



AGROMETEOROLOGICAL BULLETIN

The Weather of September 1990

Summary

- 1st-7th: Unsettled with frequent, small amounts of rain; decreasing temperature
- 8th-15th: High pressure; settled, bright and dry, warm days, cool nights
- 16th-24th: Complex of troughs; variable rain, heaviest in extreme north
- 25th-28th: High pressure; cold and dry
- 29th-30th: Complex of troughs; particularly wet in south, improving later.

Meteorological Situation

Atlantic depressions moved into Scotland and the North Sea during the first days, bringing mild air and unsettled conditions with rain to Ireland. The first week ended with cool northwest winds and showers. After this high pressure became dominant from the Atlantic to northern Europe and this had a major influence on conditions to 15th/16th; the spell was dry and bright. It was warm by day but nights were cool.

A weakening of high pressure over Ireland allowed a series of Atlantic troughs of high latitude origin to affect the country subsequently. There was accompanying westerly winds and rain, heaviest in northern areas. A strong northwest airflow and showers set in on 19th. This was followed in turn by a confluence of troughs reaching the country from both the southwest and north on 22nd. The combined system was later absorbed into the North Sea and a northwesterly airflow set in over the country on 23rd/24th. High pressure from Icelandic region developed down to Europe giving a period of good weather to 28th. Further troughs followed, the first reaching northern areas on 27th/28th, the second reaching the southwest on 29th. The latter gave extensive rain, heaviest in southern areas. A ridge developed from the west later on 30th.

Precipitation

Amounts were well below normal everywhere. They varied from 22% of normal at Dublin Airport and Cahircivcen to 66% at Malin Head. The first half of the month was driest. In general daily amounts of rain were small except in the spells 16th-18th in the north, 21st/22nd in mid-west, and particularly 29th/30th (30mm) in the south. Soil moisture deficits exceeded 70-80 mm in southeast and east but zero in southwest to northmidlands.

Wind

Strong winds with gale gusts occurred on 5th/6th and 18th to 20th.

Temperature

Mean air temperature was below normal except for southern areas. It varied from slightly below normal at southern stations to 1.0°C below at Belmullet and Casement. A number of cold spells occurred around 10th/11th, 14th/15th and 25th/27th. Coldest nights were centred about 25th/26th but 23rd at Ardee, the latter giving the first air frost. Lowest ground temperature of -10.5°C occurred at Ardee on 26th.

Sunshine and Radiation

There was considerable south-east to north-west gradient in sunshine. Hours of bright sunshine varied from 141% of normal at Cork Airport to 79% at Belmullet. Global radiation was 5 to 17% above average.

TABLE 1

SEPTEMBER 1990

STATION	PERIOD	RAINFALL (mm)				TEMPERATURE (°C)														BRIGHT SUNSHINE		WIND				
		AMOUNT	% OF AVERAGE	RAIN DAYS	WET DAYS	AIR											GROUND		SOIL (10cm)		TOTAL NO. OF HOURS	% OF AVERAGE	MEAN SPEED (ms ⁻¹)	DAYS WITH GALE GUSTS	P.E. (PENMAN) (mm)	
						MEAN MAX.	MEAN MIN.	MEAN DAILY	DIFFERENCE FROM AVERAGE	LOWEST MIN.	DATE	DAYS WITH AIR FROST	DEGREE DAYS ABOVE 4.4°C	% OF AVERAGE	DEGREE DAYS ABOVE 10.0°C	% OF AVERAGE	LOWEST "GRASS-MIN"	DATE	DAYS WITH GROUND FROST	MEAN DAILY						DIFFERENCE FROM AVERAGE
Carlow (Oak Park) Co. Carlow	1-10	1.8	-	2	1	19.1	9.4	14.2	-	4.5	10	0	98	-	46	-	1.0	10	0	-	-	57.6	-	0.8	-	-
	11-20	12.0	-	3	3	17.5	6.8	12.2	-	2.5	15	0	78	-	30	-	-1.5	15	1	-	-	42.0	-	3.3	-	-
	21-END	30.0	-	5	4	15.1	6.0	10.5	-	1.0	26	0	63	-	19	-	-1.6	27	3	-	-	41.2	-	2.7	-	-
	MONTH	43.8	58	10	8	17.2	7.4	12.3	-	1.0	26	0	239	-	95	-	-1.6	27	4	-	-	140.8	-	2.2	-	44
Shannon Airport e Co. Clare	1-10	5.2	-	5	3	18.7	11.1	14.9	-	7.9	10	0	105	-	50	-	2.2	10	0	16.3	-	56.6	-	3.7	2	-
	11-20	8.7	-	2	1	17.1	10.1	13.6	-	5.1	15	0	92	-	38	-	-1.8	15	1	15.0	-	30.7	-	3.5	3	-
	21-END	11.9	-	5	3	16.2	7.9	12.0	-	3.6	26	0	77	-	27	-	-1.9	27	3	12.6	-	46.2	-	3.0	0	-
	MONTH	25.8	29	12	7	17.3	9.7	13.5	-0.2	3.6	26	0	274	93	115	92	-1.9	27	4	14.6	+0.0	133.5	119	3.4	5	51
Cork Airport e Co. Cork	1-10	4.0	-	4	2	17.3	10.0	13.6	-	8.1	10	0	93	-	38	-	6.0	10	0	15.6	-	54.7	-	4.9	1	-
	11-20	3.4	-	3	1	17.3	8.8	13.1	-	6.0	15	0	87	-	34	-	3.5	15	0	14.9	-	44.0	-	5.2	3	-
	21-END	31.1	-	4	2	15.4	8.0	11.7	-	4.9	25	0	73	-	23	-	1.8	27	0	13.4	-	69.9	-	5.0	2	-
	MONTH	38.5	33	11	5	16.7	9.0	12.8	-0.1	4.9	25	0	253	96	95	96	1.8	27	0	14.7	+1.1	168.6	141	5.0	6	57
Fermoy (Coolnakilla) Co. Cork	1-10	8.7	-	5	3	16.2	9.2	12.7	-	4.7	7	0	83	-	30	-	2.4	10	0	-	-	44.5	-	N/A	-	-
	11-20	5.4	-	2	1	16.5	6.9	11.7	-	0.9	19	0	75	-	27	-	0.1	15	0	-	-	39.9	-	N/A	-	-
	21-END	38.7	-	7	6	14.5	6.1	10.3	-	0.7	21	0	60	-	17	-	-1.5	27	1	-	-	61.0	-	N/A	-	-
	MONTH	52.8	-	14	10	15.7	7.4	11.5	-	0.7	21	0	218	-	74	-	-1.5	27	1	-	-	145.4	-	N/A	-	N/A
Fermoy (Moore Park) Co. Cork	1-10	2.5	-	4	1	18.5	8.4	13.4	-	5.8	10	0	90	-	39	-	-2.1	10	3	-	-	52.2	-	2.5	-	-
	11-20	4.4	-	3	2	18.1	6.5	12.3	-	1.8	15	0	80	-	32	-	-3.7	11	5	-	-	42.0	-	2.4	-	-
	21-END	36.0	-	6	5	15.7	5.9	10.8	-	-1.0	27	1	67	-	22	-	-4.5	27	2	-	-	59.2	-	2.6	-	-
	MONTH	42.9	47	13	8	17.4	6.9	12.2	-	-1.0	27	1	237	-	93	-	-4.5	27	10	-	-	153.4	-	2.5	-	44
Roches Point e Co. Cork	1-10	3.1	-	3	2	17.7	11.3	14.5	-	9.6	10	0	101	-	45	-	7.0	9	0	16.6	-	59.6	-	4.8	2	-
	11-20	4.1	-	3	1	17.5	9.2	13.4	-	0.0	17	0	91	-	38	-	5.2	15	0	15.6	-	50.6	-	4.6	4	-
	21-END	21.1	-	6	1	16.1	9.2	12.7	-	5.5	27	0	83	-	30	-	3.1	26	0	14.1	-	67.1	-	4.6	1	-
	MONTH	28.3	31	12	4	17.1	9.9	13.5	-0.2	0.0	17	0	274	94	113	95	3.1	26	0	15.4	+0.9	177.3	139	4.7	7	61
Glencolumbkille Co. Donegal	1-10	34.8	-	8	8	15.7	10.3	13.0	-	7.5	10	0	86	-	31	-	3.5	10	0	-	-	N/A	-	3.8	-	-
	11-20	48.3	-	6	5	15.4	8.1	11.8	-	5.6	15	0	74	-	22	-	2.5	15	0	-	-	N/A	-	4.0	-	-
	21-END	26.6	-	10	8	13.6	8.2	10.9	-	6.3	27	0	65	-	15	-	1.0	25	0	-	-	N/A	-	2.6	-	-
	MONTH	109.7	-	24	21	14.9	8.9	11.9	-	5.6	15	0	225	-	69	-	1.0	25	0	-	-	N/A	-	3.5	-	N/A

NOTES ON THE TABLES IN JANUARY ISSUE

TABLE 1 (CONTINUED)

SEPTEMBER 1990

STATION	PERIOD	RAINFALL (mm)				TEMPERATURE (°C)														BRIGHT SUNSHINE		WIND		P.E. (PENMAN) (mm)												
		AMOUNT	% OF AVERAGE	RAIN DAYS	WET DAYS	AIR							GROUND			SOIL (10cm)				TOTAL NO. OF HOURS	% OF AVERAGE	MEAN SPEED (ms ⁻¹)	DAYS WITH GALE GUSTS													
						MEAN MAX.	MEAN MIN.	MEAN DAILY	DIFFERENCE FROM AVERAGE	LOWEST MIN.	DATE	DAYS WITH AIR FROST	DEGREE DAYS ABOVE 4.4°C	% OF AVERAGE	DEGREE DAYS ABOVE 10.0°C	% OF AVERAGE	LOWEST "GRASS-MIN"	DATE	DAYS WITH GROUND FROST						MEAN DAILY	DIFFERENCE FROM AVERAGE										
Glenties Co. Donegal	1-10	23.5	-	8	6	15.9	9.6	12.7	-	4.3	10	0	83	-	30	-	-1.8	10	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	11-20	42.8	-	6	5	15.6	6.9	11.2	-	2.4	15	0	69	-	20	-	-3.2	15	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	21-END	21.3	-	9	7	13.6	5.9	9.7	-	0.7	26	0	55	-	13	-	-4.9	26	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	MONTH	87.6	60	23	18	15.0	7.4	11.2	-	0.7	26	0	207	-	64	-	-4.9	26	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Malin Head Co. Donegal	1-10	12.4	-	6	4	16.0	11.7	13.9	-	9.4	10	0	95	-	39	-	6.9	10	0	14.1	-	22.0	-	8.7	5	-	-	-	-	-	-	-	-	-		
	11-20	40.9	-	6	5	15.1	9.2	12.2	-	7.0	13	0	78	-	24	-	3.9	15	0	13.0	-	33.0	-	8.8	4	-	-	-	-	-	-	-	-	-	-	
	21-END	13.4	-	7	4	13.3	9.4	11.3	-	7.3	21	0	69	-	17	-	4.4	25	0	11.3	-	34.0	-	7.9	3	-	-	-	-	-	-	-	-	-	-	
	MONTH	66.7	66	19	13	14.8	10.1	12.5	-0.5	7.0	13	0	242	90	80	82	3.9	15	0	12.8	-0.3	89.0	81	8.5	12	54	-	-	-	-	-	-	-	-	-	
Casement Aerodrome Co. Dublin	1-10	1.9	-	3	1	18.2	9.1	13.7	-	5.4	10	0	93	-	42	-	3.0	10	0	15.2	-	55.8	-	5.1	3	-	-	-	-	-	-	-	-	-	-	
	11-20	8.6	-	3	2	16.7	7.9	12.3	-	4.5	11	0	79	-	29	-	1.9	11	0	13.9	-	39.7	-	5.2	3	-	-	-	-	-	-	-	-	-	-	-
	21-END	8.7	-	5	3	14.8	5.3	10.1	-	0.2	25	0	60	-	17	-	-1.6	25	2	11.1	-	35.5	-	4.7	2	-	-	-	-	-	-	-	-	-	-	-
	MONTH	19.2	28	11	6	16.6	7.5	12.0	-1.0	0.2	25	0	231	85	88	79	-1.6	25	2	13.4	-	131.0	106	5.0	8	49	-	-	-	-	-	-	-	-	-	-
Dublin Airport Co. Dublin	1-10	1.1	-	2	0	18.6	10.4	14.5	-	7.8	9	0	101	-	47	-	2.2	10	0	16.2	-	56.4	-	4.3	1	-	-	-	-	-	-	-	-	-	-	
	11-20	8.1	-	3	2	16.8	8.9	12.9	-	6.5	15	0	85	-	33	-	0.0	15	0	14.8	-	44.1	-	4.2	3	-	-	-	-	-	-	-	-	-	-	-
	21-END	7.2	-	5	2	15.5	6.5	11.0	-	2.9	25	0	67	-	21	-	-2.0	25	2	11.7	-	40.1	-	3.3	0	-	-	-	-	-	-	-	-	-	-	-
	MONTH	16.4	22	10	4	17.0	8.6	12.8	-0.4	2.9	25	0	252	90	100	89	-2.0	25	2	14.2	+0.2	140.6	110	3.9	4	52	-	-	-	-	-	-	-	-	-	
Kinsealy Co. Dublin	1-10	0.3	-	1	0	18.7	10.5	14.6	-	7.3	10	0	102	-	49	-	1.0	10	0	-	-	6.0	-	3.7	-	-	-	-	-	-	-	-	-	-	-	
	11-20	7.0	-	3	2	16.5	8.4	12.4	-	6.1	11	0	80	-	29	-	-1.0	11	1	-	-	4.6	-	3.7	-	-	-	-	-	-	-	-	-	-	-	
	21-END	9.4	-	5	2	15.3	6.6	11.0	-	2.8	25	0	67	-	20	-	-2.9	25	3	-	-	4.2	-	2.8	-	-	-	-	-	-	-	-	-	-	-	
	MONTH	16.7	24	9	4	16.8	8.5	12.7	-	2.8	25	0	249	-	98	-	-2.9	25	4	-	-	14.8	-	3.4	-	31	-	-	-	-	-	-	-	-	-	
Galway Co. Galway	1-10		-		N/A	N/A	N/A	N/A	-	N/A			N/A	N/A	-	N/A	-	N/A		N/A	N/A	N/A	-	N/A	N/A	-	N/A	N/A	-	N/A	N/A	-	N/A	-		
	11-20		-		N/A	N/A	N/A	N/A	-	N/A			N/A	N/A	-	N/A	-	N/A		N/A	N/A	N/A	-	N/A	N/A	-	N/A	N/A	-	N/A	N/A	-	N/A	-		
	21-END		-		N/A	N/A	N/A	N/A	-	N/A			N/A	N/A	-	N/A	-	N/A		N/A	N/A	N/A	-	N/A	N/A	-	N/A	N/A	-	N/A	N/A	-	N/A	-		
	MONTH				N/A	N/A	N/A	N/A	-N/A	N/A			N/A	N/A	-	N/A	-	N/A		N/A	N/A	N/A	-N/A	N/A	N/A	-	N/A	N/A	-	N/A	N/A	-	N/A	-		
Killarney (Muckross House) Co. Kerry	1-10	11.0	-	6	4	13.5	12.2	12.8	-	10.1	6	0	84	-	28	-	1.9	9	0	-	-	35.5	-	-	-	-	-	-	-	-	-	-	-	-		
	11-20	8.4	-	3	2	12.3	10.9	11.6	-	8.3	15	0	72	-	17	-	0.1	15	0	-	-	41.6	-	-	-	-	-	-	-	-	-	-	-	-	-	
	21-END	32.8	-	6	5	11.3	10.0	10.7	-	5.8	25	0	63	-	14	-	-1.6	26	3	-	-	39.9	-	-	-	-	-	-	-	-	-	-	-	-	-	
	MONTH	52.2	38	15	11	12.3	11.0	11.7	-	5.8	25	0	219	-	59	-	-1.6	26	3	-	-	117.0	-	-	-	-	-	-	-	-	-	-	-	-	-	

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SEPTEMBER 1990

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		AMOUNT	% OF AVERAGE	RAIN DAYS	WET DAYS	AIR							GROUND			SOIL (10cm)				TOTAL NO. OF HOURS	% OF AVERAGE	MEAN SPEED (ms ⁻¹)	DAYS WITH GALE GUSTS	P.E. (PENMAN) (mm)		
						MEAN MAX.	MEAN MIN.	MEAN DAILY	DIFFERENCE FROM AVERAGE	LOWEST MIN.	DATE	DAYS WITH AIR FROST	DEGREE DAYS ABOVE 4.4°C	% OF AVERAGE	DEGREE DAYS ABOVE 10.0°C	% OF AVERAGE	LOWEST "GRASS-MIN"	DATE	DAYS WITH GROUND FROST						MEAN DAILY	DIFFERENCE FROM AVERAGE
Cahirciveen (Valentia Obsy.) Co. Kerry	1-10	11.3	-	4	3	17.5	10.9	14.2	-	7.2	10	0	98	-	44	-	2.9	9	0	15.6	-	33.6	-	3.9	2	-
	11-20	9.7	-	2	2	17.0	9.3	13.1	-	6.2	15	0	88	-	35	-	1.9	15	0	15.0	-	51.3	-	4.0	2	-
	21-END	7.3	-	3	3	15.9	9.1	12.5	-	3.1	25	0	82	-	30	-	-1.3	25	1	13.3	-	53.1	-	4.3	3	-
	MONTH	28.3	22	9	8	16.8	9.8	13.3	-0.5	3.1	25	0	267	91	109	89	-1.3	25	1	14.6	+0.1	138.0	124	4.1	7	49
Ardfert (Liscahane) Co. Kerry	1-10	8.0	-	6	4	18.3	10.2	14.2	-	5.6	9	0	98	-	45	-	2.1	9	0	-	-	50.1	-	-	-	-
	11-20	10.8	-	4	4	17.2	8.2	12.7	-	2.3	15	0	83	-	32	-	-1.4	15	1	-	-	36.8	-	-	-	-
	21-END	29.3	-	4	4	16.2	7.7	11.9	-	2.5	25	0	77	-	27	-	-1.7	27	3	-	-	50.4	-	-	-	-
	MONTH	48.1	-	14	12	17.2	8.7	12.9	-	2.3	15	0	258	-	104	-	-1.7	27	4	-	-	137.3	-	-	-	-
Lullymore Co. Kildare	1-10	N/A	-	N/A	N/A	N/A	N/A	N/A	-	N/A	N/A	N/A	-	N/A	-	N/A	N/A	N/A	-	-	-	N/A	-	N/A	-	-
	11-20	N/A	-	N/A	N/A	N/A	N/A	N/A	-	N/A	N/A	N/A	-	N/A	-	N/A	N/A	N/A	-	-	-	N/A	-	N/A	-	-
	21-END	N/A	-	N/A	N/A	N/A	N/A	N/A	-	N/A	N/A	N/A	-	N/A	-	N/A	N/A	N/A	-	-	-	N/A	-	N/A	-	-
	MONTH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-	N/A	N/A	N/A	-	N/A	-	N/A	N/A	N/A	-	-	-	N/A	-	N/A	-	N/A
Kilkenny Co. Kilkenny	1-10	3.9	-	4	2	19.2	9.2	14.2	-	4.3	10	0	98	-	46	-	0.4	10	0	16.2	-	57.1	-	3.1	1	-
	11-20	9.9	-	3	2	17.7	7.3	12.5	-	4.0	13	0	81	-	32	-	-1.3	15	2	14.8	-	44.7	-	3.1	2	-
	21-END	32.0	-	4	3	16.0	5.6	10.8	-	0.5	27	0	66	-	20	-	-3.6	27	3	12.4	-	54.1	-	2.6	0	-
	MONTH	45.8	56	11	7	17.6	7.4	12.5	-0.3	0.5	27	0	245	92	98	86	-3.6	27	5	14.5	+0.4	155.9	136	2.9	3	50
Mooncoin (Silverspring) Co. Kilkenny	1-10	3.4	-	3	1	18.6	9.0	13.8	-	4.6	10	0	94	-	42	-	-0.7	10	1	-	-	57.9	-	-	-	-
	11-20	8.1	-	3	2	18.1	6.4	12.2	-	1.6	13	0	80	-	32	-	-3.9	15	3	-	-	44.1	-	-	-	-
	21-END	39.1	-	6	3	16.1	5.5	10.8	-	-2.0	27	1	67	-	22	-	-6.6	27	6	-	-	58.2	-	-	-	-
	MONTH	50.6	54	12	6	17.6	7.0	12.3	-	-2.0	27	1	240	-	96	-	-6.6	27	10	-	-	160.2	-	-	-	-
Ballinamore Co. Leitrim	1-10	12.9	-	7	4	17.1	8.6	12.8	-	3.1	10	0	85	-	34	-	-5.4	10	4	-	-	41.8	-	2.4	-	-
	11-20	26.3	-	5	4	16.2	7.5	11.8	-	3.4	11	0	75	-	25	-	-6.1	11	3	-	-	29.4	-	2.7	-	-
	21-END	5.3	-	6	2	14.1	5.6	9.8	-	0.4	25	0	57	-	14	-	-3.1	26	4	-	-	26.7	-	1.8	-	-
	MONTH	44.5	42	18	10	15.8	7.2	11.5	-	0.4	25	0	216	-	73	-	-6.1	11	11	-	-	97.9	-	2.3	-	32
Ardee (Boharnamoe) Co. Louth	1-10	9.0	-	4	3	18.6	8.3	13.5	-	4.0	10	0	91	-	40	-	-5.1	8	6	-	-	-	-	-	-	-
	11-20	11.0	-	4	2	17.1	5.7	11.4	-	2.1	15	0	71	-	25	-	-8.2	15	9	-	-	-	-	-	-	-
	21-END	0.8	-	2	0	15.0	3.8	9.4	-	-3.5	23	3	55	-	17	-	-10.5	26	6	-	-	-	-	-	-	-
	MONTH	20.8	26	10	5	16.9	5.9	11.4	-	-3.5	23	3	217	-	83	-	-10.5	26	21	-	-	-	-	-	-	-

NOTES ON THE TABLES IN JANUARY ISSUE

TABLE 1 (CONTINUED)

SEPTEMBER 1990

STATION	PERIOD	RAINFALL (mm)				TEMPERATURE (°C)														BRIGHT SUNSHINE		WIND				
		AMOUNT	% OF AVERAGE	RAIN DAYS	WET DAYS	AIR							GROUND				SOIL (10cm)			TOTAL NO. OF HOURS	% OF AVERAGE	MEAN SPEED (ms ⁻¹)	DAYS WITH GALE GUSTS	P.E. (PENMAN) (mm)		
						MEAN MAX.	MEAN MIN.	MEAN DAILY	DIFFERENCE FROM AVERAGE	LOWEST MIN.	DATE	DAYS WITH AIR FROST	DEGREE DAYS ABOVE 4.4°C	% OF AVERAGE	DEGREE DAYS ABOVE 10.0°C	% OF AVERAGE	LOWEST "GRASS-MIN"	DATE	DAYS WITH GROUND FROST						MEAN DAILY	DIFFERENCE FROM AVERAGE
Ballinrobe (Creagh) Co. Mayo	1-10	N/A	-	N/A	N/A	N/A	N/A	N/A	-	N/A	N/A	N/A	-	N/A	-	N/A	N/A	-	-	N/A	-	N/A	-	-		
	11-20	N/A	-	N/A	N/A	N/A	N/A	N/A	-	N/A	N/A	N/A	-	N/A	-	N/A	N/A	-	-	N/A	-	N/A	-	-		
	21-END	N/A	-	N/A	N/A	N/A	N/A	N/A	-	N/A	N/A	N/A	-	N/A	-	N/A	N/A	-	-	N/A	-	N/A	-	-		
	MONTH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-	N/A	N/A	N/A	-	N/A	-	N/A	N/A	-	-	N/A	-	N/A	-	N/A		
Belmullet Co. Mayo	1-10	22.5	-	7	4	16.7	10.0	13.4	-	5.8	8	0	90	-	36	-	2.1	8	0	15.0	-	39.1	-	6.6	3	-
	11-20	20.4	-	4	4	15.9	8.7	12.3	-	6.0	16	0	79	-	27	-	2.3	16	0	13.7	-	26.2	-	6.0	4	-
	21-END	11.3	-	7	5	14.3	8.5	11.4	-	4.5	25	0	70	-	19	-	1.5	25	0	12.4	-	25.7	-	5.5	0	-
	MONTH	54.2	51	18	13	15.6	9.0	12.3	-1.0	4.5	25	0	238	87	83	79	1.5	25	0	13.7	-0.1	91.0	79	6.0	7	41
Claremorris Co. Mayo	1-10	9.1	-	6	3	17.7	8.4	13.0	-	3.8	9	0	87	-	36	-	1.1	8	0	14.8	-	39.3	-	3.8	2	-
	11-20	14.8	-	4	3	16.9	7.1	12.0	-	3.9	15	0	76	-	28	-	-1.4	15	2	14.0	-	30.9	-	3.6	2	-
	21-END	11.4	-	6	2	14.8	6.2	10.5	-	1.1	25	0	63	-	18	-	-2.4	26	3	12.0	-	32.6	-	3.0	1	-
	MONTH	35.3	33	16	8	16.5	7.3	11.9	-0.5	1.1	25	0	226	89	82	85	-2.4	26	5	13.6	+0.3	102.8	105	3.5	5	34
Glenamoy Co. Mayo	1-10	44.2	-	9	8	16.4	8.7	12.6	-	3.0	9	0	82	-	31	-	7.0	8	0	-	-	N/A	-	0.1	-	-
	11-20	27.9	-	5	3	15.1	7.4	11.2	-	4.0	16	0	68	-	19	-	1.0	13	0	-	-	N/A	-	0.0	-	-
	21-END	14.6	-	6	3	13.6	7.0	10.3	-	0.4	25	0	61	-	15	-	-1.6	26	2	-	-	N/A	-	0.0	-	-
	MONTH	86.7	67	20	14	15.0	7.7	11.4	-	0.4	25	0	211	-	65	-	-1.6	26	2	-	-	N/A	-	0.1	-	N/A
Dunsany (Grange) Co. Meath	1-10	4.2	-	3	2	17.5	8.7	13.1	-	3.9	10	0	87	-	37	-	0.8	8	0	-	-	49.6	-	-	-	-
	11-20	7.5	-	3	2	16.0	6.7	11.3	-	3.1	15	0	70	-	22	-	-1.2	15	1	-	-	32.8	-	-	-	-
	21-END	6.6	-	5	3	14.4	5.0	9.7	-	0.1	25	0	56	-	15	-	-4.5	26	4	-	-	32.0	-	-	-	-
	MONTH	18.3	23	11	7	16.0	6.8	11.4	-	0.1	25	0	213	-	74	-	-4.5	26	5	-	-	114.4	-	-	-	-
Clones Co. Monaghan	1-10	7.8	-	6	3	17.4	9.3	13.3	-	4.5	10	0	89	-	37	-	1.0	10	0	14.3	-	38.1	-	3.6	1	-
	11-20	15.4	-	4	4	16.5	7.3	11.9	-	3.0	14	0	75	-	27	-	-1.0	15	2	13.4	-	36.9	-	3.5	3	-
	21-END	6.5	-	5	3	13.9	6.3	10.1	-	0.5	25	0	59	-	15	-	-1.4	26	2	11.1	-	31.9	-	2.7	0	-
	MONTH	29.7	35	15	10	15.9	7.6	11.8	-0.5	0.5	25	0	223	88	79	83	-1.4	26	4	13.0	-0.3	106.9	109	3.3	4	37
Birr Co. Offaly	1-10	2.7	-	4	1	18.4	9.2	13.8	-	4.1	10	0	94	-	42	-	-0.2	10	1	15.5	-	49.5	-	2.6	1	-
	11-20	9.1	-	3	2	17.0	7.4	12.2	-	0.1	15	0	79	-	30	-	-4.4	15	2	14.4	-	28.9	-	2.5	2	-
	21-END	8.7	-	4	2	15.6	5.8	10.7	-	-0.3	26	1	65	-	20	-	-4.2	26	3	11.8	-	34.1	-	2.0	0	-
	MONTH	20.5	26	11	5	17.0	7.4	12.2	-0.8	-0.3	26	1	238	88	92	84	-4.4	15	6	13.9	-0.1	112.5	102	2.4	3	39

NOTES ON THE TABLES IN JANUARY ISSUE

TABLE 1 (CONTINUED)

SEPTEMBER 1990

STATION	PERIOD	RAINFALL (mm)				TEMPERATURE (°C)														BRIGHT SUNSHINE		WIND																
		AMOUNT	% OF AVERAGE	RAIN DAYS	WET DAYS	AIR							GROUND			SOIL (10cm)				TOTAL NO. OF HOURS	% OF AVERAGE	MEAN SPEED (ms ⁻¹)	DAYS WITH GALE GUSTS	P.E. (PENMAN) (mm)														
						MEAN MAX.	MEAN MIN.	MEAN DAILY	DIFFERENCE FROM AVERAGE	LOWEST MIN.	DATE	DAYS WITH AIR FROST	DEGREE DAYS ABOVE 4.4 °C	% OF AVERAGE	DEGREE DAYS ABOVE 10.0 °C	% OF AVERAGE	LOWEST "GRASS-MIN"	DATE	DAYS WITH GROUND FROST						MEAN DAILY	DIFFERENCE FROM AVERAGE												
Dundrum (Knockavilla) Co. Tipperary	1-10	2.4	-	4	1	18.6	7.5	13.1	-	3.7	9	0	87	-	37	-	1.7	10	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	11-20	8.4	-	3	3	17.3	6.8	12.0	-	2.5	15	0	77	-	29	-	-1.3	15	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	21-END	39.3	-	6	4	15.8	4.7	10.2	-	-0.4	27	1	62	-	19	-	-1.6	27	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	MONTH	50.1	-	13	8	17.2	6.3	11.8	-	-0.4	27	1	225	-	84	-	-1.6	27	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Dungarvan (Carriglea) Co. Waterford	1-10	5.5	-	3	2	19.2	9.4	14.3	-	4.8	10	0	99	-	46	-	3.2	9	0	-	-	51.2	-	1.7	-	-	-	-	-	-	-	-	-	-	-	-		
	11-20	5.4	-	3	2	18.7	7.0	12.8	-	3.2	13	0	85	-	36	-	-0.1	15	1	-	-	45.8	-	1.7	-	-	-	-	-	-	-	-	-	-	-	-	-	
	21-END	52.2	-	5	5	16.7	6.6	11.7	-	0.9	27	0	74	-	27	-	-2.1	25	3	-	-	58.4	-	1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	
	MONTH	63.1	61	11	9	18.2	7.7	12.9	-	0.9	27	0	258	-	109	-	-2.1	25	4	-	-	155.4	-	1.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mullingar Co. Westmeath	1-10	3.4	-	4	1	17.5	8.8	13.1	-	3.6	10	0	88	-	36	-	2.0	10	0	15.1	-	57.3	-	2.7	1	-	-	-	-	-	-	-	-	-	-	-	-	
	11-20	9.7	-	3	2	16.3	7.9	12.1	-	3.5	11	0	77	-	27	-	0.5	15	0	14.2	-	38.4	-	2.6	3	-	-	-	-	-	-	-	-	-	-	-	-	-
	21-END	2.1	-	5	0	14.5	5.6	10.0	-	0.3	25	0	58	-	15	-	-2.0	25	2	11.6	-	40.8	-	2.2	0	-	-	-	-	-	-	-	-	-	-	-	-	-
	MONTH	15.2	17	12	3	16.1	7.4	11.8	-0.6	0.3	25	0	223	86	78	76	-2.0	25	2	13.6	+0.0	136.5	124	2.5	4	37	-	-	-	-	-	-	-	-	-	-	-	-
J.F.K. Park Co. Wexford	1-10	5.3	-	4	2	21.1	10.2	15.7	-	7.8	10	0	113	-	59	-	-1.0	10	1	-	-	N/A	-	2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	
	11-20	10.4	-	3	2	17.2	8.7	13.0	-	6.9	12	0	86	-	33	-	-1.5	11	2	-	-	N/A	-	3.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	21-END	38.0	-	4	3	16.1	7.6	11.8	-	4.1	25	0	74	-	26	-	-2.0	27	3	-	-	54.6	-	2.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	MONTH	53.7	55	11	7	18.1	8.8	13.5	-	4.1	25	0	273	-	118	-	-2.0	27	6	-	-	N/A	-	2.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clonroche Co. Wexford	1-10	5.6	-	4	2	18.4	9.4	13.9	-	6.0	4	0	95	-	42	-	-0.6	9	2	-	-	63.5	-	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	
	11-20	9.4	-	3	2	17.5	8.3	12.9	-	6.4	15	0	85	-	33	-	-1.1	11	3	-	-	54.8	-	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	21-END	36.2	-	6	4	15.2	7.3	11.3	-	3.5	23	0	69	-	21	-	-3.5	26	4	-	-	61.1	-	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	MONTH	51.2	47	13	8	17.0	8.4	12.7	-	3.5	23	0	249	-	97	-	-3.5	26	9	-	-	179.4	-	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Johnstown Castle Co. wexford	1-10	7.5	-	3	3	18.3	10.6	14.5	-	7.0	6	0	101	-	46	-	1.4	6	0	-	-	69.7	-	1.6	-	-	-	-	-	-	-	-	-	-	-	-	-	
	11-20	11.2	-	3	1	17.3	8.8	13.0	-	7.3	15	0	86	-	34	-	1.5	20	0	-	-	55.1	-	1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	21-END	20.2	-	4	2	15.8	7.9	11.9	-	5.2	27	0	75	-	25	-	-3.4	27	3	-	-	62.0	-	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	MONTH	38.9	42	10	6	17.1	9.1	13.1	-	5.2	27	0	261	-	105	-	-3.4	27	3	-	-	186.8	-	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rosslare Co. Wexford	1-10	3.5	-	3	1	17.9	11.9	14.9	-	8.9	6	0	105	-	49	-	5.7	9	0	17.2	-	71.3	-	5.0	1	-	-	-	-	-	-	-	-	-	-	-	-	-
	11-20	9.4	-	3	1	16.8	11.4	14.1	-	8.1	20	0	97	-	41	-	5.0	20	0	16.2	-	57.1	-	5.6	3	-	-	-	-	-	-	-	-	-	-	-	-	-
	21-END	22.9	-	3	2	15.5	8.8	12.1	-	6.2	23	0	77	-	26	-	1.5	27	0	13.7	-	54.6	-	4.5	0	-	-	-	-	-	-	-	-	-	-	-	-	-
	MONTH	35.8	45	9	4	16.7	10.7	13.7	-0.0	6.2	23	0	279	95	116	96	1.5	27	0	15.7	+0.8	183.0	127	5.0	4	62	-	-	-	-	-	-	-	-	-	-	-	-

NOTES ON THE TABLES IN JANUARY ISSUE

TABLE 2 GLOBAL RADIATION

STATION	PERIOD	AMOUNT MJ/m ²
Malin Head Co. Donegal	1-10	102.98
	11-20	89.70
	21-end	78.23
	Month	270.91
Dublin Airport Co. Dublin	1-10	131.66
	11-20	104.12
	21-end	86.80
	Month	322.58
Cahirciveen (Valentia Obs.) Co. Kerry	1-10	121.48
	11-20	118.09
	21-end	107.90
	Month	347.47
Kilkenny Co. Kilkenny	1-10	138.94
	11-20	111.62
	21-end	112.09
	Month	362.65
Belmullet Co. Mayo	1-10	108.36
	11-20	81.00
	21-end	71.45
	Month	260.81
Clones Co. Monaghan	1-10	111.18
	11-20	96.49
	21-end	78.92
	Month	286.59
Birr Co. Offaly	1-10	131.22
	11-20	94.94
	21-end	94.47
	Month	320.63

Notes on the tables in January issue

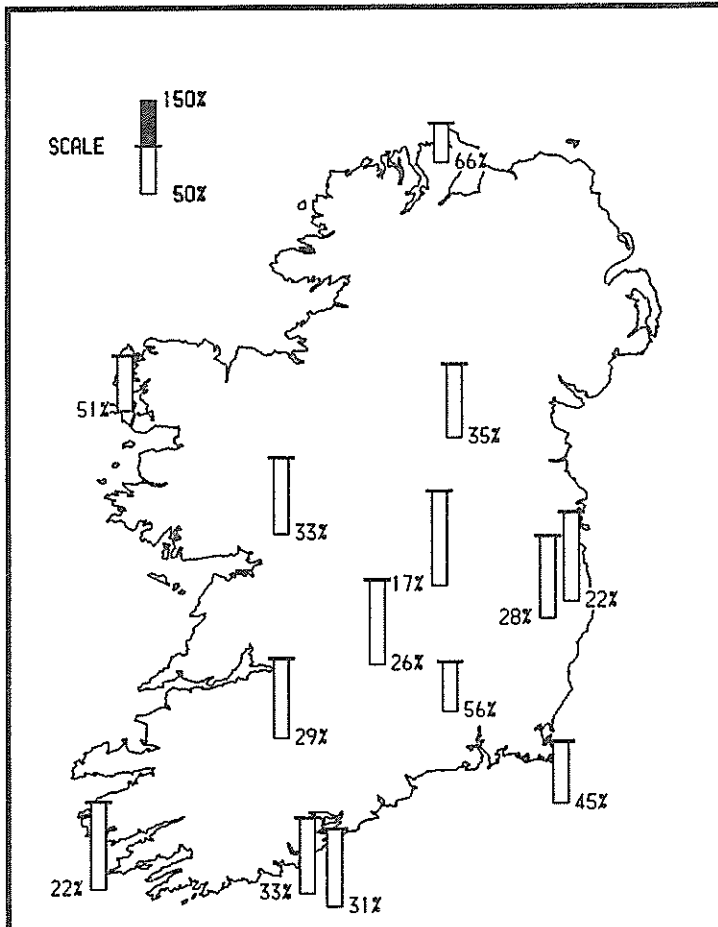
TABLE 3 POTENTIAL EVAPOTRANSPIRATION (P.E.) AND SOIL MOISTURE

STATION	PERIOD	SOIL MOISTURE (mm)			
		P.E. (mm)	Deficit	Accumulated Deficit	Surplus
Carlow (Oak Park) Co. Carlow	1-10	18.2	9	74	-
	11-20	17.7	-	71	3
	21-end	24.0	-	54	17
	Month	59.9	-	-	-
Kinsealy Co. Dublin	1-10	20.8	11	81	-
	11-20	21.9	2	83	-
	21-end	16.4	-	80	3
	Month	59.1	-	-	-
Cahirciveen (Valentia Obs.) Co. Kerry	1-10	15.5	5	5	-
	11-20	27.8	18	23	-
	21-end	7.4	0	23	-
	Month	-	-	-	-
Ballinamore Co. Leitrim	1-10	7.7	-	0	5
	11-20	15.2	-	0	11
	21-end	2.1	-	0	3
	Month	25.0	-	-	-
Glenamoy Co. Mayo	1-10	NA	-	0*	NA
	11-20	NA	-	0*	NA
	21-end	NA	-	0*	NA
	Month	NA	-	-	-
Johnstown Castle Co. Wexford	1-10	30.5	6	85	-
	11-20	21.6	-	82	3
	21-end	21.2	-	71	11
	Month	73.3	-	-	-

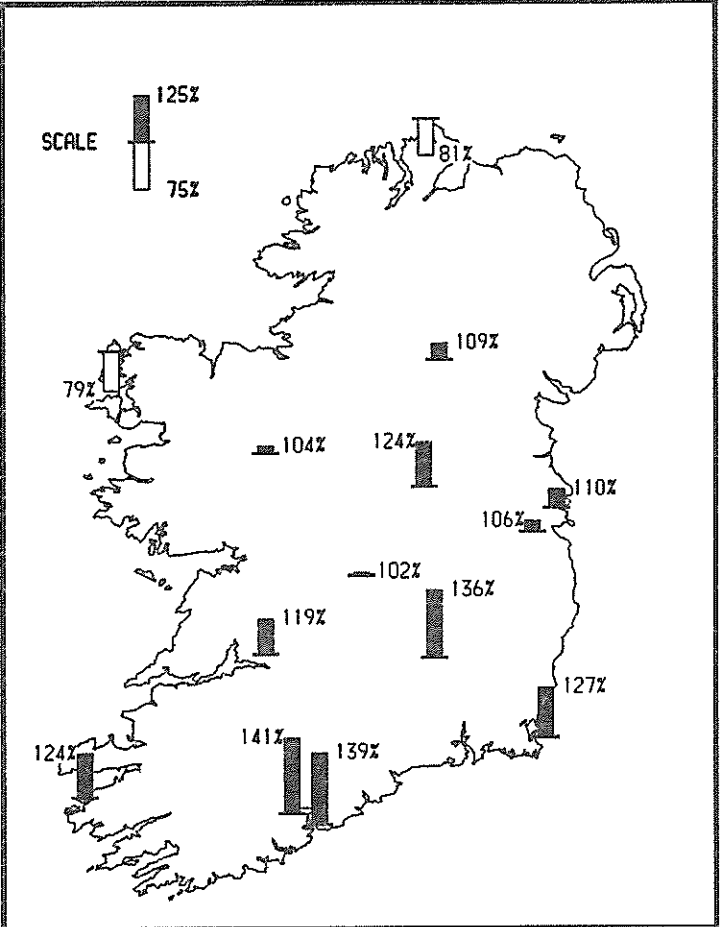
* Estimated

TABLE 4 SOIL CLIMATE (MULLINGAR)

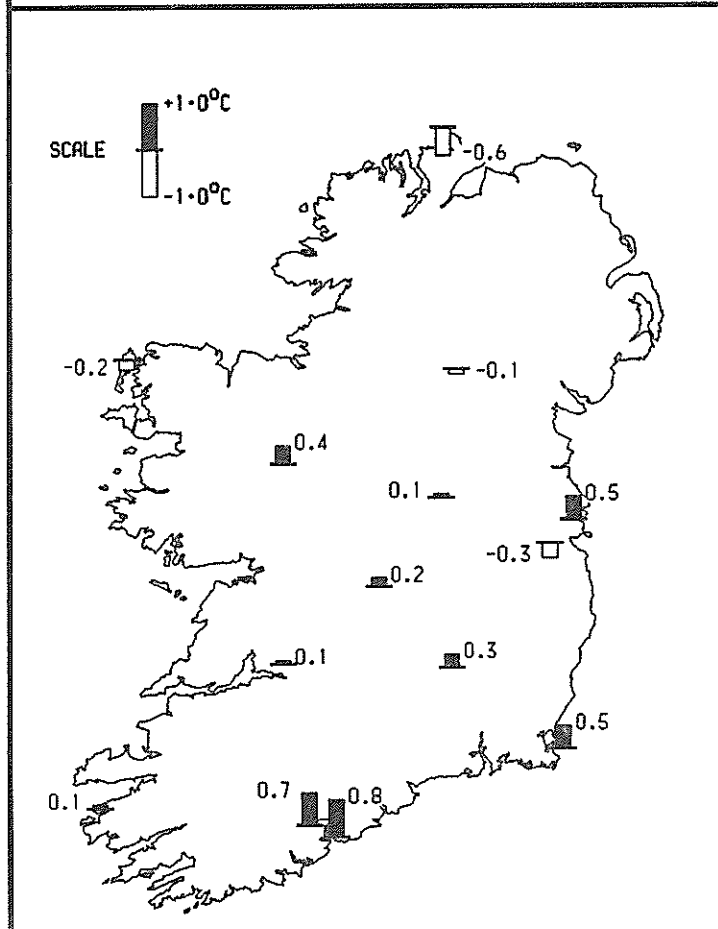
BARE SOIL TYPE	PERIOD	MEAN TEMPERATURE (°C at 100mm)			TEMPERATURE GRADIENT (to 200mm)	SOIL WATER POTENTIAL (µPa) (at depths)	
		Max.	Daily	Min.		75mm	200mm
		Peat	1-10	16.9	15.5		0.63
11-20	15.8		14.4		1.0	163.7	163.7
21-end	13.3		11.9		1.2	169.9	181.6
Mineral	1-10	18.2	15.1		-0.0	330.8	175.5
	11-20	18.2	14.2		0.0	728.3	390.4
	21-end	14.0	11.4		0.2	613.3	457.9



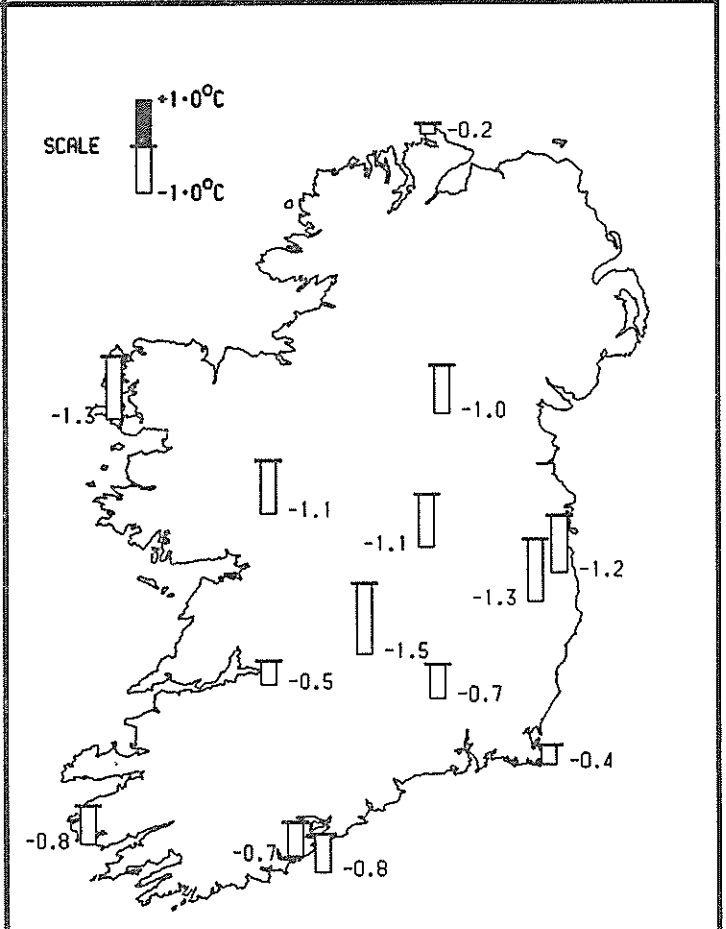
RAINFALL (Percentage of 1951-1980 normals)



SUNSHINE (Percentage of 1951-1980 normals)



MEAN MAX. TEMPERATURE (Deviation from 1951-1980 normals)



MEAN MIN. TEMPERATURE (Deviation from 1951-1980 normals)

Water Balance Study

T. Keane, Meteorological Service

The only real wet period of the past year occurred in late January and lasted to the end of February. Vigorous Atlantic depressions and stormy southwesterly winds caused widespread flooding, especially after the rains of February 6 and again on February 26/27. The weather of March was exceptionally dry. There was a great contrast in rainfall amounts across the country in April. Whereas in the extreme southeast, rainfall was only 34 per cent of normal, in the west it reached 159 per cent.

No such countrywide contrast occurred in May—the weather was very settled throughout the month and the last month of spring (according to climatology) proved to be very dry, warm and bright everywhere. June was quite a wet month overall but with a settled, sunny spell during the second week. After the first unsettled ten days of July—the rest of the month was bright, very warm to hot, and dry. There were also dry spells in August and rainfall overall proved to be below normal and well below in the south and east. Soil moisture deficits remained high throughout the month. Bringing our climate data right up to date, rainfall in September has also been well below average with only 22% at Dublin Airport and Cahirciveen. Over the spring and summer rainfall in western areas was generally near or above normal but in the east a large water deficit developed.

The Water Shortage

The overall water balance affects the water table and this in turn affects the available ground water storage. Variations in the ground water level are determined by incoming precipitation and outgoing evaporation as well as runoff, underground movement of water, etc. The balance between rainfall and evaporation (including transpiration) on an annual basis at Dublin Airport since 1950 is represented in Figure 1. Although the method used here is a much simplified way of looking at the water availability, nevertheless it can be very revealing in relation to the gross water situation.

We see in the figure that in almost all years rainfall can be expected to exceed evapotranspiration, so that there is plenty of water available to replenish the ground water table, the lakes and rivers, and for the extraction of ground water from springs and reservoirs for domestic use. It is clear from the figure that in years such as 1958, 1960 and 1966 considerably more rainfall was received than was needed to meet the demands of evaporation whereas in other years the imbalance is much smaller.

Over the 40 year period, 1975 was the first year that showed a deficit. Although the deficit was small it is to be noted that that year is particularly remembered for its drought and indeed a special European Atlas was compiled detailing this widespread European phenomenon.

We must go to 1989 to find the next occasion when the annual deficit of rainfall over evaporation was 83 mm. The shortfall of rain has continued into 1990 so that the additional deficit for this year (to the end of September) stands at 144 mm. In fact the current spell seems to have started in November 1988 and the total deficit developed since then (23 months) amounts to 214 mm compared with a normal surplus of some 300 mm. It must be said, however, that as yet three months of 1990 remain.

