Communications of the
Dublin Institute for Advanced Studies
Series D, Geophysical Bulletin No. 24

Wind in Dublin City

by

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DUBLIN
THE DUBLIN INSTITUTE FOR ADVANCED STUDIES
1969
Price 5s. 6d.

PRINTED AT
DUBLIN UNIVERSITY PRESS
LIMITED
TRINITY COLLEGE
DUBLIN

INTRODUCTION

As there exists no comprehensive summary of wind data for Dublin City, this paper is intended primarily to determine the prevalence of high winds within the city area with particular reference to the direction of the higher gusts.

The tables and diagrams are based on records from the Dines Pressure Tube Anemograph of the School of Cosmic Physics situated at 5 Merrion Square on the South side of the city of Dublin (lat 53° 20′N) long (6° 15′W) and relate to the 17 years period 1949–1965.

The anemometer vane is exposed at a height of 91 ft (28 metres) above ground level and 115 ft (35 metres) above Mean Sea Level. The autographic records are tabulated for three selected hours namely 6–7h, 13–14h and 20–21h Greenwich Mean Time.

The figures given in Tables 1 to 3 are derived from *mean* values over the hour stated and in Table 2 the speeds are grouped according to the Beaufort scale of wind force: those in Tables 4 to 7 refer to *instantaneous* readings.

On the rare occasions when the Dines anemograph failed, readings from a Fuess cup anemometer were taken as reliable estimates of the mean wind speed while the highest gust was determined by reference to that recorded at Dublin Airport some 6 miles (10 km) distant at a height of 212 ft (65 metres) above M.S.L.

Tables for converting miles per hour to knots and Beaufort scale are given on pp. 11 and 12.

TABLE 1: Dublin City — Mean Wind Speed in miles per hour

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1949	10·6	11·6	8.3	10·2	6·8	4·9	5·6	5·1	6·2	7·2	8·5	11·4	8·0
1950	8·4	10·0	6·8	10·1	7·5	6·7	6·7	8·1	10·6	9·1	9·4	9·2	8·5
1951	10·0	10·1	8·5	9·5	9·5	7·6	8·5	8·5	8·0	8·0	10·6	11·8	9·2
1952	11·3	9·0	10·5	8·2	7·5	9·4	9·0	7·7	9·4	10·3	9·5	9·4	9·3
1953	7·2	8·8	5·8	8·1	8·1	6·1	9·2	7·4	8·6	6·9	9·4	7·3	7·7
1954	9·6	7·7	8·5	7·6	9·0	9·2	10·3	8·0	6·1	10·1	9·9	14·0	9·2
1955	10·7	10·6	8·2	8·2	9·7	8·4	5·4	6·0	9·4	9·6	8·6	13·3	9·0
1956	10·0	9·5	11·3	7·6	9·2	10·0	8·6	8·2	8·4	8·4	9·5	11·5	9·3
1957	11·2	10·0	8·5	7·4	8·1	6·8	9·1	9·3	10·2	8·5	8·1	9·6	8·9
1958	10·3	9·8	9·6	8·8	8·0	7·1	7·6	7·5	8·5	8·5	6·2	8·5	8·4
1959	8·6	8·5	9·1	8·6	5·8	8·3	7·6	7·2	5·1	10·3	9·9	13·2	8·5
1960	9·9	10·1	10·1	8·5	6·8	8·4	10·2	7·4	9·2	8·6	10·6	9·6	9·1
1961	10·8	11·9	9·9	7·6	8·8	10·1	8·7	9·8	8·2	10·3	9·7	8·8	9·5
1962	11·8	13·7	7·7	8·8	9·2	9·1	7·9	9·3	8·2	8·2	9·2	11·8	9·6
1963	11·9	10·3	10·2	9·8	10·3	8·6	6·8	9·2	8·7	10·5	11·4	10·8	9·9
1964	8·9	11·1	8·9	9·6	9·6	9·6	9·3	8·3	8·6	7·7	9·8	11·2	9·4
1965	12·1	8·3	9·5	10·1	8·6	8·1	8·1	8·2	7·0	7·3	10·5	9·3	8·9
Mean	10·2	10·0	8·9	8·8	8·4	8·1	8·2	8·0	8·3	8·8	9·5	10·6	9·0

TABLE 2: Dublin City—Percentage frequency of mean wind speed (m.p.h.) for specified hours.

6h – 7h

Month	Calm	1–3	4–7	8–12	13–18	19–24	25–31
Jan.	3	9	24	34	23	5	1
Feb.	3	6	30	34	23	3	0
Mar.	5	10	33	32	16	2	0
Apr.	5	14	30	35	13	2	0
May	4	16	32	33	14	1	0
June	5	13	32	37	13	1	0
July	4	12	32	38	14	0	0
Aug.	6	11	37	35	9	1	0
Sept.	8	13	32	32	14	1	0
Oct.	5	13	34	29	17	2	1
Nov.	4	8	31	36	16	4	1
Dec.	3	9	23	33	23	8	1
Year	5	11	31	34	16	3	<1

13h – 14h

Month	Calm	1–3	4–7	8–12	13–18	19–24	25–31
Jan.	1	6	21	35	28	7	1
Feb.	0	4	18	38	32	6	1
Mar.	0	4	22	39	29	4	0
Apr.	0	1	22	45	25	6	0
May	0	2	26	44	25	4	0
June	0	2	30	43	22	3	0
July	0	1	30	44	22	2	0
Aug.	0	4	29	43	21	3	0
Sept.	0	3	26	42	25	4	1
Oct.	0	6	25	38	28	3	0
Nov.	1	7	22	37	28	5	0
Dec.	1	6	22	36	27	7	2
Year		4	25	40	26	4	<1

20h – 21h

Month	Calm	1–3	4–7	8–12	13–18	19–24	25–31
Jan.	2	10	22	35	23	6	1
Feb.	2	7	30	32	23	5	1
Mar.	4	14	33	32	16	2	0
Apr.	5	13	35	34	11	2	0
May	3	17	39	30	10	1	0
June	6	16	36	33	9	0	0
July	5	14	39	33	9	0	0
Aug.	6	14	43	28	8	1	0
Sept.	5	15	36	31	12	1	0
Oct.	6	13	29	33	17	2	0
Nov.	3	8	30	39	16	4	0
Dec.	2	7	25	30	27	7	1
Year	4	12	33	33	15	3	<1

6h–7h, 13h–14h and 20h–21h combined

Month	Calm	1–3	4–7	8–12	13–18	19–24	25–31
Jan.	2	8	23	35	25	6	1
Feb.	2	6	26	35	26	5	1
Mar.	3	9	29	35	20	3	0
Apr.	4	9	29	38	16	3	0
May	2	12	32	35	16	2	0
June	4	10	32	37	15	1	0
July	3	9	34	38	15	1	0
Aug.	4	10	36	36	13	2	0
Sept.	4	10	31	35	17	2	1
Oct.	4	10	29	33	20	2	0
Nov.	2	8	28	37	20	4	1
Dec.	2	7	23	33	26	7	1
Year	3	9	30	36	19	3	<1

TABLE 3: Dublin City — Percentage frequency of mean wind direction for specified hours.

6h – 7h

Month	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	Calm
Jan.	1	2	2	1	4	4	3	6	6	5	5	10	17	23	6	2	3
Feb.	3	1	3	2	4	6	4	6	6	5	4	9	14	23	5	3	3
Mar.	1	2	1	4	6	9	8	11	6	4	2	6	12	17	4	3	5
April	3	2	1	4	2	4	3	4	4	4	4	8	16	23	9	4	5
May	3	3	2	8	5	7	5	4	3	4	4	7	12	18	7	5	4
June	3	2	2	3	4	8	4	3	2	1	3	9	14	25	10	5	5
July	1	1	3	4	2	4	3	3	2	2	2	7	11	30	13	6	4
Aug.	2	1	1	2	2	3	4	4	2	3	3	9	15	30	9	3	6
Sept.	2	1	2	3	2	5	5	6	4	4	5	10	12	24	7	2	8
Oct.	2	1	1	1	1	4	5	5	5	5	6	11	13	27	5	2	5
Nov.	2	2	2	3	2	5	4	6	4	5	4	11	13	26	7	2	4
Dec.	1	1	2	2	2	4	3	5	5	4	6	13	19	22	6	3	3
Year	2·0	1·6	1·8	3·1	3·0	5·2	4·3	5·3	4·1	3·8	4·0	9·0	14·0	24·0	7·3	3·4	4·7

13h – 14h

Month	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WSW	NW	Calm
Jan.	2	2	2	3	3	7	4	6	6	6	5	10	11	21	7	4	1
Feb.	4	3	4	5	5	7	5	6	6	3	3	9	13	14	9	5	0
Mar.	3	2	4	8	6	14	9	9	7	4	4	7	8	8	5	4	0
April	5	1	3	8	6	14	7	5	3	3	5	7	10	11	8	5	0
May	5	2	2	8	8	21	8	5	3	3	2	8	7	7	8	4	0
June	4	2	2	4	6	18	7	3	4	3	3	6	12	12	7	6	0
July	3	1	1	3	3	16	8	3	3	2	2	7	9	15	15	8	0
Aug.	5	0	3	3	2	11	8	3	3	2	5	9	13	15	11	6	0
Sept.	3	2	2	4	3	12	8	6	3	4	5	10	9	14	10	5	0
Oct.	5	1	2	3	3	6	6	8	6	5	6	10	13	13	8	4	0
Nov.	5	4	5	3	3	7	4	5	4	6	3	9	13	17	7	4	1
Dec.	2	2	1	3	2	5	2	6	6	6	5	11	18	20	7	4	1
Year	3·8	1·8	2·5	4·6	4·2	11·5	6·3	5·3	4·5	3·9	3·9	8·6	11·3	13·8	8·5	4·9	0·2

TABLE 3 (Contd.): Dublin City — Percentage frequency of mean wind direction for specified hours.

20h – 21h

Month	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	Calm
Jan.	2	2	1	3	3	6	5	5	7	5	5	9	15	23	5	3	2
Feb.	4	2	3	3	3	6	4	6	7	5	5	11	11	16	8	3	2
Mar.	3	2	3	6	6	8	9	10	6	5	4	8	9	8	5	4	4
April	4	4	4	6	3	6	5	4	5	5	6	7	10	12	8	5	5
May	3	4	4	11	5	9	9	6	3	4	4	8	7	9	6	4	3
June	4	2	3	6	4	8	5	5	4	3	4	9	7	15	10	5	6
July	3	2	2	6	2	6	5	4	3	3	4	7	10	19	11	7	5
Aug.	2	2	2	3	2	5	3	3	5	4	5	11	14	20	8	5	6
Sept.	3	1	3	4	3	6	6	5	5	5	5	11	11	19	8	2	5
Oct.	1	1	2	2	1	5	5	6	5	6	7	10	17	18	7	3	6
Nov.	3	2	1	4	3	5	4	4	3	6	6	12	16	17	8	4	3
Dec.	2	1	1	2	2	6	4	4	6	6	5	14	15	20	7	2	2
Year	2·8	2·0	2·4	4·7	3·1	6·3	5·3	5·2	4·9	4·8	5·0	9·8	11·0	16·4	7·6	3·9	4·2

6h – 7h, 13h – 14h and 20h – 21h combined

Month	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	Calm
Jan.	2	2	2	3	3	5	4	6	6	5	5	10	14	22	6	3	2
Feb.	4	2	3	3	4	6	4	6	6	4	4	10	13	18	7	4	2
Mar.	2	2	3	6	6	11	9	10	6	4	3	6	9	11	5	4	3
April	4	2	3	6	4	8	5	5	4	4	5	7	12	15	8	5	4
May	4	3	3	9	6	12	7	5	3	4	3	8	9	12	7	4	2
June	3	2	2	4	5	11	5	4	3	2	3	8	11	17	9	5	4
July	2	1	2	4	3	9	5	4	3	2	3	7	10	22	13	7	3
Aug.	3	1	2	3	2	6	5	4	3	3	4	10	14	22	9	5	4
Sept.	2	1	2	3	3	7	6	6	4	4	5	10	11	19	8	3	4
Oct.	3	1	2	2	2	5	5	6	5	5	6	10	14	20	7	3	4
Nov.	4	3	3	3	2	5	4	5	4	6	4	11	14	20	7	4	2
Dec.	2	1	1	2	2	5	3	5	5	5	5	13	17	21	7	3	2
Year	2·9	1·8	2·3	4·0	3·5	7·7	5·2	5·5	4·3	4·0	4·2	9·2	12·3	18·1	7·8	4·2	3·0

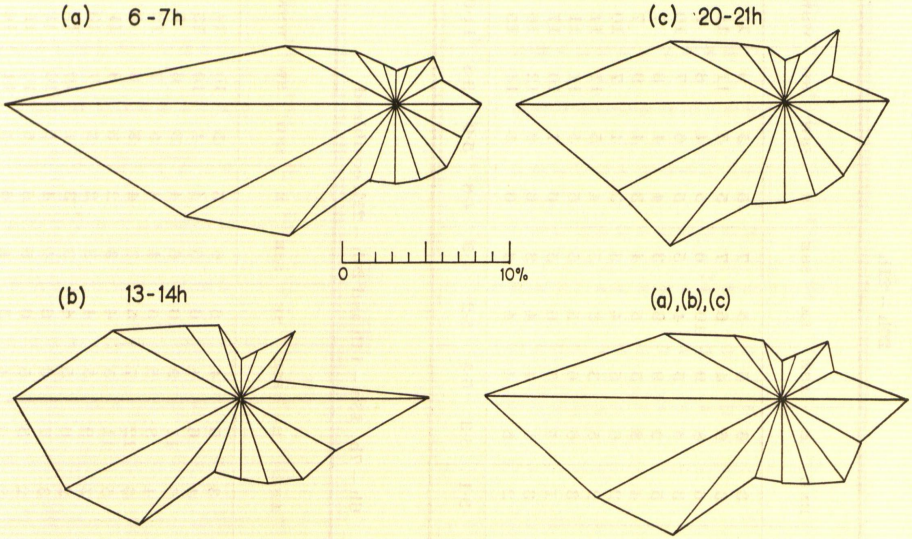

FIG. 1 Mean wind direction at specified hours

TABLE 4: Number of days with gusts of 39 m.p.h. (34 knots) or more.

Month	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1949–1965	
																		Mean	Percent.
Jan.	11	11	7	14	4	10	11	5	13	13	2	5	11	16	10	6	11	9	12
Feb.	14	13	6	2	6	12	7	4	7	6	6	11	16	13	4	7	3	8	10
Mar.	5	5	8	8	4	8	3	10	6	7	4	4	11	7	9	6	8	7	8
April	12	13	3	7	5	3	4	1	0	5	9	7	2	8	8	7	9	6	8
May	5	5	3	3	4	5	6	4	2	5	1	1	4	5	9	8	4	4	6
June	2	2	5	4	1	4	3	7	2	0	6	3	0	6	5	4	6	4	5
July	1	3	1	4	7	7	0	6	4	1	5	5	5	2	0	6	4	4	5
Aug.	4	8	4	5	4	3	0	5	6	2	3	1	8	7	7	5	4	5	6
Sept.	3	16	4	9	9	14	5	4	9	5	0	4	6	5	5	7	3	6	7
Oct.	7	9	2	11	2	10	6	7	8	7	9	2	13	5	11	6	3	7	9
Nov.	11	2	15	8	8	12	5	6	5	2	9	9	4	4	12	9	12	8	10
Dec.	14	5	16	8	3	17	18	13	11	8	16	9	7	12	10	11	7	11	14
Year	89	92	74	83	57	105	68	72	73	61	70	61	87	90	90	82	74	79	

TABLE 5: Dublin City — Number of days with gusts of 39 m.p.h. (34 knots) or more within specified limits (1949 – 1965).

Month	miles per hour				
	39–45	46–50	51–60	61–70	> 70
	knots				
	34–39	40–43	44–52	53–61	> 61
Jan.	73	34	40	11	2
Feb.	71	33	27	3	3
March	70	23	17	3	
April	51	29	20	3	
May	45	11	18		
June	40	12	6	2	
July	48	9	4		
Aug.	55	14	7		
Sept.	70	18	17	3	
Oct.	72	28	11	6	1
Nov.	66	32	25	8	2
Dec.	81	47	41	15	1
Annual Mean	44	17	14	3	1

TABLE 6: Dublin City — Number of days with gusts of 39 m.p.h. (34 knots) or more from specified directions.

Month	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW
Jan.		2	1		5	9	1	7	5	13	8	28	33	29	14	5
Feb.	1	3		2	3	6	1	7	5	7	9	26	23	31	11	2
March		1	2	2	4	3	5	16	6	7	5	20	10	21	5	6
April	6	2		2	1	2		1	7	2	7	7	15	27	13	11
May	4	2	1		2	3	3			2	4	7	13	18	12	3
June	3				2	1	1	1			7	9	13	13	7	3
July	1								1	1	1	10	13	15	16	3
Aug.	3				1			1	3	3	14	19	21	5	6	
Sept.	1	1		3	1	5	1	1	4	6	8	15	21	26	10	5
Oct.	6	1		2		1	1	7	6	4	8	24	19	24	12	3
Nov.	3	3	1	2		9	5	10	7	11	3	28	17	24	8	2
Dec.	2			2	4	10	3	5	7	3	9	38	52	37	9	4
Percentage	2	1	0	1	2	4	2	4	4	4	6	17	19	20	9	4

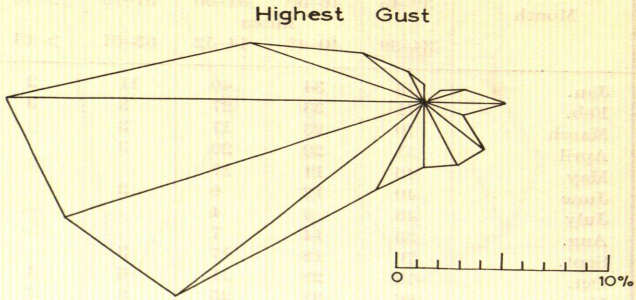

FIG. 2 Wind direction associated with gusts of 39 m.p.h. (34 knots) or more.

TABLE 7: Extreme gust for each month and for the Year (1949–1965)

Month	Speed		Direction	Date
	m p h	kt		
January	79	69	W	15th Jan. 1954
February	79	69	S	4th Feb. 1957
,,	79	69	W	26th Feb. 1961
March	63	55	SE	7th Mar. 1963
,,	63	55	WSW	16th Mar. 1963
April	68	59	W	10th Apr. 1950
May	59	51	WNW	5th May 1954
June	63	55	WSW	12th June 1960
July	59	51	W	27th July 1954
August	58	51	W	13th Aug. 1956
,,	58	51	WNW	26th Aug. 1962
September	70	61	SSW	16th Sept. 1961
October	80	69	SE	22nd Oct. 1961
November	76	66	WSW	2nd Nov. 1960
December	74	64	SSW	27th Dec. 1951
Year	80	69	SE	22nd Oct. 1961

TABLE 8: Conversion of Statute Miles per hour to Knots

1 m.p.h. = 0·8684 kt

Statute miles per hour	0	1	2	3	4	5	6	7	8	9
					knots					
0	0	1	2	3	3	4	5	6	7	8
10	9	9	10	11	12	13	14	15	16	16
20	17	18	19	20	21	22	23	23	24	25
30	26	27	28	29	30	30	31	32	33	34
40	35	36	37	37	38	39	40	41	42	43
50	43	44	45	46	47	48	49	50	51	51
60	52	53	54	55	56	57	57	58	59	60
70	61	62	63	63	64	65	66	67	68	69
80	69	70	71	72	73	74	75	76	76	77
90	78	79	80	81	82	83	83	84	85	86
100	87	88	89	89	90	91	92	93	94	95
110	96	97	97	98	99	100	101	102	102	103
120	104	105	106	107	108	109	109	110	111	112
130	113	114	115	115	116	117	118	119	120	121
140	122	122	123	124	125	126	127	128	129	129

TABLE 9: Beaufort scale and equivalent speeds.

Force	Limits	
	m p h	kt
Calm	<1	<1
1	1 – 3	1 – 3
2	4 – 7	4 – 6
3	8 – 12	7 – 10
4	13 – 18	11 – 16
5	19 – 24	17 – 21
6	25 – 31	22 – 27
7	32 – 38	28 – 33
8	39 – 46	34 – 40
9	47 – 54	41 – 47
10	55 – 63	48 – 55

SUMMARY

The most noteworthy feature revealed by the tables and diagrams is the predominance of Westerly winds. This feature is most pronounced in the morning hour (6–7h) and applies to the highest gust as well as to the mean hourly wind. The high frequency of Easterly winds in the afternoon (13–14h) is attributed to the sea breeze in the Summer months (see Table 3 and Fig. 1) and to the Scandinavian high pressure system in the Spring. The average number of days with gusts of 39 m.p.h. or more per annum is 79 of which 11 occur in December. The year 1954 had the greatest number of days of high winds. In the case of the mean hourly winds 40% of all days have a direction between SW and W and of the days with gusts of 39 m.p.h. or more the figure increases to 56% while N to NE winds form only 2% of all such days.

Due to the relatively free exposure of the anemometer vane, no unusual gustiness is apparent in the records.

December 1968

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