

CHAPTER 4 CLIMATOLOGY

4.1 Climatological Data Collection

In order to clarify the synoptic climatology of relevance to the National Water Resources Master Plan in Zambia, daily climatological data, such as temperature, evaporation, sunshine hours, relative humidity and wind speed, in all the 36 meteorological stations from the beginning of observation up to September 1993, were collected. These data were collected from Department of Meteorology, Ministry of Transport and Communication.

4.2 Temperature

4.2.1 Annual Mean Temperature

Based on the daily maximum and daily minimum temperature, annual mean temperature of the 36 meteorological stations have been calculated and average, maximum and minimum annual mean temperature are summarised in Table 4-1. The 30 years average annual mean temperature in all the meteorological stations are graphically shown in Figure 4-2 (1) by province, and in Figure 4-2 (2) in order of annual mean temperature.

The average annual mean temperature in Zambia ranges from 19.3 °C to 24.2 °C and the Zambian average is 21.0 °C. Western Province is hottest, 22.1 °C on an average, and Copperbelt Province is coldest, 20.3 °C on an average. Northern Province is also very cold, 20.0 °C on an average excluding Mfuwe at the southernmost of Northern Province. Mfuwe is the hottest area in Zambia, 24.2 °C mainly because of low elevation, EL.573 m. The next are Mongu and Senanga in Western Province, 22.7 °C. The coldest city is Mbala in Northern Province, 19.3 °C. The Zambian average of annual mean temperature is 21 °C.

The relationship between annual mean temperature and altitude, Latitude at the meteorological stations are shown in Figure 4-1. In general, temperature decreases by 0.65 °C per 100 m rise in altitude. The distribution of temperature in Zambia depends mainly on altitude rather than on latitude. Regional variations of annual mean temperature in Zambia are 19.3 - 24.2 °C but 19.3 - 22.7 °C excluding Mfuwe.

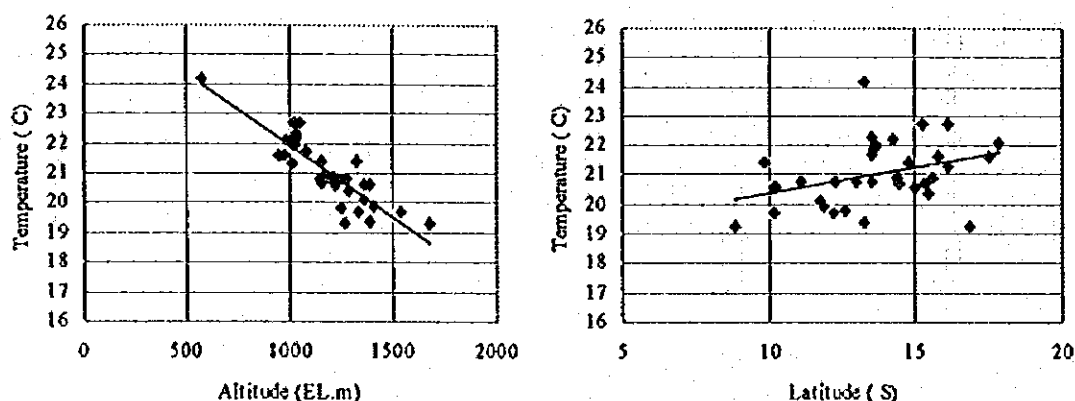


Figure 4-1 Relationship Between Temperature and Altitude, Latitude

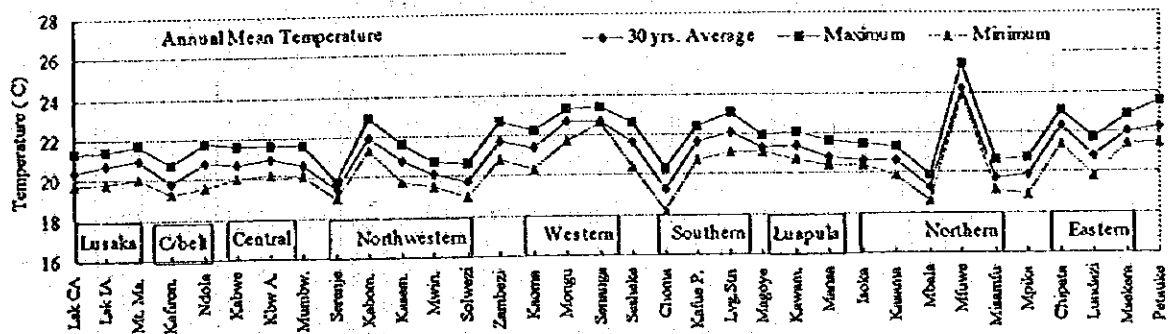


Figure 4-2 (1) Average, Maximum and Minimum Annual Mean Temperature by Province

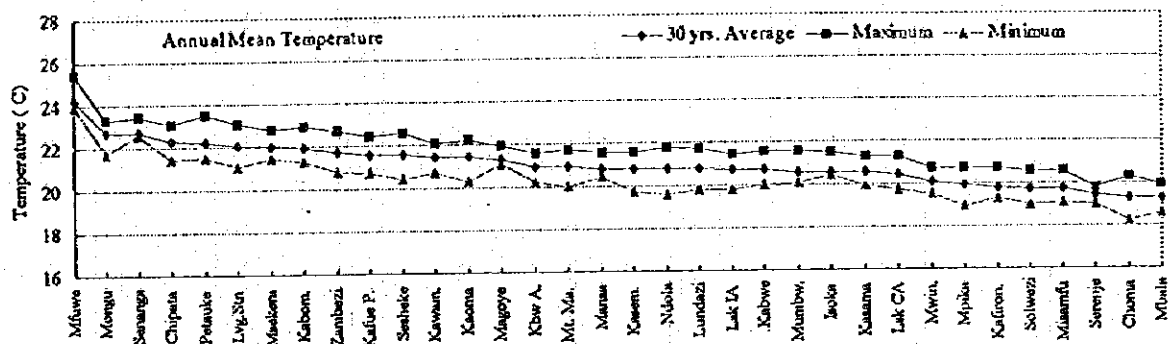


Figure 4-2 (2) Average, Maximum and Minimum Annual Mean Temperature in Order

Table 4-1 Annual Mean Temperature

Unit : °C

Province	Station Name	Altitude (EL.m)	1983-92 (10yrs.)	1973-92 (20yrs.)	1963-92 (30yrs.)	Maxima	Minima
Lusaka	Lusaka C.A.	1280	20.5	20.4	20.4	21.3	19.7
	Lusaka I.A.	1154	21.0	20.7	20.7	21.4	19.8
	Mt. Makulu	1213	21.2	20.9	20.9	21.7	20.0
	Average	-	20.9	20.7	20.7	21.5	19.8
Copperbelt	Kafironda	1242	20.2	20.0	19.8	20.7	19.3
	Ndola	1270	21.2	21.0	20.8	21.8	19.6
	Average	-	20.7	20.5	20.3	21.3	19.5
Central	Kabwe	1207	21.0	20.8	20.7	21.6	20.0
	Kabwe Agro.	1165	20.9	20.7	20.9	21.6	20.2
	Mumbwa	1218	20.7	20.6	20.6	21.6	20.1
	Serenje	1384	19.5	19.3	19.4	19.8	19.0
	Average	-	20.5	20.4	20.4	21.2	19.8
North-western	Kabompo	1026	22.4	22.2	21.9	22.9	21.3
	Kasempa	1235	21.2	20.9	20.8	21.6	19.7
	Mwinilunga	1362	20.3	20.3	20.1	20.7	19.5
	Solwezi	1333	19.8	19.8	19.7	20.6	19.0
	Zambezi	1078	21.8	21.7	21.7	22.7	20.8
	Average	-	21.1	21.0	20.8	21.7	20.1
Western	Kalabo (*1)	1051	23.0 (last 7 yrs. average)			23.2	22.8
	Kaoma	1152	21.8	21.5	21.4	22.2	20.3
	Mongu	1053	23.0	22.8	22.7	23.3	21.7
	Senanga	1027	23.0	22.8	22.7	23.4	22.6
	Sesheke	951	22.0	21.9	21.6	22.6	20.4
	Average	-	22.5	22.3	22.1	22.9	21.3
Southern	Choma	1267	19.8	19.4	19.3	20.3	18.2
	Kafue Polder	978	21.9	21.7	21.6	22.4	20.7
	Livingstone	987	22.5	22.1	22.1	23.1	21.1
	Magoye	1018	21.6	21.4	21.3	21.9	21.1
	Average	-	21.5	21.2	21.1	21.9	20.3
Luapula	Kawambwa	1324	21.6	21.5	21.4	22.1	20.7
	Mansa	1259	21.0	20.9	20.8	21.6	20.4
	Samfya (*2)	1172	21.1	21.2	-	21.6	20.6
	Average	-	21.3	21.2	21.1	21.9	20.6
Northern	Isoka	1360	20.9	20.7	20.6	21.5	20.4
	Kasama	1384	20.9	20.7	20.6	21.3	19.9
	Mbala	1672	19.6	19.6	19.3	19.9	18.6
	Mfuwe	573	24.6	24.5	24.2	25.4	23.9
	Misamfu	1536	20.2	19.8	19.7	20.6	19.1
	Mpika	1402	20.2	20.2	19.9	20.7	18.9
	Average	-	21.1	20.9	20.7	21.6	20.1
Eastern	Chipata	1032	22.6	22.5	22.3	23.1	21.4
	Lundazi	1143	21.2	21.0	20.8	21.7	19.8
	Msekera	1025	22.3	22.2	22.0	22.8	21.4
	Petauke	1036	22.0	22.3	22.2	23.5	21.5
	Average	-	22.0	22.0	21.8	22.8	21.0
Total Average		1187	21.3	21.1	21.0	21.9	20.3

Remarks :

(*1, *2) : This station is excluded in calculating the average.

□ : The data was calculated by using the record near the station

4.2.2 Average, Maximum and Minimum Monthly Mean Temperature

The annual variation of monthly mean temperature in the all meteorological stations has been compiled and is shown in Figure 4-4. From the figure, average monthly mean temperature in each province is summarised in Table 4-2 and the annual variation of monthly mean temperature in Zambia is shown in Figure 4-3. In addition maximum and minimum monthly mean temperature is shown in Table 4-3.

July is the coldest season and its minimum temperature is 3.6-12.0 °C (8.1 °C on an average). September and October (mainly October) are the hottest season and its maximum temperature is 27.7-36.5 °C (31.8 °C on an average). The hottest place in Zambia is Mfuwe and the maximum and minimum temperature are 36.5 °C, 10.3 °C, and the annual mean is 24.2 °C. One of the coldest places in Zambia is Kafironda and the maximum and minimum temperature are 32.0 °C, 3.6 °C, and the annual mean is 19.8 °C.

Table 4-2 Average Monthly Mean Temperature by Province

Month	Unit : °C									
	Zambia	Lusaka	C/belt	Central	N/western	Western	Southern	Luapula	Northern	Eastern
Oct.	24.2	24.0	23.3	23.6	23.6	25.7	24.7	23.6	23.6	25.1
Nov.	23.8	23.7	23.0	23.4	22.8	25.1	24.8	22.8	23.2	24.8
Dec.	22.7	22.3	22.2	22.1	22.2	24.2	23.6	22.0	22.0	23.4
Jan.	22.5	22.0	21.9	21.9	22.2	24.1	23.4	22.0	21.6	22.8
Feb.	22.5	22.0	22.1	21.9	22.3	24.0	23.2	22.1	21.8	22.8
Mar.	22.4	21.8	22.0	21.7	22.3	23.9	22.8	22.2	21.8	22.8
Apr.	21.4	20.6	21.0	20.5	21.3	22.8	21.2	21.8	21.1	22.0
May	19.2	18.5	18.3	18.2	18.9	20.0	18.4	20.1	19.5	20.3
Jun.	16.8	16.2	15.8	16.0	16.4	17.3	15.8	17.7	17.5	18.1
Jul.	16.6	16.0	15.7	15.8	16.4	17.1	15.5	17.4	17.2	17.9
Aug.	19.0	18.4	18.0	18.2	19.2	19.9	18.0	19.5	19.0	19.9
Sep.	22.5	22.1	21.3	21.9	22.6	23.9	22.4	22.4	21.8	23.1
Year	21.0	20.7	20.3	20.4	20.8	22.1	21.1	21.1	20.7	21.8

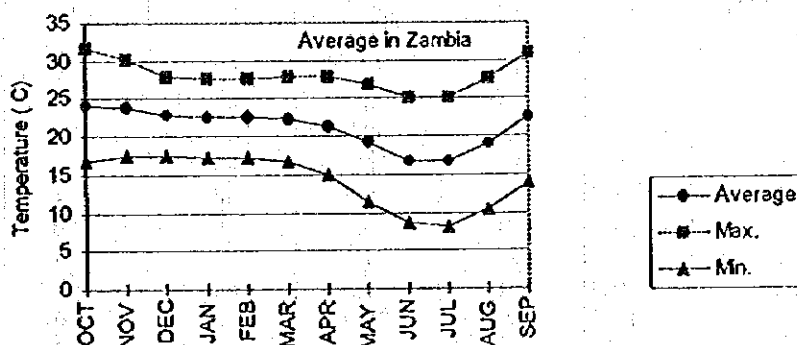


Figure 4-3 Annual Variation of Monthly Mean Temperature in Zambia

Table 4-3 Maximum and Minimum Monthly Mean Temperature

Unit : °C

Province	Station Name	Altitude (EL.m)	Maximum		Minimum		[Max - Min]
			Month	Temperature	Month	Temperature	
Lusaka	Lusaka C.A.	1280	Oct.	30.1	Jul.	9.1	21.0
	Lusaka I.A.	1154	Oct.	31.6	Jul.	7.3	24.3
	Mt. Makulu	1213	Oct.	31.3	Jul.	8.7	22.6
	Average	-	-	31.0	-	8.4	22.6
Copperbelt	Kafironda	1242	Oct.	32.0	Jul.	3.6	28.4
	Ndola	1270	Oct.	31.4	Jul.	7.7	23.7
	Average	-	-	31.7	-	5.7	26.1
Central	Kabwe	1207	Oct.	31.1	Jul.	8.6	22.5
	Kabwe Agro.	1165	Oct.	31.7	Jul.	7.3	24.4
	Mumbwa	1218	Oct.	31.1	Jul.	7.1	24.0
	Serenje	1384	Oct.	30.3	Jul.	7.5	22.8
	Average	-	-	31.1	-	7.6	23.4
North-western	Kabompo	1026	Sep.	33.6	Jul.	7.3	26.3
	Kasempa	1235	Oct.	31.8	Jul.	6.7	25.1
	Mwinilunga	1362	Sep.	31.0	Jul.	6.5	24.5
	Solwezi	1333	Oct.	30.5	Jul.	5.6	24.9
	Zambezi	1078	Sep.	33.5	Jul.	6.4	27.1
	Average	-	-	32.1	-	6.5	25.6
Western	Kalabo (*1)	1051	Oct.	33.8	Jul.	9.7	24.1
	Kaoma	1152	Oct.	33.0	Jul.	5.8	27.2
	Mongu	1053	Oct.	33.7	Jul.	9.6	24.1
	Senanga	1027	Oct.	33.7	Jul.	8.7	25.0
	Sesheke	951	Oct.	34.2	Jul.	4.4	29.8
	Average	-	-	33.7	-	7.6	26.0
Southern	Choma	1267	Oct.	30.8	Jul.	4.6	26.2
	Kafue Polder	978	Oct.	32.8	Jul.	7.1	25.7
	Livingstone	987	Oct.	33.9	Jul.	6.4	27.5
	Magoye	1018	Oct.	32.8	Jul.	6.9	25.9
	Average	-	-	32.6	-	6.3	26.3
Luapula	Kawambwa	1324	Sep.	30.5	Jul.	10.8	19.7
	Mansa	1259	Oct.	31.2	Jul.	8.5	22.7
	Sanfya (*2)	1172	Oct.	30.0	Jul.	10.4	19.6
	Average	-	-	30.6	-	9.9	20.7
Northern	Isoka	1360	Oct.	31.5	Jul.	9.9	21.6
	Kasama	1384	Oct.	30.9	Jul.	9.2	21.7
	Mbala	1672	Oct.	27.7	Jul.	10.5	17.2
	Mfuwe	573	Oct.	36.5	Jul.	10.3	26.2
	Misamfu	1536	Oct.	30.5	Jul.	7.1	23.4
	Mpika	1402	Oct.	29.7	Jul.	9.0	20.7
	Average	-	-	31.1	-	9.3	21.8
Eastern	Chipata	1032	Oct.	32.2	Jul.	11.8	20.4
	Lundazi	1143	Oct.	30.9	Jul.	8.0	22.9
	Msekera	1025	Oct.	31.5	Jul.	10.7	20.8
	Petauke	1036	Oct.	32.4	Jul.	12.0	20.4
	Average	-	-	31.8	-	10.6	21.1
Average		-	-	31.8	-	8.1	23.7

Remarks :

(*1, *2) : This station is excluded in calculating the provincial average.

Maximum, Minimum : Maximum or minimum monthly mean temperature

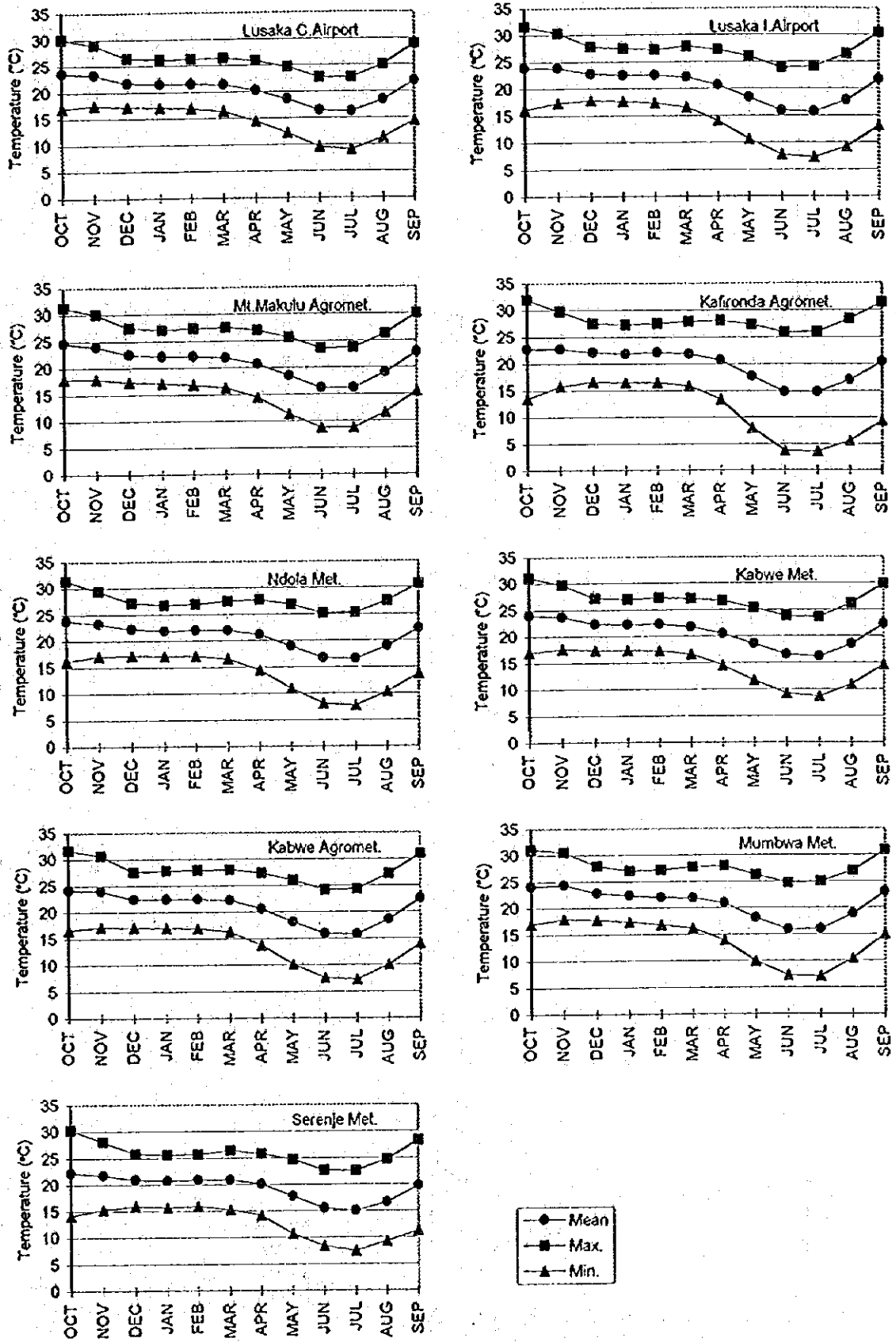


Figure 4-4 (1) Monthly Mean, Maximum and Minimum Temperature

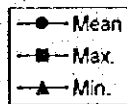
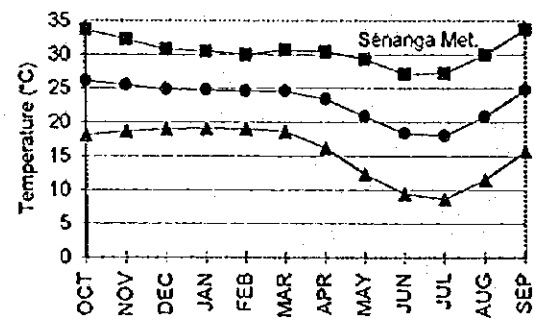
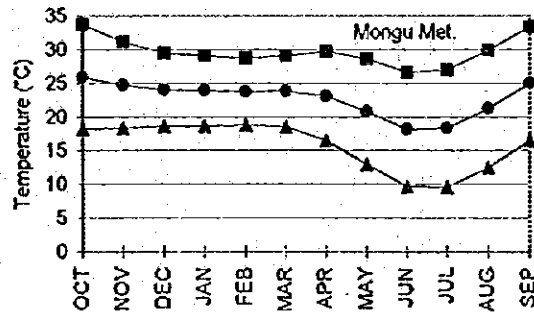
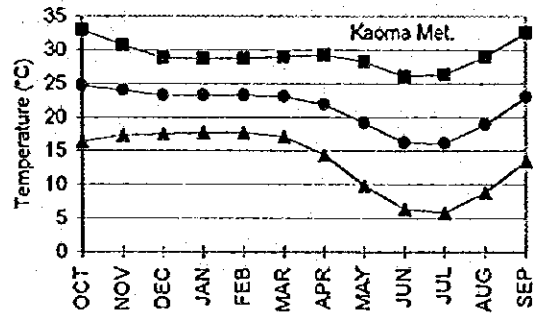
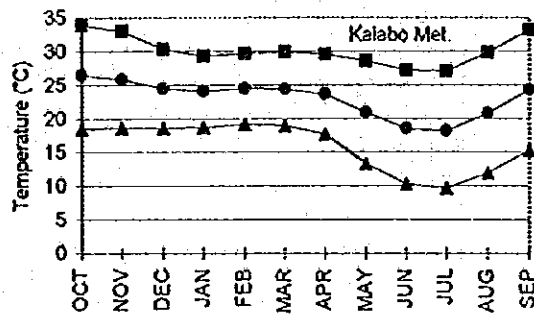
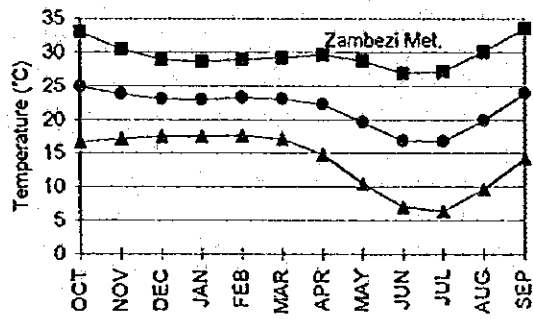
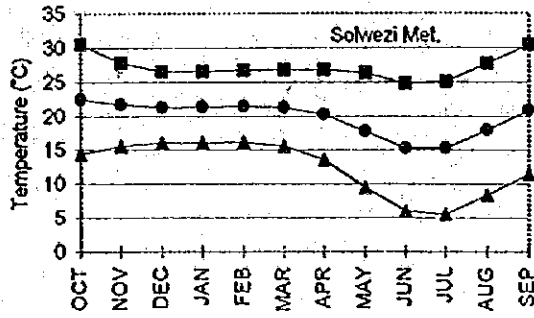
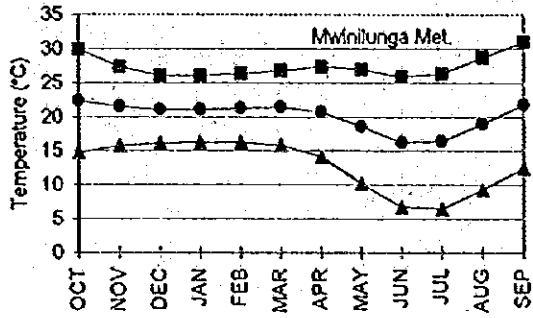
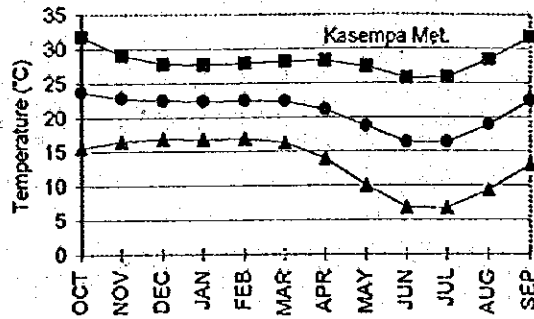
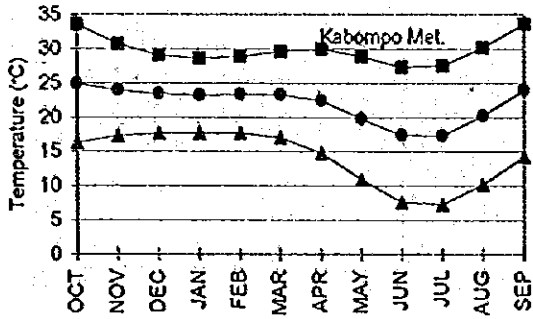


Figure 4-4 (2) Monthly Mean, Maximum and Minimum Temperature

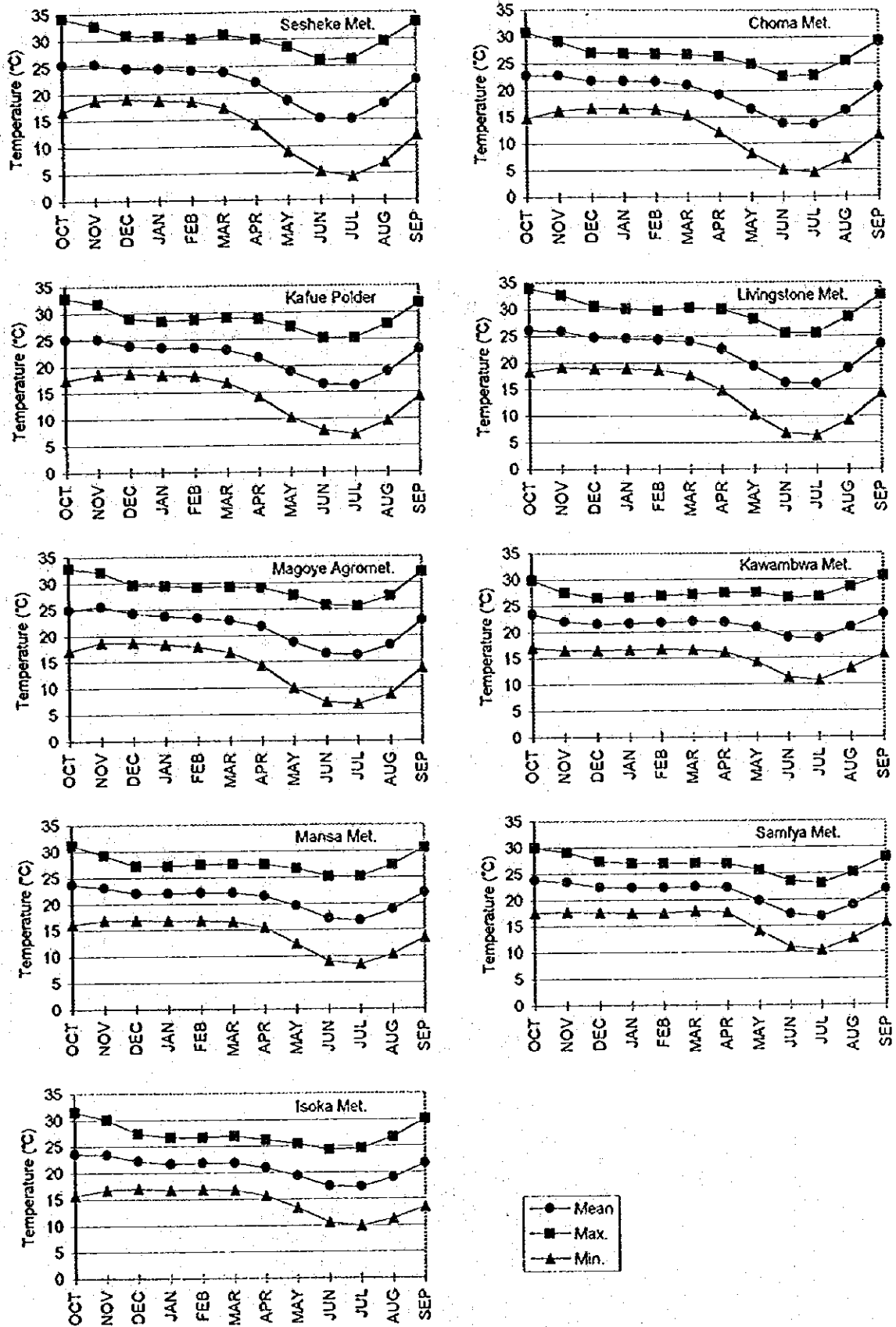


Figure 4-4 (3) Monthly Mean, Maximum and Minimum Temperature

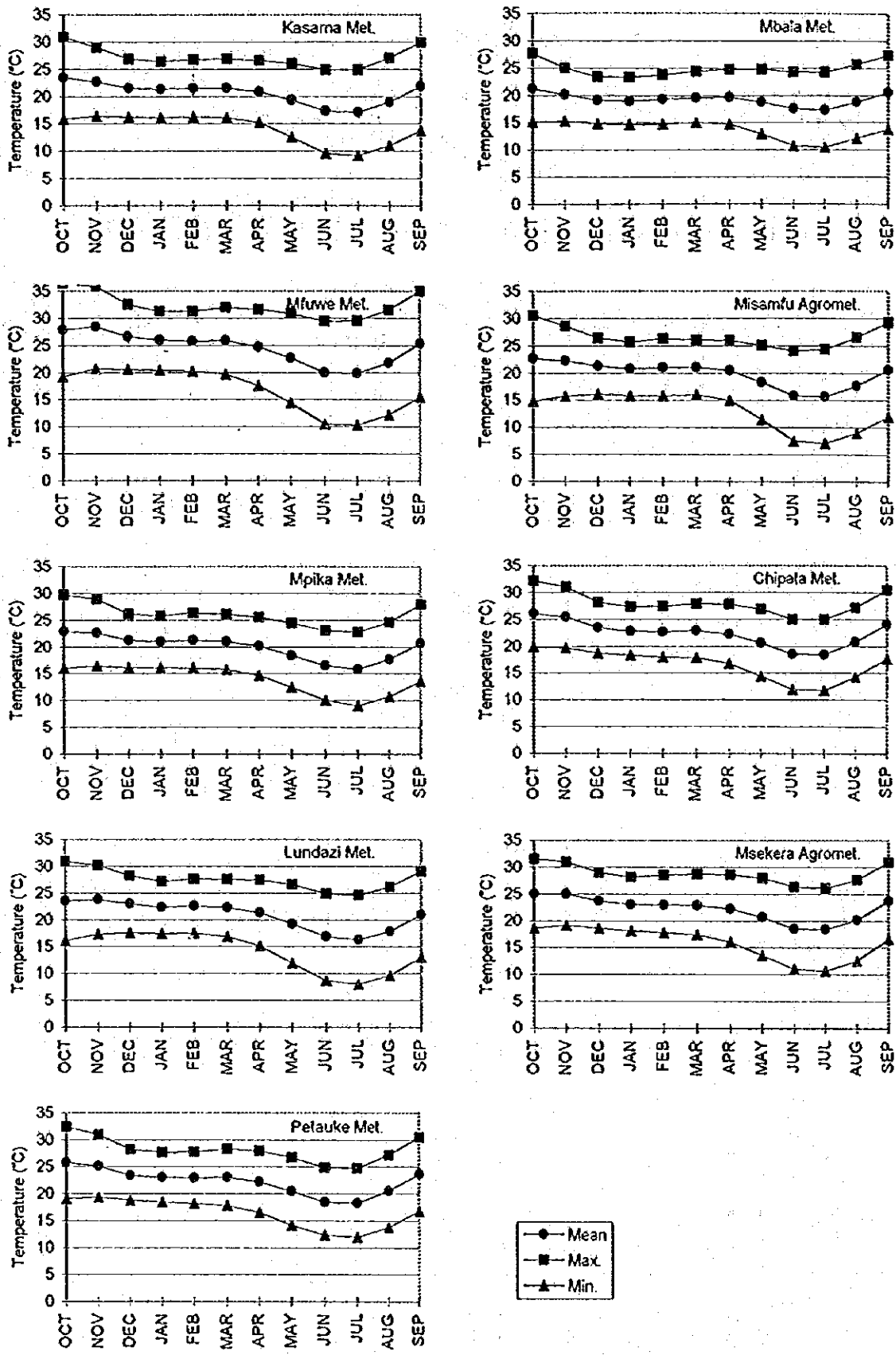


Figure 4-4 (4) Monthly Mean, Maximum and Minimum Temperature

4.3 Evaporation and Evapotranspiration

4.3.1 Pan-evaporation

Based on the daily pan-evaporation, annual pan-evaporation for the 36 meteorological stations were totalled and are summarised in Table 4-5. The average annual pan-evaporation in the all meteorological stations was calculated based on available data in the period from 1963/64 to 1992/93 and are graphically shown in Figure 4-5 (1) by the provinces, and in Figure 4-5 (2) in order of annual pan-evaporation. Based on the annual pan-evaporation in the stations, an annual pan-evaporation isopleth map has been drawn and is shown in Figure 4-7. The annual variation of monthly pan-evaporation in all the meteorological stations are shown in Figure 4-8. The average monthly pan-evaporation in each province is summarised in Table 4-4 and the average in Zambia is shown in Figure 4-6.

The average annual pan-evaporation in Zambia ranges from 1,666 mm to 2,814 mm and the Zambian average is 2,061 mm. Annual pan-evaporation is low, 1,700 - 2,000 mm in the north, and is very high in the east, 2,200 - 2,600 mm, and is average in the centre, the west and the south. Copperbelt Province has the lowest annual pan-evaporation, 1,865 mm on an average and Eastern Province has the highest, 2,211 mm on an average. Monthly pan-evaporation is high from August to November at 200 - 300 mm per month, and is low from December to July at 100 - 200 mm per month. These figures indicate that evaporation is high in areas/months with little rainfall and is low in areas/months with higher rainfall.

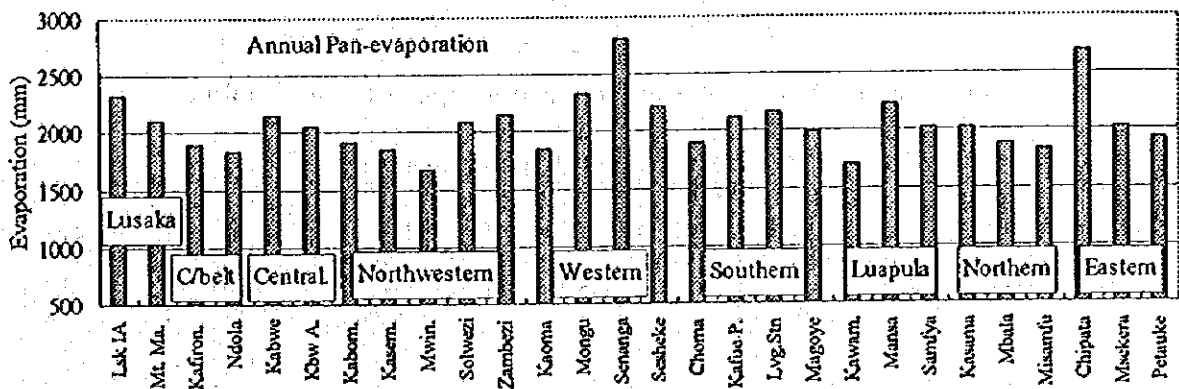


Figure 4-5 (1) Annual Pan-evaporation by Province

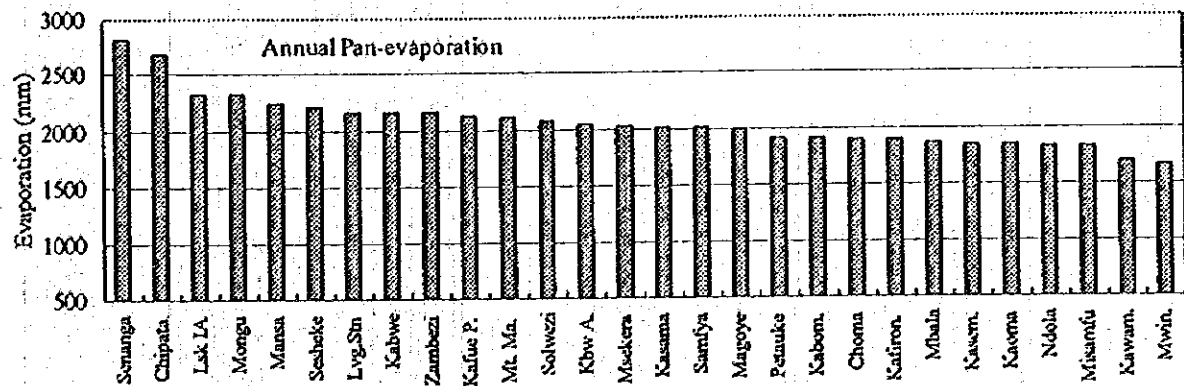


Figure 4-5 (2) Annual Pan-evaporation in Order

Table 4-4 Average Monthly Pan-evaporation by Province

Month	Zambia	Lusaka	C/belt	Central	N/western	Western	Southern	Luapula	Northern	Eastern
Oct.	244	267	236	286	213	262	256	195	226	289
Nov.	191	218	172	198	160	203	208	185	164	226
Dec.	145	155	122	136	134	168	156	140	124	159
Jan.	138	153	119	135	124	164	144	138	119	139
Feb.	126	132	110	116	117	142	129	133	111	134
Mar.	147	160	132	139	139	177	151	139	124	153
Apr.	152	168	131	150	149	179	152	146	132	149
May	159	179	141	151	156	174	147	161	157	161
Jun.	147	149	134	146	144	163	129	159	148	146
Jul.	163	163	152	166	161	176	146	169	169	160
Aug.	204	216	191	213	203	222	191	192	202	206
Sep.	247	260	226	267	233	269	236	228	231	288
Year	2,061	2,218	1,865	2,105	1,932	2,300	2,045	1,983	1,907	2,211

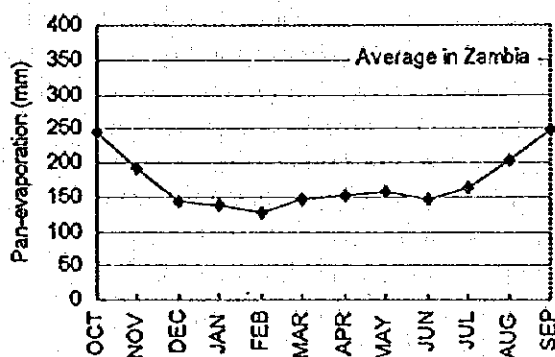


Figure 4-6 Annual Variation of Pan-evaporation in Zambia

Table 4-5 Annual Pan-evaporation

Province	Station Name	Annual Pan-evaporation		Province	Station Name	Annual Pan-evaporation	
		Total (mm)	Mean (mm)			Total (mm)	Mean (mm)
Lusaka	Lusaka C.A.	-	-	Southern	Choma	1,902	5.2
	Lusaka I.A.	2,331	6.4		Kafue Polder	2,122	5.8
	Mt. Makulu	2,104	5.8		Livingstone	2,166	5.9
	Average	2,218	6.1		Magoye	1,991	5.5
Copperbelt	Kafironda	1,892	5.2	Average	2,045	5.6	
	Ndola	1,838	5.0	Luapula	Kawambwa	1,698	4.7
	Average	1,865	5.1		Mansa	2,237	6.1
Central	Kabwe	2,158	5.9		Samfya(*1)	2,015	5.5
	Kabwe Agro.	2,051	5.6	Average	1,983	5.4	
	Mumbwa	-	-	Northern	Isoka	-	-
	Serenje	-	-		Kasama	2,018	5.5
Average	2,105	5.8	Mbala		1,873	5.1	
North-western	Kabompo	1,912	5.2		Mfuwe	-	-
	Kasempa	1,847	5.1	Misamfu	1,829	5.0	
	Mwinilunga	1,666	4.6	Mpika	-	-	
	Solwezi	2,080	5.7	Average	1,907	5.2	
	Zambezi	2,155	5.9	Eastern	Chipata	2,689	7.4
Average	1,932	5.3	Lundazi		-	-	
Western	Kalabo	-	-		Msekera	2,024	5.5
	Kaoma	1,845	5.1		Petauke	1,920	5.3
	Mongu	2,324	6.4	Average	2,211	6.1	
	Senanga	2,814	7.7	Total Average	2,061	5.6	
	Sesheke	2,215	6.1				
Average	2,300	6.3					

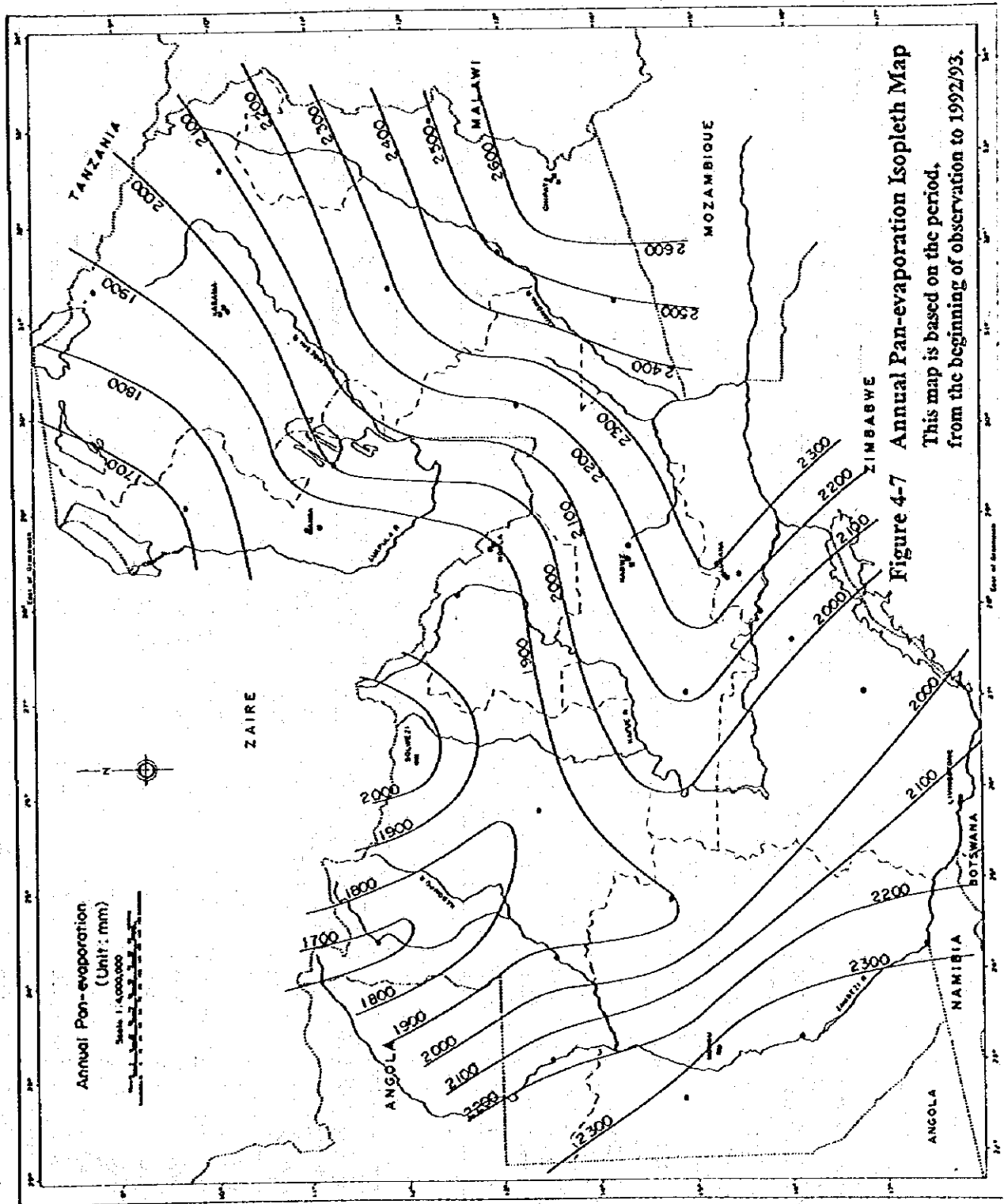


Figure 4-7 Annual Pan-evaporation Isoleth Map
This map is based on the period
from the beginning of observation to 1992/93.

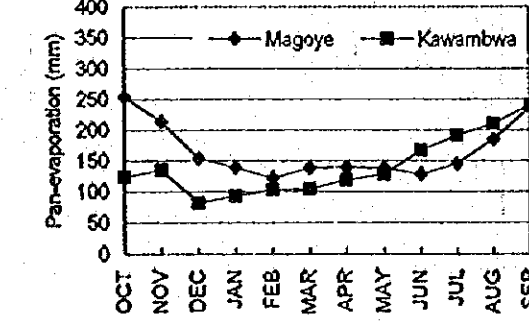
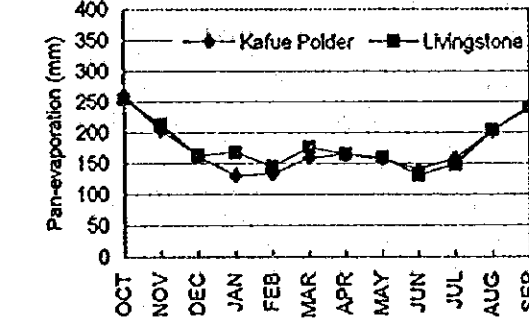
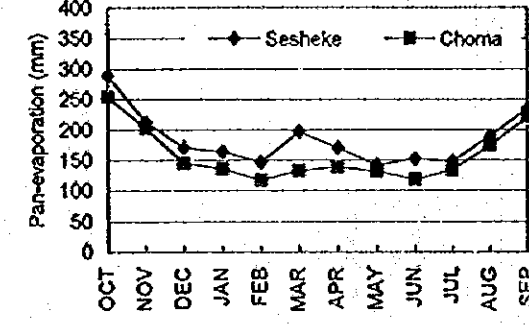
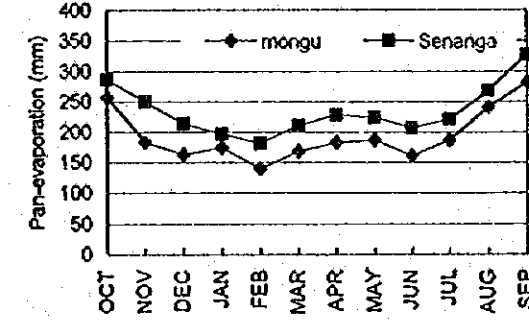
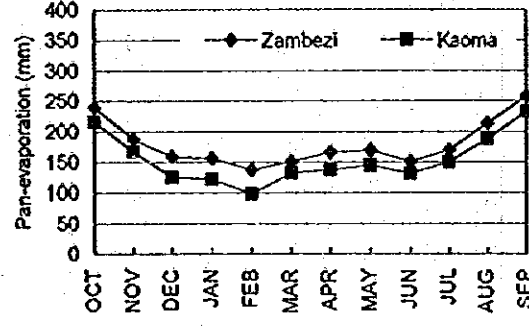
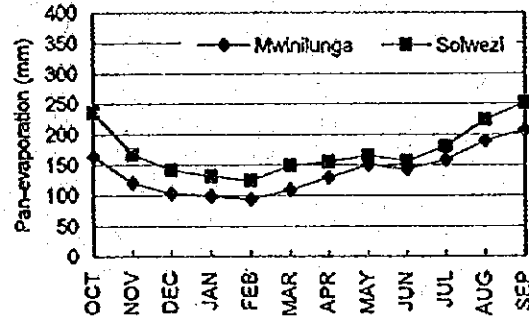
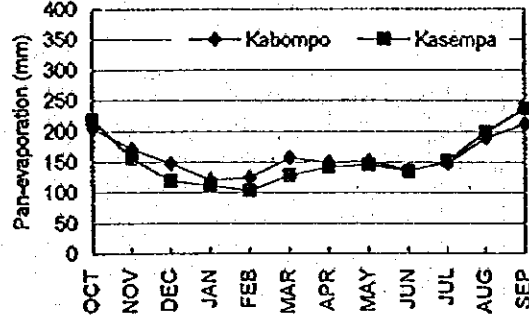
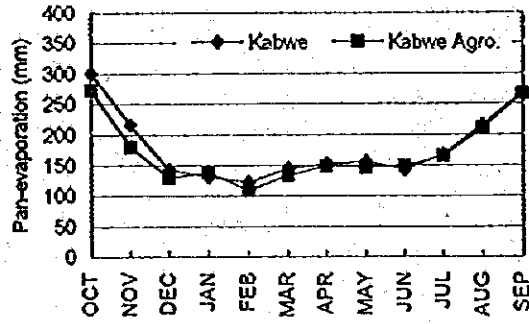
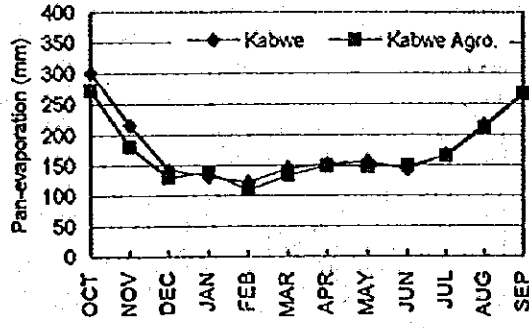
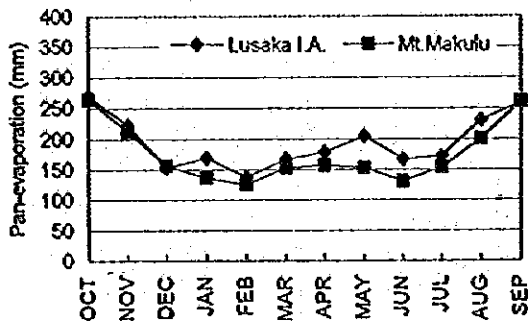


Figure 4-8 (1) Monthly Pan-evaporation

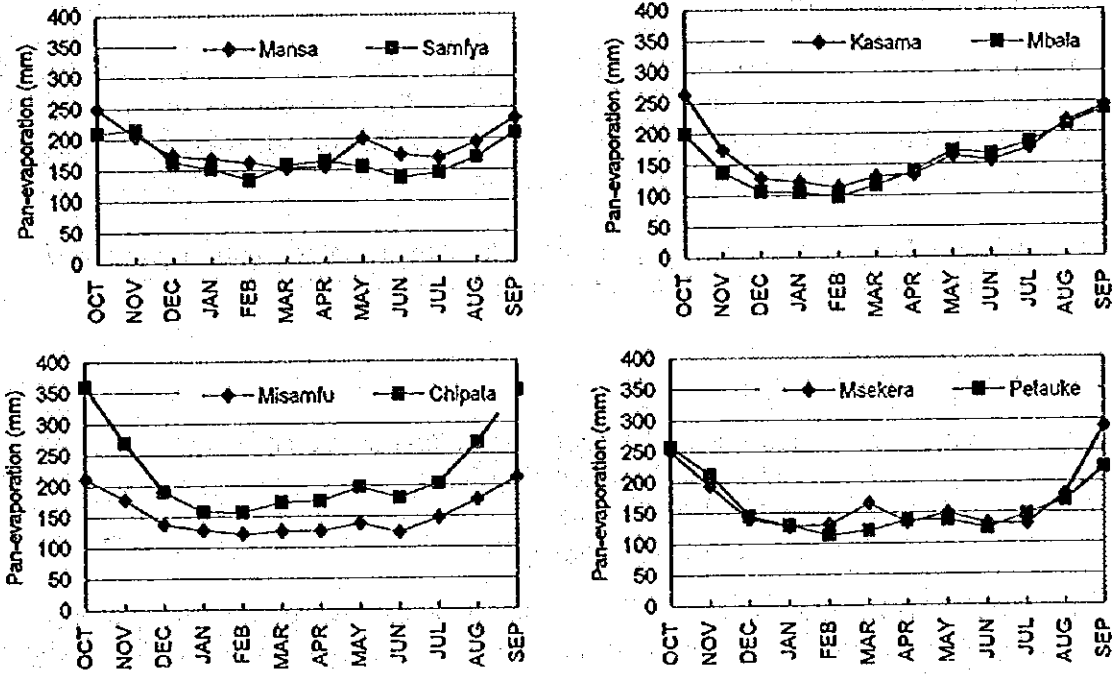


Figure 4-8 (2) Monthly Pan-evaporation

4.3.2 Evapotranspiration

The loss of water by evaporation must be considered from two main aspects. The first, evaporation from an open water surface, E_o , is the direct transfer of water from lakes, reservoirs and rivers to atmosphere. The second form of evaporation loss is the total loss by both evaporation and transpiration from a vegetated land surface and its vegetation, E_t .

A widely used formula to estimate annual values of actual evapotranspiration, E_t , was published by Turc (1954, 1955). Turc's formula is as follow :

$$E_t = \frac{P}{(0.9 + (P/L)^2)^{1/2}}$$

- Where, E_t : actual annual evapotranspiration (mm/year)
 P : mean annual precipitation (mm)
 L : $L=300 + 25T + 0.05T^3$
 T : mean air temperature ($^{\circ}\text{C}$)

The potential evapotranspiration (PE) is the potential evaporation plus transpiration assuming an unrestricted availability of water. The recommendable method is the Penman method, which is likely to provide the most satisfactory results. The form of the Penman equation is as follows:

$$PE = C \left[\underbrace{WR_n}_{\text{radiation term}} + (1-W) \underbrace{f(u)(ea-ed)}_{\text{aerodynamic term}} \right]$$

- Where, PE : potential evapotranspiration (mm/day)
 W : temperature-related weighting factor
 Rn : net radiation in equivalent evaporation (mm/day)
 $f(u)$: wind-related factor
 $(ea-ed)$: difference between the saturation vapour pressure at mean air temperature and the mean actual vapour pressure of the air (mil bar)
 C : adjustment factor to compensate for the effect of day and night weather conditions

Annual actual evapotranspiration, E_t , has been estimated using the Turc empirical formula and is shown in Table 4-7. Based on the monthly climate, such as mean temperature, relative humidity, wind speed and sunshine hours, monthly potential evapotranspiration (PE) was estimated using the revised Penman equation. The annual variations of monthly mean PE by the meteorological stations are shown in Figure 4-14 and the average in Zambia is shown in Figure 4-10. The annual PE is calculated from monthly results and are shown in Table 4-7 and Figure 4-9. The potential annual evapotranspiration isopleth map is also drawn based on the annual results as shown in Figure 4-13.

The provincial averages of the actual and potential annual evapotranspiration are summarised in Table 4-6. Figure 4-11 shows relationship between rainfall and evapotranspiration and Figure 4-12 shows relationship between rainfall and the rate, $\{E/P\}$ as well as relationship between rainfall and the balance, $[P-PE]$. These tables and figures indicates that :

- The average annual potential evapotranspiration in Zambia ranges from 1,394 mm to 1,892 mm and the Zambian average is 1,574 mm.
- Areas of highest potential evapotranspiration are the southwest of Zambia and the area along the Luangwa River near Mfuwe, amounting to 1700-1800 mm/year. Potential evapotranspiration in the central area of Zambia is 1500-1600 mm/year, and in the northwest and northeast is 1400-1500 mm/year.
- Potential evapotranspiration is larger than precipitation in Zambia. This means that Zambia is in a hydrological condition of precipitation deficit, amounting to -100 mm/year to -1,100 mm/year, compared with potential evapotranspiration.
- Actual evapotranspiration rate ranges from 65% to 95% of precipitation. Thus, runoff percentage including groundwater recharge is estimated to be between 5% and 35%.

Table 4-6 Provincial Average of Annual evapotranspiration

Province	Annual Rainfall P (mm)	Actual E_t (mm)	Potential (PE) (mm)
Lusaka	857	734	1571
Copperbelt	1231	891	1530
Central	947	776	1621
North-western	1173	887	1475
Western	808	727	1705
Southern	737	666	1669
Luapula	1259	927	1508
Northern	1138	869	1549
Eastern	961	813	1531
Whole Zambia	1001	816	1574

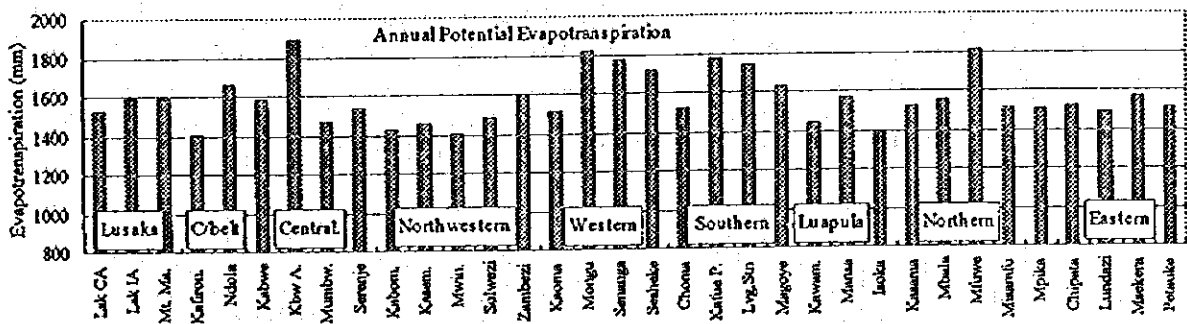


Figure 4-9 (1) Annual Potential Evapotranspiration by Province

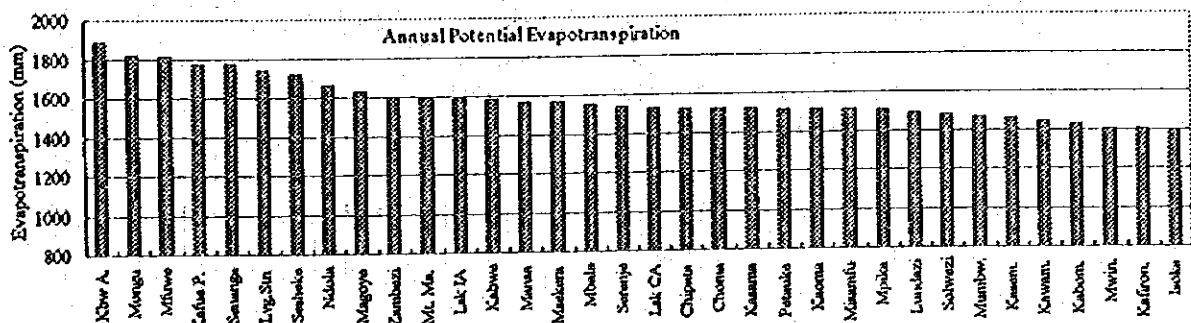


Figure 4-9 (2) Annual Potential Evapotranspiration in Order

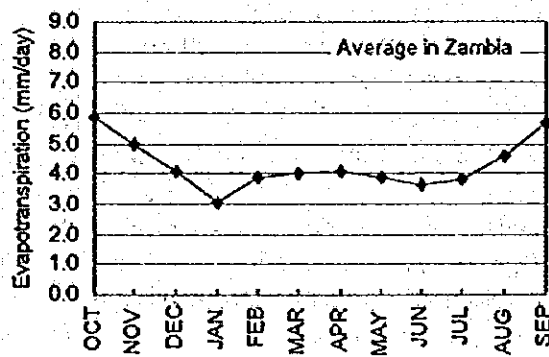


Figure 4-10 Annual Variation of Potential Evapotranspiration in Zambia

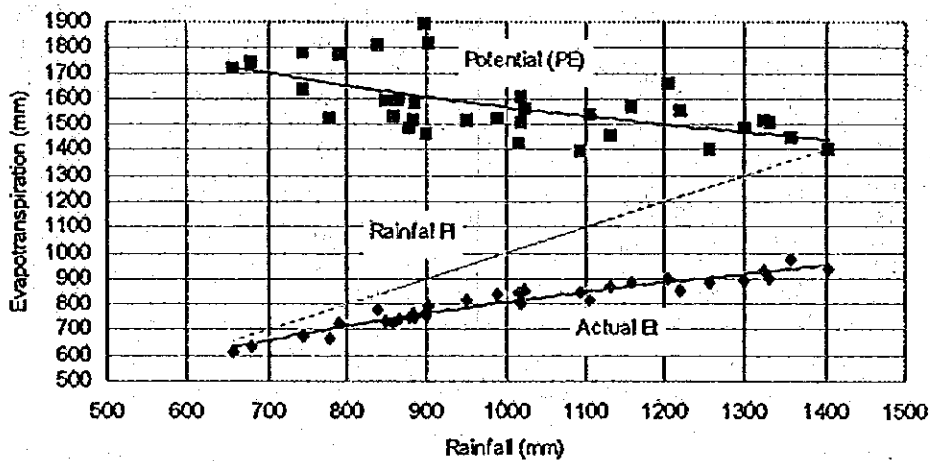


Figure 4-11 Actual and Potential Evapotranspiration

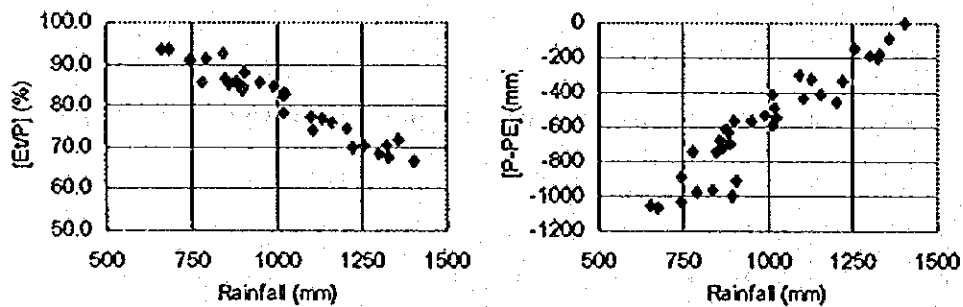
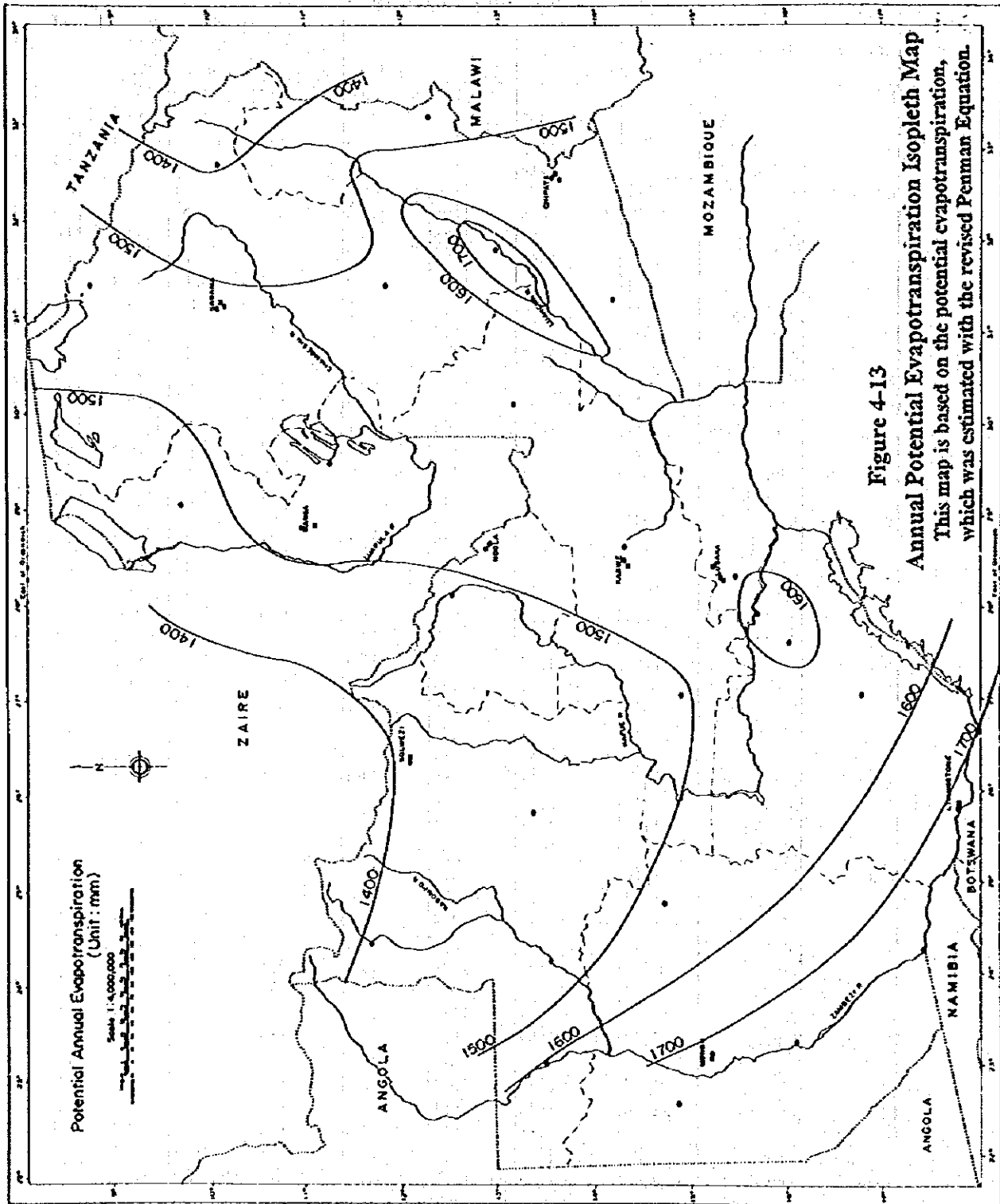


Figure 4-12 Relationship between Rainfall and $[E/P]$, $[P-PE]$

Table 4-7 : Annual Evapotranspiration

Province	Station Name	Altitude (EL.m)	Pan-evaporation E0(mm)	Rainfall P(mm)	Temperature T(C)	Evapotranspiration		Rate Runoff		
						Actual Et(mm)	Potential PE(mm)	E/P (%)	I-E/P (%)	P-PE (mm)
Lusaka	Lusaka C.A.	1280	-	858	20.4	730	1533	85.0	15.0	-675
	Lusaka I.A.	1154	2331	865	20.7	739	1590	85.4	14.6	-725
	Mt. Makulu	1213	2104	848	20.9	733	1591	86.4	13.6	-743
	Average	-	2218	857	20.7	734	1571	85.6	14.4	-714
Copperbelt	Kafironda	1242	1892	1256	19.8	882	1401	70.2	29.8	-145
	Ndola	1270	1838	1205	20.8	898	1659	74.5	25.5	-454
	Average	-	1865	1231	20.3	891	1530	72.4	27.6	-300
Central	Kabwe	1207	2158	886	20.7	751	1586	84.7	15.3	-700
	Kabwe Agro.	1165	2051	897	20.9	760	1892	84.8	15.2	-995
	Mumbwa	1218	-	900	20.6	756	1467	84.0	16.0	-567
	Serenje	1384	-	1105	19.4	818	1538	74.1	25.9	-433
	Average	-	2105	947	20.4	776	1621	82.0	18.0	-674
North-western	Kabompo	1026	1912	1016	21.9	844	1426	83.1	16.9	-410
	Kasempa	1235	1847	1131	20.8	869	1455	76.9	23.1	-324
	Mwinilunga	1362	1666	1402	20.1	936	1406	66.7	33.3	-4
	Solwezi	1333	2080	1300	19.7	892	1485	68.6	31.4	-185
	Zambezi	1078	2155	1017	21.7	840	1603	82.6	17.4	-586
	Average	-	1932	1173	20.8	887	1475	75.6	24.4	-302
Western	Kalabo	1051	-	-	-	-	-	-	-	-
	Kaoma	1152	1845	882	21.4	761	1513	86.3	13.7	-631
	Mongu	1053	2324	903	22.7	796	1816	88.2	11.8	-913
	Senanga	1027	2814	791	22.7	723	1773	91.4	8.6	-982
	Sesheke	951	2215	657	21.6	616	1718	93.7	6.3	-1061
	Average	-	2300	808	22.1	727	1705	89.9	10.1	-897
Southern	Choma	1267	1902	779	19.3	667	1522	85.6	14.4	-743
	Kafue Polder	978	2122	744	21.6	677	1776	91.0	9.0	-1032
	Livingstone	987	2166	679	22.1	637	1745	93.7	6.3	-1066
	Magoye	1018	1991	744	21.3	674	1634	90.5	9.5	-890
	Average	-	2045	737	21.1	666	1669	90.4	9.6	-933
Luapula	Kawambwa	1324	1698	1358	21.4	972	1445	71.6	28.4	-87
	Mansa	1259	2237	1159	20.8	880	1571	76.0	24.0	-412
	Samfya	1172	2015	-	-	-	-	-	-	-
	Average	-	1983	1259	21.1	927	1508	73.7	26.3	-250
Northern	Isoka	1360	-	1094	20.6	848	1394	77.5	22.5	-300
	Kasama	1384	2018	1323	20.6	932	1518	70.4	29.6	-195
	Mbala	1672	1873	1219	19.3	854	1555	70.0	30.0	-336
	Mfuwe	573	-	840	24.2	776	1808	92.4	7.6	-968
	Misamfu	1536	1829	1331	19.7	901	1511	67.7	32.3	-180
	Mpika	1402	-	1018	19.9	797	1507	78.3	21.7	-489
	Average	-	1907	1138	20.7	869	1549	76.4	23.6	-411
Eastern	Chipata	1032	2689	990	22.3	839	1524	84.8	15.2	-534
	Lundazi	1143	-	878	20.8	748	1488	85.2	14.8	-610
	Msekera	1025	2024	1024	22.0	851	1565	83.1	16.9	-541
	Petauke	1036	1920	951	22.2	815	1514	85.7	14.3	-563
	Average	-	2211	961	21.8	813	1531	84.7	15.3	-571
Total Average		-	2061	1001	21.0	816	1574	81.5	18.5	-573

Remark : Actual evapotranspiration (Turc equation) : $E_t = P / (0.9 + (P/L)^2)^{0.5}$ [L=300+25T+0.05T^3]
 Potential Evapotranspiration (Revised Penman equation) : PE



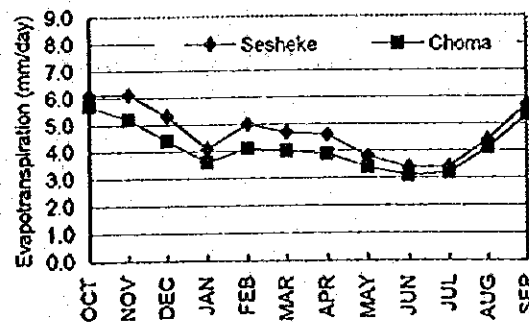
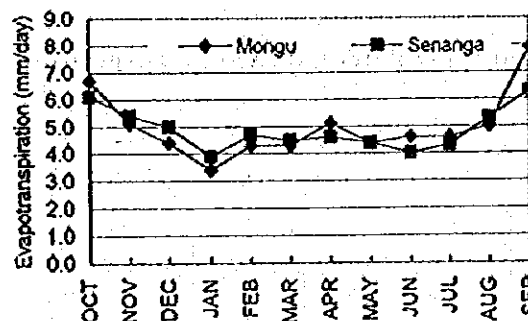
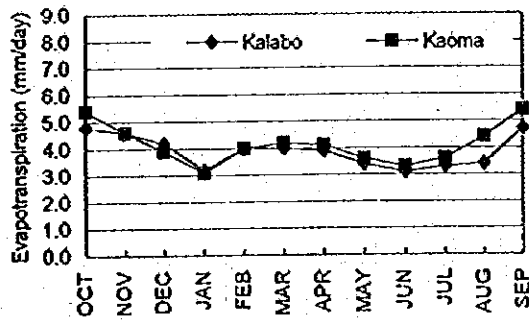
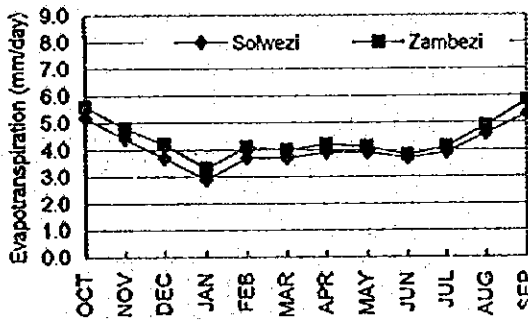
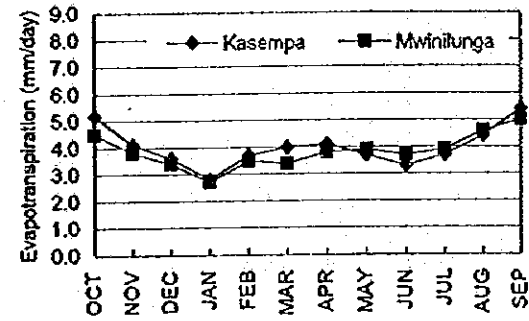
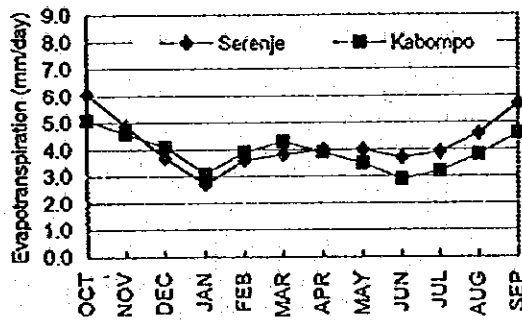
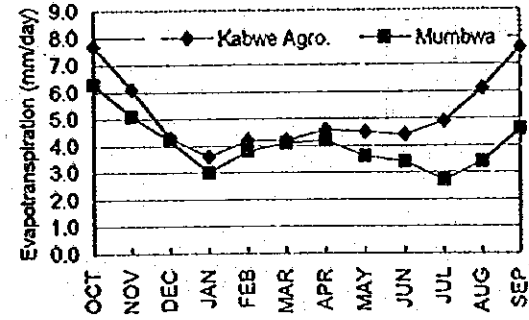
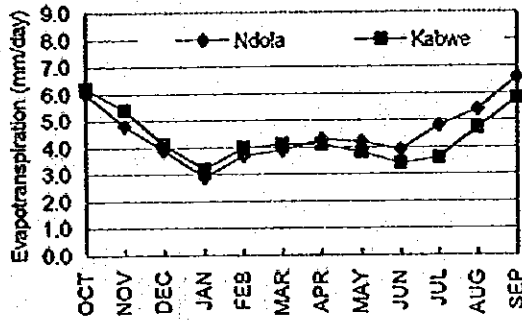
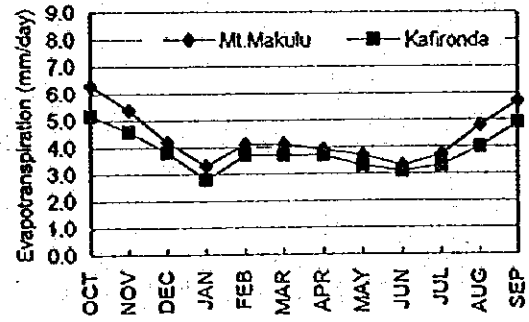
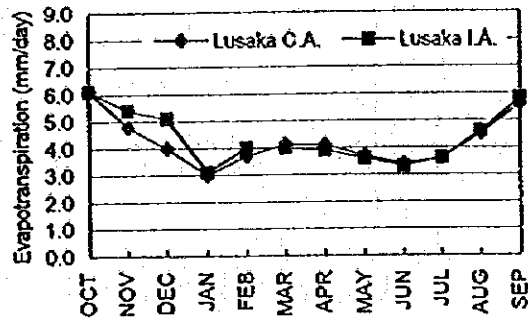


Figure 4-14 (1) Monthly Average of Daily Potential Evapotranspiration

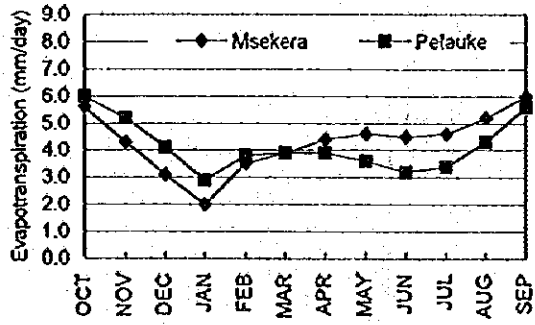
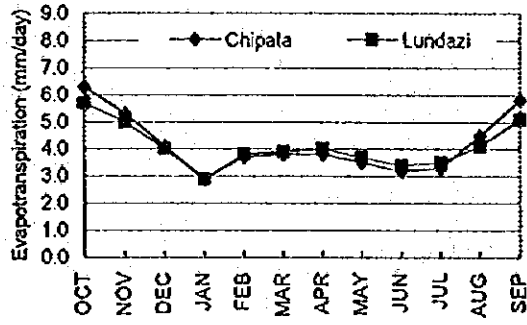
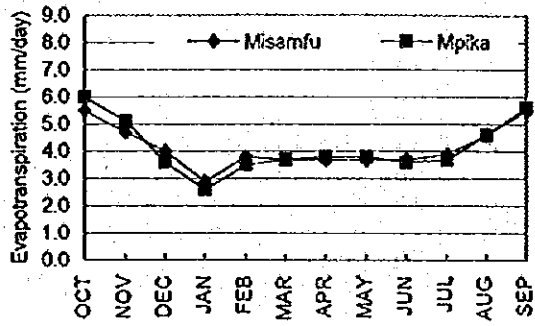
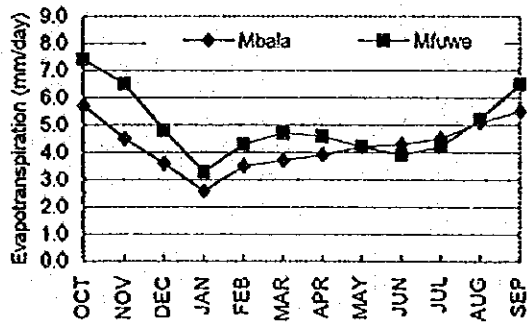
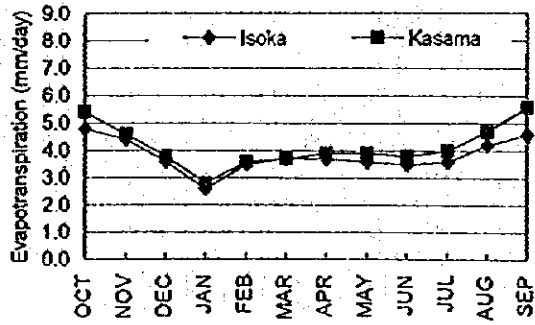
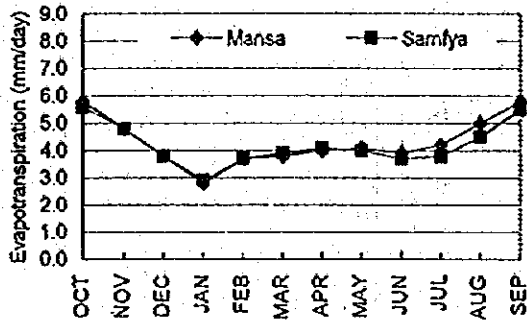
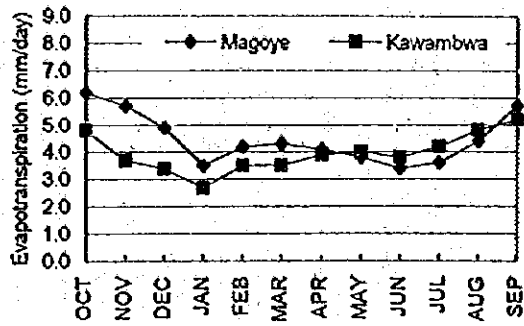
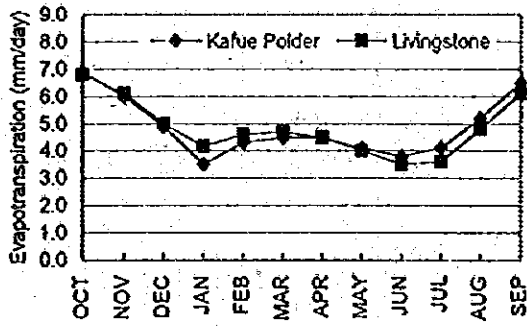


Figure 4-14 (2) Monthly Average of Daily Potential Evapotranspiration

4.4 Sunshine Hours

Based on daily sunshine hours, monthly and annual sunshine hours for the 36 meteorological stations were totalled and are summarised in Table 4-9. The average annual sunshine hours in the all meteorological stations were calculated based on available data in the period from 1963/64 to 1992/93 and are graphically shown in Figure 4-15 (1) by the provinces, and in Figure 4-15 (2) in order of annual sunshine hours. The annual variations of monthly sunshine hours in all the meteorological stations are shown in Figure 4-17. The average monthly sunshine hours in each province is summarised in Table 4-8 and the average in Zambia is shown in Figure 4-16.

The area distribution and the annual variation of sunshine hours in Zambia are summarised as follows :

- The average annual sunshine hours in Zambia ranges from 2,541 hour to 3,326 hours and the Zambian average is 2,842 hours.
- Annual sunshine hours is shortest in Northwestern Province and Luapula Province, amounting to about 2,700 hours, and is longest in Southern Province and Western Province, amounting to about 3,100 hours.
- Monthly sunshine hours is short from December to February, amounting to 150 - 200 hours/month (5.0 - 6.7 hours/day), and is long from May to October, amounting to 250 - 300 hours/month (8.3 - 10.0 hours/day).
- These figures indicate that sunshine hours is short in areas/months with higher rainfall and is long in areas/months of less rainfall.

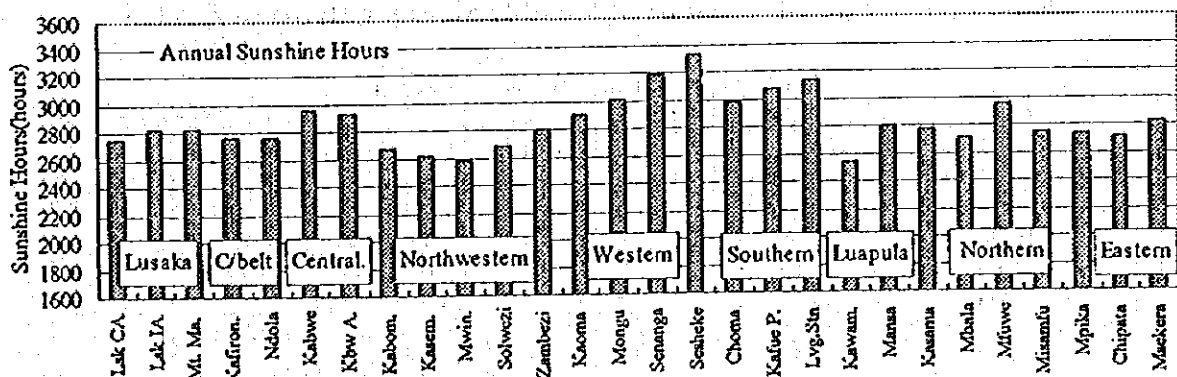


Figure 4-15 (1) Annual Sunshine Hours by Province

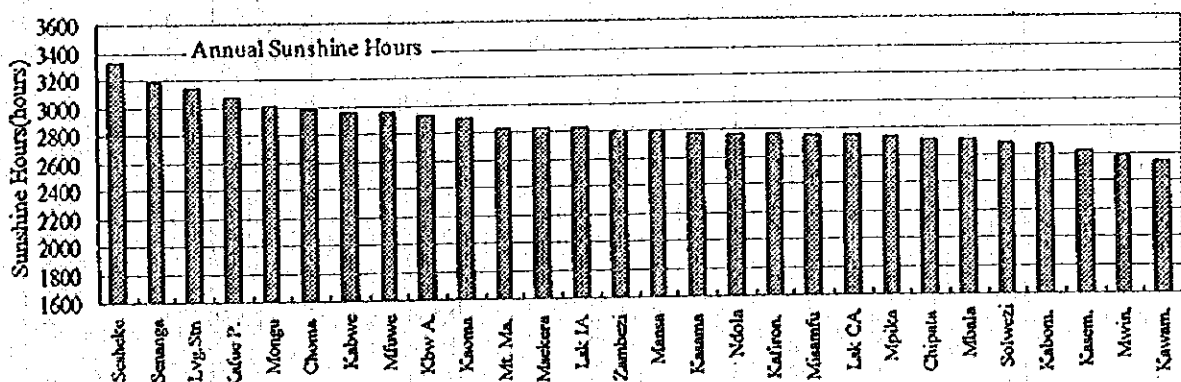


Figure 4-15 (2) Annual Sunshine Hours in Order

Table 4-8 Average Monthly Sunshine Hours in Province

Month	Zambia	Lusaka	C/belt	Central	N/western	Western	Southern	Luapula	Northern	Eastern
Oct.	261	268	268	273	238	255	281	243	274	262
Nov.	201	207	198	220	166	220	222	165	208	209
Dec.	166	168	150	165	145	204	196	137	157	165
Jan.	166	169	149	182	146	209	201	139	142	163
Feb.	158	160	141	166	135	200	182	127	143	171
Mar.	200	213	181	202	182	230	232	164	187	204
Apr.	244	244	236	249	239	271	262	229	223	243
May	285	272	272	292	289	295	292	292	280	275
Jun.	281	261	281	277	279	297	283	293	287	259
Jul.	296	272	297	299	297	312	303	313	296	271
Aug.	303	289	303	319	295	317	315	304	305	280
Sep.	280	278	283	299	261	293	294	264	282	270
Year	2,842	2,800	2,760	2,943	2,670	3,104	3,064	2,671	2,783	2,773

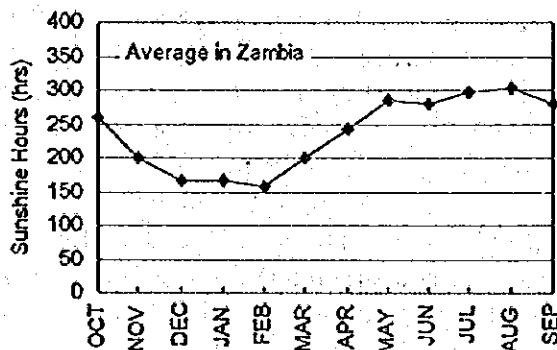


Figure 4-16 Annual Variation of Monthly Sunshine Hours in Zambia

Table 4-9 Annual Sunshine Hours

Province	Station Name	Annual Sunshine Hours		Province	Station Name	Annual Sunshine Hours	
		Total (hours/year)	Mean (hours/day)			Total (hours/year)	Mean (hours/day)
Lusaka	Lusaka C.A.	2,742	7.5	Southern	Choma	2,980	8.2
	Lusaka I.A.	2,829	7.8		Kafue Polder	3,070	8.4
	Mt. Makulu	2,830	7.8		Livingstone	3,141	8.6
	Average	2,800	7.7		Magoye	-	-
Copperbelt	Kafironda	2,758	7.6	Luapula	Average	3,064	8.4
	Ndola	2,762	7.6		Kawambwa	2,541	7.0
	Average	2,760	7.6		Mansa	2,800	7.7
Central	Kabwe	2,958	8.1	Northern	Samfya(*1)	-	-
	Kabwe Agro.	2,927	8.0		Average	2,671	7.3
	Mumbwa	-	-		Isoka	-	-
	Serenje	-	-	Kasama	2,774	7.6	
	Average	2,943	8.1	Mbala	2,706	7.4	
North-western	Kabompo	2,669	7.3	Eastern	Mfuwe	2,956	8.1
	Kasempa	2,622	7.2		Misamfu	2,745	7.5
	Mwinilunga	2,576	7.1		Mpika	2,735	7.5
	Solwezi	2,680	7.3		Average	2,783	7.6
	Zambezi	2,803	7.7		Chipata	2,715	7.4
	Average	2,670	7.3		Lundazi	-	-
Western	Kalabo	-	-	Msekera	2,830	7.8	
	Kaoma	2,906	8.0	Petauke	-	-	
	Mongu	3,001	8.2	Average	2,773	7.6	
	Senanga	3,181	8.7				
	Sesheke	3,326	9.1				
	Average	3,104	8.5	Total Average	2,842	7.8	

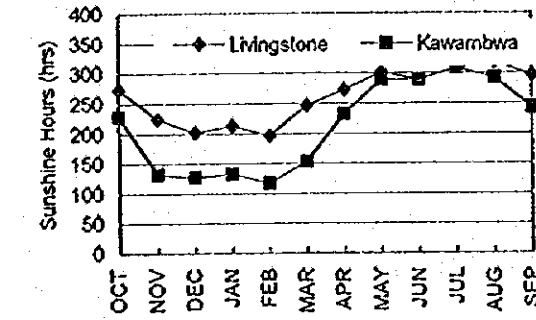
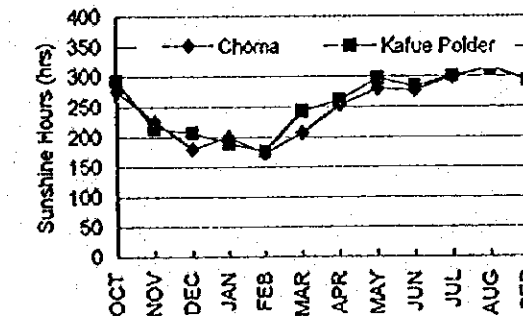
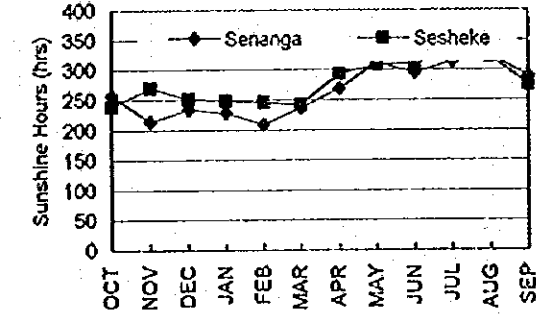
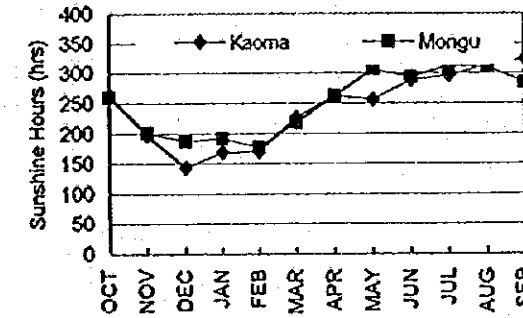
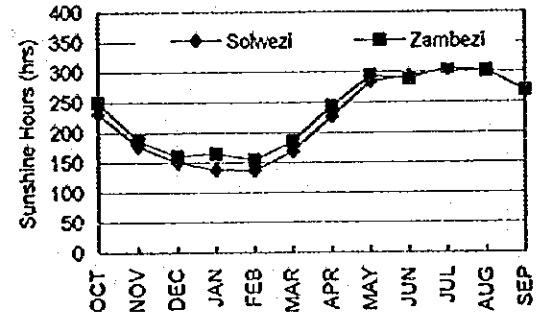
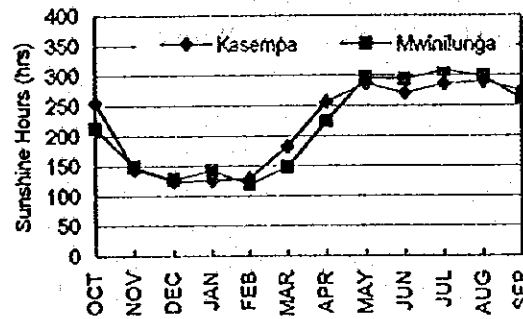
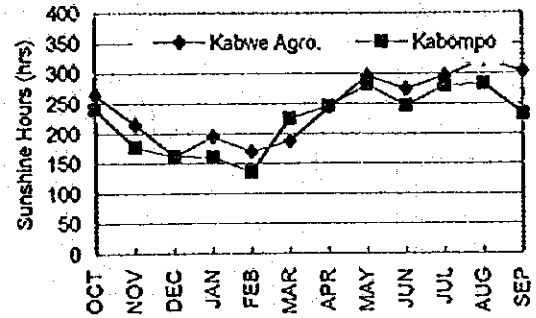
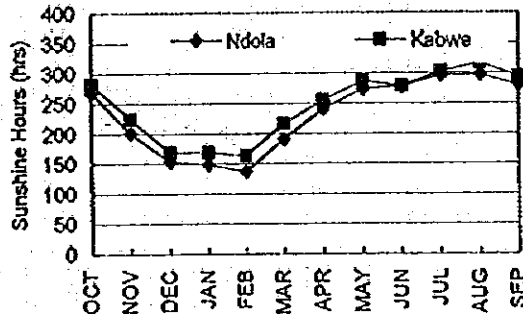
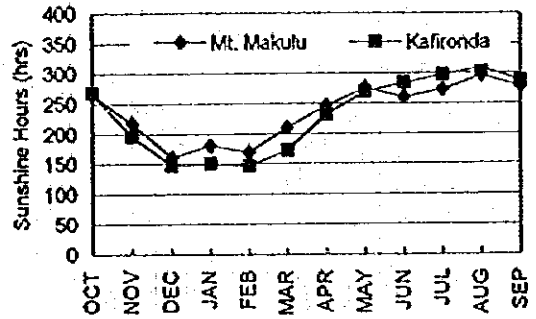
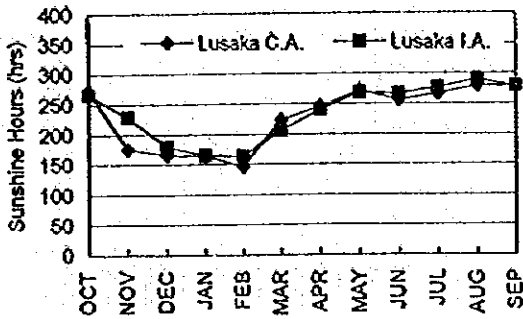


Figure 4-17 (1) Monthly Sunshine Hours

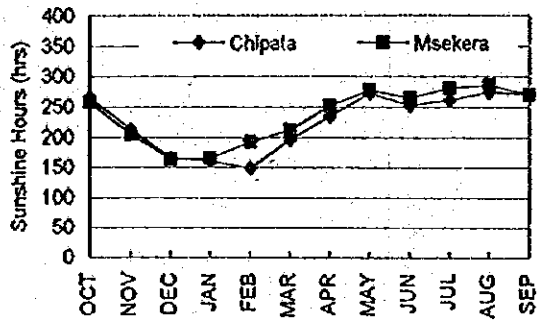
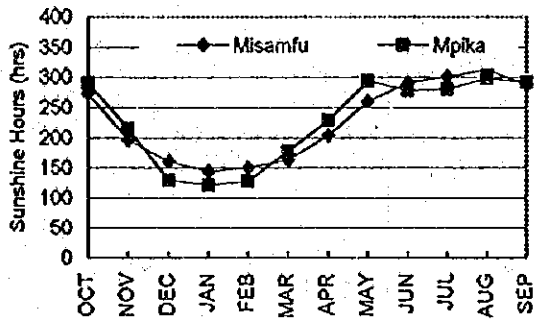
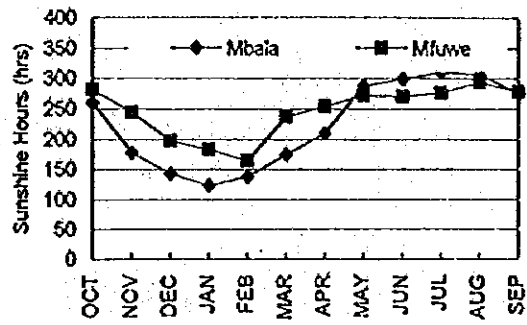
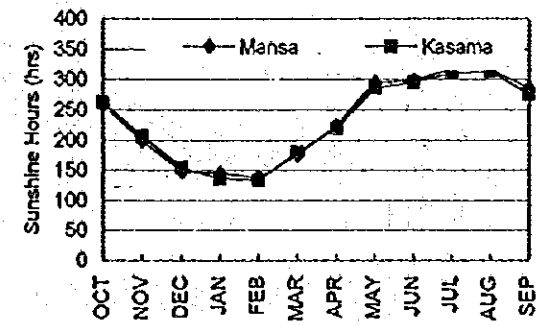


Figure 4-17 (2) Monthly Sunshine Hours

4.5 Relative Humidity

Based on daily relative humidity, monthly and annual mean relative humidity for the 36 meteorological stations were totalled and are summarised in Table 4-11. The average annual mean relative humidity in all the meteorological stations were calculated based on available data in the period from 1963/64 to 1992/93 and are graphically shown in Figure 4-18 (1) by the provinces, and in Figure 4-18 (2) in order of annual mean relative humidity. The annual variations of monthly mean relative humidity in all the meteorological stations are shown in Figure 4-20. The average monthly mean relative humidity in each province is summarised in Table 4-10 and the average in Zambia is shown in Figure 4-19.

The area distribution and the annual variation of relative humidity in Zambia are summarised as follows :

- The average annual mean relative humidity in Zambia ranges from 59.0 % to 71.2 % and the Zambian average is 64.2 %.
- Annual mean relative humidity is lowest in Southern Province (59.4 %), while in Copperbelt, Northwestern, Luapula, Northern and Eastern provinces, relative humidity is high at more than 65 %.
- Monthly mean relative humidity is high from December to March at about 76-80 %, and is low from August to October at less than 50 %.
- Obviously the rainy season is a period of high humidity and the dry season is a period of low humidity.

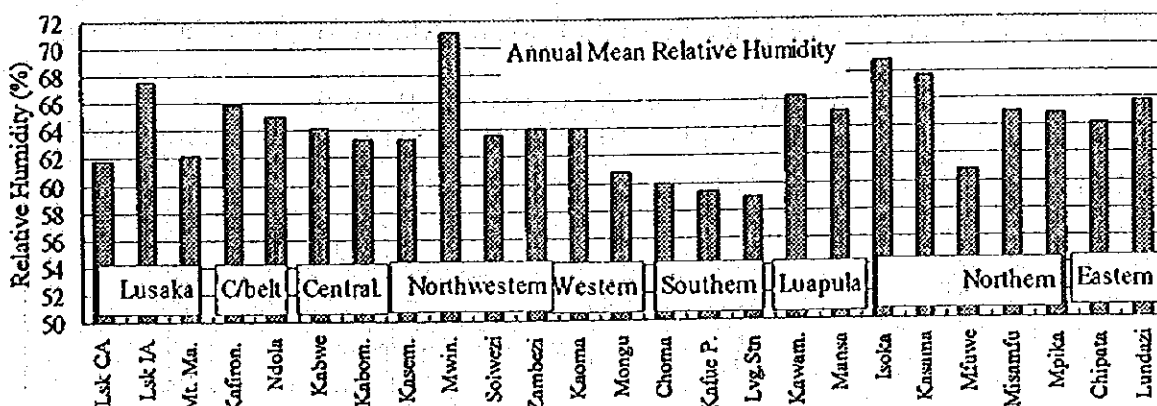


Figure 4-18 (1) Annual Mean Relative Humidity by Province

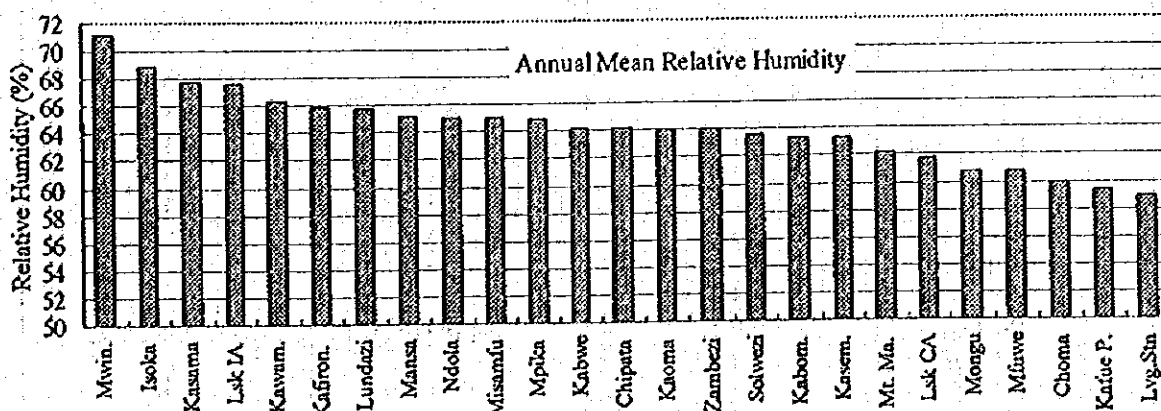


Figure 4-18 (2) Annual Mean Relative Humidity in Order

Table 4-10 Average Monthly Mean Relative Humidity in Province

Month	Zambia	Lusaka	C/belt	Central	N/western	Western	Southern	Luapula	Northern	Eastern
Oct.	48.7	44.7	50.2	44.0	56.5	47.7	44.2	52.3	46.7	45.2
Nov.	61.7	60.6	63.1	58.9	67.8	65.1	53.6	67.5	59.3	57.2
Dec.	76.3	77.0	77.4	79.4	77.5	74.7	71.1	78.5	76.8	76.1
Jan.	79.4	85.5	80.9	81.9	78.8	78.0	75.4	79.2	79.7	80.2
Feb.	80.0	81.3	80.0	81.7	79.4	82.7	77.4	79.3	80.3	79.9
Mar.	77.4	78.1	78.2	79.9	77.2	78.7	73.1	79.0	78.3	76.1
Apr.	72.2	71.6	72.3	72.6	73.0	70.9	65.7	75.0	74.9	72.8
May	65.2	63.8	67.0	65.7	65.0	59.9	59.5	67.0	69.1	67.7
Jun.	60.2	59.6	62.3	60.6	59.8	56.1	56.7	61.4	62.1	62.9
Jul.	55.6	55.1	57.9	56.3	54.4	52.6	52.5	54.8	58.2	59.0
Aug.	49.0	45.8	51.1	48.4	48.0	44.2	45.1	49.4	53.3	54.5
Sep.	44.3	46.1	46.2	40.9	43.8	39.5	38.2	45.6	47.3	48.5
Year	64.2	63.9	65.5	64.2	65.1	62.5	59.4	65.8	65.5	65.0

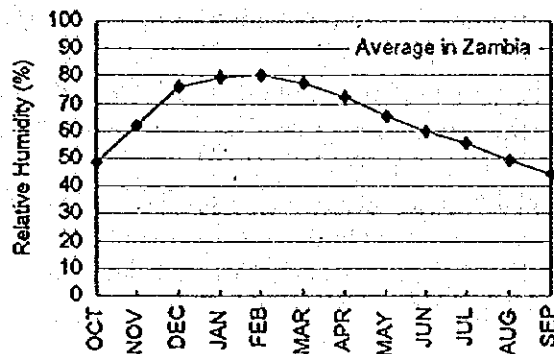


Figure 4-19 Annual Variation of Monthly Mean Relative Humidity in Zambia

Table 4-11 Annual Mean Relative Humidity

Province	Station Name	Average Annual Mean (%)	Province	Station Name	Average Annual Mean (%)
Lusaka	Lusaka C.A.	61.8	Southern	Choma	59.9
	Lusaka I.A.	67.6		Kafue Polder	59.3
	Mt. Makulu	62.2		Livingstone	59.0
	Average	63.9		Magoye	-
Copperbelt	Kafironda	65.9		Average	59.4
	Ndola	65.1	Luapula	Kawambwa	66.3
	Average	65.5		Mansa	65.2
Central	Kabwe	64.2		Sanshya(*1)	-
	Kabwe Agro.	-		Average	65.8
	Mumbwa	-	Northern	Isoka	68.9
	Serenje	-		Kasama	67.7
	Average	64.2		Mbala	-
North-western	Kabompo	63.4		Mfuwe	60.8
	Kasempa	63.3		Misamfu	65.1
	Mwinilunga	71.2	Mpika	64.9	
	Solwezi	63.6	Average	65.5	
	Zambezi	64.0	Eastern	Chipata	64.2
Average	65.1	Lundazi		65.7	
Western	Kalabo	-		Msekera	-
	Kaoma	64.1		Petauke	-
	Mongu	60.8		Average	65.0
	Senanga	-	Total Average		64.2
	Sesheke	-			
	Average	62.5			

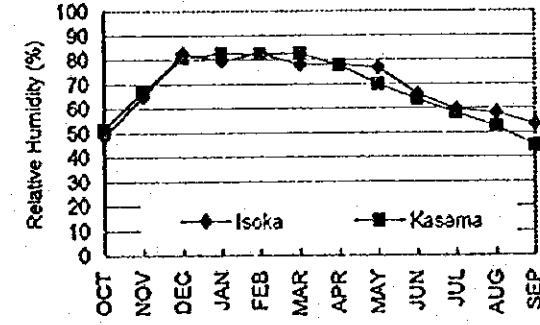
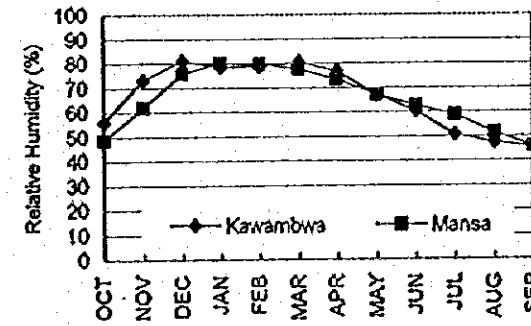
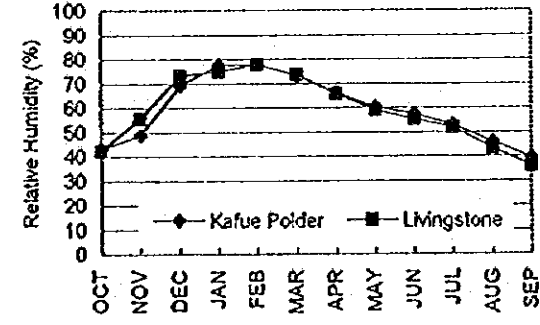
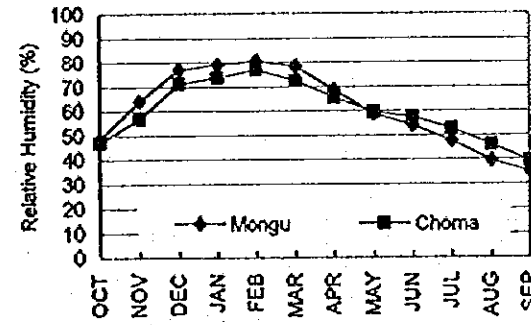
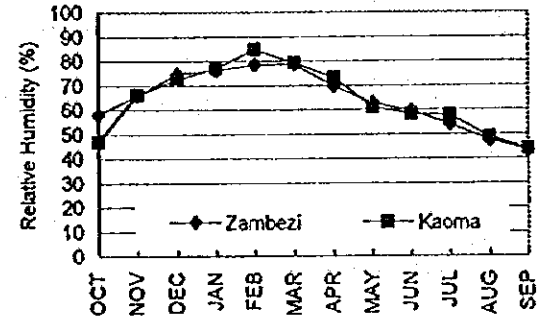
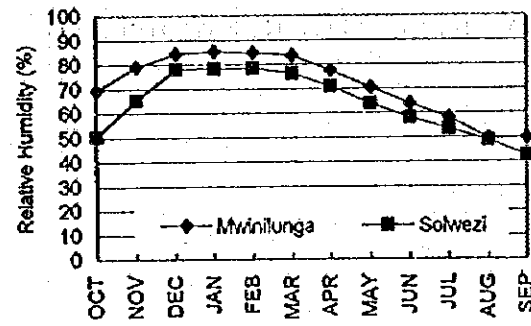
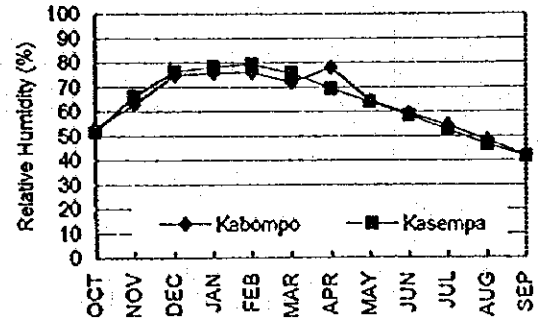
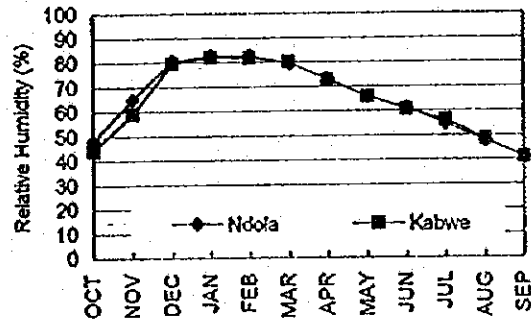
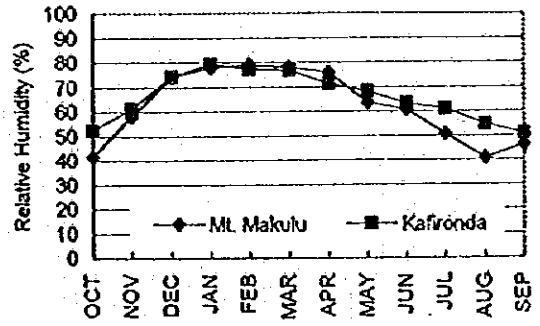
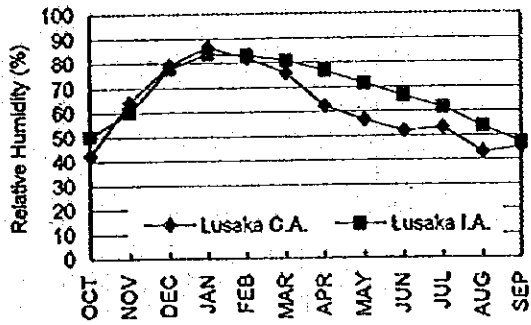


Figure 4-20 (1) Monthly Mean Relative Humidity

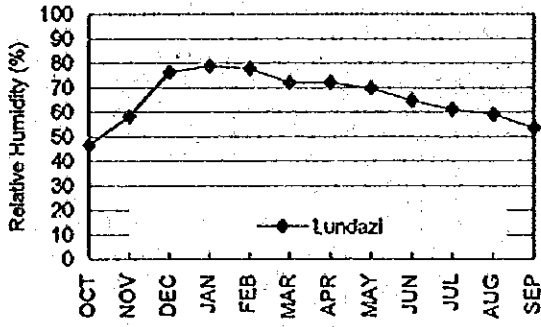
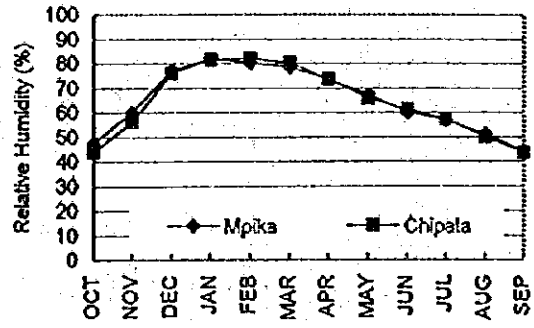
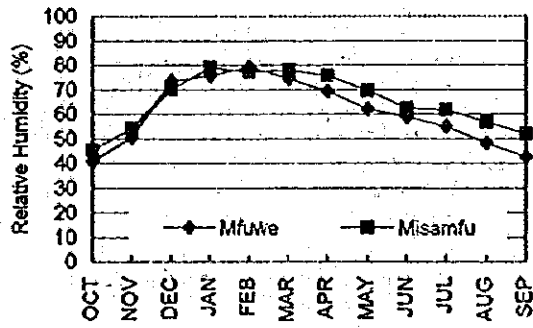


Figure 4-20 (2) Monthly Mean Relative Humidity

4.6 Wind Speed

Based on daily wind speed, monthly and annual mean wind speed for the 36 meteorological stations were totalled and are summarised in Table 4-13. The average annual mean wind speed in all the meteorological stations were calculated based on available data in the period from 1963/64 to 1992/93 and are graphically shown in Figure 4-21 (1) by the provinces, and in Figure 4-21 (2) in order of annual mean wind speed. The annual variations of monthly mean wind speed in all the meteorological stations are shown in Figure 4-23. The average monthly mean wind speed in each province is summarised in Table 4-12 and the average in Zambia is shown in Figure 4-22.

The area distribution and the annual variation of wind speed in Zambia are summarised as follows :

- The average annual mean wind speed in Zambia ranges from 0.6 m/s to 2.3 m/s and the Zambian average is 1.6 m/s.
- Monthly wind speed is weak in the rainy season at 1.0 - 1.5 m/s and is strong in the dry season at 2.0 - 2.5 m/s.

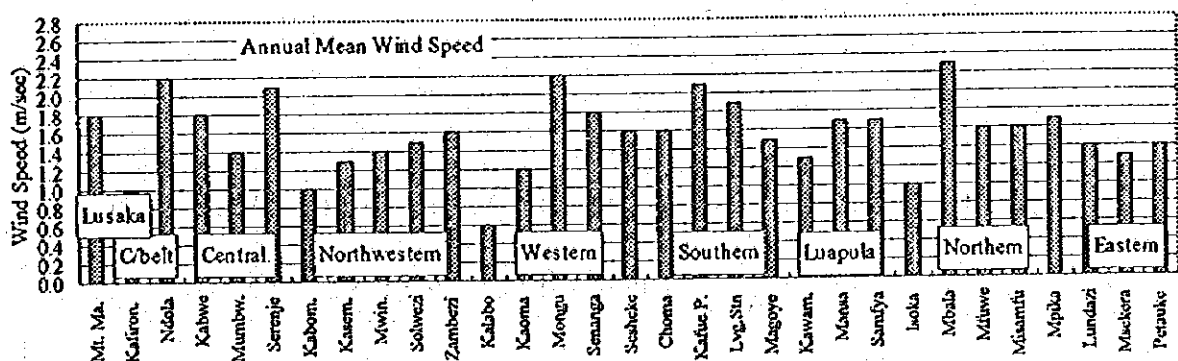


Figure 4-21 (1) Annual Mean Wind Speed by Province

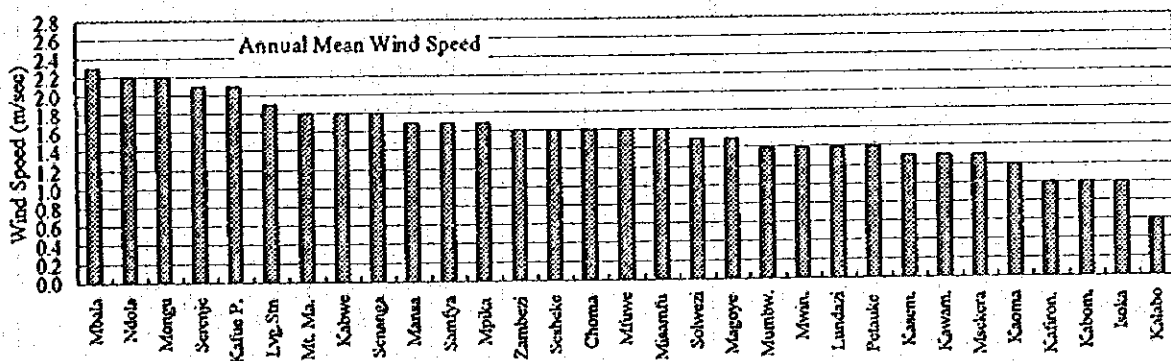


Figure 4-21 (2) Annual Mean Wind Speed in Order

Table 4-12 Average Monthly Mean Wind Speed in Province

Month	Zambia	Lusaka	C/belt	Central	N/western	Western	Southern	Luapula	Northern	Eastern
Oct.	2.0	2.4	1.9	2.3	1.5	1.8	2.4	1.9	2.0	2.1
Nov.	1.6	2.0	1.5	2.0	1.4	1.5	2.1	1.5	1.7	1.6
Dec.	1.4	1.6	1.3	1.7	1.3	1.3	1.9	1.2	1.2	1.1
Jan.	1.2	1.4	1.2	1.5	1.2	1.1	1.5	1.1	1.1	0.9
Feb.	1.2	1.3	1.1	1.4	1.3	1.1	1.4	1.0	1.1	0.8
Mar.	1.3	1.5	1.2	1.5	1.2	1.2	1.4	1.2	1.3	1.0
Apr.	1.5	1.6	1.5	1.8	1.2	1.6	1.5	1.6	1.6	1.1
May	1.5	1.6	1.5	1.7	1.2	1.4	1.5	1.7	1.7	1.2
Jun.	1.6	1.7	1.5	1.8	1.3	1.6	1.6	1.7	1.8	1.3
Jul.	1.7	2.0	2.2	1.6	1.5	1.6	1.7	1.9	2.0	1.4
Aug.	1.9	2.3	2.1	1.8	1.6	1.6	2.0	2.1	2.2	1.8
Sep.	2.1	2.5	2.3	2.0	1.7	2.1	2.3	2.1	2.2	2.1
Year	1.6	1.8	1.6	1.8	1.4	1.5	1.8	1.6	1.6	1.4

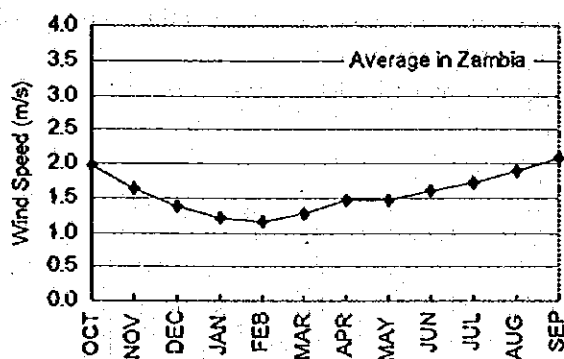


Figure 4-22 Annual Variation of Monthly Mean Wind Speed in Zambia

Table 4-13 Annual Mean Wind Speed

Province	Station Name	Average Annual Mean (m/sec)	Province	Station Name	Average Annual Mean (m/sec)
Lusaka	Lusaka C.A.	-	Southern	Choma	1.6
	Lusaka I.A.	-		Kafue Polder	2.1
	Mt. Makulu	1.8		Livingstone	1.9
	Average	1.8		Magoye	1.5
Copperbelt	Kafironda	1.0	Luapula	Average	1.8
	Ndola	2.2		Kawambwa	1.3
	Average	1.6		Mansa	1.7
Central	Kabwe	1.8		Samfya(*1)	1.7
	Kabwe Agro.	-	Average	1.6	
	Mumbwa	1.4	Northern	Isoka	1.0
	Serenje	2.1		Kasama	-
Average	1.8	Mbala		2.3	
North-western	Kabompo	1.0		Mfuwe	1.6
	Kasempa	1.3	Misamfu	1.6	
	Mwinilunga	1.4	Mpika	1.7	
	Solwezi	1.5	Average	1.6	
	Zambezi	1.6	Eastern	Chipata	-
Average	1.4	Lundazi		1.4	
Western	Kalabo	0.6		Msekera	1.3
	Kaoma	1.2		Petauke	1.4
	Mongu	2.2	Average	1.4	
	Senanga	1.8	Total Average	1.6	
	Sesheke	1.6			
Average	1.5				

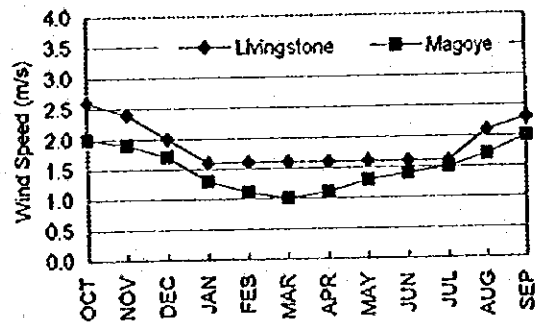
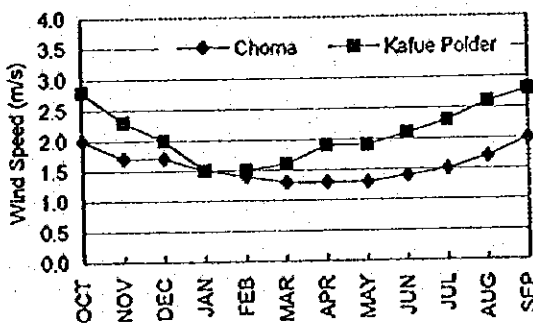
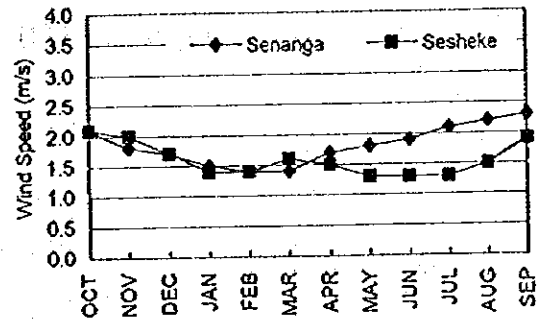
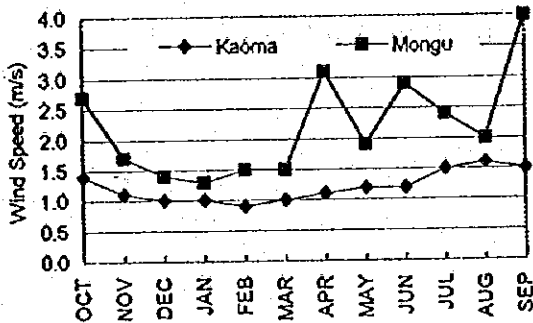
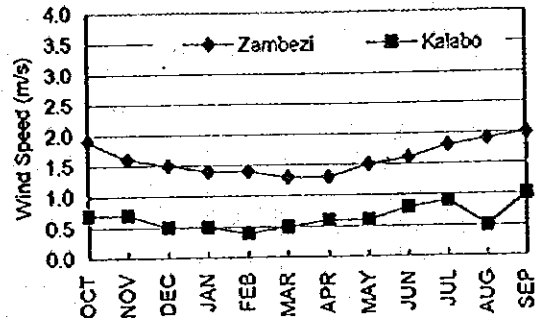
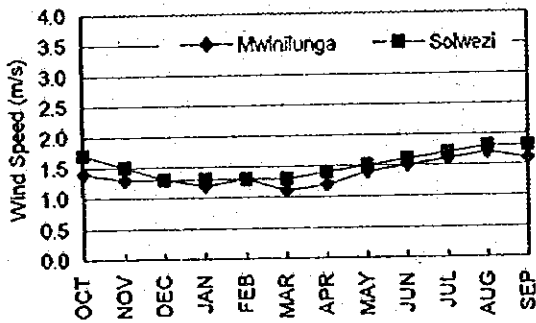
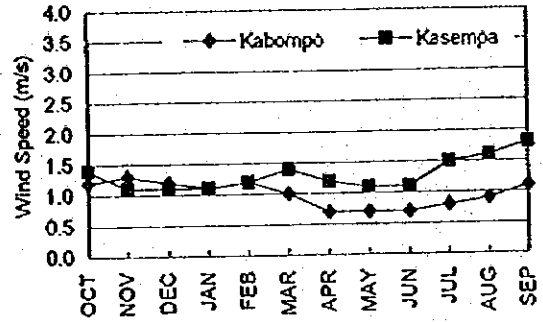
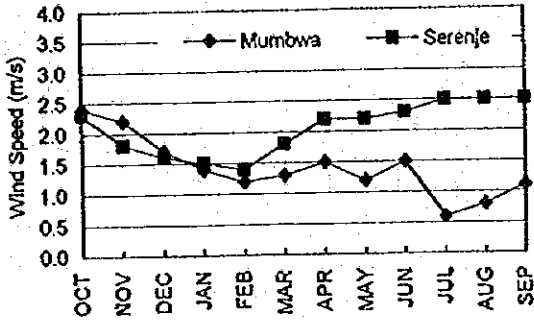
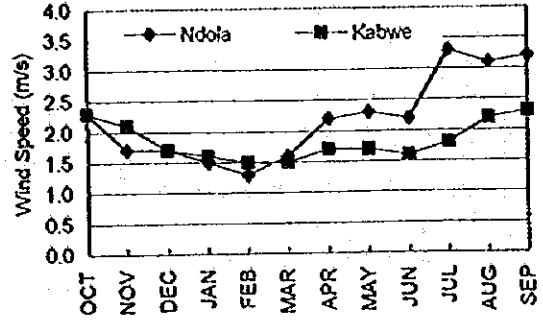
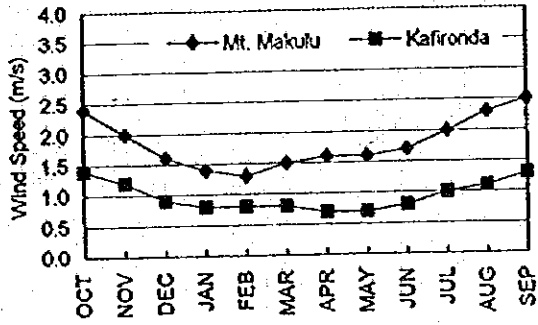


Figure 4-23 (1) Monthly Mean Wind Speed

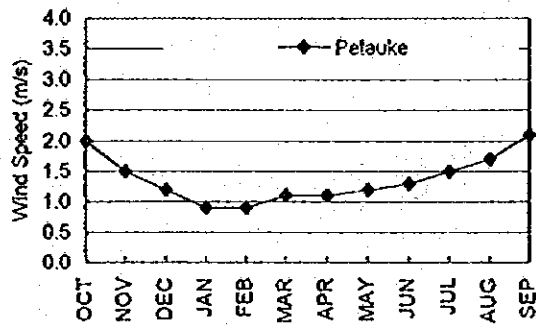
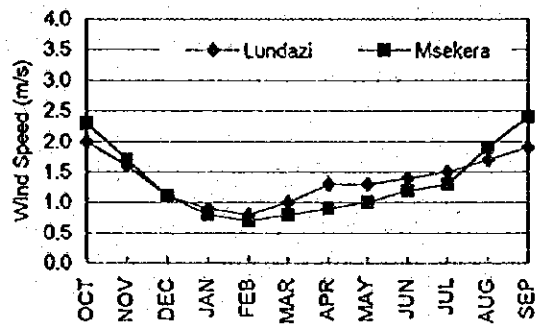
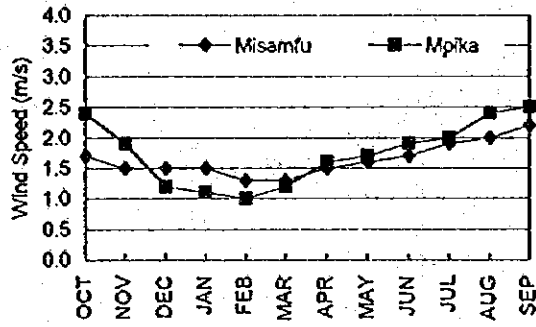
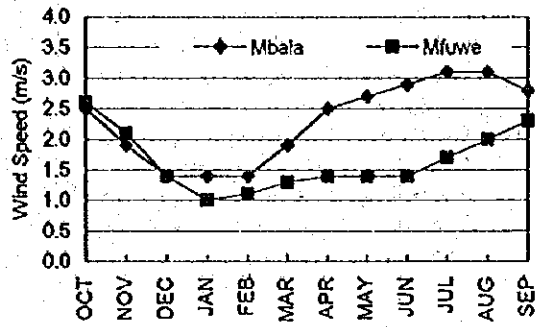
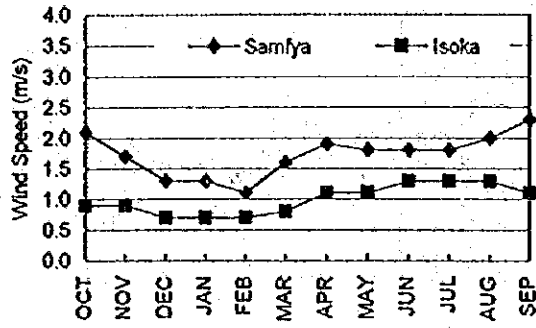
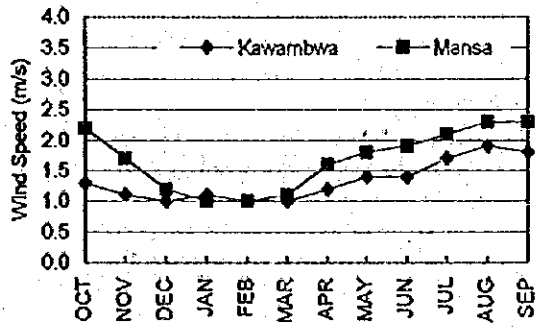


Figure 4-23 (2) Monthly Mean Wind Speed

CHAPTER 5 CONCLUSION

5.1 Annual and Monthly Average Rainfall and Climate

Average annual climate by the provinces are summarised in Table 5-1 and Figure 5-1. Annual variation of monthly climate is shown in Figure 5-2. Based on these charts, the climate in Zambia is summarised as follows:

(1) Rainfall

The average annual rainfall and rainy days in Zambia ranges from 657 mm, 68 days to 1,402 mm, 142 days and the Zambian averages are 1,001 mm and 97 days. Luapula Province has most annual rainfall, 1,259 mm and 123 days on an average, and Southern Province has least annual rainfall, 737 mm and 74 days on an average. From May to September in Zambia it scarcely rains and from November to March, monthly rainfall ranges from 100 mm to 250 mm. More than 90 % of annual rainfall is concentrated in the rainy season from November to March. The 8 % of the residual 10 % of annual rainfall comes down on October and April and the 2 % on September and May. There is definitely no rain from June to August in Zambia. The three months from December to February have about 65 % of annual rainfall.

(2) Temperature

The average annual mean temperature in Zambia ranges from 19.3 °C to 24.2 °C and the Zambian average is 21.0 °C. Western Province is hottest, 22.1 °C on an average, and Copperbelt Province is coldest, 20.3 °C on an average. Northern Province is also very cold, 20.0 °C on an average excluding Mfuwe at the southernmost of Northern Province. July is the coldest season and its minimum temperature is 3.6-12.0 °C (8.1 °C on an average). September and October (mainly October) are the hottest season and its maximum temperature is 27.7-36.5 °C (31.8 °C on an average). The hottest place in Zambia is Mfuwe and the maximum and minimum monthly temperature are 36.5 °C, 10.3 °C and the annual mean is 24.2 °C. One of the coldest places in Zambia is Kafironda and the maximum and minimum temperature are 32.0 °C, 3.6 °C and the annual mean is 19.8 °C.

(3) Pan-evaporation

The average annual pan-evaporation in Zambia ranges from 1,666 mm to 2,814 mm and the Zambian average is 2,061 mm. Annual pan-evaporation is low, 1,700 - 2,000 mm in the north, and is very high in the east, 2,200 - 2,600 mm, and is average in the centre, the west and the south. Copperbelt Province has the lowest annual pan-evaporation, 1,865 mm on an average and Eastern Province has the highest, 2,211 mm on an average. Monthly pan-evaporation is high from August to November at 200 - 300 mm per month, and is low from December to July at 100 - 200 mm per month. These figures indicate that evaporation is high in areas/months with little rainfall and is low in areas/months with higher rainfall.

(4) Potential Evapotranspiration

The average annual potential evapotranspiration in Zambia ranges from 1,394 mm to 1,892 mm and the Zambian average is 1,574 mm. Areas of highest potential evapotranspiration are the southwest of Zambia and the area along the Luangwa River near Mfuwe, amounting to 1,700-1,800 mm/year. Potential evapotranspiration in the central area of Zambia is 1,500-

1,600 mm/year, and in the northwest and northeast is 1,400-1,500 mm/year. Potential evapotranspiration is larger than precipitation in Zambia. This means that Zambia is in a hydrological condition of precipitation deficit, which amounts to -100 mm/year to -1,100 mm/year, compared with potential evapotranspiration. Actual evapotranspiration rate ranges from 65% to 95% of precipitation. Thus, runoff percentage including groundwater recharge is estimated to be between 5% and 35%.

(5) Sunshine Hours

The average annual sunshine hours in Zambia ranges from 2,541 hours to 3,326 hours and the Zambian average is 2,842 hours. Annual sunshine hours is shortest in Northwestern Province and Luapula Province, amounting to about 2,700 hours, and is longest in Southern Province and Western Province, amounting to about 3,100 hours. Monthly sunshine hours is short from December to February, amounting to 150 - 200 hours/month (5.0 - 6.7 hours/day), and is long from May to October, amounting to 250 - 300 hours/month (8.3 - 10.0 hours/day). These figures indicate that sunshine hours is short in areas/months with higher rainfall and is long in areas/months of less rainfall.

(6) Relative Humidity

The average annual mean relative humidity in Zambia ranges from 59.0 % to 71.2% and the Zambian average is 64.2 %. Annual mean relative humidity is lowest in Southern Province (59.4 %), while in Copperbelt, Northwestern, Luapula, Northern and Eastern provinces, relative humidity is high at more than 65 %. Monthly mean relative humidity is high from December to March at about 76-80 %, and is low from August to October at less than 50 %. Obviously the rainy season is a period of high humidity and the dry season is a period of low humidity.

(7) Wind Speed

The average annual mean wind speed in Zambia ranges from 0.6 m/s to 2.3 m/s and the Zambian average is 1.6 m/s. Monthly wind speed is weak in the rainy season at 1.0 - 1.5 m/s and is strong in the dry season at 2.0 - 2.5 m/s.

Table 5-1 Average Annual Climate by Province

Province	Rainfall (mm)	Rainy Days (days)	Mean Temperature (°C)	Pan- evaporation (mm)	Potential Evapo- transpiration PE (mm)	Sunshine Hours (hours)	Relative Humidity (%)	Wind Speed (m/sec)
Lusaka	857	77	20.7	2218	1571	2800	63.9	1.8
Copperbelt	1231	111	20.3	1865	1530	2760	65.5	1.6
Central	947	86	20.4	2105	1621	2943	64.2	1.8
North-western	1173	118	20.8	1932	1475	2670	65.1	1.4
Western	808	87	22.1	2300	1705	3104	62.5	1.5
Southern	737	74	21.1	2045	1669	3064	59.4	1.8
Luapula	1259	123	21.1	1983	1508	2671	65.8	1.6
Northern	1138	107	20.7	1907	1549	2783	65.3	1.6
Eastern	961	93	21.8	2211	1531	2773	65.0	1.4
Total Average	1001	97	21.0	2061	1574	2842	64.2	1.6

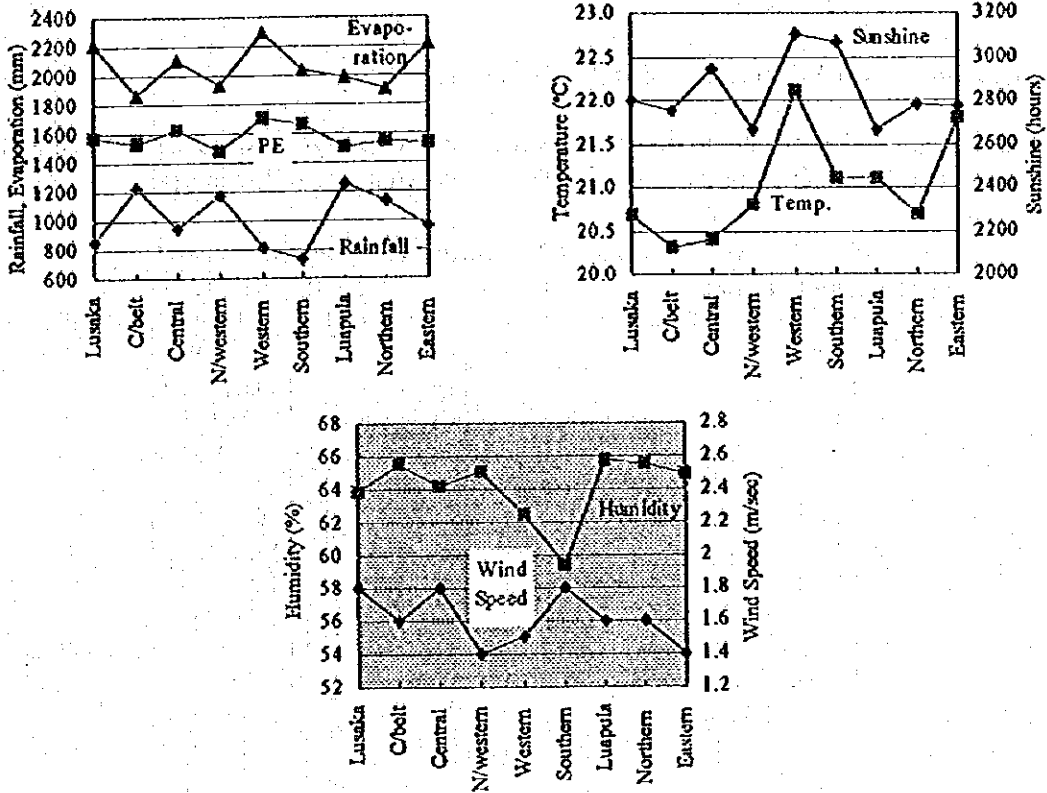


Figure 5-1 Average Annual Climate by Province

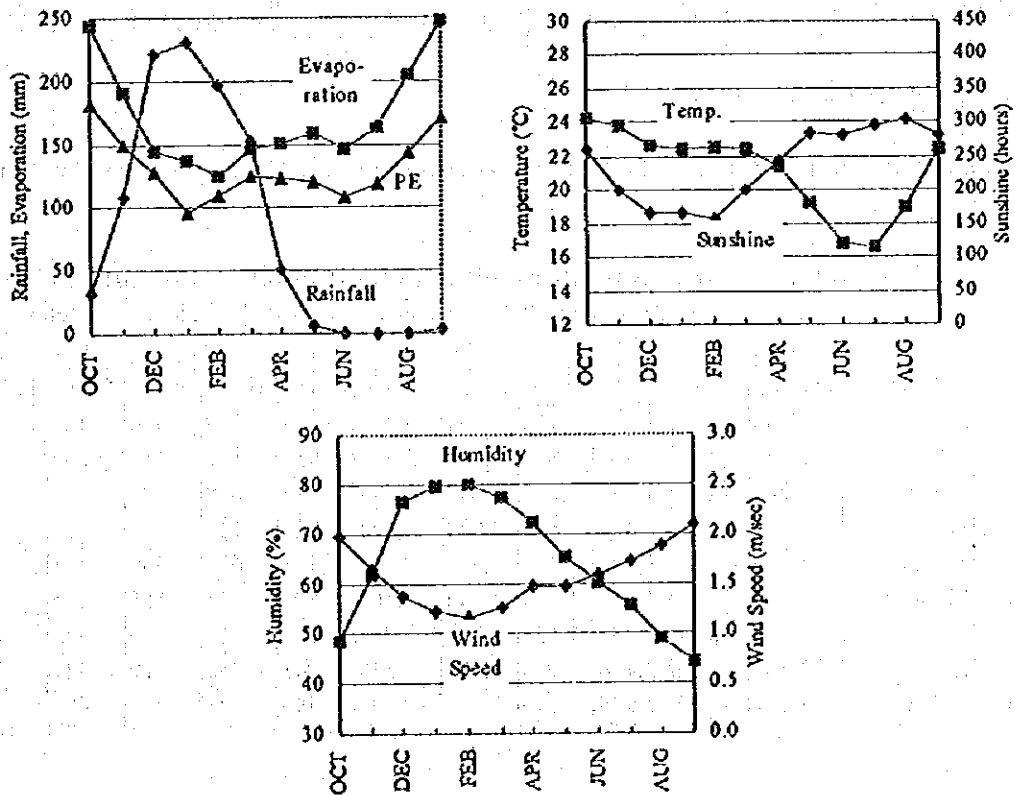


Figure 5-2 Annual Variation of Monthly Climate

5.2 Rainfall Characteristics

(1) Maximum and Minimum Rainfall Observed

The first, second and third maximum rainfalls for the wide range of duration as well as the first, second and third minimum annual rainfalls are shown in the following table.

Table 5-2 Maximum and Minimum Rainfall Observed

1 day Rainfall Maxima				2 day Rainfall Maxima			
Order	Station	Date	Rainfall (mm)	Order	Station	Date	Rainfall (mm)
1	Sesheke	1958/02/22	308	1	Sesheke	1958/02/22	351
2	Mt. Makulu	1972/11/05	292	2	Samfya	1959/03/30	336
3	Kasempa	1949/12/29	253	3	Mt. Makulu	1972/11/04	292
3 day Rainfall Maxima				5 day Rainfall Maxima			
Order	Station	Date	Rainfall (mm)	Order	Station	Date	Rainfall (mm)
1	Sesheke	1958/02/22	397	1	Sesheke	1958/02/22	523
2	Samfya	1959/03/29	353	2	Kafironda	1991/01/25	405
3	Kafironda	1991/01/25	316	3	Mt. Makulu	1990/11/21	389
10 day Rainfall Maxima				1 month Rainfall Maxima			
Order	Station	Date	Rainfall (mm)	Order	Station	Date	Rainfall (mm)
1	Sesheke	1958/02/18	590	1	Sesheke	1958/02	523
2	Kasempa	1949/12/26	495	2	Kafironda	1991/01	660
3	Kafironda	1991/01/20	485	3	Samfya	1976/03	621
1 year Rainfall Maxima				1 year Rainfall Minima			
Order	Station	Date	Rainfall (mm)	Order	Station	Date	Rainfall (mm)
1	Samfya	1961/62	2065	1	Kaoma	1972/73	240
2	Kasama	1961/62	1888	2	Sesheke	1972/73	379
3	Mwinilunga	1975/76	1761	3	Mongu	1991/92	382

(2) Probable Annual Rainfall

Maximum and minimum probable annual rainfalls at the provincial capitals are shown in the following table.

Table 5-3 Maximum and Minimum Probable Annual Rainfall at Provincial Capital

Province	Station Name	Altitude (EL.m)	Probable Maximum Rainfall (mm)					Probable Minimum Rainfall (mm)				
			Return Period					Return Period				
			5yrs.	10yrs.	30yrs.	50yrs.	100yrs.	5yrs.	10yrs.	30yrs.	50yrs.	100yrs.
Lusaka	Lusaka C. A	1,280	1,424	1,729	2,112	2,264	2,453	671	582	470	426	370
C/belt	Ndola	1,270	1,965	2,363	2,862	3,061	3,308	956	827	665	600	520
Central	Kabwe	1,207	1,538	1,856	2,255	2,414	2,611	725	618	483	429	363
N/western	Solwezi	1,333	2,035	2,416	2,894	3,084	3,321	922	722	470	370	246
Western	Mongu	1,053	1,555	1,873	2,273	2,432	2,629	768	676	559	513	455
Southern	Livingstone	987	1,240	1,514	1,857	1,994	2,164	597	535	456	425	386
Luapula	Mansa	1,259	1,854	2,209	2,656	2,883	3,054	837	661	440	352	243
Northern	Kasama	1,384	2,037	2,426	2,914	3,108	3,349	938	752	519	427	312
Eastern	Chipata	1,032	1,655	1,989	2,410	2,577	2,785	790	673	525	467	394

(3) Drought Severity in Zambia

Drought severity in Zambia was investigated by applying the Herbst method. The results in provincial capitals are shown in Table 5-4. Drought severity is very high in the southeast area from Mongu to Livingstone, amounting to 80 - 160 and is also high near Lundazi, amounting to more than 100. On the centre belt of Zambia from east to west, drought severity is middle, amounting to 60 - 80 and in the north drought severity is low, amounting to less than 60. Zambian average of the severest droughts during the last 30 years is 68.7 in severity and 1.36 in intensity.

Table 5-4 Severest Droughts at each Station (Provincial Capitals)

Province	Station Name	Severest Drought					Second Severest Drought				
		Period	Duration (mon.)	Intensity	Severity	% of Mean Rain	Period	Duration (mon.)	Intensity	Severity	% of Mean Rain
Lusaka	Lusaka C.A.	91/12-94/09	34	1.67	56.7	66.4	81/12-85/11	48	1.00	48.1	77.9
Copperbelt	Ndola	57/01-61/01	49	1.01	49.4	79.5	72/10-73/12	15	2.76	41.5	49.2
Central	Kabwe	86/11-92/10	72	1.13	81.6	77.5	70/01-73/09	45	1.11	49.9	76.2
N/western	Solwezi	64/01-67/01	37	1.32	48.7	75.4	71/03-74/10	44	1.06	46.8	88.2
Western	Mongu	81/04-88/12	93	1.26	117.5	81.6	69/12-73/09	46	1.52	69.7	84.2
Southern	Livingstone	79/01-87/11	107	1.54	165.3	84.4	32/06-36/01	44	1.40	61.5	73.3
Luapula	Kawambwa	90/07-93/09	39	1.32	51.3	92.3	58/04-60/12	33	1.29	42.5	77.3
Northern	Kasama	48/11-55/10	84	1.64	137.4	83.2	56/05-61/10	66	1.10	72.6	89.1
Eastern	Chipata	79/12-84/10	59	1.06	62.7	85.5	90/01-94/09	57	0.80	45.4	81.5
Zambian Average (30 yrs.)		-	58	1.36	68.7	78.2	-	-	-	-	-

CHAPTER 6 RECOMMENDATION

(1) Network of Meteorological Stations

The present meteorological stations network consists of 36 stations, which is rather sparse, one station per 21,000 km². The network situation should be to have at least a weather station in each district of Zambia. Out of 57 districts in Zambia, 32 districts have one or two stations so that additional 25 meteorological stations should be established.

(2) Network of Voluntary Station

Voluntary stations are mostly rainfall only stations, operated by farmers, rail stations, power stations, mines, foresters, etc. The number of registered voluntary stations is 825 stations, of which density is one station per 911 km². However only 340 stations is actually being operated in 1991, of which density is one station per 2,211 km². The rainfall reporting stations have been dwindling since 1976 due to difficulties in obtaining measuring glasses, as well as due to DOM's inability to regularly inspect rainfall stations as a result of insufficient budgetary provision.

The World Meteorological Organisation recommends minimum figure of 1 gauge per 900 km². This figure could be translated into 835 rainfall stations in Zambia. Thus recovery of the unoperated voluntary stations out of 825 registered stations is necessary. Although the number of rainfall station is almost enough after recovering unoperated stations, there is still sparse areas so that redistribution of rainfall station should be also considered.

In addition, some voluntary stations should measure another meteorological items such as temperature, pan-evaporation, relative humidity etc.

(3) Data Collection

Data collection at the moment is mainly by radio-telephone, by telephone and by post. Out of the 36 meteorological stations, about 20 stations communicate with each other and with the Meteorological Headquarters by radiotelephone. The major problems with this communication system is that the radio reception is not always satisfactory, and many of the radios are old and obsolete. Besides DOM recently has experienced the other data collection problems due to the fact that local Postal Service no longer accepts mail that does not bear postage stamps. This implies that many voluntary observers cannot send meteorological returns since they cannot afford to pay for the postage stamps.

The ideal situation would be to have the Meteorological Headquarters linked to major weather stations by computer. However at present, postal communication on monthly or semi-annually basis, which is relatively cheap and is easy to be improved, is recommended, since the data collection problem should be urgently solved.

(4) Data Management and Archives

Considerable progress has been achieved through the installation of the CLICOM system which was acquired through the assistance of WMO. More than 40 years of data at the meteorological stations, primarily rainfall and temperature, is now available on computer and can easily be retrieved. Efforts are being made to enter other historical data. From a

hydrological point of view, rainfall data is very important and daily rainfall data at the voluntary stations should be immediately archived on computer.

(5) Necessity of Observers' Training

Although the data accuracy is not very bad, in some cases it is comprised. In the meteorological stations, rainfall and temperature seem to have been well observed but others, such as pan-evaporation, sunshine hours, relative humidity, wind speed, have many unobserved data at each station. It is thought that these errors are mainly due to some of untrained observers. Thus it is urgently necessary that observers such as junior technicians, volunteers, is adequately trained.

REFERENCES

- (1) M. R. Muchinda 1992 "25 Years of Meteorological Service in Zambia (1967 - 1992)"
- DOM under UNDP/WMO Project
- (2) U. R. Acharya 1981 "Meteorology of Zambia Part I"
N. S. Bhaskara - DOM, MOTC
- (3) Office of the Surveyor 1983 Map of "Rainfall Network"
Geberal - Ministry of Lands and Natural Resources
- (4) Elizabeth M. Shaw 1994 "Hydrology in Practice 3rd edition"
- Chapman & Hall
- (5) P. H. Herbst 1966 "A Technique for the Evaluation of Drought from
D. B. Bredenkamp Rainfall Data"
H. M. G. Barker - Journal of Hydrology 4 (1966) 264-272

APPENDICES

Appendix - 1	List of Meteorological Stations and Voluntary Rainfall Stations in Zambia.....	B-App.-1
Appendix - 2	Monthly Rainfall and Monthly Total or Mean Climate	B-App.-15
Appendix - 3	Secular Variation of Annual Rainfall.....	B-App.-24
Appendix - 4	Monthly Rainfall Frequencies and Annual Rainfall Frequencies	B-App.-28
Appendix - 5	Rainfall Maxima and Minima.....	B-App.-36
Appendix - 6	Probable Annual Rainfall.....	B-App.-39
Appendix - 7	Drought Analysis	B-App.-45
Appendix - 8	Technique for the Evaluation of Drought from Rainfall Data ...	B-App.-54

MEMORANDUM

TO : SAC, NEW YORK

FROM : SAC, NEW YORK

SUBJECT: [Illegible]

[Illegible text follows, consisting of several lines of typed text that are mostly unreadable due to the quality of the scan.]

Appendix-1 List of Meteorological Stations and Voluntary Rainfall Stations in Zambia

List of Meteorological Stations and Voluntary Rainfall Stations in Zambia

No.	Name	River	Latitude	Longitude	From	To
10	CHIKOMA	ZAMBEZI	14 / 2'	32 / 52'	1958	1991
19	CHIMPINGA (WA)	ZAMBEZI	13 / 51'	32 / 51'	1955	1971
39	CHADIZA AGRIC	ZAMBEZI	14 / 11'	32 / 38'	1968	1991
41	CHAMCHENGA DAM	ZAMBEZI	14 / 51'	32 / 25'	1982	1991
50	ZEMBA TOBACCO HQ	ZAMBEZI	13 / 59'	32 / 18'	1972	1991
59	KAPIRI MPOSHI	ZAMBEZI			1981	1981
66	KATEMBWE TOBACCO	ZAMBEZI	14 / 3'	32 / 19'	1970	1991
70	NSADZU	ZAMBEZI	14 / 4'	32 / 20'	1926	1973
74	CHADIZA	ZAMBEZI	14 / 5'	32 / 24'	1951	1985
80	TAFELANSONI	ZAMBEZI			1984	1991
110	KATETE FOREST STATION	ZAMBEZI	14 / 11'	32 / 8'	1961	1991
120	KATETE BOMA	ZAMBEZI	14 / 2'	32 / 3'	1950	1991
121	KATETE (WA)	ZAMBEZI	14 / 2'	32 / 3'	1972	1991
130	NYANJE AGRIC	ZAMBEZI	14		1984	1991
160	NYANJE MISSION	ZAMBEZI	14 / 23'	31 / 38'	1938	1981
165	CHANDOLA PLANTATION	ZAMBEZI	14 / 21'	31 / 46'	1968	1984
168	CHILOWE PLANTATION	ZAMBEZI	14 / 20'	31 / 46'	1964	1980
195	MWANJAWANTHU AGRIC	ZAMBEZI	14 / 38'	31 / 25'	1956	1991
200	FEIRA	LUANGWA	15 / 37'	30 / 25'	1916	1991
206	MPUKA AGRIC	LUANGWA	15 / 27'	30 / 21'	1971	1976
214	RUFUNSA AGRIC	LUANGWA	15 / 6'	29 / 36'	1971	1991
216	RUFUNSA RURAL COUNCIL	LUANGWA	15 / 6'	29 / 37'	1971	1974
220	MPANSHYA MISSION	LUANGWA	15 / 7'	29 / 43'	1960	1974
227	CHITFOPE AGRIC	LUANGWA	15 / 12'	30 / 14'	1971	1983
230	KATONDWE MISSION	LUANGWA	15 / 15'	30 / 15'	1925	1991
235	SHIKABETA AGRIC	LUANGWA	14 / 45'	29 / 43'	1981	1984
250	LUANGWA BRIDGE	LUANGWA	14 / 59'	30 / 13'	1938	1991
255	KAPOCHE	LUANGWA			1985	1991
300	Z.F.D.S. EAST FOUR	LUANGWA	14 / 50'	29 / 7'	1969	1972
345	CHAMUKA AGRIC	LUANGWA	14 / 50'	28 / 39'	1981	1991
350	CHIPEMBI MISSION	LUANGWA	14 / 56'	28 / 35'	1924	1970
354	CHIPEMBI COLLEGE	LUANGWA	14 / 56'	28 / 35'	1971	1972
360	CHILOBA	LUANGWA	14 / 58'	28 / 33'	1947	1979
386	MUSWISHI AGRIC	LUANGWA	14 / 33'	28 / 39'	1972	1991
420	MULUNGUSHI FOREBAY	LUANGWA	14 / 42'	28 / 51'	1926	1991
425	MULUNGUSHI DAM	LUANGWA	14 / 41'	28 / 51'	1935	1991
470	NSOBE FARM	LUANGWA	14 / 32'	28 / 19'	1977	1985
476	MUKONCHI TOBACCO	LUANGWA	14 / 15'	28 / 49'	1972	1985
478	KABWE MUNIC A	LUANGWA	14 / 26'	28 / 21'	1965	1978
479	KABWE MUNIC B	LUANGWA	14 / 25'	28 / 24'	1965	1978
480	KABWE MUNIC C	LUANGWA	14 / 27'	28 / 24'	1965	1969
481	KABWE MUNIC D	LUANGWA	14 / 25'	28 / 22'	1965	1978
488	KABWE AGRIC	LUANGWA			1972	1972
490	KABWE MINE	LUANGWA	14 / 27'	28 / 25'	1906	1984
492	KABWE RAIL	LUANGWA	14 / 27'	28 / 27'	1909	1985
495	KABWE (WA)	LUANGWA	14 / 27'	28 / 26'	1970	1985
496	CHAMCHASHI ESTATES	LUANGWA			1982	1984
500	KABWE MET OBSERVATORY	LUANGWA	14 / 25'	28 / 29'	1932	1991
525	KABWE RES STATION	LUANGWA	14 / 24'	28 / 30'	1958	1991
533	KALWEWO ESTATES	LUANGWA			1984	1991
534	MPIMA FOREST	LUANGWA			1986	1986
535	MPIMA	LUANGWA	14 / 20'	28 / 33'	1976	1983
540	MULU FARM	LUANGWA	14 / 18'	28 / 31'	1963	1971
542	LEWIS FARM	LUANGWA			1984	1991
549	DEVONSHIRE ESTATES (WA)	LUANGWA	14 / 18'	28 / 28'	1960	1991
559	KAPIRI MPOSHI RAIL	LUANGWA	13 / 58'	28 / 40'	1926	1991
575	MKUSHI OLD BOMA	LUANGWA	14 / 22'	29 / 22'	1913	1984
590	DIXIE FARMS	LUANGWA	13 / 49'	29 / 14'	1970	1991
640	NKOLONGA FARM	LUANGWA	13 / 17'	29 / 36'	1952	1991
650	CHYUNI SCHOOL	LUANGWA	14 / 38'	27 / 36'	1983	1984
680	LUNSEMFWA FOREBAY	LUANGWA	14 / 30'	29 / 8'	1946	1984
681	CHIBOMBO	LUANGWA			1983	1983

List of Meteorological Stations and Voluntary Rainfall Stations in Zambia

No.	Name	River	Latitude	Longitude	From	To
688	NASHINGA	LUANGWA	14 / 25'	29 / 8'	1973	1979
695	MITA HILLS PONTOON	LUANGWA	14 / 18'	29 / 7'	1966	1972
700	MITA HILLS DAM	LUANGWA	14 / 14'	29 / 7'	1959	1991
717	LUNEHU	LUANGWA	14 / 0'	28 / 52'	1962	1986
725	FARM B088	LUANGWA	13 / 55'	29 / 10'	1962	1973
735	MUNWA NKONSE	LUANGWA	13 / 44'	29 / 24'	1954	1970
750	LUNSEMFWA FARMS	LUANGWA	13 / 59'	29 / 8'	1980	1982
775	SHEPLEY	LUANGWA	13 / 47'	29 / 5'	1959	1974
780	MUSOFO MISSION	LUANGWA	13 / 32'	29 / 2'	1927	1971
824	MNUSHI FTC	LUANGWA	13 / 38'	29 / 33'	1980	1991
825	CHIWEFWE	LUANGWA			1926	1991
826	MKUSHI FOREST DEPT.	LUANGWA			1985	1986
828	MASAUSA AGRIC	LUANGWA	13 / 39'	29 / 35'	1980	1991
840	MKUSHI RANCH	LUANGWA	13 / 33'	29 / 48'	1970	1991
845	C.M.R. FARM	LUANGWA			1983	1991
848	KEEMEE RANCH	LUANGWA			1983	1991
849	CHALATA	LUANGWA			1983	1991
850	CHINGOMBE MISSION	LUANGWA	14 / 25'	29 / 57'	1925	1991
865	FARM 3151, MKUSHI FARMS	LUANGWA			1983	1985
870	ZCCM KABWE MINE	LUANGWA	14 / 28'	28 / 26'	1984	1985
873	MASNSA	LUANGWA			1984	1985
883	FIWILA MISSION	LUANGWA	13 / 58'	29 / 37'	1924	1991
908	NSHINSO	LUANGWA	13 / 47'	29 / 49'	1963	1970
949	IPILA	LUANGWA	13 / 5'	30 / 45'	1960	1980
951	LUKASASHI	LUANGWA	13 / 34'	30 / 40'	1959	1969
1000	SHIWAKA FARMS	LUANGWA			1983	1991
1020	NYIMBA P.O.	LUANGWA	14 / 33'	30 / 50'	1959	1991
1021	NPEVU CAMP	LUANGWA			1981	1991
1022	NYIMBA	LUANGWA	14 / 34'	30 / 50'	1971	1973
1025	HOFMEYER MISSION	LUANGWA	14 / 41'	30 / 52'	1952	1980
1026	CHALUBILO	LUANGWA			1984	1991
1080	MINGA FOREST	LUANGWA	14 / 25'	31 / 7'	1961	1983
1083	MINGA MISSION	LUANGWA	14 / 21'	31 / 9'	1927	1971
1085	PETAUKE MET.	LUANGWA	14 / 15'	31 / 17'	1920	1991
1088	N. NYMPHANDE SCHEME	LUANGWA	14 / 14'	31 / 18'	1974	1991
1089	MIZYU PR. SCHOOL	LUANGWA	14 / 15'	31 / 17'	1981	1991
1090	CHALUTA	LUANGWA			1982	1984
1095	PETAUKE AGRIC	LUANGWA	14 / 20'	31 / 30'	1945	1991
1165	CHIMTENGO FORREST PLANT ATION	LUANGWA	14 / 16'	31 / 36'	1964	1991
1195	MASASE (WA)	LUANGWA	13 / 12'	31 / 12'	1967	1991
1300	MFUWE	LUANGWA	13 / 6'	31 / 49'	1963	1971
1310	MFUWE MET.	LUANGWA	13 / 10'	31 / 56'	1979	1991
1311	LUANGWA AT MFUWE	LUANGWA			1986	1991
1315	CHIKOWA MISSION	LUANGWA	13 / 24'	32 / 6'	1931	1991
1343	MSORO MISSION	LUANGWA	13 / 37'	31 / 54'	1926	1973
1348	PWATA AGRIC	LUANGWA	13 / 38'	32 / 19'	1973	1984
1359	CHIKUNGU MISSION	LUANGWA	13 / 47'	32 / 14'	1956	1991
1373	SINDA TOBACCO	LUANGWA	14 / 12'	31 / 45'	1980	1991
1374	SINDA P.O.	LUANGWA	14 / 12'	31 / 45'	1958	1975
1399	KATETE HOSPITAL	LUANGWA	14 / 8'	31 / 55'	1954	1991
1400	MAPLE SCHEME	LUANGWA	13 / 17'	32 / 8'	1980	1982
1405	JUMBE EXP. CAMP	LUANGWA	13 / 17'	32 / 8'	1967	1984
1410	SUMBE	LUANGWA	13 / 32'	32 / 19'	1958	1975
1416	KALUNI FARM	LUANGWA	13 / 39'	32 / 31'	1967	1969
1418	MSEKERA	LUANGWA	13 / 39'	32 / 34'	1916	1991
1424	NGONI FARM	LUANGWA	13 / 52'	32 / 28'	1958	1982
1426	TEREKA	LUANGWA	13 / 46'	32 / 31'	1956	1971
1428	MSIPAZI NO. 2	LUANGWA	13 / 48'	32 / 32'	1951	1991
1429	MSPAZI FOREST	LUANGWA	13 / 47'	32 / 37'	1965	1991
1430	MTIRIZI STATE FARM	LUANGWA				
1431	SALIMA(WA)	LUANGWA	13 / 47'	32 / 35'	1956	1971
1434	MAGUYA	LUANGWA	13 / 50'	32 / 37'	1956	1971

List of Meteorological Stations and Voluntary Rainfall Stations in Zambia

No.	Name	River	Latitude	Longitude	From	To
1436	CHIPATA RURAL DAIRY	LUANGWA	13 / 41'	32 / 38'	1973	1991
1437	LUANGWA AT MFUWE	LUANGWA			1983	1991
1438	CHIKANDO	LUANGWA			1983	1984
1439	CHIPATA CIVIC CENTRE	LUANGWA	13 / 38'	32 / 39'	1919	1991
1440	CHIPATA AGRIC	LUANGWA	13 / 39'	32 / 39'	1930	1991
1441	ZOZWE	LUANGWA			1982	1991
1443	LUNKHWKWA FOREST PLANTATION	LUANGWA	13 / 39'	32 / 42'	1965	1991
1444	CHALUBILO AGRIC	LUANGWA				
1445	CHIPATA (WA)	LUANGWA	13 / 39'	32 / 39'	1949	1991
1455	MAMBWE AGRIC	LUANGWA			1984	1991
1460	KALICHERO	LUANGWA	13 / 31'	32 / 27'	1952	1991
1465	KAPARA TOBACCO SCHEME	LUANGWA	13 / 31'	32 / 32'	1928	1981
1469	SUNNYSIDE FARM	LUANGWA	13 / 38'	32 / 42'	1982	1991
1470	CHIPATA MET.	LUANGWA	13 / 34'	32 / 35'	1948	1991
1474	KATAPULA	LUANGWA	13 / 37'	32 / 37'	1960	1991
1475	TIRITONGWE PR. SCHOOL	LUANGWA			1980	1983
1480	MAPALA AGRIC	LUANGWA			1982	1984
1499	CHASERA UPPER SCHOOL	LUANGWA	12 / 50'	32 / 50'	1968	1991
1500	LUTEMBWE (WA)	LUANGWA			1983	1991
1515	CHIPANGALI	LUANGWA	13 / 14'	32 / 43'	1966	1991
1520	CHANJE AGRIC	LUANGWA	13 / 27'	32 / 48'	1964	1991
1522	TAMANDA MISSION	LUANGWA	13 / 29'	32 / 53'	1955	1969
1545	LUSANGAZI	LUANGWA	13 / 27'	31 / 34'	1963	1975
1572	KATIBUKA MIDDLE SCHOOL	LUANGWA	11 / 38'	31 / 44'	1953	1974
1573	KATIBUNGA MISSION	LUANGWA	11 / 37'	31 / 45'	1938	1991
1575	KATIBUNGA AGRIC	LUANGWA	11 / 33'	31 / 47'	1974	1984
1578	LUMIMBA MISSION	LUANGWA	12 / 23'	32 / 22'	1950	1968
1630	LUNDAZI MET.	LUANGWA	12 / 17'	33 / 12'	1919	1991
1631	LUNDAZI FTC	LUANGWA	12 / 19'	33 / 12'	1980	1991
1642	MWASE AGRIC	LUANGWA	12 / 25'	33 / 26'	1974	1991
1648	LUMEZI SCHEME	LUANGWA	12 / 17'	33 / 12'	1983	1984
1708	CHASEFU MISSION	LUANGWA	11 / 55'	33 / 7'	1926	1974
1711	CHIKWA MANGWERE SCHOOL	LUANGWA	11 / 40'	33 / 47'	1968	1970
1712	CHIKWA AGRIC	LUANGWA	11 / 40'	33 / 47'	1951	1991
1731	TEMBWE	LUANGWA	11 / 21'	32 / 57'	1951	1991
1735	CHIKWALE AGRIC	LUANGWA	10 / 33'	32 / 47'	1981	1991
1746	KAMBUMBO	LUANGWA	11 / 15'	33 / 5'	1941	1991
1748	CHAMA AGRIC CAMP	LUANGWA	11 / 14'	33 / 12'	1953	1991
1749	CHAMA BOMA	LUANGWA	11 / 14'	33 / 12'	1970	1980
1750	KANYELELE CAMP	LUANGWA			1982	1991
1751	CHAMA FTC	LUANGWA			1985	1991
1753	KATANGALIKA AGRIC	LUANGWA			1982	1991
1787	NYIKA REST HOUSE	LUANGWA	10 / 37'	33 / 30'	1978	1980
1790	MUYOBE AGRIC CAMP	LUANGWA	10 / 35'	33 / 27'	1959	1991
1815	MUTANGA MISSION	LUANGWA	10 / 59'	32 / 10'	1941	1991
1863	NANSALA	LUANGWA	10 / 15'	32 / 40'	1959	1991
1870	KAMPUMBU	LUANGWA	10 / 17'	33 / 2'	1959	1991
1874	KATYETYE AGRIC	LUANGWA	10 / 23'	33 / 9'	1973	1985
1878	MULEKA TEMBO	LUANGWA	10 / 9'	33 / 24'	1959	1991
1881	THENDERE AGRIC	LUANGWA	10 / 16'	33 / 22'	1971	1991
1883	KASEYA GOVT. SCHOOL	LUANGWA	10 / 21'	33 / 24'	1971	1978
2104	CHRISTLES FARM	ZAMBEZI	15 / 28'	28 / 27'	1973	1975
2110	COOPERATIVE COLLEGE	ZAMBEZI	15 / 26'	28 / 20'	1980	1991
2115	LEOPARDS HILL RANCH	ZAMBEZI	15 / 35'	27 / 53'	1922	1991
2120	GOLDEN VALLEY FARM	ZAMBEZI	15 / 36'	28 / 45'	1980	1991
2133	ELDORADO	ZAMBEZI	15 / 21'	28 / 35'	1947	1971
2139	CHALIMBANA NO. 2 (WA)	ZAMBEZI	15 / 24'	28 / 28'	1949	1991
2141	CHALIMBANA NO. 1 (WA)	ZAMBEZI	15 / 25'	28 / 26'	1956	1991
2142	SEED POTATO FARM	ZAMBEZI	15 / 50'	31 / 25'	1978	1991
2145	EXCHANGE FARM (WA)	ZAMBEZI	15 / 22'	28 / 28'	1966	1991
2147	CHALIMBANA AGRIC	ZAMBEZI	15 / 22'	28 / 28'	1949	1991
2150	LUSAKA INTER. AIRPORT	ZAMBEZI	15 / 20'	28 / 26'	1965	1991

List of Meteorological Stations and Voluntary Rainfall Stations in Zambia

No.	Name	River	Latitude	Longitude	From	To
2155	PARABANA AGRIC	ZAMBEZI	15 / 21'	28 / 28'	1972	1991
2160	CHONGWE	ZAMBEZI	15 / 19'	28 / 42'	1972	1991
2175	KASIMI MISSION	ZAMBEZI	15 / 16'	28 / 29'	1924	1991
2181	CHELSTONE TOWNSHIP	ZAMBEZI	15 / 22'	28 / 23'	1969	1973
2183	N.R.D.C.	ZAMBEZI	15 / 23'	28 / 23'	1973	1975
2186	UNIVERSITY	ZAMBEZI	15 / 22'	28 / 23'	1971	1991
2187	MUNALI SEC. SCHOOL	ZAMBEZI	15 / 22'	28 / 23'	1982	1991
2188	MPHONDU FARM	ZAMBEZI				
2193	LUSAKA MET.HQ	ZAMBEZI	15 / 25'	28 / 19'	1938	1991
2194	SABLE ROAD KABULONGA	ZAMBEZI	15 / 24'	28 / 21'	1971	1972
2195	LUSAKA STATE HOUSE	ZAMBEZI	15 / 26'	28 / 19'	1960	1991
2196	KABULONG BOYS SCHOOL	ZAMBEZI	15 / 26'	28 / 20'		
2197	NGWERERE (WA)	ZAMBEZI	15 / 20'	28 / 20'	1955	1991
2199	KAFUSHI RICE PROJECT	ZAMBEZI				
2200	LUSAKA HYDRO HQ	ZAMBEZI	15 / 24'	28 / 16'	1958	1991
2205	LUSAKA RAIL	ZAMBEZI	15 / 25'	28 / 17'	1917	1991
2209	YEILDING TREE FARM	ZAMBEZI	15 / 23'	28 / 10'	1984	1991
2215	LUSAKA WATERWORKS	ZAMBEZI	15 / 27'	28 / 19'	1967	1986
2219	CHIKUMBI AGRIC	ZAMBEZI	15 / 15'	28 / 15'	1972	1991
2222	KANCHILINGA	ZAMBEZI	15 / 14'	28 / 23'	1927	1974
2225	TRIANGLE RANCH	ZAMBEZI	15 / 7'	28 / 20'	1980	1991
2227	FARM 2784 - KARUBWE	ZAMBEZI	15 / 8'	28 / 21'	1980	1983
2228	KAMAILA FOREST STATION	ZAMBEZI	15 / 5'	28 / 19'	1958	1991
2229	MARULA	ZAMBEZI	14 / 58'	28 / 26'	1971	1991
2230	NTENDERER	ZAMBEZI	15 / 6'	28 / 26'	1971	1991
2231	PENYAONSE	ZAMBEZI	15 / 10'	28 / 26'	1971	1991
2232	NLAMBO	ZAMBEZI	15 / 12'	28 / 25'	1972	1975
2233	NSADZU	ZAMBEZI	15 / 8'	28 / 28'	1972	1975
2234	CHISAMBA RAIL	ZAMBEZI	14 / 59'	28 / 23'	1923	1984
2235	FARM 3693	ZAMBEZI			1983	1984
2236	LIONS BUSH FARM	ZAMBEZI	14 / 59'	28 / 28'	1952	1975
2237	KAYANJE SECTION	ZAMBEZI	15 / 7'	28 / 29'	1973	1975
2240	CHIPEMBI FARM COLLEGE	ZAMBEZI			1983	1984
2241	CHAMUKA AGRIC	ZAMBEZI	14 / 50'	28 / 39'	1972	1984
2243	CHANGANDA 3997	ZAMBEZI	14 / 55'	28 / 25'	1980	1984
2244	KALANGWA ESTATES	ZAMBEZI	14 / 50'	28 / 30'	1980	1991
2259	FAROWE VILLAGE	ZAMBEZI	15 / 57'	28 / 48'	1959	1991
2262	ST. MARY'S SEC. SCHOOL	ZAMBEZI			1983	1991
2264	NAMALUNDU GORGE	ZAMBEZI	15 / 49'	28 / 27'	1973	1991
2265	SHANTUMBU	ZAMBEZI			1984	1991
2266	NAMALUNDU FORGE	ZAMBEZI	15 / 48'	28 / 26'	1973	1991
2270	CHALIMBANA	ZAMBEZI			1984	1991
2280	CHONGWE NORTH	ZAMBEZI			1983	1991
2287	NALUAMA AGRIC	ZAMBEZI	15 / 43'	28 / 7'	1972	1978
2295	MWAMBESHI FARM	ZAMBEZI			1984	1985
2297	SHIMABALA QUARRY	KAFUE	15 / 39'	28 / 14'	1967	1971
2300	KASAKA (WA)	KAFUE	15 / 49'	28 / 13'	1949	1991
2301	RIVERSIDE FARM	KAFUE	15 / 49'	28 / 14'	1977	1991
2302	KAFUE SEC. SCHOOL	KAFUE	15 / 49'	28 / 14'	1924	1973
2305	KAFUE RAIL	KAFUE	15 / 46'	28 / 10'	1910	1989
2308	MONGU AGRIC	KAFUE	15 / 37'	28 / 11'	1982	1983
2345	CHIPAPA AGRIC	KAFUE			1982	1991
2350	LILAYI FARM	KAFUE	15 / 3'	28 / 17'	1981	1991
2352	CHILANGA FISH FARM	KAFUE	15 / 36'	28 / 17'	1948	1991
2354	CHILANGA CEMENT	KAFUE	15 / 35'	28 / 17'	1952	1991
2375	MOUNT MAKULU MET.	KAFUE	15 / 33'	28 / 15'	1951	1991
2382	HEREFORD FARM	KAFUE	15 / 28'	28 / 11'	1917	1948
2382	MAKENI ESTATE	KAFUE	15 / 28'	28 / 11'	1923	1991
2384	MAKENI-TEAGLES PLOT	KAFUE	15 / 27'	28 / 13'	1969	1978
2385	MAKENI KIBBUTZ	KAFUE	15 / 28'	28 / 14'	1969	1974
2386	FARM 396A	KAFUE	15 / 28'	27 / 13'	1980	1985
2393	HONITON FARM	KAFUE	15 / 50'	28 / 0'	1938	1970

List of Meteorological Stations and Voluntary Rainfall Stations in Zambia

No.	Name	River	Latitude	Longitude	From	To
2400	KAFUE POLDER	KAFUE	15 / 46'	27 / 55'	1957	1991
2401	CHANYANYA R. SCHEME	KAFUE			1985	1991
2402	NAKAMBAL S. ESTATE	KAFUE	15 / 48'	27 / 48'	1972	1991
2404	LUBOMBO SIDING (WA)	KAFUE	15 / 52'	27 / 52'	1962	1991
2405	KUSHIYA	KAFUE	15 / 57'	27 / 52'	1936	1991
2407	MONGA FARM	KAFUE	15 / 58'	27 / 54'	1962	1969
2410	MAZABUKA RES. STATION	KAFUE	15 / 50'	27 / 43'	1926	1970
2411	MAZABUKA TOWN COUNCIL	KAFUE	15 / 52'	27 / 46'	1976	1986
2412	MAZABUKA RAIL	KAFUE	15 / 52'	27 / 36'	1916	1991
2413	MAZABUKA (WA)	KAFUE	15 / 52'	27 / 46'	1949	1991
2414	OAKLANDS FARM (WA)	KAFUE	15 / 52'	27 / 45'	1963	1991
2420	KALEYA FARM	KAFUE	15 / 59'	27 / 50'	1918	1991
2423	SIMONGA	KAFUE	15 / 4'	27 / 59'	1922	1991
2425	FARM 493A	KAFUE	16 / 2'	28 / 7'	1971	1973
2426	KALEYA DAM SITE (WA)	KAFUE	16 / 11'	28 / 0'	1950	1971
2428	NADEZWE	KAFUE	16 / 13'	28 / 3'	1970	1970
2432	MARTIN LUTHER SCHOOL	KAFUE	15 / 27'	27 / 49'	1971	1972
2433	SHIBUYUNJI AGRIC	KAFUE	15 / 24'	27 / 49'	1952	1991
2435	MANO FARM	KAFUE	15 / 22'	27 / 53'	1952	1969
2440	MKULAIKWA	KAFUE	15 / 17'	27 / 45'	1962	1991
2441	MWACHISOMPOLA	KAFUE	15 / 17'	27 / 45'	1963	1991
2446	KABILE S. SITE(WA)	KAFUE	15 / 5'	27 / 37'		
2450	KAUNGA LWETI SCHOOL	KAFUE			1985	1986
2454	KALOLA FARM	KAFUE	14 / 57'	28 / 5'	1972	1991
2459	KEEMBE AGRIC	KAFUE	15 / 54'	27 / 47'	1957	1991
2460	KEEMBE NO.2	KAFUE			1969	1972
2462	MUSHIKILI SCHOOL	KAFUE	14 / 54'	27 / 51'	1970	1985
2464	MATERO BOYS SCHOOL	KAFUE	15 / 23'	28 / 16'		
2465	LUSAKA NORTH PLANTATION	KAFUE	15 / 22'	28 / 17'	1969	1991
2467	MAAMBO ROPEWAY	KAFUE	15 / 23'	28 / 19'		
2468	BARLSTON PARK	KAFUE	15 / 33'	28 / 10'	1971	1991
2470	MUCHENJE AGRIC	KAFUE	15 / 14'	28 / 2'	1953	1991
2479	KALABO ESTATE	KAFUE	14 / 53'	28 / 3'	1930	1972
2488	MSALA SABWE	KAFUE	15 / 2'	28 / 15'	1962	1974
2490	KATUBA SCHOOL	KAFUE	15 / 11'	28 / 15'	1958	1978
2505	BLUE LAGOON	KAFUE	15 / 30'	27 / 25'	1952	1991
2990	MUFUNTA POST	KAFUE	15 / 42'	25 / 20'	1967	1971
2996	TATAYOYO	KAFUE	14 / 56'	25 / 26'	1966	1969
2998	CHUNGA CAMP	KAFUE	15 / 5'	26 / 1'	1961	1991
3000	KAFUE HOOK	KAFUE	15 / 1'	26 / 0'	1953	1991
3140	LUSHIMBA CAMP	KAFUE	14 / 15'	25 / 57'	1971	1972
3145	KASOMPE	KAFUE	14 / 4'	25 / 39'	1967	1974
3155	MUKANASHI SCHOOL	KAFUE	13 / 52'	25 / 54'	1956	1971
3159	KANONGO HILL	KAFUE	13 / 46'	26 / 7'	1967	1969
3170	MPUNGO PROD. SCHEME	KAFUE	13 / 36'	26 / 0'	1970	1985
3174	NKENYAUNA	KAFUE	13 / 28'	25 / 58'	1958	1991
3180	KASEMPA MET.	KAFUE	13 / 27'	25 / 50'	1903	1991
3199	KAWANE SCHOOL	KAFUE	13 / 7'	25 / 58'	1956	1977
3340	KASEMPA PONTOON	KAFUE	13 / 59'	26 / 21'	1963	1991
3360	KELONGWA SCHOOL	KAFUE	13 / 42'	26 / 20'	1951	1991
3585	Z.F.D.S. WEST 3	KAFUE	13 / 21'	26 / 35'	1969	1970
3490	MAPUNGU SCHOOL	KAFUE	13 / 2'	26 / 50'	1960	1970
3515	Z.F.D.S. WEST 1	KAFUE	12 / 52'	27 / 6'	1969	1972
3540	MUJIMANZOVU (WA)	KAFUE	12 / 48'	26 / 32'	1963	1991
3555	ST. FRANCIS MISSION	KAFUE	12 / 32'	26 / 31'	1953	1991
3560	JUWUNDU S. SCHEME	KAFUE	12 / 25'	26 / 32'	1980	1985
3568	BULEYA BALIMA	KAFUE			1981	1991
3570	SOLWEZI MET.	KAFUE	12 / 11'	26 / 23'	1913	1917
3573	KILUMBA SCHOOL	KAFUE	12 / 11'	26 / 23'	1980	1991
3574	MUMBEZHI	KAFUE	10 / 15'	25 / 7'	1982	1991
3575	KANSANSHI MINE	KAFUE	12 / 5'	26 / 24'	1907	1991
3576	CHISASA AGRIC	KAFUE			1984	1985

List of Meteorological Stations and Voluntary Rainfall Stations in Zambia

No.	Name	River	Latitude	Longitude	From	To
3578	KUMALE SCHOOL	KAFUE			1984	1991
3579	KABOMPO-SOLWEZI	KAFUE			1982	1991
3580	CHAFUKUMA	KAFUE	12 / 1'	26 / 26'	1964	1991
3584	SIKASUMBI	KAFUE			1983	1991
3615	MUTANDA MISSION	KAFUE	12 / 23'	26 / 16'	1950	1991
3673	LAMBA SCHOOL	KAFUE	12 / 20'	26 / 57'	1957	1070
3690	CHIFUISWA SCHOOL	KAFUE	12 / 10'	26 / 40'	1957	1980
3695	KAPIJA PANGA SCHOOL	KAFUE	12 / 17'	26 / 31'	1952	1991
3700	LBUNGU PONTOON	KAFUE	12 / 34'	26 / 27'	1953	1991
3715	MSWEBI	KAFUE	14 / 20'	26 / 57'	1950	1991
3725	KARENDA MISSION	KAFUE	14 / 45'	26 / 53'	1956	1972
3733	LUKANGA SWAMP	KAFUE	14 / 40'	27 / 48'	1971	1991
3740	MAKUNKWA	KAFUE	14 / 25'	27 / 30'	1963	1972
3750	CHIYLINI SCHOOL	KAFUE	14 / 38'	27 / 36'	1955	1991
3752	LITETA AGRIC	KAFUE	14 / 45'	28 / 4'	1972	1979
3755	MALAMBANYAMA SCHOOL	KAFUE	14 / 52'	27 / 42'	1955	1991
3758	TWENTY'S VILLAGE	KAFUE	14 / 37'	27 / 57'	1962	1981
3760	CHIBOMBO	KAFUE	14 / 40'	28 / 5'	1955	1972
3772	CHIPEPO DISP.	KAFUE	14 / 11'	28 / 13'	1955	1971
3774	MPUNDE MISSION	KAFUE	14 / 14'	25 / 13'	1961	1975
3798	CHILWA ISLAND (WA)	KAFUE	14 / 18'	27 / 37'	1960	1991
3810	CHILENGA	KAFUE	14 / 6'	27 / 24'	1963	1991
3890	ST. MARY'S MISSION	KAFUE	12 / 54'	27 / 22'	1951	1991
3896	KILUNDU (WA)	KAFUE	13 / 10'	27 / 14'	1971	1977
3903	Z.F.D.S. WEST TWO (MACHIYA)	KAFUE	13 / 48'	29 / 29'	1960	1970
3904	MUKUBWE AGRIC	KAFUE	13 / 52'	27 / 46'	1972	1979
3905	MUKUBWE SCHOOL	KAFUE	13 / 51'	27 / 42'	1956	1991
3910	MACHIYA FARM	KAFUE	13 / 39'	27 / 37'	1963	1991
3914	MUNKUMPU SCHOOL	KAFUE	13 / 36'	27 / 48'	1963	1991
3925	MUNKUMPU GAUGING WEIR	KAFUE	13 / 31'	27 / 43'	1963	1970
3955	NDEBENI (WA)	KAFUE	13 / 24'	27 / 49'	1969	1991
3960	ST. ANTHONY'S MISSION	KAFUE	13 / 29'	27 / 56'	1963	1991
3974	MWELUSHI MISSION	KAFUE	13 / 3'	27 / 57'	1953	1980
3995	MRONGWE MISSION	KAFUE	13 / 31'	28 / 10'	1931	1991
4040	KAFULAFUTA MISSION	KAFUE	13 / 16'	28 / 19'	1926	1965
4053	ROAN ANTELOPE	KAFUE	13 / 10'	28 / 23'	1927	1991
4055	LUANSHYA RAIL	KAFUE	13 / 7'	28 / 24'	1934	1991
4056	LUANSHYA TOWN (WA)	KAFUE	13 / 7'	28 / 24'	1969	1978
4058	KAFUBU UNION	KAFUE			1970	1991
4060	CHAMUNDU SCHOOL	KAFUE	13 / 17'	28 / 24'	1971	1974
4061	MASAITI SCHOOL (WA)	KAFUE	13 / 16'	28 / 24'	1969	1976
4062	FARM 1559	KAFUE	13 / 17'	28 / 24'	1983	1991
4073	BWANA MKUBWA	KAFUE	13 / 3'	28 / 42'	1912	1991
4075	BWANA MKUBWA	KAFUE	13 / 2'	28 / 43'	1971	1984
4076	NDOLA KAFUBI WATERWORKS	KAFUE	13 / 5'	28 / 36'	1966	1979
4085	CHICHELE	KAFUE	13 / 1'	26 / 32'	1949	1981
4090	RESEARCH STATION	KAFUE			1959	1983
4097	NDOLA-ITAWA WATERWORKS	KAFUE	12 / 59'	28 / 39'	1959	1984
4100	NDOLA MET.	KAFUE	13 / 0'	28 / 40'	1913	1991
4102	LUPIYE SCHOOL	KAFUE	13 / 0'	28 / 48'	1969	1970
4103	NDOLA RAIL	KAFUE	12 / 57'	28 / 39'	1914	1985
4104	N.B.A.Z.	KAFUE			1983	1983
4105	NDOLA-LAKE ISHIKU WATERWORKS	KAFUE	12 / 59'	28 / 53'	1959	1979
4106	NDOLA LIME	KAFUE	13 / 0'	28 / 43'	1911	1991
4109	CHIWALA	KAFUE	12 / 59'	28 / 45'	1969	1991
4115	CHIKUMBI SCHOOL	KAFUE	12 / 53'	28 / 42'	1963	1977
4127	KANYENDA SCHOOL	KAFUE	13 / 27'	28 / 14'	1968	1973
4128	MPONGWE FTC	KAFUE	13 / 24'	28 / 15'	1979	1991
4129	MIKATA SCHOOL	KAFUE	13 / 22'	28 / 19'	1963	1991
4130	MPONGWE DEV. CAMP	KAFUE			1985	1991
4131	IBENGA GIRL'S SCHOOL	KAFUE	13 / 20'	28 / 27'	1970	1991
4135	ST. THERESA'S MISSION (WA)	KAFUE	13 / 21'	28 / 25'	1969	1991

List of Meteorological Stations and Voluntary Rainfall Stations in Zambia

No.	Name	River	Latitude	Longitude	From	To
4146	CHINONDO SCHOOL (WA)	KAFUE	13 / 35'	28 / 29'	1969	1977
4149	KASHITU GOVT. SCHOOL	KAFUE	13 / 40'	28 / 41'	1972	1973
4163	MISHIKISHI (WA)	KAFUE	12 / 22'	28 / 42'	1969	1969
4166	FIWALE HILL MISSION	KAFUE	13 / 13'	28 / 43'	1940	1991
4174	SILANGWA	KAFUE	13 / 26'	28 / 50'	1963	1972
4181	MUTABA SCHOOL	KAFUE	13 / 18'	28 / 50'	1969	1969
4201	MPATAMATO	KAFUE	13 / 15'	28 / 8'	1951	1991
4233	CHAPULA IRR. PROJECT	KAFUE	12 / 55'	28 / 1'	1970	1991
4235	ST. JOSEPH'S MISSION	KAFUE	13 / 21'	28 / 25'	1968	1991
4246	CHIMOTO SCHOOL	KAFUE	12 / 55'	27 / 56'	1963	1975
4260	KALULUSHI FARM COLLEGE	KAFUE	12 / 53'	28 / 8'	1970	1991
4261	MUKUMBO PR. SCHOOL	KAFUE			1981	1991
4261	LUPAPUMA PRISON	KAFUE	12 / 54'	28 / 7'	1970	1991
4271	KAMFINSI PRISON	KAFUE	12 / 52'	28 / 20'	1972	1991
4274	MWEKERA FISH FARM	KAFUE	12 / 50'	28 / 22'	1965	1978
4275	CHINWA	KAFUE			1983	1991
4276	KITWE HYDRO	KAFUE			1984	1991
4277	KITWE SEWAGE (WA)	KAFUE	12 / 50'	28 / 12'	1959	1991
4278	KITWE FIRE BRIDGE	KAFUE	12 / 50'	28 / 12'	1950	1991
4279	BUTUSHO FARM	KAFUE			1982	1991
4280	NKANA RAIL	KAFUE	12 / 49'	28 / 13'	1930	1991
4282	NKANA MINE	KAFUE	12 / 50'	28 / 12'	1929	1991
4305	MINDOLO MISSION	KAFUE	12 / 47'	28 / 11'	1937	1973
4310	CHIBULUMA MINE	KAFUE	12 / 49'	28 / 3'	1952	1991
4313	RCM KALULUSHI	KAFUE	12 / 50'	28 / 6'	1977	1977
4320	MWAMBASHI (WA)	KAFUE	12 / 42'	28 / 9'	1963	1991
4375	KAFIRONDA MET.	KAFUE	12 / 38'	28 / 10'	1966	1991
4378	CHAMBISHI RAIL	KAFUE	12 / 39'	28 / 5'	1961	1982
4379	CHAMBISHI MINE	KAFUE	12 / 39'	28 / 3'	1963	1991
4390	MUFULIRA MINE	KAFUE	12 / 32'	28 / 14'	1929	1991
4392	MUFULIRA RAIL	KAFUE	12 / 32'	28 / 15'	1933	1991
4395	SUNNYSIDE FARM	KAFUE	12 / 32'	28 / 16'	1980	1991
4398	MUKAMBO	KAFUE	12 / 27'	28 / 20'	1972	1973
4475	CHATI FOREST	KAFUE	12 / 26'	27 / 53'	1962	1991
4480	TORBOROUGH FARM	KAFUE	12 / 31'	27 / 54'	1980	1981
4481	LUANO AGRIC	KAFUE	12 / 34'	27 / 55'	1969	1991
4482	MUSHISHIMA	KAFUE	12 / 29'	27 / 51'	1973	1974
4483	NCHANGA MINE	KAFUE	12 / 31'	27 / 50'	1926	1991
4485	CHINGOLA RAIL	KAFUE	12 / 32'	27 / 51'	1951	1991
4487	IDAFU SETTLEMENT	KAFUE	12 / 31'	27 / 50'	1970	1991
4489	TWIN RIVERS FARM	KAFUE	12 / 20'	27 / 47'	1973	1977
4490	BANCROFT MINE NO.3	KAFUE	12 / 21'	27 / 48'	1954	1991
4492	BANCROFT RAIL	KAFUE	12 / 22'	27 / 50'	1959	1991
4494	BANCROFT MINE NO.1	KAFUE	12 / 22'	27 / 49'	1954	1991
4496	LUBENGELE AIRSTRIP	KAFUE	12 / 18'	27 / 49'	1972	1973
4510	RAGLAN FARM (WA)	KAFUE	12 / 25'	27 / 44'	1956	1991
4555	NGOSA FARM (WA)	KAFUE	12 / 18'	27 / 28'	1964	1977
4650	MUTUTUBANYA	KAFUE	11 / 54'	27 / 13'	1960	1969
4660	YOWELA SCHOOL	KAFUE	11 / 48'	27 / 11'	1959	1984
5001	CHIAWA BANANA SCHOOL	ZAMBEZI	15 / 55'	28 / 58'	1970	1982
5003	CHIRUNDU (WA)	ZAMBEZI	16 / 2'	28 / 51'	1971	1972
5005	LUSITU BOMA	ZAMBEZI	16 / 7'	28 / 52'	1956	1991
5007	LUSITU (C.S.) (WA)	ZAMBEZI	16 / 9'	28 / 51'	1964	1991
5010	LUSITU BRIDGE	ZAMBEZI	16 / 11'	28 / 45'	1960	1991
5013	SIMAMBA AGRIC	ZAMBEZI	16 / 20'	28 / 44'	1971	1976
5016	SIAMWINGA AGRIC	ZAMBEZI	16 / 13'	28 / 32'	1972	1991
5022	CHAANGA	ZAMBEZI	16 / 16'	28 / 25'	1957	1991
5044	CHIKANKATA	ZAMBEZI	16 / 15'	28 / 8'	1944	1982
5050	MAPANGAZIA	ZAMBEZI	16 / 10'	28 / 14'	1951	1976
5130	GWEMBE LUMBO	ZAMBEZI	16 / 32'	28 / 3'	1961	1991
5180	GWEMBE CHIPEPO	ZAMBEZI	16 / 48'	28 / 3'	1961	1982
5195	GWEMBE-MUNYUBWE	ZAMBEZI	16 / 39'	27 / 47'	1984	1991

List of Meteorological Stations and Voluntary Rainfall Stations in Zambia

No.	Name	River	Latitude	Longitude	From	To
5196	MUNYUMBWE	ZAMBEZI	16 / 39'	27 / 47'	1953	1991
5200	CHIPEPO	ZAMBEZI	16 / 48'	27 / 53'	1964	1991
5222	NDONDI SCHOOL (WA)	ZAMBEZI	16 / 44'	27 / 24'	1963	1978
5233	NATOBA	ZAMBEZI	16 / 37'	27 / 29'	1929	1973
5293	WILHELMINA FARM	ZAMBEZI	16 / 22'	27 / 17'	1948	1976
5305	GWEMBE BULEYA	ZAMBEZI	17 / 3'	27 / 35'	1961	1970
5309	BULEYA MALIMA	ZAMBEZI	17 / 12'	27 / 30'	1971	1991
5310	BULEYA MALIMA(WA)	ZAMBEZI	17 / 12'	27 / 30'	1970	1985
5312	MALIMA FTC	ZAMBEZI			1984	1991
5313	MALIMA AGRIC	ZAMBEZI	17 / 10'	25 / 25'	1971	1985
5315	SINAZEZE	ZAMBEZI	17 / 8'	27 / 23'	1956	1991
5316	CHINYARI PILOT IRR.	ZAMBEZI			1984	1991
5317	GOSSNER MISSION	ZAMBEZI			1984	1991
5320	MAAMBA COLLIERY	ZAMBEZI	17 / 25'	27 / 12'	1972	1991
5322	MAAMBA AGRIC	ZAMBEZI	17 / 25'	27 / 12'	1967	1985
5324	MAAMBA (WA)	ZAMBEZI	17 / 25'	27 / 12'	1960	1969
5325	SIATWINDA IRRIG.	ZAMBEZI	17 / 28'	28 / 27'	1971	1974
5327	KAFAMBILA	ZAMBEZI	17 / 48'	27 / 5'	1973	1976
5329	MASUKA	ZAMBEZI	17 / 12'	27 / 8'	1927	1991
5335	SIKALONGA MISSION	ZAMBEZI	16 / 58'	27 / 14'	1926	1983
5340	BATOKA STATE RANCH	ZAMBEZI	16 / 48'	27 / 15'	1972	1991
5347	CHOMA AGRIC	ZAMBEZI	16 / 52'	27 / 16'	1954	1971
5350	CHOMA MET.	ZAMBEZI	16 / 51'	27 / 4'	1948	1991
5355	CHOMA RAIL	ZAMBEZI	16 / 50'	26 / 58'	1916	1991
5357	BELT SCHOOL	ZAMBEZI	16 / 51'	26 / 59'	1929	1968
5397	HEARTHERWOOD FARM	ZAMBEZI	16 / 52'	26 / 53'	1955	1970
5399	SIBINYANTI	ZAMBEZI	16 / 50'	26 / 50'	1963	1973
5465	KABANGA MISSION	ZAMBEZI	16 / 30'	26 / 47'	1956	1974
5467	CHINKOYO AGRIC	ZAMBEZI	17 / 32'	26 / 44'	1972	1978
5475	KALA RANCH	ZAMBEZI	17 / 20'	26 / 53'	1956	1972
5524	ZIMBA ARIC	ZAMBEZI	17 / 19'	26 / 13'	1977	1978
5525	ZIMBA RAIL	ZAMBEZI	17 / 19'	26 / 12'	1919	1991
5530	FORSYTHS ESTATES	ZAMBEZI	17 / 25'	26 / 23'	1956	1984
5542	KANCHELE AGRIC	ZAMBEZI	17 / 17'	26 / 39'	1972	1981
5547	KALOMO DAM SITE (WA)	ZAMBEZI	17 / 13'	26 / 29'	1966	1991
5550	THE RIDGES	ZAMBEZI	17 / 14'	26 / 23'	1953	1991
5557	NAMWIANGA MISSION	ZAMBEZI	17 / 3'	26 / 30'	1939	1991
5559	KALOMO RAIL	ZAMBEZI	17 / 2'	26 / 29'	1910	1991
5560	NAMWIANGA FARM	ZAMBEZI			1984	1985
5561	KALOMO SEC. SCHOOL	ZAMBEZI	17 / 3'	26 / 28'	1973	1975
5567	TARA FOREST CAMO	ZAMBEZI	16 / 54'	26 / 48'	1961	1971
5574	KALOMO BOMA	ZAMBEZI	16 / 58'	26 / 29'	1919	1973
5600	LIVINGSTONE-VICTORIA FALLS POWER STATION	ZAMBEZI	17 / 56'	25 / 53'	1952	1970
5603	LIVINGSTONE RAIL	ZAMBEZI	17 / 52'	25 / 53'	1910	1980
5604	ZAMBIZI CHURCH	ZAMBEZI			1981	1991
5607	LIVINGSTONE LINDA CAMP	ZAMBEZI	17 / 51'	25 / 53'	1959	1972
5610	MARAMBA CAMP	ZAMBEZI	17 / 51'	25 / 52'	1924	1977
5612	LIVINGSTONE WATERWORKS	ZAMBEZI	17 / 50'	25 / 52'	1968	1991
5620	LIVINGSTONE PUMP STATION	ZAMBEZI	17 / 53'	25 / 20'	1968	1974
5625	LIVINGSTONE MET.	ZAMBEZI	17 / 50'	25 / 50'	1948	1991
5627	DAMBWA FOREST STATION	ZAMBEZI	17 / 48'	25 / 57'	1956	1969
5640	KATOMBORA REFORMATORY	ZAMBEZI	17 / 50'	25 / 24'	1926	1991
5645	KAZUNGULA	ZAMBEZI	17 / 48'	25 / 17'	1926	1972
5660	MAKUMBA CATHOLIC MISSION	ZAMBEZI	17 / 29'	25 / 32'	1962	1972
5690	BOWWOOD FARM	ZAMBEZI	17 / 6'	25 / 11'	1936	1974
5745	SIMAMBA KNP	ZAMBEZI	16 / 39'	25 / 36'	1966	1969
5750	MACHILI	ZAMBEZI	16 / 50'	25 / 8'	1938	1991
5752	MULOBEZI	ZAMBEZI	16 / 47'	25 / 10'	1940	1975
5755	KATABA VALLEY	ZAMBEZI	16 / 4'	25 / 7'	1971	1991
5760	SICHITU MISSION	ZAMBEZI	16 / 44'	24 / 58'	1938	1983
5780	MASESE	ZAMBEZI	17 / 18'	24 / 39'	1941	1991

List of Meteorological Stations and Voluntary Rainfall Stations in Zambia

No.	Name	River	Latitude	Longitude	From	To
5781	LUPUMPU PR. SCHOOL	ZAMBEZI	17 / 15'	24 / 59'	1966	1971
5783	KALOMO FOREST	ZAMBEZI	17 / 7'	24 / 35'	1965	1970
5800	SESHEKE MET.	ZAMBEZI	17 / 28'	24 / 18'	1919	1991
5801	SESHEKE SEC. SCHOOL	ZAMBEZI			1970	1991
5802	SESHEKE RESEARCH	ZAMBEZI	17 / 28'	24 / 19'	1974	1991
5815	LUSU AGRIC	ZAMBEZI	17 / 14'	24 / 7'	1980	1991
5830	KALOBOLELWA	ZAMBEZI	16 / 58'	23 / 34'	1960	1991
5890	SIOMA FALLS	ZAMBEZI	16 / 38'	23 / 35'	1935	1981
5895	SIOMA FOREST	ZAMBEZI	16 / 29'	23 / 25'	1963	1976
5920	MWANGANGUMUNE	ZAMBEZI	15 / 40'	23 / 35'	1960	1973
5926	MALIKWANDA	ZAMBEZI	15 / 29'	23 / 39'	1976	1981
5928	LITAWA	ZAMBEZI	15 / 28'	23 / 33'	1972	1991
5940	LUETEMBO (WA)	ZAMBEZI	15 / 13'	23 / 49'	1964	1991
5955	LUETI PONTOON (WA)	ZAMBEZI	16 / 5'	23 / 0'	1964	1991
5975	SIHOLE MISSION	ZAMBEZI	15 / 20'	22 / 35'	1956	1980
5979	SENANGA MET.	ZAMBEZI	16 / 7'	23 / 16'	1979	1991
5980	SENANGA	ZAMBEZI	16 / 7'	23 / 10'	1931	1980
5995	NAMUSHAKENDE	ZAMBEZI	15 / 26'	23 / 12'	1949	1991
5996	NAMUSHAKENDE RESEARCH	ZAMBEZI	15 / 25'	23 / 12'	1976	1991
5997	SEFUTA SCHOOL	ZAMBEZI	15 / 23'	23 / 12'	1925	1972
6008	MONGU-LEALUI SEC. SCHOOL	ZAMBEZI	15 / 17'	23 / 8'	1956	1991
6009	HOLY CROSS SEC. SCHOOL	ZAMBEZI			1985	1991
6010	MONGU MET.	ZAMBEZI	15 / 15'	23 / 10'	1953	1991
6011	KAUNGA	ZAMBEZI			1973	1974
6015	LIMUNGA	ZAMBEZI	15 / 7'	23 / 11'	1960	1982
6032	LUKONA SCHOOL	ZAMBEZI	15 / 20'	22 / 56'	1934	1991
6049	LUANGINGA(WA)	ZAMBEZI	14 / 50'	22 / 49'	1980	1991
6050	KALABO BOMA	ZAMBEZI	14 / 57'	22 / 42'	1920	1991
6051	BULEYA AGRIC	ZAMBEZI			1984	1991
6052	SOKONGO	ZAMBEZI			1982	1991
6110	USHAA AGRIC	ZAMBEZI	14 / 57'	23 / 17'	1959	1991
6123	NDANDA	ZAMBEZI	14 / 53'	23 / 37'	1959	1984
6155	MAYANKWA	ZAMBEZI	14 / 31'	23 / 48'	1960	1991
6165	KASAMBAMEZI (WA)	ZAMBEZI	14 / 31'	24 / 6'	1964	1991
6170	NKenga AGRIC	ZAMBEZI			1981	1991
6175	LUAMP	ZAMBEZI	15 / 3'	24 / 26'	1938	1977
6185	LUAMPA KUTA	ZAMBEZI	15 / 25'	24 / 43'	1960	1982
6210	KAOMA MET.	ZAMBEZI	14 / 48'	24 / 48'	1913	1991
6211	KAOMA RESEARCH	ZAMBEZI	14 / 48'	24 / 47'	1980	1991
6212	KAOMA FTC	ZAMBEZI	14 / 48'	24 / 47'	1974	1991
6213	CHITWA AGRIC	ZAMBEZI			1985	1991
6215	MANGANGO STATE FARM	ZAMBEZI	14 / 38'	24 / 32'	1980	1984
6220	KNP-TATAYOYO	ZAMBEZI	14 / 56'	27 / 11'	1969	1991
6224	MUYONDOTI AGRIC	ZAMBEZI			1985	1991
6225	LUKULU MISSION	ZAMBEZI	14 / 23'	23 / 15'	1945	1991
6230	SIKASUMBI(WA)	ZAMBEZI	14 / 2'	23 / 39'	1981	1991
6231	SIKASUMBI (WA)	ZAMBEZI	14 / 17'	23 / 5'	1964	1991
6233	MANGANGO AGRIC	ZAMBEZI			1984	1991
6257	MWANBE	ZAMBEZI	13 / 30'	22 / 20'	1964	1975
6290	KATUBA KABOMPO	ZAMBEZI	13 / 21'	23 / 55'	1960	1991
6315	Z.F.D.S. WEST FIVE	ZAMBEZI	13 / 57'	24 / 30'	1968	1971
6337	CHIBULUKASHI	ZAMBEZI	14 / 38'	25 / 34'	1969	1970
6339	LALAFUTA CAMP	ZAMBEZI	14 / 35'	25 / 19'	1966	1970
6350	KALENGWA MINE	ZAMBEZI	13 / 28'	24 / 59'	1967	1976
6395	Z.F.D.S. FOUR	ZAMBEZI	13 / 39'	25 / 26'		
6403	KABULAMENA	ZAMBEZI	13 / 51'	24 / 1'	1952	1991
6415	KABOMPO MET.	ZAMBEZI	13 / 36'	24 / 12'	1948	1991
6420	LOLOMA MISSION	ZAMBEZI	13 / 25'	24 / 20'	1956	1969
6430	LUSONGWA	ZAMBEZI	12 / 58'	24 / 13'	1964	1969
6470	CHIWOMA	ZAMBEZI	12 / 24'	24 / 18'	1973	1991
6476	CHIBWIKWA AGRIC	ZAMBEZI	12 / 5'	24 / 18'	1972	1991
6478	KAMAPANDA MISSION	ZAMBEZI	12 / 0'	24 / 7'	1926	1974

List of Meteorological Stations and Voluntary Rainfall Stations in Zambia

No.	Name	River	Latitude	Longitude	From	To
6481	KAMAPANDA SCHOOL	ZAMBEZI			1970	1974
6524	MWINILUNGA FTC	ZAMBEZI	11 / 46'	24 / 26'	1979	1991
6525	MWINILUNGA MET.	ZAMBEZI	11 / 45'	24 / 26'	1921	1991
6528	MWINILUNGA VEGETABLE	ZAMBEZI	11 / 41'	24 / 25'	1970	1991
6535	MWINILUNGA RESEARCH	ZAMBEZI	11 / 38'	24 / 24'	1972	1991
6572	KAKOMA SCHOOL	ZAMBEZI			1971	1974
6580	KIKONGE SCHOOL	ZAMBEZI	13 / 4'	25 / 16'	1971	1974
6583	KAKIKASA FARM	ZAMBEZI			1983	1991
6585	CHIZERA MISSION	ZAMBEZI	13 / 6'	25 / 2'	1952	1991
6586	CHIZERA FTC	ZAMBEZI			1983	1991
6649	KANKOLONKOLO DISP.	ZAMBEZI	13 / 1'	26 / 0'	1951	1991
6680	MOMBESHI DISP.	ZAMBEZI	12 / 15'	25 / 34'	1956	1981
6722	NYARAMBOLA	ZAMBEZI	11 / 50'	24 / 53'	1973	1991
6734	CHOVWE AGRIC	ZAMBEZI	12 / 25'	25 / 4'	1973	1976
6738	NTAMBU	ZAMBEZI	12 / 26'	24 / 59'	1973	1991
6745	KISASA AGRIC	ZAMBEZI	12 / 8'	25 / 29'	1973	1991
6748	MUKUMBI AGRIC	ZAMBEZI	12 / 7'	25 / 46'	1973	1991
6780	LUMWANE SCHOOL	ZAMBEZI	11 / 50'	25 / 5'	1951	1991
6830	CHITOKOLOKI MISSION	ZAMBEZI	13 / 50'	23 / 13'	1934	1991
6840	BALOVALE	ZAMBEZI	13 / 34'	25 / 6'	1921	1991
6842	ZEMBEZI SEC. SCHOOL	ZAMBEZI			1970	1974
6847	KASEZI	ZAMBEZI	13 / 22'	23 / 10'	1959	1974
6858	KAYOMBO	ZAMBEZI	13 / 2'	23 / 52'	1964	1971
6860	DIPALATA	ZAMBEZI	13 / 18'	23 / 14'	1952	1971
6864	CHINYINGI	ZAMBEZI	13 / 22'	23 / 1'	1955	1991
6871	LUKOLWE MISSION	ZAMBEZI	13 / 12'	22 / 42'	1959	1991
6874	CHYUMA(WA)	ZAMBEZI	13 / 6'	22 / 43'	1938	1991
6875	CHAVUMA MISSION	ZAMBEZI	13 / 5'	22 / 42'	1927	1991
6880	KANONGESHA	ZAMBEZI	11 / 42'	24 / 2'	1952	1971
6881	NYANGOMBE	ZAMBEZI	11 / 48'	24 / 34'	1980	1991
6882	MATONCHI MISSION	ZAMBEZI	11 / 38'	23 / 3'	1935	1991
6885	CHIZERA (KALE/MISSION)	ZAMBEZI			1982	1991
6890	KALENE HILL MISSION	ZAMBEZI	11 / 11'	24 / 11'	1927	1991
6891	KALEYA SCHOOL	ZAMBEZI	11 / 12'	24 / 11'	1975	1976
6893	IKELANGE AGRIC	ZAMBEZI	11 / 15'	24 / 15'	1972	1984
6896	SAKEJI SCHOOL	ZAMBEZI	11 / 14'	24 / 18'	1937	1991
6898	HULLWOOD FARM	ZAMBEZI	11 / 15'	24 / 19'	1924	1991
6802	KANYAMA AGRIC	ZAMBEZI	11 / 24'	14 / 45'	1972	1981
7040	CHIPUNGU AGRIC	LUAPULA	8 / 40'	29 / 10'	1972	1984
7042	PUTA COUNCIL	LUAPULA	8 / 42'	29 / 11'	1972	1982
7048	KAFULWE MISSION	LUAPULA	8 / 59'	29 / 5'	1941	1991
7049	KAFULWE HYDRO	LUAPULA			1985	1991
7053	MUNUNGA	LUAPULA	9 / 4'	29 / 3'	1966	1991
7090	MOFWE DAMBO (WA)	LUAPULA	9 / 8'	29 / 15'	1958	1991
7095	KALUNGWISHI	LUAPULA	9 / 13'	29 / 18'	1971	1991
7096	KALUNGWISHI RANCH	LUAPULA	9 / 13'	29 / 19'	1977	1991
7098	LWANGWA AT MUMBULUMA FALLS	LUAPULA	9 / 33'	29 / 44'	1971	1991
7100	MUKUPA KATANDULA	LUAPULA	8 / 59'	29 / 28'	1954	1991
7131	MUNYELA-KANANDA	LUAPULA	8 / 50'	29 / 40'	1981	1991
7137	MWAMBASHI RIVER NO.2	LUAPULA	8 / 50'	29 / 56'	1970	1985
7138	KASEMPQ AGRIC	LUAPULA	8 / 55'	29 / 40'	1980	1991
7140	CHISELA AGRIC	LUAPULA	8 / 58'	29 / 10'	1980	1985
7142	NSAMA AGRIC CAMP	LUAPULA	8 / 54'	29 / 57'	1972	1980
7145	CHISELA	LUAPULA			1984	1991
7146	MUKUNTA	LUAPULA	9 / 58'	29 / 5'	1975	1991
7175	KAPUTA	LUAPULA	8 / 26'	29 / 43'	1954	1985
7215	KILWA ISLAND	LUAPULA	9 / 20'	28 / 30'	1975	1983
7222	CHISENGA ISLAND	LUAPULA	9 / 28'	28 / 40'	1975	1985
7229	MUNSA AGRIC	LUAPULA	9 / 10'	28 / 52'	1975	1991
7260	CHIMPEMPE MISSION	LUAPULA	9 / 34'	29 / 25'	1949	1984
7265	CHIMPEMPE PONTOON (WA)	LUAPULA	9 / 53'	29 / 27'	1968	1986
7273	CHIBOTE MISSION	LUAPULA	9 / 52'	29 / 33'	1926	1991

List of Meteorological Stations and Voluntary Rainfall Stations in Zambia

No.	Name	River	Latitude	Longitude	From	To
7277	KAWAMBWA TEA ESTATES	LUAPULA	9 / 48'	29 / 15'	1978	1991
7280	MUSHUTA AGRIC	LUAPULA	9 / 48'	29 / 23'	1950	1983
7282	MUSHUTA RICE SCHEME	LUAPULA	9 / 46'	29 / 25'	1971	1976
7285	KABANDA AGRIC	LUAPULA	9 / 40'	29 / 25'	1973	1991
7320	KAHABE MISSION	LUAPULA	9 / 28'	29 / 50'	1942	1991
7345	CHIWALA SCHOOL	LUAPULA	9 / 28'	29 / 41'	1963	1971
7350	MPOROKOSO	LUAPULA	9 / 22'	30 / 7'	1913	1991
7351	MPOROKOSO SEC. SCHOOL	LUAPULA	9 / 22'	30 / 7'	1968	1985
7365	VINCCENT BULAYA	LUAPULA	9 / 38'	30 / 27'	1963	1972
7400	KILWA SCHOOL	LUAPULA	9 / 17'	28 / 25'	1969	1970
7408	ROSAMO MISSION	LUAPULA	8 / 40'	29 / 10'	1975	1976
7410	CHNGE AGRIC	LUAPULA	8 / 35'	29 / 12'	1975	1985
7411	NCHELENGE RESEARCH	LUAPULA	9 / 21'	28 / 45'	1984	1991
7412	NCHELENGE	LUAPULA	9 / 21'	28 / 45'	1954	1991
7415	CHABILIKILA RESEARCH	LUAPULA	9 / 31'	28 / 45'		
7420	SHIMUKUNDU	LUAPULA	9 / 32'	28 / 43'	1963	1976
7428	MBERESHI MISSION	LUAPULA	9 / 44'	28 / 47'	1923	1974
7430	LUAPULA LEP. SETTLEMENT	LUAPULA	9 / 45'	28 / 52'	1954	1991
7443	KAPWESHI PLANTATION	LUAPULA	9 / 50'	25 / 50'	1966	1991
7448	MBENESHI AGRIC	LUAPULA	9 / 48'	28 / 5'	1971	1983
7449	ST. MARY'S KAWAMBWA	LUAPULA	9 / 48'	28 / 5'	1966	1991
7450	KAWAMBWA MET.	LUAPULA	9 / 48'	28 / 5'	1910	1991
7455	LUFUBU MISSION	LUAPULA	9 / 53'	28 / 47'	1937	1985
7456	LUFUBU AT KESO FALLS	LUAPULA			1985	1991
7468	MUMUSHI BANANA SCHOOL	LUAPULA	9 / 58'	28 / 40'	1970	1991
7480	KAWAMA MISSION	LUAPULA	10 / 5'	28 / 37'	1951	1976
7482	LUKWESA AGRIC	LUAPULA	10 / 7'	28 / 37'	1978	1991
7486	MUBENDE	LUAPULA	10 / 18'	28 / 46'	1958	1991
7487	KATUTO AGRIC	LUAPULA			1984	1991
7489	NSKALUBA	LUAPULA	10 / 22'	28 / 42'	1951	1982
7491	MWENSE AGRIC	LUAPULA	10 / 24'	28 / 37'	1976	1991
7492	LUBUNDA AGRIC	LUAPULA			1985	1991
7493	MWENSE CONSULTING ENG.	LUAPULA	10 / 22'	28 / 42'	1986	1991
7495	MAMBILIMA MISSION	LUAPULA	10 / 32'	28 / 38'	1926	1991
7503	MAGONDA FALLS	LUAPULA	10 / 42'	28 / 50'		
7505	CHISUNKA	LUAPULA	10 / 45'	28 / 50'	1959	1984
7510	MWENDA	LUAPULA	10 / 28'	29 / 1'	1970	1991
7512	MWENDA SCHOOL	LUAPULA	10 / 28'	29 / 11'	1964	1984
7515	CHIPILI MISSION	LUAPULA	10 / 44'	29 / 5'	1921	1984
7530	MUPETA	LUAPULA	10 / 25'	29 / 2'	1964	1984
7553	MUYEMBE	LUAPULA	9 / 59'	29 / 7'	1964	1973
7563	LWENA AGRIC	LUAPULA	10 / 38'	30 / 12'	1967	1974
7584	KALUNDU MISSION	LUAPULA	10 / 17'	29 / 23'	1938	1971
7586	MUSUNGA	LUAPULA	10 / 11'	29 / 19'	1963	1971
7602	CHIBONDO	LUAPULA	10 / 43'	28 / 28'	1965	1991
7610	MWAMBESHI NEAR NSAMA	LUAPULA			1984	1991
7615	CHIBULIKILO	LUAPULA			1984	1991
7645	KABUNDA MISSION	LUAPULA	11 / 12'	28 / 47'	1950	1985
7648	MANSA RURAL DAIRY	LUAPULA	11 / 9'	28 / 51'	1970	1991
7649	MANSA (WA)	LUAPULA	11 / 9'	28 / 51'	1971	1991
7650	MANSA MET.	LUAPULA	11 / 6'	28 / 51'	1919	1991
7652	MANSA FARM INST.	LUAPULA			1973	1991
7654	MOLOSHI AGRIC	LUAPULA			1985	1991
7655	BAHATI MISSION	LUAPULA	11 / 3'	28 / 50'	1950	1991
7657	MATENDA	LUAPULA	11 / 3'	28 / 48'	1970	1991
7659	KAHASA-LUKANGABA	LUAPULA	11 / 17'	28 / 49'	1969	1982
7663	MANSA RESEARCH STATION	LUAPULA	11 / 15'	28 / 59'	1976	1991
7665	MABAMBA	LUAPULA	11 / 15'	29 / 2'	1969	1991
7661	KALE PR. SCHOOL	LUAPULA	11 / 15'	29 / 18'	1977	1991
7671	KALABA AGRIC	LUAPULA	11 / 2'	29 / 7'	1969	1980
7673	KALABA	LUAPULA	11 / 1'	29 / 8'	1963	1969
7676	CHAMUNDA SCHOOL (WA)	LUAPULA	13 / 17'	28 / 24'	1969	1971

List of Meteorological Stations and Voluntary Rainfall Stations in Zambia

No.	Name	River	Latitude	Longitude	From	To
7698	CHEMBE AGRIC	LUAPULA	11 / 59'	28 / 42'	1969	1991
7699	CHEMBE PONTOON	LUAPULA	11 / 59'	28 / 32'	1958	1971
7700	MILENGE AGRIC	LUAPULA	12 / 15'	29 / 30'	1978	1991
7705	CHAYUWA MWELWA SCHOOL	LUAPULA	11 / 56'	28 / 57'	1964	1978
7758	MILAMBO AGRIC	LUAPULA	11 / 47'	29 / 2'	1969	1991
7760	LWELA MISSION	LUAPULA	11 / 43'	29 / 7'	1942	1991
7790	NSONGA KAPOLWE	LUAPULA	11 / 26'	29 / 16'	1963	1991
7814	MAILLO SETTLEMENT SCHOOL	LUAPULA	13 / 5'	30 / 52'	1979	1991
7822	CHITAMBO	LUAPULA	12 / 55'	30 / 38'	1910	1967
7826	MPUMBA	LUAPULA	12 / 40'	31 / 3'	1971	1984
7830	SAS AGRIC CAMP	LUAPULA	13 / 2'	30 / 2'	1958	1972
7843	SERENJE	LUAPULA	13 / 15'	30 / 10'	1970	1991
7847	MPELEMBE	LUAPULA			1984	1991
7850	SERENJE MET.	LUAPULA	13 / 14'	30 / 13'	1948	1991
7851	LUPIYA	LUAPULA			1984	1991
7852	SERENJE BOMA	LUAPULA	13 / 15'	30 / 14'	1913	1974
7854	SERENJE	LUAPULA	13 / 15'	30 / 15'	1977	1978
7912	MULEMBO	LUAPULA	12 / 32'	30 / 19'	1971	1977
7925	LIVINGSTONE MEMORIAL	LUAPULA	12 / 19'	30 / 19'	1958	1975
7940	CHIUNDAPONDE SCHOOL	LUAPULA	12 / 15'	30 / 35'	1963	1982
7942	CHINDAPONDE	LUAPULA	12 / 15'	30 / 34'	1970	1976
7980	TWINGI MISSION	LUAPULA	11 / 41'	29 / 40'	1939	1991
7983	Z.F.D.S. EAST ONE	LUAPULA	11 / 38'	29 / 42'	1972	1982
8000	SAMFYA MET.	LUAPULA	11 / 21'	29 / 32'	1957	1984
8001	SAMFYA MISSION	LUAPULA	11 / 21'	29 / 33'	1957	1991
8010	MIBENGE	LUAPULA	11 / 17'	29 / 24'	1969	1973
8024	NYUMBO SOCIETY	LUAPULA				
8040	LUBWE MISSION	LUAPULA	11 / 8'	29 / 37'	1926	1984
8050	MWANA POST OFFICE	LUAPULA	10 / 58'	29 / 38'	1959	1979
8060	CHIMANDA SCHOOL	LUAPULA	10 / 49'	29 / 28'	1968	1971
8080	KASABA MISSION	LUAPULA	10 / 44'	29 / 43'	1944	1983
8112	IPUSUKILO SCHOOL	LUAPULA	10 / 23'	29 / 53'	1971	1973
8120	LUWINGU	LUAPULA	10 / 15'	29 / 55'	1924	1971
8122	LUWINGU AGRIC	LUAPULA	10 / 15'	29 / 54'	1971	1991
8123	CHUNGU RICE PROJECT	LUAPULA			1986	1991
8124	MUTONDO RICE PROJECT	LUAPULA			1986	1991
8125	NSOMBO	LUAPULA	10 / 45'	29 / 58'	1958	1972
8135	LWENA	LUAPULA	10 / 38'	30 / 12'	1939	1971
8145	TUNGATI	LUAPULA	10 / 32'	29 / 58'	1960	1985
8170	CHABA SCHOOL	LUAPULA	10 / 57'	30 / 5'	1959	1978
8182	MUCHINSHI (WA)	LUAPULA	11 / 6'	29 / 57'	1954	1971
8185	SANTA MARIA MISSION	LUAPULA	11 / 7'	30 / 0'	1925	1991
8225	NCHETA	LUAPULA	11 / 45'	30 / 2'	1955	1971
8229	CHAFFYE ISLAND	LUAPULA	11 / 45'	30 / 11'	1971	1971
8234	CHIKUNI CAMP	LUAPULA	11 / 57'	30 / 12'	1973	1974
8240	KALIMANKONDE (WA)	LUAPULA	11 / 26'	30 / 4'	1969	1971
8242	KASOMA (WA)	LUAPULA	11 / 24'	30 / 7'	1969	1981
8440	SENIOR CHIEF KOPA	LUAPULA	11 / 44'	30 / 46'	1955	1981
8453	LWITIKILA (WA)	LUAPULA	11 / 51'	31 / 23'	1970	1991
8459	LUCHENGE	LUAPULA	11 / 49'	31 / 15'	1969	1981
8460	MUFUBUSHI R.R. CENTRE	LUAPULA	12 / 10'	31 / 8'	1976	1977
8462	MUFUBUSHI	LUAPULA	12 / 6'	31 / 15'	1973	1991
8464	CHILONGA SCHOOL	LUAPULA	12 / 3'	31 / 20'	1975	1976
8465	CHILONGA MISSION	LUAPULA	12 / 2'	31 / 19'	1939	1991
8466	CHILONGA AGRIC	LUAPULA	12 / 2'	31 / 19'	1976	1991
8470	MPIKA MET.	LUAPULA	12 / 54'	31 / 26'	1932	1991
8473	MPIKA BOMA	LUAPULA	11 / 50'	31 / 27'	1919	1991
8474	KABINGA SCHOOL	LUAPULA	11 / 50'	31 / 27'	1971	1991
8475	KAULE AGRIC	LUAPULA			1985	1991
8477	MALASHI	LUAPULA	11 / 48'	31 / 27'	1964	1991
8478	MALASHI SCHOOL	LUAPULA	11 / 48'	31 / 27'	1976	1982
8480	CHALWA (CHIKWANDA)	LUAPULA	11 / 40'	31 / 30'	1958	1991

List of Meteorological Stations and Voluntary Rainfall Stations in Zambia

No.	Name	River	Latitude	Longitude	From	To
8493	KALILANTUTU	LUAPULA	11 / 36'	30 / 42'	1969	1991
8508	CHALABESA AGRIC	CHAMBESHI	11 / 36'	31 / 0'	1971	1983
8510	CHALABESA MISSION	CHAMBESHI	11 / 22'	31 / 1'	1939	1991
8515	KANCHIBIYA RIVER	CHAMBESHI	11 / 30'	31 / 17'	1970	1991
8558	MUNKONGE TOBACCO SCHOOL	CHAMBESHI	10 / 19'	31 / 40'	1974	1991
8564	MUNKONGE	CHAMBESHI	10 / 20'	31 / 41'	1961	1991
8575	LUBUSHI MISSION	CHAMBESHI	10 / 17'	30 / 28'	1933	1984
8585	CHITOSHI	CHAMBESHI	10 / 9'	30 / 11'	1969	1991
8600	MBATI (WA)	CHAMBESHI	11 / 15'	30 / 43'	1958	1991
8635	CHIBUTUBUTU	CHAMBESHI	10 / 38'	31 / 10'	1958	1970
8638	UKOLEMFUMU	CHAMBESHI	10 / 30'	31 / 10'	1969	1972
8639	MULASHI AGRIC	CHAMBESHI	10 / 24'	31 / 15'	1974	1991
8640	KASAMA PLANTATION	CHAMBESHI	10 / 15'	31 / 5'	1972	1991
8642	KASONDE SCHOOL	CHAMBESHI	10 / 12'	31 / 11'	1971	1973
8644	KASAMA BOMA	CHAMBESHI	10 / 12'	31 / 11'	1927	1970
8645	KASAMA AGRIC	CHAMBESHI	10 / 12'	31 / 11'	1950	1991
8646	KASAMA HYDRO (WA)	CHAMBESHI	10 / 12'	31 / 11'	1969	1991
8650	KATESHI COFFEE ESTATE	CHAMBESHI			1982	1991
8655	CHIBULA MISSION	CHAMBESHI	10 / 10'	30 / 58'	1939	1991
8657	CHISHIMBA FALLS	CHAMBESHI	10 / 8'	30 / 55'	1968	1991
8661	LUANGWA AGRIC	CHAMBESHI	9 / 37'	30 / 37'	1971	1991
8664	CHILONGOSHI	CHAMBESHI	9 / 57'	30 / 47'	1963	1974
8665	SHIBWALYA KAPILA	CHAMBESHI	9 / 48'	30 / 44'		
8668	SHIBWALYA KAPILA AGRIC	CHAMBESHI	9 / 48'	30 / 44'	1963	1991
8669	SHIBWALYA KAPILA SCHOOL	CHAMBESHI	9 / 48'	30 / 44'	1968	1985
8675	MWANGE R.R. CENTRE	CHAMBESHI			1984	1991
8677	MOSENI SCHOOL	CHAMBESHI			1984	1991
8678	KAPUTU MISSION	CHAMBESHI	9 / 43'	30 / 44'	1926	1991
8680	KAPUTU CHEME	CHAMBESHI	9 / 42'	30 / 45'	1973	1984
8686	NONDO	CHAMBESHI	9 / 33'	31 / 13'	1961	1969
8687	NONDO AGRIC	CHAMBESHI	9 / 34'	31 / 13'	1966	1991
8690	CHIBWA	CHAMBESHI	9 / 27'	31 / 16'	1933	1973
8692	MAULA SCHOOL	CHAMBESHI	9 / 29'	31 / 19'	1952	1975
8696	MWAMBA KASAMA	CHAMBESHI	10 / 6'	31 / 4'	1963	1991
8697	MWAMBA PR. SCHOOL	CHAMBESHI	10 / 6'	31 / 34'	1976	1976
8700	KASAMA MET.	CHAMBESHI	10 / 13'	31 / 8'	1945	1991
8702	KASAMA DAIRY	CHAMBESHI	10 / 15'	31 / 12'	1969	1972
8704	MILIMA PRISON	CHAMBESHI	10 / 11'	31 / 7'	1976	1984
8705	MISAMFU	CHAMBESHI	10 / 11'	31 / 13'	1964	1991
8799	NKOLEMFUMU PLANTATION	CHAMBESHI	10 / 12'	31 / 18'	1970	1980
8790	MUKUPA KAOMA	CHAMBESHI	9 / 58'	30 / 25'	1963	1991
8801	CHAMBESHI BRIDGE (WA)	CHAMBESHI	10 / 57'	31 / 1'	1968	1991
8805	MPEPO AGRIC	CHAMBESHI	11 / 4'	31 / 8'	1969	1982
8825	SHIWA NG'ANDU	CHAMBESHI	11 / 12'	31 / 45'	1922	1991
8830	MUKWIKILE	CHAMBESHI	10 / 22'	31 / 47'	1974	1982
8895	ILONDOLA MISSION	CHAMBESHI	10 / 43'	31 / 47'	1939	1991
8904	MATUMBO AGRIC	CHAMBESHI	10 / 55'	32 / 9'	1973	1980
8960	NDASA AGRIC	CHAMBESHI	10 / 8'	31 / 58'	1978	1991
8967	MUMBA AGRIC	CHAMBESHI	10 / 7'	31 / 31'	1980	1991
8969	MALOLE AGRIC	CHAMBESHI	10 / 7'	31 / 34'	1972	1991
8970	MALOLE MISSION	CHAMBESHI	10 / 7'	31 / 34'	1926	1991
8971	ST. FRANCIS SEC. SCHOOL	CHAMBESHI	10 / 7'	31 / 24'	1956	1991
8992	NGULULA	CHAMBESHI	10 / 6'	31 / 20'	1963	1991
8993	MUNGWI AGRIC EXT.	CHAMBESHI	10 / 8'	31 / 21'	1972	1991
8994	MUNGWI AGRIC	CHAMBESHI	10 / 10'	31 / 21'	1958	1991
8999	NGOLI	CHAMBESHI	9 / 53'	31 / 15'	1969	1991
9017	LUBWA SCHOOL	CHAMBESHI	10 / 34'	32 / 1'	1929	1985
9019	CHINSALI FTC	CHAMBESHI	10 / 33'	32 / 3'	1977	1991
9020	CHINWALI	CHAMBESHI	10 / 33'	32 / 4'	1925	1985
9021	CHISELA	CHAMBESHI			1983	1991
9030	MUNDU	CHAMBESHI	10 / 20'	32 / 15'	1960	1991
9033	MUSANYA AGRIC	CHAMBESHI	10 / 25'	32 / 24'	1976	1985

List of Meteorological Stations and Voluntary Rainfall Stations in Zambia

No.	Name	River	Latitude	Longitude	From	To
9112	MULILANZOZO MISSION	CHAMBESHI	10 / 5'	32 / 18'	1939	1977
9115	SHIMWALULE MISSION	CHAMBESHI	10 / 5'	32 / 14'	1966	1981
9117	MBESUMA FARM	CHAMBESHI	10 / 2'	32 / 7'	1923	1979
9119	MULEMA SAMPA AGRIC	CHAMBESHI	10 / 1'	32 / 6'	1972	1991
9170	SIKALEMBO	CHAMBESHI	9 / 7'	32 / 12'	1961	1991
9183	KAYAMBI AGRIC	CHAMBESHI	9 / 27'	32 / 1'	1972	1991
1985	KAYAMBI MISSION	CHAMBESHI	9 / 27'	31 / 59'	1926	1983
9245	NFATUMBILA	CHAMBESHI	9 / 5'	31 / 59'	1958	1991
9248	CHIFWILE CAMP	CHAMBESHI			1983	1991
9249	LUKULU IRDP	CHAMBESHI			1983	1991
9250	MUBANGA (KASO)	CHAMBESHI			1983	1991
9260	KATAKAUCHA	CHAMBESHI			1983	1991
9261	CHAMFUBU SETT. SCHEME	CHAMBESHI			1983	1984
9262	CHILFYA KASAMA WEST	CHAMBESHI			1983	1991
9263	ZCA MPIKA	CHAMBESHI			1983	1991
9275	NSOKOLO	CHAMBESHI	9 / 11'	31 / 51'	1961	1991
9294	MAMBWE MISSION	CHAMBESHI	9 / 12'	31 / 44'	1944	1991
9309	KANTONGA	CHAMBESHI	9 / 29'	32 / 38'	1958	1991
9330	CHIBALE SCHOOL	CHAMBESHI			1983	1991
9345	KANTENSHA MISSION	CHAMBESHI	10 / 8'	32 / 35'	1954	1969
9349	ISOKA	CHAMBESHI	10 / 10'	32 / 38'	1919	1991
9350	CHUNGA AGRIC CAMP	CHAMBESHI			1985	1991
9355	KALUNGU	CHAMBESHI	9 / 42'	32 / 41'	1958	1991
9358	SHEM AGRIC	CHAMBESHI			1982	1984
9364	NZOCHÉ AGRIC	CHAMBESHI	9 / 50'	33 / 5'	1975	1985
9375	OLD FIFE AGRIC	CHAMBESHI	9 / 20'	32 / 44'	1959	1991
9380	ILOLA AGRIC	CHAMBESHI	9 / 15'	32 / 20'	1976	1991
9409	MAKASA	CHAMBESHI	9 / 40'	31 / 53'	1959	1991
9434	MPENDA	CHAMBESHI	9 / 21'	31 / 43'	1961	1979
9450	ROSA MISSION	CHAMBESHI	9 / 37'	31 / 22'	1927	1991
9474	MOSES SCHOOL	CHAMBESHI	9 / 25'	31 / 17'	1952	1983
9749	NSUMBU AGRIC	ANGANYIKA	8 / 31'	30 / 29'	1980	1991
9750	NSUMBU GAME RES.	ANGANYIKA	8 / 31'	30 / 29'	1971	1991
9752	CHIPOTE SCHOOL (WA)	ANGANYIKA	8 / 41'	30 / 35'	1971	1981
9759	CHITIMBWA AGRIC	ANGANYIKA	8 / 51'	30 / 52'	1961	1984
9788	SENGA HILL AGRIC	ANGANYIKA	9 / 22'	30 / 15'	1971	1991
9790	KAKUSU SCHOOL	ANGANYIKA	9 / 20'	31 / 7'	1952	1982
9792	MUSOMBEZI	ANGANYIKA	9 / 15'	31 / 9'	1961	1970
9805	MPULUNGU PORT	ANGANYIKA	8 / 45'	31 / 7'	1939	1983
9806	STELLA MARIS PARISH	ANGANYIKA	8 / 45'	31 / 7'	1973	1991
9815	LUNZUWA GOVT. SCHOOL	ANGANYIKA	9 / 10'	31 / 24'	1951	1974
9817	LUNZUWA AGRIC	ANGANYIKA	9 / 0'	31 / 22'	1939	1977
9826	MBALA POWER STATION	ANGANYIKA	8 / 52'	31 / 20'	1969	1973
9827	MBALA KATULA	ANGANYIKA	8 / 50'	31 / 15'	1969	1972
9828	CHISUNGU	ANGANYIKA	8 / 50'	31 / 5'	1931	1969
9830	MBALA MET.	ANGANYIKA	8 / 51'	31 / 20'	1905	1991
9831	MBALA FTC	ANGANYIKA	8 / 50'	31 / 24'	1985	1991
9832	LUCHECHE RES. STATION	ANGANYIKA	8 / 50'	31 / 20'	1979	1991
9834	MBALA TOWN	ANGANYIKA	8 / 51'	31 / 22'	1953	1970
9835	MBALA CIVIC CENTRE	ANGANYIKA	8 / 51'	31 / 22'	1969	1976
9836	MBALA INT. RED LOCUST C.S.	ANGANYIKA	8 / 52'	31 / 22'	1954	1991
9855	KAWIMBE SCHOOL	ANGANYIKA	8 / 50'	31 / 32'	1951	1974
9857	KAWIMBE AGRIC	ANGANYIKA	8 / 49'	31 / 32'	1976	1991
9870	MWAMBA RESETTLEMENT AREA	ANGANYIKA	8 / 55'	31 / 46'	1961	1991
9875	MWAMBALA	ANGANYIKA	9 / 4'	31 / 40'	1961	1991
9880	MWAMBA (MBALA)	ANGANYIKA	8 / 54'	31 / 38'	1962	1991

Appendix-2 Monthly Rainfall and Monthly Total or Mean Climate

Monthly Rainfall and Rainy Days

Province	Station Name	Altitude (EL.m)	Average Period	Monthly Total (mm)											
				OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
Lusaka	Lusaka C.A.	1280	30 1964-93	14	81	213	208	189	106	42	4	0	0	0	1
			Rainy Days	3	8	17	17	17	11	3	1	0	0	0	0
	Lusaka I.A.	1154	27 1967-93	18	90	206	237	182	98	34	3	0	0	0	2
			Rainy Days	3	8	16	18	16	11	3	1	0	0	0	0
	Mt. Makulu	1213	30 1964-93	20	119	195	206	179	99	24	5	0	0	0	2
		Rainy Days	3	10	17	18	15	10	3	1	0	0	0	1	
	Average	1216	Rainfall	17	96	204	217	183	100	33	4	0	0	0	1
			Rainy Days	3	9	17	18	16	11	3	1	0	0	0	0
Copperbelt	Kafronda	1242	27 1967-93	36	164	290	316	230	197	70	7	0	0	0	2
			Rainy Days	5	14	23	24	20	18	7	1	0	0	0	1
	Ndola	1270	30 1964-93	33	121	300	295	241	164	43	4	1	0	0	3
			Rainy Days	5	14	23	23	20	17	6	1	0	0	0	1
	Average	1256	Rainfall	34	139	289	299	230	177	55	5	0	0	0	3
			Rainy Days	5	14	23	23	20	17	6	1	0	0	0	1
Central	Kabwe	1207	30 1964-93	21	89	245	225	178	98	26	4	0	0	0	1
			Rainy Days	3	10	18	20	16	11	3	1	0	0	0	0
	Kabwe Agro.	1165	17 1977-93	23	80	226	241	172	118	33	3	0	0	0	1
			Rainy Days	3	9	16	19	15	11	3	0	0	0	0	0
	Mumbwa	1218	16 1978-93	35	86	195	219	193	88	24	4	0	0	0	1
			Rainy Days	5	10	17	18	16	11	3	0	0	0	0	0
	Serenje	1384	30 1964-93	17	97	260	281	243	148	42	6	11	0	0	1
		Rainy Days	3	11	22	22	20	16	6	1	1	0	0	0	
	Average	1244	Rainfall	24	89	235	245	199	115	32	4	3	0	0	1
			Rainy Days	4	10	18	20	17	12	4	1	0	0	0	0
North-western	Kabompo	1026	30 1964-93	41	135	210	239	176	162	45	5	1	0	0	3
			Rainy Days	7	15	21	22	18	15	6	1	0	0	0	1
	Kasempa	1235	30 1964-93	47	144	245	254	209	175	49	4	0	0	1	4
			Rainy Days	6	16	22	22	19	15	5	1	0	0	0	1
	Mwinilunga	1362	30 1964-93	94	211	268	242	200	258	94	12	1	0	2	19
			Rainy Days	12	21	25	24	21	22	11	2	0	0	1	3
	Solwezi	1333	30 1964-93	56	159	261	267	239	235	74	6	0	0	1	4
			Rainy Days	7	17	24	24	22	20	8	1	0	0	0	1
Zambezi	1078	30 1964-93	49	142	201	226	180	165	42	2	1	0	1	9	
		Rainy Days	9	16	20	22	19	17	6	1	0	0	0	1	
	Average	1207	Rainfall	57	158	237	245	201	199	61	6	1	0	1	8
			Rainy Days	8	17	22	23	20	18	7	1	0	0	0	1
Western	Kalabo	1051	7 1987-93	46	65	186	232	168	144	31	0	0	0	0	6
			Rainy Days	6	11	20	23	16	15	5	0	0	0	0	1
	Kaoma	1152	30 1964-93	35	101	198	209	175	120	39	2	0	0	0	4
			Rainy Days	6	14	20	21	18	14	4	1	0	0	0	1
	Mongu	1053	30 1964-93	33	100	183	207	181	142	48	5	1	0	2	2
			Rainy Days	6	12	18	19	17	15	5	1	0	0	0	1
	Senanga	1027	14 1980-93	40	68	177	167	157	95	30	3	0	0	0	1
			Rainy Days	6	11	15	16	14	11	4	0	0	0	0	0
Sesheke	951	30 1964-93	35	69	136	149	147	91	24	1	1	0	0	4	
		Rainy Days	4	10	14	16	14	9	3	1	0	0	0	1	
	Average	1047	Rainfall	37	60	175	192	165	118	34	2	0	0	0	3
			Rainy Days	6	11	17	19	16	13	4	1	0	0	0	1
Southern	Choma	1267	30 1964-93	24	86	187	195	159	90	26	8	1	0	1	2
			Rainy Days	4	11	17	18	15	12	4	1	0	0	0	1
	Kafue Polder	978	30 1964-93	21	78	201	197	151	71	22	2	0	0	0	1
			Rainy Days	3	8	15	16	14	9	2	1	0	0	0	0
	Livingstone	987	30 1964-93	26	68	165	171	133	85	22	6	1	0	1	2
			Rainy Days	5	11	16	16	14	9	3	1	0	0	0	1
	Magoye	1018	16 1978-93	25	68	184	182	154	83	14	2	0	0	0	1
		Rainy Days	3	7	13	14	13	9	2	0	0	0	0	0	
	Average	1063	Rainfall	24	76	186	188	151	83	21	5	0	0	0	1
			Rainy Days	4	10	16	16	14	10	3	1	0	0	0	1

Remark: This monthly rainfall was compiled using the available data for the last 30 years.

Monthly Rainfall and Rainy Days

Province	Station Name	Altitude (EL.m)	Average Period	Monthly Total (mm)											
				OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
Luapula	Kawambwa	1324	30 1964-93	92	191	262	207	166	258	123	22	1	1	2	14
			Rainy Days	11	19	24	21	19	23	14	3	0	0	0	2
	Mansa	1259	30 1964-93	43	135	253	240	221	198	58	8	0	0	0	4
			Rainy Days	5	15	22	22	19	17	7	1	0	0	0	1
Average	1172	28 1957-84	19	139	320	276	272	302	112	14	14	0	0	0	1
		Rainy Days	2	13	22	23	21	18	8	1	0	0	0	0	
		Rainfall	67	163	258	223	204	228	91	15	0	0	1	9	
			Rainy Days	8	17	23	22	19	20	11	2	0	0	0	2
Northern	Isoka	1360	16 1978-93	12	102	202	240	251	183	86	18	0	0	0	0
			Rainy Days	3	11	19	22	19	17	11	3	0	0	0	0
	Kasama	1384	30 1964-93	25	154	289	275	244	227	94	12	0	0	0	3
			Rainy Days	4	15	24	24	21	20	8	2	0	0	0	1
	Mbala	1672	30 1964-93	24	127	247	232	212	229	126	17	1	0	0	4
			Rainy Days	4	14	20	21	18	20	13	3	0	0	0	1
	Mfuwe	573	15 1979-93	21	84	159	195	172	130	59	2	0	0	0	0
			Rainy Days	3	9	14	17	13	11	5	0	0	0	0	0
	Misamfu	1536	21 1973-93	29	140	264	289	254	256	92	18	0	0	0	2
			Rainy Days	4	14	21	23	19	19	8	1	0	0	0	0
	Average	1402	30 1964-93	10	89	255	232	221	163	40	6	0	0	0	3
			Rainy Days	2	10	22	22	20	16	6	1	0	0	0	0
			Rainfall	20	116	236	244	226	198	83	12	0	0	0	2
				Rainy Days	3	13	21	22	19	18	9	2	0	0	0
Eastern	Chipata	1032	30 1964-93	14	77	215	245	221	164	47	4	1	0	0	1
			Rainy Days	2	9	19	20	18	15	7	1	0	0	0	0
	Lundazi	1143	30 1964-93	9	69	176	218	185	155	57	9	0	0	0	0
			Rainy Days	1	8	18	20	19	16	7	2	0	0	0	0
	Msekera	1025	12 1982-93	22	88	243	244	193	153	43	7	0	0	0	0
			Rainy Days	3	9	19	21	16	15	6	1	0	0	0	0
	Petauke	1036	30 1964-93	16	83	205	244	227	136	31	8	0	0	0	1
			Rainy Days	3	10	19	21	18	14	5	1	0	0	0	0
	Average	1059	Rainfall	15	80	211	239	208	154	45	7	0	0	0	1
			Rainy Days	2	9	19	21	18	15	6	1	0	0	0	0
Tatal Average			1183	Rainfall	32	108	221	231	196	152	50	7	1	0	0
			Rainy Days	5	12	19	20	18	15	6	1	0	0	0	1

Remark: Data available until 1964/07. Average was calculated excluding this station.
This monthly rainfall was compiled using the available data for the last 30 years.

Monthly Mean, Maximum and Minimum Temperature

Province	Station Name	Altitude (E.t. m)	Average Period	Monthly Mean, Maximum and Minimum Temperature (°C)												
				OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
Lusaka	Lusaka C.A.	1280	30 1964-93	23.6	23.2	21.7	21.5	21.5	21.4	20.3	18.6	16.4	16.2	18.4	21.9	
			30 1964-93	30.1	28.9	26.4	26.1	26.2	26.4	25.9	24.6	22.6	22.7	25.0	28.9	
			30 1964-93	17.0	17.5	17.2	17.1	16.9	16.3	14.5	12.2	9.5	9.1	11.3	14.5	
	Lusaka I.A.	1154	27 1967-93	23.9	23.9	22.8	22.5	22.5	22.1	20.7	18.4	15.9	15.7	17.8	21.7	
			27 1967-93	31.6	30.4	27.8	27.5	27.6	27.8	27.3	26.0	23.9	24.1	26.5	30.4	
			27 1967-93	16.2	17.4	17.8	17.6	17.4	16.5	14.1	10.7	7.7	7.3	9.2	13.0	
	Mt. Makulu	1672	30 1964-93	24.6	24.0	22.5	22.1	22.1	21.9	20.7	18.5	16.2	16.2	19.0	22.8	
			30 1964-93	31.3	30.0	27.5	27.1	27.4	27.6	27.0	25.6	23.6	23.7	26.3	30.0	
			30 1964-93	17.9	17.9	17.4	17.1	16.8	16.3	14.4	11.3	8.7	8.7	11.6	15.5	
	Average	-	-	Mean	24.0	23.7	22.3	22.0	22.0	21.8	20.6	18.5	16.2	16.0	18.4	22.1
Maximum				31.0	29.8	27.2	26.9	27.1	27.3	26.7	25.4	23.4	23.5	25.9	29.8	
Minimum				17.0	17.6	17.5	17.3	17.0	16.4	14.3	11.4	8.6	8.4	10.7	14.3	
Copperbelt	Kafironda	1242	27 1967-93	22.8	22.8	22.1	21.9	22.1	21.9	20.8	17.7	14.8	14.8	17.0	20.4	
			27 1967-93	32.0	29.8	27.6	27.3	27.6	27.9	28.1	27.4	25.9	26.0	28.4	31.4	
			27 1967-93	13.5	15.8	16.6	16.5	16.5	15.9	13.4	8.0	3.7	3.6	5.6	9.4	
	Ndola	1270	30 1964-93	23.8	23.2	22.2	21.9	22.0	22.0	21.1	18.9	16.7	16.5	18.9	22.2	
			30 1964-93	31.4	29.4	27.2	26.7	26.9	27.5	27.7	26.8	25.2	25.3	27.5	30.7	
			30 1964-93	16.2	17.1	17.2	17.1	17.1	16.5	14.4	10.9	8.1	7.7	10.3	13.7	
	Average	-	-	Mean	23.3	23.0	22.2	21.9	22.1	22.0	21.0	18.3	15.8	15.7	18.0	21.3
				Maximum	31.7	29.6	27.4	27.0	27.3	27.7	27.9	27.1	25.6	25.7	28.0	31.1
				Minimum	14.9	16.5	16.9	16.8	16.8	16.2	13.9	9.5	5.9	5.7	8.0	11.6
	Central	Kabwe	1207	30 1964-93	24.0	23.7	22.3	22.2	22.3	21.8	20.5	18.6	16.5	16.2	18.5	22.2
30 1964-93				31.1	29.8	27.2	27.0	27.3	27.1	26.7	25.4	23.8	23.6	26.2	29.9	
30 1964-93				17.0	17.6	17.4	17.3	16.6	14.5	11.7	9.2	8.6	10.9	14.6		
Kabwe Agro.		1165	17 1977-93	24.2	24.0	22.4	22.4	22.4	22.2	20.6	18.1	15.9	15.8	18.6	22.5	
			17 1977-93	31.7	30.7	27.6	27.8	27.9	28.0	27.4	26.0	24.2	24.3	27.2	31.0	
			17 1977-93	16.6	17.2	17.1	17.0	16.9	16.3	13.7	10.1	7.5	7.3	10.0	14.0	
Mumbwa		1218	16 1978-93	24.1	24.3	22.8	22.3	22.0	21.9	20.9	18.1	15.9	16.0	18.8	23.0	
			16 1978-93	31.1	30.6	27.9	27.0	27.2	27.7	28.0	28.3	24.7	25.0	27.0	30.9	
			16 1978-93	17.0	17.9	17.7	17.4	16.8	16.2	13.9	9.9	7.3	7.1	10.5	15.0	
Serenje		1384	30 1964-93	22.2	21.7	20.9	20.7	20.9	20.9	20.1	17.8	15.5	15.0	17.0	19.7	
	30 1964-93		30.3	28.1	25.8	25.6	25.7	26.4	25.8	24.7	22.7	22.6	24.7	28.3		
	30 1964-93		14.2	15.3	15.9	15.7	15.9	15.3	14.2	10.7	8.4	7.5	9.3	11.2		
Average	-	-	Mean	23.6	23.4	22.1	21.9	21.9	21.7	20.5	18.2	16.0	15.8	18.2	21.9	
			Maximum	31.1	29.8	27.1	26.9	27.0	27.3	27.0	25.6	23.9	23.9	26.3	30.0	
			Minimum	16.2	17.0	17.0	16.9	16.7	16.1	14.1	10.6	8.1	7.6	10.2	13.7	
North-western	Kabompo	1026	30 1964-93	24.9	24.0	23.4	23.2	23.3	23.3	22.4	19.8	17.4	17.3	20.2	24.0	
			30 1964-93	33.5	30.7	29.1	28.6	28.9	29.6	30.0	28.9	27.3	27.5	30.2	33.6	
			30 1964-93	16.3	17.3	17.7	17.7	17.7	17.0	14.8	10.9	7.7	7.3	10.2	14.3	
	Kasempa	1235	30 1964-93	23.7	22.8	22.4	22.3	22.4	22.3	21.1	18.7	16.3	16.3	18.9	22.4	
			30 1964-93	31.8	29.1	27.8	27.7	27.9	28.2	28.3	27.3	25.7	25.8	28.4	31.7	
			30 1964-93	15.6	16.5	16.9	16.8	16.9	16.3	13.9	10.0	6.8	6.7	9.4	13.0	
	Mwinilunga	1362	30 1964-93	22.3	21.5	21.1	21.1	21.2	21.4	20.7	18.6	16.2	16.4	19.0	21.8	
			30 1964-93	29.9	27.3	26.1	26.1	26.3	26.8	27.3	27.0	25.9	26.3	28.7	31.0	
			30 1964-93	14.8	15.8	16.1	16.2	16.2	15.9	14.1	10.2	6.7	6.5	9.3	12.5	
	Solwezi	1333	30 1964-93	22.4	21.7	21.2	21.3	21.4	21.2	20.2	17.8	15.3	15.3	18.0	20.9	
30 1964-93			30.5	27.8	26.5	26.5	26.7	26.8	26.8	26.3	24.8	25.1	27.7	30.4		
30 1964-93			14.4	15.6	16.0	16.0	16.1	15.6	13.6	9.5	6.0	5.6	8.4	11.5		
Zambezi	1078	30 1964-93	24.9	23.8	23.1	23.0	23.2	23.1	22.2	19.6	16.9	16.8	19.9	23.9		
		30 1964-93	33.0	30.4	28.9	28.6	28.9	29.2	29.6	28.7	26.9	27.2	30.1	33.5		
		30 1964-93	16.7	17.1	17.5	17.5	17.6	17.1	14.8	10.5	7.0	6.4	9.7	14.2		
Average	-	-	Mean	23.6	22.8	22.2	22.2	22.3	22.3	21.3	18.9	16.4	16.4	19.2	22.6	
			Maximum	31.7	29.1	27.7	27.5	27.7	28.1	28.4	27.6	26.1	26.4	29.0	32.0	
			Minimum	15.6	16.5	16.8	16.8	16.9	16.4	14.2	10.2	6.8	6.5	9.4	13.1	
Western	Kalabo	1051	7 1987-93	26.4	25.8	24.4	24.1	24.4	24.3	23.6	20.9	18.5	18.1	20.8	24.2	
			7 1987-93	33.8	33.0	30.3	29.3	29.6	29.9	29.5	28.5	27.2	27.0	29.8	33.2	
			7 1987-93	18.5	18.6	18.6	18.7	19.1	19.0	17.7	13.3	10.3	9.7	11.9	15.3	
	Kaoma	1152	30 1964-93	24.7	24.0	23.2	23.2	23.2	23.1	21.9	19.1	16.2	16.1	18.9	23.0	
			30 1964-93	33.0	30.7	28.8	28.7	28.7	29.0	29.3	28.3	26.1	26.3	29.0	32.5	
			30 1964-93	16.4	17.3	17.5	17.7	17.7	17.1	14.4	9.8	6.4	5.8	8.8	13.5	
	Mongu	1053	30 1964-93	25.9	24.7	24.0	23.9	23.7	23.8	23.1	20.8	18.1	18.3	21.2	25.0	
			30 1964-93	33.7	31.2	29.4	29.1	28.7	29.1	29.7	28.6	26.6	27.0	29.9	33.4	
			30 1964-93	18.2	18.3	18.6	18.6	18.8	18.5	16.5	12.9	9.7	9.6	12.5	16.5	
	Senanga	1027	14 1980-93	26.1	25.5	24.9	24.8	24.6	24.6	23.4	20.8	18.4	18.0	20.8	24.8	
14 1980-93			33.7	32.3	30.8	30.5	30.0	30.7	30.4	29.3	27.1	27.2	30.0	33.7		
14 1980-93			18.1	18.6	19.0	19.1	19.0	18.6	16.2	12.3	9.4	8.7	11.5	15.7		
Sesheke	951	30 1964-93	25.4	25.5	24.7	24.6	24.2	23.9	21.9	18.5	15.1	15.0	18.0	22.3		
		30 1964-93	34.2	32.7	30.9	30.7	30.2	30.9	30.0	28.5	26.1	26.2	29.5	33.2		
		30 1964-93	16.8	18.8	19.0	18.7	18.5	17.2	14.0	9.0	5.3	4.4	7.0	12.0		

Monthly Mean, Maximum and Minimum Temperature

Province	Station Name	Altitude (EL.m)	Average Period	Monthly Mean, Maximum and Minimum Temperature (°C)												
				OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
Western	Average	-	Mean	25.7	25.1	24.2	24.1	24.0	23.9	22.8	20.0	17.3	17.1	19.9	23.9	
			Maximum	33.7	32.0	30.0	29.7	29.4	29.9	29.8	28.6	26.6	26.7	29.6	33.2	
			Minimum	17.6	18.3	18.5	18.6	18.6	18.1	15.8	11.5	8.2	7.6	10.3	14.6	
Southern	Choma	1267	30 1964-93	22.8	22.8	21.8	21.8	21.7	21.1	19.2	16.5	13.8	13.6	16.1	20.4	
			30 1964-93	30.8	29.2	27.1	27.0	26.9	26.8	26.4	25.0	22.7	22.8	25.5	29.3	
			30 1964-93	14.8	16.2	16.7	16.7	16.5	15.4	12.2	8.2	5.1	4.6	7.1	11.5	
	Kafue Polder	978	30 1964-93	25.1	25.1	23.8	23.4	23.4	23.0	21.5	18.9	16.5	16.2	18.8	23.0	
			30 1964-93	32.8	31.7	29.0	28.4	28.7	29.1	28.8	27.3	25.2	25.2	27.8	31.7	
			30 1964-93	17.4	18.5	18.6	18.3	18.1	16.9	14.2	10.3	7.8	7.1	9.7	14.2	
	Livingstone	987	30 1964-93	26.1	25.9	24.7	24.5	24.2	24.0	22.5	19.3	16.2	16.0	18.9	23.4	
			30 1964-93	33.9	32.6	30.5	30.1	29.7	30.3	30.0	28.2	25.5	25.5	28.5	32.5	
			30 1964-93	18.3	19.1	18.9	18.9	18.6	17.7	14.9	10.3	6.8	6.4	9.3	14.3	
	Magoye	1018	16 1978-93	24.9	25.5	24.2	23.7	23.3	22.9	21.7	18.7	16.5	16.2	18.1	22.8	
			16 1978-93	32.8	32.1	29.6	29.4	29.2	29.3	29.1	27.6	25.7	25.5	27.4	32.0	
			16 1978-93	17.1	18.7	18.7	18.3	17.9	16.8	14.3	10.0	7.3	6.9	8.8	13.8	
	Average	-	Mean	24.7	24.8	23.6	23.4	23.2	22.8	21.2	18.4	15.8	15.5	18.0	22.4	
			Maximum	32.6	31.4	29.1	28.7	28.6	28.9	28.6	27.0	24.8	24.8	27.3	31.4	
			Minimum	16.9	18.1	18.2	18.1	17.8	16.7	13.9	9.7	6.8	6.3	8.7	13.5	
Luapula	Kawambwa	1324	30 1964-93	23.4	22.0	21.5	21.6	21.8	22.0	21.8	20.8	18.9	18.7	20.8	23.2	
			30 1964-93	29.9	27.5	26.5	26.6	26.9	27.2	27.4	27.4	26.5	26.6	28.5	30.5	
			30 1964-93	17.0	16.5	16.5	16.6	16.7	16.8	16.1	14.2	11.3	10.8	13.0	15.8	
	Mansa	1259	27 1967-93	23.7	23.1	22.0	22.0	22.1	22.1	21.4	19.6	17.1	16.8	18.9	22.0	
			27 1967-93	31.2	29.3	27.2	27.2	27.4	27.5	27.4	26.7	25.2	25.2	27.3	30.5	
			27 1967-93	16.1	16.9	16.9	16.8	16.8	16.6	15.5	12.4	9.0	8.5	10.4	13.5	
	Samfya	1172	28 1957-84	23.8	23.4	22.4	22.3	22.3	22.5	22.3	19.8	17.2	16.8	18.9	21.9	
			28 1957-84	30.0	29.1	27.3	27.0	27.0	27.0	26.9	25.6	23.5	23.1	25.2	28.0	
			28 1957-84	17.6	17.7	17.6	17.5	17.5	17.9	17.6	14.1	11.0	10.4	12.7	15.7	
	Average	-	Mean	23.6	22.8	22.0	22.0	22.1	22.2	21.8	20.1	17.7	17.4	19.5	22.4	
			Maximum	30.4	28.6	27.0	26.9	27.1	27.2	27.2	26.6	25.1	25.0	27.0	29.7	
			Minimum	16.9	17.0	17.0	17.0	17.0	17.0	16.4	13.6	10.4	9.9	12.0	15.0	
	Northern	Isoka	1360	15 1978-92	23.6	23.4	22.2	21.7	21.8	21.8	20.9	19.4	17.4	17.3	19.0	21.7
				15 1978-92	31.5	30.1	27.4	26.7	26.7	27.0	26.2	25.5	24.3	24.6	26.7	30.1
				15 1978-92	15.7	16.7	17.0	16.7	16.8	16.7	15.6	13.3	10.5	9.9	11.2	13.4
Kasama		1384	30 1964-93	23.4	22.7	21.5	21.3	21.5	21.5	20.9	19.3	17.3	17.1	19.0	21.9	
			30 1964-93	30.9	29.0	26.9	26.4	26.8	26.9	26.6	26.1	24.9	24.9	27.1	29.9	
			30 1964-93	15.9	16.4	16.2	16.1	16.2	16.1	15.2	12.6	9.6	9.2	11.0	13.8	
Mbala		1672	30 1964-93	21.2	20.1	19.1	19.0	19.3	19.6	19.7	18.8	17.6	17.3	18.8	20.5	
			30 1964-93	27.7	25.0	23.4	23.3	23.8	24.4	24.8	24.8	24.3	24.2	25.7	27.3	
			30 1964-93	15.1	15.3	14.9	14.7	14.8	15.0	14.8	12.9	10.8	10.5	12.1	13.8	
Mfuwe		573	14 1980-93	27.9	28.4	26.6	26.0	25.8	25.9	24.7	22.7	20.0	19.9	21.8	25.3	
			14 1980-93	36.5	35.9	32.5	31.3	31.3	32.0	31.6	30.9	29.4	29.5	31.5	35.0	
			14 1980-93	19.2	20.7	20.6	20.4	20.2	19.7	17.6	14.4	10.5	10.3	12.2	15.5	
Misamfu		1536	21 1973-93	22.7	22.2	21.3	20.8	21.1	21.1	20.5	18.3	15.9	15.7	17.7	20.6	
			21 1973-93	30.5	28.6	26.4	25.7	26.3	26.1	26.0	25.1	24.1	24.3	26.5	29.3	
			21 1973-93	14.9	15.8	16.1	15.9	15.9	16.0	15.0	11.5	7.6	7.1	9.0	12.0	
Mpika		1402	30 1964-93	22.9	22.6	21.2	21.0	21.2	21.0	20.1	18.4	16.5	15.9	17.7	20.7	
			30 1964-93	29.7	28.9	26.2	25.8	26.3	26.1	25.5	24.4	23.1	22.8	24.6	27.9	
			30 1964-93	16.0	16.4	16.1	16.1	16.0	15.8	14.7	12.5	10.0	9.0	10.8	13.6	
Average		-	Mean	23.6	23.2	22.0	21.8	21.8	21.9	21.1	19.5	17.5	17.2	19.0	21.8	
			Maximum	31.1	29.6	27.1	26.5	26.9	27.1	26.8	26.1	25.0	25.1	27.0	29.9	
			Minimum	18.1	16.9	16.8	16.7	16.7	16.6	15.5	12.9	9.8	9.3	11.1	13.7	
Eastern	Chipata	1032	30 1964-93	26.1	25.4	23.4	22.8	22.7	22.9	22.2	20.6	18.5	18.4	20.8	24.1	
			30 1964-93	32.2	31.1	28.2	27.3	27.4	27.9	27.8	26.9	25.0	25.0	27.2	30.4	
			30 1964-93	19.9	19.7	18.7	18.3	18.0	17.9	16.8	14.4	11.9	11.8	14.3	17.7	
	Lundazi	1143	30 1964-93	23.5	23.8	23.0	22.3	22.6	22.2	21.3	19.2	16.9	16.3	17.9	21.0	
			30 1964-93	30.9	30.2	28.3	27.2	27.6	27.5	27.4	26.6	24.9	24.6	26.2	29.1	
			30 1964-93	16.1	17.3	17.6	17.4	17.5	16.9	15.1	11.9	8.7	8.0	9.7	13.0	
	Msekera	1025	11 1983-93	25.0	25.0	23.7	23.1	23.0	22.9	22.2	20.7	18.5	18.4	20.1	23.7	
			11 1983-93	31.5	31.0	29.0	28.2	28.5	28.7	28.6	28.0	26.3	26.1	27.6	30.9	
			11 1983-93	18.6	19.1	18.6	18.1	17.8	17.4	16.0	13.6	11.0	10.7	12.6	16.6	
	Petauke	1036	30 1964-93	25.8	25.1	23.4	23.0	22.9	23.0	22.2	20.5	18.5	18.3	20.6	23.7	
			30 1964-93	32.4	31.0	28.2	27.7	27.8	28.3	28.0	26.8	24.9	24.8	27.2	30.5	
			30 1964-93	19.1	19.4	18.8	18.5	18.2	17.8	16.5	14.2	12.3	12.0	13.8	16.8	
	Average	-	Mean	25.1	24.8	23.4	22.8	22.8	22.8	22.0	20.3	18.1	17.9	19.9	23.1	
			Maximum	31.8	30.8	28.4	27.6	27.8	28.1	28.0	27.1	25.3	25.1	27.1	30.2	
			Minimum	18.4	18.9	18.4	18.1	17.9	17.5	16.1	13.5	11.0	10.6	12.6	16.0	
Total Average	-	Mean	24.2	23.8	22.7	22.5	22.5	22.4	21.4	19.2	16.8	16.6	19.0	22.5		
		Maximum	31.7	30.1	28.0	27.6	27.7	28.0	27.9	26.9	25.2	25.2	27.6	30.9		
		Minimum	16.7	17.4	17.5	17.4	17.3	16.8	15.0	11.5	8.5	8.1	10.4	14.0		

Monthly Pan-evaporation

Province	Station Name	Altitude (EL.m)	Average Period	Monthly Total (mm)												Annual Total	
				OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
Lusaka	Lusaka C.A.	1280	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Lusaka I.A.	1154	18 1973-90	269	223	153	169	138	168	178	205	167	172	231	260	2331	
	Mt. Makufu	1672	27 1967-93	265	213	156	136	126	153	157	153	131	154	201	260	2104	
	Average	-	-	267	218	155	153	132	160	168	179	149	163	216	260	2218	
Copperbelt	Kafironda	1242	19 1973-91	249	176	115	121	116	135	131	144	134	150	191	230	1892	
	Ndola	1270	30 1964-93	222	167	130	117	105	128	131	139	133	153	191	221	1838	
	Average	-	-	238	172	122	119	110	132	131	141	134	152	191	226	1865	
Central	Kabwe	1207	30 1964-93	301	216	143	132	122	145	151	156	143	167	216	267	2158	
	Kabwe Agro.	1165	17 1977-93	272	180	130	138	109	134	149	147	149	165	211	267	2051	
	Mumbwa	1218	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
	Serenje	1384	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
	Average	-	-	286	198	136	135	116	139	150	151	148	168	213	267	2105	
North-western	Kabompo	1026	30 1964-93	205	171	148	121	125	157	150	151	137	147	189	211	1912	
	Kasempa	1235	30 1964-93	218	158	120	112	103	128	142	145	135	152	199	237	1847	
	Mwinilunga	1362	21 1973-93	164	120	103	98.9	93.7	110	130	150	143	158	190	207	1666	
	Solwezi	1333	30 1964-93	236	167	141	132	124	149	155	165	156	181	223	251	2080	
	Zambezi	1078	30 1964-93	240	187	159	156	138	151	166	170	151	169	213	257	2155	
	Average	-	-	213	160	134	124	117	139	149	156	144	161	203	233	1932	
Western	Kalabo	1051	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
	Kaoma	1152	27 1967-93	216	167	126	122	98.4	133	138	144	132	150	187	232	1845	
	Mongu	1053	30 1964-93	257	183	163	174	140	168	182	187	161	186	242	281	2324	
	Senanga	1027	12 1982-93	286	250	214	197	181	211	228	224	207	221	268	328	2814	
	Sesheke	951	29 1963-91	289	212	170	164	147	196	170	142	152	148	190	235	2215	
	Average	-	-	262	203	168	164	142	177	179	174	163	176	222	269	2300	
Southern	Choma	1267	27 1967-93	255	202	145	136	117	132	139	132	118	134	174	221	1902	
	Kafue Polder	978	30 1964-93	260	205	163	130	133	159	164	158	140	158	202	243	2122	
	Livingstone	987	30 1964-93	255	213	163	168	145	176	165	159	131	148	204	241	2166	
	Magoye	1018	16 1978-93	254	214	154	140	122	138	139	138	128	145	185	237	1991	
	Average	-	-	256	208	156	144	129	151	152	147	129	146	191	236	2045	
Luapula	Kawambwa	1324	2 1992-93	124	135	82.4	93.3	103	104	119	128	167	191	211	241	1698	
	Mansa	1259	21 1973-93	250	205	174	168	162	153	155	200	174	170	194	234	2237	
	Samfya	1172	24 1962-85	211	215	163	153	134	158	164	155	137	146	171	209	2015	
	Average	-	-	195	185	140	138	133	139	146	161	159	169	192	228	1983	
Northern	Isoka	1360	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
	Kasama	1384	27 1963-89	264	174	128	122	113	130	133	163	155	175	218	243	2018	
	Mbala	1672	27 1967-93	200	138	107	106	97.8	116	138	171	166	185	213	238	1873	
	Mfuwe	573	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
	Misamfu	1536	21 1973-93	212	178	138	128	122	126	127	138	124	147	176	212	1829	
	Mpika	1402	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
Average	-	-	226	164	124	119	111	124	132	157	148	169	202	231	1907		
Eastern	Chipata	1032	24 1970-93	360	270	191	158	157	173	176	197	180	203	268	353	2689	
	Lundazi	1143	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
	Msekera	1025	12 1982-93	250	195	140	128	131	165	134	149	132	131	180	289	2024	
	Petauke	1036	4 1990-93	257	213	145	130	114	121	137	138	124	147	169	223	1920	
	Average	-	-	289	226	159	139	134	153	149	161	146	160	206	288	2211	
Total Average				-	-	-	-	-	-	-	-	-	-	-	-	-	-
				244	191	145	138	126	147	152	159	147	163	204	247	2061	

Monthly Average of Daily Potential Evapotranspiration

Province	Station Name	Altitude (EL.m)	Average Period	Monthly Average Daily Evapotranspiration (mm/day)												Annual Total				
				OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP					
Lusaka	Lusaka C.A.	1280	-	6.1	4.8	4.0	3.0	3.7	4.1	4.1	3.7	3.4	3.6	4.5	5.6	1533				
	Lusaka I.A.	1154	18 1973-90	6.1	5.4	5.1	3.1	4.0	4.0	3.9	3.6	3.3	3.6	4.6	5.8	1590				
	Mt. Makulu	1672	27 1967-93	6.3	5.4	4.2	3.3	4.1	4.1	3.9	3.7	3.3	3.7	4.8	5.7	1591				
	Average	-	-	6.2	5.2	4.4	3.1	3.9	4.1	4.0	3.7	3.3	3.6	4.6	5.7	1571				
Copperbelt	Kafironda	1242	19 1973-91	5.2	4.6	3.8	2.8	3.7	3.7	3.7	3.3	3.1	3.3	4.0	4.9	1401				
	Ndoia	1270	30 1964-93	6.0	4.8	3.9	2.9	3.7	3.9	4.3	4.2	3.9	4.8	5.4	6.6	1659				
	Average	-	-	5.6	4.7	3.9	2.9	3.7	3.8	4.0	3.8	3.5	4.1	4.7	5.8	1530				
Central	Kabwe	1207	30 1964-93	6.2	5.4	4.1	3.2	4.0	4.1	4.1	3.8	3.4	3.6	4.7	5.8	1586				
	Kabwe Agro.	1165	17 1977-93	7.7	6.1	4.3	3.6	4.2	4.2	4.6	4.5	4.4	4.9	6.1	7.6	1892				
	Mumbwa	1218	-	6.3	5.1	4.2	3.0	3.8	4.1	4.2	3.6	3.4	2.7	3.4	4.6	1467				
	Serenje	1384	-	6.1	4.9	3.7	2.7	3.6	3.8	4.0	4.0	3.7	3.9	4.6	5.7	1538				
	Average	-	-	6.6	5.4	4.1	3.1	3.9	4.1	4.2	4.0	3.7	3.8	4.7	5.9	1621				
North-western	Kabompo	1026	30 1964-93	5.1	4.6	4.1	3.1	3.9	4.3	3.9	3.5	2.9	3.2	3.8	4.6	1426				
	Kasempa	1235	30 1964-93	5.2	4.1	3.6	2.8	3.7	4.0	4.1	3.7	3.3	3.7	4.4	5.4	1455				
	Mwinilunga	1362	21 1973-93	4.5	3.8	3.4	2.7	3.5	3.4	3.8	3.9	3.7	3.9	4.6	5.0	1406				
	Solwezi	1333	30 1964-93	5.2	4.4	3.7	2.9	3.7	3.7	3.9	3.9	3.7	3.9	4.6	5.3	1485				
	Zambezi	1078	30 1964-93	5.6	4.8	4.2	3.3	4.1	4.0	4.2	4.1	3.8	4.1	4.9	5.8	1603				
	Average	-	-	5.1	4.3	3.8	3.0	3.8	3.9	4.0	3.8	3.5	3.8	4.5	5.2	1475				
Western	Kalabo	1051	-	4.8	4.6	4.2	3.2	4.0	4.0	3.9	3.4	3.1	3.3	3.4	4.7	1415				
	Kaoma	1152	27 1967-93	5.4	4.6	3.9	3.1	4.0	4.2	4.1	3.6	3.3	3.6	4.4	5.4	1513				
	Mongu	1053	30 1964-93	6.7	5.1	4.4	3.4	4.3	4.3	5.1	4.4	4.6	4.6	5.0	7.9	1816				
	Senanga	1027	12 1982-93	6.1	5.4	5.0	3.9	4.7	4.5	4.6	4.4	4.0	4.3	5.3	6.3	1773				
	Sesheke	951	29 1963-91	6.1	6.1	5.3	4.1	5.0	4.7	4.6	3.8	3.4	3.4	4.4	5.7	1718				
	Average	-	-	5.8	5.2	4.6	3.5	4.4	4.3	4.5	3.9	3.7	3.8	4.5	6.0	1647				
Southern	Choma	1267	27 1967-93	5.7	5.2	4.4	3.6	4.1	4.0	3.9	3.4	3.1	3.2	4.1	5.3	1522				
	Kafue Polder	978	30 1964-93	6.9	6.0	4.9	3.5	4.3	4.5	4.5	4.1	3.8	4.1	5.2	6.5	1776				
	Livingstone	987	30 1964-93	6.8	6.1	5.0	4.2	4.6	4.7	4.5	4.0	3.5	3.6	4.8	6.1	1745				
	Magoye	1018	16 1978-93	6.2	5.7	4.9	3.5	4.2	4.3	4.1	3.8	3.4	3.6	4.4	5.7	1634				
	Average	-	-	6.4	5.8	4.8	3.7	4.3	4.4	4.3	3.8	3.5	3.6	4.6	5.9	1669				
Luapula	Kawambwa	1324	2 1992-93	4.8	3.7	3.4	2.7	3.5	3.5	3.9	4.0	3.8	4.2	4.8	5.2	1445				
	Mansa	1259	21 1973-93	5.8	4.8	3.8	2.8	3.7	3.8	4.0	4.1	3.9	4.2	5.0	5.8	1571				
	Samfya	1172	24 1962-85	5.6	4.8	3.8	2.9	3.7	3.9	4.1	4.0	3.7	3.8	4.5	5.5	1527				
	Average	-	-	5.4	4.4	3.7	2.8	3.6	3.7	4.0	4.0	3.8	4.1	4.8	5.5	1514				
Northern	Isoka	1360	-	4.8	4.4	3.6	2.6	3.5	3.7	3.7	3.6	3.5	3.6	4.2	4.6	1394				
	Kasama	1384	27 1963-89	5.4	4.6	3.8	2.8	3.6	3.7	3.9	3.9	3.8	4.0	4.7	5.6	1518				
	Mbala	1672	27 1967-93	5.7	4.5	3.6	2.6	3.5	3.7	3.9	4.2	4.3	4.5	5.1	5.5	1555				
	Mfuwe	573	-	7.4	6.5	4.8	3.3	4.3	4.7	4.6	4.2	3.9	4.2	5.2	6.5	1808				
	Misamfu	1536	21 1973-93	5.5	4.7	4.0	2.9	3.8	3.7	3.7	3.7	3.7	3.9	4.6	5.5	1511				
	Mpika	1402	-	6.0	5.1	3.6	2.6	3.5	3.7	3.8	3.8	3.6	3.7	4.6	5.6	1507				
	Average	-	-	5.8	5.0	3.9	2.8	3.7	3.9	3.9	3.9	3.8	4.0	4.7	5.6	1549				
Eastern	Chipata	1032	24 1970-93	6.3	5.3	4.1	2.9	3.7	3.8	3.8	3.5	3.2	3.3	4.5	5.8	1524				
	Lundazi	1143	-	5.7	5.0	4.0	2.9	3.8	3.9	4.0	3.7	3.4	3.5	4.1	5.1	1488				
	Msekera	1025	12 1982-93	5.6	4.3	3.1	2.0	3.5	3.9	4.4	4.6	4.5	4.6	5.2	6.0	1565				
	Petauke	1036	4 1990-93	6.0	5.2	4.1	2.9	3.6	3.9	3.9	3.6	3.2	3.4	4.3	5.6	1514				
	Average	-	-	5.9	5.0	3.8	2.7	3.7	3.9	4.0	3.9	3.6	3.7	4.5	5.6	1523				
Total Average				-	-	-	-	5.9	5.0	4.1	3.1	3.9	4.0	4.1	3.9	3.8	3.8	4.6	5.7	1569

Monthly Sunshine Hours

Province	Station Name	Altitude (EL.m)	Average Period	Monthly Total (hours)												Annual Total
				OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
Lusaka	Lusaka C.A.	1280	8 1960-67	273	175	165	163	146	224	246	271	256	266	280	279	2742
	Lusaka I.A.	1154	24 1967-90	266	228	179	164	164	206	241	268	267	277	290	279	2829
	Mt. Makulu	1672	24 1967-90	265	217	161	180	169	210	246	276	260	273	296	278	2830
	Average			268	207	168	169	160	213	244	272	261	272	289	278	2800
Copperbelt	Kafironda	1242	20 1973-92	269	195	148	150	146	172	231	270	284	298	309	287	2758
	Ndola	1270	30 1963-92	268	200	153	148	137	190	241	274	277	297	297	280	2767
	Average			268	198	150	149	141	181	236	272	281	297	303	283	2766
Central	Kabwe	1207	30 1964-93	282	225	169	169	163	216	255	287	278	302	317	294	2958
	Kabwe Agr.	1165	17 1977-93	264	215	162	194	170	187	244	296	275	296	322	303	2927
	Mumbwa	1218	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Serenje	1384	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Average			273	220	165	182	166	202	249	292	277	299	319	299	2943
North-western	Kabompo	1026	14 1977-90	241	177	161	160	135	225	246	282	247	280	283	232	2668
	Kasempa	1235	9 1959-67	255	144	124	125	129	182	256	287	270	285	290	275	2622
	Mwinitunga	1362	30 1960-89	213	148	127	142	119	148	224	296	293	309	298	260	2576
	Solwezi	1333	14 1977-90	232	177	150	138	137	169	226	285	293	304	302	268	2680
	Zambezi	1078	30 1962-91	250	187	161	165	154	185	243	294	289	306	301	269	2803
	Average			238	166	145	146	135	182	239	289	279	297	295	261	2670
Western	Kafobo	1051	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Kaoma	1152	7 1981-87	263	197	143	169	170	226	262	256	288	296	314	323	2906
	Mongu	1053	30 1963-92	260	201	187	192	177	218	262	306	293	312	310	284	3001
	Senanga	1027	11 1981-91	258	214	233	229	209	237	268	312	295	314	324	289	3181
	Sesheke	951	6 1985-90	238	269	251	247	246	241	293	308	311	325	322	274	3326
	Average			255	220	204	209	200	230	271	295	297	312	317	293	3100
Southern	Choma	1287	27 1967-93	275	226	180	200	173	207	253	279	278	299	316	294	2980
	Kafue Polder	978	30 1961-90	293	214	207	189	176	242	261	297	284	301	313	293	3070
	Livingstone	987	30 1963-92	273	225	202	213	197	247	273	301	289	309	317	297	3141
	Magoye	1018	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Average			281	222	196	201	182	232	262	292	283	303	315	294	3060
Luapula	Kawambwa	1324	30 1961-90	228	132	127	132	117	154	232	289	289	308	292	243	2541
	Mansa	1259	18 1975-92	259	199	148	145	137	175	225	295	298	318	317	285	2800
	Samfya	1172	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Average			243	165	137	139	127	164	229	292	293	313	304	264	2671
Northern	Isoka	1360	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Kasama	1384	30 1963-92	263	207	154	136	133	180	219	286	295	311	314	276	2770
	Mbala	1672	27 1967-93	260	178	143	123	138	175	210	288	299	311	306	276	2700
	Mifuwe	573	10 1980-89	282	245	198	184	165	238	254	272	271	278	294	279	2950
	Misamfu	1536	19 1973-91	274	197	160	144	150	164	203	260	291	301	313	288	2740
	Mpika	1402	30 1960-89	291	215	130	122	127	178	228	294	279	281	298	292	2730
	Average			274	208	157	142	143	187	223	280	287	296	305	282	2780
Eastern	Chipata	1032	30 1964-93	266	213	165	160	149	196	234	272	253	261	275	271	2710
	Lundazi	1143	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Msekera	1025	7 1982-88	258	205	164	165	192	212	252	278	266	281	286	270	2830
	Petauke	1036	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Average			262	209	165	163	171	204	243	275	259	271	280	270	2770
Total Average																
				261	201	166	166	158	200	244	285	281	296	303	280	2840

Monthly Mean Relative Humidity

Province	Station Name	Altitude (EL.m)	Average Period	Monthly Average (%)												Annual Average
				OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
Lusaka	Lusaka C.A.	1280	4 1964-67	42.3	64.0	79.1	86.4	81.9	75.7	62.4	56.5	51.8	53.1	43.1	45.1	61.8
	Lusaka I.A.	1154	26 1967-92	50.2	60.0	77.7	83.5	83.0	80.8	76.6	71.4	66.3	61.5	53.6	47.0	67.6
	Mt. Makulu	1672	20 1973-92	41.6	57.9	74.3	77.7	79.0	77.9	75.9	63.6	60.7	50.7	40.7	46.1	62.2
	Average	-	-	44.7	60.6	77.0	82.5	81.3	78.1	71.6	63.8	59.6	55.1	45.8	46.1	63.9
Copperbelt	Kafironda	1242	21 1973-93	52.4	61.3	74.2	79.2	77.3	76.8	71.4	68.2	63.4	61.0	54.7	51.0	65.9
	Ndola	1270	29 1964-92	48.0	64.9	80.5	82.5	82.6	79.6	73.1	65.7	61.1	54.7	47.5	41.3	65.1
	Average	-	-	50.2	63.1	77.4	80.9	80.0	78.2	72.3	67.0	62.3	57.9	51.1	46.2	65.5
Central	Kabwe	1207	30 1964-93	44.0	58.9	79.4	81.9	81.7	79.9	72.6	65.7	60.6	56.3	48.4	40.9	64.2
	Kabwe Agro.	1165	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
	Mumbwa	1218	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
	Serenje	1384	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
	Average	-	-	44.0	58.9	79.4	81.9	81.7	79.9	72.6	65.7	60.6	56.3	48.4	40.9	64.2
North-western	Kabompo	1026	21 1973-93	53.2	62.9	74.7	75.7	76.0	72.0	78.0	64.2	59.2	54.5	48.2	42.1	63.4
	Kasempa	1235	21 1973-93	51.6	66.2	76.3	78.3	79.2	75.7	69.3	63.9	58.5	52.6	46.3	41.6	63.3
	Mwinilunga	1362	20 1973-92	69.3	78.9	84.2	85.3	84.7	83.6	77.4	70.3	63.9	57.9	49.4	49.5	71.2
	Solwezi	1333	20 1973-92	50.5	65.3	77.9	78.3	78.4	76.2	70.8	63.8	58.0	53.3	48.6	42.3	63.6
	Zambezi	1078	10 1983-92	58.0	65.8	74.6	76.2	78.5	78.7	69.6	62.9	59.4	53.9	47.4	43.4	64.0
	Average	-	-	56.5	67.8	77.5	78.8	79.4	77.2	73.0	65.0	59.8	54.4	48.0	43.8	65.1
Western	Kalabo	1051	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
	Kaoma	1152	21 1973-93	46.9	66.1	72.4	77.0	84.9	79.2	73.2	61.0	58.3	57.7	48.7	43.9	64.1
	Mongu	1053	27 1966-92	48.4	64.0	76.9	78.9	80.5	78.2	68.5	58.8	53.8	47.5	39.6	35.0	60.8
	Senanga	1027	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
	Sesheke	951	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
	Average	-	-	47.7	65.1	74.7	78.0	82.7	78.7	70.9	59.9	56.1	52.6	44.2	39.5	62.5
Southern	Choma	1267	21 1973-93	47.1	56.7	71.1	73.7	76.9	72.4	65.6	59.4	57.5	52.7	46.0	39.2	59.9
	Kafue Polder	978	21 1973-93	43.0	48.7	69.1	77.6	77.7	73.2	66.1	60.2	57.4	52.8	45.9	39.6	59.3
	Livingstone	987	28 1965-92	42.4	55.4	73.2	74.9	77.6	73.6	65.5	59.0	55.3	51.9	43.4	35.9	59.0
	Magoye	1018	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
	Average	-	-	44.2	53.6	71.1	75.4	77.4	73.1	65.7	59.5	56.7	52.5	45.1	38.2	59.4
Luapula	Kawambwa	1324	12 1982-93	56.0	73.2	81.1	78.5	78.8	80.4	76.6	66.8	60.3	50.7	47.3	45.5	66.3
	Mansa	1259	20 1973-92	48.5	61.8	75.8	79.9	79.7	77.5	73.4	67.1	62.5	58.8	51.5	45.7	65.2
	Samfya	1172	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
	Average	-	-	52.3	67.5	78.5	79.2	79.3	79.0	75.0	67.0	61.4	54.8	49.4	45.6	65.8
Northern	Isoka	1360	17 1977-93	48.5	64.9	82.5	79.6	82.6	78.0	78.0	76.6	65.8	59.5	58.0	53.3	68.9
	Kasama	1384	27 1964-90	51.4	66.8	80.8	82.6	82.3	82.6	77.6	69.9	63.6	57.9	52.5	44.5	67.7
	Mbala	1672	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
	Mfuwe	573	10 1980-89	40.8	50.5	73.4	75.6	79.3	74.4	69.4	61.9	58.8	55.0	48.2	42.5	60.8
	Misamfu	1536	20 1973-92	45.4	54.2	70.1	78.9	77.1	77.9	75.7	69.6	62.4	61.8	56.8	51.8	65.1
	Mpika	1402	20 1973-92	47.6	60.1	77.1	81.8	80.2	78.6	73.7	67.4	60.1	56.9	51.1	44.3	64.9
	Average	-	-	46.7	59.3	76.8	79.7	80.3	78.3	74.9	69.1	62.1	58.2	53.3	47.3	65.5
Eastern	Chipata	1032	21 1973-93	43.9	56.2	75.9	81.5	81.9	80.3	73.7	65.8	61.3	57.1	49.8	43.5	64.2
	Lundazi	1143	14 1980-93	46.5	58.2	76.2	78.8	77.8	71.8	71.8	69.6	64.5	60.9	59.1	53.5	65.7
	Msekera	1025	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
	Petauke	1036	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
	Average	-	-	45.2	57.2	76.1	80.2	79.9	76.1	72.8	67.7	62.9	59.0	54.5	48.5	65.0
Total Average				-	-	-	-	-	-	-	-	-	-	-	-	64.2

Monthly Mean Wind Speed

Province	Station Name	Altitude (EL.m)	Average Period	Monthly Average (m/s)												Annual Average			
				OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP				
Lusaka	Lusaka C.A.	1280	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.		
	Lusaka I.A.	1154	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.		
	Mt. Makulu	1672	26 1967-92	2.4	2.0	1.6	1.4	1.3	1.5	1.6	1.6	1.7	2.0	2.3	2.5	1.8	1.8		
	Average	-	-	2.4	2.0	1.6	1.4	1.3	1.5	1.6	1.6	1.7	2.0	2.3	2.5	1.8	1.8		
Copperbelt	Kafronda	1242	21 1973-93	1.4	1.2	0.9	0.8	0.8	0.8	0.7	0.7	0.8	1.0	1.1	1.3	1.0	1.0		
	Ndola	1270	28 1962-89	2.3	1.7	1.7	1.5	1.3	1.6	2.2	2.3	2.2	3.3	3.1	3.2	2.2	2.2		
	Average	-	-	1.9	1.5	1.3	1.2	1.1	1.2	1.5	1.5	1.5	2.2	2.1	2.3	1.6	1.6		
Central	Kabwe	1207	28 1966-93	2.3	2.1	1.7	1.6	1.5	1.5	1.7	1.7	1.6	1.8	2.2	2.3	1.8	1.8		
	Kabwe Agro.	1165	17 1977-93	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.		
	Mumbwa	1218	10 1983-92	2.4	2.2	1.7	1.4	1.2	1.3	1.5	1.2	1.5	0.6	0.8	1.1	1.4	1.4		
	Serenje	1384	29 1961-89	2.3	1.8	1.6	1.5	1.4	1.8	2.2	2.2	2.3	2.5	2.5	2.5	2.1	2.1		
	Average	-	-	2.3	2.0	1.7	1.5	1.4	1.5	1.8	1.7	1.8	1.6	1.8	2.0	1.8	1.8		
North-western	Kabompo	1026	30 1964-93	1.2	1.3	1.2	1.1	1.2	1.0	0.7	0.7	0.7	0.8	0.9	1.1	1.0	1.0		
	Kasempa	1235	14 1960-73	1.4	1.1	1.1	1.1	1.2	1.4	1.2	1.1	1.1	1.5	1.6	1.8	1.3	1.3		
	Mwinilunga	1362	30 1963-92	1.4	1.3	1.3	1.2	1.3	1.1	1.2	1.4	1.5	1.6	1.7	1.6	1.4	1.4		
	Solwezi	1333	30 1963-92	1.7	1.5	1.3	1.3	1.3	1.3	1.4	1.5	1.6	1.7	1.8	1.8	1.5	1.5		
	Zambezi	1078	30 1963-92	1.9	1.6	1.5	1.4	1.4	1.3	1.3	1.5	1.6	1.8	1.9	2.0	1.6	1.6		
	Average	-	-	1.5	1.4	1.3	1.2	1.3	1.2	1.2	1.2	1.3	1.5	1.6	1.7	1.4	1.4		
Western	Kalabo	1051	2 1992-93	0.7	0.7	0.5	0.5	0.4	0.5	0.6	0.6	0.8	0.9	0.5	1.0	0.6	0.6		
	Kaoma	1152	20 1973-92	1.4	1.1	1.0	1.0	0.9	1.0	1.1	1.2	1.2	1.5	1.6	1.5	1.2	1.2		
	Mongu	1053	7 1986-92	2.7	1.7	1.4	1.3	1.5	1.5	3.1	1.9	2.9	2.4	2.0	4.0	2.2	2.2		
	Senanga	1027	13 1980-92	2.1	1.8	1.7	1.5	1.4	1.4	1.7	1.8	1.9	2.1	2.2	2.3	1.8	1.8		
	Sesheke	951	30 1963-92	2.1	2.0	1.7	1.4	1.4	1.6	1.5	1.3	1.3	1.3	1.5	1.9	1.6	1.6		
	Average	-	-	1.8	1.5	1.3	1.1	1.1	1.2	1.6	1.4	1.6	1.6	1.6	2.1	1.5	1.5		
Southern	Choma	1267	27 1967-93	2.0	1.7	1.7	1.5	1.4	1.3	1.3	1.3	1.4	1.5	1.7	2.0	1.6	1.6		
	Kafue Polder	978	30 1962-91	2.8	2.3	2.0	1.5	1.5	1.6	1.9	1.9	2.1	2.3	2.6	2.8	2.1	2.1		
	Livingstone	987	30 1964-93	2.6	2.4	2.0	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.1	2.3	1.9	1.9		
	Magoye	1018	15 1978-92	2.0	1.9	1.7	1.3	1.1	1.0	1.1	1.3	1.4	1.5	1.7	2.0	1.5	1.5		
	Average	-	-	2.4	2.1	1.9	1.5	1.4	1.4	1.5	1.5	1.6	1.7	2.0	2.3	1.8	1.8		
Luapula	Kawambwa	1324	30 1964-93	1.3	1.1	1.0	1.1	1.0	1.0	1.2	1.4	1.4	1.7	1.9	1.8	1.3	1.3		
	Mansa	1259	27 1967-93	2.2	1.7	1.2	1.0	1.0	1.1	1.6	1.8	1.9	2.1	2.3	2.3	1.7	1.7		
	Samfya	1172	10 1973-82	2.1	1.7	1.3	1.3	1.1	1.6	1.9	1.8	1.8	1.8	2.0	2.3	1.7	1.7		
	Average	-	-	1.9	1.5	1.2	1.1	1.0	1.2	1.6	1.7	1.7	1.9	2.1	2.1	1.6	1.6		
Northern	Isoka	1360	17 1977-93	0.9	0.9	0.7	0.7	0.7	0.8	1.1	1.1	1.3	1.3	1.3	1.1	1.0	1.0		
	Kasama	1384	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.		
	Mbala	1672	27 1967-93	2.5	1.9	1.4	1.4	1.4	1.9	2.5	2.7	2.9	3.1	3.1	2.8	2.3	2.3		
	Mfuwe	573	10 1980-89	2.6	2.1	1.4	1.0	1.1	1.3	1.4	1.4	1.4	1.7	2.0	2.3	1.6	1.6		
	Misamfu	1536	20 1973-92	1.7	1.5	1.5	1.5	1.3	1.3	1.5	1.6	1.7	1.9	2.0	2.2	1.6	1.6		
	Mpika	1402	25 1965-89	2.4	1.9	1.2	1.1	1.0	1.2	1.6	1.7	1.9	2.0	2.4	2.5	1.7	1.7		
	Average	-	-	2.0	1.7	1.2	1.1	1.1	1.3	1.6	1.7	1.8	2.0	2.2	2.2	1.6	1.6		
Eastern	Chipata	1032	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.		
	Lundazi	1143	30 1964-93	2.0	1.6	1.1	0.9	0.8	1.0	1.3	1.3	1.4	1.5	1.7	1.9	1.4	1.4		
	Msekera	1025	7 1982-88	2.3	1.7	1.1	0.8	0.7	0.8	0.9	1.0	1.2	1.3	1.9	2.4	1.3	1.3		
	Petauke	1036	14 1960-73	2.0	1.5	1.2	0.9	0.9	1.1	1.1	1.2	1.3	1.5	1.7	2.1	1.4	1.4		
	Average	-	-	2.1	1.6	1.1	0.9	0.8	1.0	1.1	1.2	1.3	1.4	1.8	2.1	1.4	1.4		
Total Average				-	-	-	2.0	1.6	1.4	1.2	1.2	1.3	1.5	1.5	1.6	1.7	1.9	2.1	1.6