

No. 1 (9)

THE UNITED REPUBLIC OF TANZANIA

FEASIBILITY STUDY

ON

SMALL-SCALE HYDROELECTRIC

POWER DEVELOPMENT PROJECT

IN

KILIMANJARO REGION

APPENDIX

JANUARY 1989

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

MPN
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THE UNITED REPUBLIC OF TANZANIA

FEASIBILITY STUDY

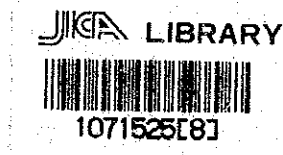
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APPENDIX



18978

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APPENDIX (SEPARATE VOLUME)

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**APP. I -1**  
**METEOROLOGICAL DATA AT ARUSHA,**  
**MOSHI AND SAME**



Meteorological Station : Arusha  
 Registration No. : 93-3633

Elevation : 1,387 m  
 Longitude : 3° -20' (S)  
 Latitude : 36° -38' (E)

	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
-Temperature (°C)													
Extreme Max. Temp	33.0	33.7	33.3	31.2	27.6	27.1	27.3	29.3	29.6	32.6	31.8	33.4	-
Mean Max. Temp	28.1	28.5	27.9	25.2	23.1	21.9	21.7	22.9	25.2	27.1	27.0	27.1	25.5
Mean Min. Temp	13.5	13.9	15.1	16.2	15.1	12.9	12.4	12.5	12.7	13.8	14.5	14.0	13.9
Extreme Min. Temp	8.6	9.0	9.7	10.6	9.8	5.3	4.8	5.0	5.4	4.0	8.2	9.0	-
-Mean													
Relative Humidity (%)													
at 9.00	79	80	84	91	89	87	86	83	81	80	82	82	84
at 15.00	49	49	54	65	68	64	60	55	48	46	54	55	56
-Rainfall													
Mean Monthly *)	65.3	82.5	136.1	224.1	87.0	18.7	8.0	6.4	9.5	21.7	113.4	97.2	869.9
Rainfall (mm)	8	9	12	20	12	4	3	2	2	4	10	11	-
No. of Rainy Days													
-Mean Sunshine													
Hours/Day	8.8	7.6	7.1	7.3	6.5	5.5	6.2	7.0	8.6	8.1	8.4	5.8	-
-Pan Evaporation													
(mm/Month)	37.2	-	99.5	172.7	-	-	76.4	130.5	146.7	118.7	156.9	170.0	-
(Max. mm/day)	(5.5)	-	(9.0)	-	-	-	(5.5)	(7.5)	(10.0)	(11.0)	(9.7)	(13.2)	-
1983													
1984	152.9	166.7	188.8	169.2	133.7	111.5	52.2						
	(8.0)	(8.0)	(8.5)	(9.7)	(6.5)	(7.0)	(5.0)						

\*) At Kikuletwa Hydrometeo. Station (Regist. No. 933-769)



Meteorological Station : Moshi  
 Registration No. : 98-3704

Elevation : 854 m  
 Longitude : 3° -21' (S)  
 Latitude : 37° -20' (E)

	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
-Temperature (°C)													
Extreme Max. Temp	37.2	37.8	37.9	35.6	32.2	30.2	29.4	32.9	33.9	36.4	36.5	36.2	-
Mean Max. Temp	32.7	33.1	32.0	29.3	26.7	25.7	25.4	26.4	28.7	30.6	31.5	31.7	29.5
Mean Min. Temp	17.6	18.0	18.8	19.3	18.4	16.7	15.8	15.6	15.9	16.9	17.8	17.7	17.4
Extreme Min. Temp	11.6	11.9	10.9	12.9	11.7	10.4	8.6	9.4	10.1	11.1	11.6	13.0	-
-Mean													
Relative Humidity (%)													
at 9.00	72	72	76	85	86	82	82	80	77	73	73	74	78
at 15.00	41	40	45	57	63	58	54	50	44	40	42	45	48
-Rainfall													
Mean Monthly	35.5	30.1	67.7	186.3	61.6	12.3	4.5	3.4	8.8	13.8	51.7	39.5	515.2
Rainfall (mm)													
No. of Rainy Days	4	4	8	17	14	5	3	3	3	4	6	6	-
-Mean Sunshine													
Hours/Day	9.7	9.8	7.7	6.4	6.4	4.8	4.4	5.5	7.1	7.2	9.1	6.9	-
-Pan Evaporation													
(mm/Month)													
1980	274.7	262.4	273.3	173.3	129.3	109.2	115.9	128.3	208.0	303.6	207.6	-	-
(Max. mm/day)	(13.0)	(12.0)	(12.5)	(9.6)	(8.1)	(6.0)	(5.3)	(7.5)	(9.0)	(14.0)	(10.5)	-	-
1981	290.6	258.3	175.5	-	-	-	-	-	150.0	244.7	164.3	203.5	-
(Max. mm/day)	(14.0)	(12.5)	(12.0)	-	-	-	-	-	(9.0)	(11.5)	(12.0)	(13.0)	-
1982	276.2	281.0	305.8	184.7	126.4	108.2	-	136.2	171.2	114.5	213.4	44.7	-
(Max. mm/day)	(11.0)	(12.0)	(14.0)	(11.0)	(13.0)	(6.8)	-	(7.0)	(9.0)	(9.5)	(15.0)	(7.0)	-

Meteorological Station : Same  
 Registration No. : 94-3703

Elevation : 872 m  
 Longitude : 4° -05' (S)  
 Latitude : 37° -44' (E)

	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
-Temperature (°C)													
Extreme Max. Temp	36.6	37.8	36.5	34.4	32.4	30.5	30.0	31.2	33.2	34.7	35.4	35.1	-
Mean Max. Temp	31.5	32.2	31.8	29.4	26.8	26.2	25.8	26.6	28.3	29.9	30.5	30.4	29.1
Mean Min. Temp	19.3	19.4	19.6	19.3	17.8	16.0	15.3	15.2	15.8	17.2	18.8	19.4	17.8
Extreme Min. Temp	10.6	16.4	16.0	16.4	13.6	11.5	10.7	11.0	10.1	13.0	13.9	14.0	-
-Mean													
Relative Humidity (%)													
at 9.00	76	75	78	85	87	84	84	82	78	76	76	76	80
at 15.00	45	43	46	57	61	54	51	49	46	44	46	49	49
-Rainfall													
Mean Monthly	56.6	47.3	92.3	108.8	67.9	13.5	5.5	8.0	16.2	43.8	63.0	66.9	589.8
Rainfall (mm)													
No. of Rainy Days	-	-	-	-	-	-	-	-	-	-	-	-	-
-Mean Sunshine													
Hours/Day	9.8	8.9	8.9	6.9	4.0	5.0	4.6	6.0	6.7	6.5	8.6	6.6	-
-Pan Evaporation													
(mm/Month)	287.5	298.2	282.1	209.6	117.5	122.5	145.5	187.0	212.2	201.7	306.2	270.1	
(Max. mm/day)	(14.0)	(17.0)	(13.0)	(9.5)	(7.6)	(7.0)	(8.5)	(9.5)	(12.0)	(10.6)	(17.5)	(12.7)	
1983													
1984	282.5	330.2	309.3	193.7	154.6	156.8	136.5	179.1	182.2	229.8	208.6	244.4	
	(14.0)	(15.0)	(14.0)	(12.0)	(11.5)	(8.2)	(7.0)	(9.0)	(9.0)	(12.0)	(11.0)	(15.0)	
1985	328.9	211.5	270.2	153.8	118.8	144.2	125.0	181.0	-	-	205.9	180.9	
	(15.0)	(15.0)	(13.0)	(8.4)	(6.0)	(6.8)	(15.0)	(8.5)	-	-	(9.3)	(12.5)	



**APP. I -2**  
**MONTHLY RAINFALL IN KILIMANJARO REGION**



Location : Kikuletwa Hydrometeo St.  
 Regist. No : 93-3769

Elevation : 2,500 ft  
 Latitude(S) : 3° -27'  
 Longitude (E) : 37° -12'

(Unit : mm)

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1962	97.8	5.1	7.4	117.3	29.7	0	1.8	1.5	0	1.0	27.4	37.6	326.6
1963	35.7	36.6	106.8	162.3	23.6	39.2	0.5	0	1.3	0.6	154.0	105.7	666.3
1964	11.5	52.5	129.9	345.0	45.3	0.5	0	1.5	7.9	0.5	4.1	27.0	625.7
1965	60.8	21.0	46.5	110.7	42.2	0.8	0.5	0	26.4	52.9	35.1	33.8	430.7
1966	32.0	54.7	110.6	100.4	50.0	15.4	0	0.5	0	12.7	5.1	15.0	396.4
1967	0	5.8	1.3	164.9	116.4	16.3	31.5	25.2	50.5	29.2	128.2	24.5	593.8
1968	5.1	73.4	122.0	300.4	92.9	34.8	2.5	1.8	3.0	14.2	113.4	75.2	838.7
1969	43.2	16.5	14.2	47.4	61.8	3.9	0.5	11.7	0	27.2	58.5	2.1	287.0
1970	94.2	33.5	222.5	99.3	24.6	0	0	2.0	0	0	5.6	22.9	504.6
1971	31.7	0.8	43.9	255.7	82.9	31.5	6.3	0	0	3.6	16.5	106.2	579.1
1972	0	27.1	99.9	126.7	104.0	5.1	1.3	0.5	23.7	26.0	113.6	60.2	588.1
1973	44.2	67.3	0	237.8	28.2	8.4	0	0	1.8	10.7	6.3	3.3	408.0
1974	40.9	20.0	5.9	364.3	52.6	1.3	13.5	0	0	0.8	4.2	0	503.5
1975	0	6.9	37.0	175.3	108.3	14.8	4.6	-	-	-	-	-	(346.9)
Average	35.5	30.1	67.3	186.3	61.6	12.3	4.5	3.4	8.8	13.8	51.7	39.5	515.2

Location : Nkwasira Corp. Ltd.  
 Regist. No : 93-37136

Elevation : 3,750 ft  
 Latitude(S) : 3° -15'  
 Longitude (E) : 37° -09'

(Unit : mm)

Month Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1974	-	-	-	-	-	-	-	-	0	2.0	20.0	23.8	(45.8)
1975	3.8	4.0	82.8	191.9	148.0	16.9	62.7	3.5	33.9	0	9.2	41.3	598.0
1976	11.8	78.9	42.3	299.4	119.7	41.6	15.0	0	14.2	0	22.7	10.5	656.1
1977	97.0	29.5	50.5	511.7	102.1	15.0	0	58.8	4.2	102.1	95.0	96.0	1,161.9
1978	92.5	49.9	210.1	378.4	166.2	63.0	10.7	5.1	1.0	22.1	146.3	121.3	1,266.6
1979	143.0	53.4	94.4	493.2	370.5	71.1	49.6	14.9	32.1	14.6	41.3	69.5	1,447.6
1980	28.0	17.5	129.1	311.9	196.4	4.0	25.9	56.2	2.5	46.0	87.7	80.2	985.4
1981	22.4	19.1	80.6	316.7	330.0	28.3	3.5	16.5	5.9	35.5	34.0	59.7	952.2
1982	7.0	20.7	37.0	338.8	325.3	56.5	52.0	26.5	12.3	134.6	232.6	72.5	1,315.8
1983	0	27.4	24.5	126.7	244.4	90.2	21.9	0	4.8	21.4	15.5	86.3	663.1
1984	22.5	1.7	0	350.8	49.7	48.1	56.4	0	7.5	25.0	134.4	115.0	811.1
1985	0	145.8	39.7	193.3	164.6	8.4	24.2	15.8	0	40.3	105.0	25.6	762.7
1986	51.6	0	153.0	480.8	278.3	50.7	24.3	0	0	33.9	146.9	151.4	1,370.9
Average	40.0	37.3	78.7	332.8	207.9	41.2	28.9	16.4	9.9	36.7	83.9	73.3	987.0

Location : Himo Sisal Estate  
 Regist. No : 93-3731

Elevation : 3,150 ft  
 Latitude(S) : 3° - 23'  
 Longitude (E) : 37° - 33'

(Unit : mm)

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1962	148.6	30.7	25.4	79.5	73.4	16.3	12.2	10.9	1.5	46.7	82.5	109.2	636.9
1963	116.0	55.9	178.8	87.1	99.0	46.5	14.8	3.5	3.9	1.8	90.4	61.2	758.9
1964	5.3	22.1	138.8	414.7	49.9	3.6	0.8	4.4	0.8	19.6	57.3	124.4	841.7
1965	39.3	40.9	33.3	69.8	57.9	0	7.3	4.6	12.6	106.1	128.6	68.4	568.8
1966	4.4	93.6	185.3	181.3	32.0	48.2	7.4	12.7	0	2.8	14.8	45.7	628.2
1967	0	66.8	31.4	272.2	135.4	-	34.0	76.2	75.7	8.3	271.9	66.3	(1,038.2)
1968	0	0	239.0	289.5	88.1	4.9	0	58.2	0	4.0	85.2	17.8	786.8
1969	5.1	182.9	38.4	68.6	8.1	4.3	2.0	36.6	0	32.8	37.6	5.8	422.2
1970	60.4	35.9	243.3	378.6	63.2	0	8.0	10.1	15.2	2.1	37.2	109.3	963.3
1971	138.4	0	67.1	271.0	203.1	90.3	8.1	17.1	0	27.0	61.0	91.1	974.2
1972	96.6	104.5	210.5	123.8	208.6	58.2	21.6	24.4	44.5	34.5	211.8	83.4	1,222.4
1973	89.3	40.4	0	61.0	72.5	27.5	0	0	0	0	38.2	7.0	335.9
1974	0	2.5	9.0	406.4	80.0	44.3	43.5	0	0	20.0	1.1	0	606.8
1975	1.8	7.6	21.8	38.5	7.1	25.0	18.0	52.1	36.2	16.9	60.1	43.0	328.8
1976	89.6	260.3	146.3	348.2	129.0	19.7	9.3	0	21.0	26.1	137.6	40.5	1,227.6
1977	76.1	64.5	127.2	362.8	58.4	22.7	3.2	46.4	5.3	71.2	176.3	88.0	1,102.1
1978	143.6	82.7	-	-	-	-	-	-	-	-	-	-	(226.3)
1979	80.4	130.1	110.3	203.5	107.4	17.4	13.0	41.4	13.9	3.3	12.1	184.9	923.7
1980	-	-	-	-	-	-	-	-	-	-	-	-	-
1981	21.5	34.5	140.9	148.1	142.8	0	0	16.3	33.4	33.6	41.1	64.9	677.1
1982	0	0	24.4	107.8	158.7	43.3	58.1	4.6	31.7	74.0	79.5	104.3	686.4
1983	0	51.7	3.2	53.8	48.2	13.9	4.5	0	10.2	4.3	16.9	98.8	305.5
1984	36.4	26.8	22.3	177.8	47.4	40.6	2.8	0	0	16.6	154.1	19.6	544.4
1985	3.9	89.8	76.0	159.0	64.0	9.7	18.5	0.4	0	69.7	93.7	82.0	666.7
1986	69.0	4.0	66.7	178.6	153.0	10.1	6.1	2.5	18.0	25.8	90.5	181.1	805.4
Average	51.1	59.5	93.0	194.9	90.7	24.8	12.7	18.6	14.1	28.1	86.1	73.8	747.4



Location : Kibongoto  
 Regist. No : 93-3778

Elevation : 4,100 ft  
 Latitude(S) : 3° -12'  
 Longitude (E) : 37° -07'

(Unit : mm)

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1962	260.3	17.8	50.8	280.4	125.5	16.5	22.1	0	0	0	30.5	178.8	982.7
1963	139.6	0	184.0	200.2	206.9	88.3	6.3	8.4	0	0	302.6	171.5	1,307.8
1964	63.5	13.7	165.1	834.8	10.5	1.0	0	0	12.7	22.9	1.8	91.5	1,217.5
1965	77.5	116.9	66.1	373.5	164.2	0.9	3.8	2.8	12.7	47.5	113.6	96.3	1,075.8
1966	64.3	55.6	181.1	434.5	263.8	82.8	0	0	0	26.9	17.8	45.3	1,172.1
1967	0	48.3	42.5	246.1	361.6	42.2	83.7	38.4	115.2	69.0	138.3	63.0	1,248.3
1968	0	88.5	274.6	708.8	347.2	125.6	58.7	16.5	18.5	21.4	320.4	221.4	2,201.6
1969	46.8	159.2	71.7	131.4	227.4	65.9	16.1	62.5	10.1	111.7	314.6	14.5	1,231.9
1970	177.0	56.4	184.7	296.9	192.9	0.8	0	0	0.5	0	30.0	20.0	959.2
Average	92.1	61.8	135.6	389.6	211.1	47.1	21.2	14.3	18.9	33.3	141.1	100.3	1,266.4

Location : Siha  
 Regist. No : 93-37118

Elevation : 5,900 ft  
 Latitude(S) : 3° -07'  
 Longitude (E) : 37° -07'

(Unit : mm)

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1972	-	-	-	-	-	-	-	17.7	69.5	70.1	272.3	128.9	(558.5)
1973	230.3	134.0	57.0	527.3	225.9	104.0	7.7	16.9	0.4	24.6	106.4	44.5	1,479.0
1974	23.8	29.9	38.2	369.5	63.0	70.1	47.7	13.8	3.4	17.0	53.1	31.2	760.7
1975	40.5	28.0	107.1	428.5	308.9	68.2	56.5	13.3	39.4	1.4	38.7	93.6	1,224.1
1976	43.7	76.2	40.7	125.3	222.9	92.4	1.5	-	2.3	3.0	61.6	140.0	(809.6)
1977	157.8	55.3	78.4	321.6	454.9	61.2	-	20.0	2.6	151.3	240.8	147.3	(1,691.2)
1978	136.0	93.2	216.8	245.1	204.0	72.5	19.5	4.8	0	0	-	134.9	(1,126.8)
1979	70.9	66.1	-	-	-	-	-	-	-	-	-	-	(137.0)
Average	100.4	69.0	89.7	336.2	246.6	78.1	26.6	14.4	16.8	38.2	110.4	102.9	1,229.3

Location : Kilema Chini  
 Regist. No : 93-3745

Elevation : 4,100 ft  
 Latitude(S) : 3° -20'  
 Longitude (E) : 37° -31'

(Unit : mm)

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1962													
1963	84.8	147.5	276.8	129.0	166.6	56.6	97.0	14.3	11.4	12.8	247.5	120.6	1,364.9
1964	80.0	66.1	163.1	602.8	119.6	10.7	0	0	0	30.4	101.7	115.7	1,290.1
1965	33.9	22.1	97.6	312.3	153.3	0	39.4	6.7	26.6	79.1	193.9	119.2	1,084.1
1966	75.4	88.5	363.6	212.0	106.2	94.8	4.3	3.6	4.8	22.5	26.5	-	(1,002.2)
1967	-	63.8	49.5	420.2	320.9	89.9	104.5	8.9	126.3	170.2	370.9	38.4	(1,763.5)
1968	0	99.3	213.2	576.5	272.3	79.9	13.0	20.3	15.7	54.9	221.5	10.4	1,557.0
1969	57.3	345.8	109.9	133.1	262.1	0	0	112.0	9.2	205.3	189.9	114.3	1,538.9
1970	192.9	97.6	798.2	485.1	52.0	38.5	58.1	37.9	55.8	13.7	109.8	122.2	2,061.8
1971	119.8	15.2	85.5	691.3	461.6	62.7	62.0	29.4	14.2	21.4	69.4	55.9	1,688.4
1972	41.7	109.2	205.1	278.9	215.7	67.2	46.9	34.9	82.7	101.8	293.9	165.2	1,643.2
1973	127.4	119.5	45.3	155.1	126.2	44.6	15.4	33.9	2.5	10.9	94.4	3.4	778.6
1974	0	30.6	92.4	486.3	76.4	201.8	42.2	33.6	25.0	15.3	177.3	110.5	1,291.4
1975	55.4	139.1	173.2	303.6	81.7	69.3	108.1	8.8	150.7	17.1	4.9	7.3	1,119.2
1976	5.4	149.1	219.7	1051.6	113.1	39.0	1.0	12.8	65.4	50.8	70.4	6.1	1,784.4
1977	104.3	64.7	306.1	418.5	4.4	19.5	3.5	453.5	348.3	667.1	-	-	(2,389.9)
1978	7.3	35.0	215.4	371.7	155.8	20.7	15.1	15.1	0.5	23.9	67.4	1.9	929.8
1979	36.2	167.6	158.9	615.0	333.5	449.2	151.1	123.9	59.7	53.5	49.6	11.1	2,209.3
1980	151.0	380.9	-	897.3	-	125.3	81.2	94.8	13.4	15.8	157.8	125.7	(2,043.2)
1981	272.5	75.1	140.4	358.0	334.3	77.9	36.7	60.3	26.6	100.7	75.0	126.8	1,684.3
1982	18.4	3.4	53.0	159.2	263.0	128.0	93.1	43.1	58.4	114.4	226.7	213.4	1,374.1
1973	34.5	61.5	159.3	139.9	135.4	47.5	41.4	1.6	50.4	26.8	41.2	98.8	838.8
1974	33.2	18.4	64.9	288.6	50.5	76.9	53.0	32.5	6.4	147.1	328.8	84.6	1,184.5
1975	4.0	142.7	154.9	397.2	167.1	79.0	34.6	39.9	11.6	87.4	123.8	138.8	1,381.0
1976	89.6	4.0	262.6	595.4	218.8	32.5	6.5	7.0	31.6	50.3	136.2	243.1	1,677.6
Average	70.7	101.9	191.7	419.9	182.2	79.6	46.2	51.2	49.9	87.2	146.9	92.4	1,519.8

Location : Lukani  
 Regist. No : 93-37119

Elevation : 5,700 ft  
 Latitude(S) : 3° -10'  
 Longitude (E) : 37° -08'

(Unit : mm)

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1972	218.0	48.4	8.2	61.8	363.9	163.8	23.9	53.2	68.9	104.3	281.2	15.8	(523.4)
1973	20.5	32.9	22.2	696.1	156.1	154.3	105.7	41.5	0	13.8	83.4	0	(1,026.7)
1974	31.2	3.0	97.5	417.2	326.8	155.8	135.9	20.6	11.6	18.0	51.0	23.2	1,312.1
1975	29.9	93.1	59.0	179.4	484.4	187.0	62.4	25.6	106.6	18.4	42.0	30.4	1,390.4
1976	200.6	81.4	85.4	862.2	167.1	14.8	21.1	13.2	36.0	25.1	78.9	50.0	1,298.4
1977	77.3	43.8	209.9	378.3	451.7	217.5	96.2	25.1	3.2	105.9	15.7	129.9	1,712.4
1978	47.7	149.5	65.7	720.2	646.2	159.3	223.8	16.5	0	0	235.3	158.4	1,884.9
1979	0	5.1	10.1	128.2	361.8	8.5	121.4	21.2	34.1	4.0	42.3	28.6	2,142.6
1980	35.9	52.6	131.3	355.6	425.4	84.2	23.1	92.2	6.5	42.3	175.7	95.8	1,047.6
1981	16.0	2.0	87.6	256.1	555.3	211.2	149.0	48.5	8.0	94.5	50.9	114.3	1,424.3
1982	0	46.0	103.1	346.6	407.8	209.7	131.0	77.8	38.4	165.8	322.6	112.8	1,994.6
1983	0	39.7	35.8	688.5	273.6	240.2	121.2	12.0	21.2	40.8	17.7	164.3	1,500.2
1984	0	110.0	120.2	417.3	337.6	31.8	93.4	40.5	25.8	105.1	244.5	133.9	1,948.8
1985	52.1	54.4	79.7	423.7	381.4	141.4	100.6	29.5	13.3	34.1	81.4	142.8	1,411.4
Average	52.1	54.4	79.7	423.7	381.4	141.4	100.6	37.0	26.7	55.2	123.0	85.7	1,560.9

Location : Lerongo Forest  
 Regist. No : 93-37134

Elevation : 1,400 m  
 Latitude(S) : 3° -08'  
 Longitude (E) : 37° -03'

(Unit : mm)

Year	Month	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1974		44.1	11.6	38.5	277.5	57.3	28.3	8.0	0.2	0	0	45.5	26.7	537.7
1975		25.3	11.2	40.5	173.4	125.1	13.2	0.2	0	9.0	7.4	6.3	0	(411.6)
1976		44.2	42.2	48.0	139.5	122.2	42.7	11.3	1.0	5.1	0	62.6	109.2	628.0
1977		49.3	0	74.0	338.0	81.5	17.6	3.4	61.4	2.8	118.9	115.6	101.6	964.1
1978		74.7	35.0	59.0	433.3	148.7	27.5	7.2	4.4	0	-	220.3	151.5	1,161.6
1979		57.1	65.1	72.4	337.5	292.1	60.4	11.3	2.2	12.5	2.5	49.9	91.4	1,054.4
1980		34.4	11.0	64.7	214.0	195.8	0.9	24.4	30.5	3.6	26.9	93.0	91.0	790.1
1981		25.4	11.5	117.4	77.0	168.7	14.4	2.5	0.1	0	34.2	62.7	91.9	605.8
1982		3.8	25.3	43.1	215.8	246.6	40.3	30.9	15.0	9.8	108.8	204.3	128.2	1,071.9
1983		10.1	31.0	39.6	86.2	221.8	70.9	27.5	0.1	3.5	13.3	21.4	157.8	683.2
1984		20.7	-	13.4	480.8	93.1	35.1	21.5	2.3	16.8	13.3	211.4	71.0	(979.5)
1985		57.3	51.0	53.3	173.7	174.4	0	14.2	1.4	1.3	18.2	78.5	16.2	639.5
1986		78.5	1.6	40.6	162.4	252.3	43.1	4.9	0	0	13.3	35.8	88.2	720.7
Average		40.4	24.7	54.2	239.2	167.7	30.3	12.9	9.2	5.0	29.7	92.9	86.5	792.7

Location : Masama Sawa  
 Regist. No : 93-37135

Elevation : 1,420 m  
 Latitude(S) : 3° -12'  
 Longitude (E) : 37° -11'

(Unit : mm)

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1974	6.2	83.4	130.3	767.8	255.8	235.9	87.0	0	22.5	23.0	25.7	5.7	1,643.3
1975	10.1	11.1	224.7	722.1	370.7	116.0	178.4	26.2	112.2	14.2	6.8	43.8	1,836.3
1976	10.3	76.4	58.9	310.5	459.2	178.7	50.7	23.2	33.4	39.3	62.9	115.1	1,418.6
1977	19.0	0	390.5	762.6	746.3	64.5	27.2	122.0	13.6	137.8	136.5	102.9	2,528.9
1978	49.9	118.1	219.5	496.1	466.6	155.8	69.3	41.5	29.7	10.5	156.9	205.4	1,999.3
1979	75.4	116.8	113.1	564.4	684.7	178.9	84.7	65.9	-	-	-	63.4	(1,947.3)
1980	39.4	39.4	121.1	647.4	811.0	40.2	125.4	107.1	15.5	57.2	187.7	97.7	2,289.1
1981	63.3	68.2	92.6	357.4	758.5	109.1	28.7	57.8	19.0	68.8	61.7	79.7	1,764.8
1982	0	6.0	0	445.9	582.1	178.9	158.6	442.3	48.8	66.7	205.0	127.1	2,261.4
1983	0	21.1	48.2	356.2	482.9	269.1	150.9	19.5	33.0	18.3	0	143.3	1,542.5
1984	45.9	24.8	44.1	748.4	532.2	200.8	110.2	45.3	20.0	51.2	238.7	100.6	2,162.2
1985	0	187.1	133.4	560.8	410.3	30.8	90.3	0	10.4	27.7	93.8	53.2	1,597.8
1986	92.7	32.6	19.0	711.8	537.5	64.0	96.3	15.0	8.2	80.9	140.6	247.9	2,146.5
Average	39.4	60.4	122.7	573.2	544.4	140.2	96.7	74.3	31.0	49.6	109.7	106.6	1,948.2

Location : Lambo Estate  
 Regist. No : 93-37107

Elevation : 3,500 ft  
 Latitude(S) : 3° -17'  
 Longitude (E) : 37° -14'

(Unit : mm)

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1971	20.9	21.1	68.9	633.6	146.9	54.9	10.4	3.6	3.6	0	4.3	52.7	1,020.9
1972	7.4	51.4	146.7	433.7	214.2	3.8	26.9	13.8	43.7	114.1	176.9	0	1,232.6
1973	156.4	100.9	7.6	250.8	76.2	32.0	0	0	0	15.0	37.1	33.8	709.8
1974	17.8	30.4	41.9	654.9	111.3	85.2	2.8	7.6	0	3.1	43.9	10.7	1,009.6
1975	15.6	0.2	76.9	194.9	114.8	11.2	56.5	3.4	35.0	3.5	4.6	16.8	533.4
1976	-	-	-	-	-	-	-	-	-	-	-	-	-
1977	52.4	27.2	78.1	471.7	87.2	16.6	3.8	40.9	5.7	96.9	38.1	57.5	976.1
1978	-	-	-	-	-	-	-	-	-	-	-	-	-
1979	104.1	51.2	81.7	548.4	263.4	40.4	68.3	13.5	29.7	17.1	9.6	20.1	1,247.5
1980	23.8	28.3	50.5	244.0	214.0	1.6	24.6	48.1	0.3	23.2	28.4	31.9	718.7
1981	23.4	10.9	94.5	350.0	326.7	50.7	8.1	13.4	5.9	38.0	2.1	38.5	962.2
1982	6.8	19.7	41.2	260.3	257.6	83.9	50.1	17.4	17.0	71.7	134.8	18.3	978.8
1983	0.2	24.5	42.2	206.3	212.8	54.4	23.7	0.8	4.3	14.1	39.4	109.8	732.5
1984	13.7	0.8	36.2	384.3	71.0	64.7	65.5	2.0	11.6	41.7	99.3	63.8	854.6
1985	-	143.8	186.0	137.4	119.9	8.4	7.6	71.1	0	25.4	14.4	24.4	738.4
1986	71.2	0	125.6	342.7	213.1	29.5	12.2	7.7	0.6	20.7	35.0	85.3	943.6
Average	39.5	36.5	77.0	365.2	173.5	38.4	25.8	17.4	11.2	34.6	47.7	40.3	907.1

Location : Arusha-Airport  
 Regist. No : 93-3633

Elevation : 4,550 ft  
 Latitude(S) : 3° -22'  
 Longitude (E) : 36° -38'

(Unit : mm)

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1962	116.3	13.7	120.7	213.9	59.2	1.8	26.2	5.3	1.0	1.8	135.4	117.4	812.7
1963	121.9	87.2	255.8	236.5	60.4	35.6	3.0	1.1	12.1	1.3	468.9	259.6	1,543.4
1964	26.2	115.3	185.4	456.3	47.0	7.4	3.3	3.3	0.2	9.1	1.4	65.1	920.0
1965	46.1	57.0	46.6	159.3	33.1	1.1	0	8.0	17.5	19.0	65.3	60.9	513.9
1966	74.1	65.0	205.2	205.9	75.5	46.2	0.6	0	0	19.4	56.8	50.3	799.0
1967	14.6	57.4	35.8	275.8	152.4	15.0	37.7	32.6	58.6	41.3	175.5	77.4	974.1
1968	0.7	225.0	235.8	429.5	100.5	67.1	6.1	3.1	0.6	10.2	241.2	128.6	1,448.4
1969	99.8	135.4	95.1	39.1	38.0	8.5	2.6	14.7	1.7	18.2	113.3	50.8	617.2
1970	172.1	127.7	169.0	140.1	68.6	6.2	2.2	0.7	7.4	1.2	14.4	90.6	800.2
1971	57.9	8.2	107.8	347.4	85.7	28.7	2.9	0.2	1.3	14.5	33.4	122.0	810.0
1972	26.5	95.1	121.7	218.0	145.5	3.0	7.3	1.8	20.2	10.6	199.4	50.5	899.6
1973	158.0	98.9	2.4	111.3	49.5	10.8	0	1.2	1.4	2.5	33.4	89.1	558.8
1974	16.4	35.8	128.7	158.8	44.7	7.9	13.3	6.8	0	4.0	49.4	48.9	514.7
1975	45.9	15.0	98.5	141.8	96.0	2.8	15.2	0	11.3	10.7	40.0	44.7	521.9
1976	65.3	111.2	82.1	90.4	77.2	16.9	7.0	0.4	48.8	3.5	29.6	78.9	611.3
1977	75.8	229.6	117.0	196.6	30.1	13.9	7.4	22.6	2.9	83.8	94.7	77.3	951.7
1978	115.2	74.2	367.1	470.9	79.1	13.1	0.6	0	0	2.2	174.4	266.1	1,562.9
1979	141.5	128.4	188.8	515.2	237.0	86.7	16.9	3.8	7.6	5.2	1.5	96.3	1,428.9
1980	72.1	13.2	106.3	166.3	75.5	0	3.2	29.6	8.8	5.2	73.2	57.0	610.4
1981	19.6	41.5	283.9	131.1	144.1	5.0	0.6	2.1	7.2	31.0	31.3	64.8	762.4
1982	9.4	31.5	32.0	213.6	145.9	20.0	21.0	15.0	15.9	130.7	311.5	98.9	1,215.4
1983	10.7	52.0	45.0	110.1	131.4	27.9	1.4	0	0.6	2.7	22.9	194.5	599.2
1984	67.9	23.7	57.3	189.7	31.7	22.5	10.5	1.9	0.8	22.8	270.1	86.1	785.0
1985	13.7	188.4	178.9	160.4	79.7	1.1	2.7	0	1.4	70.7	84.9	57.6	789.5
Average	65.3	82.5	136.1	224.1	87.0	18.7	8.0	6.4	9.5	21.7	113.4	97.2	869.9



Location : Lyamungu  
 Regist. No : 93-3721

Elevation : 4,100 ft  
 Latitude(S) : 3° -14'  
 Longitude (E) : 37° -15'

(Unit : mm)

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1962	187.5	21.8	42.7	367.5	364.5	72.1	126.2	61.2	12.5	7.6	45.5	126.5	1,435.6
1963	36.7	39.2	121.0	345.2	281.1	121.7	58.3	34.4	4.9	1.7	245.8	257.4	1,547.4
1964	18.0	100.4	195.1	938.6	455.5	31.1	39.8	20.5	11.3	36.3	30.0	36.4	1,913.0
1965	103.0	20.3	39.0	512.1	155.2	9.2	28.0	19.9	19.6	44.6	146.0	37.8	1,134.7
1966	26.8	36.0	265.4	430.6	295.3	106.1	21.2	8.5	4.6	18.6	28.7	31.6	1,273.4
1967	2.8	98.6	10.2	329.3	627.6	149.0	152.1	52.8	193.8	89.5	146.3	6.3	1,858.3
1968	1.6	80.9	163.8	653.5	316.1	152.0	96.6	62.5	21.7	29.0	154.4	139.3	1,871.4
1969	42.8	68.6	77.5	170.3	380.2	133.6	44.7	110.0	10.9	71.1	103.1	10.3	1,223.1
1970	160.4	20.0	193.7	467.5	259.4	46.4	21.9	19.5	3.6	17.7	9.2	26.7	1,246.0
1971	37.3	44.2	90.2	683.9	399.8	117.9	79.6	19.9	9.4	0.8	4.3	100.6	1,587.9
1972	18.5	106.0	127.7	406.9	517.9	36.8	70.5	36.2	67.1	167.1	330.7	38.9	1,924.3
1973	175.2	148.4	5.6	420.7	335.7	91.4	7.0	22.2	3.0	19.3	34.9	31.9	1,245.3
1974	3.0	10.7	45.1	952.6	231.2	180.1	53.4	13.2	10.2	5.4	21.7	67.1	1,593.7
1975	31.5	9.4	373.7	466.9	290.2	80.2	119.8	12.2	76.6	5.0	20.6	42.6	1,523.7
1976	19.4	123.1	50.3	289.6	341.8	137.2	54.3	16.7	22.7	10.0	40.0	51.8	1,156.9
1977	48.1	50.3	115.5	843.6	243.4	39.0	16.6	101.8	8.3	175.1	99.4	107.4	1,843.5
1978	106.2	56.1	182.4	383.4	358.2	215.0	61.5	27.6	9.9	0.2	204.0	259.5	1,864.0
1979	106.1	105.7	68.5	624.7	550.6	131.8	82.2	61.0	69.4	6.8	35.5	36.5	1,878.8
1980	40.6	42.5	66.8	447.8	636.6	24.3	74.3	82.5	9.3	79.3	113.9	173.0	1,790.9
1981	37.2	17.4	88.6	318.2	555.2	85.1	22.1	51.1	13.6	74.0	16.8	59.6	1,338.9
1982	8.5	45.2	34.1	364.7	529.4	161.4	110.3	42.9	29.3	134.5	197.3	46.0	1,703.6
1983	1.1	24.5	83.8	335.6	431.8	258.2	80.3	14.7	30.3	48.1	18.6	62.5	1,389.5
1984	23.4	37.1	64.1	821.1	275.2	158.9	87.3	21.0	23.8	49.4	117.5	101.0	1,779.8
1985	2.1	245.1	1003.3	386.3	313.3	33.0	55.6	15.2	15.4	30.7	49.3	99.5	1,345.8
Average	51.6	64.6	108.5	438.4	381.1	107.1	65.2	38.6	28.4	46.7	92.2	81.3	1,563.7

Annural Rainfall at Arusha, R. Usa and KIA

(Unit : mm)

	Arusha A. Port. (93-3633)	R. Usa (93-3645)	Kilimanjaro Inter. Air Port (KIA) (93-7115)
1971	810.0	—	—
1972	899.6	—	591.0
1973	558.8	—	530.9
1974	514.7	—	306.8
1975	521.9	569.1	261.3
1976	611.3	790.9	426.8
1977	951.7	—	457.8
1978	1,862.9	1,311.9	1,016.4
1979	1,122.9	1,336.2	752.5
1980	610.4	—	391.9
1981	762.4	886.0	633.4
1982	1,043.4	1,304.0	983.9
1983	599.2	—	367.7
1984	785.0	—	332.1
1985	779.5	—	551.9
Average	828.9	1,033.0	543.2

Location : Hassan Estate  
 Regist. No : 94-3701

Elevation : 3,000 ft  
 Latitude(S) : 4° -20'  
 Longitude (E) : 37° -51'

(Unit : mm)

Year	Month	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1966		29.7	61.6	103.5	31.7	33.6	367.8	0	8.9	0	0	50.8	62.3	749.9
1967		18.5	23.9	12.4	214.9	94.6	90.2	45.2	9.4	45.0	31.0	85.4	15.4	685.9
1968		10.2	86.7	220.4	92.8	23.9	15.6	15.2	13.0	19.3	5.6	65.4	81.8	649.9
1969		49.7	100.6	98.3	71.2	116.4	129.1	0	84.1	0	41.6	97.4	32.5	820.9
1970		163.7	8.4	184.4	30.8	31.3	0	0	0	0	4.8	41.9	73.2	538.5
1971		119.7	42.5	64.1	21.6	23.8	245.1	0	0	0	0	109.8	153.7	780.3
1972		12.7	74.2	95.6	26.7	77.4	0	0	0	68.6	23.4	81.7	32.6	492.9
1973		101.9	37.5	17.0	37.1	48.6	10.1	0	0	0	0	54.4	16.3	322.9
1974		24.4	21.1	42.2	60.7	10.2	0	5.6	0	0	0	39.4	81.7	285.3
1975		21.8	8.1	40.0	59.1	59.2	0	6.6	0	4.8	78.7	35.9	27.8	342.0
1976		7.6	58.7	21.5	26.2	43.9	22.3	4.3	0	25.7	0	77.9	131.4	419.5
1977		66.2	108.7	88.6	22.1	20.9	1.3	0	16.9	10.2	64.2	36.2	115.8	551.1
1978		103.8	38.0	366.2	88.6	16.8	10.6	6.9	6.4	0	7.3	131.6	152.4	928.6
1979		82.7	85.5	58.1	122.6	73.3	18.2	5.5	0	0	19.2	32.1	34.7	531.9
1980		76.7	103.3	93.0	64.3	14.0	0	0	10.0	13.0	0	78.0	105.0	557.3
1981		56.0	2.5	209.5	68.5	15.5	0	0	4.5	7.0	63.2	77.2	88.8	592.7
1982		11.0	13.0	48.2	57.0	61.0	0	39.0	6.0	29.0	87.6	317.0	7.0	675.8
1983		4.0	40.1	60.1	39.2	36.3	7.0	0	0	0	0	68.5	115.0	370.2
1984		11.0	4.0	18.0	105.5	8.0	11.0	0	0	8.0	26.0	61.0	88.5	341.0
1985		17.0	97.0	6.0	12.0	36.0	0	10.0	0	0	18.0	46.0	7.2	249.2
Average		49.4	50.8	92.4	62.6	42.2	46.4	6.9	8.0	11.5	23.5	79.4	71.2	544.3

Location : Same Meteo. St.  
 Regist. No : 94-3703

Elevation : 2,820 ft  
 Latitude(S) : 4° -05'  
 Longitude (E) : 37° -44'

(Unit : mm)

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1962	156.7	46.7	56.6	29.5	0.8	0	5.3	5.6	1.5	6.9	98.0	48.0	455.6
1963	69.4	1.3	63.9	109.4	6.3	25.3	11.9	0	7.2	114.8	152.1	61.7	623.3
1964	33.0	33.9	55.9	261.8	11.1	1.5	0	2.1	7.5	31.1	0.3	70.2	508.4
1965	53.8	12.1	90.6	35.3	36.5	0	1.2	13.3	2.0	35.2	95.1	78.9	454.0
1966	32.9	66.9	144.2	39.1	96.4	14.1	0	10.2	7.2	90.3	23.5	7.4	532.2
1967	0	23.4	18.1	180.7	179.7	8.1	37.6	24.6	81.8	41.2	30.3	24.3	649.8
1968	15.4	96.9	326.1	140.0	84.1	73.9	0.2	0.5	4.0	53.6	87.9	84.9	967.5
1969	46.4	104.6	54.2	31.4	24.3	1.4	1.7	22.8	0.3	98.1	67.2	6.7	459.1
1970	152.9	61.0	295.5	63.1	26.2	0	0.1	0.1	4.2	0.7	6.0	150.5	760.3
1971	46.3	28.4	19.5	115.4	41.3	6.7	0.3	0	1.7	5.7	10.7	151.2	427.2
1972	43.9	66.5	153.3	121.9	187.1	0	2.6	9.3	4.5	41.8	121.1	47.8	799.8
1973	126.1	60.3	44.5	107.6	50.9	17.2	1.4	4.2	0.3	1.5	55.0	54.1	523.1
1974	29.8	1.5	80.2	180.7	2.3	21.9	13.9	2.8	0.5	14.2	25.4	11.8	385.0
1975	51.2	5.1	52.6	71.2	36.2	1.2	3.5	0.5	69.5	11.1	2.8	14.9	319.8
1976	4.4	49.6	53.2	108.7	75.7	28.4	5.6	6.4	89.9	0.3	16.0	68.2	506.4
1977	97.8	159.0	40.6	118.0	17.6	11.0	0.4	25.7	44.6	136.8	69.9	126.4	847.8
1978	142.9	19.7	290.7	198.1	47.3	4.9	2.0	2.5	0.8	16.6	212.2	139.3	1,077.0
1979	104.8	56.0	17.9	142.5	217.3	28.5	3.9	2.1	5.9	6.4	9.8	72.0	667.1
1980	93.0	17.6	59.6	119.7	37.3	0	1.9	37.1	3.6	13.0	66.5	31.5	480.8
1981	23.4	1.5	184.3	138.2	91.3	0	0	10.4	7.7	98.0	22.3	79.6	656.7
1982	0	3.8	27.8	81.1	156.8	29.0	24.0	11.1	34.2	137.5	230.4	31.6	767.3
1983	1.5	105.7	57.6	39.2	91.4	15.5	0	0	1.7	2.7	21.4	175.1	511.8
1984	30.0	1.2	81.3	162.8	30.2	30.5	8.9	0.1	6.2	41.8	51.1	24.8	468.9
1985	1.9	112.7	19.7	16.7	81.6	4.2	5.4	1.5	1.0	50.7	36.7	44.4	376.5
Average	56.6	47.3	92.3	108.8	67.9	13.5	5.5	8.0	16.2	43.8	63.0	66.9	589.8

Location : Rombo  
 Regist. No : 94-3706

Elevation : 4,700 ft  
 Latitude(S) : 3° -12'  
 Longitude (E) : 37° -36'

(Unit : mm)

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1962	240.0	19.3	152.9	144.5	63.0	3.1	15.2	107.9	64.8	266.7	162.6	134.6	1,374.6
1963	109.0	98.0	350.0	198.0	49.0	24.0	6.0	8.0	14.0	63.0	562.0	275.1	1,756.1
1964	60.0	111.0	175.0	369.0	23.0	15.0	0	20.0	11.0	75.1	263.0	170.0	1,292.1
1965	18.0	22.7	183.0	157.0	94.0	0	12.0	38.0	31.0	150.0	349.0	288.0	1,342.7
1966	88.0	93.0	539.0	106.0	49.0	7.0	0	0	0	56.0	170.0	130.0	1,238.0
1967	9.0	52.1	91.6	435.1	152.3	43.5	92.2	73.0	72.1	203.8	471.2	140.0	1,835.9
1968	9.9	232.0	615.9	711.2	266.1	125.0	42.2	91.4	23.0	70.3	463.2	328.4	2,978.6
1969	37.1	121.9	322.2	400.4	53.1	22.9	27.1	99.9	24.2	106.7	389.0	34.8	1,639.3
1970	333.1	110.3	446.5	278.8	90.7	5.2	70.6	71.1	48.3	32.4	170.0	350.6	2,007.6
1971	191.8	33.7	131.5	444.9	257.5	84.6	69.0	72.6	24.0	43.7	218.7	201.3	1,773.3
1972	242.9	116.6	307.5	182.4	164.9	46.6	32.8	41.6	101.8	132.5	433.4	224.8	2,027.8
1973	192.3	148.7	53.1	206.0	65.0	24.1	17.3	67.1	12.0	22.7	345.4	150.7	1,304.4
1974	33.4	74.7	313.5	458.3	166.9	177.8	77.4	80.5	64.7	69.0	326.5	100.3	1,943.3
1975	176.2	65.2	163.0	182.6	84.4	9.2	89.8	14.3	128.1	86.1	103.5	236.1	1,338.5
1976	56.2	70.4	392.5	416.4	84.7	25.3	15.1	37.7	130.0	50.9	421.8	138.0	1,839.0
1977	89.2	91.5	233.6	280.4	145.4	24.2	39.6	29.3	95.0	134.7	280.3	244.6	1,687.8
1978	323.5	216.7	504.3	354.7	66.0	36.5	27.7	21.0	40.2	149.1	496.5	271.5	2,507.7
1979	224.7	442.4	471.0	401.0	243.2	30.8	36.7	5.6	50.2	106.0	358.3	87.6	2,457.5
1980	125.3	57.4	94.5	265.1	110.9	1.6	20.5	91.6	39.4	16.5	479.6	108.4	1,410.8
1981	171.2	60.3	301.2	432.1	232.4	69.3	22.5	92.2	22.3	190.7	214.8	380.8	2,189.8
1982	25.3	41.3	241.6	326.0	156.8	62.9	66.3	56.7	156.5	159.9	488.9	198.7	1,980.9
1983	31.1	188.2	248.8	486.3	105.2	18.0	54.3	21.8	54.1	59.2	128.2	240.4	1,635.6
1984	55.5	17.2	134.3	223.6	63.1	30.1	63.2	15.0	72.1	229.9	566.9	139.1	1,610.0
1985	5.2	183.0	273.9	318.7	96.2	20.4	21.6	53.8	29.1	229.8	561.1	126.7	1,919.5
Average	118.7	111.2	280.9	324.1	120.1	37.8	38.3	50.4	54.5	112.7	367.7	195.9	1,812.3

Location : Gonja  
 Regist. No : 94-3811

Elevation : 1,800 ft  
 Latitude (S) : 4° - 18'  
 Longitude (E) : 38° - 02'

(Unit : mm)

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1962	188.6	88.9	47.5	116.9	5.8	22.9	0	0	5.1	0	216.6	355.1	1,047.4
1963	40.6	98.3	143.0	79.0	7.6	0	0	0	0	28.0	25.4	286.3	708.2
1964	91.9	6.4	107.8	8.6	21.6	0	3.6	20.8	13.0	34.3	105.8	257.5	681.3
1966	130.0	112.1	233.4	37.4	25.4	0	0	0	0	0	155.7	54.7	748.7
1967	0	200.7	73.7	410.9	73.0	0	25.4	11.4	58.1	79.3	184.9	172.3	1,289.7
1968	1.8	303.0	575.1	243.9	116.8	45.8	0	4.1	5.1	22.8	137.5	174.1	1,630.0
1969	119.9	73.2	141.4	67.9	0	0	0	10.5	8.2	31.2	209.3	80.5	742.1
1970	176.3	74.1	268.2	24.9	6.2	0	0	4.3	16.3	10.2	107.9	292.2	980.6
1971	78.7	20.3	135.7	261.5	27.1	11.2	0.5	0	0	27.4	74.5	168.3	805.2
1972	125.9	76.7	95.7	62.5	87.5	0	0.5	20.6	38.6	58.4	189.6	170.0	926.0
1973	150.0	96.4	49.5	138.1	38.4	2.0	0	11.7	1.5	8.3	102.3	313.8	912.0
1974	59.3	45.8	40.9	131.2	31.0	30.6	18.4	26.5	6.5	21.0	106.8	119.9	637.9
1975	75.0	21.8	136.3	30.9	54.2	0	2.9	2.3	23.7	31.1	96.8	62.9	537.9
1976	116.0	91.5	188.9	156.3	67.9	26.1	1.5	7.1	81.7	36.0	133.1	192.6	1,098.7
1977	184.6	48.2	83.6	19.1	19.0	1.6	0	5.6	64.8	38.0	114.6	350.7	929.8
1978	215.4	91.2	377.2	104.4	36.2	0	15.2	0	0	21.3	353.6	458.7	1,673.2
1979	278.7	223.5	206.3	219.3	135.1	14.6	0	46.2	13.1	48.8	91.8	251.2	1,528.6
1980	109.0	6.9	76.6	76.4	13.9	0	0	33.7	0	0	239.2	151.5	707.2
1981	33.9	38.4	171.6	137.4	40.8	0	0	2.3	9.0	55.1	163.8	318.3	970.6
1982	2.8	11.5	69.1	103.8	55.9	24.4	26.7	10.1	67.4	162.8	372.3	125.9	1,032.7
1983	193.7	206.6	59.6	51.0	84.5	3.5	0	0	22.0	7.8	72.9	147.2	848.8
1984	86.7	0	7.2	202.6	1.6	20.1	10.4	0	14.6	96.2	90.8	463.6	993.8
1985	31.2	96.7	0	33.5	11.0	0	0	0	0	33.5	139.0	128.1	473.0
Average	119.0	93.3	165.6	121.6	42.6	8.6	3.8	11.4	18.7	27.6	147.0	217.9	977.1

Location : Ndungu Sisal Estate  
 Regist. No : 94-3851

Elevation : 533 m  
 Latitude(S) : 4° -22'  
 Longitude (E) : 38° -03'

(Unit : mm)

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1966	85.0	108.0	298.0	45.0	61.0	0	0	7.0	13.0	37.0	59.0	88.0	801.0
1967	0	59.0	110.0	342.0	90.0	3.0	18.0	11.0	50.0	85.0	157.0	168.0	1,093.0
1968	0	190.0	422.0	100.0	45.0	28.0	6.0	0	20.0	20.0	183.0	197.0	1,211.0
1969	53.0	90.0	125.0	150.0	0	0	0	0	10.0	50.0	278.0	39.0	795.0
1970	400.0	58.0	412.0	21.0	25.0	0	0	0	0	5.0	34.0	300.0	1,255.0
1971	75.0	18.0	114.0	118.0	6.0	0	0	0	0	9.0	18.0	131.0	489.0
1972	141.0	77.0	25.0	118.0	85.0	0	0	5.0	28.0	87.0	118.0	151.0	835.0
1973	150.0	164.0	26.0	130.0	53.0	6.0	0	0	0	5.0	134.0	162.0	830.0
1974	51.0	46.0	14.0	163.0	35.0	0	0	20.0	0	9.0	52.0	71.0	461.0
1975	69.0	12.0	125.0	73.0	15.0	0	0	0	0	19.0	0	202.0	515.0
1976	38.0	90.0	114.0	70.0	0	28.0	0	24.0	79.0	43.0	25.0	148.0	659.0
1977	102.0	—	—	—	0	0	0	0	27.0	47.0	53.0	265.0	—
1978	142.0	82.0	175.0	177.0	25.0	—	—	—	—	—	275.0	391.0	—
1979	102.0	218.0	43.0	103.0	112.0	3.0	0	0	—	—	—	149.0	—
1980	—	—	—	—	—	—	—	—	—	—	144.0	37.4	—
1981	—	—	—	—	—	—	—	—	—	—	—	—	—
1982	1.3	0	19.0	151.5	16.0	0	0	0	62.0	110.0	270.0	—	—
1983	72.4	116.0	57.5	14.9	73.5	0	0	0	0	0	82.3	145.2	561.8
1984	30.5	12.2	12.3	51.4	0	0	0	0	3.5	46.8	56.1	80.7	293.5
1985	0	95.9	—	6.3	15.6	0	0	0	0	23.7	72.2	66.9	—
Average	84.0	84.5	130.7	107.9	36.5	4.0	1.4	3.9	18.3	37.3	111.7	155.1	775.3

Location : Kisiwani Sisal Estate (I) Elevation : 685 m  
 Regist. No : 94-37011 Latitude(S) : 4° -08'  
 Longitude (E) : 37° -59'

(Unit : mm)

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1949	-	-	-	-	-	-	-	-	-	-	-	-	262.4
1950	-	-	-	-	-	-	-	-	-	-	-	-	597.9
1951	-	-	-	-	-	-	-	-	-	-	-	-	1,014.7
1952	-	-	-	-	-	-	-	-	-	-	-	-	386.1
1953	-	-	-	-	-	-	-	-	-	-	-	-	810.8
1954	-	-	-	-	-	-	-	-	-	-	-	-	408.9
1955	-	-	-	-	-	-	-	-	-	-	-	-	988.3
1956	-	-	-	-	-	-	-	-	-	-	-	-	684.5
1957	-	-	-	-	-	-	-	-	-	-	-	-	814.8
1958	-	-	-	-	-	-	-	-	-	-	-	-	740.4
1959	-	-	-	-	-	-	-	-	-	-	-	-	331.2
1960	-	-	-	-	-	-	-	-	-	-	-	-	453.1
1961	61.5	78.1	25.7	46.0	-	-	7.1	-	15.8	114.3	396.3	354.0	1,098.8
1962	649.1	80.7	91.9	55.9	-	-	-	1.0	16.2	66.8	253.0	391.8	1,606.4
1963	135.7	15.2	133.4	21.3	-	30.0	-	-	7.1	2.3	259.8	133.7	738.5
1964	49.8	53.3	83.3	130.6	-	-	-	2.5	12.8	6.4	59.7	233.4	631.8
1965	58.4	17.8	83.9	13.5	23.6	-	-	10.2	8.9	22.9	101.3	89.1	429.6
1966	67.3	70.0	134.0	17.9	27.5	-	6.4	2.0	0	16.5	43.3	56.0	440.9
1967	5.1	58.5	51.1	222.5	47.3	-	38.2	-	38.1	62.2	88.9	63.5	670.3
1968	0	80.1	583.0	130.9	39.4	19.1	-	-	-	55.9	65.3	82.6	1,056.3
1969	95.2	71.1	156.3	-	-	-	-	-	-	42.0	129.0	46.5	540.1
1970	146.6	114.8	194.3	92.0	5.1	-	-	-	-	-	127.0	231.2	911.0
1971	90.2	-	68.6	73.7	-	-	-	-	-	-	-	-	232.5
1972	-	-	-	-	-	-	-	-	-	26.6	107.9	116.9	251.4
1973	158.8	109.3	24.1	123.2	19.1	-	-	-	-	-	214.7	50.8	700.0
1974	49.6	-	73.6	125.7	0	31.0	16.5	10.2	0	25.5	29.3	67.1	428.5





Location : Kwizu Mission School  
 Regist. No : 94-38032

Elevation : 3,625 ft  
 Latitude(S) : 4° -08'  
 Longitude (E) : 38° -01'

(Unit : mm)

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1961	23.0	72.8	34.3	46.8	29.2	32.2	31.9	2.3	37.0	125.0	263.8	-	698.3
1962	132.8	44.4	48.2	8.5	5.3	1.0	6.2	1.0	2.3	15.8	73.7	46.0	385.2
1963	279.1	46.2	75.6	10.7	93.1	50.8	12.4	0	28.4	25.2	-	-	621.5
1964	0	2.6	164.2	180.4	11.2	0	0	10.2	4.6	87.7	4.9	156.9	622.7
1965	0	99.0	99.0	218.5	259.1	50.8	7.6	17.8	18.4	47.1	46.8	245.5	1,109.6
1966	32.4	84.1	211.4	16.3	118.9	0	0	0	2.5	2.5	0	43.5	511.6
1967	0	131.6	107.0	219.4	155.4	7.9	34.8	32.5	73.4	90.7	140.0	98.2	1,090.9
1968	0	10.1	210.7	123.3	100.0	84.8	0	0	10.9	78.8	114.5	128.7	861.8
1969	129.5	70.6	204.3	43.8	41.7	0	0	36.8	0	162.4	264.3	69.6	1,023.0
1970	197.5	74.7	333.2	69.6	3.8	0	0	5.4	14.0	0	90.4	215.7	1,004.3
1971	85.9	0	32.2	87.1	44.9	0	30.2	0.9	4.2	5.4	20.1	247.9	558.8
1972	41.5	48.8	177.4	38.4	124.9	0.9	0	13.3	47.9	49.2	214.7	129.0	886.0
1973	138.0	128.0	13.0	130.5	54.4	0	0	114.9	173.2	255.7	360.4	83.5	1,451.7
1974	121.4	21.9	53.2	176.6	7.0	100.9	56.0	2.8	-	33.2	24.8	73.2	671.0
1975	53.5	23.4	240.3	73.9	44.7	0	12.8	0	79.4	39.1	61.0	72.5	700.6
1976	26.6	286.6	103.3	31.1	46.1	20.5	16.8	6.0	60.5	30.7	65.0	87.0	780.2
1979	164.5	150.7	248.7	310.5	347.5	-	-	-	-	-	-	-	1,221.9
Average	78.8	71.6	131.7	92.2	71.2	21.9	13.0	15.2	37.1	65.5	116.3	121.2	811.0

Location : Tia Dam Site  
 Regist. No : 94-37010

Elevation : 5,500 ft  
 Latitude(S) : 4° -14'  
 Longitude (E) : 37° -57'

(Unit : mm)

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1962	-	-	-	-	-	-	-	-	-	22.8	388.2	476.0	887.0
1963	390.8	91.7	216.0	168.7	43.7	75.0	15.2	10.1	79.5	69.1	434.8	452.3	2,046.9
1964	170.4	182.9	260.6	262.5	54.9	5.1	5.1	48.9	10.5	154.9	109.0	390.1	1,654.9
1965	61.3	6.7	78.0	161.5	63.5	0.5	5.7	16.8	13.8	107.0	403.7	275.1	1,193.6
1966	60.4	69.3	256.2	115.6	65.0	17.8	2.6	5.8	27.8	24.4	103.5	123.6	872.0
1967	12.6	155.5	108.5	493.5	106.2	5.3	25.2	22.5	61.0	143.7	284.6	167.0	1,585.6
1968	1.3	131.9	398.7	214.7	82.2	62.7	7.3	10.7	2.0	117.3	340.5	273.7	1,643.0
1969	100.3	110.6	326.2	130.4	46.2	11.1	1.2	12.2	5.1	99.3	390.9	141.8	1,375.3
1970	242.8	173.1	198.9	145.3	16.6	0	0	5.2	15.5	9.4	153.3	213.1	1,173.2
1971	61.4	19.1	214.5	329.2	34.1	6.8	8.9	1.2	22.9	21.6	112.6	309.7	1,142.0
1972	126.8	128.3	94.3	63.6	177.4	0.4	10.2	28.1	56.1	108.7	435.6	306.8	1,536.3
1973	172.5	115.4	78.7	202.7	93.7	2.6	0	42.1	7.0	29.9	300.0	304.5	1,349.1
1974	95.5	44.1	114.7	274.1	52.7	56.7	14.0	12.8	5.4	48.2	187.7	233.2	1,139.1
1975	97.7	79.5	170.4	243.6	83.0	0	0.5	6.9	47.7	98.7	196.0	230.3	1,254.3
1976	68.9	57.2	129.7	40.8	49.1	-	1.8	0	-	41.2	173.2	144.2	706.1
1977	110.5	100.1	176.1	115.0	47.4	8.8	9.7	22.7	110.0	86.1	406.4	445.5	1,638.3
1978	211.6	136.1	391.0	176.5	38.0	3.4	3.1	3.3	10.3	47.1	751.1	595.7	2,367.2
1979	234.4	154.3	180.8	420.2	210.9	28.0	6.7	21.4	13.7	76.6	253.1	282.2	1,882.3
1980	190.2	47.0	109.6	142.9	76.5	0.2	1.3	45.3	27.0	14.9	562.8	309.9	1,527.6
1981	42.5	10.9	179.5	291.8	49.3	1.3	2.5	5.7	23.0	88.5	174.0	254.0	1,123.0
1982	31.6	21.8	120.8	251.8	52.8	10.7	19.0	5.8	125.0	251.8	586.9	170.8	1,648.8
1983	171.1	345.9	232.5	53.6	107.5	7.9	3.8	1.6	15.7	4.5	165.6	249.4	1,359.1
1984	91.4	9.9	90.1	288.4	21.0	23.3	11.1	0.3	12.3	158.4	281.8	335.4	1,323.4
1985	65.2	127.5	25.7	249.1	71.8	0.4	6.7	18.4	20.4	77.5	345.8	192.5	1,201.0
Average	122.2	100.8	180.5	210.2	71.5	14.9	7.0	15.1	32.4	78.9	314.2	286.4	1,456.2

Location : Gonja Estate (1)  
 Regist. No : 94-38011

Elevation : 1,800 ft  
 Latitude(S) : 4° - 18'  
 Longitudo (E) : 38° - 02'

(Unit : mm)

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1937										130.3	105.3	142.5	378.1
1938	22.5	55.0	215.8	61.0	80.0	26.3	0	0	0	23.8	173.8	279.3	937.5
1939	67.5	0	68.3	81.5	60.8	3.8	9.3	10.5	13.8	9.8	211.5	44.5	581.3
1940	103.8	94.8	125.0	137.7	50.8			38.1	41.9	21.0	285.3	45.5	943.9
1941	16.5	25.3	95.5	60.5	56.3	64.3	26.3	0	26.3	61.8	324.8	168.8	926.4
1942	122.3	0	383.8	184.8	150.0	0	0	23.8	0	61.8	324.8	168.8	1,420.1
1943	12.5	25.0	81.0	136.3	14.3	9.0	11.8	20.3	0	147.5	140.5	25.8	624.0
1944	94.3	1.3	46.0	319.5	42.5	25.0	0	2.5	55.0	54.8	129.5	101.3	871.7
1945	42.5	80.0	114.5	29.8	77.0	0	0	0	1.3	0	85.8	42.5	473.4
1946	0	28.8	31.3	108.5	10.0	0	0	7.5	83.3	110.0	40.3	80.8	500.5
1947	65.0	5.3	136.5	133.5	52.8	5.0	2.5	2.5	22.5	18.8	76.3	162.0	682.7
1948	25.5	5.0	96.5	153.0	14.8	10.0	0	0	0	45.0	101.5	296.5	747.8
1949	0	0											0
1950	0	0	212.5	157.0	108.3	0	20.8	23.8	30.0	19.8	108.0	130.0	810.2
1951	63.3	76.8	84.8	320.3	98.8	12.3	2.3	1.3	1.8	265.8	76.5	466.0	1,470.0
1952	84.5	104.3	314.8	63.0	8.5	0.5	7.0	11.3	11.0	41.5	36.0	90.5	772.9
1953	120.0	14.5	120.5	117.8	36.3	0	2.8	11.0	18.0	41.5	90.8	195.3	768.5
1954	81.3	62.3	9.5	53.0	46.0	0.5	0	8.3	4.5	13.0	58.5	83.5	420.4
1955	44.5	407.8	207.3	37.3	14.8	27.5	1.8	7.0	0	5.3	223.5	312.3	1,289.1
1956	327.5	178.3	100.0	97.3	15.8	0	0	0	27.0	10.0	164.5	134.5	1,054.9
1957	164.0	26.0	136.0	237.3	104.0	23.5	0	5.0	9.3	82.3	130.3		917.7
1958	40.3	259.0	2.5	84.8	75.5	21.3	11.3	2.8	10.8	0	147.0	312.5	967.8
1959	63.8	25.5	35.0	86.5	97.0	0	0	0	0	2.5	156.5	226.0	692.8
1960	103.8	7.5	171.8	69.3	20.3	0	0	0	0	7.8	68.0	43.5	492.0
1961	28.0	116.5	14.0	98.8	0	0	8.8	0	17.8	29.0	111.6	107.4	531.9
1962	97.0	0	0	0	0	22.5	0	0	0	15.3	113.8	107.1	355.7

Location : Gonja Estate (2)  
 Regist. No :

Elevation :  
 Latitude(S) :  
 Longitude (E) :

(Unit : mm)

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1963	188.6	88.9	47.5	116.9	5.8	22.9	0	0	5.1	0	216.6	355.1	1,047.4
1964	40.6	98.3	143.0	79.0	7.6	0	0	0	0	28.0	97.8	286.3	780.6
1965	91.9	6.4	107.8	8.6	21.6	0	3.6	20.8	13.0	34.3	105.8	267.5	681.3
1966	130.0	122.1	233.4	37.4	25.4	0	0	0	0	0	155.7	54.7	748.7
1967	0	200.7	73.7	410.9	73.0	0	25.4	11.4	58.1	79.3	184.9	172.3	1,289.7
1968	1.8	303.0	575.1	243.9	116.8	45.8	0	4.1	5.1	22.8	137.5	174.1	1,630.0
1969	119.9	73.2	141.4	67.9	0	0	0	10.5	8.2	31.2	209.3	80.5	742.1
1970	176.3	74.1	263.2	24.9	6.2	0	0	4.3	16.3	10.2	107.9	292.2	980.6
1971	78.7	20.3	135.7	261.5	27.1	11.2	0.5	0	0	27.4	74.5	168.3	805.2
1972	127.6	71.6	100.8	62.0	85.9	0	0.5	20.6	38.6	57.4	143.2	171.3	887.1
1973	150.0	96.4	29.5	138.1	40.3	2.0	0	11.7	1.5	8.3	102.3	313.8	893.9
1974	59.3	31.1	40.9	131.2	24.0	37.6	18.4	26.5	6.5	21.0	106.8	119.9	623.2
1975	75.0	21.8	136.5	18.6	54.2	0	2.9	2.3	23.7	14.2	62.6	97.1	508.9
1976	116.0	91.5	189.1	156.3	67.9	26.1	1.5	7.1	81.7	36.0	125.8	190.3	1,089.3
1977	180.9	61.5	84.0	19.1	19.0	1.6	0	5.6	64.8	38.0	99.3	359.0	932.8
1978	222.4	81.0	349.3	129.3	36.2	0	15.2	0	0	10.0	338.9	473.0	1,655.3
1979	246.8	255.4	192.6	216.2	139.6	26.9	0	40.6	18.7	41.3	99.3	251.2	1,528.6
1980	102.1	13.8	76.6	76.4	13.9	0	0	33.7	0	0	233.9	156.2	706.6
1981	33.9	38.4	171.6	137.4	40.8	0	0	0	11.3	25.1	163.8	313.1	935.4
1982	8.0	11.5	69.1	147.9	45.9	24.1	29.5	10.1	67.4	162.8	372.3	184.2	1,132.8
1983	193.7	206.6	59.6	51.0	84.5	3.5	0	0	22.0	7.8	72.9	147.2	848.8
1984	86.7	0	7.2	202.6	1.6	20.1	10.4	0	14.6	96.2	90.8	463.6	993.8
1985	31.2	96.7	0	33.5	11.0	0	0	0	0	33.5	139.0	128.1	473.0
Average	88.6	76.1	128.4	119.1	46.4	10.3	4.6	8.2	17.7	41.7	144.3	191.2	875.9

Location : Ndungu Sisal Estate  
 Regist. No : 94-38051

Elevation : 533 m  
 Latitude(S) : 4° -22'  
 Longitude (E) : 38° -03'

(Unit : mm)

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1966	85.0	108.0	298.0	45.0	61.0	0	0	7.0	13.0	37.0	59.0	88.0	801.0
1967	0	59.0	110.0	342.0	90.0	3.0	18.0	11.0	50.0	85.0	157.0	168.0	1,093.0
1968	0	190.0	422.0	100.0	45.0	28.0	6.0	0	20.0	20.0	12.0	15.0	858.0
1969	53.0	90.0	125.0	150.0	0	0	0	0	10.0	50.0	278.0	39.0	795.0
1970	400.0	58.0	412.0	21.0	25.0	0	0	0	0	5.0	34.0	300.0	1,255.0
1971	75.0	18.0	114.0	118.0	6.0	0	0	0	0	9.0	18.0	131.0	489.0
1972	141.0	77.0	25.0	118.0	85.0	0	0	5.0	28.0	87.0	118.0	151.0	835.0
1973	150.0	164.0	26.0	130.0	53.0	6.0	0	0	0	5.0	134.0	162.0	830.0
1974	51.0	46.0	14.0	163.0	35.0	0	0	20.0	0	9.0	52.0	71.0	461.0
1975	69.0	12.0	125.0	73.0	15.0	0	0	0	0	19.0	0	202.0	515.0
1976	38.0	90.0	114.0	70.0	0	28.0	0	24.0	79.0	43.0	25.0	148.0	659.0
1977	102.0	19.0	23.0	0	0	0	0	0	27.0	47.0	53.0	265.0	536.0
1978	142.0	82.0	175.0	177.0	25.0	3.0	0	0	0	0	275.0	391.0	1,270.0
1979	102.0	218.0	43.0	103.0	112.0	3.0	0	0	0	35.0	35.0	149.0	800.0
1980	53.0	0	17.0	73.0	0	0	0	35.0	0	0	144.0	-	322.0
1981	-	18.0	81.0	99.0	7.0	0	0	0	0	38.0	29.0	236.0	508.0
1982	13.0	0	15.1	151.5	16.0	0	0	0	62.0	110.0	243.0	152.2	762.7
1983	72.4	116.0	57.5	14.9	73.5	0	0	0	0	0	82.3	145.2	561.8
Average	97.4	78.1	132.8	111.4	34.9	4.4	1.5	6.4	14.2	30.6	88.9	167.7	751.7

Location : Kalimawe Meteo. Station  
 Regist. No : 94-38040

Elevation : 1,600 ft  
 Latitude(S) : 4° -25'  
 Longitude (E) : 38° -05'

(Unit : mm)

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1962	222.5	61.3	40.1	54.6	2.2	0	1.3	6.4	15.5	6.5	37.9	178.7	627.0
1963	89.7	57.3	59.3	55.4	14.9	9.4	0	0	5.1	13.5	181.4	277.0	763.0
1964	72.1	55.1	122.9	90.1	0.9	0.3	0	2.8	3.8	6.0	10.7	15.3	380.0
1965	29.1	1.3	93.8	27.6	20.2	0	2.3	7.9	7.9	26.3	54.0	101.9	372.3
1966	31.5	91.0	192.7	27.6	25.0	7.2	0.3	6.1	0.8	6.4	22.1	57.2	467.9
1967	0	6.1	12.9	242.4	59.2	0.5	9.4	9.7	29.7	40.2	74.9	30.2	515.2
1968	0	36.5	203.3	111.9	59.7	16.4	3.6	0.9	0	17.9	95.6	48.7	594.5
1969	19.6	45.4	74.5	52.8	8.7	2.6	0.8	9.6	0	34.7	68.5	2.8	320.0
1970	193.3	110.5	135.3	51.8	12.0	0	0	1.5	2.3	1.5	19.6	144.6	572.4
1971	42.7	9.4	53.1	30.5	8.2	14.5	2.4	0	0	2.9	1.6	99.7	265.0
1972	23.7	68.7	28.2	45.4	65.2	0	1.3	5.0	15.3	44.9	102.9	70.2	470.8
1973	84.5	29.7	10.1	49.1	53.1	3.0	0	0	0	11.3	34.1	35.7	310.6
1974	35.5	1.7	3.5	184.5	5.0	1.0	5.5	6.2	0.8	3.4	5.7	33.2	286.0
1975	47.7	5.1	30.3	16.4	28.7	0.5	1.6	0	14.9	11.5	3.4	83.0	243.1
1976	13.5	21.8	41.8	89.5	15.8	6.5	8.1	4.3	38.2	12.3	3.7	22.4	277.9
1977	72.5	58.8	32.3	4.6	10.3	2.3	1.4	12.2	16.6	23.8	111.0	158.0	503.8
1978	138.9	24.5	282.1	91.9	13.2	6.0	0	0	0	7.6	153.0	297.0	1,014.2
1979	89.4	232.4	52.2	57.7	82.6	19.7	2.0	1.9	11.9	20.9	15.7	76.0	662.4
1980	57.4	13.2	32.3	54.9	7.6	0	4.2	24.9	0	11.0	55.2	110.1	370.8
1981	7.7	8.8	117.1	117.5	16.3	0	0	3.9	5.4	42.1	18.8	84.2	421.8
1982	7.1	37.3	4.2	59.2	50.5	13.1	11.7	1.7	23.7	98.6	152.0	106.9	566.0
1983	-	95.1	19.1	25.0	35.1	1.1	0.1	0.1	12.4	0.9	86.3	17.2	-
1984	86.4	17.2	13.7	92.3	14.4	9.2	2.1	0	7.5	42.4	-	54.7	-
1985	9.9	83.2	9.0	19.8	36.0	0	0.3	2.7	4.6	30.2	43.7	63.1	302.5
Average	59.8	48.8	69.3	68.9	26.9	4.7	2.4	4.5	9.0	21.5	58.8	90.3	473.1

Location : Mtii Primary School  
 Regist. No : 94-38050

Elevation : 4,185 ft  
 Latitude(S) : 4° -00'  
 Longitude (E) : 38° -00'

(Unit : mm)

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1965	-	-	-	-	-	-	-	52.1	107.7	15.2	350.8	361.1	886.9
1966	217.2	157.6	476.5	257.1	26.9	10.4	0	0	0.3	90.2	182.9	79.5	1,498.6
1967	93.3	344.3	454.1	466.1	321.2	47.5	45.7	22.9	91.5	196.4	187.8	116.1	2,386.9
1968	17.8	288.4	368.4	222.0	252.7	2.5	24.2	26.9	10.4	-	-	-	4,528.9
1969	-	-	-	-	-	-	-	-	-	-	251.0	251.5	502.5
1970	394.7	216.9	329.2	-	-	-	-	-	41.9	40.1	454.9	671.8	2,149.5
1971	250.7	70.9	225.7	0	0	0	0	0	0	0	108.7	125.8	781.6
1972	400.3	173.9	101.4	97.8	103.8	-	-	-	-	-	-	-	877.2
1973	-	-	75.4	158.7	-	-	-	-	-	-	119.0	709.4	1,062.5
1974	-	27.7	-	38.9	-	-	-	-	-	-	-	-	66.6
1982	-	-	-	-	-	-	-	-	-	-	226.5	281.0	519.0
1983	83.3	57.2	235.0	124.1	161.3	4.0	4.3	3.5	16.3	6.4	213.1	285.4	1,193.9
1984	219.0	19.3	0	35.1	4.5	40.3	20.5	0	30.1	233.8	197.3	839.1	1,639.0
1985	162.2	49.4	0	81.5	39.1	0	0	6.3	0	0	-	-	-
Average	204.3	140.6	226.6	148.1	113.7	15.0	13.5	14.0	33.1	72.8	232.2	372.1	1,427.1



Location : Friesian Farm  
 Regist. No : 93-3747

Elevation : 4,300 ft  
 Latitude(S) : 3° -03'  
 Longitude (E) : 37° -00'

(Unit : mm)

Month Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1962	59.4	19.8	83.3	37.9	20.3	0	2.5	0	0	18.0	71.6	35.3	348.1
1963	26.7	46.6	29.5	84.1	4.8	10.2	0	0	0	2.5	178.8	136.1	519.3
1964	82.0	23.1	94.5	97.0	2.0	0	0	0	0	0	45.9	32.7	377.2
1965	22.1	21.7	72.5	62.0	14.7	0	0	0	0	9.1	43.4	35.3	280.8
1966	37.6	83.8	110.6	61.8	22.9	4.3	0	0	0	28.5	55.3	50.3	455.1
1967	3.8	17.8	47.1	90.3	37.1	0	18.5	0	11.2	52.2	58.2	37.6	373.8
1968	3.6	54.1	215.1	214.1	44.5	12.2	0	0	0	0	245.7	58.6	847.9
1969	85.6	61.0	31.5	26.6	29.7	0	0	0	0	34.1	107.9	25.2	401.6
1970	117.8	74.2	107.1	56.2	15.2	0	0	0	0	0	90.5	77.2	538.2
1971	37.8	6.6	14.2	72.3	15.5	7.6	0.8	0	0	0	27.1	106.2	288.1
1972	54.5	80.0	55.6	10.5	59.9	0	0	0	0	18.7	52.8	47.8	379.8
1973	62.3	40.7	18.1	122.0	26.5	0	0	0	0	6.7	37.5	39.2	353.0
1974	0	9.7	70.4	125.4	0	15.5	0	0	0	2.0	43.6	11.6	278.2
1975	17.4	0	46.3	82.7	24.6	0	0	—	0.3	0.5	—	—	—
Average	43.6	38.5	71.1	81.6	22.7	3.6	1.6	0	0.8	12.3	81.4	53.3	410.5

Location : Lomwe  
 Regist. No : 93-3775

Elevation : 4,500 ft  
 Latitude(S) : 3° - 42'  
 Longitude (E) : 37° - 39'

(Unit : mm)

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1962	204.7	0	72.6	61.5	30.7	0	35.6	0	0	0	442.7	203.5	1,051.3
1963	185.4	195.8	373.8	53.5	55.9	95.2	0	0	7.6	71.1	280.9	196.6	1,515.8
1964	0	74.7	116.8	355.3	32.8	0	0	0	28.2	56.7	34.6	214.3	913.4
1965	30.5	0	109.1	206.2	51.4	0	0	0	83.8	133.9	146.9	302.4	1,064.2
1966	38.0	95.5	410.3	148.0	93.2	14.3	0	11.4	0	45.3	47.8	3.8	907.6
1967	48.3	38.1	93.8	334.9	157.6	27.2	66.0	35.6	73.7	76.9	197.6	144.8	1,294.5
1968	0	317.5	0	251.9	186.4	26.1	201.9	38.2	40.3	55.0	375.4	234.7	-
1969	25.9	44.1	403.2	159.7	63.2	0	17.8	35.5	1.3	-	18.9	50.8	-
1970	387.3	25.4	516.4	317.7	3.5	0	0	0	109.2	28.3	15.6	53.7	1,457.1
1971	24.6	10.2	28.9	36.8	38.2	0.7	69.8	18.0	10.4	22.7	46.4	160.5	467.2
1972	63.5	68.3	91.3	147.0	224.2	3.5	3.2	56.7	63.8	114.6	320.5	109.0	1,265.6
1973	64.1	102.4	7.0	93.1	37.1	14.9	3.8	39.0	0	26.1	330.8	71.2	1,789.5
1974	18.7	6.5	72.6	547.9	33.8	58.0	133.7	16.2	19.4	13.7	131.0	57.7	1,109.2
1975	66.3	6.8	69.6	157.4	90.2	3.1	22.7	0	69.9	79.5	100.0	66.8	732.3
1976	24.0	87.1	81.3	387.6	93.5	64.6	7.0	4.7	48.6	48.6	178.0	202.3	1,227.3
1977	151.8	49.3	70.5	161.6	33.6	0.5	0.5	37.1	18.9	57.6	-	245.9	-
1978	41.9	98.5	121.4	100.8	36.8	8.2	4.7	-	-	-	210.6	169.5	-
1979	62.1	80.7	94.4	294.8	126.1	0	50.5	38.1	25.1	39.2	193.8	187.4	1,192.2
1980	94.6	37.0	124.6	213.0	38.4	0	3.1	56.0	19.6	52.6	303.2	178.8	1,120.9
1981	81.6	2.5	207.9	473.7	145.3	3.5	6.4	22.4	16.4	77.0	38.7	178.4	1,253.8
1982	24.0	19.2	116.7	146.0	132.4	56.6	65.8	19.3	93.0	200.1	310.5	92.4	1,276.0
1983	0	49.2	229.9	107.3	100.4	23.7	27.9	6.1	43.3	33.3	113.7	256.9	991.7
1984	81.9	1.7	33.2	233.2	29.8	40.5	26.5	0	21.5	117.1	257.0	369.9	1,212.3
1985	40.8	53.3	319.9	132.1	104.5	7.6	5.7	4.7	12.5	44.3	648.4	128.7	1,502.5
Average	73.3	61.0	163.7	213.4	80.8	18.7	31.4	19.1	35.1	63.3	206.2	161.7	1,127.7



**APP. I -3**  
**MAXIMUM DAILY RAINFALL**  
**AND**  
**RAINFALL INTENSITY**  
**AT**  
**ARUSHA, KIA, MOSHI, KWARE AND SAME**



Maximum Daily Rainfall and Remarkable Rainfall Intensity

(Unit : mm/day)

Year	Month	Mar.	Apr.	May	Nov.	Dec.	Remarkable Rainfall Intensity
Meteorological Station : Moshi , Resist. No. : 93-3704							
1972		21.5	92.6	9.5	5.0	6.0	Apr. 1 : 35.5mm/50min.
1973		34.1	104.5	15.3	24.8	8.0	Apr. 2 : 52.0mm/hr
1974		1.4	88.8	18.6	23.2	22.9	Apr. 25 : 34mm/hr
1975		95.8	—	31.2	43.0	3.7	Mar. 21 : 44mm/hr
1976		36.6	76.0	21.8	—	22.8	Apr. 11 : 41.5mm/hr
1977		—	104.6	35.5	33.9	4.0	Apr. 22 : 27.6mm/hr
1978		53.1	43.4	22.2	—	—	Mar. 25 : 21.1mm/45min.
1979		67.4	138.3	37.3	38.0	12.0	Apr. 4 : 27.0mm/hr
1980		—	149.7	68.8	31.0	—	Apr. 20 : 48mm/hr
1981		—	—	—	14.9	14.0	—
1982		49.2	32.4	48.2	—	—	Mar. 15 : 37.2mm/hr
1983		—	—	—	—	—	—
1984		—	—	—	31.5	15.0	Apr. 19 : 23.5mm/hr
1985		37.9	81.1	48.3	58.0	14.8	Nov. 12 : 25mm/hr
1986		41.7	166.4	19.5	—	—	Apr. 9 : 82mm/hr, Mar. 26 : 37.7mm/45min.
1986		—	—	—	—	—	Apr. 10 : 36.6mm/hr
1978		—	62.0	30.0	—	—	Apr. 20, May 30
Meteorological Station : Moshi , Resist. No. : 93-3778							
1978		—	62.0	30.0	—	—	Apr. 20, May 30
Meteorological Station : Same, Resist. No. : 94-3703							
1978		68.1	104.8	9.7	—	—	Apr. 5 : 33mm/44min
1979		8.0	37.4	35.3	—	—	Apr. 3 : 23.3mm/40min.

Maximum Daily Rainfall and Remarkable Rainfall Intensity

(Unit : mm/day)

Year	Month	Mar.	Apr.	May	Nov.	Dec.	Remarkable Rainfall Intensity
Meteorological Station : R. Kware, Resist. No. : 93-37136							
1978		-	66.1	23.2	-	-	Apr. 4, May 29
1979		-	146.7	54.5	-	-	Apr. 5, May 23
Meteorological Station : Arusha, Resist No. :93-3633							
1979		-	68.0	57.8	-	-	Apr.18, May 27
Meteorological Station : Kilimanjaro International Airport, Resist. No. : 93-37115							
1974		-	39.4	-	-	-	Apr. 3, -
1979		-	67.5	45.3	-	-	Apr.12, May 27
1981		-	55.7	39.9	-	-	Apr. 6, May 20
Meteorological Station : Arusha, Regist. No. : 93-3633							
1971		-	68.0	57.8	-	-	Apr.18, May 27
1974		-	35.3	21.4	-	-	Apr. 3, May 5
1981		-	31.3	66.9	-	-	Apr. 3, May 5

**APP. I -4**  
**DAILY RAINFALL IN APRIL AND MAY**







April 1971

(Unit : mm)

Observ. Station Day	Moshi (93-3704)	KIA (93-37115)	Arusha (93-3633)	R. Usa (93-3645)	Kibon Goto (R. Sanya) (93-3778)	R. Kware (93-37136)
1						
2						
3	1.1		5.5			
4			35.5			
5			44.5			
6	0.5		24.6			
7			34.2			
8	3.3		6.1			
9	27.0					
10	5.9					
11			55.0			
12			3.0			
13	4.4		5.2			
14	13.7		3.7			
15						
16	12.7		2.3			
17	57.8		46.0			
18	23.8		68.0			
19	59.2		49.4			
20	45.3		35.0			
21	83.6		0.6			
22	117.8		11.2			
23	21.2		0.6			
24	17.3		16.8			
25	0.5		9.2			
26	3.0					
27	7.4		0.5			
28			14.9			
29	19.5		2.5			
30	16.1		3.8			
31						

April 1974

(Unit : mm)

Observ. Station Day	Moshi (93-3704)	KIA (93-37115)	Arusha (93-3633)	R. Usa (93-3645)	Kibon Goto (R. Sanya) (93-3778)	R. Kware (93-37136)
1						
2	6.5	0.9	6.3			
3	104.3	39.4	35.3			
4	6.1	6.9	5.4			
5	3.5	3.2	5.0			
6	18.0	8.0	13.0			
7	0					
8	29.2	18.3	26.4			
9	9.0		1.2			
10	21.7	1.8	6.8			
11	41.6	33.6	7.6			
12	14.2		1.1			
13	14.6	3.3	5.8			
14	78.8	6.6	1.0			
15	9.7	2.0	20.0			
16	8.8	0.6	6.3			
17	93.0	2.4	2.0			
18	5.3		1.0			
19	100.5	0.8	0.3			
20	30.2		2.9			
21	19.4					
22	11.1					
23	2.4		0.4			
24	41.3	2.0	0.7			
25	12.4	4.2	2.6			
26	2.1	10.7	1.2			
27	1.7	1.7	0.8			
28	2.5	2.6				
29		1.6				
30	32.3	8.1	5.1			
31						

April 1978

(Unit : mm)

Observ. Station Day	Moshi (93-3704)	KIA (93-37115)	Arusha (93-3633)	R. Usa (93-3645)	Kibon Goto (R. Sanya) (93-3778)	R. Kware (93-37136)
1						
2	9.2	0.3	12.9		2.0	13.3
3	5.1	0.7	7.6		20.0	5.0
4	7.1		0.1		20.0	17.5
5	4.4	37.6	24.3		30.0	66.1
6		84.8	6.6			
7	5.4	5.3	44.6		45.0	
8	18.0	5.5	27.8			44.5
9	12.3	9.7	17.4		22.0	43.5
10	2.8	6.6	2.1		2.1	3.7
11	6.2	1.1	4.2			0.5
12			0.4			
13	2.5		14.8		14.0	
14	32.4		0.3		0.1	
15			41.9			
16	0.2	4.0	0.4			
17	1.0	3.4	1.0			
18	7.5	0.4	2.1		9.0	21.9
19	0.9		4.9		0.1	
20	7.6	7.5	11.3		10.0	13.5
					62.0	
21	4.1		5.2			40.1
22	8.9	1.0	58.2			16.0
23	2.9	4.5	12.6		14.0	9.1
24	11.2	1.4	6.1		20.0	9.3
25	44.4	7.5	36.8		34.0	17.2
26	7.2	37.5	88.3		25.0	4.6
27	2.8	0.7	1.4		40.0	15.4
28	46.2	27.5	28.9		56.0	19.0
29		0.7	8.7		22.0	18.2
30						
31						

April 1978

(Unit : mm)

Observ. Station Day	Moshi (93-3704)	KIA (93-37115)	Arusha (93-3633)	R. Usa (93-3645)	Kibon Goto (R. Sanya) (93-3778)	R.Kware (93-37136)
1						
2						
3			5.5	12.7		
4	5.0		35.5	33.0		29.0
5	147.0	1.4	44.5	62.2		146.7
6	33.7	28.0	24.6	52.1		58.0
7	141.5	37.0	34.2	2.5		14.4
8	48.2	25.3	6.1			14.5
9	0.2	2.1		53.3		11.4
10	0.8					
11	133.6	0.5	55.0	5.1		35.0
12	0.2	67.5	3.0	5.1		
13	5.9		5.2			6.0
14		1.6	3.7			
15	1.3	1.2		25.4		
16	0.1		2.3	58.4		
17	7.5	0.3	46.0	50.3		37.4
18	24.7	20.6	68.0	22.9		23.0
19	13.7	36.1	49.4			12.1
20	36.5	10.6	35.0	27.9		12.0
21	4.5	2.7	0.6			13.4
22	3.2	0.7	11.2	47.0		1.9
23	44.4	7.9	0.6	20.3		7.6
24	39.5	34.0	16.8	17.8		13.5
25	0.6	5.3	9.2	24.1		7.9
26	2.9	0.8				3.2
27			0.5	20.3		0.7
28	1.7		14.9	22.9		3.2
29			2.5	11.4		
30			3.8	12.7		9.2
31						

April 1981

(Unit : mm)

Observ. Station Day	Moshi (93-3704)	KIA (93-37115)	Arusha (93-3633)	R. Usa (93-3645)	Kibon Goto (R. Sanya) (93-3778)	R. Kware (93-37136)
1						
2	4.6	0.8	0.8			
3	31.3		31.3			
4		3.8	1.3			
5		32.4	2.6			
6	53.7	55.7	6.5			
7	35.2	3.0	4.5			
8			7.8			
9			3.0			
10		1.6				
11		8.5	26.4			
12	143.7		9.3			
13	12.9		9.7			
14	25.6	3.1	0.6			
15	18.0	0.6				
16	0.3		0.8			
17	6.1	7.7	0.6			
18	58.1	11.2	7.3			
19	0.4					
20	4.7		5.7			
21						
22						
23						
24	0.8					
25		1.8				
26	14.0	2.5	4.8			
27	25.2	4.6				
28	2.0	1.2	0.3			
29	3.2					
30			0.3			
31						

May 1971

(Unit : mm)

Observ. Station Day	Moshi (93-3704)	KIA (93-37115)	Arusha (93-3633)	R. Usa (93-3645)	Kibon Goto (R. Sanya) (93-3778)	R. Kware (93-37136)
1						
2			4.7			
3			13.7			
4			7.5			
5			3.4			
6			4.9			
7						
8	15.3					
9	40.6					
10	3.2		4.0			
11	0.1		2.7			
12	21.0		1.3			
13						
14	0.1					
15	12.0		0.1			
16						
17	0.6		0.8			
18	1.3					
19	15.6					
20	0.9					
21	18.9					
22	14.2		1.0			
23	1.6		25.4			
24			28.4			
25	1.4		18.4			
26	2.3		21.4			
27	0.3		57.8			
28			6.3			
29			15.8			
30			0.8			
31			7.7			



May 1974

(Unit : mm)

Observ. Station Day	Moshi (93-3704)	KIA (93-37115)	Arusha (93-3633)	R. Usa (93-3645)	Kibon Goto (R. Sanya) (93-3778)	R. Kware (93-37136)
1						
2	2.6		0.3			
3		2.7	3.5			
4	0.7	0.6	3.8			
5	4.4	1.0	21.4			
6	1.0		0.1			
7	0.2					
8		3.4	0.8			
9						
10	1.9	1.5	1.5			
11	0.8		10.8			
12						
13	13.7	5.9				
14						
15						
16						
17						
18						
19						
20						
21						
22	0.7					
23						
24	15.0	0.5	0.1			
25	2.6		0.4			
26	0.1	5.6	0.6			
27	1.4	21.0	0.6			
28			0.8			
29	0.6					
30						
31						

May 1978

Observ. Station Day	Moshi	KIA	Arusha	R. Usa	Kibon Goto (R. Sanya)	R. Kware
	(93-3704)	(93-37115)	(93-3633)	(93-3645)	(93-3778)	(93-37136)
1						
2						
3	8.0					
4	9.7	0.1				
5						
6	1.3					
7	7.6			3.0		
8	19.8	6.6		14.8		
9	3.7	2.3		11.0		
10	7.3			3.0		
11	11.6	5.7		20.9		
12				0.5		
13						
14						
15						
16						
17						
18						
19	1.6	0.4				
20	1.7	1.1		2.3		
21	18.1	6.5		6.5		
22						
23				0.2		
24						
25						
26						
27	5.0	0.5				
28				1.2		
29		5.5		4.5		
30	22.5	2.0		11.4		
31		2.3		1.6		

(Unit : mm)

May 1979

(Unit : mm)

Observ. Station Day	Moshi (93-3704)	KIA (93-37115)	Arusha (93-3633)	R. Usa (93-3645)	Kibon Goto (R. Sanya) (93-3778)	R. Kware (93-37136)
1						
2	16.7	9.5	4.7	0.8		37.7
3		9.0	13.7	5.5		11.5
4	0.6	7.4	7.5	7.6		9.5
5	8.2	3.1	3.4	5.1		3.8
6	16.2	14.3	4.9			14.6
7	0.3					1.8
8	0.1					
9						
10	0.5		4.0			12.7
11	5.2		2.7			17.8
12		0.3	1.3			0.5
13						
14						0.7
15	0.4	0.3	0.1			2.1
16	2.2	0.2				0.5
17			0.8			0.5
18						
19						
20						
21						
22	16.1		1.0			5.0
23	37.3	10.2	25.4	31.7		54.5
24	29.7	11.6	28.4	20.3		40.0
25	32.3	22.1	18.0	27.8		21.8
26	7.5	11.6	21.5	55.9		15.8
27	45.6	45.2	57.8			39.5
28	1.6	2.1	6.3	8.9		16.5
29	3.1	7.0	15.8	6.3		19.4
30			0.8	7.6		2.5
31	0.2	4.0	7.7	5.1		33.8

May 1981

(Unit : mm)

Observ. Station Day	Moshi (93-3704)	KIA (93-37115)	Arusha (93-3633)	R. Usa (93-3645)	Kibon Goto (R. Sanya) (93-3778)	R. Kware (93-37136)
1						
2	6.7	1.0	0.8			
3		1.0	0.1			
4	29.6	11.0	7.1			
5	83.2	39.8	66.9			
6	7.7	1.0	7.0			
7	9.2	0.6	2.2			
8		47.0	16.4			
9	1.1					
10	47.4	4.2	6.7			
11	14.6	1.2				
12	6.6					
13	0.7		0.8			
14	7.2	0.2				
15	4.8		0.6			
16						
17						
18		1.7				
19	3.0	1.0	1.8			
20	14.5	39.9	28.1			
21	7.8	2.6	5.1			
22						
23	0.8		0.3			
24	0.1					
25	1.6		0.2			
26						
27	0.3					
28		0.2				
29						
30						
31	0.8					



**APP. II-1**  
**MONTHLY MEAN DISCHARGE**



APP. II-1

MONTHLY MEAN DISCHARGE

1. Kikuletwa River (1DD-54)
2. ditto (1DD-1)
3. Himo River (1DC-11A)
4. Weru-weru River (1DD-6A)
5. Ruvu River (1DC-2A)
6. Sesseni River (1DB-2A)
7. Hingilili River (1DB-18)





River : R. Kikuletwa  
 Station : TANESCO P.S. (IDD-54)  
 Catch. Area : 2,220 sq.km

Elevation : 1,370 m  
 Latitude(S) : 3° -27' -30"  
 Longitude (E) : 37° -12' -30"

(Unit : cu,m/sec)

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1967	(-)	10.41	10.43	10.97	13.79	12.20	10.66	10.65	10.80	10.65	11.94	12.35	(124.85)
1968	11.43	11.75	13.84	(24.30)	(24.33)	(25.53)	14.82	12.61	11.25	11.43	14.43	17.54	193.26
1969	12.15	13.42	13.21	12.57	13.90	12.37	12.28	11.91	11.91	11.33	12.23	12.11	149.39
1970	12.58	12.51	12.96	19.63	19.31	12.66	11.53	11.29	10.60	11.44	10.56	11.20	156.27
1971	(-)	(-)	11.48	20.59	26.65	10.92	10.35	9.96	10.22	9.95	9.90	9.37	(129.39)
1972	10.60	10.10	13.21	15.98	18.94	14.86	11.91	11.13	12.17	12.44	13.16	12.26	156.76
1973	12.41	12.37	11.64	14.38	18.70	12.20	12.39	11.80	11.54	11.36	11.34	11.45	151.58
1974	12.17	13.01	11.44	35.66	15.50	11.79	11.63	11.25	11.44	11.56	11.14	11.38	167.97
1975	11.15	11.25	11.05	12.47	14.07	12.90	11.43	11.28	11.44	11.33	-	11.36	(129.73)
Average	11.78	11.79	12.14	18.51	18.35	13.94	11.89	11.33	11.26	11.28	11.84	12.11	156.22

(Annual Average : 13.02)

River : R. Kikuletwa  
 Station : Weru-weru Confluence (IDD-1)  
 Catch. Area : 3,880 sq.km

Elevation : 700 m  
 Latitude(S) : 3° -31' -00"  
 Longitude (E) : 37° -17' -00"

(Unit : cu,m/sec)

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1955	-	-	-	-	-	-	-	-	-	-	9.81	11.27	21.08
1956	15.38	13.63	13.46	22.58	35.94	26.97	16.09	13.56	11.19	11.17	11.24	11.12	202.33
1957	13.52	14.05	10.53	30.10	91.37	34.06	22.08	16.50	12.89	11.89	21.61	29.98	308.58
1958	14.78	18.93	16.82	27.27	59.84	51.60	26.37	17.95	13.40	11.61	11.80	14.56	284.93
1959	12.08	11.87	12.42	28.65	30.29	16.69	18.40	16.25	29.14	12.06	12.20	15.07	215.12
1960	14.93	12.14	-	47.93	77.89	36.58	25.29	19.58	16.28	21.19	10.26	10.63	(292.70)
1961	9.89	10.04	9.90	15.56	13.72	10.10	13.86	11.54	11.13	18.33	98.47	60.94	283.48
1962	51.04	23.86	16.08	25.24	61.65	24.03	20.25	16.34	12.71	9.60	10.07	14.11	284.98
1963	12.87	10.84	13.25	49.65	69.88	32.53	27.17	16.33	12.84	10.78	23.60	27.89	307.63
1964	23.45	12.74	18.84	100.80	99.27	48.89	27.37	20.98	17.05	15.59	14.54	16.20	415.72
1965	19.97	13.21	12.90	42.20	35.04	19.58	13.31	12.34	10.89	12.66	19.47	14.12	225.69
1966	11.93	13.35	22.79	61.79	59.53	42.52	27.28	14.57	11.13	10.40	12.34	11.45	299.08
1967	10.42	10.61	10.64	21.64	64.58	39.97	30.01	24.78	24.49	19.77	29.46	22.20	308.57
1968	10.74	14.19	31.54	79.31	80.59	73.84	38.51	28.04	18.23	13.76	26.44	50.59	465.78
1969	20.10	25.59	24.00	20.61	38.34	28.88	21.41	19.74	14.13	15.07	15.19	13.09	256.15
1970	16.66	14.79	18.99	59.70	66.34	28.86	19.08	13.76	12.74	11.00	11.08	11.98	284.98
1971	8.38	(9.41)	9.64	44.97	79.66	45.26	32.40	27.60	17.67	13.76	13.17	17.40	319.32
1972	16.61	19.52	20.60	36.05	56.02	41.75	26.78	19.30	18.92	(15.48)	32.18	(25.80)	329.01
1973	28.12	19.91	13.81	43.99	67.07	35.76	28.15	20.37	14.71	12.53	14.23	13.12	311.77
1974	13.15	12.92	12.85	66.35	42.07	31.97	33.70	24.62	15.22	14.66	15.39	14.64	297.54
1975	15.59	17.21	15.06	38.41	45.28	32.22	29.71	20.39	15.47	16.41	15.73	15.72	277.20
1976	14.74	14.82	16.04	22.48	34.26	29.70	20.30	13.30	14.16	13.53	13.00	10.80	217.13
1977	12.37	12.39	15.12	61.74	54.57	33.15	23.20	21.80	15.02	15.33	27.01	25.30	317.00
Average	21.57	19.18	20.96	55.71	74.31	44.99	31.81	24.10	19.97	18.03	26.02	25.44	382.09

(Annual Average : 31.84)

River : R. Himo  
 Station : Moshi-Tanga Rd. Bridge (IDC-11A)  
 Catch. Area : 264 sq. km

Elevation : 760 m  
 Latitude(S) : 3° -29' -00"  
 Longitude (E) : 37° -33' -00"

(Unit : cu, m/sec)

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1968	2.86	2.89	2.29	2.20	3.21	1.55	0.83	0.66	0.48	0.54	0.46	0.91	18.88
1969	1.13	1.49	5.38	13.55	6.40	2.56	1.06	0.43	0.39	0.26	0.21	0.27	33.13
1970	0.07	0.14	0.12	7.56	13.82	4.83	2.62	1.61	0.91	0.33	0.07	0.10	32.18
1971	0.20	0.39	0.01	0.76	6.73	5.19	1.82	0.71	0.47	-	5.87	3.37	(25.52)
1972	1.78	2.48	1.41	2.05	4.69	1.92	0.87	0.50	0.22	0.14	0.12	0.10	16.28
1973	0.12	0.04	0.04	8.52	9.35	6.07	9.18	5.70	2.97	1.80	1.97	0.52	46.28
1974	0.29	0.05	0.84	4.13	2.21	1.64	0.98	0.78	0.60	0.36	1.22	-	(13.10)
1975	0.38	0.44	0.80	3.91	1.53	1.12	0.30	0.28	0.20	0.02	0.	0	8.98
Average	0.85	0.99	1.36	5.34	5.99	3.11	2.21	1.33	0.78	0.75	1.24	0.75	24.70

(Annual Average : 2.06)

River : R. Weru-weru  
 Station : Forest Boundary (1DD-6A)  
 Catch. Area : 68 sq.km

Elevation : 450 m  
 Latitude(S) : 3° - 9'  
 Longitude (E) : 37° - 16'

(Unit : cu,m/sec)

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1969	-	(1.90)	2.15	2.08	2.48	2.11	1.90	1.97	1.77	1.90	2.27	1.86	(22.39)
1970	1.61	1.38	1.64	2.37	2.74	2.77	2.41	1.82	1.53	1.06	0.74	0.93	21.00
1971	0.68	0.82	0.76	1.26	3.01	1.71	1.29	1.22	1.11	0.94	0.92	3.27	16.99
1972	2.69	1.88	1.56	1.51	4.10	2.09	1.81	1.48	1.61	3.44	2.65	2.34	27.16
1973	2.31	1.80	1.54	2.50	5.15	2.17	1.78	1.76	1.46	1.38	1.78	1.51	25.14
1974	1.20	1.14	1.28	2.72	1.79	1.65	2.39	1.46	1.32	-	1.55	1.43	(17.93)
1975	1.85	1.60	1.28	4.33	2.61	1.78	1.80	1.34	1.17	1.02	0.94	1.33	21.05
1976	0.59	0.64	0.75	1.76	5.52	1.79	1.44	1.21	1.22	0.98	1.07	1.28	18.25
1977	1.56	1.77	1.50	4.99	3.65	1.78	1.54	1.62	1.02	1.13	4.27	2.81	27.64
Average	1.56	1.44	1.38	2.61	3.45	1.98	1.82	1.54	1.36	1.48	1.80	1.86	22.28

(Annual Average : 1.86)

River : R. Ruvu  
 Station : Tanga Rd. Bridge (IDC-2A)  
 Catch. Area : 3,370 sq.km

Elevation : 690 m  
 Latitude(S) : 3° -31' -30"  
 Longitude (E) : 37° -28' -00"

(Unit : cu,m/sec)

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1959	3.69	3.48	3.15	12.50	9.67	6.13	4.71	4.47	4.11	3.57	3.20	3.57	(3.57)
1960	2.38	2.43	2.35	2.51	3.10	2.83	2.94	3.09	3.24	3.11	10.27	16.21	54.46
1961	19.30	9.49	6.03	6.05	5.41	4.41	4.59	4.54	3.96	3.51	3.17	4.75	75.21
1962	7.80	5.25	6.35	8.54	8.03	6.80	6.54	5.48	4.90	4.43	6.86	11.61	82.59
1963	7.56	4.87	5.74	8.44	10.31	8.17	6.80	6.87	6.36	5.69	5.23	6.49	82.53
1964	9.35	6.17	5.15	7.59	6.69	6.69	6.41	6.81	5.97	6.86	6.58	7.93	82.20
1965	6.18	6.19	8.66	13.88	10.28	8.71	6.95	6.00	5.27	4.72	4.49	4.39	85.72
1966	3.95	3.59	3.42	8.02	12.89	9.39	7.15	7.11	7.47	5.90	5.68	7.63	82.20
1967	4.88	3.92	13.88	49.76	29.25	17.16	11.22	8.82	6.82	5.74	7.96	15.44	174.85
1968	6.84	6.60	8.18	10.03	10.31	7.45	6.78	7.61	5.91	5.98	6.71	8.03	90.43
1969	6.10	8.40	6.76	19.96	12.58	8.14	6.73	6.28	5.62	4.31	5.18	6.52	96.58
1970	6.93	7.28	4.90	7.90	16.32	11.06	8.68	7.59	6.77	6.27	4.79	6.28	94.77
1971	9.34	8.32	6.33	6.77	11.41	11.21	8.20	7.56	6.94	6.74	9.78	10.21	102.81
1972	8.61	7.15	(6.77)	5.97	8.46	7.38	6.78	6.50	6.05	5.19	7.66	7.14	83.66
1973	5.26	4.28	4.17	11.51	10.08	6.45	7.13	6.33	5.74	4.62	4.60	5.03	75.20
1974	5.25	4.11	3.68	4.50	4.37	4.04	3.95	4.38	4.55	3.84	3.32	4.02	50.01
1975	7.09	5.72	5.97	11.50	10.57	7.88	6.60	6.22	5.61	5.03	5.97	7.53	85.69
Average													

(Annual Average : 7.14)

River : R. Sesseni  
 Station : Gultu (IDB-2A)  
 Catch. Area : 170 sq. km

Elevation : 550 m  
 Latitude(S) : 4° -28' -50"  
 Longitude (E) : 38° -03' -04"

(Unit : cu,m/sec)

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1963	—	—	—	—	0.74	0.45	0.35	0.20	0.17	0.14	1.51	(—)	20.0
1964	3.97	1.40	8.74	2.96	2.42	1.46	0.76	0.27	0.29	0.33	0.37	2.73	25.8
1965	2.04	0.82	1.20	1.05	0.54	0.41	0.32	0.28	0.20	0.26	0.95	6.77	14.9
1966	2.69	3.28	3.14	3.11	1.46	1.20	0.83	0.53	0.41	0.45	1.00	1.78	20.0
1967	0.55	1.60	1.18	3.18	2.84	1.17	0.75	0.53	0.58	0.63	2.63	(2.11)	17.8
1968	0.77	0.56	3.62	5.44	1.89	1.33	0.75	0.46	0.29	0.24	0.99	6.42	22.8
1969	4.62	5.37	4.67	4.55	1.92	1.15	0.74	0.54	0.35	0.47	1.83	3.55	29.8
1970	3.16	5.81	7.56	6.33	2.68	1.36	0.87	0.59	0.42	0.34	2.61	4.39	36.2
1971	2.39	1.58	1.21	1.79	1.38	0.86	0.57	0.36	0.30	0.28	0.71	2.20	13.7
1972	3.27	1.92	2.00	2.11	1.88	1.23	0.99	0.54	0.56	0.76	1.21	3.18	19.5
1973	2.58	1.78	1.37	1.84	1.52	0.80	0.55	0.38	0.30	0.27	1.69	3.38	16.6
1974	1.59	1.00	1.35	1.71	1.52	0.62	0.44	0.30	0.21	0.16	1.56	5.07	15.6
1975	2.77	1.76	1.91	1.46	1.20	0.60	0.39	0.30	0.24	0.18	0.85	3.29	14.5
1976	3.33	3.23	3.84	6.87	2.46	1.44	1.04	0.70	0.78	0.61	0.41	1.58	26.3
1977	4.08	1.74	3.85	1.78	1.33	0.81	0.53	0.53	0.45	0.48	1.57	13.07	30.3
1978	7.82	3.14	11.18	6.95	2.84	1.77	1.35	0.86	0.64	0.51	3.03	17.77	57.9
1979	8.58	11.41	5.32	5.73	5.21	3.25	2.06	1.54	1.31	0.92	1.77	1.99	49.1
1980	1.90	2.02	2.56	3.63	2.32	1.63	1.36	1.04	0.69	0.47	1.47	7.41	26.5
1981	3.00	1.72	1.21	2.49	1.56	1.05	0.71	0.58	0.57	0.68	1.99	11.77	26.5
1982	4.81	1.41	4.27	(2.36)	—	—	—	—	—	—	—	—	—
Average	3.36	2.68	3.69	3.44	1.98	1.19	0.80	0.55	0.46	0.43	1.48	5.47	25.53

(Annual Average : 2.13)

River : Hingilili  
 Station : Kiruka (IDB-18)  
 Catch. Area : 38 sq.km

Elevation : 1,540 m  
 Latitude(S) : 4° -14' -05"  
 Longitude (E) : 37° -58' -25"

(Unit : cu,m/sec)

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1963	2.13	0.97	0.70	0.82	0.63	0.48	0.39	0.33	0.28	0.23	0.89	(1.54)	9.39
1964	1.60	0.90	0.96	1.04	0.94	0.63	0.47	0.39	0.30	0.31	0.33	1.61	9.48
1965	0.78	0.42	0.40	0.44	0.33	0.26	0.24	0.22	0.19	0.23	0.51	1.29	5.31
1966	0.56	0.55	0.73	0.78	0.54	0.43	0.35	0.27	0.22	0.22	0.38	0.56	5.59
1967	0.23	0.30	0.28	0.78	0.61	0.42	0.34	0.26	0.26	0.28	0.97	0.83	5.56
1968	0.42	0.30	1.56	1.37	0.93	0.72	0.53	0.43	0.35	0.37	0.67	1.44	9.09
1969	0.81	0.86	2.26	1.68	0.93	0.62	0.47	0.39	0.31	0.31	0.91	1.19	10.74
1970	0.92	0.90	1.17	1.54	0.94	0.63	0.48	0.39	0.33	0.24	0.57	0.89	9.00
1971	0.36	0.35	0.44	0.80	0.64	0.42	(0.35)	0.30	0.25	0.23	0.27	1.23	5.64
1972	0.84	0.53	0.46	0.35	0.55	0.33	0.28	0.25	0.24	0.26	0.79	1.57	6.45
1973	0.75	0.57	0.49	0.67	0.64	0.42	0.34	0.31	0.26	0.23	0.81	1.91	7.40
1974	0.72	0.48	0.50	(0.93)	0.81	0.55	0.44	0.38	0.30	0.30	0.50	2.08	7.99
1975	0.99	0.69	0.93	0.94	0.86	0.65	—	—	0.48	0.47	0.72	1.10	—
Average	0.85	0.60	0.84	0.93	0.72	0.50	0.39	0.33	0.29	0.28	0.64	1.21	7.58

(Annual Average : 0.63)





**APP. II-2**  
**DAILY MEAN DISCHARGE**



APP. II-2

- DAILY MEAN DISCHARGE

1. Kikuletwa River (1967 - 1975)
2. Himo River (1964 - 1981)
3. Sessení River (1964 - 1976)
4. Hingilili River (1963 - 1975)

- DAILY MEAN DISCHARGE  
(Not continuous data)



*DAY*	1	2	3	4	5	6	7	8	9	10	11	12
1	10.41	10.46	10.51	10.46	11.46	14.44	11.08	10.98	10.56	10.72	11.09	13.16
2	10.41	10.44	10.41	10.56	11.62	13.86	10.85	11.08	10.56	10.56	10.82	13.05
3	10.41	10.36	11.22	10.82	11.22	13.28	10.87	10.76	10.56	10.56	11.09	12.94
4	10.41	10.38	10.69	10.41	12.45	13.28	10.67	10.82	10.56	10.46	10.31	13.11
5	10.41	10.41	10.62	10.77	11.62	12.94	10.56	10.93	10.62	10.36	10.33	14.03
6	10.41	10.51	10.41	10.69	11.48	13.42	10.56	10.90	10.82	10.31	10.51	12.30
7	10.41	10.38	10.28	10.95	11.75	13.34	10.56	10.82	11.08	10.31	10.56	12.71
8	10.41	11.00	10.56	10.56	12.43	13.16	10.56	10.76	11.08	10.28	10.82	12.71
9	10.41	10.46	10.41	11.59	13.68	12.68	10.31	10.51	11.08	10.56	12.43	12.66
10	10.41	10.23	10.51	11.33	15.96	12.38	10.38	10.36	11.03	10.67	12.80	12.71
11	10.41	10.11	10.23	10.56	14.15	12.43	10.41	10.56	10.98	10.23	12.05	12.68
12	10.41	10.31	10.31	10.82	15.82	12.52	10.28	10.46	10.82	10.62	11.89	12.55
13	10.41	10.51	10.46	11.48	15.50	12.32	10.46	10.56	10.82	10.56	12.16	12.60
14	10.41	10.23	10.21	10.69	14.59	12.30	10.56	10.90	10.82	10.56	11.78	12.66
15	10.41	10.36	10.31	11.22	14.62	12.19	10.56	10.66	10.82	10.56	12.24	12.16
16	10.41	10.82	10.51	11.09	16.12	12.32	10.56	10.62	10.82	10.56	12.43	12.16
17	10.41	10.77	10.41	11.55	15.52	12.02	10.56	10.56	10.90	10.38	12.52	12.16
18	10.41	10.38	10.38	10.82	14.44	12.05	10.56	10.82	10.82	10.56	12.60	12.16
19	10.41	10.51	10.44	10.82	14.60	11.22	10.56	10.56	10.82	10.56	12.46	12.94
20	10.41	10.51	10.54	10.82	14.76	11.27	10.56	10.31	10.82	10.69	12.35	11.83
21	10.41	10.28	10.41	10.69	14.74	11.22	11.08	10.56	10.82	10.93	12.60	11.83
22	10.41	10.38	10.38	10.72	15.36	11.35	10.74	10.62	10.82	10.82	12.49	11.72
23	10.41	10.26	10.36	10.74	15.50	11.48	10.56	10.56	10.82	10.62	12.43	11.83
24	10.41	10.26	10.26	11.08	14.00	11.24	10.46	10.56	10.82	10.77	12.43	11.83
25	10.41	10.23	10.28	11.62	13.57	11.32	10.44	10.56	10.82	10.69	12.38	11.83
26	10.41	10.36	10.44	11.62	13.00	11.35	10.77	10.51	10.77	10.82	12.60	11.72
27	10.41	10.41	10.33	11.22	12.71	11.24	10.82	10.56	10.69	10.98	12.49	12.16
28	10.41	10.33	10.21	10.69	13.00	11.19	11.08	10.69	10.74	11.08	12.52	12.16
29	10.41	10.41	10.51	11.89	13.42	11.08	10.93	10.56	10.74	11.35	12.71	11.99
30	10.41	10.41	10.38	11.30	14.15	11.30	11.08	10.56	10.77	11.30	12.60	11.83
31	10.41	10.41	10.51	11.62	14.44	11.32	11.03	10.69	10.77	11.32	12.60	11.83
TOTAL	322.71	291.65	323.49	329.58	427.68	366.19	330.46	330.36	326.20	330.35	358.49	383.01
AVERAGE	10.41	10.42	10.44	10.99	13.80	12.21	10.66	10.66	10.81	10.66	11.95	12.36
MAXIMUM	10.41	11.00	11.22	11.89	16.12	14.44	11.08	11.08	11.08	11.35	12.80	14.03
MINIMUM	10.41	10.11	10.21	10.41	11.22	11.08	10.28	10.31	10.56	10.16	10.31	11.72

\*\*\*\*\* ANNUAL \*\*\*\*\*

MAX-NICHI DATE < 670516 > 16.12

35-NICHI DATE < 671203 > 12.94

95-NICHI DATE < 671114 > 11.78

185-NICHI DATE < 670217 > 10.77

275-NICHI DATE < 670713 > 10.46

355-NICHI DATE < 670224 > 10.26

MIN-NICHI DATE < 670211 > 10.11

\*ITEMC 1

\*\*\*\*\* TOTAL AVERAGE MAXIMUM MINIMUM \*\*\*\*\*

\*\*\*\*\* 4118.17 \*\*\*\*\*

\*\*\*\*\* 11.28 \*\*\*\*\*

\*\*\*\*\* 16.12 \*\*\*\*\*

\*\*\*\*\* 10.11 \*\*\*\*\*

*DAY*	1	2	3	4	5	6	7	8	9	10	11	12
1	11.83	11.35	11.89	15.05	31.25	32.71	16.27	13.28	11.06	11.35	11.62	17.55
2	11.78	11.35	11.62	14.38	27.18	30.66	15.99	12.96	10.87	11.35	11.75	17.23
3	11.72	11.35	11.62	18.15	23.10	47.92	15.59	12.43	10.80	11.35	11.62	16.75
4	11.62	11.51	11.83	15.68	22.73	39.01	15.10	12.99	10.93	11.30	11.62	18.88
5	11.62	11.45	12.99	14.44	21.65	31.02	15.10	12.99	10.82	11.30	11.51	22.41
6	11.64	11.37	12.99	16.18	28.59	28.84	15.53	12.82	10.56	11.19	11.51	34.49
7	11.62	11.40	13.16	24.04	37.16	30.16	15.65	12.82	10.77	11.08	11.62	38.78
8	11.62	11.56	12.99	22.61	29.76	29.13	14.68	12.71	10.82	11.08	11.62	23.50
9	11.56	11.83	12.99	18.87	24.22	34.11	15.29	12.71	10.82	11.08	11.62	20.94
10	11.51	11.62	13.02	20.94	21.29	28.11	15.16	12.71	10.98	11.19	11.62	18.54
11	11.62	11.56	15.27	20.76	19.89	26.92	15.10	12.60	11.14	11.35	11.56	17.55
12	11.56	11.51	17.55	17.49	18.54	25.36	15.04	12.82	11.51	11.35	11.35	16.91
13	11.45	11.40	14.72	16.59	17.55	25.43	15.04	12.71	11.59	11.55	11.27	16.43
14	11.35	11.56	14.66	20.63	18.21	31.00	15.04	12.66	11.62	11.35	11.40	16.27
15	11.51	11.62	14.78	28.68	18.04	29.13	15.71	12.52	11.62	11.35	11.62	16.24
16	11.51	11.62	13.42	23.84	17.55	27.25	15.44	12.71	11.62	11.56	11.30	17.23
17	11.40	11.62	13.45	21.17	19.53	23.38	15.35	12.71	11.62	11.62	11.27	16.44
18	11.35	11.62	13.28	17.55	27.42	23.50	15.35	12.63	11.62	11.62	11.45	15.71
19	11.35	11.62	12.99	21.07	31.00	21.63	14.89	12.71	11.62	11.62	11.62	15.65
20	11.35	12.83	12.99	30.10	25.76	19.75	14.77	13.22	11.62	11.62	11.62	15.19
21	11.30	12.71	13.08	29.87	20.94	17.88	14.50	12.97	11.51	11.89	12.71	14.44
22	11.30	12.16	13.16	37.95	20.69	17.65	14.56	12.71	11.35	11.58	12.66	14.44
23	11.32	12.32	13.16	26.72	20.41	17.55	14.44	12.57	11.35	11.35	13.86	14.44
24	11.35	11.94	17.07	36.03	20.94	17.55	13.94	12.43	11.40	11.48	16.27	14.18
25	11.30	11.89	16.78	50.63	24.14	17.42	14.00	12.49	11.43	11.62	16.60	13.97
26	11.30	12.30	16.59	51.43	23.10	16.91	13.86	12.60	11.35	11.62	32.92	13.62
27	11.35	12.27	14.15	47.55	23.84	16.72	13.86	12.60	11.35	11.62	24.90	13.28
28	11.14	11.91	14.06	43.48	28.54	16.91	13.86	12.46	11.30	11.62	24.78	13.28
29	11.14	11.90	14.15	39.40	29.76	16.97	13.68	11.96	11.30	11.56	23.84	13.28
30	11.08	14.50	14.50	35.35	36.48	16.69	13.45	11.35	11.27	11.51	23.84	13.28
31	11.08	14.41	14.41	35.35	34.64	16.69	13.39	11.16	11.27	11.62	23.84	12.99
TOTAL	354.63	341.15	429.32	796.61	763.90	759.27	459.63	391.01	337.62	354.43	432.95	543.89
AVERAGE	11.44	11.76	13.85	26.55	24.64	25.31	14.83	12.61	11.25	11.43	14.43	17.54
MAXIMUM	11.83	12.83	17.55	51.43	37.16	47.92	16.27	13.28	11.62	11.89	32.92	38.78
MINIMUM	11.08	11.35	11.62	14.38	17.55	16.69	13.39	11.16	10.56	11.08	11.27	12.99
MAX-NICHI DATE < 680426 >			51.43									
35-NICHI DATE < 680610 >			28.11									
95-NICHI DATE < 680625 >			17.42									
185-NICHI DATE < 680306 >			12.99									
275-NICHI DATE < 681115 >			11.62									
355-NICHI DATE < 681008 >			11.08									
MIN-NICHI DATE < 680906 >			10.56									
*ITEM( 1 )												
TOTAL												
AVERAGE												
MAXIMUM												
MINIMUM												
MAX-NICHI DATE < 680426 >												
35-NICHI DATE < 680610 >												
95-NICHI DATE < 680625 >												
185-NICHI DATE < 680306 >												
275-NICHI DATE < 681115 >												
355-NICHI DATE < 681008 >												
MIN-NICHI DATE < 680906 >												
*ITEM( 1 )												

\*\*\*\*\* ANNUAL \*\*\*\*\*  
 \*\*\*\*\* AVERAGE \*\*\*\*\*  
 \*\*\*\*\* MAXIMUM \*\*\*\*\*  
 \*\*\*\*\* MINIMUM \*\*\*\*\*  
 \*\*\*\*\* 5964.41 \*\*\*\*\*  
 \*\*\*\*\* 16.30 \*\*\*\*\*  
 \*\*\*\*\* 51.43 \*\*\*\*\*  
 \*\*\*\*\* 10.56 \*\*\*\*\*

*DAY*	1	2	3	4	5	6	7	8	9	10	11	12
1	12.24	13.68	13.28	12.71	12.30	12.16	12.57	11.35	12.16	10.93	10.93	14.15
2	12.39	14.15	13.28	12.85	12.27	12.02	12.32	11.62	12.32	11.30	10.72	12.38
3	13.14	13.57	13.57	12.71	12.43	11.25	12.46	12.08	9.12	11.30	10.67	14.27
4	12.71	13.00	12.99	12.82	12.71	12.16	12.52	14.92	12.71	11.22	11.06	13.62
5	12.57	12.71	13.14	12.71	12.80	12.16	12.46	12.55	11.89	11.99	10.90	10.90
6	12.71	12.71	13.28	12.71	16.25	12.08	12.71	12.83	11.83	12.21	11.14	11.83
7	12.68	12.60	13.28	12.71	15.16	11.83	12.83	10.93	12.21	13.16	11.35	12.27
8	12.30	12.60	13.28	12.71	15.96	12.16	12.71	11.62	12.13	11.12	10.95	13.57
9	12.57	12.60	12.99	12.77	19.62	12.32	12.52	12.02	12.30	11.62	11.19	11.94
10	12.66	12.71	12.99	12.82	21.59	12.55	12.74	11.97	12.32	11.22	10.85	11.14
11	12.71	12.71	12.80	12.71	16.34	12.35	12.49	12.82	12.52	10.77	13.31	11.56
12	11.89	16.37	12.99	12.82	15.19	11.16	12.27	12.57	12.05	10.82	12.02	11.51
13	11.89	15.65	12.97	12.88	15.16	12.32	12.10	11.56	11.94	10.31	12.58	12.49
14	12.43	14.44	12.71	12.94	14.59	12.77	12.27	11.67	12.19	10.51	14.41	11.59
15	11.76	14.09	12.71	12.82	13.94	12.57	12.10	11.43	12.10	10.87	14.15	12.22
16	10.98	13.97	13.28	12.55	13.91	12.60	12.05	11.62	11.75	11.03	13.89	12.68
17	10.90	13.57	13.14	12.60	14.00	12.63	11.24	11.78	11.51	10.90	12.97	14.60
18	10.98	12.99	13.27	12.71	14.21	12.63	10.90	11.78	11.89	11.19	12.16	13.74
19	11.08	13.05	13.40	12.16	13.22	12.68	14.60	11.89	11.99	11.60	12.19	12.16
20	11.16	12.88	13.86	12.27	13.27	12.66	13.87	12.21	12.21	11.62	11.30	12.13
21	10.98	12.85	13.57	12.27	13.71	12.68	13.84	11.51	11.86	11.67	12.30	11.67
22	10.98	12.99	13.28	12.30	12.94	12.63	13.10	11.35	11.94	11.40	13.00	11.56
23	11.43	12.97	13.28	12.66	12.55	12.60	12.43	11.06	12.49	11.27	13.28	11.30
24	12.71	12.99	13.86	12.52	12.08	12.63	12.91	11.19	12.63	11.35	11.83	11.19
25	12.57	12.99	13.86	12.16	12.35	12.63	10.98	11.40	12.46	11.08	11.59	11.40
26	12.43	13.28	13.86	12.16	12.43	12.63	13.22	11.97	11.99	11.56	12.24	11.62
27	12.57	13.22	13.57	12.08	12.30	12.63	12.16	11.80	11.70	12.05	12.71	11.54
28	12.16	14.60	12.71	12.16	11.99	12.63	8.49	11.51	11.19	11.16	14.56	11.80
29	12.66	12.71	12.71	12.55	11.67	12.63	11.75	12.10	11.19	11.24	13.92	11.59
30	12.71	12.38	12.71	12.38	11.83	12.63	11.43	12.27	10.93	11.14	12.83	9.40
31	14.00	12.94	12.94	12.38	12.16	12.63	10.82	12.05	12.24	11.30	12.38	12.38
TOTAL	376.95	375.94	409.51	377.22	430.93	371.38	380.86	369.43	357.52	351.31	367.00	375.60
AVERAGE	12.16	13.43	13.21	12.57	13.90	12.38	12.29	11.92	11.92	11.33	12.23	12.12
MAXIMUM	14.00	16.37	13.86	12.94	21.59	12.77	14.60	14.92	12.71	13.16	14.56	14.27
MINIMUM	10.90	12.60	12.71	12.08	11.67	11.16	8.49	10.93	9.12	10.31	10.67	9.40
MAX-NICHI DATE < 690510 >			21.59									
35-NICHI DATE < 690325 >			13.86									
95-NICHI DATE < 690404 >			12.82									
195-NICHI DATE < 690102 >			12.39									
275-NICHI DATE < 690916 >			11.75									
355-NICHI DATE < 691110 >			10.85									
MIN-NICHI DATE < 690728 >			8.49									
*ITEM(			1									
*****												
ANNUAL												
*****												
TOTAL AVERAGE MAXIMUM MINIMUM												
*****												
4543.65 12.45 21.59 8.49												
*****												



#DAY*	1	2	3	4	5	6	7	8	9	10	11	12
1	12.77	12.49	11.17	15.65	20.10	8.94	9.08	10.82	9.76	11.35	10.46	10.56
2	14.47	12.33	13.51	23.51	20.59	13.20	11.62	11.51	8.98	11.30	11.14	10.82
3	13.28	12.66	13.34	21.15	20.45	12.60	11.84	10.93	10.62	12.16	12.30	10.41
4	12.68	12.27	11.86	17.68	21.36	13.00	10.98	11.63	10.90	11.19	11.41	11.35
5	12.24	12.11	12.09	21.61	23.04	13.97	11.27	12.27	11.30	11.56	10.06	11.72
6	11.36	12.49	12.71	25.96	30.97	13.74	11.67	11.30	10.82	11.45	10.16	11.51
7	15.29	12.27	13.52	27.83	25.96	13.80	12.05	11.65	10.18	10.11	9.96	11.32
8	15.23	12.10	12.38	30.62	24.22	14.15	12.94	10.31	11.16	12.49	10.88	11.16
9	13.50	12.30	11.94	22.22	21.15	13.65	13.74	11.11	11.11	13.83	11.30	11.57
10	12.52	12.77	11.46	20.18	20.59	13.14	13.42	10.77	10.77	12.27	11.27	12.02
11	12.62	12.49	9.43	18.21	19.02	13.39	12.89	11.67	11.19	12.28	10.87	11.97
12	12.74	11.89	8.87	14.80	23.32	13.17	11.94	10.46	10.23	11.01	10.18	11.35
13	13.86	13.34	11.82	15.44	21.43	12.66	12.05	11.43	11.63	10.21	10.46	10.46
14	11.89	12.86	14.09	16.28	19.28	12.91	11.51	11.96	10.67	11.64	10.16	11.14
15	12.24	13.50	12.35	16.27	18.50	13.65	12.27	12.32	10.18	12.21	10.01	11.83
16	12.80	10.21	12.27	14.74	15.21	12.71	11.64	11.59	11.94	10.62	10.41	12.02
17	12.03	12.35	13.57	15.66	18.34	12.77	11.60	10.89	11.01	11.19	9.98	11.62
18	10.36	12.46	10.18	17.62	17.92	11.48	7.65	13.75	10.24	11.16	10.56	11.38
19	11.62	12.32	9.00	17.02	18.21	11.72	10.64	11.01	10.39	9.38	10.31	10.03
20	13.91	12.27	10.67	15.16	18.27	11.89	11.83	10.16	10.31	10.78	10.41	10.87
21	13.86	12.32	13.59	18.67	18.44	11.27	11.30	9.96	11.35	10.93	10.31	11.67
22	13.22	12.77	13.71	17.32	18.87	11.43	11.19	9.12	10.49	11.23	10.13	11.62
23	12.69	13.32	15.24	21.39	19.55	12.30	10.95	11.89	10.26	12.21	10.26	11.14
24	12.24	14.24	15.90	23.32	17.81	11.83	11.19	11.72	10.88	11.16	10.60	10.90
25	12.13	13.86	12.91	23.99	18.01	12.10	11.04	12.16	11.46	10.18	11.83	10.93
26	11.65	12.99	11.16	19.76	18.27	12.55	8.92	11.30	11.51	11.18	10.67	10.77
27	10.09	11.78	11.83	15.38	15.90	12.77	12.16	11.83	10.87	12.19	10.46	10.67
28	10.72	11.72	12.83	19.89	15.23	12.60	11.94	9.62	9.61	12.83	9.93	10.62
29	11.09	11.72	13.92	20.73	14.28	13.16	13.22	10.08	8.51	12.14	9.98	11.86
30	11.89	27.87	20.80	20.80	13.16	13.34	12.49	12.49	9.83	11.19	10.59	12.10
31	12.98	20.31	20.31	11.43	11.43	10.68	11.72	11.72	10.90	10.90	10.90	10.06
TOTAL	390.17	350.48	401.79	589.06	598.88	379.89	557.71	350.22	318.16	354.84	317.05	347.45
AVERAGE	12.59	12.52	12.96	19.64	19.32	12.66	11.54	11.30	10.61	11.45	10.57	11.21
MAXIMUM	15.29	14.24	27.87	30.62	30.97	14.15	13.74	13.75	11.94	13.83	12.30	12.10
MINIMUM	10.09	10.21	8.87	14.74	11.43	8.94	7.65	9.12	8.51	9.38	9.93	10.03

MAX-NICHI DATE < 700506 > 30.97  
 35-NICHI DATE < 700515 > 18.50  
 95-NICHI DATE < 700103 > 13.28  
 185-NICHI DATE < 700212 > 11.89  
 275-NICHI DATE < 700723 > 10.95  
 355-NICHI DATE < 700311 > 9.43  
 MIN-NICHI DATE < 700718 > 7.65  
 \*ITEM# 1  
 \*\*\*\*\*  
 A N N U A L  
 \*\*\*\*\*  
 TOTAL AVERAGE MAXIMUM MINIMUM  
 \*\*\*\*\*  
 4755.70 13.03 30.97 7.65  
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KIKULETWA RIVER, TANESCO(1DD54) C.A. = 2220.0 KM\*\*2

#DAY*	1	2	3	4	5	6	7	8	9	10	11	12
1	10.97	11.76	17.32	10.51	17.36	13.55	10.18	10.26	11.19	10.59	9.93	9.68
2	11.88	11.26	17.76	10.77	16.53	13.08	12.74	10.26	11.19	10.43	9.68	9.85
3	11.69	11.99	18.55	11.45	12.89	12.01	14.04	10.26	11.19	10.59	9.52	9.76
4	11.62	12.57	17.75	11.19	12.53	12.59	11.99	10.77	11.28	10.59	9.60	9.68
5	11.58	12.75	15.00	11.45	30.91	11.19	9.68	11.45	10.76	10.43	9.85	9.60
6	11.89	12.49	13.46	10.26	33.33	11.64	10.26	11.65	10.26	10.43	9.76	9.60
7	11.80	12.32	11.46	10.86	47.15	11.81	10.18	9.68	9.60	10.43	9.93	9.36
8	11.69	12.07	10.59	10.77	47.15	11.63	10.26	10.26	9.12	10.26	10.26	9.44
9	11.80	11.80	10.26	10.43	48.24	11.28	10.26	9.85	9.04	10.26	10.18	9.28
10	12.26	11.56	11.28	10.26	34.91	10.68	10.26	10.01	8.97	10.26	10.09	9.28
11	12.85	11.36	12.16	11.58	34.76	10.26	10.26	10.09	9.60	10.51	10.26	9.52
12	13.28	11.76	11.02	12.90	34.98	10.26	10.26	9.93	9.68	10.51	10.26	9.68
13	14.27	11.41	10.76	10.36	26.07	10.26	10.18	9.76	9.36	10.76	10.26	9.68
14	15.34	11.46	10.43	10.86	41.45	10.26	10.18	10.01	9.44	9.44	10.68	9.28
15	15.77	11.62	15.50	11.28	39.61	10.26	10.09	9.76	8.43	9.36	10.76	9.28
16	12.66	11.84	14.71	11.28	34.77	10.26	9.93	9.76	7.34	9.28	10.26	9.12
17	11.88	11.76	12.18	15.91	33.04	10.26	10.09	9.60	9.36	9.28	10.26	8.97
18	11.95	11.76	11.72	15.30	29.99	10.18	10.26	9.76	9.52	9.36	9.60	9.04
19	11.95	11.58	11.02	23.41	19.91	10.09	10.26	9.93	9.52	9.20	10.76	8.97
20	11.86	12.15	11.72	28.22	20.10	10.18	10.18	9.52	9.68	9.20	9.28	8.97
21	11.80	12.73	10.26	20.29	19.65	10.26	9.93	9.76	9.76	9.44	9.44	9.04
22	11.69	13.30	10.51	47.46	19.09	10.59	9.93	9.68	10.09	9.52	9.20	9.28
23	11.88	13.88	15.30	55.72	18.76	10.68	10.01	9.33	10.01	9.68	9.28	9.36
24	11.95	14.45	15.00	65.78	20.12	10.76	10.01	9.28	10.18	9.68	9.68	9.12
25	11.80	15.02	11.65	30.14	21.37	10.76	10.09	9.36	10.09	9.93	9.68	9.04
26	11.51	15.60	11.98	25.51	21.72	10.68	9.93	9.44	10.01	9.93	9.76	8.97
27	11.41	16.17	11.37	48.13	21.25	10.59	9.93	9.60	10.59	9.93	9.85	9.12
28	11.65	16.75	10.26	32.26	18.33	10.43	10.09	9.93	10.59	9.76	9.76	9.44
29	11.69	16.99	10.26	18.33	15.50	10.26	10.26	9.85	10.43	9.76	9.76	9.68
30	11.76	13.76	13.76	14.61	14.51	10.09	10.26	9.76	20.56	9.68	9.60	9.68
31	11.80	10.94	10.94		13.83		10.26	10.26	10.09	10.09	9.60	9.76
TOTAL	377.81	354.57	395.94	617.78	826.23	327.65	322.24	308.58	306.84	308.65	297.19	290.53
AVERAGE	12.19	12.66	12.77	20.59	26.65	10.92	10.39	9.95	10.23	9.96	9.91	9.37
MAXIMUM	15.77	16.75	18.55	65.78	47.15	13.55	14.04	11.65	20.56	10.76	10.76	9.85
MINIMUM	10.97	11.26	10.26	10.26	13.83	10.09	9.68	9.28	7.34	9.20	9.20	8.97
MAX-NICHI DATE < 710424 >			65.78									
35-NICHI DATE < 710523 >			18.76									
95-NICHI DATE < 710106 >			11.88									
185-NICHI DATE < 710628 >			10.43									
275-NICHI DATE < 711202 >			9.85									
355-NICHI DATE < 710909 >			9.04									
MIN-NICHI DATE < 710916 >			7.34									
#ITEM( 1 )												
TOTAL												
AVERAGE												
MAXIMUM												
MINIMUM												
MAX-NICHI DATE < 710424 >												
35-NICHI DATE < 710523 >												
95-NICHI DATE < 710106 >												
185-NICHI DATE < 710628 >												
275-NICHI DATE < 711202 >												
355-NICHI DATE < 710909 >												
MIN-NICHI DATE < 710916 >												
#ITEM( 1 )												

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 A N N U A L  
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 TOTAL AVERAGE MAXIMUM MINIMUM  
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 4734.01 12.97 65.78 7.34  
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*DAY*	1	2	3	4	5	6	7	8	9	10	11	12
1	9.68	10.09	13.35	12.48	13.35	20.00	11.46	11.88	11.29	12.48	12.74	13.27
2	9.93	10.18	13.35	12.57	13.89	19.90	11.63	11.88	11.29	12.48	12.57	13.35
3	9.85	10.18	12.85	12.74	13.00	18.60	11.63	11.63	11.38	12.65	12.48	13.35
4	10.18	10.09	13.00	12.92	13.89	16.28	11.46	11.63	11.88	12.74	12.31	13.53
5	10.18	10.18	13.18	12.57	14.61	17.23	11.63	11.63	11.88	12.92	12.48	13.35
6	10.26	10.26	13.00	12.65	18.09	17.44	11.71	11.63	12.05	12.92	12.48	13.35
7	10.43	10.43	12.57	12.05	16.37	19.09	11.97	11.46	11.46	13.27	12.57	13.53
8	10.18	10.26	12.65	12.74	15.18	14.98	11.97	11.46	11.46	13.35	12.83	13.18
9	10.01	10.26	12.74	12.57	14.16	15.25	12.05	11.46	11.29	13.35	12.65	13.09
10	10.01	10.26	12.83	12.57	16.85	15.62	12.22	11.38	11.38	13.71	12.48	13.00
11	10.09	10.26	13.18	19.19	16.09	15.34	12.14	11.29	13.00	13.53	12.14	12.83
12	10.26	10.76	13.18	19.29	19.91	15.34	12.14	11.13	13.98	13.35	12.05	12.74
13	10.26	10.26	13.18	21.74	21.02	15.25	12.31	10.96	14.45	12.65	12.31	12.48
14	10.18	10.26	11.97	17.29	19.80	15.07	12.39	10.88	13.27	12.83	12.31	12.48
15	10.09	10.26	13.53	17.53	17.81	14.98	12.39	10.88	13.27	11.97	12.39	11.80
16	10.68	10.26	12.57	13.18	21.44	14.88	12.31	10.71	13.35	11.71	12.39	11.88
17	12.16	10.26	12.65	15.08	16.28	14.61	12.22	10.80	13.44	11.46	12.05	11.80
18	12.16	10.26	13.45	18.30	17.25	13.27	12.22	10.88	12.92	11.71	12.74	11.71
19	12.16	10.26	12.31	16.37	15.53	13.18	12.14	10.55	17.65	11.80	15.54	11.63
20	11.72	10.26	12.74	43.07	15.07	13.09	11.97	10.39	12.48	11.80	15.34	11.46
21	11.28	10.18	13.89	19.70	23.50	13.90	11.88	10.63	12.39	11.97	15.72	11.46
22	11.19	10.09	14.25	17.62	23.36	13.09	11.88	10.63	12.22	11.97	15.34	11.46
23	10.93	10.09	13.89	15.44	20.61	13.09	11.46	10.63	12.05	11.71	15.90	11.46
24	10.93	10.01	13.62	14.88	20.41	13.00	11.63	10.88	12.05	11.46	14.25	11.46
25	10.76	9.30	13.18	13.89	26.37	13.09	11.80	10.96	11.88	11.63	13.35	11.63
26	10.76	9.93	13.27	13.80	20.61	12.92	11.88	10.96	11.38	12.14	13.35	11.63
27	10.76	10.01	13.18	18.62	19.30	12.57	11.63	11.13	11.13	12.31	13.71	11.46
28	10.43	10.09	13.09	14.26	33.58	11.80	11.80	11.46	11.46	12.31	13.71	11.46
29	10.68	11.72	12.92	15.07	22.90	11.63	11.63	10.96	11.29	12.39	12.74	11.46
30	10.51	10.51	12.65	13.27	25.05	11.46	11.80	11.29	11.13	12.57	12.05	11.46
31	10.26	10.26	12.57	11.88	21.87	11.46	11.88	11.13	11.13	12.65	12.05	11.46
TOTAL	328.79	296.21	469.76	479.45	587.15	445.95	369.23	345.17	365.15	385.79	394.97	380.21
AVERAGE	10.61	10.21	13.22	15.98	18.94	14.87	11.91	11.13	12.17	12.44	13.17	12.26
MAXIMUM	12.16	11.72	18.50	43.07	33.58	20.00	12.39	11.88	14.45	13.71	15.90	13.53
MINIMUM	9.68	9.30	11.97	12.05	13.00	11.46	11.46	10.39	11.13	11.46	12.05	11.46

MAX-NICHI DATE < 720420 > 43.07  
 35-NICHI DATE < 720510 > 16.85  
 95-NICHI DATE < 721126 > 13.35  
 185-NICHI DATE < 720713 > 12.31  
 275-NICHI DATE < 721223 > 11.46  
 355-NICHI DATE < 720222 > 10.09  
 MIN-NICHI DATE < 720225 > 9.30  
 \*ITEM( 1 )  
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 A N N U A L  
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 T O T A L A V E R A G E M A X I M U M M I N I M U M  
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 4787.83 13.08 43.07  
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*DAY*	1	2	3	4	5	6	7	8	9	10	11	12
1	11.46	11.46	12.22	11.80	27.54	13.00	12.83	11.13	12.65	10.96	11.29	11.29
2	11.38	11.46	12.14	11.38	30.47	13.35	12.65	11.13	12.65	11.29	11.29	11.38
3	11.46	11.46	12.22	11.46	29.77	13.35	12.57	11.13	12.83	11.21	11.38	11.46
4	11.46	11.46	12.39	11.46	25.27	13.35	12.31	11.29	12.74	11.13	11.29	11.46
5	11.63	11.46	12.57	11.46	27.51	13.27	12.39	10.96	12.74	11.29	11.46	11.29
6	11.38	11.46	11.72	11.46	23.22	13.00	12.74	13.09	12.57	11.29	11.13	11.29
7	11.46	11.29	10.96	11.46	24.94	13.00	12.74	13.18	12.31	11.46	10.96	11.38
8	11.63	11.80	11.13	11.63	24.19	12.74	12.74	12.65	12.14	11.46	11.13	11.46
9	11.63	12.14	11.13	11.71	23.43	12.65	12.65	12.65	11.97	11.46	11.29	11.38
10	11.80	12.65	11.13	11.97	18.40	12.65	12.65	11.38	11.71	11.29	11.38	11.46
11	12.05	12.14	11.13	12.22	18.20	12.57	12.65	11.38	11.29	11.38	11.46	11.46
12	11.97	12.83	11.29	12.14	18.20	12.31	12.65	11.46	11.38	11.46	11.46	11.46
13	12.05	12.92	11.38	12.05	17.33	12.31	12.57	11.46	11.38	11.46	11.29	11.63
14	12.14	13.00	11.38	12.48	17.14	12.57	12.48	11.46	11.13	11.46	11.38	11.80
15	12.14	13.00	11.46	12.57	15.81	11.88	12.57	11.46	11.29	11.46	11.46	11.80
16	12.31	13.00	11.46	12.65	15.34	11.63	12.48	11.46	11.29	11.46	11.46	11.63
17	14.99	13.18	11.46	12.74	14.43	11.63	12.31	11.46	11.13	11.46	11.46	11.63
18	16.09	13.00	11.46	12.74	14.34	11.71	12.39	11.29	11.29	11.46	11.38	11.63
19	16.28	13.00	11.46	11.97	14.25	11.46	12.57	11.46	11.46	11.46	11.29	11.46
20	13.63	13.00	11.46	20.31	14.07	11.46	12.48	11.46	11.29	11.38	11.29	11.46
21	13.89	13.00	11.63	20.71	13.80	11.13	12.65	11.46	11.13	11.13	11.29	11.80
22	12.92	12.83	11.88	18.01	14.16	10.96	12.65	11.63	11.29	11.29	11.29	11.46
23	12.48	12.74	11.97	16.57	15.35	11.13	12.48	11.46	11.29	11.29	11.29	11.46
24	12.22	12.48	12.14	15.16	16.38	11.29	12.39	11.63	11.29	11.46	11.38	11.38
25	12.39	12.48	11.80	14.16	16.00	11.46	12.39	11.88	11.38	11.46	11.46	11.29
26	12.14	12.48	11.46	16.95	15.34	11.63	12.31	12.16	11.29	11.46	11.46	11.29
27	12.14	12.39	11.63	20.44	15.25	11.46	12.22	12.22	10.96	11.46	11.46	11.29
28	12.14	12.48	11.80	20.10	15.34	11.21	11.63	12.31	9.12	11.46	11.38	11.29
29	11.88	11.88	11.63	18.01	15.16	12.65	11.29	12.65	10.71	11.38	11.46	11.38
30	11.80	11.80	11.80	23.86	15.07	13.27	11.29	12.74	10.96	11.46	11.38	11.29
31	11.80	11.80	11.80	14.08	14.08	11.46	11.38	12.74	11.13	11.13	11.46	11.29
TOTAL	384.74	346.59	361.63	431.63	579.78	366.08	384.10	365.82	346.26	352.26	340.38	355.03
AVERAGE	12.41	12.38	11.65	14.39	18.70	12.20	12.39	11.80	11.54	11.36	11.35	11.45
MAXIMUM	16.28	13.18	12.57	23.86	30.47	13.35	12.83	13.18	12.83	11.46	11.46	11.80
MINIMUM	11.38	11.29	10.96	11.38	13.80	10.96	11.29	10.96	9.12	10.96	10.96	11.29

MAX-NICHI DATE < 730502 > 30.47  
 35-NICHI DATE < 730529 > 15.16  
 95-NICHI DATE < 730808 > 12.65  
 185-NICHI DATE < 730329 > 11.63  
 275-NICHI DATE < 730402 > 11.38  
 355-NICHI DATE < 731106 > 11.13  
 MIN-NICHI DATE < 730928 > 9.12  
 \*ITEM( 1 )

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 A N N U A L  
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 TOTAL AVERAGE MAXIMUM MINIMUM  
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 4613.70 12.64 30.47 9.12  
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*DAY*	1	2	3	4	5	6	7	8	9	10	11	12
1	11.13	18.01	11.46	12.23	28.17	12.57	11.46	11.38	11.29	11.29	10.88	10.96
2	11.29	18.01	11.46	12.74	28.05	12.39	11.38	11.46	11.38	11.29	10.80	11.13
3	11.29	18.20	11.38	18.29	25.16	12.39	11.46	11.38	11.46	10.96	9.62	11.29
4	11.38	18.20	11.29	22.90	25.05	12.39	11.46	11.46	11.46	11.29	10.96	11.29
5	11.46	18.20	11.13	23.76	24.40	12.39	11.46	11.46	11.29	11.38	11.13	11.29
6	11.38	17.24	11.29	24.50	18.40	12.31	11.46	11.29	11.29	11.29	11.29	11.29
7	11.29	16.56	11.29	25.82	17.72	12.31	11.46	11.29	11.38	11.38	11.13	11.13
8	11.29	11.46	11.38	25.49	15.57	12.22	11.63	11.29	11.46	11.46	11.29	10.96
9	11.29	11.46	11.29	23.43	13.35	12.14	11.80	11.29	11.38	11.46	10.96	10.96
10	11.13	11.46	11.29	24.40	13.71	12.14	11.80	10.96	11.46	11.46	11.29	10.96
11	10.96	11.46	11.46	87.66	13.35	11.97	11.97	11.13	11.46	11.46	11.29	10.96
12	11.46	11.46	11.46	77.22	13.35	11.88	11.97	11.29	11.46	11.63	11.29	10.96
13	11.46	11.46	11.46	64.46	13.35	11.97	11.97	11.38	11.63	11.80	11.13	11.29
14	11.46	11.46	11.46	30.59	13.35	11.97	11.97	11.38	11.80	11.88	11.38	11.46
15	11.46	11.46	11.46	21.64	13.27	11.97	11.88	11.13	11.80	12.05	11.38	11.46
16	11.46	11.46	11.46	26.07	13.18	11.71	12.14	11.29	11.63	12.14	11.29	11.46
17	11.46	11.46	11.46	30.22	13.18	11.63	12.05	11.38	11.80	12.05	10.96	11.46
18	11.63	11.29	11.63	29.89	13.09	11.63	11.97	11.29	11.63	12.14	11.38	11.46
19	11.46	11.29	11.80	27.71	13.09	11.46	11.46	11.13	11.46	11.97	11.29	11.46
20	11.88	11.29	11.46	23.87	12.65	11.46	11.46	11.29	11.46	11.97	11.38	11.46
21	11.38	11.38	11.46	20.30	12.65	11.38	11.80	11.29	11.46	11.97	11.46	11.80
22	11.38	11.38	11.46	33.93	12.83	10.96	11.63	11.38	11.29	11.71	11.46	11.80
23	10.96	11.46	11.46	54.59	12.65	10.96	11.46	11.29	11.38	11.46	11.80	11.80
24	11.13	11.46	11.38	50.53	12.57	11.13	11.46	11.29	11.29	11.46	11.38	11.80
25	11.29	11.46	11.46	48.47	12.48	11.38	11.46	11.13	11.29	11.46	11.38	11.80
26	10.80	11.46	11.46	35.74	12.74	11.29	11.46	11.13	11.36	11.46	11.13	11.88
27	10.55	11.46	11.46	41.59	12.74	11.38	11.46	10.96	11.38	11.38	10.96	11.46
28	18.11	11.46	11.46	30.94	12.74	11.46	11.46	10.96	11.29	11.38	10.96	11.46
29	18.11	11.46	11.46	30.82	12.65	11.46	11.46	10.96	11.29	11.38	10.96	11.46
30	18.20	11.46	11.63	29.44	12.74	11.46	11.46	11.13	11.38	11.29	10.96	11.46
31	17.91	11.46	11.80		12.57		11.38	11.29		11.13		11.63
TOTAL	377.44	364.41	354.86	1009.84	480.80	353.76	360.70	348.76	343.39	358.43	334.23	353.04
AVERAGE	12.18	13.01	11.45	33.66	15.51	11.79	11.64	11.25	11.45	11.56	11.14	11.39
MAXIMUM	18.20	18.20	11.80	87.66	28.17	12.57	12.14	11.46	11.80	12.14	11.46	11.88
MINIMUM	10.55	11.29	11.13	12.23	12.48	10.96	11.38	10.96	11.29	10.96	9.62	10.96

MAX-NICHI DATE < 740411 > 87.66  
 35-NICHI DATE < 740130 > 18.20  
 95-NICHI DATE < 740713 > 11.97  
 185-NICHI DATE < 740706 > 11.46  
 275-NICHI DATE < 740218 > 11.29  
 355-NICHI DATE < 741201 > 10.96  
 MIN-NICHI DATE < 741103 > 9.62

\*ITEMC 1

\*\*\*\*\* ANNUAL \*\*\*\*\*  
 \*\*\*\*\* AVERAGE \*\*\*\*\* MAXIMUM MINIMUM \*\*\*\*\*  
 \*\*\*\*\* TOTAL \*\*\*\*\*  
 \*\*\*\*\* 5039.66 \*\*\*\*\* 13.81 \*\*\*\*\* 87.66 \*\*\*\*\* 9.62 \*\*\*\*\*

#DAY*	1	2	3	4	5	6	7	8	9	10	11	12
1	11.46	10.96	11.38	11.13	13.27	17.04	11.38	11.29	11.38	11.29	10.82	11.46
2	11.46	11.80	11.29	10.96	13.09	17.04	11.46	11.29	11.46	11.13	10.84	11.46
3	11.38	11.13	11.13	11.13	12.83	16.85	11.63	11.29	11.46	11.29	10.86	11.46
4	11.38	11.13	11.13	11.29	12.65	16.85	11.80	11.46	11.63	11.38	10.89	11.46
5	11.38	11.13	10.80	11.38	12.40	16.66	11.88	11.46	11.46	11.46	10.91	11.80
6	11.46	11.29	10.71	11.29	12.14	16.66	11.63	11.46	11.63	11.46	10.93	11.38
7	11.46	11.29	10.63	11.29	11.63	15.34	11.46	11.38	11.80	11.46	10.95	11.46
8	11.46	11.13	10.47	11.13	11.46	15.07	11.63	11.38	11.80	11.46	10.97	11.46
9	11.46	11.38	10.55	11.13	11.46	14.98	11.80	11.29	11.97	11.46	10.99	11.46
10	11.46	11.29	10.80	11.29	11.46	14.88	11.46	11.29	11.97	11.46	11.01	11.38
11	11.46	11.29	10.96	11.38	11.46	13.03	11.46	11.13	11.63	11.46	11.03	11.38
12	11.21	10.96	10.96	11.38	11.46	11.38	11.46	11.29	11.80	11.46	11.06	11.29
13	10.88	10.96	10.96	11.29	11.46	11.29	11.46	11.29	11.63	11.46	11.08	11.29
14	10.96	10.96	10.96	11.29	11.46	11.29	11.38	11.29	11.63	11.46	11.10	11.13
15	10.96	10.96	10.96	11.29	11.46	11.29	11.38	11.13	11.46	11.46	11.12	11.29
16	11.13	11.13	10.96	11.46	11.63	11.13	11.38	10.96	11.38	11.46	11.14	11.29
17	11.13	11.13	10.96	11.46	11.97	10.96	11.29	10.96	10.96	11.46	11.16	11.38
18	11.13	11.29	11.29	11.46	12.66	10.96	11.29	11.13	10.96	11.46	11.18	11.38
19	10.96	11.29	11.13	11.63	15.72	10.96	11.46	11.29	10.96	11.46	11.20	11.29
20	10.96	11.29	11.13	11.80	14.98	11.13	11.46	11.29	11.13	11.46	11.23	11.46
21	10.96	11.38	11.29	11.46	18.01	10.96	11.29	11.29	11.29	11.46	11.25	11.13
22	10.96	11.38	11.29	20.92	17.72	11.13	11.13	11.29	11.46	11.38	11.27	10.96
23	10.96	11.46	11.13	16.81	17.14	11.13	11.13	11.13	11.46	11.38	11.29	11.13
24	10.96	11.38	11.29	14.79	16.85	11.38	11.29	11.29	11.46	11.29	11.31	11.29
25	10.96	11.46	11.29	14.16	17.33	11.38	11.29	11.29	11.38	11.29	11.33	11.38
26	10.96	11.36	11.29	13.89	17.33	11.29	11.29	11.29	11.38	11.29	11.35	11.46
27	10.96	11.46	10.96	13.35	17.14	11.29	11.29	11.38	11.29	11.13	11.37	11.46
28	10.96	11.46	10.96	13.35	17.14	11.29	11.38	11.29	11.13	11.13	11.40	11.38
29	10.96	10.96	11.29	13.35	16.94	11.29	11.46	11.38	11.29	10.96	11.42	11.46
30	11.13	11.13	11.38	13.35	17.04	11.29	11.46	11.38	11.13	10.88	11.44	11.46
31	10.96	10.96	11.29	17.04	17.04	11.46	11.46	11.38	11.46	10.80	11.64	11.38

TOTAL 345.87 315.13 342.62 371.89 456.33 387.22 354.62 349.74 343.37 351.44 333.90 352.45  
 AVERAGE 11.16 11.25 11.05 12.40 14.08 12.91 11.44 11.28 11.45 11.34 11.15 11.37  
 MAXIMUM 11.46 11.80 11.38 20.92 18.01 17.04 11.88 11.46 11.97 11.46 11.44 11.80  
 MINIMUM 10.88 10.96 10.47 10.96 11.46 10.96 11.13 10.96 10.96 10.80 10.82 10.96  
 MAX-NICHI DATE < 750422 > 20.92  
 35-NICHI DATE < 750611 > 13.03  
 95-NICHI DATE < 750720 > 11.46  
 185-NICHI DATE < 751125 > 11.33  
 275-NICHI DATE < 750304 > 11.13  
 355-NICHI DATE < 751030 > 10.88  
 MIN-NICHI DATE < 750308 > 10.47  
 \*ITEM( 1 )  
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 A N N U A L  
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 T O T A L A V E R A G E M A X I M U M M I N I M U M  
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 4284.58 11.74 20.92 10.47  
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