INACCURACIES IN RAINFALL RECORDING IN PAPUA NEW GUINEA

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INTRODUCTION

Climatic information, particularly rainfall records are important to many aspects related to agriculture, such as the assessment of crop performance.

While the rainfall recording network in PNG expanded to 330 operating stations by 1970 (McAlphine et al 1983), the total number of stations since has declined. Furthermore, rainfall data also show signs that the quality of records are deteriorating. The earlier records reveal certain incorrect recording techniques reflected in missing data, such as the "Monday effect", where the rainfall of whole weekends would be recorded as a single daily fall on Monday (McAlphine et al 1983).

However, in an analysis of recent rainfall data from six neighbouring stations in the Northern Province the authors have noticed further sources of errors which can be explained by the lack of acquaintance with the recording techniques.

RAINFALL DATA

Table 1 gives the annual rainfall figures for all available years between 1979 and 1985 for six neighbouring stations (A to F) in Northern Province of Papua New Guinea. All stations lie within a 6km radius of station C and are located on a gently sloping lower slope with few, if any, topographic irregularities. There are therefore no obvious reasons for the rainfall patterns of the six stations to differ significantly.

Inspection of the annual figures shows broad similarities in the data from stations B, C, D and E between 1979 and 1983. However, figures from two stations, F between 1981-85 and B between 1984 and 1985, contrast strongly with this pattern. In the former case, totals for all 5 years are only half those recorded at the other stations. Similarly, the 1984-85 records for B fall to equally low levels, and contrast markedly with data for these two years from stations A and C.

While significant variability in rainfall within short distances is always a possibility in PNG, preliminary inspection of the differences in the above annual rainfall figures suggests a need for closer examination of some selected daily registration data.

Table 2 shows daily records for station B in 1983, when the annual total of 3038 mm appeared normal (Table 1). In comparison, Table 3 gives the records fro 1985 when the annual rainfall was suspiciously low, whilst Table 4 shows a similarly doubtful 1983 record for station F.

Daily rainfall values at Station B during 1983 ranged between 1.3 and 111.4 mm, with daily recordings of over 30 mm being very common, particularly during the first three months of the year. In 1985, by contrast, daily recordings varied between 5.2 and 29.2 mm only with almost 90% of the rain falling in the 15 to 30 mm range. In the case of station F in 1983, records of rainfall in excess of 30 mm are also conspicuously absent. Unlike station B in 1985, however, relatively high percentage of records fell inthe 0-5mm range.

DISCUSSION

The frequency distribution of daily rainfall given in Tables 2, 3 and 4 are shown in Figures 1a, b and c. The figures clearly demonstrate several kinds of discrepancies

in rainfall recording which can be summarized as follows:

1. failure to record rainfall in excess of 30 mm, probably due to ignorance of the correct measuring technique (station B in 1984 and 1985, and station F 1981-85). This omission can be explained by examining the rainfall gauge shown in Figure 2. The central column of the gauge holds just over 25 mm and, when full, overflows in the outer cylingder which can hold about 250 mm. The correct method to record the rainfall in excess of 25 mm is to firstly record the rainfall in the central column and then the additional rainfall accumulated in the outer cylinder. The absence of any daily records in excess of 30 mm (see Table 3 and 4) implies that the recorders have failed to measure the rain contained in the outer cylinder.

2. failure to record all raindays. Evidence of such omission is revealed by:

   i) low frequencies of daily rainfall below 5 mm, indicated by comparing figures 1a and b with figure 1c.

   ii) suspiciously low numbers of total raindays. This shortcoming is clearly shown in the total number of raindays (54) for station B during 1985. However, a comparison with records of a nearby "major" recording station listed in the climatic tables for PNG (McAlpine et al 1975) gives an average 199 raindays over a 14 year period, suggesting that even in station F, with only 116 raindays the rainfall is unlikely to have been recorded daily.

   iii) low numbers of raindays recorded during the weekend, reflected in high rainfall values for Sunday. This has been described as the "Monday effect" (McAlpine et al 1983) and is revealed in Table 5 by the very low total numbers of raindays on Friday (9) and Saturday (5), recorded on Saturday and Sunday respectively. The 731 mm total rainfall for Sunday (see Table 5), recorded on Monday, also clearly reflects the Monday effect.

While it should be noted that a failure to record daily rainfall may not effect the total rainfall recorded because the gauge can accumulate rainfall for several days before it is finally read, it results in an incorrect number of raindays and estimates of daily intensities thus become impossible.

It would appear that the basic misunderstandings of recording techniques outlined above can easily be corrected by proper training and supervision. There is little point in installing gauges and recording rainfall data which is subjeot to errors and may result in misunderstandings or faulty predictions of flood or drought hazards or soil degradation risks.

Hopefully this note will stimulate both recorders and supervisors to correct these mistakes. The importance of rainfall data for crop suitability evaluation cannot be stressed often enough.

REFERENCE

McAlpine J.R., Keig, Gael with Falls, R. (1983). Climate of Papua New Guinea. ANU Press Canberra.

COMMENTS

We agree that there should be more proper training on rainfall recording techniques.

All rainfall recording techniques/ instructions are on all rainfall registry forms (eg. P10's) (Figure 3) that are sent out annually to all rainfall observing stations, however some observers are not following the instructions.

Training programmes will have to be drawn up and can best be taught at Civil Aviation Training College (6 Mile) for all rainfall observers. Training on rainfall recording

techniques can also be done by our inspectors on their various trips within the country.

There is another important point which has not been discussed regarding the reasons for inaccurancies. One should note that rainfall observation is a voluntary type of work and can be best done by interested and committed observers only.

As for myself, I feel we should do away with unproductive rainfall stations and open up more synoptic and climatic stations where other meteorological elements as well as rainfall are recorded. These types of stations receive an allowance for their work and is this a great incentive.

In the long run, the NSW is looking at installing more automatic weather recording stations which would greatly improve the data quality.

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Table 1. Mean Annual Rainfall (mm) of stations located withion a 6 km radius in the Northern Province.

YEAR / STATION	'79	'80	'81	'82	'83	'84	'85
A	--	--	--	--	--	3569	4028
B	--	--	2662	2373	3038	1604	1257
C	2117	2452	2663	2647	2827	2499	3050
D	1905	2539	2612	2230	3166	*	*
E	1848	2446	2550	2200	3001	--	--
F			1622	1404	1663	1416	1589

-- No data
* Incomplete data

Table 2

RAINFALL REGISTRATION CHART

for station B

YEAR 19 83

DATE	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	DATE
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	
1	20.6	67.9	19.2	-	5.8	-	-	-	7.7	-	-	-	1
2	21.4	14.4	41.2	-	-	-	-	-	9.6	87.4	-	13.2	2
3	19.0	78.6	47.8	-	-	-	-	-	-	6.0	-	-	3
4	88.4	-	31.6	53.4	-	-	-	-	-	-	-	-	4
5	83.2	-	31.6	-	-	-	-	-	-	-	-	-	5
6	9.8	55.2	-	19.6	-	16.0	-	-	57.8	5.8	18.0	-	6
7	-	68.4	-	-	-	-	-	-	-	-	-	-	7
8	1.4	12.4	-	-	-	48.0	-	-	-	28.8	-	-	8
9	-	13.8	12.2	-	-	-	-	14.0	-	-	-	-	9
10	-	24.0	15.8	-	-	-	-	-	-	-	-	-	10
11	-	85.6	111.4	-	-	-	-	-	-	-	-	-	11
12	-	-	-	-	-	-	-	-	-	2.8	-	69.6	12
13	-	4.8	80.6	58.6	-	-	-	-	-	-	72.2	-	13
14	-	5.4	-	-	-	-	9.6	-	-	-	-	30.8	14
15	-	31.8	-	-	-	-	-	6.8	-	-	-	29.2	15
16	37.0	35.4	43.0	-	-	26.8	-	-	-	-	28.4	-	16
17	11.2	4.6	-	-	30.4	-	-	5.8	-	-	-	-	17
18	17.8	-	-	-	-	-	-	41.8	-	-	-	20.8	18
19	-	-	-	-	-	-	-	-	-	-	-	-	19
20	-	37.6	-	-	-	-	-	48.6	-	17.6	-	-	20
21	-	1.2	34.6	38.4	-	18.0	-	14.6	48.8	-	-	-	21
22	-	16.2	-	48.4	-	-	-	-	14.8	-	-	-	22
23	-	14.8	-	-	52.6	-	-	-		12.0	-	-	23
24	-	-	-	-	-	5.4	7.6	-	-	12.6	-	-	24
25	-	-	-	-	37.2	-	-	13.6	13.6	-	16.6	-	25
26	-	-	-	-	-	54.4	-	-	4.8	-	-	-	26
27	65.4	45.8	-	-	-	2.4	-	-	-	-	80.8	-	27
28	-	10.2	-	-	-	-	-	-	-	-	-	-	28
29	-	-	29.4	-	-	-	-	-	-	-	-	-	29
30	76.2	-	28.4	-	-	-	-	-	-	-	-	-	30
31	19.2	-	-	-	-	-	-	-	-	25.6	-	-	31
Totals	470.6	628.1	526.8	218.4	126.0	171.0	17.2	145.2	157.1	198.6	216.0	163.4	
No. of Days	13	20	13	5	4	7	2	7	7	9	5	5	

	Since Jan. 1	2 Months	3 Months	4 Months	5 Months	6 Months	7 Months	8 Months	9 Months	10 Months	11 Months	Year
Totals	470.6	1098.7	1625.5	1843.9	1969.9	2140.9	2158.1	2303.3	2460.4	2659.0	2875.0	3038.4

Average all Years	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	YEAR

Table 3

RAINFALL REGISTRATION CHART

for Station B

YEAR 19 85

DATE	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	DATE
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	
1	-	-	-	8.2	-	-	-	-	-	29.2	-	-	1
2	25.4	-	-	10.2	-	-	-	-	14.2	-	-	28.2	2
3	-	-	-	-	27.8	-	-	-	28.6	-	-	28.6	3
4	-	25.8	-	-	-	-	-	-	-	-	24.2	-	4
5	-	-	-	-	-	-	-	-	-	-	-	-	5
6	17.0	-		-	25.6	-	-	-	26.2	-	-	-	6
7	26.6	-	26.6	-	-	-	-	-	-	-	-	-	7
8	-	-	-	26.2	-	-	-	-	26.4	-	-	-	8
9	26.6	22.6	-	-	-	-	-	-	-	-	-	-	9
10	-	-	-	-	-	-	-	-	6.2	27.2	-	-	10
11	-	-	26.6	-	27.0	28.2	19.4	-	-	-	26.4	-	11
12	25.4	-	-	-	-	-	-	-	26.0	-	-	-	12
13	-	-	-	-	-	-	-	-	-	-	27.2	-	13
14	-	-	26.2	-	-	-	-	-	-	-	-	-	14
15	-	-	-	-	-	-	-	-	-	-	-	-	15
16	-	-	-	-	-	-	27.8	-	-	26.8	-	-	16
17	-	25.0	26.2	-	-	-	-	-	-	-	-	-	17
18	17.0	-	-	-	-	-	-	-	-	-	26.8	-	18
19	-	-	-	-	-	-	-	-	-	-	-	-	19
20	-	22.2	-	-	-	-	-	20.6	-	-	-	-	20
21	-	-	-	-	-	6.4	-	-	-	-	-	-	21
22	-	-	-	-	-	-	-	-	-	-	-	-	22
23	-	-	-	-	-	-	-	-	26.4	-	-	-	23
24	-	-	-	-	24.6	-	-	-	26.2	-	26.2	-	24
25	13.6	-	-	-	-	-	-	6.2	-	-	-	-	25
26	-	-	-	-	-	-	-	20.0	-	-	-	-	26
27	-	-	-	-	-	-	-	-	-	-	-	-	27
28	-	-	-	-	-	-	-	-	-	26.2	24.2	-	28
29	-	-	-	25.6	-	22.0	-	28.2	-	-	-	-	29
30	24.4	-	-	-	-	-	-	-	-	-	-	-	30
31	-	-	25.2	-	-	-	-	-	-	-	-	-	31
Totals	176.0	95.6	130.8	70.2	105.0	56.6	47.2	75.0	179.2	109.8	155.0	56.8	
No. of Days	8	4	5	4	4	3	2	4	8	4	6	2	

	Since Jan. 1	2 Months	3 Months	4 Months	5 Months	6 Months	7 Months	8 Months	9 Months	10 Months	11 Months	Year
Totals	176.0	271.6	402.4	472.6	577.6	634.2	681.4	756.4	935.6	1045.4	1200.4	1257.2

Average all Years	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	YEAR

Table 4

RAINFALL REGISTRATION CHART

for station F

YEAR 19 83

DATE	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	DATE
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	
1	-	24.4	24.0	-	-	-	-	-	-	-	11.2	-	1
2	-	-	22.0	10.0	-	-	-	-	2.0	-	0.6	-	2
3	-	-	27.0	-	-	-	-	-	-	-	-	-	3
4	24.0	26.1	24.0	-	16.8	-	-	-	-	24.0	-	-	4
5	24.0	-	-	-	-	-	-	-	-	1.4	-	-	5
6	24.0	-	-	-	-	8.4	-	-	-	-	24.0	25.0	6
7	-	20.0	23.4	-	-	-	-	-	-	-	3.2	1.8	7
8	-	27.0	3.0	11.0	-	16.0	-	-	-	24.0	-	2.6	8
9	-	10.0	1.0	-	-	9.6	-	-	-	-	6.4	12.9	9
10	-	-	4.4	-	26.6	-	-	25.4	-	6.5	-	-	10
11	-	-	2.0	-	-	-	-	-	-	5,4	-	-	11
12	-	-	-	-	-	-	-	-	2.6	-	-	24.2	12
13	-	-	-	-	27.0	-	-	-	-	-	-	-	13
14	6.7	23.8	24.1	-	-	-	-	-	-	17.2	7.2	18.2	14
15	-	-	-	-	-	22.6	15.0	-	-	-	24.4	-	15
16	-	4.2	3.6	-	20.8	-	-	-	-	-	-	25.1	16
17	25.5	-	6.0	-	-	9.2	-	-	-	5.4	-	14.0	17
18	3.4	-	-	25.0	4.0	-	-	18.4	-	22.0	6.2	-	18
19	21.0	-	-	-	-	-	-	25.4	-	25.4	-	7.2	19
20	-	-	24.6	-	-	-	-	1.4	-	16.8	-	-	20
21	-	-	2.0	19.4	-	-	-	-	28.0	-	26.0	16.0	21
22	-	-	2.0	-	-	-	-	-	-	-	-	4.8	22
23	-	24.8	24.0	-	28.4	-	-	-	0.4	-	-	-	23
24	15.2	17.6	-	-	27.4	-	-	-	-	17.8	-	-	24
25	-	-	-	3.2	7.6	-	-	2.2	-	25.0	7.0	-	25
26	-	-	-	6.0	25.0	-	-	-	19.0	-	4.0	18.0	26
27	8.8	-	-	-	2.2	25.0	-	-	2.2	-	-	-	27
28	24.4	24.8	-	5.6	2.2	3.0	-	-	-	-	26.0	-	28
29	-	-	-	-	-	6.0	-	-	4.2	-	-	-	29
30	-	-	-	-	-	1.4	-	-	-	-	-	-	30
31	14.0	-	2.8	-	-	-	4.4	-	-	22.0	-	-	31
Totals	191.0	202.7	219.9	80.2	188.0	101.2	19.4	72.8	58.4	212.9	146.2	169.8	
No. of Days	11	10	17	7	11	9	2	5	7	13	12	12	
	Since Jan. 1	2 Months	3 Months	4 Months	5 Months	6 Months	7 Months	8 Months	9 Months	10 Months	11 Months	Year	
Totals	191.0	393.7	613.6	693.8	881.8	983.0	1002.4	1075.2	1133.6	1346.5	1492.7	1662.5	
Average all Years	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	YEAR

Table 5.

Number of raindays and rainfall to weekdays for Station B in 1983.

Weekdays	Raindays	Rainfall (mm)
Monday	18	419.0
Tuesday	12	403.3
Wednesday	19	580.0
Thursday	16	437.7
Friday	9	370.4
Saturday	5	97.0
Sunday	18	731.0

Figure 1a. **Rainfall Frequency Distribution for Station B 1983)**

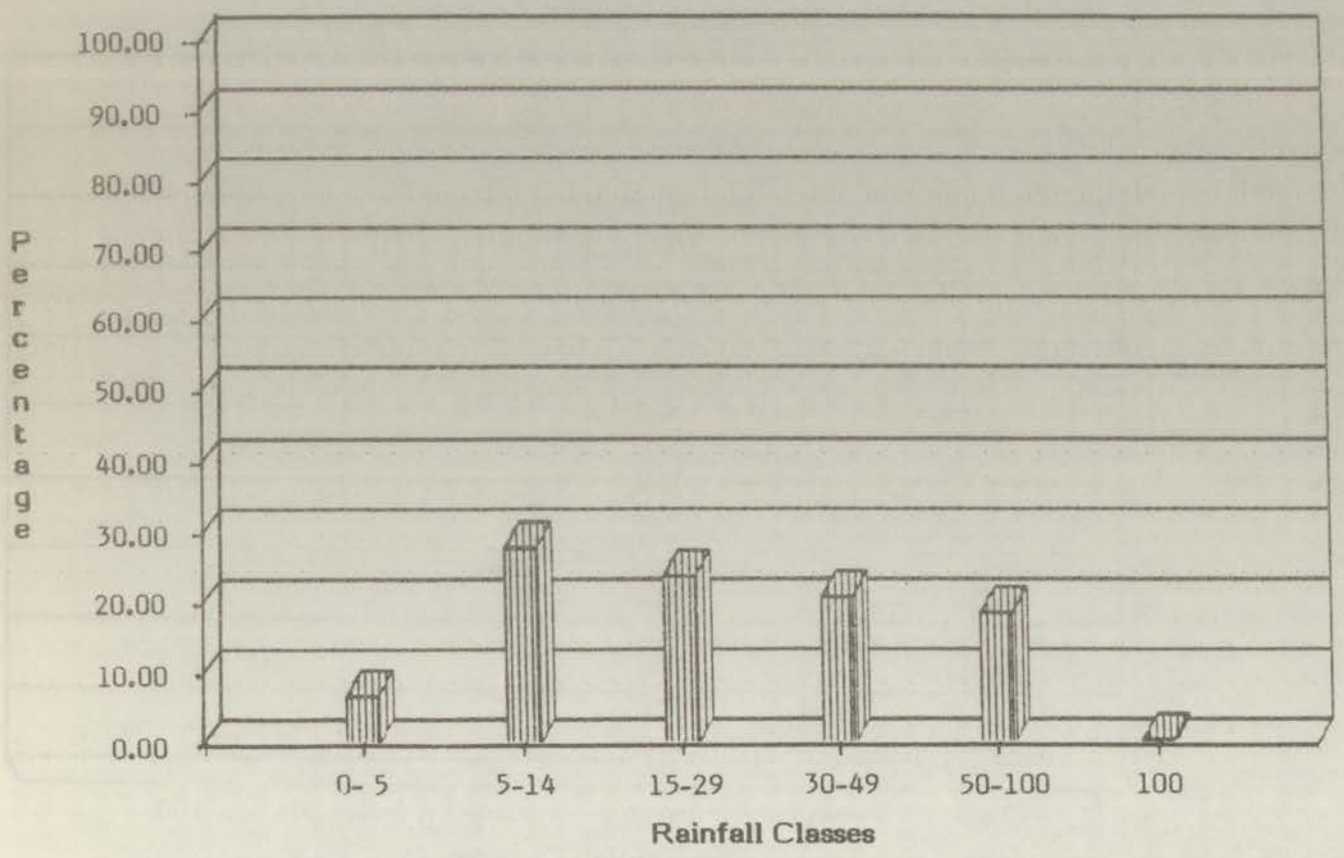

Figure 1b. **Rainfall Frequency Distribution for Station B (1985)**

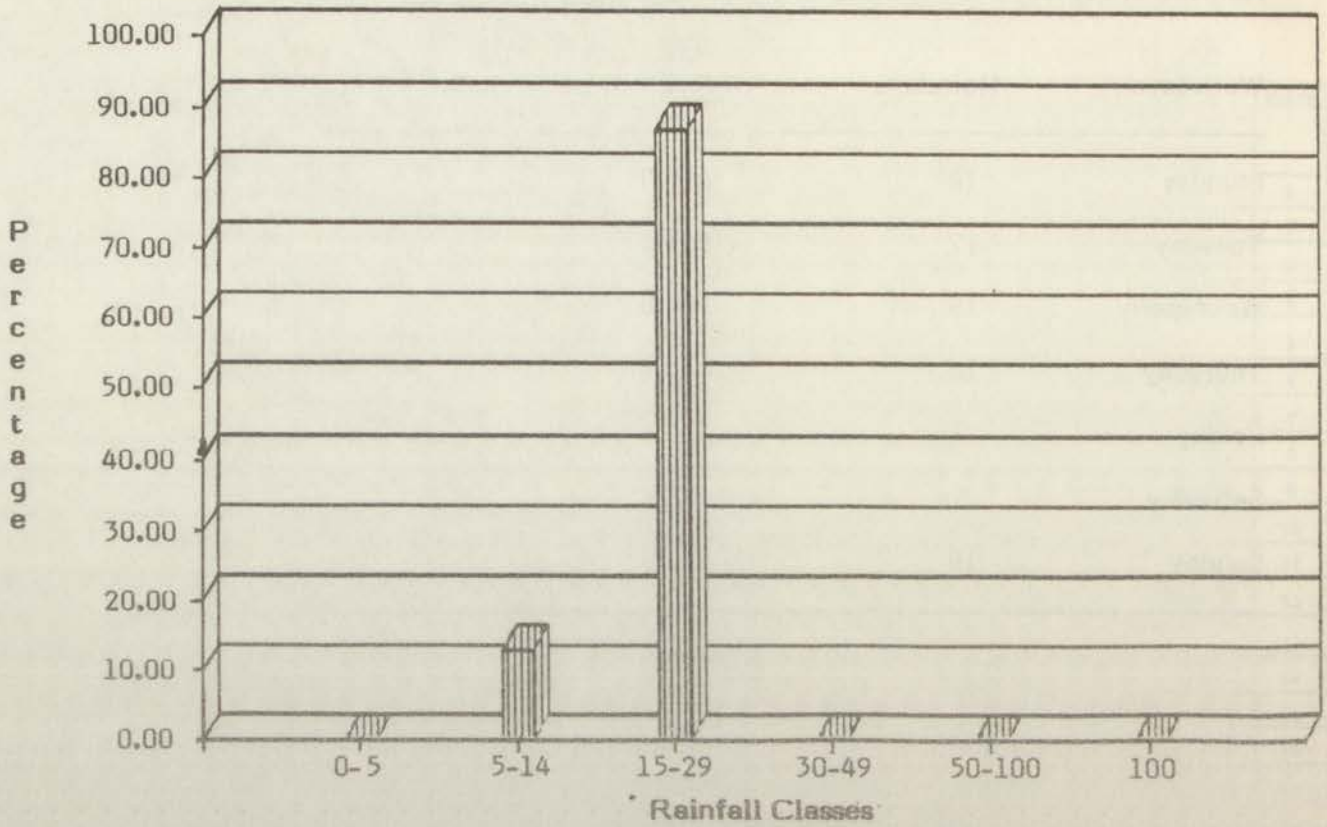

Figure 1c: **Rainfall Frequency Distribution for Station F (1983)**

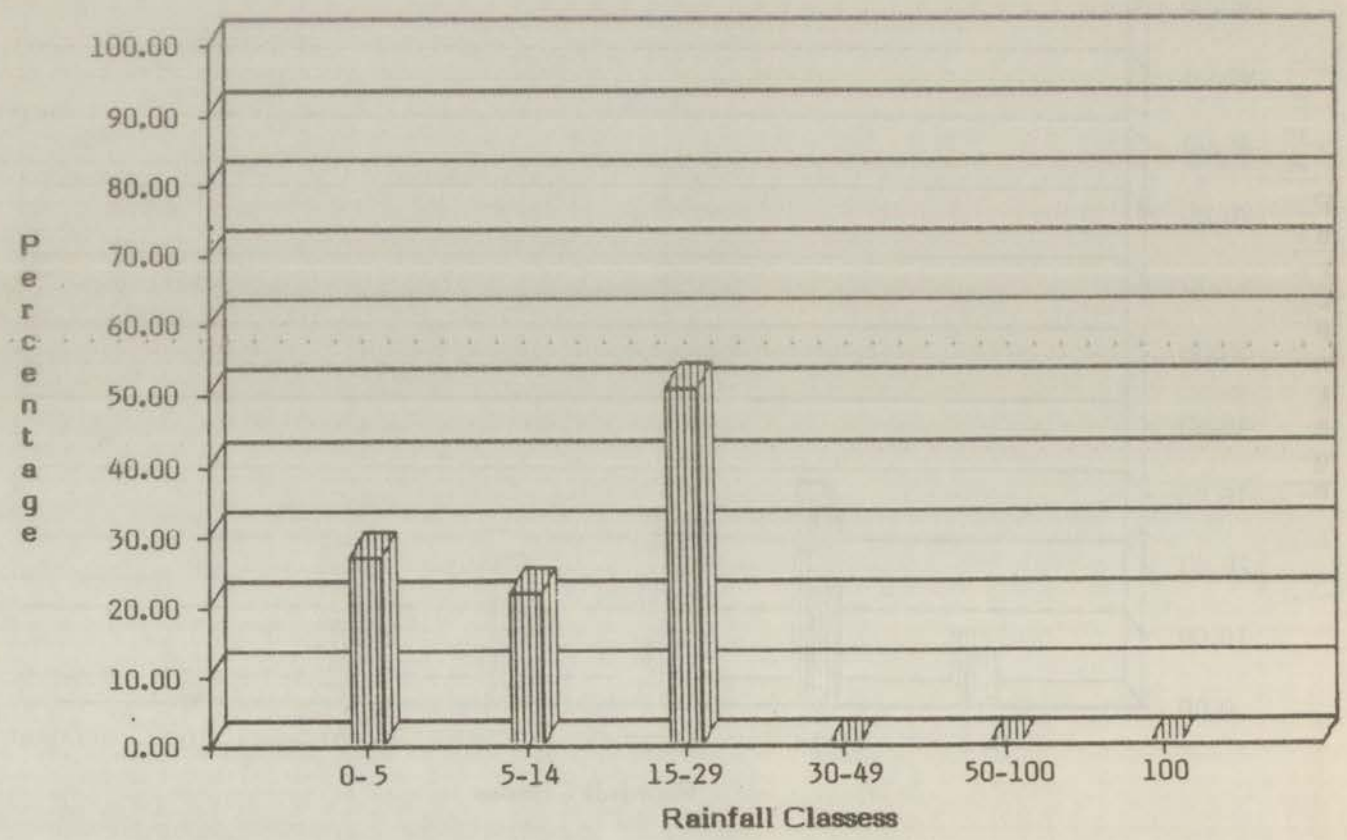

Figure 2. **Type of Rain Gauge Used In PNG**

Figure 3. **Form P10, Rainfall Observation Record Sheet**

EXAMPLE FOR CORRECTLY ENTERING RAINFALL ON THE P.10

PAPUA NEW GUINEA — P.10

NATIONAL WEATHER SERVICE

DEPARTMENT OF MINERALS & ENERGY

RAINFALL OBSERVATIONS

STN. NAME: BIPI
NUMBER: 15031
MONTH: JULY
YEAR: 1984

ADDRESS

THE WEATHER OBSERVER, 15031
CATHOLIC MISSION,
BIPI ISLAND,
P.O. BOX 231,
LORENGAU. MANUS PROVINCE.

AMOUNT IN GAUGE	DATE	RAINFALL AMOUNT IN GAUGE (mm)	REMARKS
12.4mm	1	12.4	
6.1mm	2	6.2	
0.6mm	3	0.6	
Less than 0.1mm	4	0.0	Trace SLT SHOWER
2.0mm	5	2.0	
NIL	6	0.0	
HEAVY SHOWERS 48.2mm	7	48.2	HEAVY SHOWERS
NOT A RAIN DAY	8	0.4	fog
11.2mm	9	11.2	SHOWERS
0.2mm	10	0.2	
NOT READ	11	NR	
13.8mm	12	13.8	THUNDERSTORM
NIL	13	0.0	
NO REPORT	14	NR	
NO REPORT	15	NR	

INSTRUCTIONS

RAINFALL IN PAPUA NEW GUINEA IS MEASURED TO THE NEAREST POINT TWO OF A MILLIMETRE. DO NOT USE ODD NUMBERS AFTER DECIMAL POINT. SEE EXAMPLES ON REVERSE.

1. PLEASE READ THE RAIN GAUGE EVENTUAL AT 0900 HRS.
2. IF THE GAUGE IS EMPTY, ENTER 0.0 AGAINST THE DATE.
3. IF THERE IS PRECIPITATION IN THE GAUGE, ENTER AMOUNT IN mm ON THIS FORM AND IN THE RAINFALL REGISTER AGAINST THE DATE OF THE DAY ON WHICH THE READING WAS TAKEN.
4. IF THERE IS LESS THAN 0.1 mm RAINFALL IN THE GAUGE ENTER 0.0 AND THE WORD "TRACE".
   NOTE: DAYS ON WHICH THE RAINFALL IS LESS THAN 0.1 mm ARE NOT COUNTED AS RAINDAYS.
5. IF THE AMOUNT OF PRECIPITATION MEASURED IN THE GAUGE IS FAR ENTIRELY TO FROST, FOG OR DEW PLEASE ENTER THE AMOUNT AND THE WORD "FROST", "FOG" OR "DEW" IN THE REMARKS COLUMN.
   NOTE: THOUGH THE AMOUNT IS ENTERED AND ADDED, THESE PARTICULAR DAYS ARE NOT COUNTED AS RAINDAYS.

Please make corrections as shown in example for 28th.

27	9.4		
28	~~4.2~~ 4.0		
29	20.8	MOD INT RAIN	
30	6.4		
31	1.8		
TOTAL RAIN FOR MONTH	203.2	NUMBER OF DAYS ON WHICH RAIN FELL	20

SIGNATURE OF OBSERVER: [signature]

DATE FORWARDED: 1 - 8 - 1984

CHECK THIS FORM TO SEE THAT YOU HAVE COMPLETED ALL SECTIONS THEN POST IN ENVELOPE PROVIDED

11. PLEASE ENSURE THAT YOU ENTER THE STATION NAME, NUMBER, MONTH AND YEAR CLEARLY ON THIS FORM, WHICH SHOULD BE FORWARDED ON THE LAST DAY OF THE MONTH WHETHER ANY RAIN HAS FALLEN OR NOT DURING THE MONTH.
12. IT IS NOT NECESSARY TO SEND A COVERING LETTER TO SAY THAT YOU ARE SENDING THE RAINFALL OBSERVATION FORM P10.
13. RAIN GAUGES ARE VERY EXPENSIVE. PLEASE TAKE CARE OF YOURS AND KEEP IT CLEAN.

CHECKED	STATION DETAILS	TOTAL CHECKED	AB CHECKED	REGISTER	DS	P36	COMPUTED

On the 7th of March 48.2 mm were measured. This means that the rain measure inside the gauge overflowed. If this happens you will see there is water still in the funnel. Now this is what you do:-

Carefully lift the funnel so that the water can drain into the gauge. Do not lift the funnel quickly. The rain measure will be full to top. Before lifting it out, shake it a bit so that some of the water spills into the container - until the level in the measure is below 20 mm. Lift the measure and allow the water on the outsider of it, drain into the container. Read the amount in measure, write it down, empty the measure and shake it. Now pour the water in the Container into the measure until it is just below 20 mm - dont try to measure 20 mm exactly, it is too difficult - write this amount under the previous amount. Continue this way until the rainfall container is completely drained. Total the amount and enter it in the column against the appropriate date.

e.g. 19.8 Amount in 1st measure - WRITE IT DOWN
18.8 Amount in 2nd measure - WRITE IT DOWN
9.6 remainder of water in container WRITE IT DOWN
48.2 Total (enter 48.2 for 7th)

In this case the measure only has overflowed. DO NOT enter "gauge overflowed" unless the container overflows. You will probably never see the container overflow as it will hold over 260 mm of rain.

ADDRESS OF THE NATIONAL WEATHER SERVICE RAINFALL RECORDS:

THE DIRECTOR,
NATIONAL WEATHER SERVICE,
P.O. BOX 50,
KONEBOU. P.N.G.

PAPUA NEW GUINEA

P.10

NATIONAL WEATHER SERVICE

DEPARTMENT OF MINERALS & ENERGY

RAINFALL OBSERVATIONS

STN. NAME	
NUMBER	
MONTH	
YEAR	

ADDRESS

DATE	RAINFALL AMOUNT IN GAUGE (mm)	REMARKS
1	.	
2	.	
3	.	
4	.	
5	.	
6	.	
7	.	
8	.	
9	.	
10	.	
11	.	
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31	.	
TOTAL RAIN FOR MONTH	.	NUMBER OF DAYS ON WHICH RAIN FELL

SIGNATURE OF OBSERVER .....

DATE FORWARDED ..... 19.....

CHECK THIS FORM TO SEE THAT YOU HAVE COMPLETED ALL SECTIONS THEN POST IN ENVELOPE PROVIDED

INSTRUCTIONS

Rainfall in Papua New Guinea is measured to the nearest point two of a millimetre. Do not use odd numbers after decimal point. See examples on reverse.

1. Please read the rain gauge everyday at 0900 hours.
2. If the gauge is empty, enter 0.0 against the date.
3. If there is precipitation in the gauge, enter amount in mm on this form and in the rainfall register against the date of the day on which the reading was taken.
4. If there is less than 0.1 mm rainfall in the gauge enter 0.0 and the word "Trace".

   Note: Days on which the rainfall is less then 0.1 mm are not counted as raindays.
5. If the amount of precipitation measured in the gauge is due entirely to frost, fog or dew please enter the amount and the word "Frost", "Fog" or "Dew" in the remarks column.

   Note: Though the amount is entered and added, these particular days are not counted as raindays.
6. If for any reason you are unable to inspect the gauge on any day please enter 'N.R' (No Report) against each date that the gauge was not read.
7. If there is any reason to suspect that the reading of the gauge is incorrect, please enter the amount in the rainfall column and enter the reason for suspecting an error in the remarks column. e.g. "Gauge Leaking", 'Funnel blocked with debris" etc.
8. If the gauge or measuring cylinder is damaged please notify the Director of the National Weather Service as soon as possible (See address on back of form). Please state which part of gauge is damaged-outer case, rainfall containers, collector funnel or rain measure.
9. Please enter the "total rainfall for month" and the "number of days on which rain fell".
10. If you are going to be absent from the station please have a competent person record the daily rainfall.
11. Please ensure that you enter the station name, number, month and year clearly on this form, which should be forwarded on the last day of the month whether any rain has fallen or not during the month.
12. It is not necessary to send a covering letter to say that you are sending the Rainfall Observation Form P10.
13. Rain gauges are very expensive. Please take care of yours and keep it clean.

Govt. Print.—6142/7 000.—12.84

COMPLETED	STATION DETAILS	TOTAL CHECKED	A8 CHECKED	REGISTER	D5	P35	COMPUTED