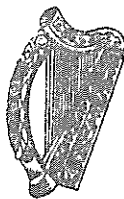


METEOROLOGICAL SERVICE



JANUARY 1988

AGROMETEOROLOGICAL BULLETIN

THE WEATHER OF JANUARY

SUMMARY:

The Atlantic influence was dominant. The month was exceptionally wet, mild and dull but there was above normal sunshine in the south and east.

Meteorological Situation:

Widespread rain and strong southwest winds over the opening days eased on 4th ahead of a depression which passed over southern areas on 5th. This was followed by a ridge on 6th/7th. Strong southwesterly or westerly winds with warm sector or trough conditions associated with depressions to the northwest of Ireland returned from 8th to 13th. They were replaced by a ridge on 16th/17th but with weak troughs still affecting some places.

On 18th a depression centre passed northeastwards over western regions and strong southerly winds developed.

Westerly winds followed, until, on 21st, a rapidly deepening wave depression moved eastwards off the south coast. The next depression first observed moving northwards in the Atlantic induced mild but strong south-southwest winds over Ireland on 23rd. Later the depression centre was steered back southwards and passed over southern areas of Ireland on 25th.

A complex trough extending from the Azores dominated from 26th to 28th and this was followed by a strong westerly airflow with heavy showers and the approach of a vigorous depression as the month ended

Precipitation:

Monthly precipitation was well above normal everywhere and exceptionally above in the south and east. Amounts varied from 226% at Dungarvan to 126% at Glenties.

Temperature:

Mean air temperature was above normal almost everywhere and varied from 1.0°C above at Dublin Airport to 0.1°C below at Belmullet. Both daytime maxima and night time minima were above normal. Air frost was widespread on 7th, 18th, 21st/22nd and occurred locally on other nights. Ground frost occurred frequently, the lowest value of -10°C being recorded at Dublin Airport on 22nd. Soil temperatures (100mm) largely fell from being 2.0°C above average at the beginning of the month to 0.5°C below average in some places at the end.

Sunshine and Radiation:

Amounts across the country showed great contrast: Sunshine hours varied from 132% of normal at Rosslare to 70% at Belmullet. Global radiation varied from 107% of normal at Kilkenny to 94% of normal at Birr.

Wind:

Strong winds with gale gusts were widespread on 1st to 4th; 6th to 14th, particularly on 9th and 12th/13th; 18th/19th and 30th/31st.

The data contained in this Bulletin are provisional. Some of the material in Table 1 will be published in its final form in the Monthly Weather Report; final values of Global Radiation at stations in Table 2 will be published in the annual Solar Radiation Observations.

TABLE 1

JANUARY 1989

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
Carlow (Oak Park) Co. Carlow	1-10	42.6	-	9	8	8.9	3.2	6.0	-	-0.7	7	1	22	-	2	-	-4.6	7	5	-	-	24.8	-	0.7	-	-
	11-20	49.4	-	7	6	8.0	1.0	4.5	-	-1.0	19	1	11	-	0	-	-3.2	15	7	-	-	16.8	-	2.0	-	-
	21-END	42.2	-	8	7	7.6	1.4	4.5	-	-1.0	27	3	12	-	0	-	-5.5	27	7	-	-	24.8	-	-0.9	-	-
	MONTH	134.2	166	24	21	8.1	1.9	5.0	-	-1.0	27	5	46	-	2	-	-5.5	27	19	-	-	66.4	-	0.6	-	-4
Shannon Airport Co. Clare	1-10	68.3	-	10	9	9.7	3.9	6.8	-	-0.2	7	1	28	-	3	-	-5.8	7	3	6.1	-	14.1	-	6.0	6	-
	11-20	44.0	-	8	6	8.5	3.0	5.8	-	-0.2	18	1	18	-	0	-	-4.8	18	5	4.7	-	10.0	-	4.7	4	-
	21-END	60.6	-	9	8	8.2	2.9	5.5	-	0.6	22	0	17	-	0	-	-2.9	22	7	4.6	-	18.2	-	4.7	4	-
	MONTH	172.9	186	27	23	8.8	3.2	6.0	+0.9	-0.2	18	2	63	84	3	-	-5.8	7	15	5.1	+0.4	42.3	80	5.1	14	8
Cork Airport Co. Cork	1-10	69.4	-	9	9	9.0	4.0	6.5	-	0.4	7	0	25	-	2	-	-5.6	8	3	6.4	-	18.9	-	8.4	8	-
	11-20	100.6	-	8	8	8.2	2.6	5.4	-	1.0	18	0	15	-	0	-	-5.0	15	5	5.0	-	26.4	-	7.3	6	-
	21-END	89.2	-	10	9	7.7	2.6	5.1	-	0.3	21	0	16	-	0	-	-2.9	31	8	4.9	-	20.9	-	6.8	7	-
	MONTH	259.2	175	27	26	8.3	3.1	5.7	+0.7	0.3	21	0	55	82	2	-	-5.6	8	16	5.4	+1.1	66.2	115	7.5	21	8
Fermoy (Coolnakilla) Co. Cork	1-10	58.7	-	10	10	8.2	2.2	5.2	-	-1.8	6	4	19	-	1	-	-4.4	5	5	-	-	17.3	-	39.4	-	-
	11-20	104.4	-	9	9	7.7	1.8	4.7	-	-1.0	18	2	12	-	0	-	-2.9	16	6	-	-	21.7	-	40.5	-	-
	21-END	90.0	-	10	9	7.9	2.3	5.1	-	0.4	23	0	14	-	0	-	-1.5	21	6	-	-	21.2	-	34.2	-	-
	MONTH	253.1	-	29	28	7.9	2.1	5.0	-	-1.8	6	6	44	-	1	-	-4.4	5	17	-	-	60.2	-	38.0	-	34
Fermoy (Moore Park) Co. Cork	1-10	42.0	-	10	7	9.9	2.8	6.3	-	-3.4	7	3	27	-	3	-	-8.0	7	5	-	-	16.7	-	N/A	-	-
	11-20	83.5	-	8	7	8.2	0.3	4.3	-	-3.1	15	4	12	-	0	-	-6.4	15	8	-	-	16.3	-	N/A	-	-
	21-END	74.8	-	11	9	8.9	1.8	5.4	-	-0.5	31	2	20	-	1	-	-9.0	30	8	-	-	17.2	-	N/A	-	-
	MONTH	200.3	176	29	23	9.0	1.7	5.3	-	-3.4	7	9	59	-	4	-	-9.0	30	21	-	-	50.2	-	N/A	-	N/A
Roches Point Co. Cork	1-10	66.8	-	10	9	10.0	5.2	7.6	-	1.6	7	0	34	-	2	-	-1.9	7	4	7.0	-	21.3	-	9.3	9	-
	11-20	61.4	-	7	6	9.0	3.8	6.4	-	0.8	15	0	23	-	0	-	-1.2	15	5	5.9	-	25.2	-	8.1	7	-
	21-END	84.8	-	11	10	8.8	4.1	6.4	-	1.6	31	0	25	-	1	-	-1.1	21	3	5.8	-	23.3	-	7.6	8	-
	MONTH	213.0	209	28	25	9.2	4.4	6.8	+0.6	0.8	15	0	82	94	3	-	-1.9	7	12	6.2	+0.3	69.8	113	8.3	24	11
Glencolumbkille Co. Donegal	1-10	70.8	-	10	9	8.5	3.4	5.9	-	0.0	5	0	22	-	1	-	-3.7	6	5	-	-	N/A	-	4.4	-	-
	11-20	86.1	-	10	9	7.8	3.0	5.4	-	0.2	18	0	14	-	0	-	-3.0	16	4	-	-	N/A	-	4.4	-	-
	21-END	81.3	-	11	8	7.3	2.7	5.0	-	0.6	23	0	12	-	0	-	-1.5	21	4	-	-	N/A	-	4.9	-	-
	MONTH	238.2	-	31	26	7.8	3.0	5.4	-	0.0	5	0	48	-	1	-	-3.7	6	13	-	-	N/A	-	4.5	-	N/A

NOTES ON THE TABLES IN JANUARY ISSUE

TABLE 1 (CONTINUED)

		JANUARY 1988																								
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
Cahirciveen (Valentia Obsy.) Co. Kerry	1-10	58.1	-	10	10	10.4	5.2	7.8	-	0.4	7	0	36	-	3	-	-2.5	7	2	7.4	-	12.2	-	8.6	10	-
	11-20	122.5	-	9	8	9.5	3.5	6.5	-	0.5	18	0	24	-	1	-	-1.0	16	2	6.0	-	10.2	-	6.7	6	-
	21-END	88.6	-	10	9	9.3	4.0	6.6	-	2.3	22	0	27	-	1	-	0.8	26	0	6.0	-	19.6	-	6.5	7	-
	MONTH	269.2	166	29	27	9.7	4.2	7.0	+0.4	0.4	7	0	86	84	5	-	-2.5	7	4	6.5	+0.6	42.0	87	7.3	23	14
Ardfert (Lis Cahane) Co. Kerry	1-10	65.9	-	10	8	9.7	4.2	6.9	-	-0.6	7	1	28	-	2	-	-5.5	7	2	-	-	10.0	-	-	-	-
	11-20	107.9	-	8	8	8.9	3.2	6.1	-	0.2	18	0	20	-	1	-	-3.9	18	3	-	-	9.0	-	-	-	-
	21-END	78.7	-	9	9	8.5	2.5	5.5	-	0.2	22	0	19	-	1	-	-2.9	26	4	-	-	14.4	-	-	-	-
	MONTH	252.5	-	27	25	9.0	3.3	6.2	-	-0.6	7	1	67	-	4	-	-5.5	7	9	-	-	33.4	-	-	-	-
Lullymore Co. Kildare	1-10	46.7	-	8	8	8.5	2.5	5.5	-	-1.9	8	3	19	-	2	-	-7.5	7	6	-	-	15.9	-	5.3	-	-
	11-20	37.8	-	6	4	7.6	0.5	4.0	-	-2.5	19	3	9	-	0	-	-4.5	12	10	-	-	14.9	-	4.6	-	-
	21-END	48.2	-	7	6	7.2	1.0	4.1	-	-1.4	21	3	10	-	0	-	-6.5	21	8	-	-	25.1	-	3.3	-	-
	MONTH	132.7	166	21	18	7.7	1.3	4.5	-	-2.5	19	9	38	-	2	-	-7.5	7	24	-	-	55.9	-	4.4	-	-1
Kilkenny Co. Kilkenny	1-10	55.5	-	9	8	9.1	2.8	6.0	-	-2.2	7	2	24	-	2	-	-8.4	7	5	5.6	-	24.0	-	5.0	5	-
	11-20	44.3	-	7	6	7.9	1.7	4.8	-	-2.5	15	2	13	-	0	-	-7.4	15	7	4.3	-	16.3	-	3.9	5	-
	21-END	44.0	-	10	8	7.8	1.5	4.6	-	-1.0	27	2	14	-	0	-	-6.7	27	10	4.0	-	24.4	-	3.4	2	-
	MONTH	143.8	163	26	22	8.3	2.0	5.1	+0.9	-2.5	15	6	51	78	3	-	-8.4	7	22	4.6	+0.7	64.7	117	4.1	12	3
Mooncoin (Silverspring) Co. Kilkenny	1-10	66.6	-	9	5	9.5	3.1	6.3	-	-1.9	8	2	26	-	3	-	-9.0	7	5	-	-	22.4	-	-	-	-
	11-20	94.7	-	8	7	8.7	0.4	4.6	-	-2.1	15	4	14	-	0	-	-6.2	11	10	-	-	23.5	-	-	-	-
	21-END	69.0	-	10	9	8.8	1.0	4.9	-	-1.9	21	3	17	-	1	-	-5.8	21	9	-	-	24.9	-	-	-	-
	MONTH	230.3	206	27	21	9.0	1.5	5.3	-	-2.1	15	9	57	-	4	-	-9.0	7	24	-	-	70.8	-	-	-	-
Ballinamore Co. Leitrim	1-10	59.8	-	9	8	7.7	1.6	4.7	-	-1.9	7	5	16	-	1	-	-5.8	7	6	-	-	13.9	-	3.2	-	-
	11-20	63.8	-	8	7	7.5	0.1	3.8	-	-3.0	19	3	8	-	0	-	-6.5	18	8	-	-	13.9	-	2.9	-	-
	21-END	74.2	-	9	8	6.6	1.1	3.8	-	-1.2	22	2	7	-	0	-	-5.1	22	10	-	-	20.6	-	2.6	-	-
	MONTH	197.8	168	26	23	7.2	0.9	4.1	-	-3.0	19	10	31	-	1	-	-6.5	18	24	-	-	48.4	-	2.9	-	-1
Ardee (Boharnamoe) Co. Louth	1-10	27.9	-	9	7	8.8	2.7	5.8	-	-1.7	7	4	21	-	2	-	-5.7	7	5	-	-	-	-	-	-	-
	11-20	50.3	-	6	4	7.8	0.6	4.2	-	-1.9	18	4	10	-	0	-	-5.0	12	9	-	-	-	-	-	-	-
	21-END	57.3	-	10	9	6.4	1.1	3.8	-	-1.0	22	4	9	-	0	-	-7.7	22	8	-	-	-	-	-	-	-
	MONTH	135.5	156	25	20	7.7	1.5	4.6	-	-1.9	18	12	40	-	2	-	-7.7	22	22	-	-	-	-	-	-	-

NOTES ON THE TABLES IN JANUARY ISSUE

TABLE 1 (CONTINUED)

JANUARY 1988

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	77.5	-	10	9	9.1	0.3	4.7	-	-4.0	9	6	17	-	2	-	-8.8	7	7	-	-	11.8	-	4.1	-	-
	11-20	98.0	-	9	8	8.8	0.5	4.6	-	-1.4	18	3	13	-	1	-	-8.2	11	10	-	-	7.6	-	4.0	-	-
	21-END	73.4	-	9	7	8.0	1.9	4.9	-	-0.6	27	1	14	-	0	-	-5.2	21	10	-	-	20.1	-	3.8	-	-
	MONTH	249.9	175	28	24	8.6	0.9	4.7	-	-4.0	9	10	44	-	3	-	-8.8	7	27	-	-	39.5	-	4.0	-	0
Belmullet Co. Mayo	1-10	44.6	-	10	9	8.5	3.3	5.9	-	-0.3	5	1	21	-	1	-	-4.5	5	5	6.0	-	8.1	-	7.6	7	-
	11-20	95.0	-	9	9	7.9	2.9	5.4	-	0.5	16	0	16	-	0	-	-3.0	16	5	5.5	-	4.6	-	7.3	7	-
	21-END	66.2	-	10	9	7.9	2.9	5.4	-	1.2	23	0	16	-	0	-	-1.3	22	4	4.9	-	21.0	-	6.8	4	-
	MONTH	205.8	173	29	27	8.1	3.0	5.6	-0.1	-0.3	5	1	53	71	1	-	-4.5	5	14	5.4	+0.4	33.7	70	7.2	18	12
Claremorris Co. Mayo	1-10	65.8	-	9	9	8.0	1.9	5.0	-	-1.8	7	4	17	-	1	-	-8.4	7	6	5.0	-	10.3	-	3.9	3	-
	11-20	69.3	-	9	9	7.2	1.7	4.4	-	-1.5	18	2	11	-	0	-	-4.4	16	7	4.2	-	9.2	-	3.8	4	-
	21-END	66.0	-	8	8	7.0	1.4	4.2	-	-1.0	21	2	10	-	0	-	-5.7	21	7	3.8	-	20.3	-	3.5	2	-
	MONTH	200.1	173	26	26	7.4	1.7	4.5	+0.5	-1.8	7	8	38	69	1	-	-8.4	7	20	4.3	+0.5	39.8	80	3.7	9	1
Glenamoy Co. Mayo	1-10	58.3	-	10	8	8.9	2.3	5.6	-	-0.3	7	1	20	-	2	-	-3.9	7	5	-	-	7.5	-	0.6	-	-
	11-20	106.7	-	10	8	7.0	1.7	4.4	-	0.2	20	0	8	-	0	-	-3.2	18	8	-	-	4.1	-	0.5	-	-
	21-END	79.6	-	11	10	7.7	1.5	4.6	-	-0.5	30	2	13	-	1	-	-2.6	31	9	-	-	23.7	-	0.6	-	-
	MONTH	244.6	162	31	26	7.9	1.9	4.9	-	-0.5	30	3	42	-	3	-	-3.9	7	22	-	-	35.3	-	0.5	-	-3
Dunsany (Grange) Co. Meath	1-10	43.1	-	10	7	8.7	0.3	4.5	-	-18.8	7	2	19	-	2	-	-5.5	8	3	-	-	20.0	-	-	-	-
	11-20	38.8	-	7	4	7.3	0.9	4.1	-	-1.6	18	2	8	-	0	-	-5.3	18	8	-	-	17.8	-	-	-	-
	21-END	51.9	-	10	8	6.7	1.5	4.1	-	-0.5	22	2	9	-	0	-	-4.9	21	6	-	-	25.4	-	-	-	-
	MONTH	133.8	167	27	19	7.5	0.9	4.2	-	-18.8	7	6	36	-	2	-	-5.5	8	17	-	-	63.2	-	-	-	-
Clones Co. Monaghan	1-10	35.2	-	9	8	7.6	2.0	4.8	-	-0.6	7	1	16	-	2	-	-5.9	7	6	5.2	-	13.3	-	5.0	5	-
	11-20	50.5	-	7	6	6.9	1.6	4.2	-	-2.8	18	3	11	-	0	-	-7.0	18	8	4.2	-	14.9	-	5.3	3	-
	21-END	77.1	-	9	7	6.2	1.5	3.8	-	-0.5	21	2	6	-	0	-	-5.0	21	8	3.6	-	19.6	-	4.5	4	-
	MONTH	162.8	185	25	21	6.9	1.7	4.3	+0.5	-2.8	18	6	33	67	2	-	-7.0	18	22	4.3	+0.8	47.8	99	4.9	12	4
Birr Co. Offaly	1-10	51.5	-	10	10	8.9	3.0	5.9	-	-1.7	7	1	22	-	2	-	-5.8	8	4	5.8	-	16.4	-	5.0	6	-
	11-20	27.0	-	6	6	8.2	1.9	5.0	-	-1.8	18	1	15	-	0	-	-5.6	18	8	4.5	-	12.7	-	4.1	3	-
	21-END	44.6	-	8	7	7.4	1.7	4.6	-	-0.8	21	2	13	-	0	-	-3.7	27	8	4.2	-	20.2	-	3.3	3	-
	MONTH	123.1	162	24	23	8.1	2.2	5.2	+0.8	-1.8	18	4	50	79	3	-	-5.8	8	20	4.8	+0.8	49.3	90	4.1	12	2

NOTES ON THE TABLES IN JANUARY ISSUE

TABLE 2 GLOBAL RADIATION

STATION	PERIOD	AMOUNT MJ/m ²
Malin Head Co. Donegal	1-10	14.70
	11-20	19.68
	21-end	24.68
	Month	58.46
Dublin Airport Co. Dublin	1-10	22.25
	11-20	23.78
	21-end	31.76
	Month	77.79
Cahirciveen (Valentia Obs.) Co. Kerry	1-10	21.23
	11-20	21.36
	21-end	31.54
	Month	74.23
Kilkenny Co. Kilkenny	1-10	24.83
	11-20	24.38
	21-end	35.95
	Month	85.16
Belmullet Co. Mayo	1-10	15.37
	11-20	16.95
	21-end	28.31
	Month	60.13
Clones Co. Monaghan	1-10	16.14
	11-20	20.84
	21-end	27.79
	Month	64.77
Birr Co. Offaly	1-10	20.12
	11-20	23.94
	21-end	32.41
	Month	76.47

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

STATION	PERIOD	P.E. (mm)		SOIL MOISTURE (mm)	
		Amount	Deficit	Accumulated Deficit	Surplus
Carlow (Oak Park) Co. Carlow	1-10	-6.0	-	0	49
	11-20	+7.3	-	0	42
	21-end	+4.4	-	0	38
	Month	5.7	-	0	-
Kinsealy Co. Dublin	1-10	5.8	-	0	48
	11-20	2.1	-	0	21
	21-end	8.4	-	0	36
	Month	16.3	-	0	-
Cahirciveen (Valentia Obs.) Co. Kerry	1-10	-3.3	-	0	73
	11-20	18.2	-	0	103
	21-end	-1.5	-	0	93
	Month	13.4	-	0	-
Ballinamore Co. Leitrim	1-10		OVERFLOW		
	11-20		OVERFLOW		
	21-end		OVERFLOW		
	Month		OVERFLOW		
Glenamoy Co. Mayo	1-10	12.9	-	0	46
	11-20	8.2	-	0	96
	21-end	9.3	-	0	52
	Month	30.4	-	0	-
Johnstown Castle Co. Wexford	1-10	+1.8	-	0	63
	11-20	+4.9	-	0	54
	21-end	+12.7	-	0	67
	Month	19.4	-	0	-

TABLE 4 SOIL CLIMATE (MULLINGAR)

BARE SOIL TYPE	PERIOD	MEAN TEMPERATURE (°C at 100mm)			TEMPERATURE GRADIENT (to 200mm)	SOIL WATER POTENTIAL (hPa) (at depths)	
		Max.	Daily	Min.		75mm	200mm
		Peat	1-10	6.57	3.75	3.77	0.56
11-20	5.11		3.72	2.38	0.69	54.20	56.80
21-end	4.44		3.40	2.23	0.63	135.18	138.09
Mineral	1-10	6.69	3.40	3.63	0.28	40.10	42.40
	11-20	5.38	3.72	2.20	0.39	41.00	47.60
	21-end	4.88	3.57	2.21	0.32	128.18	130.55

Notes on the tables in January issue

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NOTES ON TABLES

1. The term rainfall includes all forms of precipitation (snow,hail,dew) measured as equivalent rain.
2. "Rain days" and "wet days" are days during which the total rainfall is not less than 0.2mm and 1.0mm respectively.
3. The mean daily air temperature over a period is taken as the mean of the daily maxima and daily minima (averaged separately over the period).
4. Degree day totals are calculated using the method set out in an article by I.F.C. McVicker in the Journal of Heating and Ventilating Engineers (Vol. 14 No. 18, Nov-Dec 1946).
5. Monthly averages of degree days at stations marked "a" refer to the 25-year period 1958-1982 except at Casement Aerodrome (1964-1982) and Cork Airport (1962-1982). Percentages are not calculated for degree day totals less than 10.
6. Days with air frost are those during which the minimum air temperature was below 0.0°C.
7. "Ground" temperatures refer to temperatures measured with a thermometer placed horizontally on pegs just above the tips of short grass.
8. Days with ground frost are those during which the minimum "ground" temperature was below 0.0°C.
9. The mean daily soil temperature (at 100mm depth under a bare soil surface) over a period is taken as the average of the mean of four daily readings (at 0300,0900,1500 and 2100 GMT) over the period.
10. Mean daily wind speed over a period (ms^{-1}) is taken as the average of hourly values during the period at stations marked "e". Days with gale-gusts are those during which the wind speed exceeded 17.4 ms^{-1} at any time during the day. At other stations, mean daily wind speed is computed from once-daily readings of run-of-the-wind.
11. All wind speeds refer to the wind at an effective height of 10 metres above the ground. Where measurements are made at other heights, the wind speed readings are corrected to a height of 10 metres.
12. Deviations of monthly values of rainfall, soil temperature and bright sunshine from long-term averages are shown in Table 1 in the case of stations for which those averages are known. Averages of air temperature, bright sunshine and rainfall refer to the period 1951-1980. Averages of soil temperature refer to the period 1958-1982.
13. Potential Evapotranspiration (P.E.) values given in Table 1 are calculated from values of temperature, sunshine, wind speed and vapour pressure using the Penman Formula. Because of formula limitations, negative values can occur in winter; these are replaced in Table 1 by zero. P.E. values given in Table 3 are those measured by means of soil-filled tanks sunk into the ground with their upper grass-covered ends at surface level.
14. Soil moisture deficits and surpluses (in Table 3) are computed from the differences between rainfall and actual evapotranspiration (A.E.). Estimates of A.E. are derived from measured values of P.E. (See Agmet. Memo No.1,1968). Soil moisture surpluses are assumed to be removed by drainage and surface run-off and are not, therefore, carried forward from one period to the next. Soil moisture deficits are, however, regarded as being cumulative. Where heavy rain occurs near the end of the fixed period, the date of cut-off may be adjusted to avoid error due to insufficient run-off time; dates of the end/beginning of such adjusted periods are encircled.
15. In cases where elements are not normally measured or where long-term averages are not available, a dash (-) is inserted in the appropriate space in the tables. If, in a particular month, some data which are normally given are not included in the Bulletin, this omission will be indicated by the letters N/A in the appropriate space in the tables.
16. Data on the soil climate of Mullingar is included in Table 4. Temperature (°C) and soil water potential (hPa) are measured daily in peat and mineral bare soil patches to depths of up to 200mm. The mean daily temperature is derived from the average of the mean of four daily readings (0300,0900,1500, and 2100 GMT) taken at 100mm depth. The temperature gradient is given in °C/100mm, positive values increasing with depth.
17. Global Radiation is given in MJm^{-2} correct to two decimal places (3.6MJ=1kWh)