

METEOROLOGICAL SERVICE



AGROMETEOROLOGICAL BULLETIN

The Weather of October 1988

Summary

Very unsettled apart from a high pressure spell from 26th to end of month. The month as a whole was wet to very wet (southern regions), cold and generally bright.

Meteorological Situation

The first series of deepening Atlantic depressions caused intermittent strong southwest winds and frontal troughs to affect the country to 10th; intervening northwest winds occurred on 7th and 9th, and a ridge developed for a time on 10th. The next series of Atlantic depressions were steered more towards Biscay and the low centres became complex. Frontal troughs moved up from the south and high pressure lying to the north of this system intensified, extending on 14th from the Azores to Scandinavia and dominating conditions over the country in the following days.

The pressure declined on 17th and freshening southeast winds developed so that frontal troughs increasingly affected the country from 18th. In particular an active depression centre approaching from the Azores area brought widespread heavy rain and southeast gales to the country on 21st and caused widespread flooding in southern areas. With low pressure continuing to dominate the eastern Atlantic further southeast winds and rainbelts affected the country particularly on 23rd, 24th and 25th. The systems slowly gave way to high pressure on 28th and the month closed with a settled spell which was bright and cold.

Precipitation

The monthly total was exceptionally high in southern areas. Amounts varied from 257% of normal at Dungarvan to 90% at Casement Aerodrome. Wettest days were the 4th, 11th, 21st and 25th. It was the wettest October at Roche's Point since 1940 and the second wettest in nearly one hundred years at Cahirciveen. Ground conditions at the beginning of the settled spell on 26th varied from flooding and waterlogging in the south to near field capacity in parts of the east midlands.

Temperature

Mean air temperature was below normal. Deviations from normal varied from 0.9°C below normal at Belmullet to normal values at Dublin Airport and Rosslare. Lowest minimum values occurred in western areas, i.e. the mean minimum value was 1.2 °C below normal at Belmullet, whereas in the east the mean minimum values were above normal. The spell after 26th was coldest, night air temperature was -1°C to -3°C and grass minimum values dropped to -6°C to -8°C except in the south where it generally tended to remain near 0°C.

Sunshine and Radiation

Hours of bright sunshine were above normal except in south and east. These varied from 72% of normal at Rosslare to 127% at Belmullet. Amounts were fairly well distributed through the month but in the final days were greatest. Global radiation varied from 99% of normal at Valentia to 89% of normal at Kilkenny.

Wind

Winds were strong to gale force particularly for 6th to 8th, 20th/21st and 25th.

NOTE: 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

OCTOBER 1988

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	25.7	-	8	6	13.5	7.5	10.5	-	1.0	10	0	62	-	16	-	-2.3	10	1	-	-	28.9	-	5.7	-	-
	11-20	32.4	-	6	4	13.9	7.6	10.9	-	4.3	15	0	64	-	17	-	1.0	20	0	-	-	25.5	-	2.7	-	-
	21-END	56.1	-	7	7	12.5	6.1	9.3	-	-2.0	30	3	59	-	15	-	-5.2	31	3	-	-	39.1	-	3.9	-	-
	MONTH	114.2	148	21	17	13.3	7.0	10.2	-	-2.0	30	3	185	-	48	-	-5.2	31	4	-	-	93.5	-	4.1	-	17
Shannon Airport Co. Clare	1-10	44.5	-	10	8	13.9	8.6	11.2	-	3.9	10	0	68	-	19	-	-1.6	10	1	11.1	-	24.3	-	6.3	6	-
	11-20	34.2	-	6	5	14.5	8.8	11.7	-	4.3	12	0	73	-	22	-	-0.6	15	1	11.3	-	26.6	-	4.2	2	-
	21-END	36.4	-	6	5	13.4	7.1	10.2	-	-0.4	30	1	67	-	20	-	-6.8	30	3	10.3	-	46.6	-	4.5	1	-
	MONTH	115.1	137	22	18	13.9	8.2	11.0	-0.2	-0.4	30	1	208	93	61	103	-6.8	30	5	10.9	-0.5	97.5	114	5.0	9	24
Cork Airport Co. Cork	1-10	96.1	-	10	10	12.6	7.6	10.1	-	3.4	10	0	57	-	12	-	-2.6	10	1	10.8	-	24.3	-	7.9	9	-
	11-20	49.3	-	8	5	12.4	8.2	10.3	-	4.8	12	0	59	-	11	-	1.7	13	0	10.6	-	12.1	-	6.0	3	-
	21-END	92.5	-	5	5	11.8	7.7	9.7	-	3.1	29	0	59	-	11	-	1.2	31	0	10.1	-	24.1	-	6.8	2	-
	MONTH	237.9	198	23	20	12.3	7.8	10.0	-0.5	3.1	29	0	176	88	33	63	-2.6	10	1	10.5	-0.2	60.5	65	6.9	14	18
Fermoy (Coolnakilla) Co. Cork	1-10	123.8	-	10	10	11.8	7.1	9.4	-	3.4	8	0	51	-	8	-	-0.6	10	1	-	-	18.1	-	N/A	-	-
	11-20	68.3	-	9	8	12.5	7.7	10.1	-	4.0	12	0	57	-	12	-	0.5	15	0	-	-	13.9	-	N/A	-	-
	21-END	83.7	-	7	5	11.0	6.1	8.6	-	0.7	29	0	48	-	8	-	-3.2	31	3	-	-	25.3	-	N/A	-	-
	MONTH	275.8	-	26	23	11.7	6.9	9.3	-	0.7	29	0	156	-	28	-	-3.2	31	4	-	-	57.3	-	N/A	-	N/A
Fermoy (Moore Park) Co. Cork	1-10	97.6	-	10	9	13.4	7.6	10.5	-	-0.6	10	1	63	-	16	-	-5.6	10	1	-	-	22.9	-	4.5	-	-
	11-20	53.7	-	7	5	14.0	8.1	11.0	-	3.9	11	0	66	-	19	-	-1.0	20	1	-	-	20.0	-	2.6	-	-
	21-END	75.9	-	6	5	12.3	6.5	9.4	-	-2.5	30	2	59	-	15	-	-7.1	30	3	-	-	34.2	-	2.1	-	-
	MONTH	227.2	247	23	19	13.2	7.4	10.3	-	-2.5	30	3	188	-	50	-	-7.1	30	5	-	-	77.1	-	3.1	-	14
Roches Point Co. Cork	1-10	105.0	-	10	10	13.2	8.9	11.0	-	3.9	10	0	67	-	16	-	-0.2	10	1	11.3	-	27.7	-	8.8	8	-
	11-20	38.6	-	7	5	13.1	9.7	11.4	-	6.4	12	0	70	-	18	-	1.2	13	0	11.2	-	14.8	-	5.4	2	-
	21-END	62.6	-	7	5	12.7	8.9	10.8	-	3.9	31	0	70	-	18	-	2.1	29	0	10.8	-	28.6	-	5.9	2	-
	MONTH	206.2	232	24	20	13.0	9.1	11.1	-0.4	3.9	10	0	207	90	52	76	-0.2	10	1	11.1	-0.6	71.1	75	6.7	12	22
Glencolumbkille Co. Donegal	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

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TABLE 1 (CONTINUED)

OCTOBER 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. (PEN-MAN) (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				
Glenties Co. Donegal	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	-	-	-	-	-	-	-	-	-	-	-	-	-
	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	-	-	-	-	-	-	-	-	-	-	-	-	-
	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	-	-	-	-	-	-	-	-	-	-	-	-	-
	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	-	-	-	-	-	-	-	-	-	-	-	-	-
Malin Head Co. Donegal	1-10	54.7	-	9	9	13.1	8.1	10.6	-	4.4	10	0	62	-	13	-	1.0	10	0	10.0	-	20.5	-	10.6	7	-	-	-	-	-
	11-20	25.2	-	4	3	14.0	9.0	11.5	-	5.5	11	0	71	-	19	-	3.5	11	0	10.4	-	21.3	-	7.1	5	-	-	-	-	-
	21-END	33.0	-	8	6	12.8	7.5	10.2	-	2.0	30	0	65	-	16	-	-1.0	30	1	9.5	-	37.5	-	7.9	7	-	-	-	-	-
	MONTH	112.9	108	21	18	13.3	8.2	10.7	-0.3	2.0	30	0	198	93	48	89	-1.0	30	1	9.9	-0.5	79.3	106	8.5	19	32	-	-	-	-
Casement Aerodrome Co. Dublin	1-10	21.6	-	7	4	13.4	7.1	10.3	-	3.5	10	0	59	-	14	-	-0.8	1	1	10.3	-	28.1	-	9.2	5	-	-	-	-	-
	11-20	20.5	-	5	4	14.4	7.6	11.0	-	5.6	16	0	66	-	18	-	1.6	14	0	10.5	-	33.2	-	4.2	0	-	-	-	-	-
	21-END	19.1	-	5	4	12.8	5.9	9.4	-	-2.2	31	3	61	-	17	-	-5.7	31	4	9.2	-	46.9	-	5.2	2	-	-	-	-	-
	MONTH	61.2	90	17	12	13.5	6.8	10.2	-0.1	-2.2	31	3	186	94	49	82	-5.7	31	5	10.0	-	108.2	111	6.2	7	24	-	-	-	-
Dublin Airport Co. Dublin	1-10	17.7	-	7	4	13.8	7.4	10.6	-	2.9	10	0	62	-	16	-	-1.3	1	1	10.4	-	28.3	-	7.4	5	-	-	-	-	-
	11-20	40.2	-	5	3	14.0	8.7	11.3	-	6.8	13	0	69	-	17	-	1.5	14	0	10.8	-	26.4	-	3.9	0	-	-	-	-	-
	21-END	21.2	-	7	5	12.7	7.6	10.2	-	1.8	29	0	65	-	17	-	-4.7	29	3	10.1	-	42.7	-	4.8	2	-	-	-	-	-
	MONTH	79.1	116	19	12	13.5	7.9	10.7	-0.0	1.8	29	0	197	95	51	85	-4.7	29	4	10.4	-0.3	97.4	98	5.4	7	25	-	-	-	-
Kinsealy Co. Dublin	1-10	16.5	-	6	4	14.0	7.6	10.8	-	2.6	10	0	64	-	18	-	-4.6	9	3	-	-	N/A	-	5.6	-	-	-	-	-	-
	11-20	25.6	-	5	3	14.3	7.8	11.0	-	5.4	15	0	66	-	17	-	-3.0	20	5	-	-	N/A	-	3.2	-	-	-	-	-	-
	21-END	24.2	-	7	5	13.0	7.5	10.2	-	0.8	29	0	65	-	18	-	-5.8	29	6	-	-	N/A	-	4.1	-	-	-	-	-	-
	MONTH	66.3	102	18	12	13.7	7.6	10.7	-	0.8	29	0	196	-	52	-	-5.8	29	14	-	-	N/A	-	4.3	-	N/A	-	-	-	-
Galway Co. Galway	1-10	39.3	-	9	8	13.7	7.5	10.6	-	1.4	10	0	62	-	15	-	-2.9	10	1	10.9	-	33.2	-	6.2	5	-	-	-	-	-
	11-20	21.5	-	7	6	14.2	8.2	11.2	-	3.7	12	0	68	-	20	-	1.9	12	0	10.8	-	20.3	-	4.0	2	-	-	-	-	-
	21-END	47.4	-	5	4	12.9	6.2	9.6	-	-1.4	30	2	61	-	16	-	-2.5	30	3	9.7	-	52.7	-	4.9	2	-	-	-	-	-
	MONTH	108.2	92	21	18	13.6	7.3	10.4	-0.4	-1.4	30	2	191	-	51	-	-2.9	10	4	10.4	-	106.2	114	5.0	9	22	-	-	-	-
Killarney (Muckross House) Co. Kerry	1-10	134.0	-	10	10	13.4	8.7	11.0	-	1.5	10	0	67	-	17	-	-0.5	10	1	-	-	11.7	-	-	-	-	-	-	-	-
	11-20	103.3	-	7	4	14.0	8.5	11.3	-	4.5	12	0	69	-	20	-	0.3	15	0	-	-	17.1	-	-	-	-	-	-	-	-
	21-END	80.7	-	7	6	12.8	8.0	10.4	-	1.5	31	0	68	-	19	-	-1.0	31	1	-	-	26.1	-	-	-	-	-	-	-	-
	MONTH	318.0	200	24	20	13.4	8.4	10.9	-	1.5	10	0	203	-	56	-	-1.0	31	2	-	-	54.9	-	-	-	-	-	-	-	-

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NOTES ON THE TABLES IN JANUARY ISSUE

TABLE 1 (CONTINUED)

OCTOBER 1988

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 ⁻¹	DATE	DAYS WITH GROUND FROST						MEAN DAILY	DIFFERENCE FROM AVERAGE
Cahirciveen (Valentia Obsy.) Co. Kerry	1-10	121.3	-	10	10	13.7	9.0	11.4	-	3.0	10	0	70	-	19	-	1.4	10	0	11.8	-	20.6	-	7.1	8	-
	11-20	72.2	-	5	5	15.1	7.6	11.3	-	4.3	13	0	69	-	22	-	1.7	13	0	11.3	-	30.3	-	4.1	2	-
	21-END	72.9	-	8	4	13.8	8.9	11.3	-	5.5	31	0	76	-	21	-	1.1	31	0	10.9	-	36.1	-	5.4	2	-
	MONTH	266.4	188	23	19	14.2	8.5	11.3	-0.5	3.0	10	0	216	92	62	82	1.1	31	0	11.3	-0.5	87.0	107	5.5	12	25
Ardfert (Lisachane) Co. Kerry	1-10	91.5	-	10	9	14.1	8.6	11.3	-	4.0	10	0	69	-	19	-	0.1	10	0	-	-	26.2	-	-	-	-
	11-20	43.8	-	6	3	14.3	7.5	10.9	-	0.7	12	0	66	-	18	-	-2.7	12	1	-	-	30.4	-	-	-	-
	21-END	45.1	-	6	5	12.8	7.1	9.9	-	0.2	31	0	63	-	16	-	-3.6	31	3	-	-	41.3	-	-	-	-
	MONTH	180.4	-	22	17	13.7	7.7	10.7	-	0.2	31	0	199	-	54	-	-3.6	31	4	-	-	97.9	-	-	-	-
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	44.7	-	8	8	13.9	6.6	10.3	-	-0.6	10	1	60	-	16	-	-4.6	10	3	10.5	-	27.7	-	5.3	5	-
	11-20	32.7	-	6	5	13.9	7.5	10.7	-	3.6	20	0	64	-	16	-	-1.7	20	1	10.6	-	25.9	-	2.9	0	-
	21-END	53.3	-	7	5	13.0	6.4	9.7	-	-1.8	30	2	62	-	17	-	-7.8	30	3	9.9	-	42.7	-	3.1	2	-
	MONTH	130.7	157	21	18	13.6	6.8	10.2	-0.2	-1.8	30	3	186	94	49	75	-7.8	30	7	10.3	-0.3	96.3	112	3.8	7	17
Mooncoin (Silverspring) Co. Kilkenny	1-10	64.5	-	10	7	13.5	7.1	10.3	-	0.0	10	0	61	-	16	-	-4.8	10	3	-	-	28.1	-	-	-	-
	11-20	35.8	-	7	4	13.6	7.4	10.5	-	1.8	11	0	62	-	17	-	-1.8	20	3	-	-	16.5	-	-	-	-
	21-END	82.6	-	6	6	12.8	6.5	9.7	-	-1.9	31	2	62	-	16	-	-6.5	31	5	-	-	28.7	-	-	-	-
	MONTH	182.9	189	23	17	13.3	7.0	10.1	-	-1.9	31	2	184	-	49	-	-6.5	31	11	-	-	73.3	-	-	-	-
Ballinamore Co. Leitrim	1-10	76.4	-	10	10	12.8	6.4	9.6	-	2.5	10	0	52	-	11	-	-3.6	10	3	-	-	26.2	-	3.9	-	-
	11-20	14.7	-	8	5	13.3	6.4	9.8	-	1.9	14	0	55	-	13	-	-3.5	14	5	-	-	15.0	-	1.7	-	-
	21-END	58.6	-	6	5	12.2	5.1	8.7	-	-2.1	31	3	52	-	11	-	-7.7	29	4	-	-	35.5	-	2.2	-	-
	MONTH	149.7	136	24	20	12.7	5.9	9.3	-	-2.1	31	3	160	-	35	-	-7.7	29	12	-	-	76.7	-	2.6	-	9
Ardee (Boharnamoe) Co. Louth	1-10	36.2	-	10	7	13.7	4.2	8.9	-	0.2	10	0	48	-	11	-	-4.0	10	3	-	-	-	-	-	-	-
	11-20	30.1	-	5	4	14.0	5.8	9.9	-	1.1	15	0	57	-	15	-	-3.9	20	2	-	-	-	-	-	-	-
	21-END	45.6	-	6	6	12.3	4.3	8.3	-	-4.1	30	3	51	-	12	-	-5.0	30	4	-	-	-	-	-	-	-
	MONTH	111.9	136	21	17	13.3	4.7	9.0	-	-4.1	30	3	157	-	38	-	-5.0	30	9	-	-	-	-	-	-	-

TABLE 1 (CONTINUED)

OCTOBER 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	91.2	-	10	9	14.1	6.7	10.4	-	0.2	10	0	61	-	16	-	-5.5	10	2	-	-	32.6	-	5.0	-	-
	11-20	31.2	-	8	5	13.7	6.2	10.0	-	3.0	15	0	57	-	15	-	-1.5	16	4	-	-	16.5	-	3.1	-	-
	21-END	58.7	-	6	5	12.3	4.0	8.1	-	-3.1	31	3	49	-	10	-	-7.4	31	5	-	-	42.6	-	3.7	-	-
	MONTH	181.1	143	24	19	13.3	5.6	9.5	-	-3.1	31	3	168	-	41	-	-7.4	31	11	-	-	91.7	-	3.9	-	12
Belmullet Co. Mayo	1-10	50.5	-	9	8	13.7	8.0	10.8	-	2.7	10	0	65	-	16	-	-2.3	10	1	11.5	-	34.7	-	8.8	6	-
	11-20	28.4	-	6	6	14.0	7.5	10.7	-	2.1	14	0	64	-	17	-	-0.6	14	2	10.9	-	23.6	-	4.3	2	-
	21-END	47.6	-	8	6	12.7	6.7	9.7	-	0.5	31	0	61	-	15	-	-3.5	30	3	10.2	-	49.4	-	5.9	3	-
	MONTH	126.5	112	23	20	13.4	7.4	10.4	-0.9	0.5	31	0	190	88	48	81	-3.5	30	6	10.9	-0.3	107.7	127	6.3	11	20
Claremorris Co. Mayo	1-10	51.2	-	9	9	13.3	6.2	9.8	-	-0.4	10	1	55	-	12	-	-5.2	10	2	10.5	-	29.3	-	6.4	4	-
	11-20	20.4	-	6	3	13.7	7.4	10.5	-	3.2	12	0	62	-	15	-	1.0	14	0	10.5	-	18.0	-	4.1	1	-
	21-END	54.9	-	6	5	12.2	4.9	8.6	-	-2.0	30	3	53	-	12	-	-5.7	30	4	9.3	-	47.2	-	4.8	1	-
	MONTH	126.5	110	21	17	13.1	6.1	9.6	-0.5	-2.0	30	4	169	89	39	74	-5.7	30	6	10.1	-0.2	94.5	121	5.1	6	14
Glenamoy Co. Mayo	1-10	67.9	-	10	10	7.9	6.8	7.4	-	-1.1	10	1	38	-	6	-	-3.4	10	2	-	-	N/A	-	4.2	-	-
	11-20	21.4	-	6	5	6.8	6.8	6.8	-	0.4	14	0	32	-	5	-	-1.4	14	3	-	-	N/A	-	2.9	-	-
	21-END	39.9	-	6	5	6.4	6.4	6.4	-	-0.1	30	1	32	-	1	-	-3.5	30	3	-	-	N/A	-	3.9	-	-
	MONTH	129.2	94	22	20	7.0	6.7	6.8	-	-1.1	10	2	102	-	12	-	-3.5	30	8	-	-	N/A	-	3.7	-	N/A
Dunsany (Grange) Co. Meath	1-10	30.3	-	10	7	12.8	6.5	9.6	-	1.1	10	0	54	-	12	-	-3.6	10	1	-	-	21.6	-	-	-	-
	11-20	15.5	-	5	3	13.7	7.5	10.6	-	5.0	11	0	62	-	15	-	-0.5	11	1	-	-	27.1	-	-	-	-
	21-END	40.1	-	6	6	12.2	5.1	8.6	-	-3.2	30	3	55	-	12	-	-7.9	29	5	-	-	43.3	-	-	-	-
	MONTH	85.9	103	21	16	12.9	6.3	9.6	-	-3.2	30	3	170	-	40	-	-7.9	29	7	-	-	92.0	-	-	-	-
Clones Co. Monaghan	1-10	53.8	-	10	10	13.1	6.5	9.8	-	1.5	10	0	55	-	12	-	-3.1	10	1	10.0	-	28.8	-	5.9	4	-
	11-20	17.7	-	5	4	13.6	7.6	10.6	-	4.1	15	0	62	-	15	-	-1.4	14	1	9.9	-	24.6	-	3.4	0	-
	21-END	40.3	-	6	6	12.3	5.8	9.0	-	-1.5	29	3	57	-	14	-	-6.5	29	4	9.3	-	40.4	-	4.0	2	-
	MONTH	111.8	127	21	20	13.0	6.6	9.8	-0.1	-1.5	29	3	174	94	42	82	-6.5	29	6	9.7	-0.4	93.8	124	4.4	6	16
Birr Co. Offaly	1-10	35.7	-	9	6	13.2	7.0	10.1	-	-0.3	10	1	58	-	14	-	-2.9	10	1	10.5	-	24.4	-	4.7	3	-
	11-20	13.6	-	7	3	14.1	7.7	10.9	-	4.1	14	0	65	-	18	-	-1.0	12	1	11.1	-	25.5	-	3.0	2	-
	21-END	35.5	-	6	5	12.8	5.8	9.3	-	-2.2	30	3	60	-	16	-	-6.6	29	4	9.8	-	43.5	-	3.5	2	-
	MONTH	84.8	106	22	14	13.4	6.8	10.1	-0.3	-2.2	30	4	183	92	48	79	-6.6	29	6	10.5	-0.1	93.4	108	3.7	7	16

NOTES ON THE TABLES IN JANUARY ISSUE

TABLE 1 (CONTINUED)

OCTOBER 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														
Dundrum (Knockavilla) Co. Tipperary	1-10	83.7	-	10	9	13.1	7.0	10.0	-	0.5	10	0	57	-	13	-	-4.1	10	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11-20	34.0	-	8	5	13.6	7.8	10.7	-	3.7	20	0	64	-	17	-	0.4	20	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	21-END	61.8	-	6	6	12.4	6.0	9.2	-	-1.4	30	2	57	-	14	-	-4.8	31	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	MONTH	179.5	-	24	20	13.0	6.9	10.0	-	-1.4	30	2	178	-	44	-	-4.8	31	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dungarvan (Carriglea) Co. Waterford	1-10	117.3	-	10	10	13.8	7.3	10.6	-	-0.1	10	1	63	-	18	-	-5.9	10	2	-	-	28.1	-	3.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	11-20	51.6	-	8	5	13.6	8.0	10.8	-	0.6	12	0	65	-	19	-	-3.4	13	2	-	-	8.9	-	2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	21-END	100.8	-	6	6	13.2	7.7	10.4	-	1.8	31	0	67	-	19	-	-5.6	31	5	-	-	25.9	-	2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	MONTH	269.7	257	24	21	13.5	7.7	10.6	-	-0.1	10	1	195	-	56	-	-5.9	10	9	-	-	62.9	-	2.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mullingar Co. Westmeath	1-10	45.2	-	9	8	12.7	6.1	9.4	-	0.8	10	0	51	-	10	-	-1.7	10	2	9.9	-	25.2	-	5.4	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	11-20	12.9	-	3	3	13.7	7.4	10.5	-	4.1	14	0	61	-	15	-	1.1	14	0	10.4	-	26.4	-	3.5	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	21-END	35.7	-	6	5	12.2	5.5	8.9	-	-1.7	30	3	55	-	13	-	-4.9	31	3	9.3	-	45.3	-	3.8	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	MONTH	93.8	104	18	16	12.9	6.3	9.6	-0.4	-1.7	30	3	167	89	39	74	-4.9	31	5	9.8	-0.5	96.9	112	4.2	5	14	-	-	-	-	-	-	-	-	-	-	-	-	-	
J.F.K. Park Co. Wexford	1-10	62.8	-	10	10	13.4	7.7	10.6	-	1.2	10	0	62	-	16	-	-5.5	10	2	-	-	23.4	-	6.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	11-20	40.8	-	6	4	13.1	9.0	11.1	-	4.6	13	0	67	-	17	-	-2.9	13	1	-	-	15.0	-	4.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	21-END	67.4	-	6	6	12.4	8.2	10.3	-	3.5	31	0	65	-	16	-	-2.5	31	4	-	-	24.7	-	4.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	MONTH	171.0	161	22	20	13.0	8.3	10.6	-	1.2	10	0	194	-	48	-	-5.5	10	7	-	-	63.1	-	5.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Clonroche Co. Wexford	1-10	74.1	-	10	9	13.0	6.8	9.9	-	0.6	9	0	56	-	14	-	-4.7	10	1	-	-	29.2	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	11-20	30.0	-	7	5	13.2	8.6	10.9	-	4.3	12	0	65	-	16	-	-2.0	13	1	-	-	21.6	-	1.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	21-END	84.5	-	6	6	12.2	6.6	9.4	-	2.0	29	0	57	-	12	-	-4.2	31	4	-	-	33.4	-	1.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	MONTH	188.6	165	23	20	12.8	7.3	10.0	-	0.6	9	0	178	-	42	-	-4.7	10	6	-	-	84.2	-	2.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Johnstown Castle Co. wexford	1-10	57.6	-	10	9	13.9	8.2	11.1	-	3.2	10	0	67	-	18	-	-1.2	10	2	-	-	28.6	-	2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	11-20	14.9	-	5	4	13.5	9.1	11.3	-	5.2	13	0	69	-	18	-	-2.2	13	1	-	-	18.0	-	1.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	21-END	62.0	-	6	6	13.0	8.0	10.5	-	2.5	31	0	68	-	18	-	-3.1	31	2	-	-	26.0	-	1.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	MONTH	134.5	131	21	19	13.5	8.4	10.9	-	2.5	31	0	204	-	54	-	-3.1	31	5	-	-	72.6	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Rosslare Co. Wexford	1-10	30.6	-	8	6	13.9	8.3	11.1	-	3.5	10	0	67	-	19	-	0.9	10	0	11.2	-	30.1	-	7.6	6	-	-	-	-	-	-	-	-	-	-	-	-	-		
	11-20	17.5	-	3	3	13.6	10.3	12.0	-	6.1	13	0	76	-	21	-	2.6	13	0	11.7	-	21.4	-	6.5	2	-	-	-	-	-	-	-	-	-	-	-	-	-		
	21-END	46.7	-	7	7	13.0	9.9	11.5	-	7.1	31	0	78	-	21	-	4.5	22	0	11.0	-	26.8	-	6.7	2	-	-	-	-	-	-	-	-	-	-	-	-	-		
	MONTH	94.8	105	18	16	13.5	9.5	11.5	+0.0	3.5	10	0	221	95	60	85	0.9	10	0	11.3	-0.5	78.3	72	6.9	10	30	-	-	-	-	-	-	-	-	-	-	-			

NOTES ON THE TABLES IN JANUARY ISSUE

TABLE 2 GLOBAL RADIATION

STATION	PERIOD	AMOUNT MJ/m ²
Malin Head Co. Donegal	1-10	50.57
	11-20	41.90
	21-end	51.06
	Month	143.53
Dublin Airport Co. Dublin	1-10	62.79
	11-20	47.83
	21-end	52.00
	Month	162.62
Cahirciveen (Valentia Obs.) Co. Kerry	1-10	56.45
	11-20	63.19
	21-end	54.51
	Month	174.15
Kilkenny Co. Kilkenny	1-10	62.89
	11-20	47.44
	21-end	57.18
	Month	167.51
Belmullet Co. Mayo	1-10	68.18
	11-20	43.59
	21-end	54.00
	Month	165.77
Clones Co. Monaghan	1-10	59.49
	11-20	44.13
	21-end	53.70
	Month	157.32
Birr Co. Offaly	1-10	60.05
	11-20	50.48
	21-end	60.33
	Month	170.86

Notes on the tables in January issue

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	1-12	10.7	-	0	17
	13-20	13.9	-	0	16
	21-end	11.9	-	0	44
	Month	36.5	-	-	-
Kinsealy Co. Dublin	1-10	11.1	-	0	5
	11-20	2.5	-	0	23
	21-end	5.3	-	0	19
	Month	18.9	-	-	-
Cahirciveen (Valentia Obs.) Co. Kerry	1-12	1.6	-	0	116
	13-20	5.4	-	0	28
	21-end	(11.7)*	-	0	119
	Month	N/A	-	-	-
Ballinamore Co. Leitrim	1-10	-	Overflow	-	-
	11-20	(-0.2)*	-	0	15
	21-end	1.2	-	0	57
	Month	N/A	-	-	-
Glenamoy Co. Mayo	1-10	18.8	-	0	49
	11-20	7.8	-	0	13
	21-end	18.9	-	0	21
	Month	45.5	-	-	-
Johnstown Castle Co. Wexford	1-10	19.0	-	0	44
	11-20	5.2	-	0	4
	21-end	15.4	-	0	46
	Month	39.6	-	-	-

* Inaccuracies introduced due to some very wet days.

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	11.9	10.3	8.8	.83
	11-20	11.1	10.5	9.2	.30	55.6	59.3
	21-end	11.1	9.8	8.7	1.26	65.1	59.7
Mineral	1-10	12.0	9.9	8.1	.41	53.6	53.2
	11-20	12.0	10.4	8.8	-.11	61.3	62.7
	21-end	11.8	9.4	7.5	.53	60.2	55.1

ENVIRONMENTAL STRESS FACTORS AND WEATHER

1: Background to water resource situation in Ireland

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The availability of water resources in Ireland is greater than that in most other European countries due to the relatively low population and high rainfall. Since the major towns and cities with their associated industry are situated in coastal areas, only a minimum or small fraction (20%) of the total discharge of wastes from point resources enters freshwater. The bulk of the waste discharged is organic (sewage and food processing wastes), its main polluting effects being de-oxygenation and eutrophication. The occurrence of toxic or other directly harmful pollutants is low. The generally satisfactory situation in respect of water quality in inland areas, which might be expected in view of these circumstances, is largely borne out by the results of surveys and, in particular, by the ubiquitous occurrence of the sensitive game, fish, trout and salmon.

Organic Waste

Recent developments in agriculture, particularly the rapidly increasing area of silage as fodder and the intensive rearing of livestock, represent a major potential threat to the food quality of the country's inland waters. The large amounts of organic waste matter which accumulate as a result of these changed activities, have a much greater polluting power than sewage and most industrial wastes of their type generated in Ireland. Unless they are intercepted efficiently at the point of generation, stored, where necessary, in impervious receptacles and disposed in a manner which minimises the carry-over of pollution to surface and groundwater, such wastes are capable of causing serious pollution and large-scale loss of beneficial use of water resources.

Contamination of Waterways

There has been an increase in the incidence of pollution events in recent years which may be attributed to the release of these wastes, directly or indirectly, to water. The most serious cases seem to be associated with silage making where failure to intercept the liquid waste or to store it safely has led to direct ingress of the waste to surface waters resulting in fish kills, and, on a few occasions, contamination of water supply sources. In addition, the eutrophication of several important fishery lakes has been shown to result from spreading of livestock manure slurries on land at rates or times which are inappropriate if the run-off of nutrients (P and N) is to be minimised.

Wash-off and Leaching by Rainfall.

The potential of agricultural wastes to cause pollution in Ireland is exacerbated by the relatively high rainfall and its more or less even distribution over the year. This, on the one hand, has encouraged the change over to silage instead of hay for cattle fodder and, on the other, heightens the need to be vigilant in the interception and storage of the associated liquid waste. In addition, the ultimate disposal of this waste, and the much greater quantities derived from intensive livestock rearing, by land spreading, also has greater potential to cause pollution because of rainfall patterns and intensity. Thus, spreadings of wastes just before heavy rainfall may lead to direct wash-off of the organic matter leading to serious pollution of adjacent water courses; on a more long-term basis, the leaching of nutrients from the areas on which the waste has then spread may cause the eutrophication of adjacent lakes. In some areas of the country the presence of gley soils creates further difficulty for the safe disposal of wastes by land spreading; the combination of high rainfall and gley soils may restrict the time over which wastes can be applied to land without excessive leaching to 1 - 2 months in summer. Such restriction may be difficult to implement in practice.