



Exceptional weather events

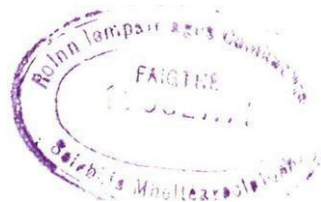
Type of event:

Rainfall

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November-December 1973

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METEOROLOGICAL SERVICE

INTERNAL MEMORANDUM

Rainfall during the period 27th November to 1st December, 1973

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During the period 27th November to 1st December 1973, rainfall was remarkably prolonged and heavy. Serious flooding was reported in many areas of the south and west, particularly in Counties Kerry, Cork and Limerick.

The rainfall was caused by a series of wave depressions which moved southeastwards in the vicinity of Ireland. The 26th November was cold and dry apart from scattered wintry showers in the north of the country. During the morning of 27th, continuous rain commenced in the northwest as the first of the series of waves approached, and by mid afternoon it had spread over the whole country. Pressure remained high however, and rainfall amounts were moderate. By midnight, the wave had moved away to the southeast leaving a quasi-stationary front lying along a line from Belmullet to Rosslare. Rainfall continued in a broad band along this front. About 0600 GMT on 28th, rain again became widespread as, a second and deeper wave depression approached from the northwest. This crossed the northeast corner of Ireland about 1600 and moved away towards the Continent leaving the trailing front this time on the southwest coast. Most areas experienced heavy falls of rain between 0600 and 2100 GMT approximately and in the southwest the rain continued without a break until the following day. The 29th began dry over most of the country but, from late morning onwards, rain began to extend from the southwest and by midnight it had reached all areas except the extreme northeast. Minor waves were at this time running along the front which was making slow progress northeastwards. After about 0600 on 30th however, precipitation began to die out again in the north and east. In the south and west it continued unabated and in the evening increased in intensity.

During the early hours of 1st December, the last of the series of depressions moved south-southeastwards along the west coast, giving heavy rain in the southwest and snow over much of the midlands. The north and much of the east escaped without any precipitation this time. Later on 1st, precipitation died out slowly from the north and by 1500 GMT a dry easterly airflow covered the whole country.

Fig. 1 shows the distribution of precipitation for the rainfall day 30th November, 1973 i.e. for the 24-hour period ending at 0900 GMT on

1st December. It will be seen that most of the area southwest of a line from Killala to New Ross received over 25mm. However, the brunt of the storm was borne by an area including most of Co. Kerry and West Limerick and the northwestern part of Co. Cork, where the rainfall generally exceeded 50mm.

The highest daily total recorded was 90.5 mm at Barna, Co. Kerry. Details of reports of 50mm or more are given in Table 1. Based on data for the period 1941 - 70, the return period for the 1-day rainfall at stations in the east of Co. Kerry was estimated to exceed 50 years. Of the stations equipped with

recording rain gauges, Killarney (Gortdromakiery) recorded the heaviest falls over periods of 3, 6, 12 and 24 hours. Details of the maximum falls in various periods at this station are given in Table II. The rainfall was remarkable for its steadiness rather than its intensity and maximum falls for periods less than 3 hours were not extraordinary.

Fig. 2 shows the distribution of precipitation for the 4 - day period ending at 0900 GMT on 1st December and Table III gives particulars of 4-day totals exceeding 125mm. This 4-day fall was, in a way, more extraordinary than the 1-day fall for 30th. Over most of Connaught and North Munster its return period was estimated to exceed 5 years and at a number of places in Counties Kerry, Limerick, Clare, Galway, and Mayo it exceeded 50 years. The fact that the heavy rain of 30th November – 1st December came as the culmination of an extraordinarily wet 4-day period was probably a major factor in the serious flooding which occurred. A detailed discussion of synoptic developments associated with the rainfall of 30th November - 1st December is to be found in Met. Post Analysis 4/73 (Th. Keane, December 1973).

County	Station	Amount (mm)
Clare	Labasheeda	54.5
Cork	Ballingeary (Voc. Sch.)	60.2
	Ballyvourney (Clountycarty)	53.4
	Gouganebarra	55.5
	Macroon (Glendav Forest)	50.5
	Macroon (Renaniree)	56.9
	Millstreet Convent	56.4
	Nemarket G. S.	51.0
Kerry	Ballylongford G,S,	53.0
	Barna	90.5
	Brosna	79.6
	Castleisland (Coom)	55.4
	Castleisland (Glountaine)	75.7
	Castleisland (Voc. School)	79.5
	Dingle G.s.	54.5
	Farranfore (Clounlea)	68.3
	Farranfore (G.S.)	75.2
	Glenvickee (Caragh River Area)	56.6
	Kenmare (Sheen Falls)	50.0
	Kilgarvan (Gortnaboul)	58.2
	Killarney (Gortdromakiery)	80.5
	Killarney (Lissavigeen N.s.)	84.0
	Killarney (Muckross House)	65.7
	Killarney (St. Finan's Hospital)	63.2
	Killorglin (Voc. School)	50.0
	Listowel (Inch)	65.6
	Listowel (Rathea)	52.9
	Lyranes-Upper (Caragh River Area)	56.2
	Lyreacrumpane (Reenagown)	68.0
	Rathmore Convent	70.4
	Rathmore G.S.	69.2
	Tralee (Caherweesheen)	82.2
	Tralee (Clash)	62.5
	Tralee (Droumavalla)	70.5
	Waterville Octive No. 9	55.0
Limerick	Abbeyfeale (Springmount)	65.3
	Abbeyfeale (St. Ita's Coll)	65.4
	Athea G.S.	65.3
	Shangolden G.S.	54.0
Tipperary	Galtee Mountains	50.8

Table I:

Daily Rainfall amounts of 50mm or more for 30th November 1973

	3 hrs	6 hrs	12 hrs	24 hrs
Amount (mm)	25	35	56	81

Table II:

Maximum rainfall amounts in specified periods³ recorded at Killarney (Gortdromakiery) on 30th November - 1st December 1973)

County	Station	Amount (mm)
Clare	Inagh (Mt. Callan)	141.1
	Labasheeda G.S.	125.8
Galway	Ballynahinch (For. Stn)	146.0
	Maam G.S.	137.3
	Owenglin (Barnanong No. 2)	137.3
Kerry	Barna	187.6
	Brosna	151.4
	Castleisland (Coom)	128.7
	Castleisland (Glountaine)	151.4
	Castleisland (Voc. School)	148.0
	Farranfore (Clounlea)	135.1
	Killarney (Gortdromakiery)	143.0
	Killarney (Lissavigeen N.S.)	142.5
	Lyreacrumpane (Carrigcannon)	138.8
	Lyreacrumpane (Reenagown)	139.8
	Rathmore Convent	141.3
	Rathmore G.S.	145.1
	Tralee (Caherweesheen)	126.9
Limerick	Abbeyfeale (Springmount)	135.7
	Abbeyfeale (St. Ita's Coll.)	131.3
	Athea G. S.	128.2
Mayo	Delphi Lodge	195.1
	Newport (Furnace)	133.8
Tipperary	Galtee Mountains	158.1

TABLE III:

4-day rainfall amounts of 125mm or more for the period 27th-30th November, 1973

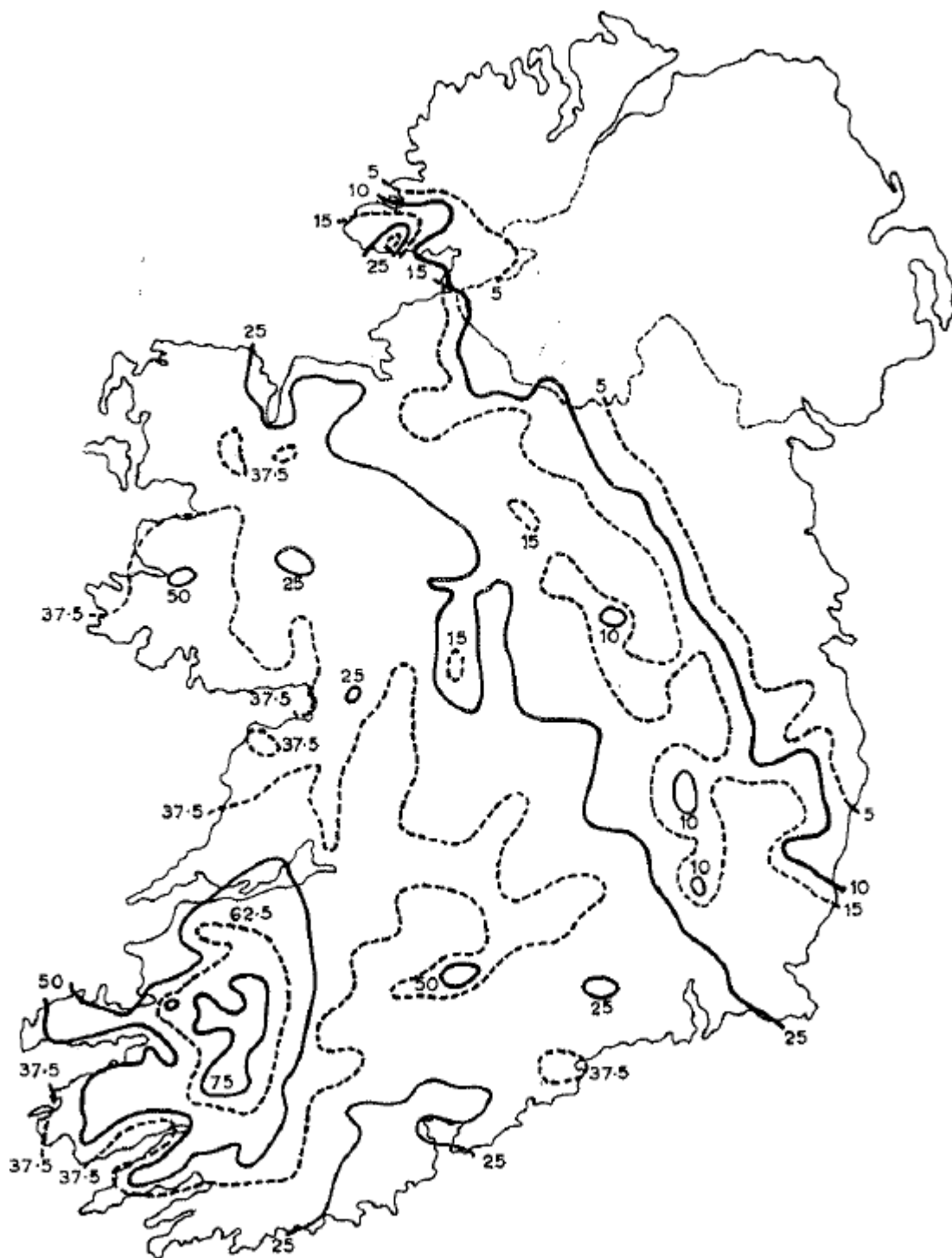


Figure 1 Amount of precipitation (mm) for the 24- hour period ending at 0900 GMT on 1st December 1973

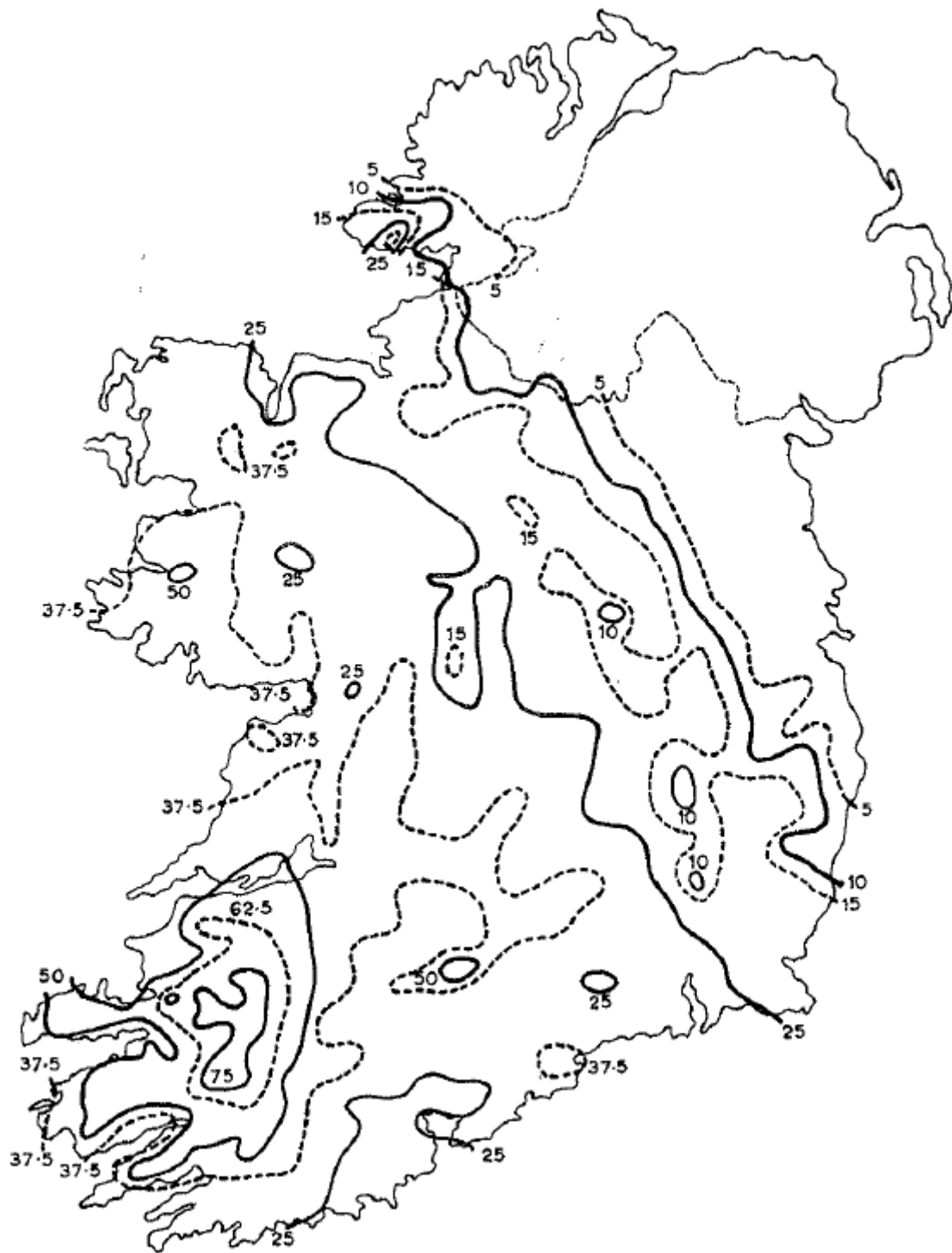


Figure 2 Amount of precipitation (mm) for the 4 day period ending at 0900 GMT on 1st December 1973