



Exceptional weather events

Type of event:

Thunderstorms / flooding

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METEOROLOGICAL SERVICE

INTERNAL MEMORANDUM

Rainfall in the Dublin Area on 11th June, 1963.

- by -

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During the period 9th to 11th, June 1963 winds were mainly easterly and light in strength; thunderstorms were widespread. Over the east coast on 11th, air temperatures near the ground rose appreciably during the morning. A cold front moving eastwards across the country reached the east coast by about midday, accentuated the unstable atmospheric conditions in the east and triggered off violent thunderstorm activity in the Dublin area.

Amounts of rainfall recorded over the 24 hour period beginning at 9h. G.M.T. on 11th June, 1963 at rainfall stations in or near the Dublin area, are given in Table I.

Table I

STATION	Rainfall	STATION	Rainfall
	mm.		mm.
Arus an Uachtarain	13.8	Glenasmole (Castle Kelly)	41.9
Baily (Danesfort)	2.0	Glenasmole	
Baldonnel Airport	11.0	(Superintendent's Lodge)	53.9
Dalkey (Torca)	4.1	Glenasmole (Waterworks)	49.3
Dublin Airport	15.5	Glencullen (Tibradden)	18.1
" (Ballsbridge Show Grounds)	97.8	Howth Castle	1.8
" (Ballymun Ave.)	24.0	Killiney (Tedburn)	2.5
" (Clontarf)	43.9	Kinsaley (Agr. Inst.)	13.9
" (Glasnevin)	18.8	Leixlip	15.6
" (Merrion Sq.)	48.7	Lusk G.S.	3.5
" (Phoenix Park)	11.2	Lusk (Nevitt)	11.2
" (Trinity Coll.)	37.4	Peamount	12.5
" (Upr. O'Connell St.)	27.5	Rathcoole G.S.	18.6
Dun Laoghaire (Harbour Yard)	15.5	Rathfarnham Castle	44.2
" " (People's Park)	10.4	Rush G.S.	4.0
Garristown G.S.	9.8	Skerries (Milverton Hall)	5.6
		Stillorgan (Vartry House)	33.0

From the very considerable flooding that occurred in the area between Dundrum, Blackrock and Sandymount and the high value recorded at Ballsbridge it was clear that this area must have had exceptionally high rainfall but the only available record in the area was that for Ballsbridge. In consequence an appeal was made through the daily newspapers for any readings that might have been made by private individuals. A number of replies were received and are summarised below.

- (1) Mr. E. G. Beatty, 19, Weston Park, Churchtown.
Rainfall $9\frac{1}{4}$ inches (235.0 mm) measured in a can.
Estimated true fall at least $6\frac{3}{4}$ inches (171.5 mm).
Period over which rain was collected 1000h. to 1900h. G.M.T.
- (2) Mr. H. Bond, 39, Blackheath Park, Clontarf.
Rainfall 2.13 inches (54.1 mm) measured in a rain gauge. Period over which rain was collected 0900h. on 11th to 0900h. G.M.T. on 12th.
- (3) Mr. D. Coleman, 10 Mather Road N., Mount Merrion.
Rainfall measured in a rain gauge. The amounts recorded over different periods were:

23h. on 10th to 1350h. G.M.T. on 11th	3.25 ins (82.6mm)
1350h. " 11th " 1455h. G.M.T. " 11th	3.25 " (82.6mm)
1455h. " " " 1600h. G.M.T. " "	0.65 " (16.5mm)
1600h. " " " 2300h. G.M.T. " "	0.10 " (2.5mm)
<u>Total:</u>	<u>7.25 " (184.2mm)</u>

- (4) Mr. K. Corbett, 6 Lea Road, Sandymount.
Rainfall of depth $6\frac{1}{2}$ inches measured by means of bucket. Equivalent rainfall 3.6 inches (91.4mm).
Period over which rain was collected "early morning" to 1800h. G.M.T. on 11th.
- (5) Mr. Michael Farrell, Glenaulin, Foster Avenue, Mount Merrion.
Rainfall measured in a glass tank. The amounts recorded over different periods were:
1000h. to 1600h. G.M.T. on 11th 5.60 inches (142.2mm)
2100h. to 2300h. G.M.T. on 11th 0.26 inches (6.6mm)
2300h. on 10th to 2300h. G.M.T. on 11th 5.86 inches (148.8mm)
- (6) Mr. O. J. Hearty, 30 Marlborough Road, Donnybrook.
Rainfall 131mm. (5.16 ins) measured by means of bucket.
Period over which rain was collected 1200h. to 1700h. G.M.T.
- (7) Mr. G. H. Henry, 21 Waltham Terrace, Blackrock.
Rainfall 5.9 inches (149.9mm) measured by means of bucket.
Period over which rain was collected dusk on 10th to dusk on 11th.
- (8) Messrs. M. and T.N. Richardson, Clay Farm, Sandyford.
Rainfall measured in a raingauge. The amounts recorded over different periods were
1200 G.M.T. to 1215h. G.M.T. on 11th 7.2mm (0.28 inches)
2100 G.M.T. on 10th to 2100h. G.M.T. on 11th 13.0mm (0.51 inches)

Additional information obtained as a result of personal inspection of the different sites by a member of the Meteorological Service, is given below:

Rainfall for 19 Weston Park, Churchtown

1. The can, which leaked slightly was cylindrical, with diameter 8 inches and height $11\frac{3}{8}$ inches. It was exposed on top of a dwarf-wall 1 ft. 3 ins. high and at a distance of 8 ft. 6 ins. from the back wall of a two storied house. The reading of $9\frac{1}{4}$ inches (235.0 mm) for the period 11 a.m. to 8 p.m. would have been affected by some insplashing from the nearby house, insplashing from the top of the dwarf-wall on which the can stood, and outsplashing from the can itself. It is not possible to assess with certainty the magnitude of these effects but it is considered that Mr. Beatty's estimate of the true rainfall as at least $6\frac{3}{4}$ ins. (171.5mm) was conservative. This is understandable as Mr. Beatty is an engineer concerned with design of drainage schemes.
2. Rainfall at 39, Blackheath Park, Clontarf.
Rainfall was measured from a standard 5" diameter gauge of shallow type funnel. The exposure was rather sheltered on the North and West sides, but otherwise satisfactory.

3. Rainfall for 10 Mather Road N., Mount Merrion.

Rainfall was measured by means of a conventional type raingauge, which had a standard exposure on a lawn surface at the rear of Mr. Coleman's residence.

4. Rainfall for 6 Lea Road, Sandymount.

A bucket which was dry before the storm was filled to within 4 inches of the rim, and represented a fall of 3.6 ins. (91.4 mm). There would have been some loss by outsplashing.

5. Rainfall at Glengaulin, Foster Avenue, Mount Merrion.

Rainfall was measured in a rectangular glass tank which had been emptied by Mr. Farrell on the morning of the thunderstorm. The tank measured 12 ins. x $8\frac{5}{8}$ ins. and was $17\frac{7}{8}$ ins. high. Since the depth of rainfall was measured as less than 6 ins. (152.4 mm), it seems improbable that any appreciable loss occurred through outsplashing.

However the site of the tank was shaded by a large tree 40 feet high, 15 feet away.

6. Rainfall at 30, Marlborough Road, Donnybrook.

Rainfall was collected in a bucket which was well exposed in a garden. The amount collected was measured and the equivalent depth of rain computed by a member of the staff of the Meteorological Service.

7. Rainfall at 21 Waltham Terrace, Blackrock.

Rainfall was collected in a bucket standing close to the wall of the garage attached to the house and directly under a small window-ledge, which protruded $2\frac{1}{2}$ ins. from the wall.

The reading is probably over-estimated due to insplashing from the wall and, to a greater extent, dripping from the window-ledge. It would be impossible to obtain a close estimate of this contribution but it is thought that the over-estimate would be of the order of 20% which would result in a corrected value of about 4.9 ins. (124.5 mm).

8. Rainfall at Clay Farm, Sandymount.

Rainfall was read from a cylindrical gauge of $5\frac{1}{2}$ ins. diameter exposed with the rim 12 ins. above a lawn surface. The raingauge was almost surrounded by trees, some of which were only 12 ft. away, and may have caused some sheltering of the gauge.

The rainmeasure, which had been graduated by the observer, was tested against a standard measure and found to read 3% high giving a corrected value of 12.6 mm. (0.50 ins.).

The maximum amounts of rainfall (in millimetres) recorded in periods from 5 minutes to 24 hours at stations equipped with rain recorders are given in Table 2.

Table 2

STATION	P E R I O D										
	Minutes				Hours						
	5	10	15	30	1	2	3	4	6	12	24
Baldonnel	2.0	2.8	3.5	5.3	5.4	5.4	5.4	5.4	9.7	10.9	11.0
Dublin Airport	3.0	4.7	6.6	8.2	8.5	10.0	12.6	14.2	14.4	15.5	15.5
Dublin City											
Ballsbridge	4.2	8.2	12.1	23.8	46.2	78.1	92.5	93.5	95.1	97.8	97.8
Clontarf	4.2	8.1	10.2	18.1	27.4	34.1	38.1	39.5	42.1	43.9	43.9
Howth	0.1	0.2	0.3	0.4	0.5	0.9	0.9	0.9	0.9	1.0	1.1
Glasnevin	3.2	3.8	5.2	7.7	10.1	10.3	16.1	16.3	16.5	18.8	18.8
Merrion Sq.	5.5	8.7	12.8	23.4	36.4	39.4	44.6	45.7	45.8	48.6	48.7
Upr. O'Connell											
Street	3.8	6.0	7.2	11.1	15.6	16.4	23.1	23.3	23.4	27.4	27.4
Glenasmole	7.4	12.0	15.0	23.6	26.0	26.3	28.6	28.8	34.6	49.2	49.3
Kinsaley	1.3	2.0	2.6	4.3	6.0	8.9	10.4	11.3	13.0	13.9	13.9
Leixlip	5.4	7.6	9.4	10.8	11.1	11.1	12.5	12.8	14.5	15.6	15.6

The records available for the period of 24 hours beginning at 9h G.M.T. on 11th June, 1963 permit of the distribution of rainfall to be mapped and this is given in Fig. 1. At Ballsbridge the rate of rainfall was almost constant over the hour from 13.50h G.M.T. to 14.50h G.M.T. Records for other near city stations show that the maximum rate of fall over one hour also occurred in or about the same time. The fall of 3.25 inches measured at Mount Merrion between 13.50h G.M.T. and 14.55h G.M.T. indicates that at least 3.0 inches fell there in a period of one hour from 13.50h G.M.T. A map showing distribution of maximum rainfall over one hour based on this and other values given in Table 2 is shown in Fig. 2.



