148 (1928)	63 (1943)	324.1	1928 Oct 22
	b		0.5	1.7	1.9	3.7	5.4	8.3	11.5	10.3	11.6	9.2	3.2	0.5	67.8				
Konada .	. 50 a		9.7	17.5	7.9	20.8	50.3	105.2	106.4	134.6	171.5	186.9	87.4	16.3	914.5	163 (1931)	57 (1908)	386.6	1923 Nov 18
	b		0.7	1.3	0.7	1.5	2.7	6.7	8.6	9.2	8.8	7.1	3.1	0.6	51.0				
Bimulipatnam .	. 50 a		10.4	23.1	8.4	16.8	58.7	102.9	110.0	125.2	173.7	202.2	105.9	14.2	951.5	154 (1915)	45 (1946)	339.1	1923 Nov 18
	b		0.8	1.2	0.7	1.1	2.5	6.1	8.1	7.9	8.2	7.0	3.3	0.5	47.4				
Waltair (Visakhapatnam)	50 a		10.4	21.6	11.2	18.5	48.3	100.8	112.0	121.2	168.1	212.1	112.8	17.3	954.3	151 (1910)	50 (1935)	270.5	1923 Nov 18
	b		0.6	1.1	0.7	1.3	2.6	6.3	8.4	7.5	8.9	8.1	3.9	0.9	50.3				

Malkapuram	•	•	50	a	7.1	21.3	8.1	20.8	43.9	96.0	101.3	111.0	154.4	185.9	101.1	14.0	864.9	162 (1910)	52 (1935)	355.6	1878	Dec	7
				b	0.5	1.3	0.5	1.3	2.5	5.8	8.1	7.3	8.5	7.4	3.6	0.8	47.6			1889	Sep	19	
Anakapalli	•	•	50	a	7.9	21.8	14.7	29.5	53.1	107.7	127.5	128.8	196.3	188.5	93.2	11.9	980.9	171 (1928)	57 (1920)	332.7	1889	Sep	19
				b	0.5	1.1	0.8	1.8	2.9	6.6	9.0	8.8	9.9	7.5	3.5	0.6	53.0						
Yellamanchili	•	•	50	a	11.2	23.9	17.0	24.6	57.9	94.7	114.3	121.4	195.3	206.5	84.8	12.2	963.8	169 (1928)	55 (1911)	355.6	1928	Oct	22
				b	0.5	1.2	1.0	1.7	3.4	6.2	8.4	8.1	10.1	8.3	3.4	0.6	52.9						
Polavaram	•	•	50	a	7.4	23.6	6.6	20.6	47.0	94.2	109.2	110.2	151.9	187.7	109.7	11.9	880.0	175 (1949)	48 (1911)	359.4	1958	Oct	20
				b	0.6	0.9	0.7	1.4	2.6	5.7	8.7	7.7	8.3	7.3	3.5	0.5	47.9						
Chodavaram	•	•	50	a	9.1	16.8	18.3	43.9	61.2	125.2	136.7	137.7	198.6	197.1	71.6	12.5	1028.7	174 (1910)	39 (1926)	322.6	1904	Oct	17
				b	0.5	1.2	1.1	2.7	3.8	6.7	8.8	8.5	9.7	7.6	2.8	0.6	54.0						
Tulabada	•	•	29	a	2.3	26.2	20.6	57.9	105.4	113.8	178.3	166.1	244.1	234.4	95.5	9.7	1254.3	157 (1931)	55 (1934)	287.0	1928	Oct	22
				b	0.4	2.0	1.5	4.2	5.5	6.9	11.8	10.1	12.6	9.9	3.4	0.6	68.9						
Chintapalli	•	•	17	a	2.5	20.1	22.6	81.0	79.5	133.9	210.6	179.6	191.3	148.6	50.3	7.6	1127.6	149 (1949)	65 (1935)	208.5	1949	Oct	29
				b	0.5	1.5	2.1	5.5	5.2	8.5	15.5	11.9	11.1	7.8	3.1	0.4	73.1						
Lamesinghi	•	•	11	a	6.1	2.5	7.9	43.2	51.6	125.5	188.7	183.9	198.1	260.1	107.7	0.0	1175.3	141 (1924)	50 (1930)	447.0	1933	Oct	18
				b	0.3	0.2	0.4	2.2	2.9	6.1	5.9	6.3	7.2	7.7	2.3	0.0	41.5						
Visakhapatnam (District)			11	a	7.8	20.7	14.8	36.0	65.0	115.5	138.8	144.2	190.9	199.6	87.8	11.5	1032.6	136 (1931)	60 (1935)				
				b	0.6	1.3	1.0	2.3	3.6	6.9	9.5	8.9	9.7	7.9	3.2	0.6	55.5						

(a) Normal rainfall in mmm. (b) Average number of rainy days (days with rain of 2.5 mm or more). * Based on all available data upto 1965.

**Years of occurrence given in brackets.

TABLE 2
Frequency of Annual Rainfall in the District
 (DATA 1901-1950)

Range in mm	No. of years	Range in mm	No. of years
601—700	4	1101—1200	5
701—800	1	1201—1300	6
801—900	12	1301—1400	3
901—1000	10	1401—1500	1
1001—1100	8		

TABLE 3
Normal Temperature and Relative Humidity
 (VISAKHAPATNAM)

Month	Mean Maximum Tempera- ture	Mean Minimum Tempera- ture	Highest Maximum ever recorded		Lowest Minimum ever recorded		Relative Humidity	
	°C	°C	°C	Date	°C	Date	0830 %	1730* %
January	27.7	17.5	33.1	1958 Jan 18	10.5	1962 Jan 6	77	78
February	29.2	19.3	36.7	1922 Feb 18	13.3	1956 Feb. 14	77	73
March	31.2	22.6	38.3	1956 Mar 29	14.4	1952 Mar 1	74	71
April	32.8	25.9	40.5	1960 Apr 29	18.3	1930 Apr 15	73	80
May	34.0	27.8	43.3	1953 May 14	20.0	1904 May 7	75	83
June	33.7	27.4	44.4	1923 Jun 9	21.1	1920 Jun 23	80	83
July	31.7	26.0	39.2	1965 Jul 7	21.3	1960 Jul 13	84	82
August	32.0	26.0	38.2	1960 Aug 13	21.1	1907 Aug 3	82	83
September	31.6	25.6	37.8	1939 Sep 3	22.2	1953 Sep 11	81	84
October	30.9	24.5	37.2	1965 Oct 8	17.8	1952 Oct 29	78	79
November	29.3	21.2	33.9	1942 Nov 15	15.0	1929 Nov 31	68	73
December	27.7	18.3	32.8	1951 Dec 12	12.8	1959 Dec 29	70	74
Annual	31.0	23.5					77	79

*Hours I. S. T.

TABLE 4

Mean Wind Speed in Km/hr.

(VISAKHAPATNAM)

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
6.3	6.4	9.6	14.7	15.9	13.7	16.5	13.5	9.5	8.1	8.1	7.5	10.8

TABLE 5

Special Weather phenomena

(VISAKHAPATNAM)

*Mean No. of days with	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Thunder . . .	0.2	0.3	1.1	4	7	7	5	6	11	7	0.7	0.1	49
Hail . . .	0	0	0	0	0	0	0	0	0	0	0	0	0
Dust-Storm . .	0	0	0	0	0	0.1	0	0	0	0	0	0	0.1
Squall . . .	0.4	0.2	0.4	1.3	2	2	0.9	1.4	1.3	0.5	0.1	0.1	11
Fog . . .	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0.2

*No. of days 2 and above are given in whole numbers.

WEST GODAVARI DISTRICT

The climate of this district is characterised by an oppressive summer season and good seasonal rainfall. The year may be divided into four seasons. The summer season from March to May is followed by the southwest monsoon season which lasts till September. October and November constitute the post monsoon or retreating monsoon season. December to February is the season of generally fine weather.

Rainfall

Records of rainfall in the district are available for 9 raingauge stations for sufficiently long periods. The details of the rainfall at these stations and for the district as a whole are given in tables 1 and 2. The average annual rainfall in the district is 1081.7 mm. The rainfall in the district increases in general from the southwest towards the northeast and varies from 988.1 mm at Eluru near the southwest corner of the district to 1189.8 mm at Polavaram near the northeast border of the district. The district gets rain both during the southwest and post-monsoon Seasons. The rainfall during the southwest monsoon season, June to September, constitutes about 67 per cent of the annual rainfall while that in the retreating monsoon season accounts for about 23 per cent of the annual rainfall. July is the rainiest month. During the fifty year period, 1901 to 1950, the highest annual rainfall in the district which amounted to 151 per cent of the normal, occurred in 1916 while 1920 was the year with the lowest annual rainfall which was 64 per cent of the normal. During this fifty year period the annual rainfall in the district was less than 80 per cent of the normal in 8 years, of which two were consecutive. At individual stations two consecutive years of such low rainfall occurred twice or thrice at most stations. Even 3 consecutive years of such low rainfall occurred once each at Tanuku and Narsapur. It will be seen from table 2 that the annual rainfall in the district was between 800 and 1300 mm in 38 years out of 50.

On an average there are 58 rainy days (i.e. days with rainfall of 2.5 mm or more) in a year in the district. This number varies from 54 at Bhimavaram to 63 at Polavaram.

The heaviest rainfall in 24 hours recorded at any station in the district was 344.2 mm at Tadepalligudam on 10th July 1954.

Temperature

The only meteorological observatory in the district is at Nidadavolu, its records extending to just over 10 years only. The description of the climate, which follows is therefore, based on the records of this observatory and those of the observatories in the neighbouring districts. December and January constitute the coolest part of the year when the mean daily maximum temperature is about 30° C and the mean minimum about 18° C. Temperatures then rise till May, the hottest month of the year with the mean daily maximum temperature at about 38° C and the mean daily minimum at about 27° C. The moist heat during the summer months is very trying and day temperatures at times exceed 45° C, during May and early June. In the coastal parts sea breezes which set in the late afternoons give welcome relief. Thundershowers on the afternoons on some days during the late summer season also give temporary relief. With the onset of the monsoon by about the first week of June there is an appreciable drop in temperature and the weather is comparatively pleasant.

The highest maximum temperature recorded at Nidadavolu in the few years for which data are available was 48.9° C on 26th May 1962. The lowest minimum was 12.3° C on 6th January 1962.

Humidity

The air is humid throughout the year, being more so in the coastal region. The driest part of the year is the period from February to May or early June when the relative humidities are generally about 50 to 55 per cent in the afternoons.

Cloudiness

Skies are generally heavily clouded to overcast during the southwest monsoon season. There is moderate cloudiness in the post monsoon season. In the rest of the year skies are mostly clear or lightly clouded.

Winds

Winds are generally light with some strengthening in force in the southwest monsoon season. In the period October to March winds blow mostly from directions between north and northeast in the mornings and from the south or southeast in the afternoons. During the summer season the winds in the mornings blow mainly from the south and from the southeast or south in the afternoons. Southwesterly to westerly winds prevail in the southwest monsoon season.

Special Weather Phenomena

Storms and depressions originating in the Bay of Bengal during the post monsoon months pass through or in the neighbourhood of the district causing widespread heavy rain and strong winds. Thunderstorms occur mainly during May to October.

Tables 3, 4 and 5 give the temperature and humidity, mean wind speed and special weather phenomena for Nidadavolu.

TABLE I
Normal and extreme Rainfall

Station	No. of years of data	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual	Highest annual rain-fall as % of normal & year**	Lowest annual rain-fall as % of normal & year**	Heaviest rain fall in 24 hours*	
															Amount (mm)	Date		
Eluru	50 a	5.8	10.7	11.9	17.8	39.4	114.3	202.7	186.9	186.7	150.4	57.7	3.8	988.1	161 (1903)	65 (1905)	254.3	1895 Sep 6
	b	0.3	0.8	0.7	1.2	2.2	7.0	12.5	10.5	9.8	6.3	3.2	0.4	54.9				
Chintalapudi	50 a	6.9	9.4	11.4	27.4	51.6	142.5	254.0	223.5	174.5	116.8	50.3	5.3	1073.6	154 (1917)	59 (1913)	188.0	1885 Sep 20
	b	0.3	0.6	0.6	1.5	3.0	7.3	14.3	11.4	9.0	6.3	2.5	0.4	57.2				
Kovvur	50 a	3.6	17.0	12.2	30.2	57.1	144.0	223.3	181.6	173.2	149.6	59.4	6.1	1057.3	147 (1917)	61 (1920)	244.3	1908 Sep 26
	b	0.3	0.9	0.8	1.9	3.6	7.3	13.6	11.0	9.5	7.1	3.2	0.4	59.6				
Tadepalligudem	50 a	3.1	13.2	9.9	18.3	48.3	148.3	214.1	199.4	168.4	159.5	72.9	6.9	1062.3	156 (1915)	62 (1913)	344.2	1954 Jul 10
	b	0.3	0.9	0.6	1.2	2.8	7.0	12.5	11.3	9.9	7.4	3.3	0.4	57.6				
Tanuku	50 a	3.1	9.7	8.1	14.5	45.5	143.3	216.1	205.0	188.7	192.3	89.7	7.6	1123.6	175 (1923)	59 (1913)	317.5	1895 Sep 6
	b	0.3	0.6	0.5	0.9	2.4	7.0	12.7	11.2	9.6	8.0	3.8	0.6	57.6				
Penugonda	37 a	2.5	7.4	9.7	12.7	36.8	123.7	210.3	180.9	183.5	203.3	121.9	7.9	1110.6	167 (1916)	53 (1918)	193.0	1923 Nov 15
	b	0.3	0.6	0.5	0.9	2.3	6.6	12.2	10.6	10.2	8.4	4.4	0.4	57.4				
Bhimavaram	50 a	4.3	10.4	7.9	12.5	32.8	123.7	205.0	173.0	153.0	179.1	87.1	12.7	1005.5	179 (1916)	55 (1918)	334.0	1964 Aug 31
	b	0.4	0.6	0.4	0.8	1.9	6.6	12.4	10.6	8.4	7.6	3.7	0.6	54.0				

Narsapur	• • •	50	a	3.8	9.7	10.7	8.1	38.1	129.3	197.6	181.4	171.2	241.3	121.2	11.4	1123.8	162	59	312.7	1895	Sep	6
			b	0.3	0.5	0.4	0.6	1.9	6.3	12.4	11.0	9.3	9.0	4.7	0.7	57.1	(1916)	(1905)				
Polavaram	• •	50	a	6.9	13.5	15.2	45.2	65.0	167.4	264.9	200.1	185.2	162.6	60.2	3.6	1189.8	263	45	259.1	1933	Oct	19
			b	0.3	0.9	0.9	2.8	3.9	8.2	14.3	11.7	9.6	7.0	3.0	0.3	62.9	(1910)	(1945)				
West (District)	Godavari		a	4.4	11.2	10.8	20.7	46.1	137.4	220.9	192.4	177.2	173.3	80.0	7.3	1081.7	151	64				
			b	0.3	0.7	0.6	1.3	2.7	7.0	13.0	11.0	9.5	7.5	3.5	0.5	57.6	(1916)	(1920)				

(a) Normal rainfall in mm.

(b) Average number of rainy days (days with rain of 2.5 mm or more)

* Based on all available data upto 1965.

** Years of occurrence given in brackets.

TABLE 2
Frequency of Annual Rainfall in the District
 (DATA 1901-1950)

Range in mm	No. of years	Range in mm	No. of years
601— 700	1	1201—1300	7
701— 800	5	1301—1400	1
801— 900	4	1401—1500	3
901—1000	12	1501—1600	1
1001—1100	5	1601—1700	1
1101—1200	10		

TABLE 3
Normal Temperature and Relative Humidity
 (NIDADAVOLE)

Month	Mean Maximum Temperature	Mean Minimum Temperature	Highest Maximum ever recorded		Lowest Minimum ever recorded		Relative Humidity	
	°C	°C	°C	Date	°C	Date	0830	1730*
							%	%
January	30.1	18.0	33.2	1958 Jan 19	12.3	1962 Jan 6	79	55
February	32.2	19.4	36.6	1959 Feb 28	15.0	1956 Feb 8	76	49
March	34.1	22.2	37.9	1962 Mar 31	18.5	1964 Mar 13	77	52
April	35.8	25.0	42.8	1956 Apr 26	19.1	1962 Apr 20	77	56
May	38.2	26.9	48.9	1962 May 26	21.6	1959 May 9	73	50
June	36.7	26.7	46.2	1958 Jun 11	21.4	1963 Jun 27	75	56
July	31.5	25.1	36.4	1962 Jul 1	21.9	1959 Jul 15	85	74
August	31.1	25.0	35.6	1965 Aug 9	22.4	1957 Aug 26	86	77
September	31.6	24.9	35.1	1965 Sep 18	21.5	1964 Sep 24	86	78
October	31.3	23.6	36.5	1957 Oct 13	20.6	1964 Oct 26	85	76
November	30.4	20.7	33.5	1963 Nov 7	15.5	1964 Nov 27	79	67
December	29.5	18.3	33.1	1960 Dec 8	12.9	1959 Dec 29	77	58
Annual	32.7	23.0					80	62

*Hours I. S. T.

TABLE 4
Mean Wind Speed in Km/hr.
 (NIDADAVOLE)

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
6.5	5.7	5.4	5.9	7.8	12.2	12.7	11.0	8.0	5.9	7.1	7.0	7.9

TABLE 5
Special Weather phenomena
 (NIDADAVOLE)

*Mean with	No. of days			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec Annual	
Thunder	.	.	.	0	0.1	0.6	1.8	4	4	2	2	5	5	0.4	0	25
Hail	.	.	.	0	0	0	0	0	0	0	0	0	0	0	0	0
Duwt-Storm	.	.	.	0	0	0	0	0.2	0.1	0	0	0.7	0	0	0	1.0
Squall	.	.	.	0	0	0	0	0	0	0	0	0	0	0	0	0
Fog	.	.	.	0	0	0	0	0	0	0	0	0	0	0	0	0

* No. of days 2 and above are given in whole numbers.

RAYALASEEMA

ANANTAPUR DISTRICT

The climate of this district is characterised by oppressive hot weather in the summer season. The year may be divided into four seasons. The period from December to February is the comparatively cool season. The summer season is from March to May and is followed by the southwest monsoon season from June to September. October and November form the retreating monsoon season.

Rainfall

The district has a good network of 17 rain gauge stations with records for long periods. The details of the rainfall at these stations and for the district as a whole are given in tables 1 and 2. The average annual rainfall in the district is 544.1 mm. The rainfall generally increases from the northwest to the southeast. But at Tanekal on the southeastern border of the district the annual rainfall is much less than that at other stations in the southeastern part of the district. September is the rainiest month with about 25 per cent of the annual rain. The variation in the annual rainfall from year to year is large. In the fifty year period 1901 to 1950, the highest annual rainfall amounting to 155 per cent of the normal was received in 1917. 1934 was the year with the lowest rainfall which was only 56 per cent of the normal. In nine years out of the fifty the district received rainfall less than 80 per cent of the normal and no two of them were consecutive. At individual stations two or even three consecutive years with rainfall less than 80 per cent of the normal have occurred on one or two occasions at most of the stations. At Yadiki such low rainfall occurred in seven consecutive years 1942 to 1948. From Table 2 it will be seen that the rainfall of 400 and 700 mm occurred (i.e. within about 29 per cent of the annual rainfall) in 36 years out of 50.

On an average the district has 35 rainy days (days with rainfall of 2.5 mm or more) in a year. This number varies from 26 at Amarapuram to 40 at Madakasira and Kadiri.

The heaviest rainfall in 24 hours recorded at any station in the district was 290.8 mm at Madakasira on 21st May 1879.

Temperature

The district has a meteorological observatory at Anantapur. The data of this observatory can be taken as representative of the conditions in the district as a whole. The period December to January is the coolest part of the year. In December when the mean temperature is the lowest, the mean daily maximum temperature is about 29° C and the mean daily minimum is about 17° C. From February temperatures begin to rise rapidly and by April the hottest month the mean daily maximum temperature is about 39° C and the mean daily minimum temperature about 26° C. May is also nearly as hot as April and in these two months, the heat is oppressive. With the onset of the southwest monsoon by about early June the day temperatures drop rapidly and there is some relief from the heat. After the withdrawal of the southwest monsoon early in October the temperatures begin to decrease gradually.

The highest maximum temperature recorded at Anantapur was 42.2° C on 27th April 1956 and on 2nd May 1953 and the lowest minimum temperature was 11.5° C on 5th January 1962.

Humidity

The period from February to May is the driest part of the year when the relative humidities are 50-60 per cent in the mornings and 20-30 per cent in the afternoons. Humidities are higher in the southwest monsoon and retreating monsoon seasons, being 70-80 per cent in the morning and only 40-50 per cent in the afternoons.

Cloudiness

During the period May to November skies are moderately to heavily clouded and overcast on some days. In the rest of the year skies are clear or lightly clouded generally.

Winds

Winds are generally light to moderate with some strengthening in the southwest monsoon season. During the period October to April the winds blow from the quadrant northeast to southeast and are calm on many days in the mornings. Winds blow from directions between southwest and northwest in the period May to September.

Special Weather Phenomena

In October and November storms originating in the Bay of Bengal sometimes cross the east coast of India and moving in a westerly to northwesterly direction across the peninsula affect the district and its neighbourhood causing widespread rain. Thunderstorms mostly occur during the period April to October. Dust raising winds occur in April and May.

Table 3, 4 and 5 give the temperature and humidity, mean wind speed and frequency of special weather phenomena respectively for Anantapur.

TABLE I

Normal and extreme of Rainfall

Station	No. of years of data	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual rain- fall as % of normal & year**	Highest annual rain - fall as % of normal & year**	Lowest annual rain - fall as % of normal & year**	Heaviest rainfall in 24 hours * Amount	rainfall in 24 hours * Date
Madakasira	50 a	4.6	6.3	5.3	24.6	74.7	50.8	54.4	73.9	121.9	117.3	51.6	8.9	594.3	145 (1933)	35 (1908)	290.8	1879 May 21
	b	0.5	0.4	0.5	1.6	4.4	3.8	5.4	5.9	7.2	6.2	3.6	0.7	40.2				
Hindupur	50 a	3.3	6.9	4.1	24.9	66.3	43.9	57.4	82.5	141.5	102.4	50.3	10.4	593.9	158 (1949)	43 (1934)	177.8	1879 May 21
	b	0.4	0.5	0.4	1.7	4.4	3.4	5.0	5.6	7.4	5.8	3.4	0.7	38.7				
Penukonda	50 a	5.1	5.3	3.8	23.1	63.3	46.7	57.7	80.0	143.0	99.8	57.7	12.2	597.7	162 (1903)	44 (1934)	179.3	1901 Sep 20
	b	0.4	0.3	0.3	1.5	3.9	3.4	4.9	5.1	7.2	6.1	4.1	0.9	38.1				
Bukkapatnam	50 a	2.8	6.9	5.3	20.1	62.2	49.8	68.8	106.7	170.9	94.2	56.6	9.7	654.0	172 (1949)	37 (1934)	168.9	1907 Jul 12
	b	0.3	0.4	0.4	1.6	3.8	3.5	5.2	6.0	7.8	5.6	3.5	0.6	38.7				
Dharmavaram	50 a	3.6	5.3	3.6	16.8	54.9	45.0	50.5	81.0	132.2	79.0	51.3	8.9	532.2	168 (1912)	35 (1923)	177.3	1928 Jul 9
	b	0.3	0.4	0.3	1.2	3.3	3.0	3.5	4.5	7.3	5.2	3.4	0.6	33.0				
Kalyandrug	50 a	2.8	5.3	4.3	16.5	57.1	41.4	38.1	70.6	122.2	91.9	41.4	7.4	499.0	179 (1933)	43 (1923)	141.0	1943 May 20
	b	0.2	0.3	0.3	1.3	3.8	2.9	4.5	4.6	6.4	5.0	2.7	0.5	32.5				
Anantapur	41 a	4.8	6.1	3.3	15.0	53.3	49.8	52.1	84.6	149.9	99.3	58.2	6.6	583.0	168 (1919)	40 (1934)	145.3	1937 Oct 10
	b	0.2	0.4	0.3	1.2	3.6	3.1	3.7	4.9	6.7	5.3	3.5	0.5	33.4				
Uravakonda	50 a	3.8	5.8	4.6	16.5	51.8	40.1	46.5	73.1	140.7	86.6	33.3	4.3	507.1	162 (1915)	39 (1920)	246.4	1956 Nov 10
	b	0.2	0.4	0.3	1.2	3.7	3.4	3.9	5.0	7.4	5.0	2.3	0.4	33.2				
Gooty	50 a	3.3	3.3	3.6	17.5	44.7	56.6	71.6	80.3	145.3	91.4	37.6	6.6	561.8	167 (1916)	36 (1920)	153.4	1902 Sep 14
	b	0.3	0.2	0.2	1.2	2.9	4.2	5.9	5.6	7.6	5.2	2.6	0.5	36.4				

TABLE 1—contd.

Station	No. of years of data	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual	Highest annual rainfall as % of normal & year**	Lowest annual rainfall as % of normal & year**	Heaviest rainfall in 24 hours* Amount	Date
Yadiki	50 a	3.1	4.1	5.6	13.2	40.6	52.1	71.1	71.1	127.3	71.6	38.9	7.1	505.8	254 (1916)	47 (1948)	139.5	1958 Oct 7
	b	0.3	0.2	0.3	1.0	2.4	4.2	5.1	5.2	6.8	4.3	2.5	0.5	33.6				
Tadpatri	50 a	4.1	4.6	4.1	17.5	45.7	53.9	67.6	84.6	136.4	76.7	42.4	7.9	547.5	197 (1916)	42 (1923)	142.2	1958 Oct 8
	b	0.4	0.2	0.3	1.2	3.4	4.0	5.4	5.7	7.5	4.7	3.0	0.6	36.4				
Kadiri	50 a	6.1	5.8	6.6	21.1	59.2	43.7	64.0	90.2	144.8	97.3	66.5	11.7	617.0	173 (1916)	53 (1942)	172.5	1903 Nov 6
	b	0.6	0.4	0.4	1.4	3.6	3.6	5.6	5.3	7.7	6.0	4.4	1.0	40.0				
Tanekal	37 a	4.1	6.9	6.9	25.7	45.0	38.1	45.7	67.3	111.8	86.1	61.0	12.7	511.3	207 (1930)	45 (1948)	101.6	1960 Oct 3
	b	0.3	0.5	0.4	1.3	2.7	2.1	3.2	3.7	5.5	5.3	4.1	0.6	29.7				
Amarapuram	23 a	0.0	1.5	2.5	22.6	54.9	35.8	28.5	86.6	104.9	95.8	28.2	3.8	465.1	151 (1933)	48 (1942)	116.1	1959 Sep 18
	b	0.0	0.1	0.1	1.2	3.2	2.7	2.6	4.6	5.0	4.3	1.9	0.2	25.9				
Guntakal	23 a	1.8	3.8	2.8	16.3	38.1	69.1	58.4	77.0	115.6	84.3	34.3	4.1	505.6	158 (1944)	61 (1934)	150.9	1944 Oct 9
	b	0.0	0.3	0.4	1.5	2.8	4.0	5.0	5.2	6.3	5.0	2.3	0.4	33.2				
Rayadrug	50 a	4.6	4.6	3.1	20.1	59.7	46.7	40.1	69.1	126.0	99.6	45.7	8.4	527.7	182 (1917)	43 (1923)	193.0	1895 Sep 14
	b	0.3	0.3	0.3	1.7	4.0	3.3	4.0	4.9	6.6	5.8	3.0	0.6	34.8				
Kanekal	23 a	0.8	2.0	3.6	14.7	51.6	33.0	32.3	60.2	105.7	104.7	31.5	3.6	443.7	168 (1935)	37 (1932)	104.4	1944 Oct 27
	b	0.1	0.4	0.3	1.3	3.6	2.4	3.3	4.7	5.8	5.1	2.1	0.4	29.5				
Anantapur (District)	a	3.5	5.0	4.3	19.2	54.3	47.0	53.2	78.8	131.8	92.8	46.3	7.9	544.1	155 (1917)	56 (1934)		
	b	0.3	0.3	0.3	1.4	3.5	3.4	4.5	5.1	6.8	5.3	3.1	0.6	34.6				

(a) Normal rainfall in mm. (b) Average number of rainy days (days with rain of 2.5 mm or more). *Based on all available data upto 1965.

** Years of occurrence given in brackets.

TABLE 2

Frequency of Annual Rainfall in the District
(DATA 1901-1950)

Range in mm	No. of years	Range in mm	No. of years
301—400	6	601—700	9
401—500	13	701—800	5
501—600	14	801—900	3

TABLE 3

Normal Temperature and Relative Humidity

ANANTAPUR

Month	Mean Maximum Temperature		Mean Minimum Temperature		Highest Maximum ever recorded		Lowest Minimum ever recorded		Relative Humidity	
									0830	1730*
	°C	°C	°C	Date	°C	Date	°C	Date	%	%
January	30.4	17.3	34.1	1958 Jan 31	11.5	1962 Jan 5			69	36
February	33.4	18.6	38.0	1964 Feb 26	13.3	1947 Feb 4 days			54	26
March	36.8	21.6	40.6	1953 Mar 20	15.0	1951 Mar 7			47	19
April	38.4	25.7	42.2	1956 Apr 27	18.3	1950 Apr 3			52	23
May	38.1	25.8	42.2	1953 May 2	18.9	1951 May 1			62	32
June	34.7	24.7	41.7	1953 Jun 4	20.6	1953 Jun 7			69	47
July	32.4	23.7	37.2	1965 Jul 8	20.8	1964 Jul 28			73	53
August	32.4	23.5	36.7	1949 Aug 8	21.2	1957 Aug 9			74	53
September	32.5	23.1	36.1	1957 Sep 6	19.4	1954 Sep 29			74	52
October	31.4	22.5	36.5	1965 Oct 9	15.6	1950 Oct 26			76	56
November	30.0	19.4	35.0	1959 Nov 9	11.8	1964 Nov 28			70	47
December	29.1	17.2	33.2	1963 Dec. 14	12.2	1951 Dec 30			72	44
Annual	33.3	21.9	..	.. ..	..	.. ..	..	.. ..	66	41

*Hours I.S.T.

TABLE 4

Mean Wind Speed in Km/hr.

(ANANTAPUR)

Jan.	Feb.	Mar.	Apr.	May	June	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
10.0	9.2	9.9	10.2	12.2	18.4	18.9	18.0	13.1	7.9	8.5	8.9	12.1

TABLE 5

Special Weather Phenomena

(ANANTAPUR)

*Mean No. of days with	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Thunder . . .	0	0.1	0.9	3	7	2	1.7	2	5	6	1.2	0.1	29
Hail . . .	0	0	0	0	0	0	0	0	0	0	0	0	0
Dust-Storm . . .	0	0	0	0.1	0.5	0.1	0.1	0	0	0	0	0	0.8
Squall . . .	0	0	0	0.1	0.2	0.1	0	0	0	0.1	0	0	0.5
Fog . . .	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1

*No. of days 2 and above are given in whole numbers.

CHITTOOR DISTRICT

The district has a dry, agreeable climate. The year may be divided into four seasons. The period from December to February is the comparatively cool season. The summer season from March to May is followed by the southwest monsoon season from June to September. October and November constitute the post monsoon or retreating monsoon season.

Rainfall

The district has a good network of 21 rain gauge stations for long periods for most of the stations. Tables 1 and 2 give the rainfall at these stations and for the district as a whole. The average annual rainfall in the district is 827.5 mm. The rainfall generally decreases from the east towards the west and varies from 555.7 mm at Peddatippasamudram near the western border to 1187.8 mm at Satyavedu near the eastern border. The rainfall during the monsoon period June to September constitutes only about 44 per cent of the annual normal rainfall. During May there is some significant amount of rainfall and it is mostly in the form of thundershowers. During the post monsoon season October to November as much as 35 per cent of the annual rainfall is received. The period August to November is the chief rainy season with about 63 per cent of the annual rainfall, October being the rainiest month. The variation in the rainfall from year to year is large. During the fifty year period 1901 to 1950, the highest annual rainfall amounting to 161 per cent of the normal occurred in 1943 while the lowest annual rainfall which was only 63 per cent of the normal occurred in 1904. During this fifty year period the annual rainfall in the district was less than 80 per cent of the normal in seven years, none of them being consecutive. Considering the rainfall at individual stations two consecutive years of rainfall less than 80 per cent of the normal occurred at 12 out of the 21 stations. Two consecutive years of such low rainfall occurred four times at Vayalpad, thrice at Pakala and twice at Chandragiri, Chittoor, Sodam, Piler and Satyavedu during this same fifty year period and three consecutive years of rainfall less than 80 per cent of the normal occurred once at Ramapuram. From table 2 it will be seen that the annual rainfall in the district was between 600 and 1000 mm i.e. within about 15 per cent to 21 per cent in only 29 years out of fifty.

On an average there are 46 rainy days (i.e. days with rainfall of 2.5 mm or more) in a year in the district. This number varies from 26 at Peddatippasamudram to 53 at Palmaner.

The heaviest rainfall in 24 hours recorded at any station in the district was 338.3 mm at Satyavedu on 10th December 1901.

Temperature

The district has a meteorological observatory at Arogyavaram. The records of this observatory can be taken as representative of the meteorological conditions in the district except in the eastern portions of the district where the temperatures may be a little higher. In December when the mean temperature is the lowest, the mean daily maximum temperature is about 26° C and the mean daily minimum is about 15° C. From February temperatures begin to rise rapidly. April and May are the hottest months with a mean daily maximum temperatures of about 35° C. The nights are slightly warmer in May than in April, the mean daily minimum in May being 23° C. The weather is oppressive in the eastern low level tracts of the district during summer. Thundershowers which occur on some days during the afternoons of April and May bring welcome relief. With the onset of the southwest monsoon by about the first week of June day temperatures decrease and weather in the whole of the southwest and post monsoon seasons becomes agreeable. Night temperatures decrease more rapidly after October.

The highest maximum temperature recorded at Arogyavaram was 38.9° C on 26th May 1947. The lowest minimum was 10.5° C on 27th November 1964.

Humidity

The relative humidity is about 70 to 80 per cent in the mornings and about 55 to 65 per cent in the afternoons during the period July to December, and decreases thereafter. The driest part of the year is the period from February to May when the relative humidities in the afternoons are between about 25 and 40 per cent on the average. Relative humidities may be higher in the eastern portions of the district.

Cloudiness

During the period June to November the skies are moderately to heavily clouded and overcast on a few days. In the rest of the year skies are clear or lightly clouded.

Winds

Winds are generally light. Winds blow mainly from directions between southwest and northwest during the period May to September. In the rest of the year winds are light and variable in the mornings. Afternoon winds are stronger and in the period October to January they are mainly northeasterly or easterly. In the next three months, afternoon winds are mostly from directions between east and south.

Special Weather Phenomena

In October and November some of the storms and depressions from the Bay of Bengal cross the east coast and affect the district and its neighbourhood causing widespread heavy rain and gusty winds. Thunderstorms occur mostly from April to October, their frequency being maximum in the period April—May.

Tables 3, 4 and 5 give the temperature and relative humidity, mean wind speed and special weather phenomena for Arogyavaram.

Temperature

The district has a meteorological observation station at Arogyavaram. The records of this station show that the annual temperature of the district varies between 10°C and 40°C. In December the minimum temperature is about 10°C and the maximum is about 20°C. In January the minimum temperature is about 12°C and the maximum is about 25°C. In February the minimum temperature is about 15°C and the maximum is about 30°C. In March the minimum temperature is about 18°C and the maximum is about 35°C. In April the minimum temperature is about 20°C and the maximum is about 40°C. In May the minimum temperature is about 22°C and the maximum is about 42°C. In June the minimum temperature is about 24°C and the maximum is about 44°C. In July the minimum temperature is about 26°C and the maximum is about 46°C. In August the minimum temperature is about 28°C and the maximum is about 48°C. In September the minimum temperature is about 30°C and the maximum is about 50°C. In October the minimum temperature is about 32°C and the maximum is about 52°C. In November the minimum temperature is about 34°C and the maximum is about 54°C. In December the minimum temperature is about 36°C and the maximum is about 56°C. In January the minimum temperature is about 38°C and the maximum is about 58°C. In February the minimum temperature is about 40°C and the maximum is about 60°C. In March the minimum temperature is about 42°C and the maximum is about 62°C. In April the minimum temperature is about 44°C and the maximum is about 64°C. In May the minimum temperature is about 46°C and the maximum is about 66°C. In June the minimum temperature is about 48°C and the maximum is about 68°C. In July the minimum temperature is about 50°C and the maximum is about 70°C. In August the minimum temperature is about 52°C and the maximum is about 72°C. In September the minimum temperature is about 54°C and the maximum is about 74°C. In October the minimum temperature is about 56°C and the maximum is about 76°C. In November the minimum temperature is about 58°C and the maximum is about 78°C. In December the minimum temperature is about 60°C and the maximum is about 80°C.

Humidity

The relative humidity is about 70 to 80 per cent in the mornings and about 50 to 60 per cent in the afternoon during the period June to November and decreases in the rest of the year.

TABLE I]
Normal and extreme Rainfall

Station		No. of years of data	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual	Highest annual rain - fall as % of normal & year**	Lowest annual rain - fall as % of normal & year**	Heaviest rainfall in 24 hours *		
																Amount mm	Date			
Puttur	.	50	a	31.2	8.1	8.6	19.1	48.3	61.2	104.9	118.9	125.0	175.3	191.0	67.6	959.2	181 (1943)	51 (1945)	298.5	1888 Nov 1
			b	1.4	0.5	0.7	1.3	2.4	4.8	7.4	7.5	6.7	8.0	7.9	3.2	51.8				
Kalahasti	.	50	a	54.6	7.6	10.7	15.7	38.9	49.8	86.9	91.9	104.4	230.9	330.5	121.7	1143.6	205 (1946)	40 (1904)	287.5	1906 Jan 17
			b	2.0	0.5	0.5	0.9	1.8	4.2	6.8	6.7	6.6	8.7	9.5	4.4	52.6				
Tirupati	.	50	a	36.8	8.4	10.4	18.5	59.4	55.1	86.4	112.0	126.0	173.2	201.7	63.5	951.4	179 (1946)	42 (1904)	266.7	1895 Dec 31
			b	1.7	0.4	0.6	1.3	3.1	4.2	6.2	6.4	6.8	8.4	7.9	3.2	50.2				
Chandragiri	.	50	a	28.7	6.6	10.7	21.1	46.2	62.7	82.5	104.7	115.8	141.5	167.1	51.6	839.2	162 (1903)	41 (1904)	271.5	1906 Jan 17
			b	1.4	0.4	0.7	1.3	3.0	4.6	6.2	6.4	6.6	7.8	7.4	3.0	48.8				
Pakala	.	46	a	25.4	8.1	13.5	26.7	71.1	63.0	98.0	127.0	142.7	155.7	155.2	40.1	926.5	184 (1939)	44 (1923)	251.5	1915 Nov 22
			b	1.2	0.6	0.6	1.6	3.2	3.9	5.6	6.8	7.1	7.3	6.5	2.2	46.6				
Chittoor	.	50	a	25.9	9.4	11.2	23.1	63.0	67.8	91.9	118.9	164.3	147.3	151.6	51.6	926.0	181 (1903)	40 (1913)	227.3	1930 Nov 30
			b	1.6	0.5	0.6	1.5	4.0	4.4	6.2	6.8	8.1	8.4	7.5	3.0	52.6				
Venkatagirikota	.	50	a	19.1	4.8	8.9	32.3	97.8	50.3	66.5	101.3	128.3	143.0	93.7	33.0	779.0	163 (1903)	61 (1908)	200.7	1903 Sep 23
			b	1.4	0.5	0.8	2.2	6.4	3.6	5.1	6.0	7.1	8.5	6.7	2.5	50.8				

TABLE 1—(contd.)

Station	No. of years of data	Jan.	Feb.	Mar.	Apr.	May	Jun.	July.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual	Highest annual rain-fall as % of normal & year**	Lowest annual rain-fall as % of normal & year**	Heviest rainfall in 24 hours*	
																	Amount (mm)	Date
Kuppam . . .	50 a	10.7	6.1	11.9	34.8	103.4	49.3	69.9	101.3	142.5	129.5	72.4	22.3	754.1	156 (1915)	52 (1950)	157.7	1941 May 28
	b	0.9	0.5	0.7	2.5	6.3	3.7	4.8	6.0	7.5	7.8	5.3	1.8	47.8				
Palamaner . . .	50 a	25.9	9.9	8.6	31.5	79.3	55.9	81.8	100.6	144.3	152.9	122.7	38.3	851.7	166 (1903)	55 (1923)	254.0	1890 Jan 27
	b	1.6	0.6	0.7	2.1	5.2	4.0	5.6	6.5	7.6	9.0	7.5	2.7	53.1				
Punganur . . .	50 a	15.0	8.6	11.9	30.5	78.0	51.8	73.1	101.1	134.4	133.9	95.8	23.9	758.0	161 (1943)	58 (1945)	222.5	1883 Nov 1
	b	1.3	0.5	0.8	2.1	4.6	4.0	5.8	6.5	7.3	8.3	6.1	1.9	49.2				
Sodam . . .	22 a	7.1	7.9	17.0	33.5	70.9	50.0	76.2	103.1	125.7	152.4	127.0	52.3	823.1	170 (1943)	52 (1936)	221.0	1930 May 8
	b	0.6	0.4	0.8	1.4	2.4	3.8	4.8	6.0	5.4	6.6	6.0	2.5	40.7				
Madanpalle . . .	50 a	17.0	6.9	14.0	28.7	70.9	55.4	70.4	80.0	129.3	132.1	107.7	29.2	741.6	195 (1903)	52 (1908)	168.1	1954 Oct 23
	b	1.3	0.6	0.7	1.9	4.2	4.3	6.3	6.6	7.0	7.7	6.5	2.3	49.4				
Vayalpad . . .	50 a	20.3	8.9	11.9	25.4	70.4	63.0	89.4	86.9	138.2	132.1	114.1	31.7	792.3	207 (1944)	47 (1947)	188.0	1903 Nov 6
	b	1.3	0.5	0.7	1.7	4.0	4.5	6.6	6.5	7.2	7.8	6.3	2.4	49.5				
Rampuram . . .	22 a	11.7	5.1	13.2	25.4	58.4	51.8	76.7	104.7	133.9	139.5	140.5	46.2	807.1	182 (1943)	29 (1950)	237.7	1943 May 19
	b	0.7	0.4	0.6	1.4	2.4	3.5	4.3	5.7	5.9	6.7	6.2	1.9	39.7				
Piler . . .	50 a	18.0	5.1	7.6	22.3	55.6	56.9	70.9	96.3	123.2	135.9	119.1	35.6	746.5	177 (1930)	42 (1913)	178.3	1903 Nov 6
	b	1.2	0.3	0.6	1.7	3.3	4.2	5.7	6.7	7.0	8.1	6.7	2.4	47.9				

Bhakarapet	.	16	a	6.3	6.1	13.7	21.8	67.8	60.2	80.5	112.5	134.4	156.2	143.3	31.2	834.0	159 (1943)	58 (1948)	231.1	1944	Oct 26
			b	0.3	0.4	0.4	1.5	3.0	4.1	5.5	6.5	6.8	7.1	6.5	1.7	43.8					
Kalakada	.	15	a	5.3	6.3	9.4	19.1	59.2	42.7	52.8	88.4	87.6	96.8	103.4	13.7	584.7	..	..	177.8	1943	May 19
			b	0.6	0.2	0.6	1.0	2.1	2.5	3.5	3.8	4.1	3.9	4.5	0.8	27.6					
Tavanampalle	.	14	a	7.6	6.3	8.4	26.4	35.1	71.6	56.6	111.8	137.4	131.1	97.3	35.6	725.2	..	..	190.5	1946	Nov 9
			b	0.3	0.3	0.3	1.7	1.9	2.9	3.5	4.8	4.8	5.0	3.9	1.7	31.1					
Peddatippa-samudram	.	11	a	4.6	0.0	6.9	25.1	52.1	38.9	52.6	86.9	109.5	92.5	77.5	9.1	555.7	..	..	114.3	1939	Sep 17
			b	0.3	0.0	0.5	1.1	2.1	2.8	2.1	3.8	4.2	3.9	4.3	0.5	25.6					
Arogyavaram	.	5	a	10.4	6.3	1.3	6.3	45.0	73.1	97.8	86.9	90.4	123.7	93.5	53.9	688.6	120 (1949)	69 (1950)	157.7	1954	Oct 22
			b	1.3	0.5	0.0	1.0	3.0	4.4	6.0	7.6	6.6	7.4	6.4	3.4	47.6					
Satyavedu	.	50	a	44.2	16.3	11.7	16.3	38.9	54.4	96.0	110.0	126.0	258.8	301.7	113.5	1187.8	175 (1946)	54 (1904)	338.3	1901	Dec 10
			b	1.9	0.7	0.6	0.9	1.9	4.0	6.6	6.7	6.9	9.3	9.3	4.0	52.8					
Chittoor (District)	.		a	20.3	7.3	10.5	24.0	62.4	56.4	79.1	102.2	126.8	149.3	143.2	46.0	827.5	161 (1943)	63 (1904)			
			b	1.2	0.4	0.6	1.5	3.3	3.9	5.5	6.2	6.5	7.4	6.6	2.5	45.6					

(a) Normal rainfall in mm, (b) Average number of rainy days (days with rain of 2.5 mm or more). * Based on all available data up to 1965.

** Years of occurrence given in brackets.

TABLE 2

Frequency of annual Rainfall in the District
(DATA 1901-1950)

Range in mm	No. of years	Range in mm	No. of years
501—600	3	1001—1100	4
601—700	8	1101—1200	1
701—800	7	1201—1300	3
801—900	11	1301—1400	2
901—1000	11		

TABLE 3

Normal Temperature and Relative Humidity
(AROGYAVARAM)

Month	Mean Maximum Temperature		Mean Minimum Temperature		Highest Maximum ever recorded		Lowest Minimum ever recorded		Relative Humidity	
	°C		°C		°C		°C		0830	1730*
					Date		Date		%	%
January	27.1	15.3	31.6	1958	Jan 29	10.6	1962	Jan 9	79	47
February	30.1	16.7	35.0	1959	Feb 27	11.0	1965	Feb 2	62	31
March	33.2	19.1	37.2	1953	Mar 27	12.8	1955	Mar 12	59	26
April	34.7	22.0	38.4	1964	Apr 20	17.6	1965	Apr 1	66	34
May	34.7	23.5	38.9	1947	May 26	15.6	1946	May 10	60	38
June	32.0	22.7	37.6	1964	Jun 1	18.9	1957	Jun 4	67	48
July	30.0	21.7	36.0	1965	Jul 12	16.7	1952	Jul 19	72	57
August	30.0	21.7	33.9	1951	Aug 21	17.2	1965	Aug 27	71	55
September	29.8	21.2	33.9	1952	Sep 19	16.1	1949	Sep 21	72	54
October	28.3	20.1	33.9	1965	Oct 11	15.0	1947	Oct 26	79	66
November	26.5	17.6	31.6	1965	Nov 4	10.5	1964	Nov 27	79	64
December	25.5	15.5	29.4	1951	Dec 13	10.6	1960	Dec 1	81	58
Annual	30.2	19.8							71	48

* Hours I.S.T.

TABLE 4

Mean Wind Speed in Km/hr.

(AROGYAVARAM)

Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
5.9	7.1	8.6	8.1	9.9	13.8	13.8	13.4	9.9	5.8	5.1	5.1	8.9

TABLE 5

Special Weather Phenomena

(AROGYAVARAM)

*Mean No. of days with	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Thunder . . .	0	0.2	0.8	4	6	3	1.7	2	3	5	0.4	0.1	26
Hail . . .	0	0	0	0.1	0	0	0	0	0	0	0	0	0.1
Dust-Storm . . .	0	0	0	0.1	0	0	0	0	0	0	0	0	0.1
Squall . . .	0	0	0	0	0	0	0	0	0	0	0	0	0
Fog . . .	0.2	0.1	0	0	0	0	0	0	0	0	0	0.3	0.6

*No. of days 2 and above are given in whole numbers.

CUDDAPAH DISTRICT

The climate of this district is marked by oppressive hot weather in the summer season. The year may be divided into four seasons. The period from December to February is the dry, comparatively cool season. The summer season is from March to May and is followed by the southwest monsoon season from June to September. October and November constitute the post monsoon or the retreating monsoon season.

Rainfall

The district has a good network of 15 rain gauge stations for most of which the records for long periods are available. Tables 1 and 2 give the details of the rainfall at these stations and for the district as a whole. The average annual rainfall in the district is 685.5 mm. The rainfall generally increases from the northwest to the southeast in the district. Chitwel near the southeastern border of the district gets annually 909.4 mm of rain while Pulivendla near the western border has an average annual rainfall of 563.9 mm. 54 per cent of the annual rainfall occurs during the monsoon season while the two post monsoon months of October and November account for about 31 per cent. September is the month with the highest rainfall. The annual rainfall shows large variations from year to year. In the fifty year period 1901 to 1950 the highest annual rainfall amounting to 163 per cent of the normal occurred in 1903. In the very next year 1904 the district had the lowest annual rainfall in the fifty year period which amounted to 49 per cent of the normal. In ten years out of fifty the annual rainfall was less than 80 per cent of the normal. Although considering the district as a whole no two consecutive years had rainfall less than 80 per cent of the normal, two or even three consecutive years with rainfall less than 80 per cent of the normal have occurred on two or three occasions at some of the stations. From Table 2 it will be seen that the rainfall was between 500 and 800 mm i.e. within about 20 per cent in 34 years out of 50.

On an average the district has 43 rainy days (days with rainfall of 2.5 mm or more) in a year. As in the case of the amount of rainfall the number of rainy days decrease from the southeastern part of the district to the northwest and west.

The heaviest rainfall in 24 hours recorded at any station in the district was 266.7 mm at Rajampet on 24th October 1874.

Temperature

The district has a meteorological observatory at Cuddappah. The data of this observatory can be taken as representative of the conditions in the district as a whole. The period from about the later half of November to the middle of January is the coolest part of the year. In December when the mean temperature is the lowest, the mean daily maximum temperature is about 30° C and the mean daily minimum is about 19° C. From February, temperatures begin to rise rapidly and by May the hottest month the mean daily maximum temperature is about 40° C. The weather is oppressive in the summer season. With the onset of the southwest monsoon early in June temperatures begin to drop rapidly at first and progressively later till December.

The highest maximum temperature recorded at Cuddappah was 46.1° C on 18th May 1906 and the lowest minimum temperature was 10.6° C on 23rd December 1914.

Humidity

In the summer season the relative humidities are generally 50 to 60 per cent in the mornings and 35 to 40 per cent in the afternoons. In the rest of the year humidities are between 50 to 75 per cent.

Cloudiness

During the period June to November skies are heavily clouded to overcast. In the rest of the year skies are clear or lightly clouded.

Winds

Winds are generally light to moderate with some strengthening in the southwest monsoon season. During the period October to May the winds in the mornings are often calm. Winds blow from directions between southwest and northwest in the period May to September. In the rest of the year they are mainly from directions between northeast and southeast.

Special Weather Phenomena

In October and November storms originating in the Bay of Bengal sometimes cross the east coast of India and moving in a westerly to northwesterly direction across the peninsula affect the district and its neighbourhood, causing widespread rain. Thunderstorms occur in the summer and post monsoon months.

Tables 3, 4 and 5 give the temperature and humidity, mean wind speed and frequency of special weather phenomena respectively for Cuddappah.

TABLE I
Normal and extreme Rainfall

Station	No. of years of data	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual	Highest Annual rainfall as % of normal & year**	Lowest annual rainfall as % of normal & year**	Heaviest rainfall in 24 hours*		
															Amount (mm)	Date			
Pulivendla	50	a	4.3	4.1	5.6	14.5	43.2	44.7	64.5	79.8	132.3	87.4	69.3	14.2	563.9	171 (1916)	55 (1931)	163.1	1914 Oct 6
		b	0.5	0.2	0.4	1.2	3.3	3.5	4.7	5.1	7.6	5.8	4.5	1.3	38.1				
Jammalamadugu	50	a	3.8	4.3	6.6	14.7	41.1	59.2	69.6	93.7	149.3	88.9	54.4	8.9	594.5	161 (1916)	58 (1942)	187.4	1958 Oct 8
		b	0.5	0.3	0.4	1.3	2.9	3.8	5.5	6.2	8.3	5.5	3.8	0.9	39.4				
Proddatur	50	a	4.1	5.3	4.1	13.7	37.6	64.8	78.2	106.4	146.1	96.5	55.1	8.1	620.0	166 (1903)	57 (1923)	248.2	1934 Jun 8
		b	0.4	0.2	0.3	1.3	2.7	4.1	6.1	6.5	7.7	5.9	3.6	0.9	39.7				
Kamalapuram	50	a	7.4	4.1	4.8	13.7	33.8	57.7	79.5	101.6	143.5	88.4	66.5	12.5	613.5	167 (1909)	55 (1948)	217.2	1906 Jun 12
		b	0.5	0.3	0.3	1.1	2.3	4.0	6.0	6.2	8.0	5.8	4.0	1.2	39.7				
Cuddapah	50	a	11.4	3.3	5.8	12.9	38.6	71.6	106.9	121.4	154.9	107.7	95.3	17.8	747.6	164 (1903)	40 (1904)	176.0	1910 Aug 25
		b	0.8	0.2	0.4	1.0	2.6	4.7	6.9	7.2	8.2	6.5	5.0	1.5	45.0				
Badvel	50	a	12.7	4.1	3.8	14.2	39.9	48.5	89.1	100.6	120.7	121.9	123.9	22.6	702.0	174 (1917)	38 (1904)	245.4	1952 May 23
		b	0.9	0.3	0.2	1.1	2.6	4.2	7.5	7.0	6.6	7.3	6.2	1.8	45.7				
Sidhout	50	a	16.5	3.6	5.8	16.3	43.4	69.9	107.2	116.1	152.9	134.1	117.1	28.2	811.1	164 (1916)	43 (1904)	186.7	1870 Oct 20
		b	0.9	0.2	0.4	1.1	2.6	4.8	8.2	7.2	8.0	8.0	6.0	2.0	49.4				

Chitvel	50	a	33.8	2.5	11.2	13.5	50.3	54.9	102.6	99.6	125.0	171.2	183.6	61.2	909.4	188 (1943)	32 (1904)	221.5	1930	May	8
		b	1.3	0.2	0.4	1.0	2.3	4.3	7.2	6.7	6.9	8.1	7.4	3.2	49.0						
Rajampet	50	a	19.3	3.1	7.9	14.5	49.3	52.8	90.9	87.6	114.5	148.6	144.0	40.9	773.4	193 (1943)	29 (1904)	266.7	1874	Oct	24
		b	1.1	0.2	0.4	1.3	2.6	4.4	6.4	6.2	7.2	8.2	6.8	2.6	47.4						
Rayachoti	50	a	9.9	4.8	7.4	17.3	48.3	54.4	72.4	86.4	133.3	111.3	97.5	24.6	667.6	208 (1903)	53 (1908)	248.2	1903	Nov	6
		b	0.7	0.4	0.4	1.2	3.0	4.2	5.9	6.4	7.1	6.8	5.5	2.1	43.7						
Lakkireddipalle	30	a	5.3	3.3	3.1	14.5	48.8	60.5	87.9	77.0	122.2	108.2	82.3	22.3	635.4	174 (1940)	58 (1942)	142.7	1930	May	8
		b	0.4	0.3	0.3	1.3	3.3	4.9	6.7	6.6	8.0	6.3	5.0	1.8	44.9						
Vampalle	23	a	3.3	2.5	8.4	18.5	49.8	68.8	58.4	102.4	138.4	105.9	64.8	15.0	636.2	139 (1947)	55 (1934)	166.4	1954	Oct	22
		b	0.3	0.2	0.5	1.5	2.7	3.8	4.7	6.3	6.7	6.3	4.2	1.3	38.5						
Porumamilla	23	a	1.8	3.1	3.8	17.0	43.4	39.4	85.6	87.9	97.3	110.7	71.9	15.7	577.6	163 (1943)	65 (1941)	228.6	1952	May	23
		b	0.2	0.1	0.3	1.0	1.9	3.7	6.1	7.0	6.1	6.2	4.2	1.3	38.1						
Pullampet	23	a	7.4	2.5	6.1	19.1	54.1	57.7	85.3	79.8	122.4	153.7	142.5	53.6	784.2	182 (1943)	59 (1945)	228.6	1930	May	8
		b	0.6	0.2	0.2	1.5	2.3	3.8	5.2	5.0	5.8	7.0	6.2	2.6	40.4						
Vonipenta	23	a	1.0	1.3	5.1	16.8	52.1	69.9	93.2	114.8	140.2	81.5	61.7	6.9	644.5	160 (1943)	58 (1942)	144.8	1954	Oct	22
		b	0.1	0.1	0.2	1.2	3.2	4.1	6.9	7.2	7.2	5.1	3.2	0.8	39.3						
Cuddapah (District)		a	9.5	3.5	6.0	15.4	44.9	58.3	84.8	97.0	132.9	114.4	95.3	23.5	685.5	613 (1903)	49 (1904)				
		b	0.6	0.2	0.3	1.2	2.7	4.2	6.3	6.5	7.3	6.6	5.0	1.7	42.6						

(a) Normal rainfall in mm.

(b) Average number of rainy days (days with rain of 2.5 mm or more).

** Years of occurrence given in brackets.

* Based on all available data upto 1965.

TABLE 2

Frequency of Annual Rainfall in the District
(DATA 1901-1950)

Range in mm	No. of years	Range in mm	No. of years
301—400	1	801—900	7
401—500	1	901—1000	4
501—600	15	1001—1100	2
601—700	13	1101—1200	1
701—800	6		

TABLE 3

Normal Temperature and Relative Humidity
(CUDDAPAH)

Month	Mean Maxi- mum Tempe- rature	Mean Mini- mum Tempe- rature	Highest Maximum ever recorded				Lowest Minimum ever recorded				Relative Humidity	
											0830	1730
	°C	°C	°C	Date		°C	Date		%	%		
January	30.9	19.2	37.8	1897	Jan 31	11.7	1912	Jan 7	68	54		
February	34.3	21.0	40.6	1897	Feb 28	13.3	1964	Feb 24	60	46		
March	37.7	24.0	43.3	1903	Mar 31	17.0	1964	Mar 13	53	36		
April	39.8	27.4	45.0	1906	Apr 18	17.8	1907	Apr 19	56	40		
May	40.3	28.7	46.1	1906	May 18	19.4	1895	May 15	57	41		
June	37.0	26.9	45.0	1923	Jun 1	17.8	1944	Jun 13	63	49		
July	34.5	25.6	40.6	1897	Jul 5	17.2	1943	Jul 17	67	58		
August	34.0	25.4	40.0	1899	Aug 4	19.4	1921	Aug 27	68	57		
September	33.3	25.0	39.4	1907	Sep 22	19.4	1920	Sep 1	71	61		
October	32.5	23.9	38.9	1922	Oct 9	16.7	1943	Oct 31	72	65		
November	30.4	21.3	36.1	1927	Nov 2	13.8	1964	Nov 28	74	71		
December	29.5	19.1	35.6	1930	Dec 12	10.6	1914	Dec 23	72	61		
Annual	34.5	24.0							65	53		

* Hours I.S.T.

TABLE 4

Mean Wind Speed in Km./hr.

(CUDDAPAH)

Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
10.0	11.2	11.2	10.0	8.7	9.9	10.4	8.7	6.8	5.0	5.4	4.3	8.5

TABLE 5

Special Weather Phenomena

(CUDDAPAH)

*Mean No. of days with	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Thunder . . .	0	0	0.1	0.3	0.4	0.1	0	0	0.1	0.2	0	0	1.2
Hail . . .	0	0	0	0	0	0	0	0	0	0	0	0	0
Dust-Storm . .	0	0	0	0	0	0	0	0	0	0	0	0	0
Squall . . .	0	0	0	0	0	0	0	0	0	0	0	0	0
Fog . . .	0	0	0	0	0	0	0	0	0	0	0	0	0

*No. of days 2 and above are given in whole numbers.

KURNOOL DISTRICT

The climate of this district is characterised by a hot summer. The year may be divided into four seasons. The period from December to February is the cold weather season. The summer season from March to May is followed by the southwest monsoon season from June to September. October and November form the northeast monsoon season.

Rainfall

The district has a network of 19 rain gauge stations, records of which extend for long periods. The details of the rainfall at these stations and for the district as a whole are given in tables 1 and 2. The average annual rainfall in the district is about 62 cm. The rainfall generally decreases from north to south and varies from 53 cm at Owk-Meddikna sector in the south to 77 cm in Atmakur-Nandyal region in the northeast. The monsoon season accounts for about 69 per cent of the annual rainfall, while 19 per cent is accounted for by the two months of October and November. September is the month with the highest rainfall of 24 per cent of the annual. January is generally the driest month. Premonsoon showers are confined particularly to May. In the fifty year period 1901 to 1950, the highest annual rainfall amounting to 205 per cent of the normal was received in 1916. 1920 was the year with the lowest rainfall which was 61 per cent of the normal. In seven years out of the fifty the district received rainfall less than 80 per cent of the normal, two of them being consecutive. Two or even three consecutive years with rainfall less than 80 per cent of the normal have occurred on one or two occasions at most of the stations. Such low rainfall in four consecutive years occurred once at Allagadda, Gudur and Kodumur. At Gudur the annual rainfall was less than 80 per cent of the normal in the five consecutive years 1920-1924. It will be seen from Table 2 that the rainfall was between 400 and 800 mm in 45 years out of fifty.

On an average the district has 41 rainy days (days with rainfall of 2.5 mm or more) in a year. The period June-September accounts for 69 per cent of this average, while the period October-November accounts for 18 per cent. As in the case of rainfall the number of rainy days also generally decreases from North to South, and varies from 35 (86 per cent of the average) at Kodumur to 49 (120 per cent of the average) at Atmakur.

The heaviest rainfall in 24 hours recorded at any station in the district was 388.6 mm at Nandyal on 23rd May 1952.

Temperature

There is only one meteorological observatory in the district which is located at Kurnool. The data of this observatory can be taken as representative of the meteorological conditions in the district as a whole. In December when the mean temperature is the lowest, the mean maximum temperature is about 30°C and the mean minimum is about 17°C. From February temperatures begin to rise rapidly at first and by May the hottest month, the mean maximum temperature is about 40°C and the mean minimum temperature is about 27°C. The weather is oppressive in the summer season. With the advent of the southwest monsoon early in June temperatures decrease rapidly and there is some relief from the heat. There is a slight rise in the day temperatures in October. Thereafter temperatures decrease progressively.

The highest maximum at Kurnool was 45.6°C on 10th May 1921 and the lowest minimum temperature was 6.7°C on 29th December 1902.

Humidity

The period from February to May is the driest part of the year when the relative humidities in the mornings are 50-60 per cent and 20-30 per cent in the afternoons. They are maximum in the southwest monsoon season.

Cloudness

During the period May to November skies are moderately to heavily clouded and overcast on some days. In the rest of the year skies are clear or lightly clouded generally.

Winds

Winds are generally light to moderate with some strengthening in the southwest monsoon season. During the period October to April the winds blow from directions between north-east and southeast and are calm on many days in the mornings. In the period May to September winds blow from directions between southwest and northwest generally.

Special Weather Phenomena

In October and November storms originating in the Bay of Bengal sometimes cross the east coast of India and moving in a westerly to northwesterly direction across the peninsula affect the district and its neighbourhood causing widespread rain. Thunderstorm occur mostly during April to October. Monsoon thunderstorms are often accompanied with squall. Occasional duststorms occur mainly in April and May.

Tables 3, 4 and 5 give the temperature and humidity mean wind speed and frequency of special weather phenomena respectively for Kurnool.

TABLE I
Normal and Extreme Rainfall

Station			No. of years of data	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual	Highest annual rainfall as % of normal & year**	Lowest annual rainfall as % of normal & year**	Heaviest rainfall in 24 hours *			
																	Amount (mm)	Date				
Allagadda .	.	.	50	a	2.5	4.8	4.8	17.8	34.3	65.8	122.9	128.5	180.1	79.5	42.7	4.8	688.5	203 (1916)	54 (1920)	230.6	1952	May 23
				b	0.3	0.3	0.3	1.5	2.5	5.2	8.7	8.8	9.1	5.6	3.3	0.5	46.1					
Nandyal .	.	.	50	a	1.8	5.1	5.1	19.3	39.4	95.8	148.8	143.8	181.4	89.1	31.0	4.8	765.4	275 (1916)	56 (1907)	388.6	1952	May 23
				b	0.2	0.4	0.4	1.5	3.1	6.4	9.6	8.6	9.3	5.1	2.3	0.4	47.3					
Voravakal	.	.	31	a	3.3	3.6	4.1	17.3	26.9	80.5	99.3	85.3	125.0	82.0	29.0	2.8	559.1	154 (1949)	52 (1926)	135.6	1946	Jun *
				b	0.2	0.3	0.3	1.5	2.2	4.4	7.5	6.1	7.2	4.5	1.8	0.4	36.4					
Owk	.	.	50	a	3.8	6.6	6.3	14.5	37.1	56.1	66.3	72.6	130.3	86.1	41.4	4.8	525.9	193 (1916)	55 (1942)	130.8	1927	Nov 3
				b	0.3	0.4	0.2	1.5	2.8	4.2	5.9	5.7	7.1	5.3	3.1	0.5	37.0					
Koilkuntla	.	.	50	a	3.8	5.1	3.3	14.7	33.2	62.5	90.2	100.3	148.3	81.8	38.1	6.3	587.7	247 (1916)	57 (1934)	203.2	1916	Oct 31
				b	0.3	0.3	0.1	1.3	2.9	4.7	6.7	7.2	7.6	5.1	2.8	0.4	39.4					
Atmakur .	.	.	50	a	3.6	5.1	5.6	20.8	33.3	99.8	165.3	146.1	165.3	88.4	29.5	4.1	766.9	204 (1916)	50 (1907)	218.2	1931	Sep 23
				b	0.4	0.5	0.4	1.6	2.6	6.1	11.6	9.4	8.6	5.1	2.2	0.4	48.9					
Nandikotkur	.	.	50	a	4.1	5.3	5.3	19.1	33.5	88.4	126.0	121.9	148.3	80.0	30.2	2.8	664.9	203 (1916)	37 (1920)	257.8	1952	May 23
				b	0.2	0.4	0.4	1.4	2.6	5.6	10.2	9.0	8.6	5.2	2.2	0.3	46.1					
Kurnool .	.	.	50	a	4.1	8.1	5.3	14.2	29.7	75.9	105.9	103.1	146.1	78.5	30.2	5.8	606.9	175 (1949)	46 (1920)	304.8	1870	Aug 6
				b	0.3	0.5	0.4	1.3	2.7	5.2	9.0	8.1	8.6	4.8	2.0	0.4	43.3					
Dhone	.	.	46	a	3.3	5.1	5.6	16.8	38.3	56.9	95.8	83.3	142.7	83.6	34.0	8.6	574.0	216 (1916)	52 (1922)	191.8	1916	Oct 31
				b	0.4	0.4	0.3	1.3	2.9	4.3	7.2	6.5	8.0	4.5	2.6	0.6	39.0					

Peapalli	.	.	50	a	3.6	3.3	4.6	22.6	43.4	69.1	90.9	90.2	145.5	84.1	42.2	5.1	604.6	208	55	181.4	1889	Oct	16
				b	0.3	0.3	0.3	1.5	3.0	4.9	7.3	7.0	8.5	5.0	2.6	0.5	41.2	(1916)	(1942)				
Pattikonda	.	.	50	a	3.1	6.6	5.6	18.8	39.6	64.3	77.2	95.8	157.0	91.4	32.8	4.6	596.8	164	50	152.9	1909	Sep	2
				b	0.3	0.4	0.4	1.4	3.0	5.0	6.7	6.6	8.1	4.9	2.3	0.4	39.6	(1916)	(1923)				
Gudur	.	.	46	a	4.1	10.7	10.9	18.5	44.2	65.5	105.9	101.6	160.8	89.1	32.3	3.1	646.7	235	51	138.4	1953	Jan	19
				b	0.3	0.5	0.5	1.3	2.9	4.2	7.8	7.4	8.1	4.4	2.1	0.3	39.8	(1943)	(1922)				
Maddikera	.	.	19	a	0.3	3.3	3.8	17.5	39.9	67.3	64.3	85.3	136.7	81.5	29.2	3.1	532.2	132	49	116.8	1952	May	25
				b	0.1	0.2	0.3	1.7	3.3	5.2	5.4	5.7	8.0	5.8	2.6	0.3	38.6	(1935)	(1950)				
Kodumur	.	.	21	a	0.0	1.5	4.1	20.8	35.1	64.8	99.1	104.9	129.5	83.3	33.0	2.5	578.6	149	62	137.2	1905	Aug	19
				b	0.0	0.3	0.2	1.5	2.5	4.2	6.6	6.4	7.0	4.2	2.1	0.1	35.1	(1949)	(1941)				
Adoni	.	.	50	a	3.3	10.2	5.1	17.5	39.1	74.9	110.3	106.2	174.7	91.9	35.8	3.8	663.8	204	55	207.3	1916	Oct	31
				b	0.2	0.5	0.4	1.5	3.3	4.9	8.0	7.8	9.2	4.8	2.2	0.3	43.1	(1916)	(1904)				
Alur	.	.	50	a	3.1	6.9	7.6	22.1	44.7	59.4	71.1	91.7	147.6	94.0	37.6	4.3	590.1	175	62	142.2	1916	Oct	31
				b	0.2	0.4	0.5	1.5	3.3	4.2	6.2	6.3	8.1	5.5	2.4	0.5	39.1	(1916)	(1922)				
Yemmiganur	.	.	50	a	2.0	7.9	9.1	17.5	34.0	64.0	99.8	99.3	134.4	79.0	33.0	5.3	585.3	183	60	219.2	1916	Oct	31
				b	0.2	0.4	0.6	1.4	2.7	4.4	7.8	7.1	8.0	4.6	1.9	0.3	39.4	(1916)	(1920)				
Kosigi	.	.	23	a	1.3	5.6	5.8	14.7	46.0	68.8	101.6	101.9	132.8	68.8	29.2	2.0	578.5	158	43	169.0	1959	Sep	28
				b	0.0	0.3	0.4	1.3	2.3	5.0	7.7	6.8	7.3	4.8	1.7	0.2	37.8	(1948)	(1950)				
Kalwa	.	.	18	a	11.4	5.1	2.8	10.9	29.0	66.8	100.3	97.0	156.2	97.8	29.0	5.3	611.6	178	48	193.0	1916	Oct	30
				b	0.4	0.3	0.2	1.4	1.7	4.5	7.1	7.2	8.2	4.6	2.1	0.4	38.1	(1916)	(1904)				
Kurnool (District)	.	.		a	3.3	5.8	5.5	17.7	36.9	70.9	101.7	103.1	149.6	84.7	33.7	4.4	617.3	205	61				
				b	0.2	0.4	0.3	1.4	2.8	4.9	7.7	7.2	8.1	4.9	2.3	0.4	40.6	(1916)	(1920)				

(a) Normal rainfall in mm (b) Average number of rainy days (days with rain of 2.5 mm or more). *Based on all available data upto 1965.

†The exact date is not known.

** Years of occurrence given in brackets.

TABLE 2
Frequency of Annual Rainfall in the District
 (DATA 1901-1950)

Range in mm	No. of years	Range in mm	No. of years
301—400	1	801—900	3
401—500	8	901—1000	0
501—600	17	1001—1100	0
601—700	11	1101—1200	0
701—800	9	1201—1300	1

TABLE 3
Normal Temperature and Relative Humidity
 (KURNOOL)

Month	Mean Maxi- mum Tempe- ra- ture	Mean Mini- mum Tempe- ra- ture	Highest Maximum ever recorded		Lowest Minimum ever recorded		Relative Humi- dity	
			°C	Date	°C	Date	0830	1730*
January	31.3	17.0	36.1	1897 Jan 30	8.3	1891 Jan 4	70	32
February	34.3	19.3	38.9	1899 Feb 24	11.1	1943 Feb 5	57	24
March	37.5	22.5	41.7	1925 Mar 31	12.8	1921 Mar 3	48	21
April	39.3	26.0	44.4	1896 Apr 16	16.1	1905 Apr 2	49	24
May	40.0	27.2	45.6	1921 May 10	19.4	1955 May 22	54	27
June	35.6	25.0	44.4	1898 Jun 3	20.0	1935 Jun 24	69	46
July	32.5	23.8	38.3	1915 Jul 9	20.6	1903 Jul 28	75	57
August	32.1	23.5	37.8	1899 Aug 6	20.6	1929 Aug 23	75	56
September	31.9	23.3	37.8	1899 Sep 4	19.4	1892 Sep 12	76	57
October	32.4	22.4	38.3	1898 Oct 18	13.9	1950 Oct 24	74	53
November	31.0	19.2	36.1	1896 Nov 2	9.9	1964 Nov 27	72	44
December	30.3	16.6	34.4	1929 Dec 18	6.7	1902 Dec 29	72	37
Annual	34.0	22.1					66	40

*Hours I. S. T.

TABLE 4
Mean Wind Speed in Km./hr.
 (KURNOOL)

Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annua
6.1	6.9	7.7	8.7	13.4	21.1	21.3	18.4	12.6	6.0	5.1	4.9	11.0

TABLE 5
Special Weather Phenomena
 (KURNOOL)

*Mean No. of days with	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Thunder . . .	0	0.3	1.3	3	5	3	1.1	2	4	4	0.5	0.1	24
Hail . . .	0	0	0	0	0	0	0	0	0	0	0	0	0
Dust-Storm . .	0	0.1	0	0.6	0.8	0.3	0	0.1	0	0	0	0	1.9
Squall . . .	0	0.1	0.1	0.6	1.4	5	4	3	1.1	0.1	0	0	15
Fog . . .	0	0	0	0	0	0	0	0	0	0	0	0	0

*No. of days 2 and above are given in whole numbers.

TELANGANA

ADILABAD DISTRICT

The climate of this district is characterised by a hot summer and is generally dry except during the southwest monsoon season. The year may be divided into four seasons. The cold season from December to February is followed by the summer season from March to May. The period from June to September constitutes the southwest monsoon season. October and November form the post monsoon season.

Rainfall

Records of rainfall in the district are available for 5 stations. Tables 1 and 2 give the details of the rainfall at these stations and for the district as a whole. The average annual rainfall in the district is 995.1 mm. The rainfall in the district, in general, increases from the southwest towards the northeast. About 85 per cent of the annual rainfall is received during the southwest monsoon season, July being the rainiest month with 31 per cent share of the annual rainfall. The variation in the annual rainfall from year to year is not large. In the 50 year period 1901 to 1950, the highest annual rainfall amounting to 152 per cent of the normal occurred in 1933 while 1920 was the year with the lowest annual rainfall which was 44 per cent of the normal. The annual rainfall in the district was less than 80 per cent of the normal in 7 years, no two of them being consecutive. It will be seen from table 2 that the annual rainfall in the district was between 800 and 1200 mm (i.e. within 20 per cent of the normal) in as many as 35 years out of 46.

On an average there are 56 rainy days (i.e. days with rainfall of 2.5 mm or more) in a year in the district. This number varies from 53 at Laxmanchandra to 60 at Nirmal.

The heaviest rainfall in 24 hours recorded at any station in the district was 325.9 mm at Asifabad on 27th September 1891.

Temperature

There is no meteorological observatory in the district. The description which follows is based on the records of the observatories in the neighbouring districts where similar meteorological conditions prevail. The cold weather commences towards the end of November. December is generally the coldest month with the mean daily maximum temperature at about 29°C. and the mean daily minimum at about 15°C. The minimum temperature may sometimes go down to about 9°C. The period from March to a May is one of continuous increase in temperature. May is the hottest month with the mean daily maximum temperature at about 42°C and a mean daily minimum of about 29°C. The days are intensely hot and on individual days the temperature may go up to about 46°C. Afternoon thundershowers which occur on some days bring welcome relief from the heat. With the advance of the southwest monsoon into the district by about the middle of June there is an appreciable drop in temperatures. With the withdrawal of the monsoon day temperatures increase slightly due to increased insolation; but the night temperatures steadily decrease. Later both day and night temperatures decrease rapidly.

Humidity

The relative humidities are high generally during the southwest monsoon season. The air is generally dry during the rest of the year, the driest part of the year being the summer season when the humidity in the afternoons is about 25 per cent.

Cloudiness

During the southwest monsoon season the skies are heavily clouded to overcast. There is rapid decrease of cloudiness during the post monsoon season. In the rest of the year the skies are mostly clear or lightly clouded.

Winds

Winds are light to moderate with some strengthening in the period May to August. During the post monsoon and cold season winds blow mostly from the east or northeast. By March south-westerlies and westerlies start blowing and in the rest of summer and the southwest monsoon seasons winds are mostly from directions between southwest and northwest.

Special Weather Phenomena

Thunderstorms occur mainly during the summer and southwest monsoon seasons. Dust-raising winds blow during the summer afternoon. Storms and depressions which originate in the Bay of Bengal during the monsoon and post monsoon seasons and move westwards affect the weather over the districts causing widespread heavy rain and strong winds.

TABLE I
Normal and extreme Rainfall

Station	No. of years of data	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual	Highest annual rain-fall as % of normal & year ***	Lowest annual rain-fall as % of normal & year **	Heaviest rainfall in 24 hours*		
																	Amount (mm)	Date	
Asifabad . . .	46 a	6.3	20.6	13.7	19.3	18.5	157.2	289.3	203.2	184.1	65.5	13.2	4.6	995.5	186 (1938)	44 (1920)	325.9	1891	Sep 27
	b	0.4	1.5	1.2	1.6	1.5	8.5	14.4	11.8	10.1	3.5	1.1	0.4	56.0					
Adilabad . . .	19 a	5.6	17.5	13.2	27.9	13.5	181.6	323.1	222.0	189.0	50.8	23.4	3.3	1070.9	146 (1933)	53 (1941)	277.0	1963	Aug 16
	b	0.4	1.7	1.3	1.5	1.6	9.6	16.5	11.7	9.4	2.8	1.3	0.4	58.2					
Nirmal . . .	21 a	6.1	16.3	12.2	12.9	17.3	155.7	325.4	210.1	191.5	50.8	23.1	3.8	1025.2	144 (1933)	59 (1950)	158.7	1958	Aug 31
	b	0.6	1.3	1.2	1.6	1.8	8.8	16.8	12.5	10.2	3.3	1.4	0.4	59.9					
Jowlynalla . . .	16 a	6.9	24.4	10.4	15.0	10.4	148.6	302.0	183.9	153.2	41.7	27.9	3.6	928.0	143 (1949)	48 (1950)	203.2	1956	Jul 30
	b	0.4	1.3	0.7	1.3	0.6	8.7	15.5	10.9	10.1	2.7	1.4	0.4	54.0					
Laxmanchandra . . .	16 a	8.1	16.8	16.8	12.5	10.2	134.9	298.2	236.2	154.9	51.8	12.7	2.8	955.9	141 (1947)	60 (1950)	180.3	1958	Aug 31
	b	0.6	1.4	1.0	1.0	1.1	7.4	15.3	11.7	9.4	2.7	1.1	0.3	53.0					
Adilabad (District) .	a	6.6	19.1	13.3	17.5	14.0	155.6	307.6	211.1	174.5	52.1	20.1	3.6	995.1	152 (1933)	44 (1920)			
	b	0.5	1.4	1.1	1.4	1.3	8.6	15.7	11.7	9.8	3.0	1.3	0.4	56.2					

(a) Normal rainfall in mm. (b) Average number of rainy days (days with rain of 2.5 mm or more).

**Years of occurrence given in brackets.

*Based on all available data upto 1965.

TABLE 2

Frequency of Annual Rainfall in the District
(DATA 1901-1950)

Range in mm	No. of years	Range in mm	No. of years
401—500	2	1001—1100	12
501—600	0	1101—1200	5
601—700	4	1201—1300	2
701—800	1	1301—1400	0
801—900	13	1401—1500	1
901—1000	5	1501—1600	1

Data for 46 years only.

HYDERABAD DISTRICT

The climate of this district is characterised by a hot summer and is generally dry except during the southwest monsoon season. The year may be divided into four seasons. March to May is the summer season. June to September constitutes the southwest monsoon season. October and November form the post monsoon or retreating monsoon season. December to February is the cold weather season.

Rainfall

Records of rainfall in the district are available for 13 stations for fairly long periods. The details of the rainfall at these stations and for the district as a whole are given in tables 1 and 2. The average annual rainfall in the district is 769.9 mm. The rainfall in the district in general, increases from the south towards the north and varies from 642.4 mm at Shankarapalli to 896.3 mm. at Ibrahimpatnam. The rainfall during the southwest monsoon months June to September constitutes about 78 per cent of the annual rainfall. September is generally the rainiest month. There is some rainfall during the latter part of the summer and the early part of the post monsoon season, mainly in the form of thundershowers. The variation in the annual rainfall from year to year is appreciable. During the 50 year period 1901 to 1950 the highest annual rainfall which was 166 per cent of the normal occurred in 1903. In 1941, the year with the lowest annual rainfall, it was 65 per cent of the normal. The annual rainfall in the district was less than 80 per cent of the normal in 10 years during the same 50 year period but none of them were consecutive. Considering the annual rainfall at the individual stations it is found that during the period 1901 to 1950 two consecutive years of such low rainfall occurred generally once at most of the stations. Two consecutive years of such low rainfall occurred four times at Sultanbazar. Even three consecutive years of such low rainfall occurred once each at Bulkapur, Himayatsagar and Bolaram during the same 50 year period. It will be seen from table 2 that the annual rainfall in the district was between 600 and 900 mm (i.e. within about 20 per cent) in 33 years out of 50.

On an average there are 48 rainy days (i.e. days with rainfall of 2.5 mm or more) in a year in the district. This number varies from 35 at Shankarapalli to 53 at Tandur.

The heaviest rainfall in 24 hours recorded at any station in the district was 325.1 mm at Ibrahimpatnam on 28th September 1908.

Temperature

There is a meteorological observatory in the district Begampet and the records of this observatory may be taken as representative of the meteorological conditions which prevail in the district in general. From February temperatures begin to increase rapidly. May is the hottest month with the mean daily maximum temperature at about 39° C and the mean daily minimum at about 26°C. During the summer season and in June before the onset of the southwest monsoon the day temperatures often go above 40°C. The days are intensely hot. There is welcome relief from the heat when afternoon thundershowers occur. With the onset of the southwest monsoon into the district early in June there is appreciable drop in temperatures and the weather becomes more pleasant. After September when the southwest monsoon withdraws there is a slight increase in the day temperatures. But the night temperatures continue to decrease. During November the decrease in both the day and night temperatures is most rapid. December is the coldest month with the mean daily maximum temperature at about 28°C and the mean daily minimum at about 13°C. In this season the night temperatures sometimes drop down to about 7° C.

The highest maximum temperature recorded at Begampet was 44.4° C on 28th May 1935. The lowest minimum was 6.1° C on 8th January 1946.

Humidity

During the southwest monsoon season the relative humidities are generally high being between 70 and 80 per cent on the average. Humidity decreases from the post monsoon season onwards. The driest part of the year is the summer season when the humidity is generally between 30 and 35 per cent in the after noons.

Cloudiness

During the southwest monsoon season the skies are generally heavily clouded or overcast. The cloudiness decrease in the post monsoon season. The skies are mostly clear or lightly clouded in the succeeding seasons. Cloudiness increases progressively from the commencement of the summer season.

Winds

Winds are generally light to moderate with some increase in force during May and the southwest monsoon season. During the post monsoon and the early half of the cold season winds are very light and variable in direction in the mornings and mostly northeasterly to easterly in the afternoons. During the latter half of the cold season and in March—April the morning winds continue to be light and variable in direction, the afternoon winds being mostly easterly to southeasterly. Winds from a westerly direction begin to blow from May and in the southwest monsoon season winds are mainly from a westerly to northwesterly direction.

Special Weather Phenomena

Storms and depressions which originate in the Bay of Bengal during September and the post monsoon months move in a westerly or northwesterly direction across the peninsula. Some of these depressions affect the weather over the district causing widespread heavy rain and gusty winds. Thunderstorms occur in the summer season and before the onset of the monsoon and towards the end of the southwest monsoon and early part of the post monsoon seasons.

Tables 3, 4 and 5 give the temperature and humidity, mean wind speed and special weather phenomena respectively for Begampet.

TABLE I
Normal and extreme Rainfall

Station	No. of years of data	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual	Highest annual rain-fall as % of normal & year **	Lowest annual rain-fall as % of normal & year **	Heaviest rainfall in 24 hours*		
																	Amount (mm)	Date	
Begampet . . .	50 a	8.1	11.7	12.9	25.9	28.7	107.4	161.3	134.9	170.7	73.1	31.7	5.8	772.2	185 (1915)	62 (1941)	190.5	1954	Aug 1
	b	0.5	0.9	0.8	1.9	2.4	6.6	11.1	9.5	9.6	4.1	1.9	0.5	49.8					
Sultanbazar . . .	50 a	7.4	10.7	12.5	26.2	32.3	109.7	164.4	134.1	172.0	72.1	28.7	5.3	765.4	200 (1916)	49 (1934)	160.0	1908	Sep 27
	b	0.4	0.8	0.9	1.8	2.2	6.4	10.7	8.6	9.0	3.8	1.7	0.5	46.8					
Bulkapur . . .	41 a	6.3	11.2	12.9	24.9	29.0	111.5	146.6	145.8	195.8	62.2	24.4	2.5	773.1	158 (1914)	70 (1920)	109.2	1947	Sep 28
	b	0.4	0.9	1.1	2.4	2.5	7.3	11.4	9.6	11.0	4.1	1.8	0.3	52.8					
Janwada . . .	50 a	7.4	9.4	11.7	26.7	29.0	107.7	146.3	137.7	185.9	63.3	24.4	4.3	753.8	165 (1916)	52 (1920)	231.1	1908	Sep 27
	b	0.5	0.7	0.9	2.2	2.4	7.2	10.7	9.3	10.6	3.9	1.8	0.4	50.6					
Gandhipet . . .	28 a	3.3	11.7	15.7	26.9	32.3	112.0	158.0	141.2	192.3	60.7	38.1	5.8	798.0	174 (1933)	60 (1941)	240.0	1950	Sep 11
	b	0.3	1.1	1.0	2.2	2.6	7.2	12.0	9.3	10.6	4.1	1.8	0.4	52.6					
Himayatsagar . . .	25 a	1.3	8.4	16.5	20.1	27.2	96.3	133.3	117.6	162.8	54.6	28.2	6.3	672.6	161 (1950)	47 (1929)	154.9	1965	Sep 20
	b	0.1	0.8	0.8	2.0	1.8	6.0	11.0	7.7	10.2	3.9	1.6	0.4	46.3					
Bolaram . . .	50 a	7.4	9.1	11.7	23.4	23.9	107.2	167.6	141.5	157.7	74.4	30.2	6.3	760.4	174 (1908)	55 (1913)	186.7	1908	Sep 28
	b	0.5	1.0	1.0	1.7	1.9	6.6	11.7	10.1	9.5	4.5	1.8	0.4	50.7					

TABLE 1—(Contd.)

Station	No. of years of data	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual	Highest annual rain-fall as % of normal & year **	Lowest annual rain-fall as % of normal & year **	Heaviest rainfall in 24 hours*	
																	Amount (mm)	Date
Saifabad . . .	13 a	0.5	6.1	11.2	17.5	27.9	111.3	154.7	146.8	167.1	51.1	20.3	2.0	716.5	129 (1947)	70 (1939)	109.2	1954 Aug 1
	b	0.1	0.6	0.9	1.6	1.8	6.6	10.7	10.6	9.9	4.3	1.5	0.3	48.9				
Medchal . . .	20 a	7.1	5.3	16.0	28.7	25.9	144.0	191.8	144.8	173.2	50.3	26.9	7.9	821.9	202 (1933)	38 (1948)	147.3	1944 Jun 1
	b	0.1	0.5	0.7	1.7	1.1	6.3	10.9	8.3	7.5	2.7	1.0	0.3	41.1				
Tandur . . .	23 a	1.5	6.3	6.6	22.6	27.9	111.8	172.0	146.8	195.6	48.3	14.7	1.0	755.1	179 (1923)	52 (1941)	155.5	1954 Sep 28
	b	0.1	0.8	0.8	2.0	2.8	8.4	11.9	10.2	11.0	3.9	1.1	0.1	53.1				
Ibrahimpatnam . .	12 a	3.6	11.7	3.3	34.8	22.6	122.7	162.3	192.5	234.9	74.7	27.9	5.3	896.3	171 (1903)	66 (1907)	325.1	1908 Sep 28
	b	0.3	0.8	0.3	2.1	1.7	7.6	10.1	10.6	9.7	3.5	1.5	0.5	48.7				
Vikarabad . . .	20 a	1.0	5.6	8.9	36.3	38.9	136.4	201.4	159.0	219.7	53.9	16.3	3.3	880.7	166 (1933)	66 (1941)	127.0	1932 Sep 15
	b	0.1	0.5	0.7	1.9	1.9	7.1	12.4	9.5	9.3	3.1	1.1	0.2	47.8				
Shankarapalli . .	20 a	0.8	13.5	12.9	25.1	12.5	86.4	116.1	116.6	192.3	47.7	11.9	6.6	642.4	157 (1938)	55 (1932)	203.2	1942 Sep 6
	b	0.1	0.6	0.7	1.5	1.1	4.5	8.1	7.1	7.7	2.6	0.8	0.5	35.3				
Hyderabad (District) .	a	4.3	9.3	11.8	26.1	27.5	112.6	158.9	143.0	186.2	60.5	24.9	4.8	769.9	166 (1903)	65 (1941)		
	b	0.3	0.8	0.8	1.9	2.0	6.8	11.0	9.3	9.7	3.7	1.5	0.4	48.2				

(a) Normal rainfall in mm. (b) Average number of rainy days (days with rain of 2.5 mm or more). *Based on all available data upto 1965
 **Years of occurrence given in brackets.

TABLE 2

Frequency of Annual Rainfall in the District

(DATA 1901-1950)

Range in mm	No. of years	Range in mm	No. of years
401—500	1	901—1000	3
501—600	8	1001—1100	1
601—700	12	1101—1200	0
701—800	11	1201—1300	4
801—900	10		

TABLE 3

Normal Temperature and Relative Humidity

(BEGAMPET)

Month	Mean Maxi- mum Tem- pera- ture	Mean Mini- mum Tem- pera- ture	Highest Maximum ever recorded		Lowest Minimum ever recorded		Relative Humi- dity	
			°C	Date	°C	Date	0830 %	1730* %
January	28.6	14.6	35.0	1929 Jan 17	6.1	1946 Jan 8	79	39
February	31.2	16.7	37.2	1951 Feb 25	8.9	1911 Feb 3	64	35
March	34.8	20.0	42.2	1892 Mar 29	13.2	1957 Mar 6	54	30
April	36.9	23.7	43.3	1941 Apr 30	16.1	1917 Apr 9	51	31
May	38.7	26.2	44.4	1935 May 28	18.9	1964 May 4	50	33
June	34.1	24.1	43.9	1931 Jun 9	17.8	1922 Jun 12	71	54
July	29.8	22.3	37.2	1918 Jul 13	19.0	1965 Jul 13	83	69
August	29.5	22.1	36.1	1950 Aug 24	19.4	1955 Aug 26	82	70
September	29.7	21.6	36.1	1927 Sep 15	17.8	1942 Sep 30	82	71
October	30.3	19.8	36.7	1896 Oct 6	12.2	1952 Oct 31	73	58
November	28.7	16.0	33.9	1909 Nov 2	7.4	1964 Nov 26	68	48
December	27.8	13.4	33.3	1930 Dec 10	7.2	1945 Dec 12	71	42
Annual	31.7	20.0					69	48

*Hours I. S. T.

TABLE 4

Mean Wind Speed in Km./hr.

(BEGAMPET)

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
8.1	8.9	9.6	10.9	12.4	23.8	22.1	18.3	12.6	8.9	8.0	7.4	12.6

TABLE 5

Special Weather Phenomena

(BEGAMPET)

*Mean No. of days with	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual	
Thunder	. . .	0.1	0.5	1.9	5	6	5	1.5	2	4	3	0.3	0	29
Hail	. . .	0	0	0.1	0	0	0	0	0	0	0	0	0	0.1
Dust-Storm	. . .	0.2	0.1	0.2	0	0.3	0	0	0	0	0	0.2	0.1	1.1
Squall	. . .	0	0	0.6	1.7	2	3	2	0.9	1.0	0.1	0	0	11
Fog	. . .	0.8	0.2	0	0	0	0	0	0	0	0.1	0.2	0.8	2

*No. of days 2 and above are given in whole numbers.

KARIMNAGAR DISTRICT

The climate of this district is characterised by a hot summer and is generally dry except during the southwest monsoon season. The year may be divided into four seasons. The cold season from December to February is followed by the summer season from March to May. June to September is the southwest monsoon season. October and November constitute the post-monsoon season.

Rainfall

Records of rainfall in the district are available for four stations. The details of the rainfall at these stations and for the district as a whole are given in tables 1 and 2. The average annual rainfall in the district is 914.2 mm. The rainfall in the district in general increases from the southwest towards the northeast and varies from 879.0 mm. at Karimnagar to 946.6 mm at Peddapalli. About 81 per cent of the annual normal rainfall is received during the southwest monsoon season. The variation in the annual rainfall from year to year is large. During the 50 year period 1901 to 1950 the highest annual rainfall in the district amounting to 152 per cent of the normal occurred in 1933 while 1920 was the year with the lowest annual rainfall which was only 43 per cent of the normal. During the same 50 year period the annual rainfall in the district was less than 80 per cent of the normal in 11 years but none of them were consecutive. Considering the rainfall at the individual stations also, consecutive years of such low rainfall is rare in the district. Two consecutive years of low rainfall occurred once at Peddapalli. It will be seen from table 2 that the annual rainfall in the district was between 700 and 1200 mm (i.e. within about 25 per cent of the normal) in 33 years out of 46 for which the data are available.

On an average there are 51 rainy days (i.e. days with rainfall of 2.5 mm or more) in a year in the district. This number varies from 44 at Peddapalli to 54 at Jactial.

The heaviest rainfall in 24 hours recorded at any station in the district was 308.1 mm at Jactia on 24th October 1939.

Temperature

The only meteorological observatory in the district is at Ramagundam. The records of this observatory may be taken as fairly representative of the meteorological conditions which prevail in the district in general. There is rapid increase in the temperature from February. May is the hottest month with the mean daily maximum temperature at 43° C and the mean daily minimum at about 30° C. On many days during the summer the day temperature exceeds 40° C and occasionally reaches 47° C in May or before the onset of the rains and the days are intensely hot. Occasional thundershowers which occur in the afternoons bring welcome relief. With the advance of the southwest monsoon into the district by about the middle of June day temperatures drop down appreciably and the weather becomes cool. By about the first week of October the monsoon withdraws and there is a slight increase in the day temperature. However the night temperatures continue to decrease steadily. From about the beginning of November night temperatures decrease rapidly till December which is the coldest month with the mean daily maximum at about 30° C and the mean daily minimum at about 15° C. The night temperature sometimes drop down to about 9° C.

The highest maximum temperature recorded at Ramagundam was 47.2°C on 19th May 1948 and 9th June 1953. The lowest minimum temperature was 8.5°C on 26th December 1959.

Humidity

The relative humidities are generally high during the southwest monsoon season. The relative humidities decrease after the withdrawal of the southwest monsoon. The summer season is the driest part of the year with the humidities in the afternoon being below 25 per cent.

Cloudiness

Skies are heavily clouded to overcast during the southwest monsoon season. There is rapid decrease in cloudiness in the post monsoon season. In the rest of the year the skies are generally clear or lightly clouded.

Winds

Winds are generally light to moderate with some increase in force during the southwest monsoon season. In the post monsoon season winds are generally northerly or northeasterly. In December southerlies and southeasterlies begin to blow and these predominate in the next five months. Winds are from directions between southwest and northwest in the first half of the southwest monsoon season becoming mainly westerly to northwesterly in the second half of the season.

Special Weather Phenomena

Storms and depressions originating in the Bay of Bengal during the post monsoon season affect the weather over the district causing widespread heavy rain and strong winds. Thunderstorms occur mostly between April and September.

Tables 3, 4 and 5 give the temperature and humidity, mean wind speed and special weather phenomena respectively for Ramagundam.

TABLE I
Normal and extreme Rainfall

Station			No. of years of data	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual	Highest annual rain- fall as % of normal & year**	Lowest annual rain- fall as % of normal & year**	Heaviest rainfall in 24 hours*				
																			Amount (mm)	Date			
Karimnagar	.	.	46	a	6.1	22.1	12.9	21.1	21.8	149.6	220.2	169.9	173.2	54.9	20.6	6.6	879.0	155 (1938)	44 (1920)	169.4	1886	Aug	16
				b	0.5	1.2	0.8	1.2	1.9	8.2	13.3	10.9	9.1	3.1	1.5	0.3	52.0						
Huzurabad	.	.	20	a	5.6	20.3	11.9	22.3	31.0	115.3	219.7	175.3	190.5	68.8	24.4	1.8	886.9	138 (1936)	50 (1939)	171.4	1962	Aug	17
				b	0.4	1.5	0.9	1.6	1.7	7.3	13.7	11.1	9.5	3.5	1.9	0.1	53.2						
Jactial	.	.	24	a	3.6	24.4	11.9	22.9	15.5	145.5	264.9	185.7	174.2	69.3	24.1	2.0	944.0	171 (1933)	50 (1941)	308.1	1939	Oct	24
				b	0.3	1.9	0.8	1.4	1.5	8.4	14.7	11.1	9.7	2.7	1.3	0.3	54.1						
Peddapalli	.	.	20	a	4.6	20.6	10.2	25.9	20.6	140.2	301.7	184.1	157.2	65.5	12.7	3.3	946.6	166 (1933)	60 (1942)	203.2	1937	Apr	19
				b	0.4	1.1	0.7	0.8	1.0	6.3	14.9	8.9	7.1	2.2	0.7	0.2	44.3						
Karimnagar (District)				a	5.0	21.9	11.7	23.1	22.2	137.7	251.6	178.7	173.8	64.6	20.5	3.4	914.2	152 (1933)	43 (1920)				
				b	0.4	1.4	0.8	1.3	1.5	7.5	14.1	10.5	8.9	2.9	1.3	0.2	50.8						

(a) Normal rainfall in mm. (b) Average number of rainy days (days with rain of 2.5 mm or more).

**Years of occurrence given in brackets.

*Based on all available data up to 1965.

TABLE 2
Frequency of Annual Rainfall in the District
 (DATA 1901-1950)

Range in mm	No. of years	Range in mm	No. of years
301—400	1	901—1000	14
401—500	2	1001—1100	5
501—600	2	1101—1200	2
601—700	4	1201—1300	3
701—800	4	1301—1400	1
801—900	8		

Data available for 46 years only.

TABLE 3
Normal Temperature and Relative Humidity
 (RAMAGUNDAM)

Month	Mean Maxi- mum Tempe- rature	Mean Mini- mum Tempe- rature	Highest Maximum ever recorded		Lowest Minimum ever recorded		Relative Humidity	
	°C	°C	°C	Date	°C	Date	0830	1730*
							%	%
January	31.1	16.1	34.6	1964 Jan 26	9.4	1953 Jan 25	64	35
February	34.1	18.8	38.9	1951 Feb 28	9.4	1949 Feb 8	54	26
March	37.7	22.7	42.8	1953 Mar 27	14.4	1952 Mar 4	52	23
April	40.3	26.9	44.7	1961 Apr 23	19.3	1965 Apr 21	50	23
May	42.8	29.7	47.2	1948 May 19	21.1	1949 May 13	44	23
June	38.6	28.2	47.2	1953 Jun 8	20.9	1965 Jun 26	59	42
July	32.1	24.7	40.0	1950 July 1	20.2	1965 Jul 21	79	67
August	31.3	24.4	37.4	1960 Aug 28	19.8	1965 Aug 31	81	69
September	32.0	24.4	37.3	1958 Sep 23	18.0	1965 Sep 2	80	67
October	32.5	22.8	38.4	1957 Oct 11	15.6	1954 Oct 31	76	58
November	30.7	17.5	35.4	1963 Nov 6	11.1	1952 Nov 30	66	44
Dacember	30.2	15.0	34.1	1960 Dec 7	8.5	1959 Dec 26	68	41
Annual	34.5	22.6					64	43

TABLE 4

Mean Wind Speed in Km./hr.

(RAMAGUNDAM)

Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
5.0	5.7	6.9	7.9	8.4	9.0	7.2	6.3	5.0	4.4	4.3	3.4	6.1

TABLE 5

Special Weather Phenomena

(RAMAGUNDAM)

*Mean No. of days with	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Thunder . . .	0.2	0.3	1.7	3	4	5	3	2	4	1.9	0.3	2	27
Hail . . .	0	0	0	0	0	0	0	0	0	0	0	0	0
Dust-Storm . . .	0.1	0	0.2	0.3	1.1	0.6	0	0	0.1	0	0	0.3	3
Squall . . .	0	0	0	0	0	0	0	0	0	0	0	0	0
Fog . . .	0	0	0	0	0	0	0	0	0	0	0	0	0

*No. of days 2 and above are given in whole numbers.

KHAMMAM DISTRICT

The climate of this district is characterised by a hot summer and good monsoon rainfall. The summer season is from March to May. The southwest monsoon season which follows lasts till September. October and November constitute the post monsoon or retreating monsoon season. December to mid-February is the season of generally fine weather.

Rainfall

Records of rainfall in the district are available for 6 rain gauge stations. Details of the rainfall at these stations and for the district as a whole are given in tables 1 and 2. The average annual rainfall in the district is 1046.4 mm. The rainfall in the district increases from the southwest towards the northeast. Palair near the southwestern border of the district gets only 807.7 mm of rain in a year while at Nuguru in the northwest the average annual rainfall is 1481.5 mm. About 78 per cent of the annual rainfall is received in the southwest monsoon season, July being the rainiest month. During the premonsoon and post monsoon periods some rainfall occurs mostly in the form of thundershowers. During the fifty year period from 1901 to 1950, the highest annual rainfall amounting to 165 per cent of the normal occurred in 1917 while 1920 was the year with the lowest annual rainfall which was 63 per cent of the normal. During the same period rainfall less than 80 per cent of the normal occurred only in 5 years, none of them being consecutive. Considering the rainfall at the individual stations two consecutive years of such low rainfall occurred only once each at Bhadrachalam and Wyra, while at Palair and Khammam rainfall less than 80 per cent of the normal occurred once for three or four consecutive years. The annual rainfall in the district was between 800 and 1300 mm (*i. e.* within about 25 per cent of the annual) in 39 years out of 50.

On an average there are 57 rainy days (*i. e.* days with rainfall of 2.5 mm or more) in a year in the district. This number varies from 49 at Singareni Collieries to 71 at Nuguru.

The heaviest rainfall in 24 hours recorded at any station in the district was 299.7 mm at Khammam on 10th July 1954.

Temperature

There are two meteorological observatories at Khammam and Bhadrachalam. The records of these two stations may be taken as quite representative of the meteorological conditions in the district as a whole. From February temperatures increase rapidly till May which is the hottest month. The mean daily maximum temperature in May is about 41° C and the mean daily minimum about 28° C. The days are intensely hot, the maximum temperature sometimes going up to about 47° C. The sultry mornings with humidities varying between 60 and 75 per cent and the comparatively dry afternoons with hot dust raising winds make the summer very uncomfortable. Afternoon thundershowers which occur on some days bring welcome relief though only temporarily. With the onset of the southwest monsoon early in June, the day temperatures decrease appreciably at first and steadily later. After the withdrawal of the monsoon temperatures continue to decrease. The fall in night temperatures is most rapid in November. December is the coldest month with the mean daily maximum temperature at about 30° C and the mean daily minimum at about 16° C.

The highest maximum temperature recorded at Khammam was 47.2° C on 25th May 1947 and the lowest minimum was 9.4° C on 8th January 1946. At Bhadrachalam the highest maximum temperature recorded 46.8° C on 7th June 1958 and the lowest minimum 8.4° C on 5th January 1962.

Humidity

Mornings are comparatively more humid than the afternoons even in summer. The relative humidities in the mornings are generally above 80 per cent in the monsoon months and between 60 and 80 per cent during the rest of the year. The summer season is the driest part of the year with the relative humidities in the afternoons generally less than 35 per cent.

Cloudiness

During the monsoon season the skies are mostly heavily clouded or overcast. During the rest of the year skies are generally lightly clouded or clear.

Winds

Winds are generally light with some increase in force in the later part of summer and the early part of the monsoon seasons. In May and in the southwest monsoon season winds are predominantly from the west or northwest. In the period October to February winds are northeasterly to easterly. In March and April winds are light and variable in direction in the mornings and generally from the east or southeast in the afternoons.

Special Weather Phenomena

Depressions originating in the Bay of Bengal during the post monsoon season sometimes affect the weather over the district causing occasionally widespread heavy rain and gusty winds. Thunderstorms occur in the latter half of the summer season, the southwest monsoon and early part of the post monsoon seasons.

Tables 3, 4 and 5 give the temperature and humidity, mean wind speed and special weather phenomena respectively for Khammam and Bhadrachalam.

TABLE I
Normal and extreme Rainfall

Station	No. of years of data	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual	Highest annual rainfall as % of normal & year**	Lowest annual rainfall as % of normal & year**	Heaviest rainfall in 24 hours*		
																	Amount (mm)	Date	
Khammam	39 a	4.1	14.5	12.5	29.0	36.1	124.5	239.8	165.9	163.8	83.3	32.8	4.8	911.1	147 (1936)	49 (1922)	299.7	1954 Jul	10
	b	0.1	0.9	0.8	1.9	2.1	7.7	14.1	10.5	8.5	6.0	2.2	0.4	55.2					
Bhadrachalam	50 a	6.3	14.2	12.7	43.4	40.6	167.6	298.2	257.3	187.5	84.6	28.2	7.1	1147.7	146 (1916)	58 (1941)	279.9	1908 Sep	26
	b	0.5	0.8	0.8	2.8	2.9	8.9	15.6	13.8	10.4	4.9	1.8	0.4	63.6					
Nuguru	37 a	7.1	14.5	16.5	24.1	41.1	223.8	468.9	324.6	239.8	88.9	29.7	2.5	1481.5	160 (1917)	48 (1920)	234.2	1928 Aug	26
	b	0.5	0.8	1.1	2.0	2.7	9.9	18.7	15.5	11.9	5.3	2.1	0.2	70.7					
Palair	21 a	1.0	12.2	8.6	23.9	22.9	102.6	167.1	135.9	171.7	105.4	45.2	11.2	807.7	160 (1936)	30 (1941)	171.1	1964 Jul	15
	b	0.1	0.9	0.5	1.8	1.8	7.3	12.0	9.4	8.7	6.0	2.6	0.4	51.5					
Wyra	26 a	1.3	14.7	16.3	29.7	48.5	116.3	241.1	175.8	152.7	120.1	39.4	3.1	959.0	147 (1936)	70 (1942)	198.1	1954 Sep	27
	b	0.1	0.8	1.0	1.7	2.7	7.1	13.9	11.1	8.2	5.8	2.5	0.3	55.2					
Singareni (Collieries).	18 a	4.8	19.6	7.9	22.9	42.4	108.2	282.7	200.1	167.9	86.9	22.9	5.3	971.6	171 (1936)	49 (1950)	185.4	1933 Sep	9
	b	0.1	1.0	0.5	1.4	1.8	6.0	14.4	10.2	7.4	4.3	1.2	0.2	48.5					
Khammam (District).	a	4.1	14.9	12.4	28.8	38.6	140.5	283.0	209.9	180.6	94.9	33.0	5.7	1046.4	165 (1917)	63 (1920)			
	b	0.2	0.9	0.8	1.9	2.3	7.8	14.8	11.7	9.2	5.4	2.1	0.3	57.4					

(a) Normal rainfall in mm. (b) Average number of rainy days (days with rain of 2.5 mm or more). *Based on all available data upto 1965.
**Years of occurrence given in brackets.

TABLE 2

Frequency of Annual Rainfall in the District

(DATA 1901-1950)

Range in mm	No. of years	Range in mm	No. of years
601—700	1	1201—1300	5
701—800	2	1301—1400	3
801—900	6	1401—1500	3
901—1000	13	1501—1600	0
1001—1100	7	1601—1700	1
1101—1200	8	1701—1800	1

TABLE 3

Normal Temperature and Relative Humidity

(KHAMMAM)

Month	Mean Maximum Temperature			Mean Minimum Temperature			Highest Maximum ever recorded			Lowest Minimum ever recorded			Relative Humidity	
													0830	1730*
	°C	°F	°C	°C	Date	°C	Date	°C	%	%				
January	31.0	17.6	35.0	1950	Jan 31	9.4	1946	Jan 8	80	40				
February	33.6	20.0	38.9	1954	Feb 15	11.7	1943	Feb 3	73	33				
March	36.8	23.1	43.3	1953	Mar 28	16.1	1952	Mar 1	75	32				
April	39.0	25.9	45.0	1941	Apr 30	18.9	1945	Apr 14	73	31				
May	41.3	28.1	47.2	1947	May 25	21.1	1948	May 25	67	33				
June	37.6	27.2	46.7	1953	Jun 3	21.6	1961	Jun 19	69	49				
July	32.6	24.9	39.4	1952	Jul 9	20.5	1959	Jul 21	81	67				
August	32.2	24.7	37.8	1941	Aug 28	20.2	1961	Aug 23	80	70				
September	32.6	24.4	37.2	1957	Sep 26	20.6	1942	Sep 30	81	69				
October	32.5	22.9	38.5	1965	Oct 8	16.7	1952	Oct 31	81	66				
November	30.6	19.1	35.4	1965	Nov 4	11.7	1941	Nov 30	77	50				
December	30.1	16.7	34.0	1965	Dec 15	10.0	1945	Dec 12	78	44				
Annual	34.2	22.9							76	49				

* Hours I. S. T.

TABLE 3—(contd.)

Normal Temperature and Relative Humidity

(BHADRACHALAM)

Month	Mean		Mean		Highest Maximum			Lowest Minimum			Relative	
	Maxi-	Mini-	ever recorded			ever recorded			Humidity			
	imum	imum							0830	1730*		
	Tempe-	Tempe-										
	rature	rature	°C	Date	°C	Date	°C	Date	%	%		
January . . .	30.8	16.9	34.5	1958 Jan 31	8.4	1962 Jan 5			78	41		
February . . .	34.0	19.1	38.3	1954 Feb 15	11.7	1956 Feb 30			73	30		
March . . .	37.1	22.8	42.8	1953 Mar 29	15.6	1952 Mar 1			73	29		
April . . .	39.0	25.6	43.9	1956 Apr 27	18.3	1956 Apr 8			70	32		
May . . .	41.0	28.0	46.7	1956 May 12	21.7	1955 May 5			60	30		
June . . .	37.4	27.4	46.8	1958 June 7	20.6	1954 Jun 19			65	48		
July . . .	32.1	25.0	39.4	1952 Jul 10	21.7	1954 Jul 8			82	69		
August . . .	31.6	24.7	36.8	1965 Aug 21	21.1	1952 Aug 22			84	73		
September . . .	32.3	24.4	37.4	1965 Sep 18	21.2	1961 Sep 19			85	74		
October . . .	32.3	23.0	38.0	1965 Oct 8	15.6	1952 Oct 29			83	68		
November . . .	30.9	18.7	35.6	1965 Nov 6	12.2	1953 Nov 21			79	56		
December . . .	30.0	16.1	34.6	1965 Dec 14	9.8	1961 Dec 30			79	49		
Annual . . .	34.0	22.6	..	.. ..	..	.. ..			76	50		

*Hours I. S. T.

TABLE 4

Mean Wind Speed in Km./hr.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
KHAMMAM												
5.6	7.2	8.8	8.7	9.7	10.9	9.7	8.1	5.7	4.4	4.0	4.0	7.2
BHADRA CHALAM												
4.6	5.7	7.6	9.1	9.0	9.0	8.0	6.4	4.8	4.0	4.0	3.7	6.3

TABLE 5

Special Weather Phenomena

*Mean No. of days with	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
KHAMMAM													
Thunder . . .	0.5	0.3	0.6	2	5	4	1.5	1.7	4	3	0.2	0	23
Hail . . .	0	0	0.1	0	0	0	0	0	0	0.1	0	0	0.2
Dust-Storm . . .	0	0	0	0.7	1.8	0.1	0	0	0	0	0	0	3
Squall . . .	0	0	0	0	0	0	0	0	0	0	0	0	0
Fog . . .	0.1	0.8	0	0	0	0	0	0	0	0	0	0.2	1.1
BHADRACHALAM													
Thunder . . .	0	0.1	1.4	3	5	4	1.1	1.7	3	2	0.1	0	21
Hail . . .	0	0	0	0	0	0	0	0	0	0	0	0	0
Dust-Storm . . .	0	0	0	0.2	0.7	0.2	0.1	0	0	0	0	0	1.2
Squall . . .	0	0	0	0	0	0	0	0	0	0	0	0	0
Fog . . .	5	1.6	0.1	0	0.2	0	0	0	0	0.9	3	4	15

* No. of days 2 and above are given in whole numbers.

MAHBUBNAGAR DISTRICT

The climate of this district is characterised by hot summer and pleasant monsoon and cold seasons. The year may be divided broadly into four seasons. The summer season is from March to May. The southwest monsoon season follows thereafter and extends till September. October and November are the post monsoon or the retreating monsoon months. The period from December to February is the cold season.

Rainfall

Records of rainfall are available for three stations in the district. The statement of the rainfall at these three stations and for the district as a whole are given in tables 1 and 2. The average annual rainfall in the district is 673.3 mm. The rainfall increases from the south to the north in the district. The rainfall in the monsoon season accounts for 77 per cent of the annual rainfall, September being the month with the highest rainfall. The district gets some rain in the post monsoon months also. The year to year variations in the annual rainfall is large as in the neighbouring districts. In the fifty year period 1901 to 1950, the highest annual rainfall amounting to 208 per cent of the normal was received in 1916. 1918 was the year with the lowest rainfall which was only 59 per cent of the normal in seven years out of the fifty the district received rainfall less than 80 per cent of the normal, two of them being consecutive years. At Mahbubnagar the rainfall was less than 80 per cent of the normal in four consecutive years 1920 to 1923. It will be seen from table 2 that in 36 years out of fifty the rainfall was between 500 and 800 mm (i.e. within about 20-25 per cent of normal).

On an average there are 44 rainy days (i.e. days with rainfall of 2.5 mm or more) in a year. This number varies from 37 at Wanaparathi Road to 51 at Mahbubnagar.

The highest rainfall in 24 hours recorded in the district was 266.7 mm at Nagarkarnool on 23rd May, 1952.

Temperature

The only meteorological observatory in the district is at Mahbubnagar. The data of this station may be taken as representative of the conditions in the district. December to January is the coldest period with the mean daily maximum temperature at about 29°C and the mean daily minimum at about 17°C. Thereafter temperatures rise rather rapidly at first and steadily later till May which is the hottest month when the mean daily maximum temperature is 39°C. The heat is a little trying till the onset of the southwest monsoon when temperatures drop appreciably. The day temperatures increase a little in September and October after which both day and night temperatures begin to drop.

The highest maximum temperature recorded at Mahbubnagar was 43.8°C on 8th May, 1964. The lowest minimum temperature was 11.3°C on 26th November 1964.

Humidity

The period from March to April is the driest part of the year when the relative humidity in the morning is about 50 per cent and 25-30 per cent or less in the afternoons. The period August to October is very humid with mean daily humidity exceeding 70 per cent.

Cloudiness

Skies are moderately to heavily clouded in the south-west monsoon period. Clouds become less in the post monsoon season. In the rest of the year skies are generally clear or lightly clouded.

Winds

Moderate winds blow in the district, but in May and the southwest monsoon months they are stronger. Winds are predominantly westerly in the monsoon season. Winds are on most days calm in the mornings during the period October to April and in the afternoons blow mainly from directions between northeast and southeast. In May they are mostly westerly to northwesterly.

Special Weather phenomena

The district is seldom affected by severe cyclonic storms. But in the post monsoon months some of the depressions from the Bay of Bengal become diffuse on crossing the east coast of India. In their passage westwards across the peninsula these diffuse depressions affect the district and its neighbourhood and cause widespread heavy rain. Thunderstorms occur in the period April to October. Dust raising winds and occasional dust storms occur in April and May.

Tables 3, 4 and 5 give the temperature and humidity, mean wind speed and frequency of special weather phenomena respectively for Mahbubnagar.

TABLE I
Normal and extreme Rainfall

Station	No. of years of data	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual	Highest annual rain- fall as % of normal & year **	Lowest annual rain- fall as % of normal & year **	Heaviest rainfall in 24 hours*		
																	Amount (mm)	Date	
Mahbubnagar .	50 a	5.8	9.7	7.1	17.3	28.7	112.0	176.3	146.3	185.2	74.4	25.7	3.8	792.3	176 (1916)	50 (1918)	186.4	1892	Aug 10
	b	0.4	0.5	0.5	1.5	2.5	7.4	12.7	10.0	9.8	4.1	1.5	0.2	51.1					
Nagarkarnool .	26 a	4.3	5.8	6.6	17.5	33.3	81.0	120.1	116.6	153.7	65.3	27.4	2.5	634.1	156 (1938)	58 (1941)	266.7	1952	May 23
	b	0.1	0.4	0.5	1.3	2.3	5.2	10.4	9.4	8.7	4.6	1.3	0.2	44.4					
Wanaparthy Road	20 a	1.3	6.6	4.6	14.0	16.5	86.1	118.6	116.6	142.0	63.5	22.9	0.8	593.5	133 (1933)	42 (1931)	174.1	1964	Sep 10
	b	0.1	0.3	0.5	0.7	1.2	4.9	8.9	8.1	7.7	3.2	1.4	0.1	37.1					
Mahbubnagar (District)	a	3.8	7.4	6.1	16.3	26.2	93.0	138.3	126.5	160.3	67.7	25.3	2.4	673.3	208 (1916)	59 (1918)			
	b	0.2	0.4	0.5	1.2	2.0	5.8	10.7	9.2	8.7	4.0	1.4	0.2	44.3					

(a) Normal rainfall in mm. (b) Average number of rainy days (days with rain of 2.5 mm or more). *Based on all available data upto 1965.
**Years of occurrence given in brackets.

TABLE 2

Frequency of Annual Rainfall in the District

(DATA 1901-1250)

Range in mm	No. of years	Range in mm	No. of years
301—400	1	901—1000	4
401—500	3	1001—1100	1
501—600	7	1101—1200	1
601—700	11	1201—1300	1
701—800	16	1301—1400	1
801—900	4		

TABLE 3

Normal Temperature and Relative Humidity

(MAHBUBNAGAR)

Month	Mean Maxi- mum Tem- pera- ture	Mean Mini- mum Tem- pera- ture	Highest Maximum ever recorded		Lowest Minimum ever recorded		Relative Humidity	
	°C	°C	°C	Date	°C	Date	0830	1730*
January	29.3	16.5	32.6	1964 Jan 1	11.5	1962 Jan 8	67	37
February	32.4	18.0	37.0	1961 Feb 28	11.7	1956 Feb 16	52	27
March	35.5	21.2	40.0	1953 Mar 28	15.6	1952 Mar 2	47	24
April	37.5	24.5	42.2	1956 Apr 27	19.2	1958 Apr 13	51	28
May	38.7	26.3	43.8	1964 May 8	19.9	1962 May 6	53	31
June	34.2	24.1	43.3	1953 Jun 4	20.6	1965 Jun 18	73	51
July	30.1	22.5	36.8	1957 Jul 3	19.4	1952 Jul 27	83	68
August	29.9	22.3	34.4	1953 Aug 31	20.0	1956 Aug 1	82	66
September	30.4	22.1	34.5	1965 Sep 30	19.4	1954 Sep 30	81	66
October	30.7	21.1	35.8	1965 Oct 8	16.1	1952 Oct 31	72	59
November	29.4	18.2	33.6	1965 Nov 2	11.3	1964 Nov 26	64	46
December	28.6	16.7	33.4	1963 Dec 12	12.2	1956 Dec 14	66	42
Annual	32.2	21.1	..	.. ..	..	.. ..	66	45

Hours I. S. T.

TABLE 4

Mean Wind Speed in Km./hr.

(MAHBUBNAGAR)

Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
8.8	8.0	7.8	8.1	11.0	14.4	13.5	12.5	9.8	8.0	9.8	9.3	12.1

TABLE 5

Special Weather Phenomena

(MAHBUBNAGAR)

*Mean No. of days with	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Thunder . . .	0.1	0.1	0.9	5	4	4	3	1.6	4	3	0.5	0.2	26
Hail . . .	0	0	0	0	0	0	0	0	0	0	0	0	0
Dust-Storm . .	0	0	0	1.2	1.1	0.4	0	0	0	0	0	0	3
Squall . . .	0	0	0	0	0	0	0	0	0	0	0	0	0
Fog . . .	0.1	0	0	0.1	0	0	0	0	0	0	0	0.3	0.5

*No. of days 2 and above are given in whole numbers.

MEDAK DISTRICT

This district in common with the neighbouring districts of the Deccan plateau, experience a hot summer and a generally dry climate except during the southwest monsoon seasons. The year may be divided into four seasons. The period from March to May is the summer season. This is followed by the southwest monsoon season from June to September. October and November constitute the post monsoon season. The cold season is from December to February.

Rain fall

Records of rainfall in the district are available for only three stations for fairly long periods. The details of the rainfall at these stations and for the district as a whole are given in tables 1 and 2. The average annual rainfall in the district is 903.7 mm. The rainfall in the district increases from the south towards the north. The rainfall during the southwest monsoon months June to September amounts to about 84 per cent of the annual rainfall. July is the rainiest month accounting for about 25 per cent of the annual rainfall. There is some rainfall during the latter half of the summer and the post monsoon season mostly in the form of thundershowers. The variation in the annual rainfall, from year to year is appreciable. During the 50 year period 1901 to 1950, the highest annual rainfall amounting to 180 per cent of the normal occurred in 1903. 1920 was the year with the lowest annual rainfall which was only 38 per cent of the normal. During this period the annual rainfall in the district was less than 80 per cent of the normal in 16 years. 3 consecutive years of such low rainfall occurred thrice and two consecutive years twice. It will be seen from table 2 that the annual rainfall in the district was between 700 and 1100 mm (i.e. within about 20 per cent of the annual normal) in only 31 years out of 50.

On an average there are 54 rainy days (i.e. days with rainfall of 2.5 mm or more) in a year in the district. This number varies from 52 at Sangareddy to 57 at Medak.

The heaviest rainfall in 24 hours recorded at any station in the district was 307.3 mm at Sangareddy on 27th September 1908.

Temperature

There is no meteorological observatory in the district. The description which follows is based on the records of the observatories in the neighbouring districts which have a climate similar to that of this district. After February temperatures rapidly increase. May is the hottest month with the mean daily maximum temperature at about 40°C and the mean daily minimum at about 26°C. The heat during the summer is very trying and the day temperatures often exceed 42°C. With the onset of the southwest monsoon by about the middle of June the temperatures decrease appreciably and the weather becomes more pleasant. With the withdrawal of the monsoon early in October, the day temperatures increase slightly. But the night temperatures steadily decrease. After October both day and night temperatures decrease rapidly. December is the coldest month with the mean daily maximum temperature at about 28°C and the mean daily minimum at about 15°C. During the cold season the night temperature may occasionally go down to about 6°C.

Humidity

During the southwest monsoon season the humidity is generally high being between 60 and 80 per cent. Humidity decreases from the post monsoon period. The driest part of the year is the summer season when the humidity is some 30 per cent or less in the afternoons.

Cloudiness

During the southwest monsoon season the skies are mostly heavily clouded and overcast on some days. The clouding decreases in the post monsoon season. The skies are generally clear or lightly clouded in the rest of the year.

Wind

Winds are generally light to moderate in strength, strengthening in force in May and the southwest monsoon season. During the post monsoon season winds are very light and variable in direction in the mornings and blow from directions between north and east in the afternoon. In the period from December to April winds continue to be light and variable in direction in the mornings and blow from directions between northeast and southeast in the afternoons. by May westerlies begin to blow and in the southwest monsoon season winds are mostly westerly to northwesterly.

Special Weather Phenomena

Storms and depressions originating in the Bay of Bengal during September and the post monsoon season affect the weather over the district causing widespread heavy rain and strong winds. Thunderstorms mostly occur during April to October.

TABLE I
Normal and Extreme Rainfall

Station	No. of years of data	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	An- nual	Highest annual rain- fall as % of normal & year **	Lowest annual rain- fall as % of normal & year **	Heaviest rainfall in 24 hours*			
															Am- ount (mm)	Date				
Medak . . .	18 a	0.8	16.8	18.0	30.2	24.1	166.4	254.0	201.7	181.1	37.9	16.3	6.1	953.4	156 (1938)	55 (1941)	210.6	1947	Sep	28
	b	0.1	1.2	1.1	1.8	1.8	9.1	15.3	11.5	10.1	3.2	1.2	0.2	56.6						
Royanpalli . . .	21 a	1.8	13.7	9.1	20.8	18.3	151.4	246.9	208.8	178.3	51.1	17.5	5.6	923.3	156 (1938)	59 (1941)	178.6	1947	Jul	15
	b	0.3	1.3	0.8	1.7	1.4	8.7	13.9	13.0	9.5	3.3	1.5	0.1	55.5						
Sangareddy . . .	50 a	8.6	11.4	11.7	23.6	22.6	124.2	177.8	164.9	198.9	62.5	221.3	6.1	834.6	195 (1903)	42 (1920)	307.3	1908	Sep	27
	b	0.5	0.8	0.9	1.9	1.9	7.7	11.4	10.4	10.9	3.5	1.6	0.4	51.9						
Medak (District) . . .	a	3.7	14.0	12.9	24.9	21.7	147.3	226.2	191.8	186.1	50.5	18.7	5.9	903.7	181 (1903)	39 (1920)				
	b	0.3	1.1	0.9	1.8	1.7	8.5	13.5	11.6	10.2	3.3	1.4	0.2	54.5						

(a) Normal rainfall in mm. (b) Average number of rainy days (days with rain of 2.5 mm or more). *Based on all available data up to 1965.

**Years of occurrence given in brackets.

TABLE 2

Frequency of Annual Rainfall in the District
(DATA 1901-1950)

Range in mm	No. of years	Range in mm	No. of years
301—400	1	1001—1100	7
401—500	0	1101—1200	1
501—600	4	1201—1300	3
601—700	8	1301—1400	1
701—800	14	1401—1500	0
801—900	4	1501—1600	0
901—1000	6	1601—1700	1

NALGONDA DISTRICT

The climate of this district is characterised by a hot summer, and general dryness except during the southwest monsoon season. The year may be divided into four seasons. The cold season from December to February is followed by the summer season which continues up to May. June to September is the southwest monsoon season. October and November constitute the post monsoon or retreating monsoon season.

Rainfall

Records of rainfall in the district are available for four stations for fairly long periods. The details of the rainfall at these stations and for the district are given in tables 1 and 2. The average annual rainfall in the district is 711.3 mm. The rainfall in the district in general increases from the southwest towards the northeast. The rainfall in the district during the southwest monsoon months June to September constitutes about 71 per cent of the annual rainfall. September is the rainiest month with about 22 per cent of the annual rainfall. Rainfall during the summer is about 9 per cent and during post monsoon months is about 17 per cent of the annual normal and is mainly in the form of thundershowers. The variation in the annual rainfall in the district from year to year is large. During the 50 year period 1901 to 1950 the highest annual rainfall in the district amounting to 211 per cent of the normal occurred in 1916. The lowest annual rainfall which was only 59 per cent of the normal occurred in 1926. The annual rainfall in the district was less than 80 per cent of the normal in 5 years, none of them being consecutive. Considering the rainfall at the individual stations two consecutive years of such low rainfall occurred twice at Nalgonda during the same 50 year period. It will be seen from table 2 that the annual rainfall in the district was between 600 and 800 mm (i.e. within about 15 per cent of the annual normal) in only 28 years out of 49.

On an average there are 46 rainy days (i.e. days with rainfall of 2.5 mm or more) in a year in the district. This number is more or less uniform over the district, varying from 45 at Nagaram and Suriapet to 49 at Bhongir.

The heaviest rainfall in 24 hours recorded at any station in the district was 204.7 mm at Nalgonda on 27th August, 1949.

Temperature

There is no meteorological observatory in the district. The account which follows is based on the records of the observatories in the neighbouring districts, where similar meteorological conditions prevail. From February both day and night temperatures increase rapidly. May is the hottest month with the mean daily maximum temperature at about 40 °C and the mean daily minimum at about 28 °C. The day temperature may occasionally go above 45 °C. during May or in June prior to the onset of the monsoon. The heat during summer is oppressive. Afternoon thundershowers which occur on some days bring welcome relief though temporarily. With the onset of the southwest monsoon by about the second week of June the day temperatures drop appreciably. After the withdrawal of the monsoon by about the beginning of October there is a slight increase in the day temperature. But the night temperatures steadily decrease. After October both the day and night temperatures decrease rapidly. December is the coldest month, with the mean daily maximum temperature at about 30 °C. and the mean daily minimum at about 16 °C. On some days in the cold season night temperatures may drop down to about 10 °C.

Humidity

During the southwest monsoon season the relative humidity is generally high. Humidity decreases from the post monsoon period. The driest part of the year is the summer season when relative humidities in the afternoons are less than 35 percent.

Cloudiness

During the southwest monsoon season the skies are mostly heavily clouded or overcast. The skies are generally clear or lightly clouded in the rest of the year generally.

Winds

Winds are generally light with some strengthening in force during the latter part of summer and the early part of the monsoon season. In May and in the southwest monsoon season winds are predominantly westerly or northwesterly. In the period October to February winds from easterly directions are common. In the next two months morning winds are light and variable in direction while in the afternoons they are generally from the east or southwest.

Special Weather Phenomena

During the post monsoon season the depressions which originate in the Bay of Bengal and move in a northwesterly direction affect the weather over the district causing occasionally widespread heavy rain and strong winds. Thunderstorms occur in the latter half of the summer season, the southwest monsoon season and early part of the post monsoon period.

TABLE I
Normal and Extreme Rainfall

Station	No. of years of data	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Annual	Highest annual rain-fall as % of normal & year**	Lowest annual rain-fall as % of normal & year**	Heaviest rainfall in 24 hours*		
																	Amount (mm)	Date	
Nalgonda	50 a	5.8	8.6	5.8	21.1	31.5	102.1	137.7	129.0	170.7	105.2	36.6	7.9	762.0	197 (1916)	55 (1926)	204.7	1949	Aug 27
	b	0.4	0.6	0.4	1.6	2.2	6.0	10.4	8.4	8.7	5.0	2.4	0.4	46.5					
Bhongir	21 a	1.3	10.9	10.7	34.3	30.5	109.2	118.4	130.1	134.9	72.1	27.4	4.6	684.4	133 (1943)	64 (1941)	153.7	1954	Sep 28
	b	0.3	0.9	0.8	2.0	1.7	6.8	10.6	8.9	8.8	5.0	2.4	0.3	48.5					
Nagaram	20 a	2.5	10.4	13.7	29.0	32.3	98.0	117.1	106.9	159.3	88.1	30.2	8.4	695.9	135 (1933)	48 (1941)	137.2	1956	Jul 19
	b	0.2	0.9	1.0	2.0	1.6	6.3	9.5	7.2	8.6	4.7	2.2	0.5	44.7					
Suriapet	21 a	1.0	7.6	5.3	18.3	24.1	92.2	146.6	115.1	162.3	97.0	25.4	7.4	702.3	130 (1940)	70 (1938)	171.5	1961	Jul 24
	b	0.1	0.5	0.6	1.5	1.7	6.2	10.7	8.1	8.5	4.9	2.1	0.3	45.2					
Nalgonda (District) .	a	2.7	9.4	8.9	25.7	29.6	100.4	129.9	120.3	156.8	90.6	29.9	7.1	711.3	211 (1916)	59 (1926)			
	b	0.3	0.7	0.7	1.8	1.8	6.3	10.3	8.1	8.7	4.9	2.3	0.4	46.3					

(a) Normal rainfall in mm.

(b) Average number of rainy days (days with rain of 2.5 mm or more).

*Based on all available data up to 1965.

**Years of occurrence given in brackets.

TABLE 2

Frequency of Annual Rainfall in the District
(DATA 1901-1950)

Range in mm	No. of years	Range in mm	No. of years
401—500	3	901—1000	4
501—600	4	1001—1100	0
601—700	17	1101—1200	0
701—800	11	1201—1300	2
801—900	7	1301—1400	0
		1401—1500	1

Data available for 49 years only.

NIZAMABAD DISTRICT

The climate of this district is characterised by a hot summer and generally dry weather except during the southwest monsoon season. The year may be divided into four seasons. The cold season is from December to February. The period from March to May is the summer season. This is followed by the southwest monsoon season till September, October, and November form the postmonsoon season or the transition period.

Rainfall

Records of rainfall in the district are available for 16 reingauge stations. The details of the rainfall at these stations and for the district as a whole are given in tables 1 and 2. The average annual rainfall in the district is 1023.8 mm. The rainfall in the district in general increases from the east towards the west and varies from 786.1 mm at Kammareddi to 1189.2 mm at Borlam. The rainfall during the southwest monsoon months June to September constitutes about 86 per cent of the annual rainfall. July is the rainiest month with about 28 per cent of the annual rainfall. The variation in the annual rainfall from year to year is not large. During the 50 year period, 1901 to 1950, the highest annual rainfall amounting to 154 per cent of the normal occurred in 1928. The lowest annual rainfall which was 58 per cent of the normal occurred in 1909. During this period the annual rainfall in the district was less than 80 per cent of the normal in 9 years, three of them being consecutive. It will be seen from table 2 that the annual rainfall in the district was between 800 and 1200 mm (i.e. within about 20 per cent of the annual value) in 34 years out of 50.

On an average there are 57 rainy days (i.e. days with rainfall of 2.5 mm or more) in a year in the district. This number varies from 44 at Kammareddi to 63 at Chintakunta.

The heaviest rainfall in 24 hours recorded at any station in the district was 321.2 mm at Borlam on 15th July, 1965.

Temperature

The only meteorological observatory in the district is at Nizamabad. The records of this observatory may be taken as representative for the meteorological conditions prevailing in the district in general. After February there is rapid rise in temperatures. May is the hottest month with the mean daily maximum temperature at about 41°C and the mean daily minimum at about 28°C. The intense heat during the summer is very trying and the day temperature occasionally exceeds 46°C. Afternoon thundershowers which occur on some days bring welcome relief. With the onset of the southwest monsoon by about the middle of June there is appreciable drop in temperatures. With the withdrawal of the southwest monsoon by about the middle of October there is a slight increase in the day temperatures. But the night temperatures continue to fall steadily. After October, there is a rapid fall in both day and night temperatures. December is the coldest month with the mean daily maximum temperature at about 29°C and the mean daily minimum at about 13°C. During the cold season, the district is sometimes affected by cold waves in the rear of western disturbances which pass eastwards across north India. On such occasions the minimum temperature may occasionally drop down to about 5°C.

The highest maximum temperature recorded at Nizamabad was 47.2°C on 31st May 1923. The lowest minimum was 4.4°C on 17th December 1897.

Humidity

During the southwest monsoon season the relative humidity is generally high. In the post monsoon season humidities decrease. The driest part of the year is the summer season when the humidities are generally between 20 and 25 per cent in the afternoons.

Cloudiness

During the southwest monsoon season the skies are mostly heavily clouded or overcast. Cloudiness decreases during the post monsoon season. During the rest of the year skies are generally clear or lightly clouded. Clouding increases from the commencement of the summer season and afternoons are more clouded than the mornings.

Winds

Winds are generally light with some increase in force during the monsoon season. During the period October to February winds mainly blow from directions between north and east. Winds are variably in direction during March and April. During May and the southwest monsoon seasons winds blow mainly from directions between southwest and northwest.

Special Weather Phenomena

Some of the storms and depressions from the Bay of Bengal in the post monsoon season affect the weather over the district causing widespread heavy rain and gusty winds. Thunderstorms occur throughout the year, the incidence being high during the period March to September. Dust raising winds blow during the afternoons of the summer season and occasionally duststorms occur.

Tables 3, 4 and 5 give the temperature and humidity, mean wind speed and special weather phenomena respectively for Nizamabad.

TABLE I
Normal and extreme Rainfall

Station	No. of years of data	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual	Highest annual rainfall as % of normal & year**	Lowest annual rainfall as % of normal & year**	Heaviest rainfall in 24 hours*	
																	Amount (mm)	Date
Nizamabad	50 a	6.9	19.1	10.2	20.8	17.8	148.6	259.3	237.7	219.5	51.6	15.5	5.3	1012.3	156 (1928)	59 (1909)	298.0	1958 Jul. 5
	b	0.5	1.4	0.8	1.8	1.5	8.6	15.6	13.3	10.2	3.1	1.2	0.4	58.4				
Achampet.	21 a	2.3	17.0	13.7	12.7	13.7	162.6	268.0	244.6	227.1	48.5	19.6	5.1	1034.9	153 (1948)	64 (1939)	294.6	1954 Sep. 28
	b	0.3	1.4	1.2	1.3	1.2	9.4	15.1	12.6	10.3	3.2	1.5	0.5	58.0				
Borlam	21 a	2.8	27.2	18.0	25.7	12.9	188.7	322.1	264.4	237.0	61.5	21.8	7.1	1189.2	139 (1933)	62 (1932)	321.2	1965 Jul. 15
	b	0.3	1.3	1.5	2.0	1.3	10.8	16.7	12.6	10.0	3.5	1.6	0.4	62.0				
Chintakunta	21 a	6.6	16.8	9.7	21.8	11.4	163.6	325.6	273.1	231.1	48.3	19.3	3.6	1130.9	135 (1933)	59 (1939)	296.4	1958 Jul. 5
	b	0.5	1.3	1.1	1.9	1.2	9.7	18.1	13.1	10.7	3.3	1.5	0.4	62.8				
Baridpur	18 a	6.9	27.2	14.5	25.1	15.0	143.3	280.2	244.1	210.1	60.7	11.9	2.3	1041.3	142 (1936)	69 (1950)	277.1	1958 Jul. 8
	b	0.5	1.9	1.4	1.7	1.3	8.5	16.9	12.9	10.1	3.2	1.2	0.2	59.8				
Jakora	18 a	6.9	25.4	12.5	20.1	8.9	165.3	315.0	255.3	229.1	61.7	16.8	6.9	1123.9	137 (1938)	62 (1941)	275.6	1947 Sep. 28
	b	0.6	1.6	1.3	1.6	1.0	9.8	16.3	13.2	10.2	3.4	1.3	0.4	60.7				
Kallady	18 a	4.3	20.3	15.7	20.3	15.0	160.3	320.0	248.2	211.6	63.0	22.1	5.1	1105.9	138 (1938)	69 (1941)	202.0	1964 Sep. 11
	b	0.4	1.4	1.0	1.5	1.2	8.9	17.7	12.2	10.1	3.1	1.3	0.6	59.4				
Alisagar	18 a	3.3	19.3	11.9	25.7	9.1	152.7	295.1	232.2	227.6	48.0	14.2	2.8	1041.9	135 (1938)	65 (1941)	247.7	1958 Aug. 27
	b	0.3	1.4	0.9	1.6	1.2	8.3	16.3	12.3	9.8	2.7	0.9	0.4	56.1				

TABLE 1—contd.

Station	No. of years of data	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual	Highest annual rainfall as % of normal & year**	Lowest annual rainfall as % of normal & year**	Heaviest rainfall in 24 hours*	
																	Amount (mm)	Date
Bomendrapalli :	12 a	5.8	12.5	16.5	15.5	13.5	134.4	280.4	251.2	243.3	64.8	14.5	1.0	1053.4	130 (1949)	61 (1939)	245.1	1947 Sep. 28
	b	0.5	1.0	1.2	1.1	1.5	8.3	15.7	12.8	9.7	3.3	1.3	0.1	56.5				
Manchappa ..	15 a	10.2	25.9	10.4	16.5	7.4	140.7	285.5	243.3	213.1	52.8	9.7	3.3	1018.8	136 (1938)	60 (1941)	206.0	1948 Sep. 20
	b	0.4	1.8	0.7	1.1	0.9	8.2	16.5	12.7	9.6	2.5	0.9	0.3	55.6				
Perkit .	50 a	4.3	22.1	15.2	17.0	8.6	135.1	291.6	214.1	165.6	48.3	20.3	2.5	944.7	140 (1938)	60 (1950)	179.1	1940 Aug. 19
	b	0.3	1.7	1.3	1.3	0.7	8.4	16.7	12.1	9.7	2.9	1.3	0.3	56.7				
Doodgaon .	15 a	6.6	16.8	17.5	11.7	8.4	139.5	294.6	215.4	190.0	50.3	16.3	3.3	970.4	130 (1938)	64 (1941)	161.3	1944 Sep. 8
	b	0.5	1.1	1.0	1.0	0.9	8.6	15.1	11.5	9.4	2.4	1.1	0.3	52.9				
Armoor .	13 a	6.3	20.1	11.4	9.7	7.6	128.5	279.1	269.7	177.5	56.4	23.1	0.5	989.9	154 (1949)	68 (1941)	215.9	1958 Jul. 5
	b	0.4	1.1	1.1	0.8	0.9	8.1	15.4	11.8	9.2	2.6	1.4	0.1	52.9				
Navipet .	13 a	8.6	17.8	9.7	14.2	11.9	152.4	294.1	267.7	213.4	63.0	8.6	1.0	1062.4	135 (1938)	73 (1939)	203.2	1960 Aug. 7
	b	0.6	1.2	0.9	0.8	1.5	8.3	16.0	11.9	11.2	2.5	1.1	0.2	56.2				
Kammareddi .	20 a	0.8	16.3	7.1	12.2	14.0	127.8	195.1	201.7	149.3	49.3	10.7	1.8	786.1	148 (1933)	52 (1932)	165.0	1959 Jul. 17
	b	0.1	1.1	0.4	0.8	0.7	6.9	12.0	11.5	6.9	2.8	0.5	0.1	43.8				
Pocharam .	21 a	1.3	13.5	7.6	15.5	11.9	146.3	230.9	190.5	194.8	42.4	17.8	3.1	875.4	159 (1938)	62 (1939)	224.8	1965 Jul. 15
	b	0.2	0.9	0.9	1.1	0.7	8.4	14.0	12.7	8.8	2.8	1.5	0.2	52.2				
Nizamabad (District) .	a	5.2	19.8	12.6	17.8	11.7	149.4	283.5	240.8	208.8	54.4	16.4	3.4	1023.8	154 (1928)	58 (1909)		
	b	0.4	1.3	1.0	1.3	1.1	8.7	15.9	12.5	9.7	3.0	1.2	0.3	56.4				

(a) Normal rainfall in mm.

(b) Average number of rainy days (days with rain of 2.5 mm or more).

*Based on all available data up to 1965.

**Years of occurrence given in brackets.

TABLE 2

Frequency of Annual Rainfall in the District
(DATA 1901-1950)

Range in mm	No. of years	Range in mm	No. of years
501—600	1	1101—1200	6
601—700	2	1201—1300	3
701—800	4	1301—1400	3
801—900	11	1401—1500	1
901—1000	8	1501—1600	2
1001—1100	9		

TABLE 3

Normal Temperature and Relative Humidity
(NIZAMABAD)

Month	Mean		Highest Maximum		Lowest Minimum		Relative Humidity	
	Maxi- mum Tempe- rature	Mini- mum Tempe- rature	ever recorded		ever recorded		0830	1730*
	°C	°C	°C	Date	°C	Date	%	%
January	30.0	15.3	35.6	1928 Jan 28	5.0	1899 Jan 13	64	32
February	32.6	17.5	38.3	1954 Feb 17	6.1	1911 Feb 3	53	28
March	36.4	21.0	43.3	1928 Mar 24	11.1	1892 Mar 6	42	21
April	39.2	24.8	44.5	1964 Apr 30	12.8	1905 Apr 1	41	21
May	41.5	27.7	47.2	1923 May 31	18.3	1917 May 3	37	22
June	36.2	25.4	46.1	1931 Jun 9	16.7	1902 Jun 8	65	47
July	30.5	23.2	40.0	1904 Jul 9	14.4	1931 Jul 14	79	68
August	30.1	23.0	37.8	1899 Aug 6	17.2	1901 Aug 30	80	70
September	30.6	22.7	37.2	1920 Sep 30	17.2	1903 Sep 17	81	68
October	31.5	20.6	38.9	1951 Oct 16	11.7	1921 Oct 30	72	53
November	29.7	16.2	35.6	1926 Nov 14	7.2	1929 Nov 27	66	41
December	28.9	13.8	35.0	1920 Dec 5	4.4	1897 Dec 17	67	33
Annual	33.1	20.9					62	42

*Hours I.S.T.

TABLE 4

Mean Wind Speed in Km./hr.

(NIZAMABAD)

Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
4.1	4.7	5.1	5.4	6.7	8.9	8.6	7.1	5.4	4.2	3.9	3.5	5.6

TABLE 5

Special Weather Phenomena

(NIZAMABAD)

*Mean No. of days with	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Thunder . . .	0.2	1.3	1.5	3	3	5	2	1.3	4	1.5	0.3	0.2	23
Hail	0	0	0	0	0	0	0	0	0	0	0	0	0
Dust-Storm . . .	0	0	0.2	0.1	2	2	0	0	0	0	0	0	4
Squall	0	0	0	0	0	0	0	0.1	0	0	0	0	0.1
Fog	0	0	0	0	0	0	0	0	0	0	0	0	0

*No. of days 2 and above are given in whole numbers.

WARANGAL DISTRICT

The climate of this district is characterised by a hot summer and general dryness except during the southwest monsoon season. The year may be divided into four seasons. The cold season from December to February is followed by the summer season from March to May. The period from June to September is the southwest monsoon season. October and November constitute the post monsoon or retreating monsoon season.

Rainfall

Records of rainfall in the district are available for four stations for fairly long periods. The details of the rainfall at these stations and for the district as a whole are given in tables 1 and 2. The average annual rainfall in the district is 1015.8 mm. The rainfall in the district generally increases from the southwest towards the northeast and varies from 924.0 mm at Hanamkonda to 1061.8 mm at Narsampet. About 81 per cent of the annual rainfall is received during the southwest monsoon season. Some rainfall, about 69 per cent generally in the form of thundershowers is received in the latter half of the summer season and about 9 per cent in the post monsoon season. The variation in the rainfall from year to year is appreciable. During the fifty year period 1901 to 1950, the highest annual rainfall amounting to 159 per cent of the normal occurred in 1903. The lowest annual rainfall which was only 46 per cent of the normal occurred in 1920. During the period, the annual rainfall in the district was less than 80 per cent of the normal in 13 years. Two consecutive years of such low rainfall occurred twice and 3 consecutive years once. It will be seen from table 2 that the annual rainfall in the district was between 800 and 1200 mm (*i.e.* within 20 per cent of the annual normal) in only 28 years out of 50.

On an average there are 57 rainy days (*i.e.* days with rainfall of 2.5 mm or more) in a year in the district. This number varies from 54 at Hanamkonda to 60 at Narsampet.

The heaviest rainfall in 24 hours recorded at any station in the district was 304.8 mm at Hanamkonda on 27th September 1908.

Temperature

The only meteorological observatory in the district is at Hanamkonda. The records of this observatory may be taken as representative of the meteorological conditions which prevail in the district as a whole. From about mid February there is rapid increase in temperature. May is the hottest month with the mean daily maximum temperature at about 41°C and the mean daily minimum at about 28°C. The days are hot and the day temperature in May and early June may occasionally reach 46°C. Afternoon thundershowers which occur on some days bring welcome relief. With the onset of the southwest monsoon by about the second week of June there is appreciable drop in temperature. After the withdrawal of the southwest monsoon, by about the end of September there is some slight increase in the day temperature. After October both day and night temperatures decrease rapidly. December is the coldest month with the mean daily maximum at about 29°C and the mean daily minimum at about 16°C. In the cold season the district is sometimes affected by short spells of colder weather. On such occasions the night temperatures may drop down to about 8 or 9°C.

The highest maximum temperature recorded at Hanamkonda was 46.7°C on 24th May-1928. The lowest minimum was 8.3°C. on 29th December 1902.

Humidity

During the southwest monsoon season the relative humidities are generally between 65 and 80 per cent. After September the air gradually becomes drier. In the summer season which is the driest part of the year the relative humidities in the afternoons are about 25 per cent or less.

Cloudiness

Skies are heavily clouded to overcast during the southwest monsoon season. There is rapid decrease in cloudiness during the post monsoon season. In the rest of the year the skies are generally clear or lightly clouded.

Winds

The winds are generally light to moderate with some strengthening in force during the latter part of summer and the monsoon season. Winds blow mostly from directions between southwest and northwest in the southwest monsoon season. In the post monsoon and the early part of the cold season winds are mainly northerly or northwesterly. Southeasterly or southerly winds prevail in the rest of the year.

Special Weather Phenomena

Storms and depressions which originate in the Bay of Bengal in the post monsoon season and which move in a northeasterly direction after crossing the coast sometimes affect the weather over the district causing wide spread heavy rain. Thunderstorms occur practically throughout the year being more common in the period April to June and in September and October.

Tables 3, 4 and 5 give the temperature and humidity, mean wind speed and special weather phenomena respectively for Hanamkonda.

TABLE I
Normal and extreme Rainfall

Station		No. of years of data	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual	Highest annual rainfall as % of normal & year**	Lowest annual rainfall as % of normal & year**	Heaviest rainfall in 24 hours*	
																		Amount (mm)	Date
Hanamkonda	.	50 a	8.6	14.0	11.2	23.1	29.2	146.1	227.6	174.5	189.7	67.8	27.4	4.8	924.0	175 (1903)	42 (1920)	304.8	1908 Sep 27
		b	0.6	1.1	0.8	1.6	1.9	8.0	13.6	10.8	9.2	4.0	1.8	0.3	53.7				
Mahbubabad	.	20 a	4.6	19.3	11.4	35.8	39.6	147.3	275.1	199.4	193.0	82.8	23.9	5.8	1038.0	150 (1940)	58 (1941)	195.4	1965 Jul 15
		b	0.4	0.9	0.5	1.8	1.7	8.3	15.5	11.5	9.5	3.9	2.3	0.3	56.6				
Mulug	.	39 a	4.8	17.5	11.2	19.8	32.8	162.8	311.1	214.1	186.7	57.9	17.5	2.8	1039.0	143 (1933)	43 (1920)	203.0	1965 Jun 20
		20 b	0.3	1.1	0.8	1.8	1.9	8.5	16.9	12.4	10.3	3.4	1.5	0.1	59.0				
Narsampet.	.	39 a	6.1	19.1	11.7	23.4	38.1	172.5	294.9	221.2	184.9	62.2	24.9	2.8	1061.8	151 (1940)	39 (1912)	230.1	1945 Jul 25
		18 b	0.4	1.0	0.8	2.1	1.9	8.2	16.6	12.9	9.6	4.5	1.7	0.4	60.1				
Warangal (District)	.	a	6.0	17.5	11.4	25.5	34.9	157.2	277.2	202.3	188.6	67.7	23.4	4.1	1015.8	159 (1903)	46 (1920)		
		b	0.4	1.0	0.7	1.8	1.9	8.3	15.7	11.9	9.7	3.9	1.8	0.3	57.4				

(a) Normal rainfall in mm. (b) Average number of rainy days (days with rain of 2.5 mm or more).

*Based on all available data upto 1965. **Years of occurrence given in brackets.

TABLE 2
Frequency of Annual Rainfall in the District
(DATA 1901-1950)

Range in mm	No. of years	Range in mm.	No. of year
401—500	1	1001—1100	7
501—600	3	1101—1200	7
601—700	3	1201—1300	2
701—800	6	1301—1400	5
801—900	3	1401—1500	1
901—1000	11	1501—1600	0
		1601—1700	1

TABLE 3
Normal Temperature and Relative Humidity
(HANAMKONDA)

Month	Mean Maximum Temperature		Mean Minimum Temperature		Highest Maximum ever recorded		Lowest Minimum ever recorded		Relative Humidity	
	Tempe- rature		Tempe- rature		ever recorded		ever recorded		0830	1730*
	°C	°C	°C	°C	°C	Date	°C	Date	%	%
January	29.9	17.2	35.0	1921	Jan 16	8.9	1945	Jan 7	75	36
February	32.4	19.2	37.8	1954	Feb 15	10.6	1911	Feb 3	71	29
March	35.9	22.2	42.2	1953	Mar 27	15.0	1906	Mar 1	66	25
April	38.3	25.3	44.7	1961	Apr 23	17.8	1957	Apr 2	62	26
May	40.8	28.1	46.7	1928	May 24	17.2	1917	May 3	51	24
June	36.5	26.7	46.1	1953	Jun 4	20.6	1927	Jun 23	62	46
July	31.2	24.4	38.9	1920	Jul 2	17.8	1911	Jul 15	77	65
August	30.9	24.2	37.2	1920	Aug 28	19.4	1905	Aug 11	78	67
September	31.2	23.9	38.3	1920	Sep 30	19.4	1904	Sep 30	79	68
October	31.7	22.2	37.8	1920	Oct 1	15.0	1952	Oct 31	75	56
November	29.9	18.4	34.6	1965	Nov 1	9.4	1904	Nov 30	69	48
December	29.0	16.1	33.9	1920	Dec 5	8.3	1902	Dec 29	71	41
Annual	33.1	22.3							70	44

*Hours I. S. T.

TABLE 4

Mean Wind Speed in km/hr.

(HANAMKONDA)

Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
7.2	9.1	9.7	10.9	12.1	13.1	12.4	10.7	8.5	6.1	5.3	5.1	9.2

TABLE 5

Special Weather Phenomena

(HANAMKONDA)

*Mean No. of days with	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Thunder . . .	0.1	1.0	1.8	4	5	6	3	3	7	4	1.1	0.5	37
Hail . . .	0	0.1	0	0	0	0	0.1	0	0	0	0	0	0.2
Dust-Storm . .	0	0.1	0.1	0.5	0.8	0.4	0	0	0	0.2	0.1	0	2
Squall . . .	0	0	0	0	0	0	0	0	0	0	0	0	0
Fog . . .	0.2	0.9	0.1	0	0	0	0	0	0	0.1	0.4	1.9	4

*No. of days 2 and above are given in whole numbers.

ERRATA
"CLIMATE OF ANDHRA PRADESH"

S. No.	Page No.	Para	Line	Table No./figure	Element/Heading	Station	Month	Wrong entry	Correct entry	Remark
1	2	3	4	5	6	7	8	9	10	11
1.	(i)	1	4					emands	demands.	
	foreword									
2.	(iii)	1	3					chap-ter	chap-ters	
	Introduc-tion									
3.	1	3	4					South/	south-	
		Climate						west	west	
4.	3	5	1					hot and	hot and	
								Hot	Steppe	
								Steppe	type	
								type		
5.	4	1	3					6 5	6.5	
6.	6	1	2					this	these	
7.	6	4	4					Parka-	Praka-	
								sam	sam	
8.	XXVIII (Map)			7(c)				-	Insert (%) after Rainfall in the title	
									C/SSE	
9.	8			1	Morning wind direction	Rentachintala	Marh C	SSE		
10.	8			1	Mean wind speed	Masulipatam	June	14.	14.5	
11.	10			1	Evening wind direction	Nizamabad	May	W/NW	C/NW	
12.	11			2	Mean Max. temperature	Nidadavole	Annual	32.0	32.7	
13.	11			2	Mean Min. temperature	Nidadavole	Annual	23.07	23.0	
14.	12			2	Station name			urnool	Kurnool	
15.	15			4	Mean cloud amount	Rayalaseema Sub.Div.Mean	Annual	41.1	4.1	
16.	19			5	Mean rainfall	Vishakha- patnam	Annual	1032.	1032.6	
17.	25			1	Rainy day	Peddapuram	June	.5	7.5	
18.	26			1	Heaviest rainfall	Amalapuram	-	1895	1895	
19.	30	1	Second					Sep.26	Sept.,6	
20.	31			1	Normal rainfall	Guntur	August	the 3	they 148.3	
21.	31			1	Heaviest rainfall date	Ponnur	-	1958	1958	
					-do-	Iskapalle		Oct.,15	Oct., 1	
22.	44			1				1912	1912	
23.	45			1	Name of station	-		Oct.	Oct.,22	
24.	45			1	-do-	-		Vrishna- patnam	Krishna- patnam	
								Kenka- tagiri	Venka- tagiri	

1	2	3	4	5	6	7	8	9	10	11
25.	45			1	Foot note under Table I			(days with rain of 2.5 mm or more)	(days with rain of 2.5 mm or more)	
26.	46			3	Relative Humidity at 1730	Nellore	August	5	54	
27.	50			1	Heaviest rainfall	Kanuparthi	-	1939	1939	
28.	50			1	- do -	Pakala	-	Oct. 2	Oct. 21	
29.	50			1	- do -	Darsi	-	1939	1939	
30.	51			1	- do -	Giddalore	-	Oct. 2	Oct. 29	
31.	54	1	First					1882	1882	
32.	54	2	nine					Dec.	Dec. 1	
33.	56			1	Rainfall			1895	1895	
					Heaviest rainfall			Oct. 2	Oct. 25	
								rounds	round	
								Annu	Annual	
								Heaviest rainfall in 2 Hours	Heaviest Rainfall in 24 Hours	
34.	56			1	Rainy day	Srikakulam	Novr.	72.6	2.6	
35.	58			3	Relative Humidity			173	1730	
36.	60	1	1					rounds	round	
37.	60	1	5					Cons- tituty	Cons- titute	
38.	63				Foot note under table 1			(a) Normal rainfall in mmm.	(a) Normal rainfall in mm.	
38a.	70				table 1					
39.	74	3	1		Highest Max. ever recorded	Nidadavole	May	48.9	43.9	
40.	76			1	Number of rainy days	Yadiki	July	Specia 5.	Special 5.9	
41.	82			1	Heaviest rainfall	Palamaner		1890	1890	
42.	89			1	Highest annual rainfall	Cuddapah (district)		Jan 27	June 27	
43.	94			1	Heaviest rainfall	Voravakal		613	163	
44.	95			1	Normal rainfall	Adoni	July	(1903)	(1903)	
45.	99	5	6		Temperature			1946	1946	
46.	106			1	Average No. of rainy days	Saifabad	Ann- ual	June*	June +	
47.	107			3	Relative Humidity at 1730	Begumpet	July	110.3	101.3	
48.	109	4	1		Station			March to a May	March to May	
49.	117			3	Mean Min. Temperature	Khammam		48.0	48.9	
50.	123			2	Data			39	36	
51.	127			1	Normal rainfall	Sangareddy	Novr.	Jactia °3	Jactical °C	
52.	133	1	4					(Data 1901-1250)	(Data 1901-1950)	
53.	140	1	4					221.3	22.3	
								till September	till September.	
								October	October	
								and November	and November	
								North	North-	
								Westerly	easterly	