

REPORT ON HEAVY RAINFALL IN THE DORRIGO AREA, N.S.W.,

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by

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1. INTRODUCTION

In view of the flood rains, which affected the north-eastern and coastal section of New South Wales, considerable interest is associated with a tropical cyclone, which was first noted in the vicinity of Noumea on 18 January 1959. At that time the storm was moving slowly westward and by 3p.m. on 21 January had reached a position to the east of Brisbane over the southern extension of the S.E. Equatorial Ocean current where considerable intensification occurred. Subsequently, the storm moved W.S.W, crossing the New South Wales Coast near Cape Byron at about 10p.m. on 21 January and then moved into south-east Queensland, where it filled up. The heavy rain, floods, gale force winds and very rough seas associated with the storm caused damage estimated at $1\frac{1}{2}$ million pounds in the northern coastal sections of New South Wales. However, this report has been confined to rainfall in the Dorrigo area only.

2. RAINFALL

Heaviest daily rainfall totals were reported for the 24-hours ended 9a.m. on 22 January, when the highest telegraphic totals were

Dorrigo	12.42"
Meldrum	10.00" (overflowing gauge)
Bellingen	10.21" (probable overflowing gauge).

This raised the suspicion that the Dorrigo gauge (Post Office) may also have been overflowing. In consequence, inquiries were directed to a number of observers in the vicinity, so that an assessment could be made.

The best evidence was supplied by the Observer in Charge of the Official Pluviograph at Dorrigo. This instrument is located approximately $\frac{1}{2}$ mile from Dorrigo Post Office. In this case the

24-hour total to 9a.m. on 22 January, as recorded by the check raingauge placed near the pluviograph, was 22.47". An analysis of the pluviograph trace gives an uncorrected total of 21.28" confirming the raingauge reading, and showing that the highest 24-hour total was in fact that in the 24-hours to 9a.m. on 22 January. It is of interest to note that 22.47" exceeds all previous 24-hour totals for Dorrigo except 25.04" on 24 June 1950. It is of interest to note also that the four highest 24-hour totals at Dorrigo have occurred in a period of 14 years to January 1959, as follows:-

10.24"	-	25.8.44
15.24"	-	12.6.45
22.47"	-	22.1.59
25.04"	-	24.6.50

Other data from Dorrigo is as follows:-

<u>Rainfall</u>	<u>Duration</u>	<u>Period</u>
26.00"	37 hours	8p.m. 20.1.59 - 9a.m. 22.1.59
22.47"	24 hours	9a.m. 21.1.59 - 9a.m. 22.1.59
7.37"	3 hours (consecutive)	8p.m. 21.1.59 - 11p.m. 21.1.59
2.97"	1 hour	10p.m. 21.1.59 - 11p.m. 21.1.59
2.45"	1 hour	8p.m. 21.1.59 - 9p.m. 21.1.59
<u>1.95"</u>	<u>1 hour</u>	<u>9p.m. 21.1.59 - 10p.m. 21.1.59</u>

The rainfall for following localities is given for comparison (24-hour totals)

Date 1959	Dorrigo P.O.	Dorrigo Pluviograph Station	Bobo Nursery	Deer Vale	Deer Vale 2 (Private)	Deer Vale 3 (Private)
20.1	1.99"	2.03"	-	-	-	-
21.1	4.08"	4.14"	1.45"	2.06"	2.42"	2.20"
22.1	12.42"	22.47"	10.90"	15.05"	14.96"	Gauge blown over
23.1	2.45"	2.62"	4.12"	3.34"	2.92"	5.00"
24.1	1.67"	1.83"	-	-	-	-
Gauge	8"	8"	8"	8"	5"	Unknown

The 24-hour totals at 9a.m. as given by the rain gauges and the pluviograph traces for Meldrum and Bobo Nursery from the 19th to 24th January 1959 are given for comparison.

Date	<u>Meldrum</u>		<u>Bobo Nursery</u>	
	Rain Gauge	Pluviograph	Rain Gauge	Pluviograph
19.1.59	39	39	54	53
20.1.59	159	134	42	41
21.1.59	344	312	145	149
22.1.59	1000	1505	1090	1760
23.1.59	476	413	412	421
24.1.59	181	160	130	160

From these figures it is evident that both the Meldrum and Bobo Nursery rain gauges overflowed on 22nd January.

3. WIND

From notes supplied by observers, it appears that in all cases strong to gale force NE to SE winds were experienced during the period of heavy rain. Wind damage was extensive, particularly in the ~~pine~~ plantations at Bobo. In addition, in spite of strong winds, fog and a few thunderstorms were observed.

4. CONCLUSION

It is evident that a serious underestimation of heavy rainfall is taking place.