



Exceptional weather events

Type of event:
Thunderstorms

Date:
July 1985

Severe Thunderstorms over Ireland 25th/26th July 1985.

Introduction

Widespread and spectacular thunderstorm activity occurred throughout the evening of 25th and continued overnight and into the morning of 26th of July. Hundreds of farm animals were killed by lightning and large hailstones damaged tillage crops and crops of apples and fruit. The flooding which accompanied the storm affected farm buildings, houses, supermarkets, and stores in worst hit areas.

Synoptic Situation

12 hours G.M.T. 25/7/85

Satellite photographs show mostly cloudy conditions over the country with indications of high cloud tops over Northeast Munster, over the Midlands and North Leinster. Pressure ranged from 1014 mb in the south to 1016 mb in the North. Pressure was falling slowly as an airflow of continental origin tended to displace the moist Atlantic air over the country. Around this time thunderstorms were observed at Birr, Mullingar and Clones.

00 hours G.M.T. 26/7/'85

A shallow low (1006 mb) was slow moving off the southeast coast. Winds were generally slack and northeasterly in direction. The most severe thunderstorm activity at this time was along a band which extended from Roches Point northeastwards through Leinster and into the South of Ulster.

By 06 hours G.M.T. 26/7/'85 the low, now 1002 mb, was located off the Wexford coast and the main thunderstorm activity was moving north of Dublin out into the Irish Sea.

Upper Air Ascents 00 hours G.M.T. 26/7/'85

The ascents show that the airmass over Ireland was quite moist and unstable, while the airmass over England and to the Southeast was relatively drier. The 850 and 700 MB temperatures at Scilly were about 5°C higher than temperatures at similar levels over Valentia. Freezing levels over Valentia, Aldergrove and Scilly were 9,900, 10,400 and 12,000 feet respectively.

Precipitation

Many areas recorded over 50 millimetres of rainfall in the 24 hour period ending 09 hours 26/7/'85 (see fig. 1. rainfall map). In these areas at the height of the storm rain or hail with a water equivalent of 20 - 30 mm fell in a 30 minute period. Unfortunately most rain gauges in the severe storm area are read on a daily basis and short duration records are available for a limited number of locations only.

An observer near Naas, Co. Kildare reported a shower of heavy and large hail with equivalent rainfall of 30 mm in a period of 30 to 40 minutes.

The following table shows rainfall amounts and durations in the severe storm area at locations with rain recorders.

<u>Location</u>	<u>Durations</u>	
	15 MINS.	30 MINS
Kinsealy (Co. Dublin)	18	21
Oak Park Carlow (Co. Carlow)	22	28
Coon (Co. Kilkenny)	21	29

Amounts in millimetres

The return periods (1) for the above amounts in the specified durations are in the region of 50 years for the Kinsealy area of Co. Dublin and 100 years for the locations at Coon, Co. Kilkenny and Oak Park Carlow.

A feature of the storm was a spell of very heavy rain and violent hail of 30 to 60 minutes duration. The times of commencement of the intense precipitation gives an indication of the overall movement of the storm. The times of commencement of heavy precipitation at various locations are as follows: -
 Roches point (Co. Cork) - 2005 hours G.M.T. 25/7/85, Kilkenny - 2310 hours G.M.T. 25/7/85, Coon (Co. Kilkenny) - 0045 hours G.M.T, Casement Aerodrome (Co. Dublin) - 0155 hours G.M.T., Dublin Airport - 0230 hours G.M.T. and Kinsealy (Co. Dublin) - 0250 hours G.M.T.

Dublin Radar

Radar maps (see fig. 2) taken at Dublin Airport during the period show the main areas of activity at 2045 hours G.M.T. 25/7/'85, 0100 hours G.M.T

26/7/85 and 0630 hours G.M.T. 26/7/85. There is a general northeastwards progression of storm activity along a line which corresponds well to the band of heavy rainfall as shown on the rainfall map fig. 1. This band of intense activity appears to have occurred at the confluence of the moist Atlantic airmass and the more continental airmass.

Conclusions

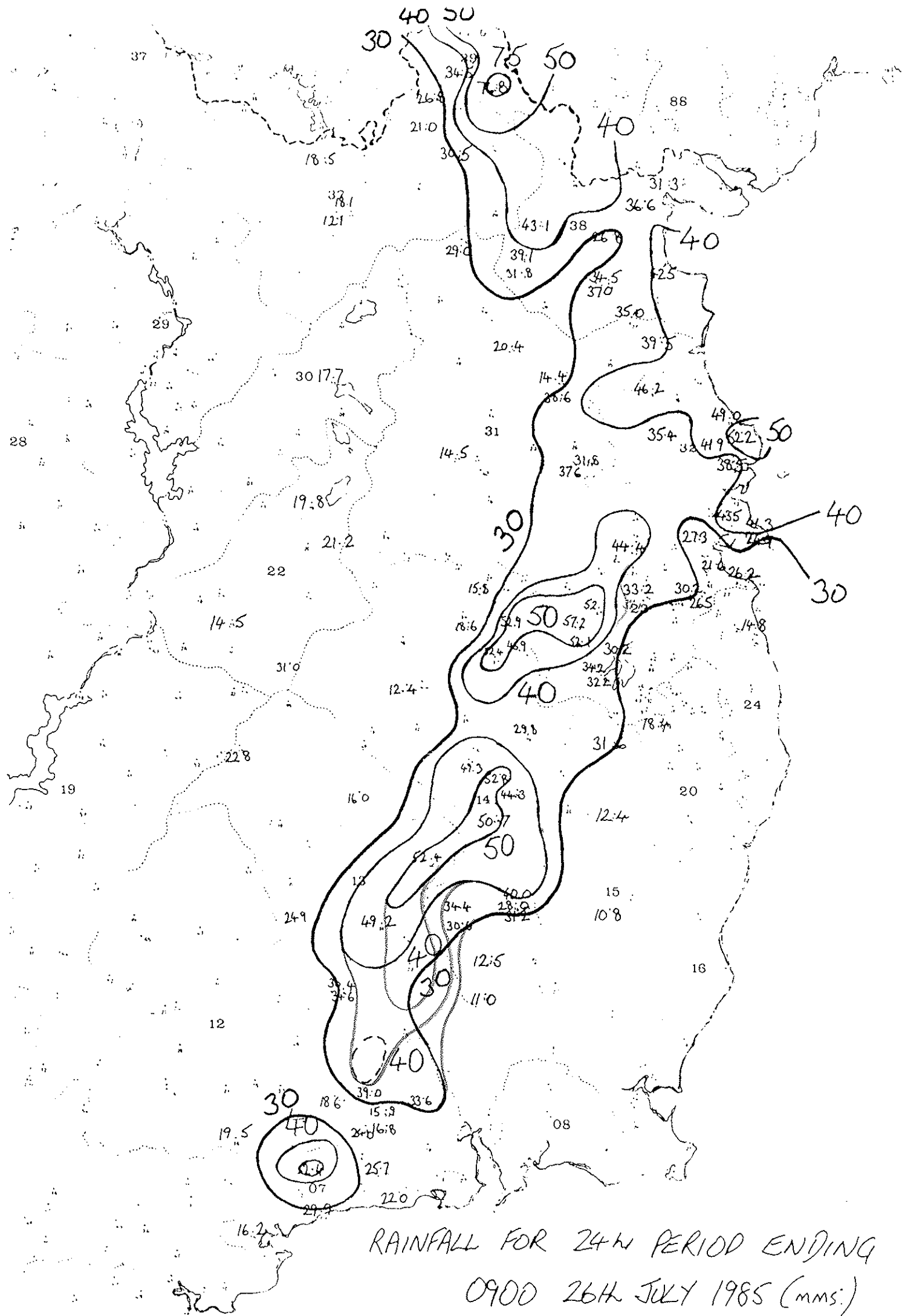
Thunderstorms over Ireland occur on average 4 to 7 days per year. A memorable storm affected the Dublin area on 11th June 1963. ^{*}(2) On that occasion more than 75 mm of rain fell in the Mount Merrion area of Dublin in one hour with considerable flooding between Dundrum, Blackrock and Sandymount. While precipitation was not as intense as the storm of 1963 the thunderstorm activity of the 25th/26th July 1985 was outstanding for the following reasons:

(a) Intense falls of large hailstones - (b) The large areas affected by the heavy rain and hail - (c) The frequency and duration of the lightning activity and (d) The estimated millions of pounds worth of damage to crops and merchandise.

For these reasons the thunderstorms of July 25th/26th must rate as the most severe in living memory.

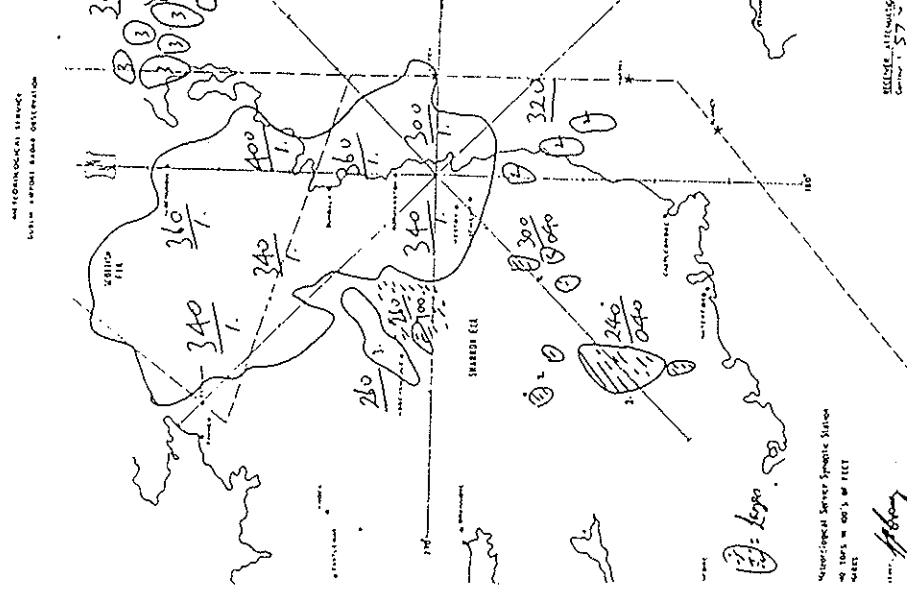
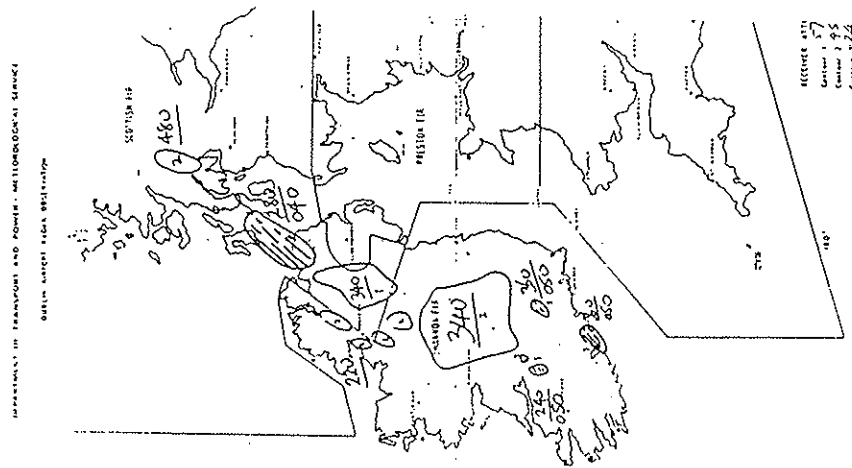
References:

- ^{*}(1) Technical Note No. 40 Extreme Rainfalls in Ireland by J.J. Logue B.S.C.
Also Flood Studies Report Volume II
Natural Environment Research Council London.
- ^{*}(2) Rainfall in the Dublin Area on 11th June, 1963 - by - W.A. Morgan, M.Sc.
(Internal Publication Irish Meteorological Service).



RAINFALL FOR 24H PERIOD ENDING
0900 26th JULY 1985 (mms.)

0630 Z 26/7/85



Rainfall values for 25th, 26th July 1985
(Totals > 50 mm)

Station	County	25th	26th	Total
Castleshane	Monaghan	76.8	0.2	77.0
Kill	Kildare	52.1	18.4	70.5
Naas (Gowran Grange)	Kildare	52.1	14.7	66.8
Oak Park	Carlow	50.7	15.3	66.0
Coon	Kilkenny	52.4	13.0	65.4
Naas CBS	Kildare	51.2	5.1	62.3
Emyvale	Monaghan	61.8	—	61.8
Ballymore Eustace	Kildare	34.2	26.0	60.2
Lodgareany Castlewarren	Kilkenny	58.4	1.1	59.5
Duleek	Meath	46.2	12.1	58.3
Newbridge	Kildare	52.9	4.9	57.8
Kilsagh Balbriggan	Dublin	49.0	8.1	57.1
Curragh Roccoourse	Kildare	46.9	9.1	56.0
Skerries	Dublin	52.2	3.7	55.9
Clonmel Redmondstown	Tipperary	49.8	4.6	54.4
Tibradden Larch Hill	Dublin	23.2	30.1	53.3
Kilmacthomas	Wexford	52.4	—	52.4
Kilkenny Sals	Kilkenny	20.0 (49.2)	30.0 (0.8)	50.0

High 2-day Totals (24th & 25th) at: Kingscourt AS (74.8)
 Kingscourt, Co. Cavan (56.3), Ballyboden, Co. Dublin (50.5).
 78.1 mm at Bennettsbridge, Co. Kilkenny between 24th & 26th.

