

METEOROLOGICAL SERVICE

CLIMATOLOGICAL NOTE No. 2.

SURFACE WIND OVER IRELAND 1961 - 1970

by

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INTRODUCTION

1

Records from Dines Pressure Tube anemographs at 12 locations in Ireland for the decade 1961 - 1970 have been examined and summaries of hourly values of surface wind speed and direction, mean hourly wind speeds and the incidence of high speeds in a gust are given herewith.

Particulars of these locations are as follows:

Station	Irish Grid Reference	Height of ground above MSL	Effective height of vane
		m	m
Belmullet	F 6933	9	9
Birr	N 0704	71	9
Claremorris	M 3574	69	9
Clones	H 5026	88	9
Dublin Airport	O 1744	65	10
Kilkenny	S 5057	63	9
Malin Head	C 4259	24	18
Mullingar	N 4353	109	9
Roche's Point	W 8360	41	9
Rosslare	T 1412	24	9
Shannon Airport	R 3860	8	10
Valentia	V 4679	17	10

The anemograph vane is mounted on a 12 metre mast at all stations except Malin Head where a 21 metre mast has been installed. The "effective height of the vane" is an estimate of the height at which the instrument would record an equal mean velocity in a site free from all obstructions.

At Belmullet, Birr, Kilkenny, Roche's Point and Rosslare the vane is mounted above the flat roof (3m. high) of the office building. At Claremorris, Clones and Mullingar the vanes are above office buildings with pitched roofs. At Dublin Airport, Malin Head, Shannon Airport and Valentia Observatory the vanes are above small huts housing the recording equipment.

As far as possible all stations were located in open situations free from obstruction but in the case of the following stations peculiarities of site should be noted:

(1) Clones is situated on a hill top; the nearest houses of a neighbouring residential area are within 60 metres of the station.

(2) Malin Head: The vane is mounted on a 21 metre lattice mast since 10th March, 1966. Prior to that date it was on a normal 12 metre mast but when the wind direction was between 70° and 140° from North, eddies caused by a row of houses nearby caused violent fluctuations. Values of mean wind speed have been adjusted to the standard effective vane height of 10 metres.

2.

(3) Mullingar: The station is in the town area, with two-storey houses within 20 metres of the anemograph.

(4) Valentia Observatory: The surrounding terrain is generally open but to the southeast the ground rises rapidly to a peak of 380 m. (Bentee) which is only a little over $1\frac{1}{2}$ km. away.

The data used in the preparation of the frequency tables and wind roses are values of the wind speed and direction averaged over the ten minute period ending at each exact hour. Tabulations of wind speed are made to the nearest whole knot. A speed of less than 0.5 knot is designated "calm". Values of wind direction are given to the nearest ten degrees from True North, any value of exactly five degrees being entered to the next higher ten degree value. All percentage frequencies are "rounded-off" to the nearest tenth of one per cent. In consequence of the "rounding-off" process the sum of the individual percentages in the last column of the table does not always agree exactly with the total for the final row.

Monthly and Annual Values of mean hourly wind speed (in knots), over the period 1961 - 1970

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual mean
Belmullet	14.2	14.6	14.7	13.4	13.3	12.3	12.1	12.1	13.1	14.6	13.9	14.5	13.6
Birr	8.0	8.3	8.5	8.3	7.7	6.7	6.3	6.8	6.7	7.5	7.4	8.1	7.5
Claremorris	9.5	10.1	10.3	9.7	9.1	8.2	8.0	8.1	8.3	9.1	8.7	9.2	9.0
Clones	10.0	10.5	10.9	10.1	9.1	8.2	8.1	8.1	8.4	9.4	9.3	9.7	9.3
Dublin Airport	11.5	12.0	11.7	10.6	9.3	8.3	8.3	8.6	8.9	10.0	11.0	11.6	10.2
Kilkenny	7.4	7.9	7.9	7.7	7.0	6.1	5.9	6.2	6.1	6.6	6.8	7.3	6.9
Malin Head	15.8	16.3	15.6	14.4	13.0	11.9	12.7	12.4	13.4	15.7	16.5	16.8	14.5
Mullingar	8.6	9.3	9.6	9.1	8.0	7.6	7.6	7.6	7.4	8.2	8.3	9.1	8.4
Roche's Point	14.4	14.2	13.2	12.8	11.7	10.2	10.0	11.0	11.5	12.6	13.2	14.5	12.4
Rosslare	13.2	13.9	12.5	12.1	11.6	10.1	9.2	10.3	10.7	11.4	12.8	13.4	11.8
Shannon Airport	11.0	11.8	11.7	11.0	10.4	9.3	9.1	9.6	9.7	10.5	10.3	11.1	10.5
Valentia Observatory	12.5	12.2	11.4	10.9	10.7	9.1	8.6	9.3	10.1	11.2	11.5	12.4	10.8

Highest Wind Speed in a gust recorded in the period 1961 - 1970

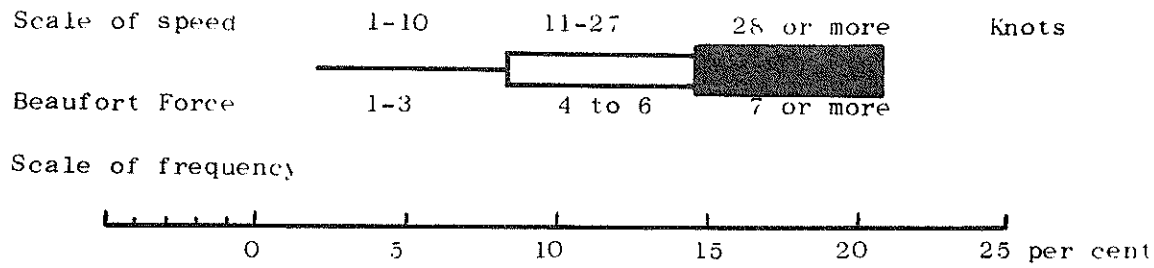
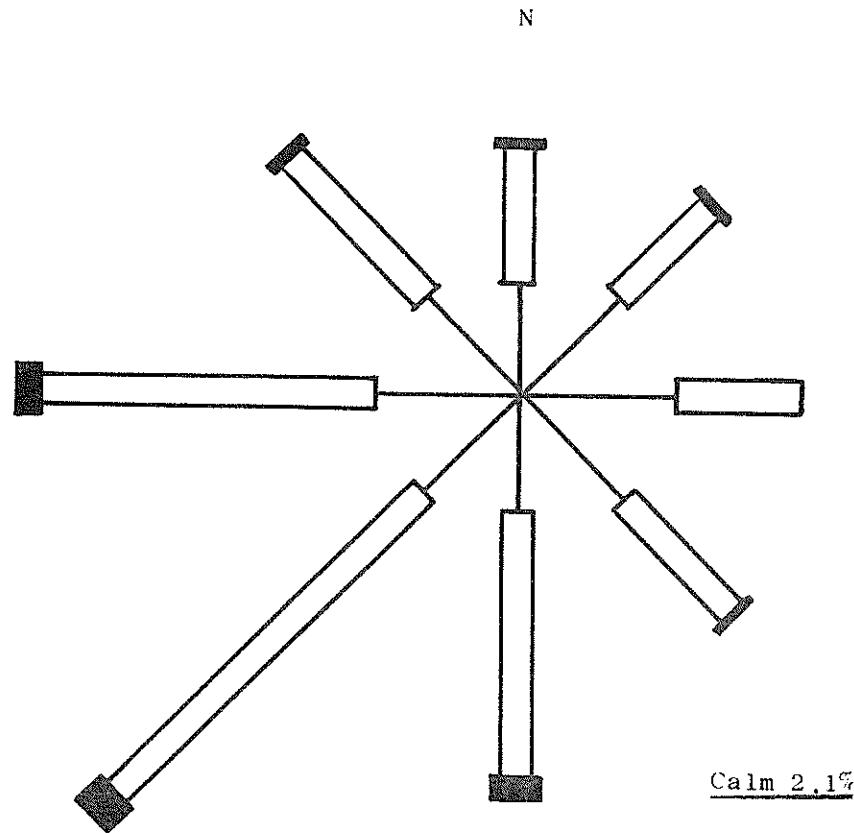
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	<u>Speed in knots</u>												Highest gust
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
Belmullet	91	87	75	67	69	73	53	60	80	85	72	83	91
Birr	68	64	62	54	50	47	44	58	81	65	60	69	81
Claremorris	75	71	68	57	52	54	49	54	91	62	70	79	91
Clones	83	69	73	63	60	57	49	55	87	68	71	75	87
Dublin Airport	73	69	57	60	56	55	47	56	64	73	64	71	73
Kilkenny	57	55	60	53	53	44	42	56	65	74	56	65	74
Malin Head	91	84	83	62	67	74	54	67	98	75	76	80	98
Mullingar	75	63	64	60	52	50	41	57	79	67	59	68	79
Roche's Point	84	68	68	71	57	52	50	56	75	83	75	72	84
Rosslare	75	66	62	64	53	50	48	56	72	87	71	68	87
Shannon Airport	79	73	64	62	61	57	49	53	93	84	63	75	93
Valentia Observatory	78	67	62	63	61	56	48	46	88	73	64	66	88

Percentage (%) Frequency of Concurrent Wind Direction and Beaufort 5

Station	Beaufort Force	Force over the period 1961-1970								
		N	NE	E	SE	S	SW	W	NW	Calm
BELMULLET	1-3	3.7	4.6	5.2	5.1	3.8	4.5	4.7	4.5	2.1
	4-6	4.5	4.3	4.1	5.1	8.7	14.2	11.2	6.3	
	7 or more	0.2	0.1	*	0.1	0.8	1.2	0.7	0.3	
BIRR	1-3	5.2	5.6	3.2	8.6	12.2	12.2	11.1	6.7	9.9
	4-6	0.6	1.2	1.6	3.9	4.8	5.8	5.5	1.8	
	7 or more	0.0	0.0	*	*	*	*	0.1	*	
CLAREMORRIS	1-3	5.7	4.2	5.4	6.5	8.5	9.1	8.7	7.6	8.4
	4-6	2.1	1.7	3.3	3.7	4.9	8.8	7.7	3.3	
	7 or more	*	*	*	*	*	0.1	0.2	0.1	
CLONES	1-3	3.6	8.1	5.4	5.2	7.3	13.2	7.7	5.7	6.1
	4-6	2.4	2.1	1.9	4.1	7.6	9.4	5.0	4.8	
	7 or more	*	*	*	*	0.1	0.1	0.1	0.1	
DUBLIN AIRPORT	1-3	3.1	3.8	5.3	8.2	3.8	8.8	12.5	6.2	5.7
	4-6	1.3	2.1	3.3	5.1	2.6	10.5	13.0	3.7	
	7 or more	*	*	0.1	0.1	*	0.2	0.4	0.1	
KILKENNY	1-3	11.6	3.5	5.2	7.9	12.0	10.9	9.6	11.0	8.2
	4-6	1.5	0.6	0.9	1.6	4.3	3.6	3.9	3.7	
	7 or more	*	0.0	0.0	*	*	*	*	*	
MALIN HEAD	1-3	2.6	2.7	3.0	3.9	6.6	4.7	3.4	3.2	1.8
	4-6	5.5	3.0	5.7	7.5	9.9	11.6	12.3	6.7	
	7 or more	0.7	0.3	1.0	0.6	0.6	0.8	1.2	0.7	
MULLINGAR	1-3	6.0	5.8	7.0	6.3	8.2	12.6	9.7	8.1	5.5
	4-6	1.1	1.1	2.6	2.6	3.7	6.0	9.3	4.0	
	7 or more	*	*	*	*	*	0.1	0.2	0.1	
ROCHE'S POINT	1-3	5.7	2.5	3.5	4.8	5.3	5.7	4.8	6.7	4.4
	4-6	4.2	1.9	4.8	5.1	8.1	10.4	8.8	9.8	
	7 or more	0.1	*	0.2	0.3	0.7	0.8	0.5	0.9	
ROSSLARE	1-3	2.8	3.2	3.5	3.4	5.7	12.7	10.2	6.7	1.1
	4-6	3.4	5.8	3.6	4.1	8.1	14.6	3.7	5.4	
	7 or more	0.2	0.7	0.2	0.2	0.3	0.3	*	0.1	
SHANNON AIRPORT	1-3	6.8	4.4	5.3	8.1	5.7	5.8	8.4	6.7	2.3
	4-6	2.1	1.8	3.8	6.5	6.1	7.5	11.8	5.3	
	7 or more	*	*	0.1	0.2	0.1	0.4	0.6	0.2	
VALENTIA OBSERVATORY	1-3	4.9	6.9	5.5	3.7	8.0	5.2	6.6	5.9	7.1
	4-6	4.5	2.4	3.6	4.7	9.2	8.3	6.7	5.3	
	7 or more	0.1	*	0.2	0.2	0.2	0.4	0.3	0.1	

* Percentage greater than zero but less than 0.05.



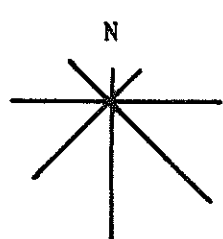
	Frequency (%) of Windforce												
	0	1	2	3	4	5	6	7	8	9	10	11	12
JAN.	3.8	5.1	8.9	20.1	24.9	18.7	13.0	3.4	1.6	0.4	0.1	0.0	0.0
FEB.	2.6	4.9	8.8	18.1	26.7	19.0	14.4	4.3	1.1	0.1	*	*	0.0
MAR.	1.9	3.9	8.4	19.1	27.2	20.6	14.1	3.4	1.2	0.2	0.0	0.0	0.0
APR.	1.8	3.3	9.7	22.5	31.4	19.5	9.9	1.7	0.2	0.0	0.0	0.0	0.0
MAY	1.3	3.3	10.5	22.8	33.5	17.1	9.0	2.0	0.4	0.1	0.0	0.0	0.0
JUNE	2.3	4.3	11.0	24.3	34.5	16.3	6.2	0.9	0.3	0.0	0.0	0.0	0.0
JULY	1.7	3.7	11.7	25.9	35.2	14.8	6.4	0.5	0.1	0.0	0.0	0.0	0.0
AUG.	2.1	5.2	12.0	24.3	32.8	16.1	6.2	1.1	0.2	*	0.0	0.0	0.0
SEPT.	2.5	4.5	11.7	21.8	30.1	16.6	9.9	2.2	0.6	0.1	*	0.0	0.0
OCT.	1.6	4.5	9.1	19.7	26.6	19.2	13.5	4.0	1.6	0.2	0.0	0.0	0.0
NOV.	2.5	4.4	10.2	21.3	26.7	18.9	11.8	3.0	1.1	0.1	*	0.0	0.0
DEC.	1.5	4.3	9.2	19.8	28.3	18.7	12.6	4.3	1.1	0.1	0.1	0.0	0.0
YEAR	2.1	4.3	10.1	21.7	29.8	17.9	10.6	2.6	0.8	0.1	*	*	0.0

* Percentage greater than zero but less than 0.05.

MONTHLY FREQUENCY OF WIND DIRECTIONS (%)

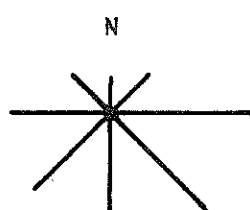
BELMULLET

1961-1970



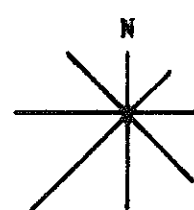
Calm 3.8%

JANUARY



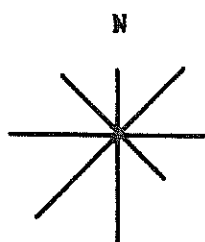
Calm 2.6%

FEBRUARY



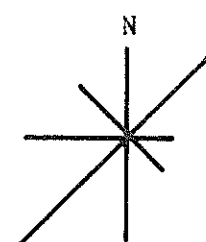
Calm 1.9%

MARCH



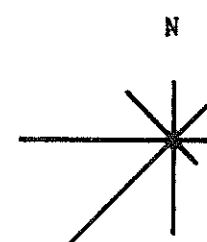
Calm 1.8%

APRIL



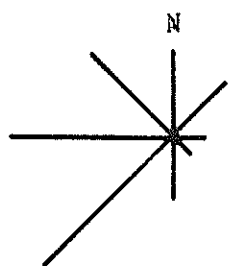
Calm 1.3%

MAY



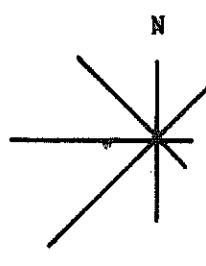
Calm 2.3%

JUNE



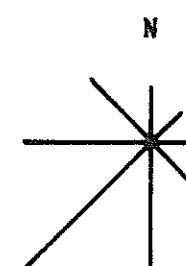
Calm 1.7%

JULY



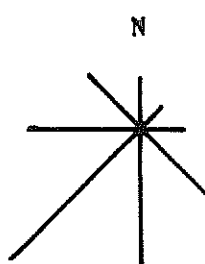
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AUGUST



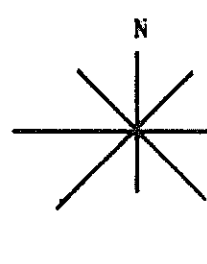
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SEPTEMBER



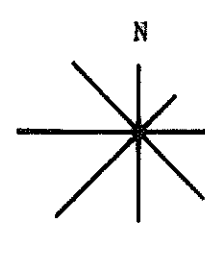
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OCTOBER



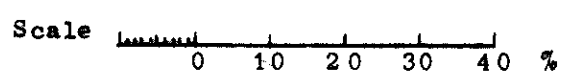
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NOVEMBER



Calm 1.5%

DECEMBER



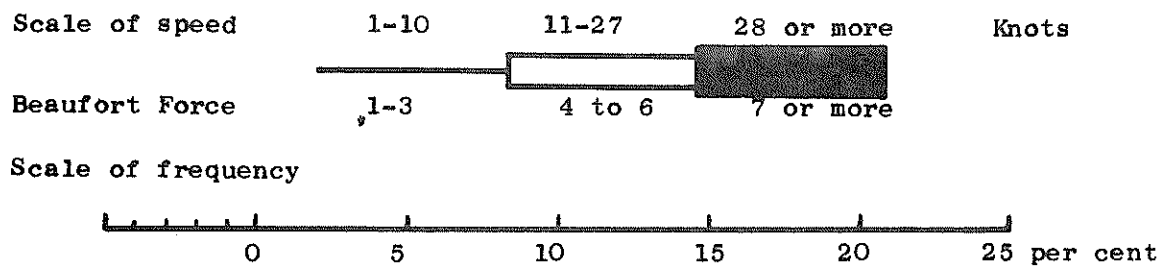
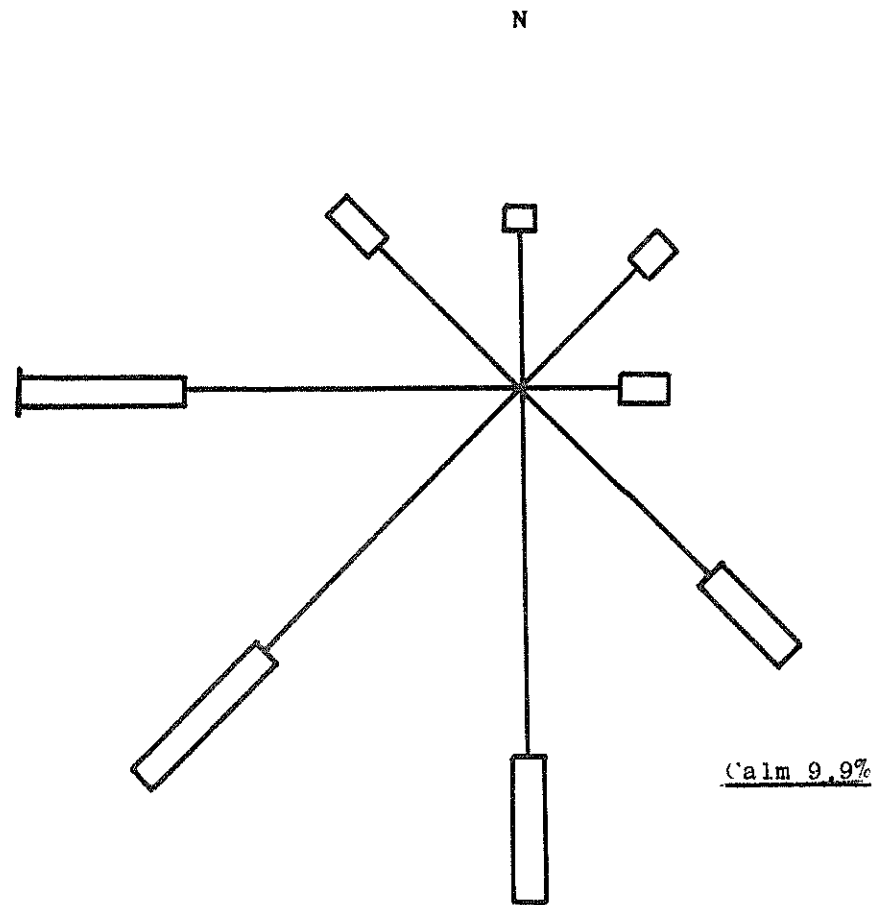
BELMULLET DIRECTION IN DEGREES	NUMBER OF SIMULTANEOUS OCCURRENCES OF SPECIFIED RANGES OF WIND SPEED AND DIRECTION 1961-1970												TOTAL	
	WIND SPEED IN KNOTS													
	CALM	1-3	4-6	7-10	11-16	17-21	22-27	28-33	34-40	41-47	48-55	56-63		OVER 63
010		80	190	490	504	231	117	23	2					1637
020		95	205	501	595	242	107	32	15					1792
030		106	287	657	881	302	76	28		1	1			2339
040		115	231	459	651	229	76	17	10	3				1791
050		131	265	386	391	137	33	20	6					1369
060		143	299	444	344	152	77	14	3					1476
070		190	334	556	460	199	107	12						1858
080		164	299	563	430	170	88	7						1721
090		154	392	674	500	186	69	9						1984
100		195	294	473	571	238	84	4						1859
110		99	224	381	568	235	90	4						1601
120		112	220	425	485	239	117	13	2					1613
130		145	350	717	713	285	118	13	1	1				2343
140		143	328	603	596	279	138	22	4					2113
150		142	300	539	560	285	157	28	8					2019
160		149	258	490	563	339	117	15	2					1933
170		145	231	416	544	339	182	58	13					1928
180		87	189	346	557	415	317	86	37	3	1			2038
190		76	153	474	993	908	809	260	86	17		1		3777
200		94	186	478	891	837	697	179	59	3	1			3425
210		87	235	652	1132	1008	934	264	98	15	1			4426
220		88	194	538	1083	1112	778	165	63	8	2			4031
230		125	233	600	1325	1058	621	112	47	4	1			4126
240		85	204	542	1028	807	460	100	38	3	6			3273
250		78	251	468	1005	638	330	87	34	5				2896
260		63	194	620	1187	721	406	112	26	8				3337
270		57	216	661	1298	795	392	85	29	4	1			3538
280		66	253	650	1010	676	357	119	22	4	1			3158
290		70	298	609	990	615	366	87	30	5	2			3072
300		79	272	597	805	477	237	68	17		2			2554
310		48	238	609	695	385	192	46	14	1				2228
320		60	201	596	631	288	141	28	5					1950
330		62	245	527	616	264	121	22	7					1864
340		61	169	381	540	187	115	33	7	4				1497
350		79	211	468	584	222	131	33	7					1735
360		74	209	394	437	228	103	34	6					1485
CALM	1862													1862
TOTAL	1862	3747	8858	18984	26163	15728	9260	2239	698	89	19	1		87648

BELMULLET
DIRECTION

PERCENTAGE FREQUENCIES OF SIMULTANEOUS OCCURRENCES OF SPECIFIED RANGES OF WIND SPEED AND DIRECTION 1961-1970

IN DEGREES	WIND SPEED IN KNOTS												TOTAL	
	Calm	1-3	4-7	7-10	11-16	17-21	22-27	28-33	34-40	41-47	48-55	56-63		OVER 63
010		0.1	0.2	0.6	0.6	0.3	0.1	0+	0+					1.9
020		0.1	0.2	0.6	0.7	0.3	0.1	0+	0+					2.0
030		0.1	0.3	0.7	1.0	0.3	0.1	0+		0+	0+			2.7
040		0.1	0.3	0.5	0.7	0.3	0.1	0+	0+	0+				2.0
050		0.1	0.3	0.4	0.4	0.2	0+	0+	0+					1.6
060		0.2	0.3	0.5	0.4	0.2	0.1	0+	0+					1.7
070		0.2	0.4	0.6	0.5	0.2	0.1	0+						2.1
080		0.2	0.3	0.6	0.5	0.2	0.1	0+						2.0
090		0.2	0.4	0.8	0.6	0.2	0.1	0+						2.3
100		0.2	0.3	0.5	0.7	0.3	0.1	0+						2.3
110		0.1	0.3	0.4	0.6	0.3	0.1	0+						2.1
120		0.1	0.3	0.5	0.6	0.3	0.1	0+						1.8
130		0.2	0.4	0.8	0.8	0.3	0.1	0+	0+					1.8
140		0.2	0.4	0.7	0.7	0.3	0.2	0+	0+	0+				2.7
150		0.2	0.3	0.6	0.6	0.3	0.2	0+	0+					2.4
160		0.2	0.3	0.6	0.6	0.4	0.1	0+	0+					2.3
170		0.2	0.3	0.5	0.6	0.4	0.2	0.1	0+					2.2
180		0.1	0.2	0.4	0.6	0.5	0.4	0.1	0+	0+	0+			2.2
190		0.1	0.2	0.5	1.1	1.0	0.9	0.3	0.1	0+	0+			2.3
200		0.1	0.2	0.5	1.0	1.0	0.8	0.2	0.1	0+	0+	0+		4.3
210		0.1	0.3	0.7	1.3	1.2	1.1	0.3	0.1	0+	0+			3.9
220		0.1	0.2	0.6	1.2	1.3	0.9	0.2	0.1	0+	0+			5.0
230		0.1	0.3	0.7	1.5	1.2	0.7	0.1	0.1	0+	0+			4.6
240		0.1	0.2	0.6	1.2	0.9	0.5	0.1	0+	0+	0+			4.7
250		0.1	0.3	0.5	1.1	0.7	0.4	0.1	0+	0+				3.7
260		0.1	0.2	0.7	1.4	0.8	0.5	0.1	0+	0+				3.3
270		0.1	0.2	0.7	1.4	0.8	0.5	0.1	0+	0+				3.8
280		0.1	0.2	0.8	1.5	0.9	0.4	0.1	0+	0+	0+			4.0
290		0.1	0.3	0.7	1.2	0.8	0.4	0.1	0+	0+	0+			3.6
300		0.1	0.3	0.7	1.1	0.7	0.4	0.1	0+	0+	0+			3.5
310		0.1	0.3	0.7	0.9	0.5	0.3	0.1	0+		0+			2.9
320		0.1	0.3	0.7	0.8	0.4	0.2	0.1	0+	0+				2.5
330		0.1	0.2	0.7	0.7	0.3	0.2	0+	0+					2.2
340		0.1	0.3	0.6	0.7	0.3	0.1	0+	0+					2.1
350		0.1	0.2	0.4	0.6	0.2	0.1	0+	0+	0+				1.7
360		0.1	0.2	0.5	0.7	0.3	0.1	0+	0+					2.0
CALM	2.1													1.7
TOTAL	2.1	4.3	10.1	21.7	29.9	17.9	10.6	2.6	0.8	0.1	0+	0+		2.1

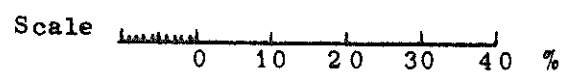
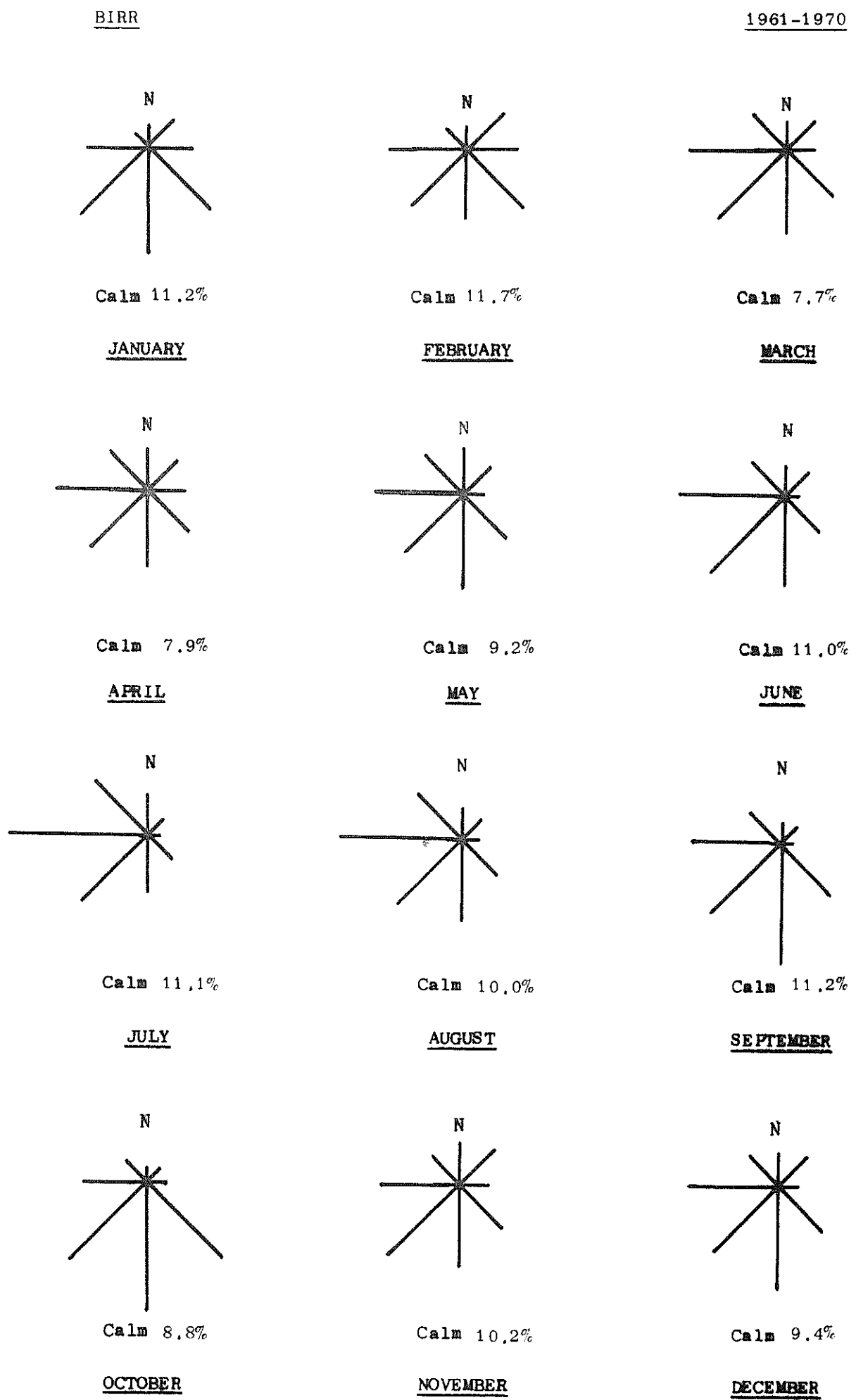
THE ENTRY '0+' INDICATES THAT THE % IS GREATER THAN ZERO BUT LESS THAN 0.05.



	Frequency (%) of Windforce												
	0	1	2	3	4	5	6	7	8	9	10	11	12
JAN.	11.2	16.1	18.1	25.6	20.7	5.8	2.2	0.3	0.0	0.0	0.0	0.0	0.0
FEB.	11.7	14.4	15.6	26.0	23.9	6.5	1.7	0.2	*	0.0	0.0	0.0	0.0
MAR.	7.7	15.1	17.4	27.2	24.5	6.3	1.6	0.2	*	0.0	0.0	0.0	0.0
APR.	7.9	14.0	18.0	29.2	25.1	5.0	0.8	*	0.0	0.0	0.0	0.0	0.0
MAY	9.2	15.2	19.5	30.6	20.4	4.5	0.6	*	0.0	0.0	0.0	0.0	0.0
JUNE	11.0	18.8	22.7	27.8	17.3	2.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0
JULY	11.1	20.1	23.4	28.7	15.9	0.8	*	0.0	0.0	0.0	0.0	0.0	0.0
AUG.	10.0	19.0	22.3	28.7	17.9	1.9	0.2	*	0.0	0.0	0.0	0.0	0.0
SEP.	11.2	20.2	20.6	28.0	17.1	2.2	0.6	0.1	*	0.0	0.0	0.0	0.0
OCT.	8.8	15.4	22.1	30.0	19.4	3.6	0.7	*	*	0.0	0.0	0.0	0.0
NOV.	10.2	16.3	20.9	28.8	18.9	3.8	1.1	*	0.0	0.0	0.0	0.0	0.0
DEC.	9.4	13.7	20.7	27.4	21.6	5.4	1.5	0.2	0.1	0.0	0.0	0.0	0.0
YEAR	9.9	16.6	20.1	28.2	20.2	4.0	0.9	0.1	*	0.0	0.0	0.0	0.0

* Percentage greater than zero but less than 0.05.

MONTHLY FREQUENCY OF WIND DIRECTIONS (%)

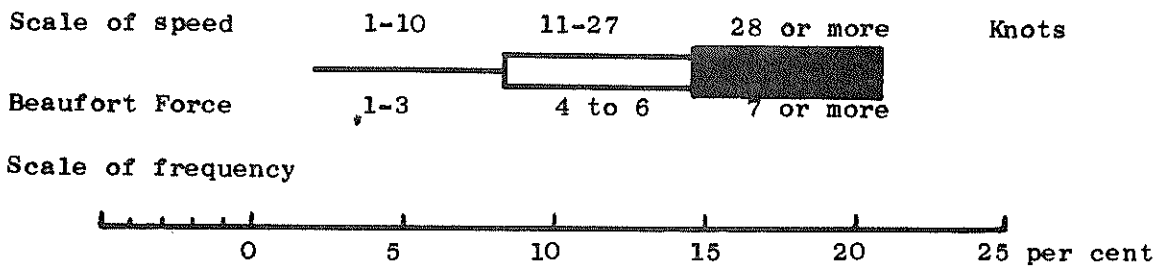
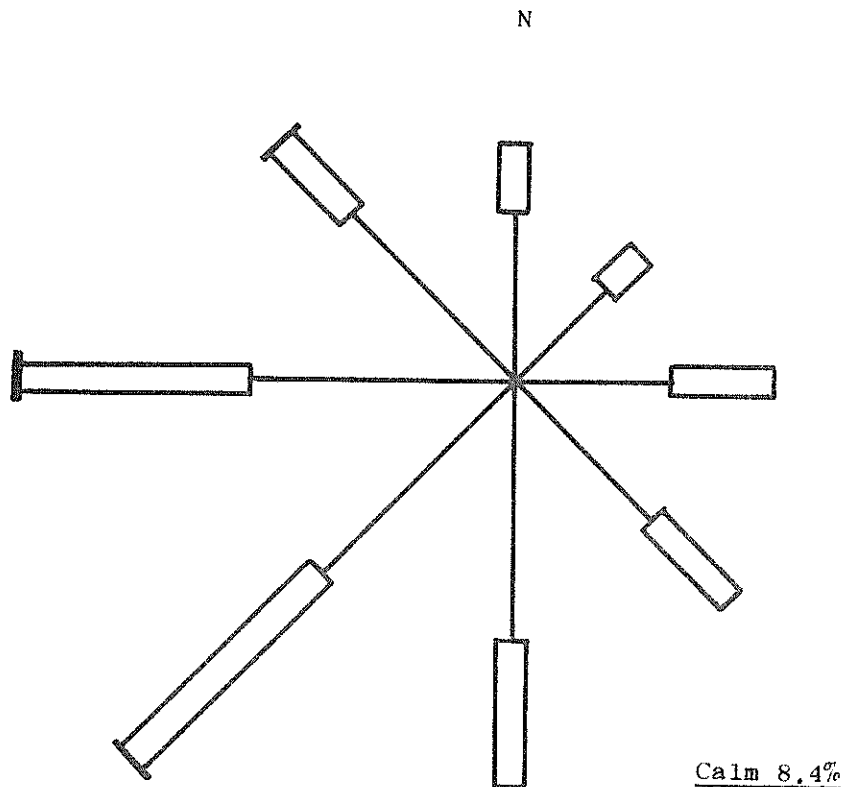


BIRR DIRECTION IN DEGREES	NUMBER OF SIMULTANEOUS OCCURRENCES OF SPECIFIED RANGES OF WIND SPEED AND DIRECTION 1961-1970											TOTAL	
	CALM	WIND SPEED IN KNOTS											
	1-3	4-6	7-10	11-16	17-21	22-27	28-33	34-40	41-47	48-55	56-63	OVER 63	
010	452	357	373	151	9								1342
020	427	474	481	142	10								1534
030	464	476	507	185	10								1642
040	295	347	330	172	30	5							1179
050	276	315	365	194	39	4							1193
060	310	300	393	180	37	4							1224
070	244	201	302	214	30	9							1000
080	179	141	221	187	31	1							760
090	188	153	281	227	48	3							900
100	171	162	280	294	67	14	1						989
110	172	196	309	308	83	20	1						1089
120	220	208	445	452	167	40	2						1534
130	299	439	848	724	179	47	7	1					2544
140	397	559	823	519	105	26	2						2431
150	534	823	1046	637	122	26	1						3189
160	742	858	1236	834	162	42							3874
170	661	710	1044	733	168	49	4	1					3370
180	667	722	993	822	213	42	1						3460
190	544	779	976	706	129	34	4						3172
200	471	702	851	588	82	17	2	2					2715
210	520	833	924	567	96	17	2						2959
220	540	842	1142	908	160	28	3						3623
230	567	898	1502	1221	245	67	6	1					4509
240	425	571	938	724	136	28	2						2824
250	440	606	935	745	162	60	6						2954
260	513	725	1201	1128	225	71	12	4					3879
270	509	660	1162	1154	230	76	17	1					3809
280	469	512	894	855	154	43	7						2934
290	499	618	995	697	155	23	5						2992
300	424	463	646	422	72	17	6						2050
310	370	503	540	269	35	5	1						1723
320	351	395	480	235	24	4	1						1490
330	273	304	393	188	24	2							1184
340	261	271	265	120	22	3							942
350	314	269	292	117	23								1015
360	309	246	280	80	9	1							925
CALM	8695												8695
TOTAL	8695	14497	17638	24693	17699	3493	828	95	10				87648

BIRR PERCENTAGE FREQUENCIES OF SIMULTANEOUS OCCURRENCES OF SPECIFIED RANGES OF WIND SPEED AND DIRECTION 1961-1970

DIRECTION IN DEGREES	WIND SPEED IN KNOTS											TOTAL		
	Calm	1-3	4-7	7-10	11-16	17-21	22-27	28-33	34-40	41-47	48-55		56-63	OVER 63
010		0.5	0.4	0.4	0.2	0+								1.5
020		0.5	0.5	0.5	0.2	0+								1.8
030		0.5	0.5	0.6	0.2	0+								1.9
040		0.3	0.4	0.4	0.2	0+	0+							1.3
050		0.3	0.4	0.4	0.2	0+	0+							1.4
060		0.4	0.3	0.4	0.2	0+	0+							1.4
070		0.3	0.2	0.3	0.2	0+	0+							1.1
080		0.2	0.2	0.3	0.2	0+	0+							0.9
090		0.2	0.2	0.3	0.3	0.1	0+							1.0
100		0.2	0.2	0.3	0.3	0.1	0+	0+						1.1
110		0.2	0.2	0.4	0.4	0.1	0+	0+						1.2
120		0.3	0.2	0.5	0.5	0.2	0+	0+						1.8
130		0.3	0.5	1.0	0.8	0.2	0.1	0+	0+					2.9
140		0.5	0.6	0.9	0.6	0.1	0+	0+						2.8
150		0.6	0.9	1.2	0.7	0.1	0+	0+						3.6
160		0.6	1.0	1.4	1.0	0.2	0+							4.4
170		0.8	0.8	1.2	0.8	0.2	0.1	0+	0+					3.8
180		0.8	0.8	1.1	0.9	0.2	0+	0+						3.9
190		0.6	0.9	1.1	0.8	0.1	0+	0+						3.6
200		0.5	0.8	1.0	0.7	0.1	0+	0+	0+					3.1
210		0.6	1.0	1.1	0.6	0.1	0+	0+						3.4
220		0.6	1.0	1.3	1.0	0.2	0+	0+						4.1
230		0.6	1.0	1.7	1.4	0.3	0.1	0+	0+					5.1
240		0.5	0.7	1.1	0.8	0.2	0+	0+						3.2
250		0.5	0.7	1.1	0.8	0.2	0.1	0+						3.4
260		0.6	0.8	1.4	1.3	0.3	0.1	0+	0+					4.4
270		0.6	0.8	1.3	1.3	0.3	0.1	0+	0+					4.3
280		0.5	0.6	1.0	1.0	0.2	0+	0+						3.3
290		0.6	0.7	1.1	0.8	0.2	0+	0+						3.4
300		0.5	0.5	0.7	0.5	0.1	0+	0+						2.3
310		0.4	0.6	0.6	0.3	0+	0+	0+						2.0
320		0.4	0.5	0.5	0.3	0+	0+	0+						1.7
330		0.3	0.3	0.4	0.2	0+	0+							1.4
340		0.3	0.3	0.3	0.1	0+	0+							1.1
350		0.4	0.3	0.3	0.1	0+								1.2
360		0.4	0.3	0.3	0.1	0+	0+							1.1
CALM	9.9													9.9
TOTAL	9.9	16.5	20.1	28.2	20.2	4.0	0.9	0.1	0+					

THE ENTRY '0+' INDICATES THAT THE % IS GREATER THAN ZERO BUT LESS THAN 0.05.



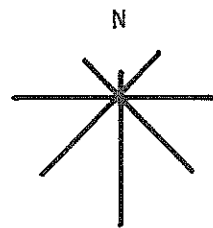
	Frequency (%) of Windforce												
	0	1	2	3	4	5	6	7	8	9	10	11	12
JAN.	10.4	9.8	16.3	23.5	26.9	8.2	3.6	0.9	0.3	0.1	0.0	0.0	0.0
FEB.	6.9	9.7	16.8	24.0	27.1	10.6	4.2	0.6	0.1	0.0	0.0	0.0	0.0
MAR.	5.8	9.1	15.9	25.4	28.7	9.8	4.4	0.8	0.1	*	0.0	0.0	0.0
APR.	6.1	9.7	17.1	26.0	29.0	9.0	2.8	0.3	0.0	0.0	0.0	0.0	0.0
MAY	6.8	11.7	17.3	28.1	26.8	7.2	1.9	0.2	0.0	0.0	0.0	0.0	0.0
JUNE	8.3	13.2	19.9	27.8	24.4	5.3	1.0	0.1	*	0.0	0.0	0.0	0.0
JULY	8.8	12.4	20.0	30.1	24.4	3.8	0.5	*	0.0	0.0	0.0	0.0	0.0
AUG.	10.3	13.6	19.3	26.9	23.6	5.1	1.2	*	0.0	0.0	0.0	0.0	0.0
SEPT.	10.3	13.5	18.3	25.3	25.2	5.4	1.7	0.2	0.1	0.0	*	*	0.0
OCT.	8.1	10.8	16.8	28.1	25.7	7.2	2.9	0.4	*	0.0	0.0	0.0	0.0
NOV.	10.5	10.5	19.0	27.0	22.8	6.9	2.8	0.4	0.1	0.0	0.0	0.0	0.0
DEC.	8.2	11.8	18.7	24.8	23.9	8.6	3.3	0.6	0.1	*	*	0.0	0.0
YEAR	8.4	11.3	17.9	26.5	25.7	7.2	2.5	0.4	0.1	*	*	*	0.0

* Percentage greater than zero but less than 0.05.

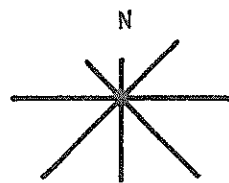
MONTHLY FREQUENCY OF WIND DIRECTIONS (%)

CLAREMORRIS

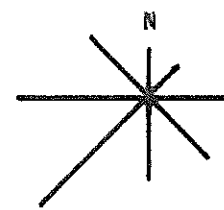
1961-1970



Calm 10.4%



Calm 6.9%

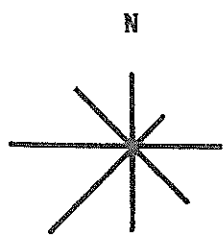


Calm 5.8%

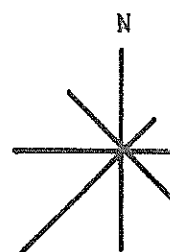
JANUARY

FEBRUARY

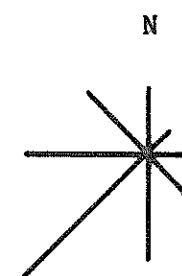
MARCH



Calm 6.1%



Calm 6.8%

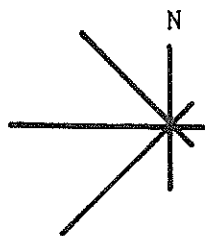


Calm 8.3%

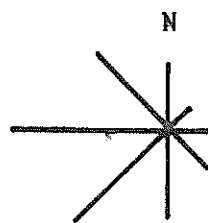
APRIL

MAY

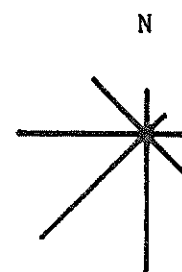
JUNE



Calm 8.8%



Calm 10.3%

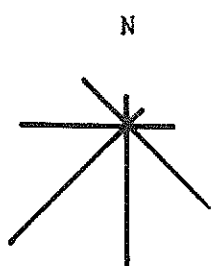


Calm 10.3%

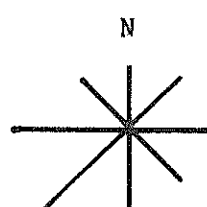
JULY

AUGUST

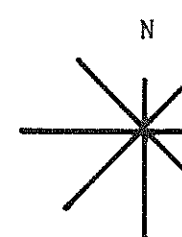
SEPTEMBER



Calm 8.1%



Calm 10.4%

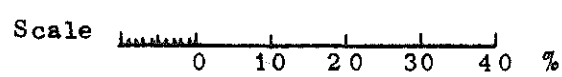


Calm 8.2%

OCTOBER

NOVEMBER

DECEMBER



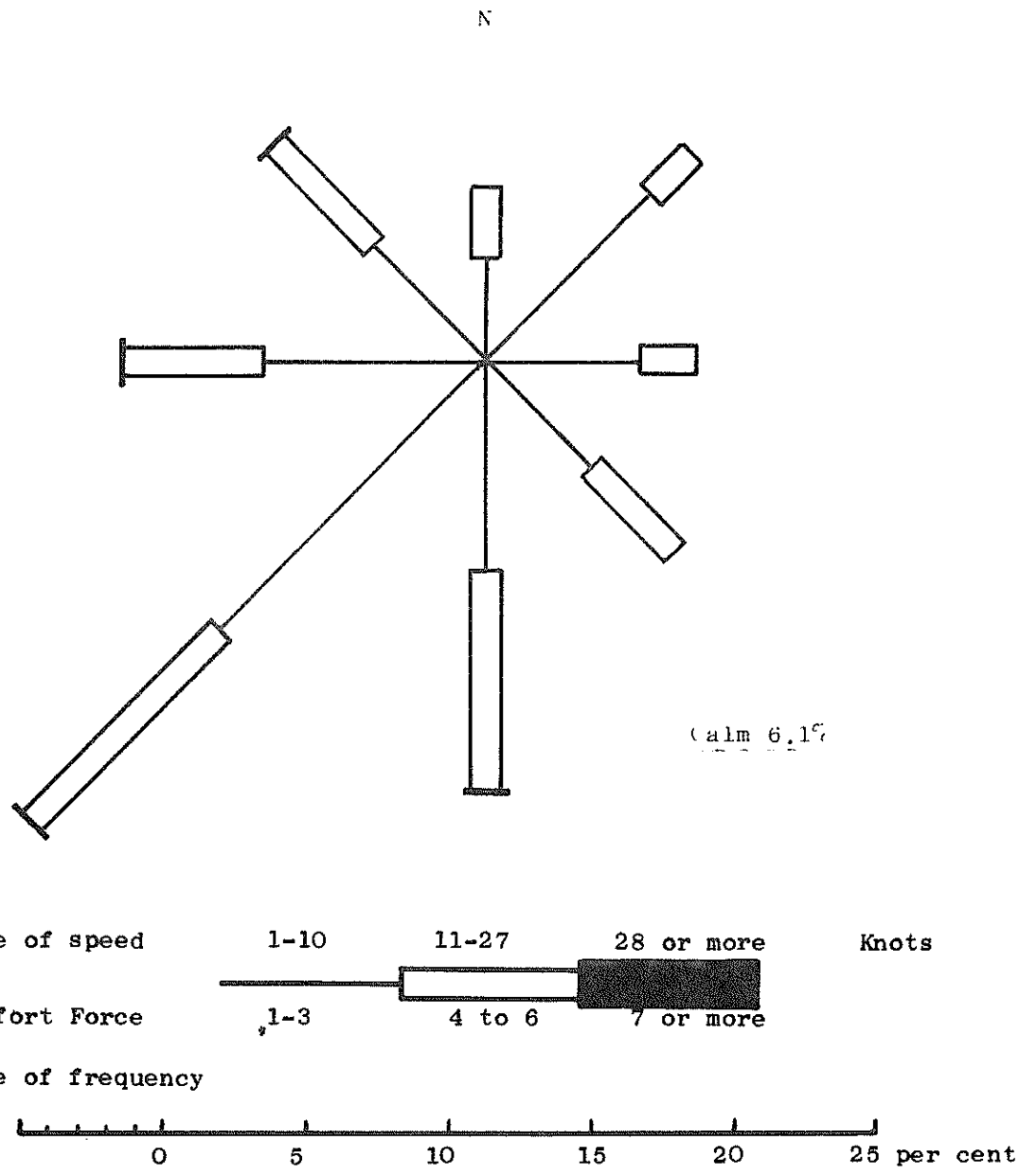
CLAREMORRIS		NUMBER OF SIMULTANEOUS OCCURRENCES OF SPECIFIED RANGES OF WIND SPEED AND DIRECTION 1961-1970												TOTAL	
DIRECTION		WIND SPEED IN KNOTS													
IN DEGREES	CALM	1-3	4-6	7-10	11-16	17-21	22-27	28-33	34-40	41-47	48-55	56-63	OVER 63		
010		194	393	523	268	41	5								1424
020		171	303	409	226	43	12	3							1167
030		165	253	399	192	33	18	2							1062
040		159	230	287	190	40	11	1							918
050		166	272	310	244	68	26	1							1087
060		178	335	462	344	94	28	2							1443
070		254	399	502	332	85	36	4							1612
080		242	359	383	378	109	49	4							1524
090		236	329	507	481	172	63	1							1789
100		194	317	456	496	184	76	4							1727
110		224	368	502	489	173	60	6							1822
120		230	309	578	497	162	47	3							1826
130		291	412	680	633	117	17	1							2151
140		269	383	664	569	141	22	1							2049
150		276	363	656	503	129	21								1948
160		318	495	678	655	114	29	2	1						2292
170		334	513	816	915	226	87	7							2899
180		315	561	720	697	191	56	5					1		2545
190		384	599	729	632	104	27	5							2480
200		307	608	855	718	184	73	8	2						2755
210		349	678	1328	1438	429	137	19	3						4383
220		277	501	1139	1635	616	232	39	3	1					4444
230		283	458	920	1220	423	121	16	3					1	3444
240		226	403	654	730	185	58	12	8						2276
250		274	467	697	704	175	80	15							2412
260		292	510	778	933	280	131	18	4						2946
270		337	570	968	1182	446	168	53	9	2				1	3736
280		311	483	921	1309	401	167	35	9	4					3640
290		388	529	884	1015	287	113	24	9	1					3250
300		411	594	541	573	145	69	13	3						2349
310		440	662	511	337	86	38	4	1						2079
320		415	557	525	383	100	32	6							2018
330		305	409	547	461	125	27	8	2						1884
340		241	344	547	454	88	23	2							1699
350		230	397	587	381	84	21	4							1704
360		249	366	515	322	59	14								1525
CALM	7339														7339
TOTAL	7339	9935	15729	23178	22536	6339	2194	328	57	9	3	1			87648

CLAREMORRIS

PERCENTAGE FREQUENCIES OF SIMULTANEOUS OCCURRENCES OF SPECIFIED RANGES OF WIND SPEED AND DIRECTION 1961-1970

DIRECTION IN DEGREES	WIND SPEED IN KNOTS												TOTAL	
	Calm	1-3	4-7	7-10	11-16	17-21	22-27	28-33	34-40	41-47	48-55	56-63		OVER 63
010		0.2	0.4	0.6	0.3	0+	0+							1.6
020		0.2	0.3	0.5	0.3	0+	0+	0+						1.3
030		0.2	0.3	0.5	0.2	0+	0+	0+						1.2
040		0.2	0.3	0.3	0.2	0+	0+	0+						1.0
050		0.2	0.3	0.4	0.3	0.1	0+	0+						1.2
060		0.2	0.4	0.5	0.4	0.1	0+	0+						1.6
070		0.3	0.5	0.6	0.4	0.1	0+	0+						1.8
080		0.3	0.4	0.4	0.4	0.1	0.1	0+						1.7
090		0.3	0.4	0.6	0.5	0.2	0.1	0+						2.0
100		0.2	0.4	0.5	0.6	0.2	0.1	0+						2.0
110		0.3	0.4	0.6	0.6	0.2	0.1	0+						2.1
120		0.3	0.4	0.7	0.6	0.2	0.1	0+						2.1
130		0.3	0.5	0.8	0.7	0.1	0+	0+						2.5
140		0.3	0.4	0.8	0.6	0.2	0+	0+						2.3
150		0.3	0.4	0.7	0.6	0.1	0+							2.2
160		0.4	0.6	0.8	0.7	0.1	0+	0+	0+					2.6
170		0.4	0.6	0.9	1.0	0.3	0.1	0+			0+			3.3
180		0.4	0.6	0.8	0.8	0.2	0.1	0+						2.9
190		0.4	0.7	0.8	0.7	0.1	0+	0+						2.8
200		0.4	0.7	1.0	0.8	0.2	0.1	0+	0+					3.1
210		0.4	0.8	1.5	1.6	0.5	0.2	0+	0+	0+	0+			5.0
220		0.3	0.6	1.3	1.9	0.7	0.3	0+	0+	0+		0+		5.1
230		0.3	0.5	1.0	1.4	0.5	0.1	0+	0+					3.9
240		0.3	0.5	0.7	0.8	0.2	0.1	0+	0+					2.6
250		0.3	0.5	0.8	0.8	0.2	0.1	0+						2.8
260		0.3	0.6	0.9	1.1	0.3	0.1	0+	0+					3.4
270		0.4	0.7	1.1	1.3	0.5	0.2	0.1	0+	0+	0+			4.3
280		0.4	0.6	1.1	1.5	0.5	0.2	0+	0+	0+	0+			4.2
290		0.4	0.6	1.0	1.2	0.3	0.1	0+	0+	0+				3.7
300		0.5	0.7	0.6	0.7	0.2	0.1	0+	0+					2.7
310		0.5	0.8	0.6	0.4	0.1	0+	0+	0+					2.4
320		0.5	0.6	0.6	0.4	0.1	0+	0+						2.3
330		0.3	0.5	0.6	0.5	0.1	0+	0+	0+					2.1
340		0.3	0.4	0.6	0.5	0.1	0+	0+						1.9
350		0.3	0.5	0.7	0.4	0.1	0+	0+						1.9
360		0.3	0.4	0.6	0.4	0.1	0+							1.7
CALM	8.4													8.4
TOTAL	8.4	11.3	17.9	26.4	25.7	7.2	2.5	0.4	0.1	0+	0+	0+		8.4

THE ENTRY '0+' INDICATES THAT THE % IS GREATER THAN ZERO BUT LESS THAN 0.05.

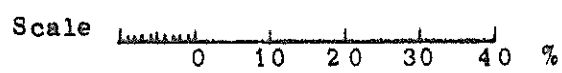
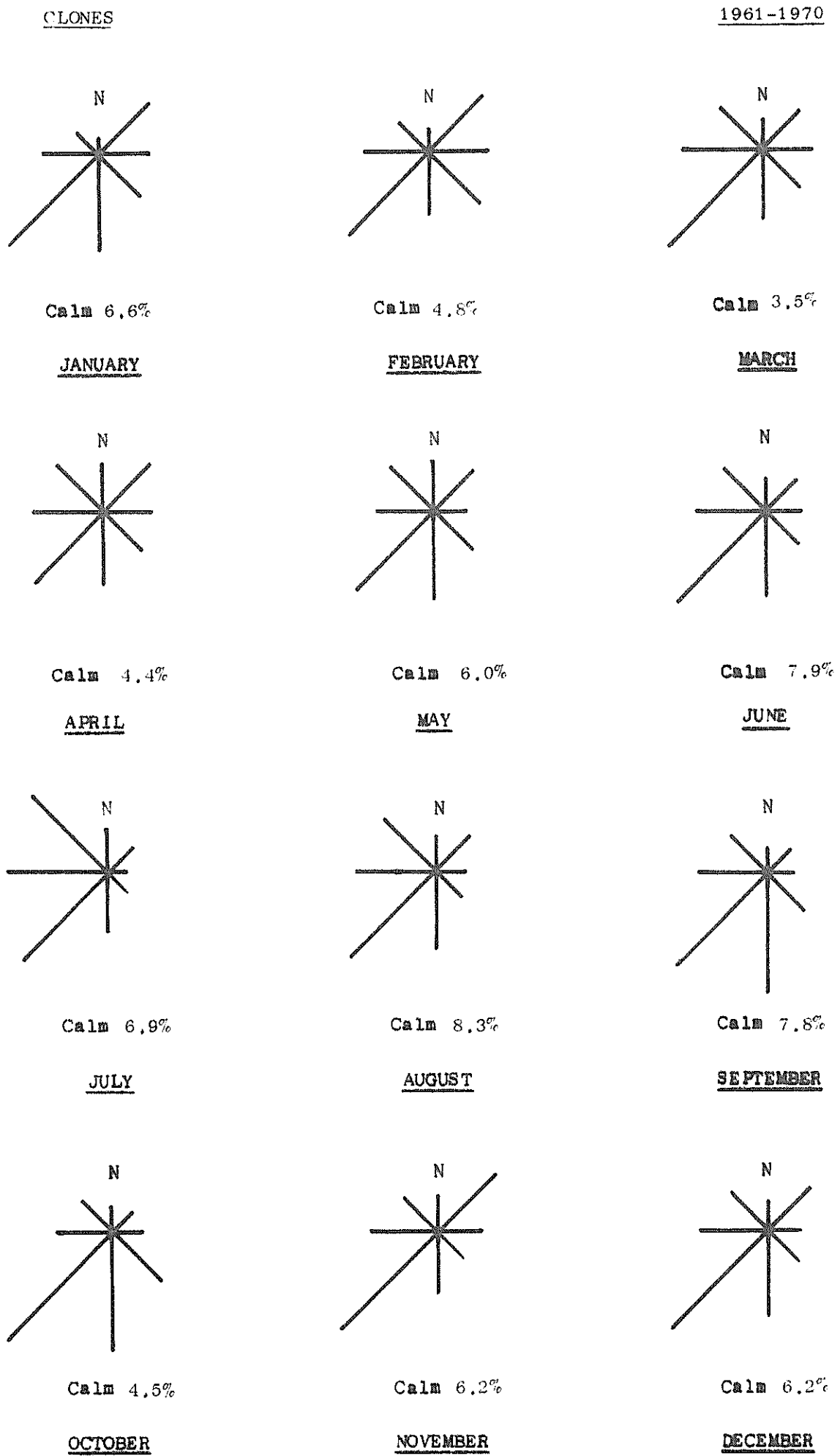


Frequency (%) of Windforce

	0	1	2	3	4	5	6	7	8	9	10	11	12
JAN.	6.6	9.1	16.9	25.1	27.9	9.6	3.7	0.8	0.2	0.1	0.0	0.0	0.0
FEB.	4.8	7.5	16.1	26.5	28.7	11.1	4.2	1.0	0.1	*	0.0	0.0	0.0
MAR.	3.5	6.3	15.4	27.0	30.1	11.6	5.3	0.8	*	*	0.0	0.0	0.0
APR.	4.5	7.8	16.1	28.5	31.0	8.9	2.9	0.3	*	*	0.0	0.0	0.0
MAY.	6.0	10.3	17.8	29.3	26.8	7.2	2.3	0.3	0.0	0.0	0.0	0.0	0.0
JUNE	7.9	12.7	19.3	28.5	25.6	4.7	1.2	0.1	*	0.0	0.0	0.0	0.0
JULY	6.9	11.7	20.6	31.4	24.3	4.4	0.7	*	0.0	0.0	0.0	0.0	0.0
AUG.	8.3	13.5	19.2	29.5	22.6	5.5	1.3	0.1	*	0.0	0.0	0.0	0.0
SEPT.	7.8	13.2	20.6	25.9	24.2	6.4	1.6	0.2	0.1	*	*	0.0	0.0
OCT.	4.5	8.9	19.0	30.5	26.5	7.0	3.0	0.5	0.1	0.0	0.0	0.0	0.0
NOV.	6.2	10.1	19.0	28.2	25.1	7.5	3.3	0.5	0.1	0.0	0.0	0.0	0.0
DEC.	6.2	9.4	17.1	27.0	27.4	8.8	3.3	0.5	0.3	*	0.0	0.0	0.0
YEAR	6.1	10.1	18.1	28.1	26.7	7.7	2.7	0.4	0.1	*	*	0.0	0.0

* Percentage greater than zero but less than 0.05.

MONTHLY FREQUENCY OF WIND DIRECTIONS (%)



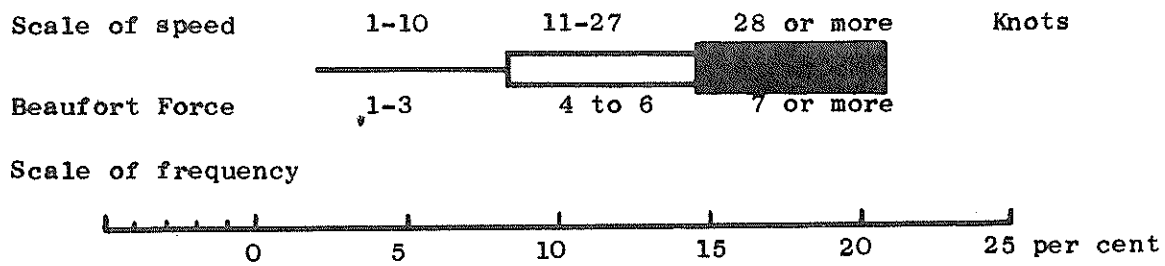
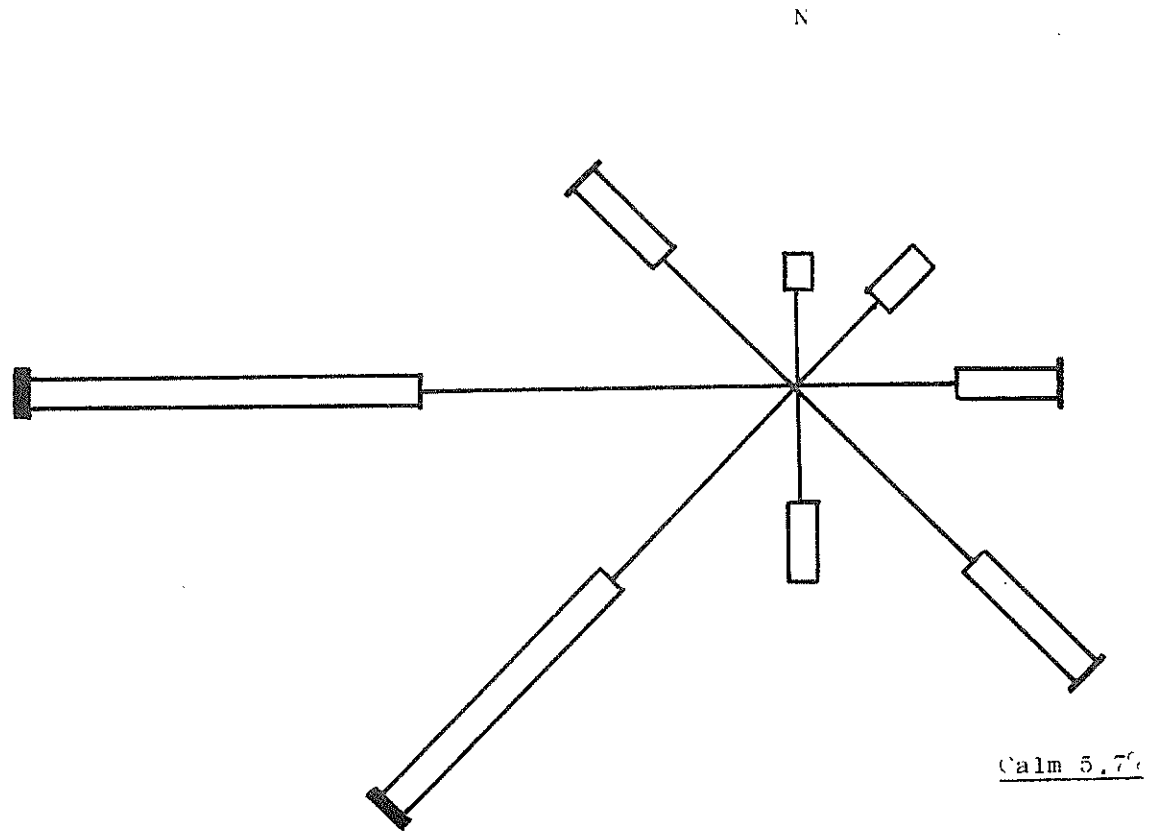
CLONES DIRECTION IN DEGREES	NUMBER OF SIMULTANEOUS OCCURRENCES OF SPECIFIED RANGES OF WIND SPEED AND DIRECTION 1961-1970												TOTAL			
	CALM	WIND SPEED IN KNOTS														
		1-3	4-6	7-10	11-16	17-21	22-27	28-33	34-40	41-47	48-55	56-63		OVER 63		
010		146	235	316	216	43	11									967
020		139	209	298	207	46	6									905
030		203	336	514	283	46	15									1397
040		306	548	725	411	65	16									2072
050		403	813	894	326	51	10									2497
060		378	731	746	387	57	3									2302
070		357	551	559	351	59	4									1882
080		308	430	394	296	72	6									1506
090		247	331	331	240	65	9									1223
100		248	338	371	302	76	14									1349
110		175	307	365	259	55	8									1170
120		202	344	540	476	120	26									1711
130		200	367	683	752	232	77									2316
140		128	312	587	683	212	84									2018
150		131	216	421	397	102	43									1311
160		157	255	562	755	231	97									2067
170		173	263	681	860	346	125									2469
180		208	336	674	1070	372	174									2867
190		272	440	849	1074	386	111									3153
200		431	782	1190	1237	415	134									4217
210		483	970	1476	1240	373	142									4708
220		443	863	1465	1553	521	212									5094
230		436	894	1590	1636	457	145									5184
240		353	632	986	994	225	68									3270
250		303	517	698	672	147	52									2395
260		299	529	614	574	149	54									2228
270		321	550	685	635	176	61									2445
280		236	492	764	790	257	84									2643
290		197	466	837	848	263	91									2734
300		205	445	868	914	290	125									2890
310		121	275	626	560	182	90									1870
320		109	252	623	573	181	102									1862
330		131	242	533	545	134	34									1641
340		111	195	411	456	143	68									1395
350		126	204	416	424	119	45									1346
360		124	183	357	391	91	34									1188
CALM	5356															5356
TOTAL	5356	8810	15853	24649	23387	6759	2380	378	62	13	1					87648

CLONES

PERCENTAGE FREQUENCIES OF SIMULTANEOUS OCCURRENCES OF SPECIFIED RANGES OF WIND SPEED AND DIRECTION 1961-1970

DIRECTION IN DEGREES	WIND SPEED IN KNOTS											TOTAL		
	Calm	1-3	4-7	7-10	11-16	17-21	22-27	28-33	34-40	41-47	48-55		56-63	OVER 63
010		0.2	0.3	0.4	0.2	0+	0+							1.1
020		0.2	0.2	0.3	0.2	0.1	0+							1.0
030		0.2	0.4	0.6	0.3	0.1	0+							1.6
040		0.3	0.6	0.8	0.5	0.1	0+	0+						2.4
050		0.5	0.9	1.0	0.4	0.1	0+							2.8
060		0.4	0.8	0.9	0.4	0.1	0+							2.6
070		0.4	0.6	0.6	0.4	0.1	0+	0+						2.1
080		0.4	0.5	0.4	0.3	0.1	0+							1.7
090		0.3	0.4	0.4	0.3	0.1	0+							1.4
100		0.3	0.4	0.4	0.3	0.1	0+							1.5
110		0.2	0.4	0.4	0.3	0.1	0+	0+						1.3
120		0.2	0.4	0.6	0.5	0.1	0+	0+						2.0
130		0.2	0.4	0.8	0.9	0.3	0.1	0+						2.6
140		0.1	0.4	0.7	0.8	0.2	0.1	0+						2.3
150		0.1	0.2	0.5	0.5	0.1	0+	0+						1.5
160		0.2	0.3	0.6	0.9	0.3	0.1	0+	0+					2.4
170		0.2	0.3	0.8	1.0	0.4	0.1	0+		0+				2.8
180		0.2	0.4	0.8	1.2	0.4	0.2	0+	0+	0+				3.3
190		0.3	0.5	1.0	1.2	0.4	0.1	0+	0+		0+			3.6
200		0.5	0.9	1.4	1.4	0.5	0.2	0+	0+	0+				4.8
210		0.6	1.1	1.7	1.4	0.4	0.2	0+	0+					5.4
220		0.5	1.0	1.7	1.8	0.6	0.2	0+	0+	0+				5.8
230		0.5	1.0	1.8	1.9	0.5	0.2	0+	0+	0+				5.9
240		0.4	0.7	1.1	1.1	0.3	0.1	0+	0+					3.7
250		0.3	0.6	0.8	0.8	0.2	0.1	0+	0+					2.7
260		0.3	0.6	0.7	0.7	0.2	0.1	0+	0+					2.5
270		0.4	0.6	0.8	0.7	0.2	0.1	0+	0+					2.8
280		0.3	0.6	0.9	0.9	0.3	0.1	0+	0+	0+				3.0
290		0.2	0.5	1.0	1.0	0.3	0.1	0+	0+	0+				3.1
300		0.2	0.5	1.0	1.0	0.3	0.1	0+	0+	0+				3.3
310		0.1	0.3	0.7	0.6	0.2	0.1	0+	0+					2.1
320		0.1	0.3	0.7	0.7	0.2	0.1	0+	0+	0+				2.1
330		0.1	0.3	0.6	0.6	0.2	0+	0+	0+	0+				1.9
340		0.1	0.2	0.5	0.5	0.2	0.1	0+	0+					1.6
350		0.1	0.2	0.5	0.5	0.1	0.1	0+	0+					1.5
360		0.1	0.2	0.4	0.4	0.1	0+	0+						1.4
CALM	6.1													6.1
TOTAL	6.1	10.1	18.1	28.1	26.7	7.7	2.7	0.4	0.1	0+	0+			6.1

THE ENTRY '0+' INDICATES THAT THE % IS GREATER THAN ZERO BUT LESS THAN 0.05.



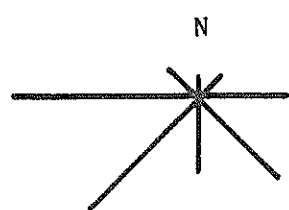
		Frequency (%) of Windforce												
		0	1	2	3	4	5	6	7	8	9	10	11	12
JAN.	4.5	8.2	12.1	23.6	28.9	13.7	7.1	1.5	0.4	*	0.0	0.0	0.0	0.0
FEB.	2.6	6.8	12.1	23.0	31.7	14.4	7.0	1.8	0.5	0.1	0.0	0.0	0.0	0.0
MAR.	2.7	5.6	12.3	25.9	30.2	13.8	7.7	1.6	0.2	*	0.0	0.0	0.0	0.0
APR.	4.9	7.4	13.7	24.9	31.0	11.8	5.5	0.7	0.1	0.0	0.0	0.0	0.0	0.0
MAY.	6.9	11.2	16.5	26.8	26.6	8.6	2.8	0.6	*	0.0	0.0	0.0	0.0	0.0
JUNE	10.4	11.9	19.1	26.8	24.3	5.6	1.5	0.4	*	0.0	0.0	0.0	0.0	0.0
JULY	8.1	12.0	20.1	30.8	23.5	4.4	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AUG.	7.8	12.1	18.8	28.9	24.1	6.4	1.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0
SEPT.	8.1	13.7	19.4	25.3	23.8	7.1	2.3	0.3	*	0.0	0.0	0.0	0.0	0.0
OCT.	6.4	10.7	16.3	28.2	23.9	9.9	4.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0
NOV.	3.6	8.5	15.0	25.6	29.4	11.0	5.3	1.4	0.2	0.0	0.0	0.0	0.0	0.0
DEC.	2.6	6.6	12.4	26.0	31.0	12.9	6.1	1.8	0.5	0.1	0.0	0.0	0.0	0.0
YEAR	5.7	9.6	15.7	26.4	27.3	9.9	4.3	0.9	0.2	*	0.0	0.0	0.0	0.0

* Percentage greater than zero but less than 0.05.

MONTHLY FREQUENCY OF WIND DIRECTIONS (%)

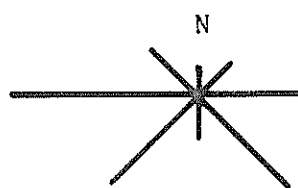
DUBLIN AIRPORT

1961-1970



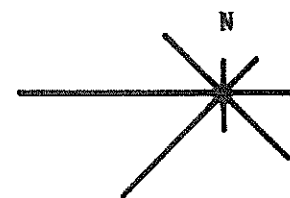
Calm 4.5%

JANUARY



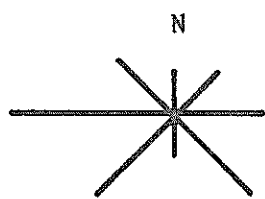
Calm 2.6%

FEBRUARY



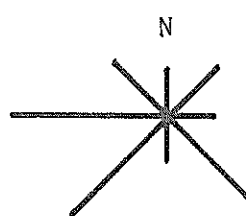
Calm 2.7%

MARCH



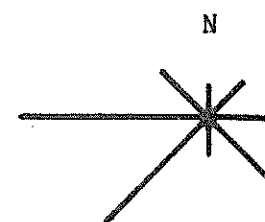
Calm 4.9%

APRIL



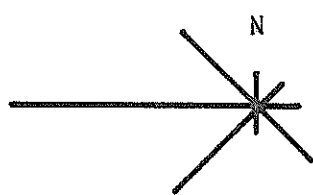
Calm 6.9%

MAY



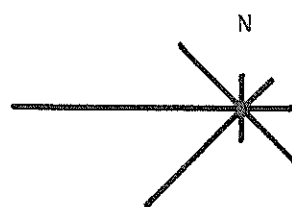
Calm 10.3%

JUNE



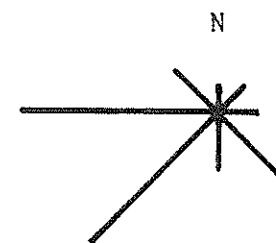
Calm 8.1%

JULY



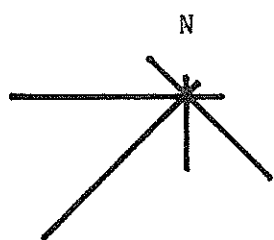
Calm 7.8%

AUGUST



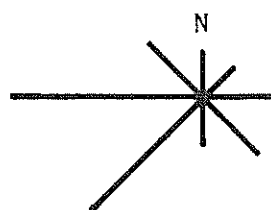
Calm 8.1%

SEPTEMBER



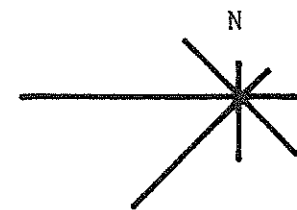
Calm 6.4%

OCTOBER



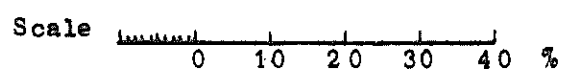
Calm 3.6%

NOVEMBER

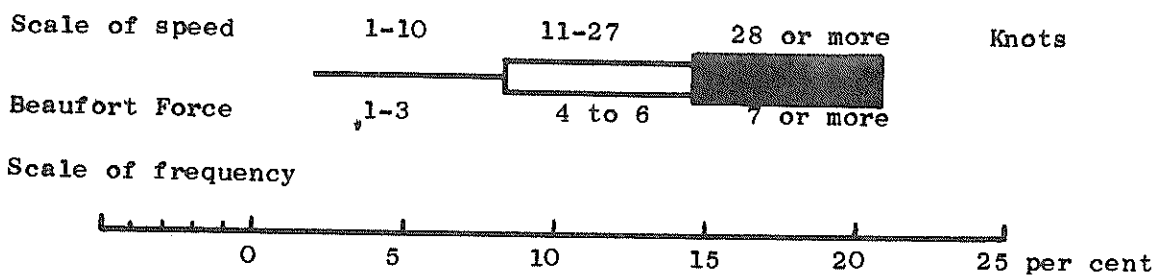
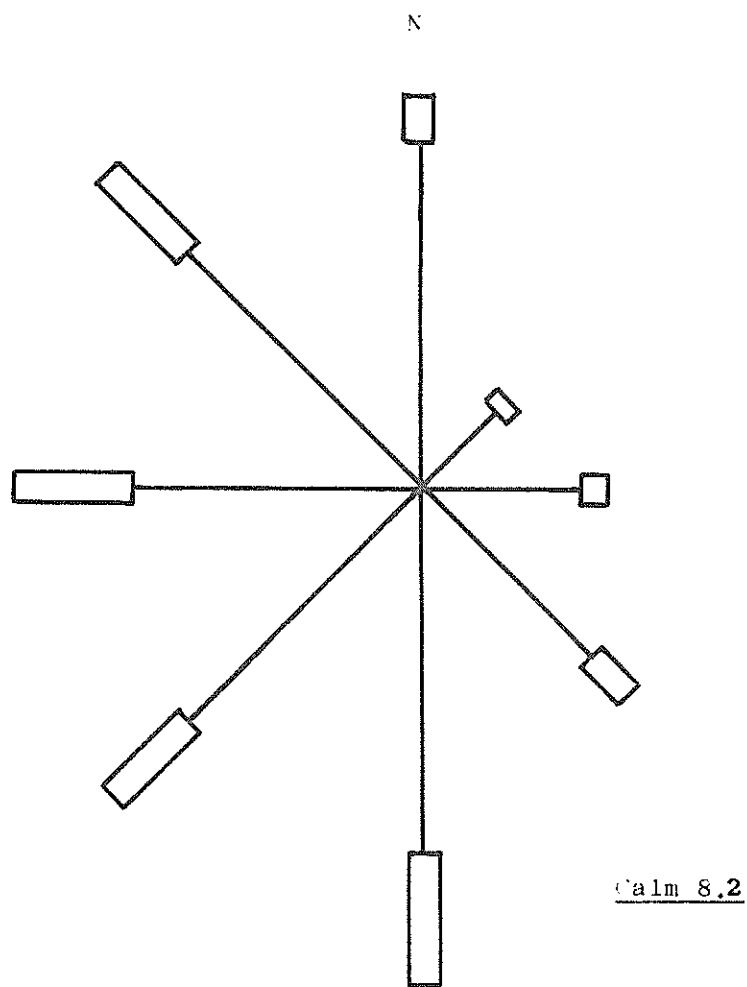


Calm 2.6%

DECEMBER



DUBLIN AIRPORT		NUMBER OF SIMULTANEOUS OCCURRENCES OF SPECIFIED RANGES OF WIND SPEED AND DIRECTION 1961-1970											TOTAL	
DIRECTION		WIND SPEED IN KNOTS												
IN DEGREES	CALM	1-3	4-6	7-10	11-16	17-21	22-27	28-33	34-40	41-47	48-55	56-63		OVER 63
010		155	204	231	164	36	20	3						813
020		193	221	249	222	78	24	4						991
030		162	222	352	272	88	26	1						1123
040		136	215	325	275	98	38							1087
050		140	213	370	303	96	27	1						1150
060		154	288	363	302	86	28	4						1225
070		209	294	431	359	136	68	26	2					1525
080		289	353	460	485	158	103	34						1882
090		239	361	504	549	223	117	33						2026
100		305	361	437	363	178	66	14	1					1725
110		245	292	343	252	66	26	4						1228
120		366	382	544	373	143	55	18	2					1883
130		387	521	907	734	218	120	29	2					2918
140		344	580	957	990	264	128	19	6	1				3289
150		314	553	821	835	241	84	17						2865
160		221	318	455	512	156	49	7						1718
170		190	209	254	279	105	35	4						1076
180		166	183	204	190	67	25	1						836
190		148	200	240	260	94	22	6						970
200		218	325	501	594	212	65	15	1					1931
210		172	363	698	775	254	72	11	1					2346
220		231	396	775	1007	490	194	37	6					3136
230		287	522	1183	1602	688	402	64	9	2				4759
240		261	602	1231	1737	698	284	60	17	4				4894
250		295	796	1597	1914	795	396	83	22	2				5900
260		290	755	1623	2038	852	399	106	26	2				6091
270		328	720	1509	1806	716	308	54	24	2				5467
280		360	696	1277	1216	503	211	49	9					4321
290		267	556	1051	937	304	149	31	6					3301
300		260	475	919	766	204	76	18	12					2730
310		172	346	588	493	121	36	9	2					1767
320		221	336	538	439	112	48	9						1703
330		205	288	435	371	83	35	4						1421
340		143	193	288	238	65	32	4	1					964
350		114	148	190	161	47	16	1						677
360		192	245	248	151	38	16	1						891
CALM	5019													5019
TOTAL	5019	8379	13732	23098	23964	8713	3800	781	149	13				87648



	Frequency (%) of Windforce												
	0	1	2	3	4	5	6	7	8	9	10	11	12
JAN.	10.4	21.0	19.0	25.3	16.7	5.0	2.0	0.6	*	0.0	0.0	0.0	0.0
FEB.	6.8	18.6	19.8	28.0	19.6	5.4	1.6	0.2	0.0	0.0	0.0	0.0	0.0
MAR.	6.1	18.3	21.2	28.1	19.8	4.8	1.4	0.3	*	0.0	0.0	0.0	0.0
APR.	5.2	18.7	21.0	29.4	20.3	4.6	0.7	0.1	0.0	0.0	0.0	0.0	0.0
MAY	6.4	21.0	22.0	31.2	15.9	3.0	0.5	*	0.0	0.0	0.0	0.0	0.0
JUNE	8.0	26.2	23.7	27.5	12.7	1.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0
JULY	7.1	25.2	27.7	28.9	10.3	0.8	*	0.0	0.0	0.0	0.0	0.0	0.0
AUG.	8.4	25.2	23.0	29.2	12.1	1.8	0.3	*	0.0	0.0	0.0	0.0	0.0
SEPT.	10.8	25.6	22.2	25.3	13.2	2.0	0.8	*	0.1	0.0	0.0	0.0	0.0
OCT.	9.9	24.6	20.7	24.6	15.7	3.7	0.7	*	0.1	0.0	0.0	0.0	0.0
NOV.	9.7	22.8	22.9	24.9	14.2	4.2	1.1	0.2	0.0	0.0	0.0	0.0	0.0
DEC.	10.0	20.8	19.4	25.5	17.7	4.5	1.7	0.3	0.1	0.0	0.0	0.0	0.0
YEAR	8.2	22.4	21.9	27.3	15.7	3.4	0.9	0.2	*	0.0	0.0	0.0	0.0

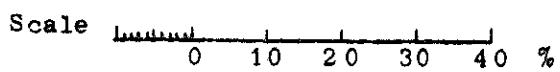
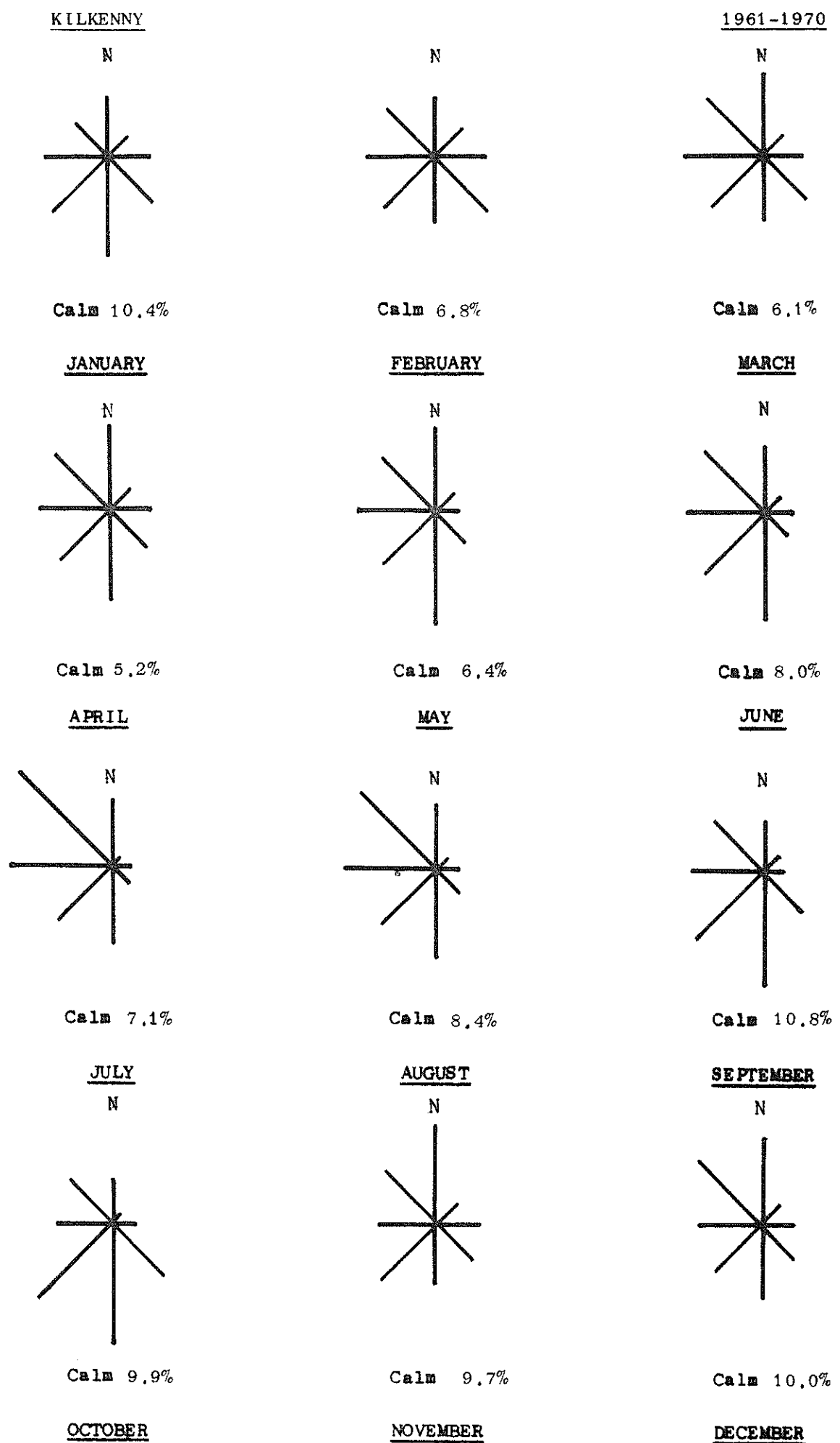
* Percentage greater than zero but less than 0.05.

DUBLIN AIRPORT PERCENTAGE FREQUENCIES OF SIMULTANEOUS OCCURRENCES OF SPECIFIED RANGES OF WIND SPEED AND DIRECTION 1961-1970

DIRECTION IN DEGREES	WIND SPEED IN KNOTS												TOTAL	
	Calm	1-3	4-7	7-10	11-16	17-21	22-27	28-33	34-40	41-47	48-55	56-63		OVER 63
010		0.2	0.2	0.3	0.2	0+	0+	0+						0.9
020		0.2	0.3	0.3	0.3	0.1	0+	0+						1.1
030		0.2	0.3	0.4	0.3	0.1	0+	0+						1.3
040		0.2	0.2	0.4	0.3	0.1	0+							1.2
050		0.2	0.2	0.4	0.3	0.1	0+	0+						1.3
060		0.2	0.3	0.4	0.3	0.1	0+	0+						1.4
070		0.2	0.3	0.5	0.4	0.2	0.1	0+	0+					1.7
080		0.3	0.4	0.5	0.6	0.2	0.1	0+						2.1
090		0.3	0.4	0.6	0.6	0.3	0.1	0+						2.3
100		0.3	0.4	0.5	0.4	0.2	0.1	0+	0+					2.0
110		0.3	0.3	0.4	0.3	0.1	0+	0+						1.4
120		0.4	0.4	0.6	0.4	0.2	0.1	0+	0+					2.1
130		0.4	0.6	1.0	0.8	0.2	0.1	0+	0+					3.3
140		0.4	0.7	1.1	1.1	0.3	0.1	0+	0+	0+				3.8
150		0.4	0.6	0.9	1.0	0.3	0.1	0+						3.3
160		0.3	0.4	0.5	0.6	0.2	0.1	0+						2.0
170		0.2	0.2	0.3	0.3	0.1	0+	0+						1.2
180		0.2	0.2	0.2	0.2	0.1	0+	0+						1.0
190		0.2	0.2	0.3	0.3	0.1	0+	0+						1.1
200		0.2	0.4	0.6	0.7	0.2	0.1	0+	0+					2.2
210		0.2	0.4	0.8	0.9	0.3	0.1	0+	0+					2.7
220		0.3	0.5	0.9	1.1	0.6	0.2	0+	0+					3.6
230		0.3	0.6	1.3	1.8	0.8	0.5	0.1	0+	0+				5.4
240		0.3	0.7	1.4	2.0	0.8	0.3	0.1	0+	0+				5.6
250		0.3	0.9	1.8	2.2	0.9	0.5	0.1	0+	0+				6.7
260		0.3	0.9	1.9	2.3	1.0	0.5	0.1	0+	0+				6.9
270		0.4	0.8	1.7	2.1	0.8	0.4	0.1	0+	0+				6.2
280		0.4	0.8	1.5	1.4	0.6	0.2	0.1	0+					4.9
290		0.3	0.6	1.2	1.1	0.3	0.2	0+	0+					3.8
300		0.3	0.5	1.0	0.9	0.2	0.1	0+	0+					3.1
310		0.2	0.4	0.7	0.6	0.1	0+	0+	0+					2.0
320		0.3	0.4	0.6	0.5	0.1	0.1	0+						1.9
330		0.2	0.3	0.5	0.4	0.1	0+	0+						1.6
340		0.2	0.2	0.3	0.3	0.1	0+	0+	0+					1.1
350		0.1	0.2	0.2	0.2	0.1	0+	0+						0.8
360		0.2	0.3	0.3	0.2	0+	0+	0+						1.0
CALM	5.7													5.7
TOTAL	5.7	9.6	15.7	26.4	27.3	9.9	4.3	0.9	0.2	0+				

THE ENTRY '0+' INDICATES THAT THE % IS GREATER THAN ZERO BUT LESS THAN 0.05.

MONTHLY FREQUENCY OF WIND DIRECTIONS (%)



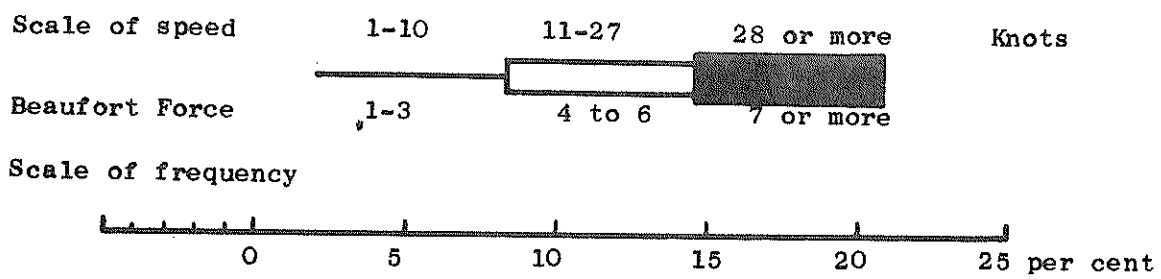
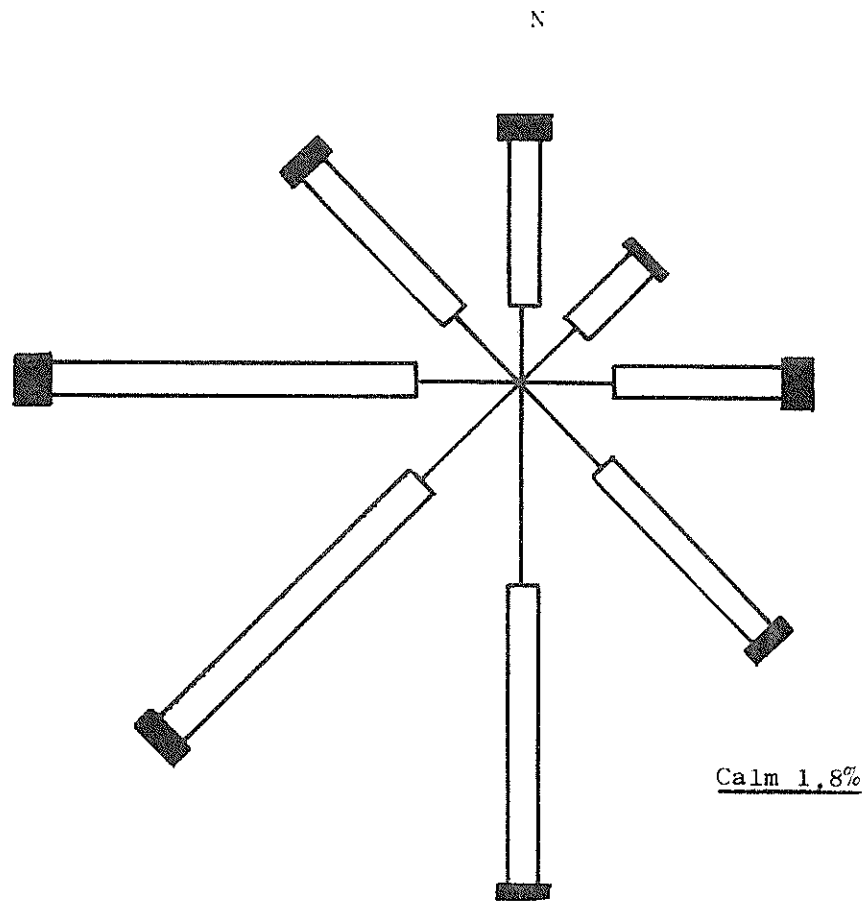
<u>KILKENNY</u>		NUMBER OF SIMULTANEOUS OCCURRENCES OF SPECIFIED RANGES OF WIND SPEED AND DIRECTION <u>1961-1970</u>											TOTAL		
DIRECTION IN DEGREES	WIND SPEED IN KNOTS														
	CALM	1-3	4-6	7-10	11-16	17-21	22-27	28-33	34-40	41-47	48-55	56-63		OVER 63	
010		720	489	521	184	18	3								1935
020		485	274	375	209	27	3								1373
030		300	210	297	180	9	1								997
040		252	125	166	68	7									618
050		254	161	164	66	7									652
060		274	191	205	87	24	5								786
070		329	186	203	97	29	1								845
080		415	240	263	138	18	4								1078
090		362	299	345	164	17	3								1190
100		451	335	390	187	19									1382
110		531	325	323	137	19	1								1336
120		518	358	372	207	30	2								1487
130		543	410	454	234	37	5	4							1687
140		545	447	524	270	37	6								1829
150		624	533	724	355	70	4								2310
160		699	651	783	385	80	22	1							2621
170		767	687	967	619	145	30	4							3219
180		776	705	980	729	199	62	24	3						3480
190		754	639	1031	742	231	81	19	5						3502
200		760	582	785	576	138	57	12	3						2913
210		709	714	884	608	149	41	5	2						3112
220		652	709	894	686	164	55	4	1						3165
230		604	760	805	498	98	28	3							2796
240		486	562	749	359	83	14	2	1						2256
250		453	588	817	447	109	44	4							2462
260		395	561	866	576	134	36	6							2594
270		379	574	915	563	149	74	6	2						2662
280		325	547	1026	646	149	41	13							2747
290		340	616	954	625	134	28	11							2708
300		375	582	908	615	147	37	8							2672
310		365	610	840	487	124	29								2455
320		481	734	1119	599	149	34	2							3118
330		636	644	1060	537	116	26	3	1						3243
340		722	825	761	364	64	14								2750
350		1168	1194	793	256	47	16	1							3475
360		1124	918	668	218	37	4								2969
CALM	7224														7224
TOTAL	7224	19575	19205	23951	13718	3014	811	132	18						87648

KILKENNY
DIRECTION
IN DEGREES

PERCENTAGE FREQUENCIES OF SIMULTANEOUS OCCURRENCES OF SPECIFIED RANGES OF WIND SPEED AND DIRECTION 1961-1970

DIRECTION IN DEGREES	WIND SPEED IN KNOTS											TOTAL		
	CalM	1-3	4-7	7-10	11-16	17-21	22-27	28-33	34-40	41-47	48-55		56-63	OVER 63
010		0.8	0.6	0.6	0.2	0+	0+							2.2
020		0.6	0.3	0.4	0.2	0+	0+							1.6
030		0.3	0.2	0.3	0.2	0+	0+							1.1
040		0.3	0.1	0.2	0.1	0+								0.7
050		0.3	0.2	0.2	0.1	0+								0.7
060		0.3	0.2	0.2	0.1	0+	0+							0.9
070		0.4	0.2	0.2	0.1	0+	0+							1.0
080		0.5	0.3	0.3	0.2	0+	0+							1.2
090		0.4	0.3	0.4	0.2	0+	0+							1.4
100		0.5	0.4	0.4	0.2	0+								1.6
110		0.6	0.4	0.4	0.2	0+	0+							1.5
120		0.6	0.4	0.4	0.2	0+	0+							1.7
130		0.6	0.5	0.5	0.3	0+	0+	0+						1.9
140		0.6	0.5	0.6	0.3	0+	0+							2.1
150		0.7	0.6	0.8	0.4	0.1	0+							2.6
160		0.8	0.7	0.9	0.4	0.1	0+	0+						3.0
170		0.9	0.8	1.1	0.7	0.2	0+	0+						3.7
180		0.9	0.8	1.1	0.8	0.2	0.1	0+	0+					4.0
190		0.9	0.7	1.2	0.8	0.3	0.1	0+	0+					4.0
200		0.9	0.7	0.9	0.7	0.2	0.1	0+	0+					3.3
210		0.8	0.8	1.0	0.7	0.2	0+	0+	0+					3.6
220		0.7	0.8	1.0	0.8	0.2	0.1	0+	0+					3.6
230		0.7	0.9	0.9	0.6	0.1	0+	0+						3.2
240		0.6	0.6	0.9	0.4	0.1	0+	0+	0+					2.6
250		0.5	0.7	0.9	0.5	0.1	0.1	0+						2.6
260		0.5	0.7	1.0	0.7	0.2	0+	0+						3.0
270		0.4	0.7	1.0	0.6	0.2	0.1	0+	0+	0+				3.0
280		0.4	0.6	1.2	0.7	0.2	0+	0+						3.1
290		0.4	0.7	1.1	0.7	0.2	0+	0+						3.1
300		0.4	0.7	1.0	0.7	0.2	0+	0+						3.0
310		0.4	0.7	1.0	0.6	0.1	0+							2.8
320		0.5	0.8	1.3	0.7	0.2	0+	0+						3.6
330		0.7	1.0	1.2	0.6	0.1	0+	0+	0+					3.7
340		0.8	0.9	0.9	0.4	0.1	0+							3.1
350		1.3	1.4	0.9	0.3	0.1	0+	0+						4.0
360		1.3	1.0	0.8	0.2	0+	0+							3.4
CALM	8.2													8.2
TOTAL	8.2	22.3	21.9	27.3	15.7	3.4	0.9	0.2	0+					

THE ENTRY '0+' INDICATES THAT THE % IS GREATER THAN ZERO BUT LESS THAN 0.05.



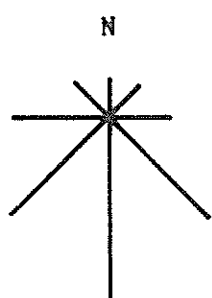
	Frequency (%) of Wind Force												
	0	1	2	3	4	5	6	7	8	9	10	11	12
JAN.	0.7	2.6	9.4	14.6	28.9	18.8	15.5	7.2	1.9	0.3	0.1	*	0.0
FEB.	0.7	2.1	6.9	14.8	29.3	18.1	18.0	7.1	2.8	0.2	0.0	0.0	0.0
MAR.	1.2	3.0	8.2	13.5	28.8	18.7	17.8	6.6	1.9	0.3	*	0.0	0.0
APR.	1.8	3.0	9.0	17.5	33.2	17.3	13.2	4.4	0.6	0.0	0.0	0.0	0.0
MAY	3.1	4.3	13.4	17.3	32.0	16.6	10.5	2.3	0.5	*	0.0	0.0	0.0
JUNE	3.3	4.7	16.1	19.2	33.5	13.9	8.0	1.0	0.2	0.1	*	0.0	0.0
JULY	2.2	3.6	11.2	19.6	37.6	17.3	7.4	1.0	0.1	0.0	0.0	0.0	0.0
AUG.	3.0	5.0	14.1	19.4	32.1	15.4	8.7	1.9	0.4	*	0.0	0.0	0.0
SEPT.	1.5	3.9	12.0	20.4	31.4	16.8	11.0	2.4	0.6	*	*	*	*
OCT.	1.2	2.1	8.1	16.3	31.3	17.7	16.0	5.5	1.6	0.2	*	0.0	0.0
NOV.	1.8	2.5	7.8	14.5	27.8	17.3	17.4	7.0	3.0	0.8	0.1	0.0	0.0
DEC.	0.6	1.7	6.5	13.3	29.5	20.8	18.9	6.1	2.1	0.4	0.1	0.0	0.0
YEAR	1.8	3.2	10.2	16.7	31.3	17.4	13.5	4.4	1.3	0.2	*	*	*

* Percentage greater than zero but less than 0.05.

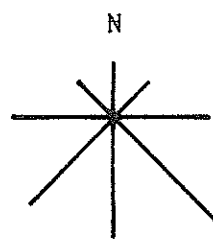
MONTHLY FREQUENCY OF WIND DIRECTIONS (%)

MALIN HEAD

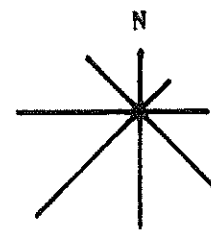
1961-1970



Calm 0.7%



Calm 0.7%

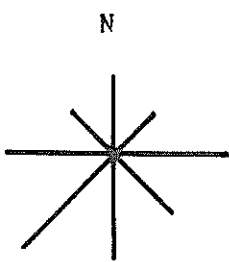


Calm 1.2%

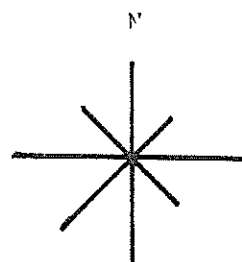
JANUARY

FEBRUARY

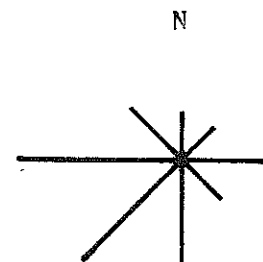
MARCH



Calm 1.8%



Calm 3.1%

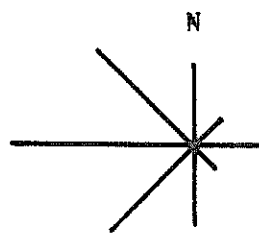


Calm 3.3%

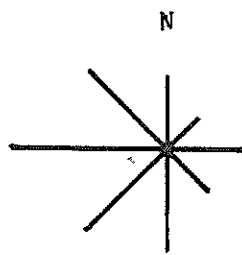
APRIL

MAY

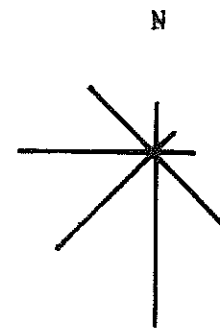
JUNE



Calm 2.2%



Calm 3.0%

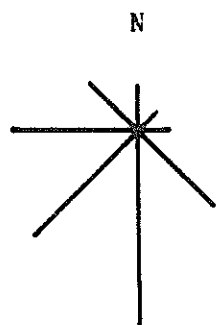


Calm 1.5%

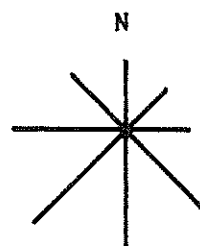
JULY

AUGUST

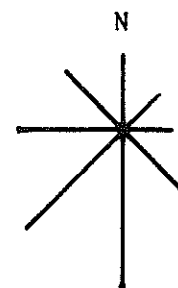
SEPTEMBER



Calm 1.2%



Calm 1.8%

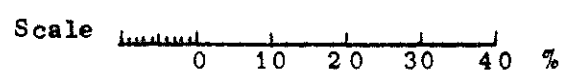


Calm 0.6%

OCTOBER

NOVEMBER

DECEMBER



MALIN HEAD DIRECTION IN DEGREES	NUMBER OF SIMULTANEOUS OCCURRENCES OF SPECIFIED RANGES OF WIND SPEED AND DIRECTION 1961-1970												TOTAL		
	WIND SPEED IN KNOTS														
	CALM	1-3	4-6	7-10	11-16	17-21	22-27	28-33	34-40	41-47	48-55	56-63		OVER 63	
010		61	155	344	559	318	278	83	26	1					1825
020		50	184	264	467	266	183	71	13						1498
030		82	186	254	400	186	135	32	8	1					1284
040		71	167	223	283	124	64	15	4						951
050		68	195	207	277	105	99	25	8	1					980
060		97	254	261	276	148	152	49	25	1					1263
070		87	265	352	417	189	140	93	37	8					1588
080		90	231	310	509	243	212	85	57	13	2				1752
090		84	214	319	623	313	260	162	57	9	1				2042
100		79	177	280	581	354	310	183	75	7					2046
110		69	147	240	538	433	381	167	28	2	1				2006
120		86	197	417	797	511	374	177	50	1	1				2611
130		71	205	450	793	435	230	63	22	3					2212
140		62	233	443	724	336	230	54	12	3					2097
150		73	269	512	763	399	264	74	11	3					2368
160		104	389	636	866	375	250	66	11						2697
170		128	485	643	844	443	344	81	13		1				2982
180		180	548	627	976	598	402	94	23	3					3451
190		191	551	624	1199	678	470	90	29	3			1		3836
200		180	560	556	1135	621	396	104	19	4				2	3599
210		169	474	547	1076	576	382	108	19	5			1		3359
220		102	342	497	1060	567	384	101	27	7	4		1		3092
230		66	249	555	1282	761	526	138	44	5	2		1		3629
240		30	137	464	1135	727	559	150	36	4					3244
250		36	136	376	1041	784	573	149	61	9	2				3167
260		39	148	423	1240	827	645	157	51	8	1				3539
270		30	174	529	1287	725	650	187	53	8					3643
280		34	198	485	1117	614	492	189	41	16	3				3189
290		35	177	476	931	469	459	171	45	6	2		1		2772
300		54	171	353	776	363	326	125	21	4	1				2194
310		34	170	347	661	350	289	106	28	6	1				1992
320		50	224	427	652	368	288	101	40	7					2157
330		57	231	330	535	293	249	82	25	6	2				1810
340		66	206	316	520	218	256	82	36	2	4				1706
350		49	155	276	524	266	292	119	27	6	1				1715
360		49	139	275	572	276	293	93	52	2	1				1752
CALM	1540														1540
TOTAL	1540	2813	8963	14640	27431	15261	11837	3826	1136	164	30	5	2		87648

ALL WINDS CORRECTED TO EFFECTIVE HEIGHT 10M

MALIN HEAD
DIRECTION
IN DEGREES

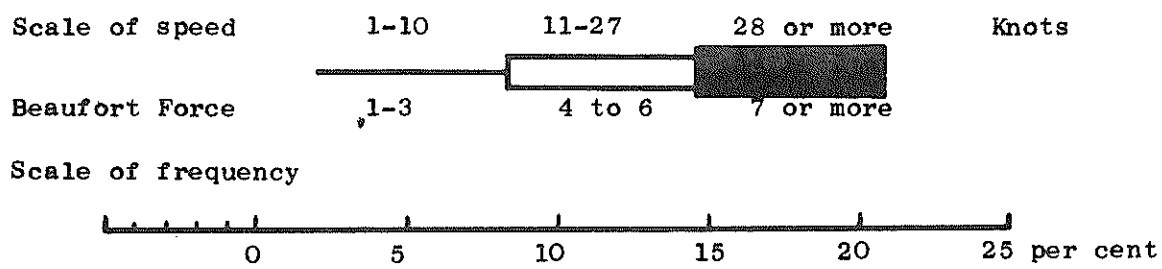
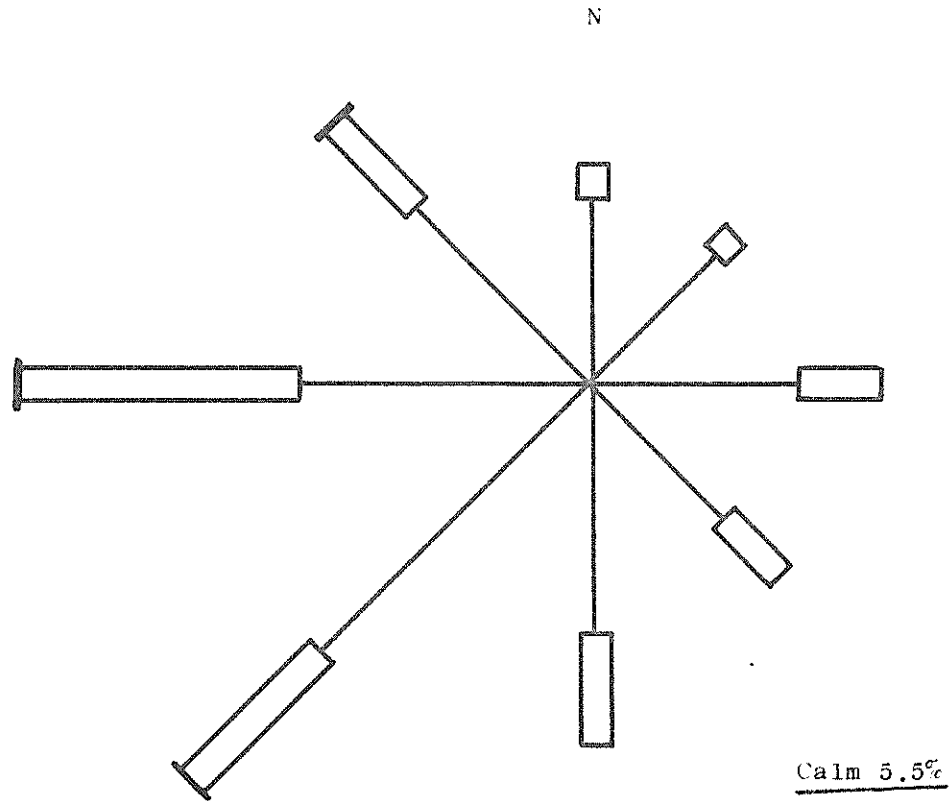
PERCENTAGE FREQUENCIES OF SIMULTANEOUS OCCURRENCES OF SPECIFIED RANGES OF WIND SPEED AND DIRECTION 1961-1970

WIND SPEED IN KNOTS

	Calm	1-3	4-7	7-10	11-16	17-21	22-27	28-33	34-40	41-47	48-55	56-63	OVER 63	TOTAL
010		0.1	0.2	0.4	0.6	0.4	0.3	0.1	0+	0+				2.1
020		0.1	0.2	0.3	0.5	0.3	0.2	0.1	0+					1.7
030		0.1	0.2	0.3	0.5	0.2	0.2	0+	0+	0+				1.5
040		0.1	0.2	0.3	0.3	0.1	0.1	0+	0+					1.1
050		0.1	0.2	0.2	0.3	0.1	0.1	0+	0+	0+				1.1
060		0.1	0.3	0.3	0.2	0.2	0.2	0.1	0+	0+				1.4
070		0.1	0.3	0.4	0.5	0.2	0.2	0.1	0+	0+				1.8
080		0.1	0.3	0.4	0.6	0.3	0.2	0.1	0.1	0+	0+			2.0
090		0.1	0.2	0.4	0.7	0.4	0.3	0.2	0.1	0+	0+			2.3
100		0.1	0.2	0.3	0.7	0.4	0.4	0.2	0.1	0+				2.3
110		0.1	0.2	0.3	0.6	0.5	0.4	0.2	0+	0+	0+			2.3
120		0.1	0.2	0.5	0.9	0.6	0.4	0.2	0.1	0+	0+			3.0
130		0.1	0.2	0.5	0.9	0.5	0.3	0.1	0+	0+				2.6
140		0.1	0.3	0.5	0.8	0.4	0.3	0.1	0+	0+				2.4
150		0.1	0.3	0.6	0.9	0.5	0.3	0.1	0+	0+				2.7
160		0.1	0.4	0.7	1.0	0.4	0.3	0.1	0+					3.1
170		0.1	0.6	0.7	1.0	0.5	0.4	0.1	0+		0+			3.4
180		0.2	0.6	0.7	1.1	0.7	0.5	0.1	0+	0+				3.9
190		0.2	0.6	0.7	1.4	0.8	0.5	0.1	0+	0+		0+		4.4
200		0.2	0.7	0.6	1.3	0.7	0.5	0.1	0+	0+			0+	4.1
210		0.2	0.5	0.6	1.2	0.7	0.4	0.1	0+	0+		0+		3.8
220		0.1	0.4	0.6	1.2	0.6	0.4	0.1	0+	0+	0+	0+		3.5
230		0.1	0.3	0.6	1.5	0.9	0.6	0.2	0.1	0+	0+	0+		4.1
240		0+	0.2	0.5	1.3	0.8	0.6	0.2	0+	0+				3.7
250		0+	0.2	0.4	1.2	0.9	0.7	0.2	0.1	0+	0+			3.6
260		0+	0.2	0.5	1.4	0.9	0.7	0.2	0.1	0+	0+			4.0
270		0+	0.2	0.6	1.5	0.8	0.7	0.2	0.1	0+	0+			4.2
280		0+	0.2	0.6	1.3	0.7	0.6	0.2	0+	0+	0+			3.6
290		0+	0.2	0.5	1.1	0.5	0.5	0.2	0.1	0+	0+	0+		3.2
300		0.1	0.2	0.4	0.9	0.4	0.4	0.1	0+	0+	0+	0+		2.5
310		0+	0.2	0.4	0.8	0.4	0.3	0.1	0+	0+	0+			2.3
320		0.1	0.3	0.5	0.7	0.4	0.3	0.1	0+	0+				2.5
330		0.1	0.3	0.4	0.6	0.3	0.3	0.1	0+	0+	0+			2.1
340		0.1	0.2	0.4	0.6	0.2	0.3	0.1	0+	0+	0+			1.9
350		0.1	0.2	0.3	0.6	0.3	0.3	0.1	0+	0+	0+			2.0
360		0.1	0.2	0.3	0.7	0.3	0.3	0.1	0.1	0+	0+			2.0
CALM	1.8													1.8
TOTAL	1.8	3.2	10.2	16.7	31.3	17.4	13.5	4.4	1.3	0.2	0+	0+	0+	

THE ENTRY '0+' INDICATES THAT THE % IS GREATER THAN ZERO BUT LESS THAN 0.05.

Note
All winds
corrected
to effective
height 10 m.



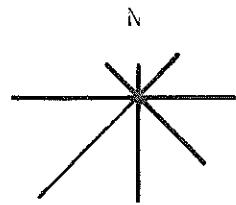
	Frequency (%) of Windforce												
	0	1	2	3	4	5	6	7	8	9	10	11	12
JAN.	7.5	13.5	18.7	27.5	23.6	6.0	2.4	0.6	0.2	0.0	0.0	0.0	0.0
FEB.	5.6	11.7	18.0	26.7	27.6	7.3	2.5	0.5	0.1	0.0	0.0	0.0	0.0
MAR.	3.5	10.9	19.2	27.1	27.2	9.0	2.8	0.3	*	*	0.0	0.0	0.0
APR.	3.4	12.5	18.7	30.3	26.3	6.9	1.7	0.2	*	0.0	0.0	0.0	0.0
MAY.	5.6	15.1	21.6	30.2	21.3	4.6	1.5	0.1	0.0	0.0	0.0	0.0	0.0
JUNE	6.1	16.3	22.3	30.1	21.6	2.7	0.9	0.0	0.0	0.0	0.0	0.0	0.0
JULY	5.0	14.3	23.5	33.1	21.0	2.8	0.3	0.0	0.0	0.0	0.0	0.0	0.0
AUG.	5.7	16.3	23.7	29.1	21.2	3.0	0.9	0.1	0.0	0.0	0.0	0.0	0.0
SEPT.	7.5	17.9	22.8	26.7	20.6	3.6	0.8	0.1	*	*	0.0	0.0	0.0
OCT.	5.2	14.2	22.4	28.6	22.7	5.4	1.4	0.1	*	*	0.0	0.0	0.0
NOV.	6.1	14.3	20.4	28.8	22.8	5.4	1.7	0.4	0.1	0.0	0.0	0.0	0.0
DEC.	4.9	12.3	19.4	27.0	26.7	6.6	2.5	0.4	0.2	0.0	0.0	0.0	0.0
YEAR	5.5	14.1	20.9	28.8	23.5	5.3	1.6	0.2	0.1	*	0.0	0.0	0.0

* Percentage greater than zero but less than 0.05.

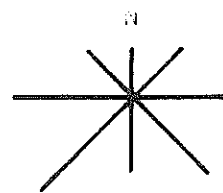
MONTHLY FREQUENCY OF WIND DIRECTIONS (%)

MULLINGAR

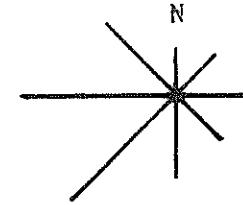
1961-1970



Calm 7.5%



Calm 5.6%

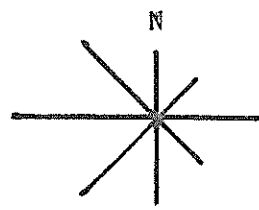


Calm 3.5%

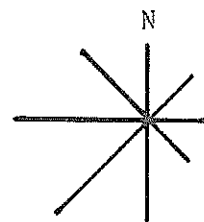
JANUARY

FEBRUARY

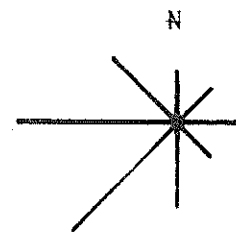
MARCH



Calm 3.4



Calm 5.6%

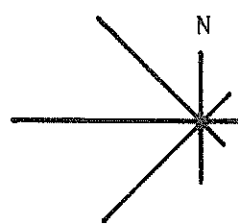


Calm 6.1%

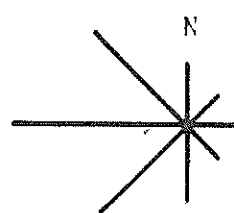
APRIL

MAY

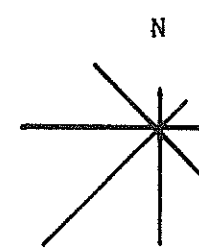
JUNE



Calm 5.0%



Calm 5.7%

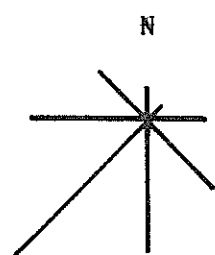


Calm 7.5%

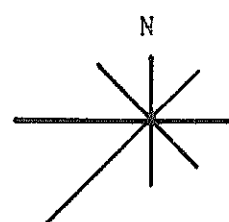
JULY

AUGUST

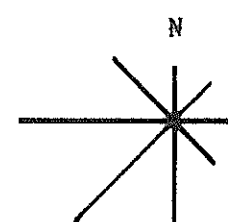
SEPTEMBER



Calm 5.2%



Calm 6.1%

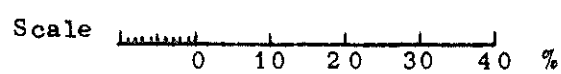


Calm 4.9%

OCTOBER

NOVEMBER

DECEMBER

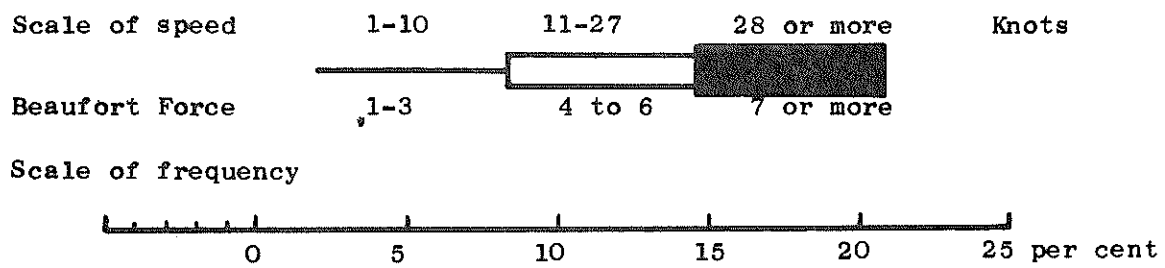
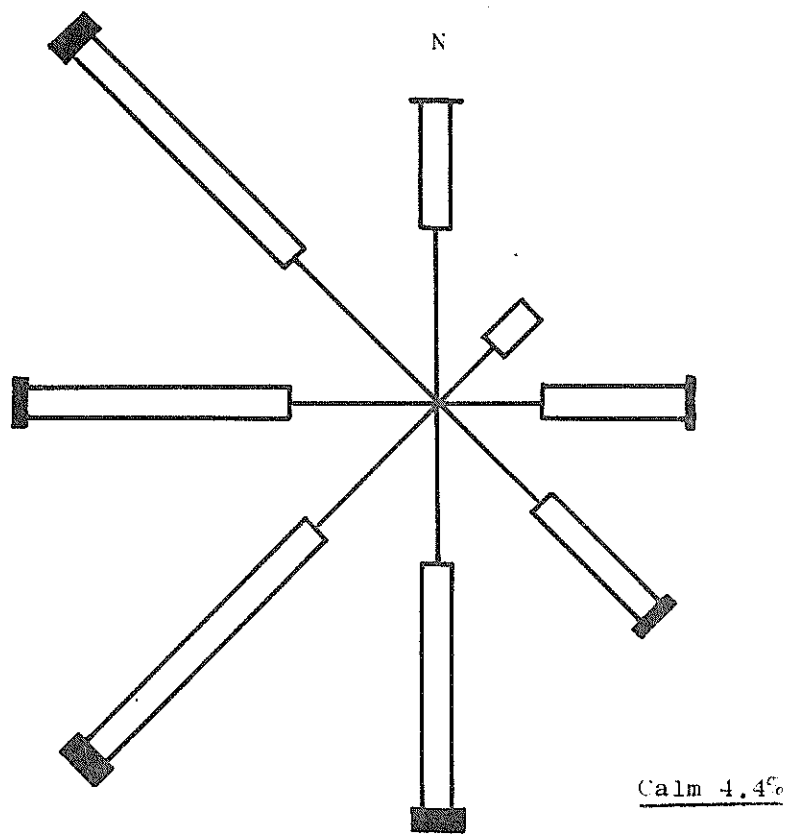


MULLINGAR DIRECTION IN DEGREES	NUMBER OF SIMULTANEOUS OCCURRENCES OF SPECIFIED RANGES OF WIND SPEED AND DIRECTION 1961-1970												TOTAL		
	CALM	WIND SPEED IN KNOTS													
		1-3	4-6	7-10	11-16	17-21	22-27	28-33	34-40	41-47	48-55	56-63		OVER 63	
010	353	401	295	125	9										1183
020	305	383	328	128	10										1154
030	284	377	310	170	16	1									1158
040	301	454	424	150	7										1336
050	249	385	414	195	16										1259
060	297	474	537	230	28	8									1574
070	294	393	546	329	61	13	2								1638
080	331	443	595	403	65	16									1853
090	299	457	660	560	79	8									2063
100	406	470	623	468	83	9									2059
110	307	393	527	322	61	2									1612
120	349	380	458	350	56	12									1605
130	325	334	408	361	38	5									1471
140	323	392	502	426	91	17	1								1752
150	342	435	631	500	108	17									2033
160	314	417	632	557	114	30	1								2065
170	361	424	721	620	103	30									2259
180	391	542	776	640	145	27	2								2523
190	342	541	706	569	117	24	1								2300
200	483	636	751	529	75	16	1								2491
210	602	765	815	581	76	14	2	1							2856
220	590	885	1142	787	134	31	1	1	1						3572
230	525	913	1367	1049	197	61	4	4	1						4121
240	406	783	1235	1309	282	111	14	3							4143
250	295	612	1217	1320	407	135	31	7							4024
260	276	533	1106	1415	440	154	33	2							3959
270	268	549	1172	1355	437	184	21	7							3993
280	270	474	1095	1181	377	124	25	5	1						3552
290	237	481	913	1043	304	123	19	6	1						3127
300	338	568	1031	807	227	99	12	2							3084
310	291	523	888	600	161	61	15	1							2540
320	268	507	672	498	105	42	9	4							2105
330	291	492	570	377	86	17	4								1837
340	273	512	397	284	50	7	2								1525
350	384	533	429	232	41	7									1626
360	395	474	327	161	26	5									1388
CALM	4808														4808
TOTAL	4808	12365	18335	25220	20631	4632	1410	200	43	4					87648

MULLINGAR DIRECTION IN DEGREES PERCENTAGE FREQUENCIES OF SIMULTANEOUS OCCURENCES OF SPECIFIED RANGES OF WIND SPEED AND DIRECTION 1961-1970

MULLINGAR DIRECTION IN DEGREES	WIND SPEED IN KNOTS											TOTAL		
	Caln	1-3	4-7	7-10	11-16	17-21	22-27	28-33	34-40	41-47	48-55		56-63	OVER 63
010		0.4	0.5	0.3	0.1	0+								1.3
020		0.3	0.4	0.4	0.1	0+								1.3
030		0.3	0.4	0.4	0.2	0+	0+							1.3
040		0.3	0.5	0.5	0.2	0+								1.5
050		0.3	0.4	0.5	0.2	0+								1.4
060		0.3	0.5	0.6	0.3	0+	0+							1.8
070		0.3	0.4	0.6	0.4	0.1	0+	0+						1.9
080		0.4	0.5	0.7	0.5	0.1	0+							2.1
090		0.3	0.5	0.8	0.6	0.1	0+							2.4
100		0.5	0.5	0.7	0.5	0.1	0+							2.3
110		0.4	0.4	0.6	0.4	0.1	0+							1.8
120		0.4	0.4	0.5	0.4	0.1	0+							1.8
130		0.4	0.4	0.5	0.4	0+	0+							1.7
140		0.4	0.4	0.6	0.5	0.1	0+	0+						2.0
150		0.4	0.5	0.7	0.6	0.1	0+							2.3
160		0.4	0.5	0.7	0.6	0.1	0+	0+						2.4
170		0.4	0.5	0.8	0.7	0.1	0+							2.6
180		0.4	0.6	0.9	0.7	0.2	0+	0+						2.9
190		0.4	0.6	0.8	0.6	0.1	0+	0+						2.6
200		0.6	0.7	0.9	0.6	0.1	0+	0+						2.8
210		0.7	0.9	0.9	0.7	0.1	0+	0+	0+					3.3
220		0.7	1.0	1.3	0.9	0.2	0+	0+	0+	0+				4.1
230		0.6	1.0	1.6	1.2	0.2	0.1	0+	0+	0+				4.7
240		0.5	0.9	1.4	1.5	0.3	0.1	0+	0+					4.7
250		0.3	0.7	1.4	1.5	0.5	0.2	0+	0+					4.6
260		0.3	0.6	1.3	1.6	0.5	0.2	0+	0+					4.5
270		0.3	0.6	1.3	1.5	0.5	0.2	0+	0+					4.6
280		0.3	0.5	1.2	1.3	0.4	0.1	0+	0+	0+				4.1
290		0.3	0.5	1.0	1.2	0.3	0.1	0+	0+	0+				3.6
300		0.4	0.6	1.2	0.9	0.3	0.1	0+	0+					3.5
310		0.3	0.6	1.0	0.7	0.2	0.1	0+	0+					2.9
320		0.3	0.6	0.8	0.6	0.1	0+	0+	0+					2.4
330		0.3	0.6	0.7	0.4	0.1	0+	0+						2.1
340		0.3	0.6	0.5	0.3	0.1	0+	0+						1.7
350		0.4	0.6	0.5	0.3	0+	0+							1.9
360		0.5	0.5	0.4	0.2	0+	0+							1.6
CALM	5.5													5.5
TOTAL	5.5	14.1	20.9	28.8	23.5	5.3	1.6	0.2	0+	0+				

THE ENTRY '0+' INDICATES THAT THE % IS GREATER THAN ZERO BUT LESS THAN 0.05.



Frequency (%) of Windforce

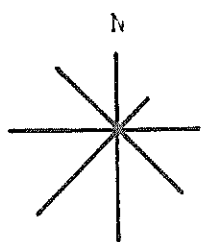
	0	1	2	3	4	5	6	7	8	9	10	11	12
JAN.	3.3	4.2	9.1	18.9	27.6	17.8	12.4	4.7	1.7	0.3	*	0.0	0.0
FEB.	2.1	3.7	8.5	20.5	30.7	16.9	12.6	3.7	1.2	0.1	*	0.0	0.0
MAR.	2.9	4.6	9.1	22.8	31.6	15.0	9.9	2.9	1.1	0.1	0.0	0.0	0.0
APR.	3.4	4.8	9.4	22.8	33.4	14.0	8.7	2.7	0.6	0.2	*	0.0	0.0
MAY	4.4	5.6	11.2	24.8	33.0	11.8	7.1	1.6	0.5	0.0	0.0	0.0	0.0
JUNE	7.2	7.7	13.7	25.2	31.2	10.0	4.5	0.5	*	0.0	0.0	0.0	0.0
JULY	7.5	7.6	13.8	27.4	30.4	8.7	3.9	0.6	0.1	0.0	0.0	0.0	0.0
AUG.	6.3	6.6	11.5	25.3	31.8	12.0	5.3	1.0	0.2	0.0	0.0	0.0	0.0
SEPT.	5.5	6.4	13.2	23.7	30.2	11.8	6.7	1.7	0.7	0.1	*	0.0	0.0
OCT.	4.1	5.4	10.3	22.4	31.7	13.0	9.1	2.9	1.0	0.1	*	0.0	0.0
NOV.	3.0	4.4	9.9	23.8	30.8	13.1	10.3	3.4	1.1	0.2	0.0	0.0	0.0
DEC.	2.4	4.1	8.0	17.8	32.7	16.7	12.3	4.1	1.6	0.2	0.1	0.0	0.0
YEAR	4.4	5.4	10.6	22.9	31.3	13.4	8.6	2.5	0.8	0.1	*	0.0	0.0

* Percentage greater than zero but less than 0.05.

MONTHLY FREQUENCY OF WIND DIRECTIONS (%)

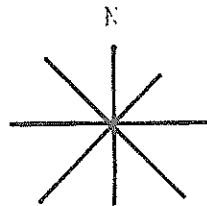
ROCHE'S POINT

1961-1970



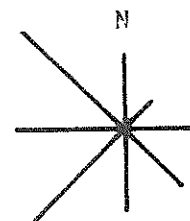
Calm 3.2%

JANUARY



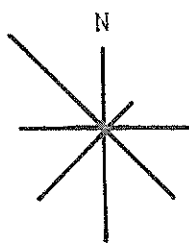
Calm 2.1%

FEBRUARY



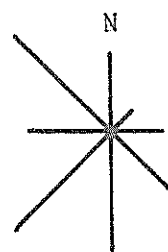
Calm 2.9%

MARCH



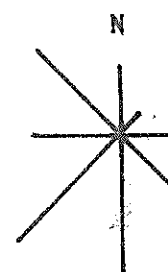
Calm 3.4%

APRIL



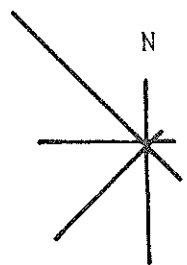
Calm 4.4%

MAY



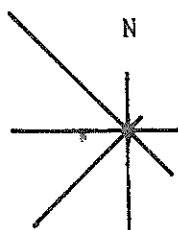
Calm 7.2%

JUNE



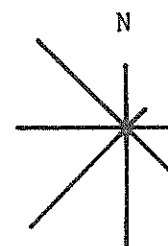
Calm 7.5%

JULY



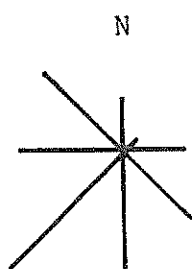
Calm 6.3%

AUGUST



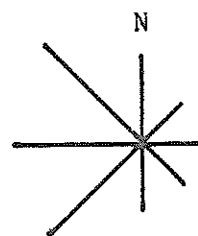
Calm 5.5%

SEPTEMBER



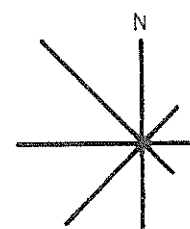
Calm 4.1%

OCTOBER



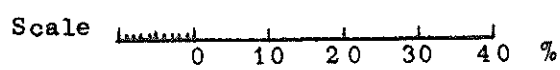
Calm 3.0%

NOVEMBER



Calm 2.4%

DECEMBER

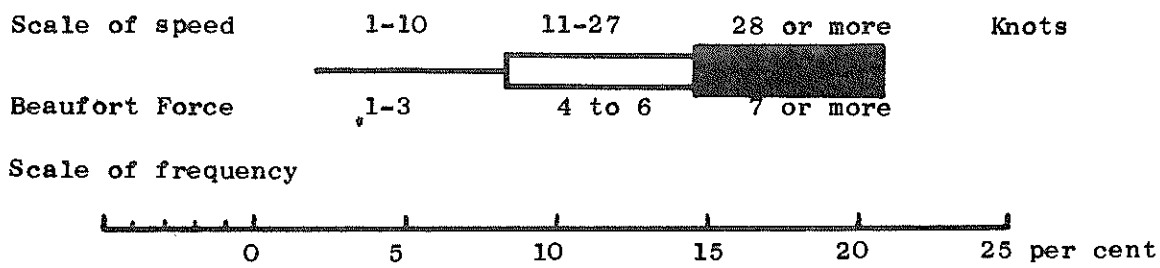
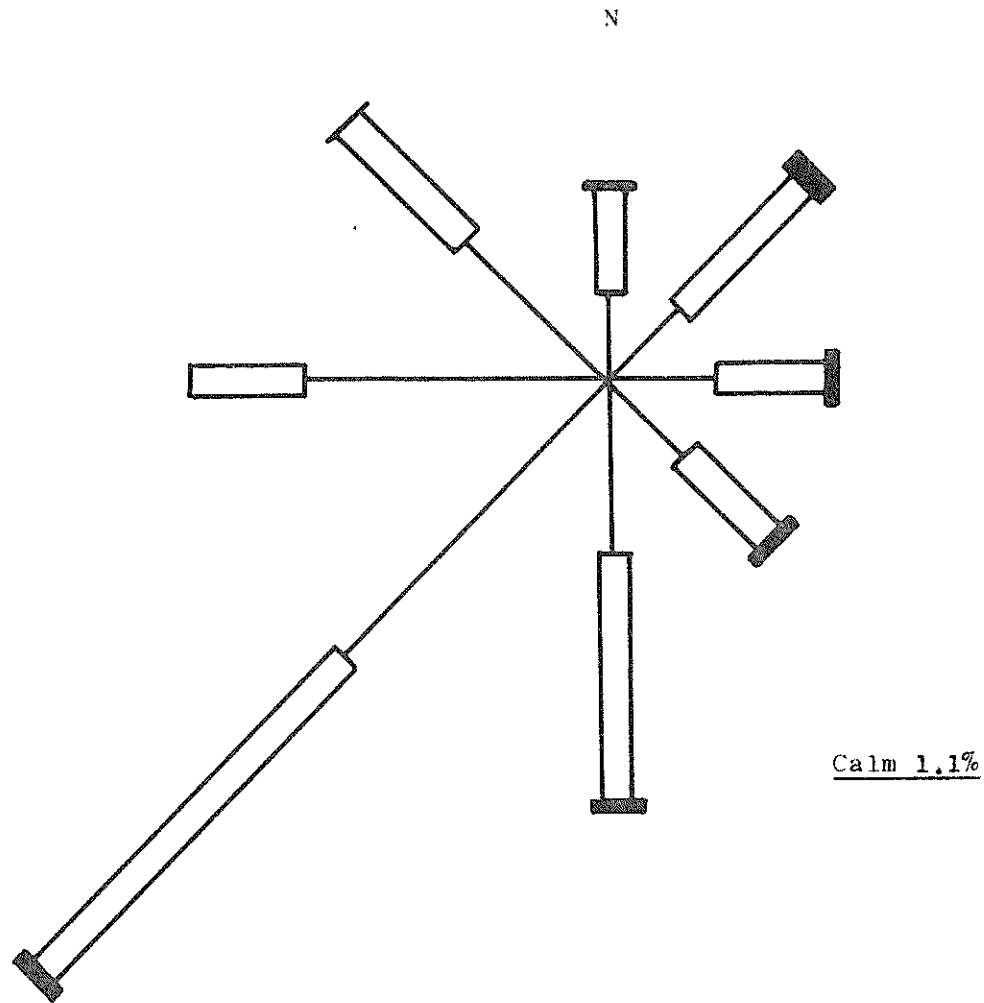


ROCHE'S POINT		NUMBER OF SIMULTANEOUS OCCURRENCES OF SPECIFIED RANGES OF WIND SPEED AND DIRECTION 1961-1970											TOTAL	
DIRECTION		WIND SPEED IN KNOTS												
IN DEGREES	CALM	1-3	4-6	7-10	11-16	17-21	22-27	28-33	34-40	41-47	48-55	56-63	OVER 63	
010		127	215	532	575	83	34	2						1568
020		81	155	452	352	39	8	2						1089
030		69	141	347	293	33	4							887
040		55	114	250	219	31	15	3						687
050		52	102	259	267	75	19	2						776
060		46	121	350	325	104	40	3						989
070		58	141	341	471	125	58	2						1196
080		73	145	349	539	252	115	21	2					1496
090		71	163	428	663	271	165	56	1					1818
100		81	180	424	566	296	128	33						1708
110		113	264	638	596	231	111	21	6					1980
120		137	303	767	729	277	149	59	14					2436
130		158	279	596	586	285	163	40	22	2				2131
140		115	203	364	454	211	109	37	6	1				1500
150		115	236	415	611	230	128	57	8	2				1802
160		144	282	512	669	396	232	88	25	3				2351
170		163	325	482	771	441	311	101	43	3				2640
180		150	270	587	808	473	288	108	33	2	2			2721
190		170	314	809	1082	495	346	90	46	12				3364
200		134	251	528	910	342	218	73	42	4				2502
210		160	340	685	1356	696	532	158	66	8	1			4002
220		150	298	691	975	530	372	135	41	6				3198
230		116	319	870	1176	565	420	125	30	2				3623
240		71	211	649	985	449	323	60	18	4				2770
250		63	176	449	984	393	244	57	21					2387
260		59	163	589	939	379	219	52	19	3				2422
270		91	228	653	894	393	236	58	13		1			2557
280		118	227	702	1106	434	260	47	21	4	1			2920
290		166	266	740	1275	561	397	110	35	8	4			3562
300		146	286	623	871	440	299	115	53	9				2842
310		194	424	777	1250	604	496	173	55	15	1			3989
320		266	416	790	1064	592	450	125	48	2	3			3756
330		249	439	608	980	388	273	83	29	4				3053
340		323	510	718	932	315	206	54	11	1				3070
350		322	504	674	659	178	71	16	3					2427
360		155	315	456	484	123	64	12	1					1610
CALM	3819													3819
TOTAL	3819	4761	9326	20104	27416	11720	7503	2178	712	95	14			87648

ROCHE'S POINT PERCENTAGE FREQUENCIES OF SIMULTANEOUS OCCURRENCES OF SPECIFIED RANGES OF WIND SPEED AND DIRECTION 1961-1970

ROCHE'S POINT DIRECTION IN DEGREES	WIND SPEED IN KNOTS												TOTAL	
	Calm	1-3	4-7	7-10	11-16	17-21	22-27	28-33	34-40	41-47	48-55	56-63		OVER 63
010		0.1	0.2	0.6	0.7	0.1	0+	0+						1.8
020		0.1	0.2	0.5	0.4	0+	0+	0+						1.2
030		0.1	0.2	0.4	0.3	0+	0+							1.0
040		0.1	0.1	0.3	0.2	0+	0+	0+						0.8
050		0.1	0.1	0.3	0.3	0.1	0+	0+						0.9
060		0.1	0.1	0.4	0.4	0.1	0+	0+						1.1
070		0.1	0.2	0.4	0.5	0.1	0.1	0+						1.4
080		0.1	0.2	0.4	0.6	0.3	0.1	0+	0+					1.7
090		0.1	0.2	0.5	0.8	0.3	0.2	0.1	0+					2.1
100		0.1	0.2	0.5	0.6	0.3	0.1	0+						1.9
110		0.1	0.3	0.7	0.7	0.3	0.1	0+	0+					2.3
120		0.2	0.3	0.9	0.8	0.3	0.2	0.1	0+		0+			2.8
130		0.2	0.3	0.7	0.7	0.3	0.2	0+	0+	0+				2.4
140		0.1	0.2	0.4	0.5	0.2	0.1	0+	0+	0+				1.7
150		0.1	0.3	0.5	0.7	0.3	0.1	0.1	0+	0+				2.1
160		0.2	0.3	0.6	0.8	0.5	0.3	0.1	0+	0+				2.7
170		0.2	0.4	0.5	0.9	0.5	0.4	0.1	0+	0+				3.0
180		0.2	0.3	0.7	0.9	0.5	0.3	0.1	0+	0+	0+			3.1
190		0.2	0.4	0.9	1.2	0.6	0.4	0.1	0.1	0+				3.8
200		0.2	0.3	0.6	1.0	0.4	0.2	0.1	0+	0+				2.9
210		0.2	0.4	0.8	1.5	0.8	0.6	0.2	0.1	0+	0+			4.6
220		0.2	0.3	0.8	1.1	0.6	0.4	0.2	0+	0+				3.6
230		0.1	0.4	1.0	1.3	0.6	0.5	0.1	0+	0+				4.1
240		0.1	0.2	0.7	1.1	0.5	0.4	0.1	0+	0+				3.2
250		0.1	0.2	0.5	1.1	0.4	0.3	0.1	0+					2.7
260		0.1	0.2	0.7	1.1	0.4	0.2	0.1	0+	0+				2.8
270		0.1	0.3	0.7	1.0	0.4	0.3	0.1	0+		0+			2.9
280		0.1	0.3	0.8	1.3	0.5	0.3	0.1	0+	0+	0+			3.3
290		0.2	0.3	0.8	1.5	0.6	0.5	0.1	0+	0+	0+			4.1
300		0.2	0.3	0.7	1.0	0.5	0.3	0.1	0.1	0+				3.2
310		0.2	0.5	0.9	1.4	0.7	0.6	0.2	0.1	0+	0+			4.6
320		0.3	0.5	0.9	1.2	0.7	0.5	0.1	0.1	0+	0+			4.3
330		0.3	0.5	0.7	1.1	0.4	0.3	0.1	0+	0+				3.5
340		0.4	0.6	0.8	1.1	0.4	0.2	0.1	0+	0+				3.5
350		0.4	0.6	0.8	0.8	0.2	0.1	0+	0+					2.8
360		0.2	0.4	0.5	0.6	0.1	0.1	0+	0+					1.8
CALM	4.4													4.4
TOTAL	4.4	5.4	10.6	22.9	31.3	13.4	8.6	2.5	0.8	0.1	0+			4.4

THE ENTRY '0+' INDICATES THAT THE % IS GREATER THAN ZERO BUT LESS THAN 0.05.



Frequency (%) of Windforce

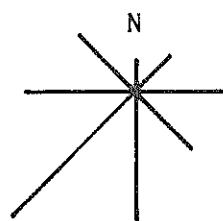
	0	1	2	3	4	5	6	7	8	9	10	11	12
JAN.	0.9	4.9	12.4	24.4	27.1	16.7	10.6	2.5	0.5	0.1	0.0	0.0	0.0
FEB.	0.8	3.6	9.9	21.1	33.4	16.6	11.2	2.8	0.6	*	0.0	0.0	0.0
MAR.	0.7	5.3	12.1	26.7	30.1	14.8	7.9	2.0	0.4	0.0	0.0	0.0	0.0
APR.	0.9	6.3	13.0	26.2	30.9	12.8	7.5	2.2	0.2	0.0	0.0	0.0	0.0
MAY	1.1	6.0	13.9	27.8	30.5	13.9	6.0	0.8	0.0	0.0	0.0	0.0	0.0
JUNE	1.7	8.1	18.8	30.1	28.0	9.3	3.7	0.3	0.0	0.0	0.0	0.0	0.0
JULY	1.9	10.0	19.9	33.2	27.3	6.1	1.4	0.2	0.0	0.0	0.0	0.0	0.0
AUG.	1.2	6.6	17.5	31.7	30.8	8.9	3.1	0.2	*	0.0	0.0	0.0	0.0
SEPT.	1.6	6.6	16.8	30.3	30.2	9.4	3.6	1.2	0.3	*	0.0	0.0	0.0
OCT.	1.5	6.4	15.5	28.0	29.4	11.8	6.0	1.1	0.3	0.0	0.0	0.0	0.0
NOV.	0.8	4.9	13.7	25.2	28.5	14.8	8.5	2.5	1.0	0.1	0.0	0.0	0.0
DEC.	0.7	3.2	11.1	25.8	30.0	16.1	9.1	3.0	1.0	*	0.0	0.0	0.0
YEAR	1.1	6.0	14.6	27.6	29.7	12.6	6.5	1.6	0.4	*	0.0	0.0	0.0

* Percentage greater than zero but less than 0.05.

MONTHLY FREQUENCY OF WIND DIRECTIONS (%)

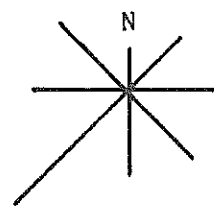
ROSSLARE

1961-1970



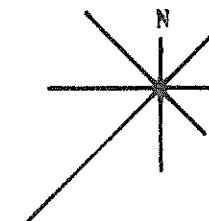
Calm 0.9%

JANUARY



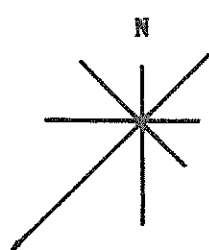
Calm 0.8%

FEBRUARY



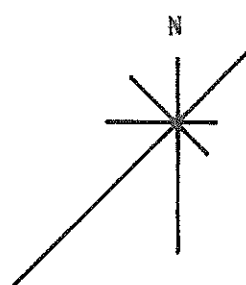
Calm 0.7%

MARCH



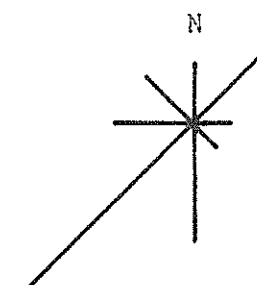
Calm 0.9%

APRIL



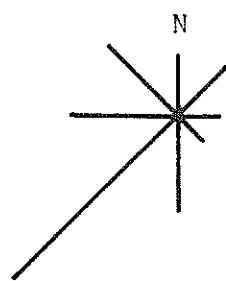
Calm 1.1%

MAY



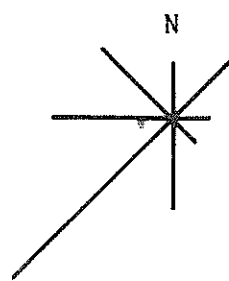
Calm 1.7%

JUNE



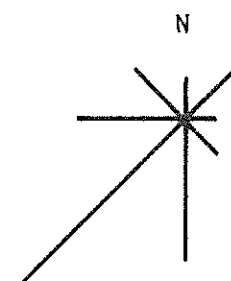
Calm 1.9%

JULY



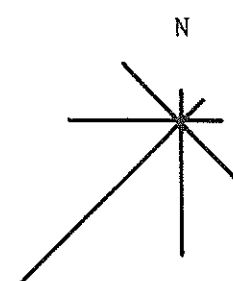
Calm 1.2%

AUGUST



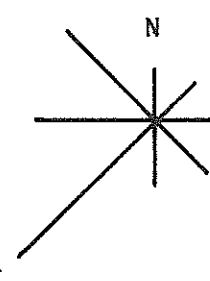
Calm 1.6%

SEPTEMBER



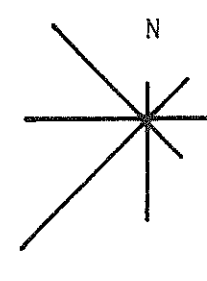
Calm 1.5%

OCTOBER



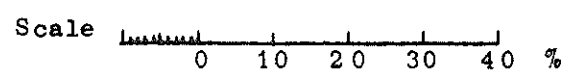
Calm 0.8%

NOVEMBER



Calm 0.7%

DECEMBER

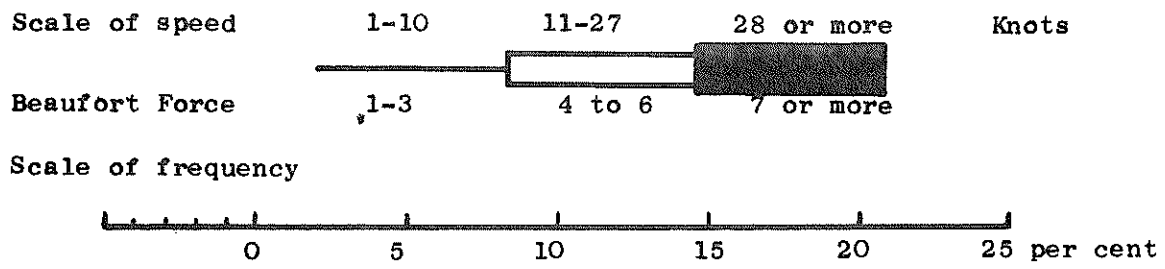
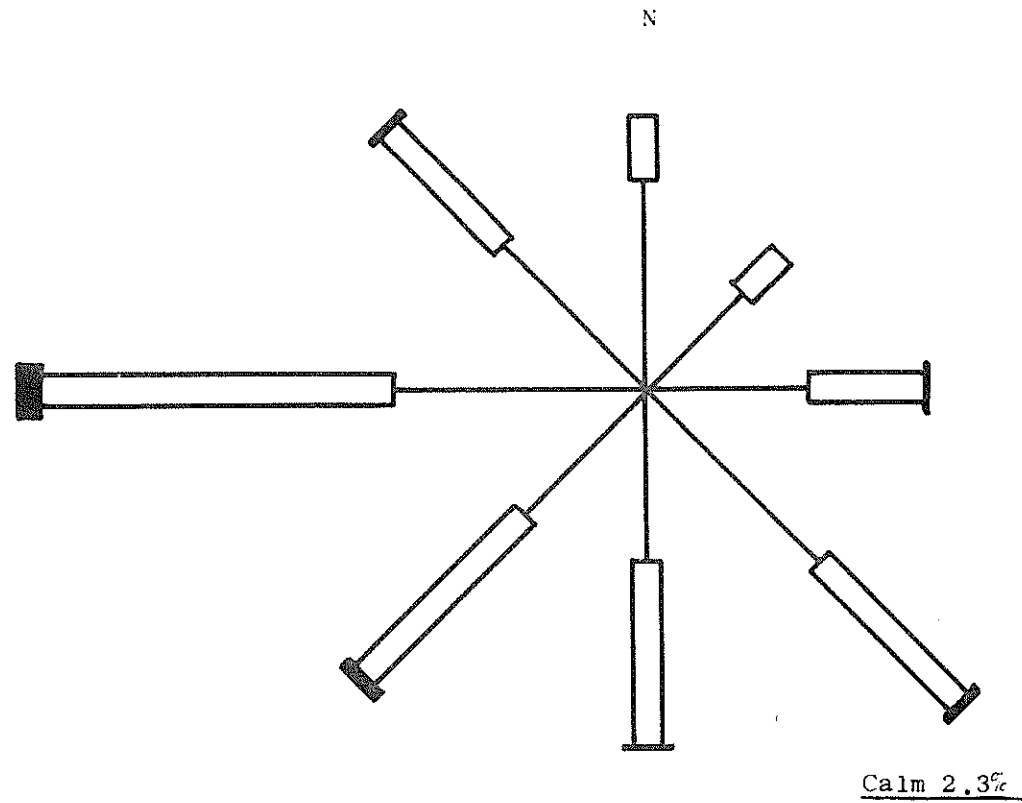


ROSSLARE														
NUMBER OF SIMULTANEOUS OCCURRENCES OF SPECIFIED RANGES OF WIND SPEED AND DIRECTION 1961-1970														
DIRECTION IN DEGREES	WIND SPEED IN KNOTS													
	CALM	1-3	4-6	7-10	11-16	17-21	22-27	28-33	34-40	41-47	48-55	56-63	OVER 63	TOTAL
010		86	153	260	387	203	129	41	9					1268
020		87	132	237	374	347	299	83	20	4				1583
030		110	140	301	658	554	347	120	32	1				2263
040		87	162	359	595	364	231	124	38	4				1964
050		89	154	312	364	209	213	82	24	2				1449
060		142	222	388	433	289	270	75	27	2				1848
070		216	307	459	579	325	190	71	12					2159
080		176	178	315	408	255	121	42	2					1497
090		159	191	291	293	174	49	14	1					1172
100		120	184	278	347	195	59	6						1189
110		94	167	285	327	157	70	5						1105
120		78	196	352	426	218	130	34	22					1456
130		84	219	477	490	227	209	50	11					1767
140		72	187	375	432	197	120	17	5					1405
150		70	158	366	493	189	120	26	1	1				1424
160		88	197	430	605	171	126	27	13					1657
170		104	275	635	810	300	174	30	5					2333
180		150	286	634	987	409	231	26	9					2732
190		131	337	821	1154	481	257	29	16					3226
200		145	389	962	1312	591	317	87	25	1				3829
210		160	551	1358	1759	736	439	86	11	1				5101
220		207	747	1536	1976	996	460	75	10					6007
230		255	992	2051	2462	1092	392	60	6					7310
240		201	804	1343	1204	353	123	29	2					4059
250		170	751	1250	722	144	37	6						3080
260		216	844	1163	553	99	11	1						2887
270		270	742	1131	614	105	14	3						2879
280		249	594	930	596	108	21	3						2501
290		222	501	839	486	113	21	7						2189
300		213	397	861	739	224	81	19	3					2537
310		196	373	599	526	176	51	12	3					1936
320		166	302	444	499	183	68	14	1					1677
330		168	431	1116	1333	457	134	18	4					3661
340		104	203	451	423	122	81	19	2					1405
350		90	186	383	405	143	52	12	2					1273
360		87	122	195	219	111	62	21	5					822
CALM	998													998
TOTAL	998	5262	12774	24187	25990	11017	5709	1374	321	16				87648

ROSSLAKE DIRECTION IN DEGREES PERCENTAGE FREQUENCIES OF SIMULTANEOUS OCCURRENCES OF SPECIFIED RANGES OF WIND SPEED AND DIRECTION 1961-1970

ROSSLAKE DIRECTION IN DEGREES	WIND SPEED IN KNOTS												TOTAL	
	Calm	1-3	4-7	7-10	11-16	17-21	22-27	28-33	34-40	41-47	48-55	56-63		OVER 63
010		0.1	0.2	0.3	0.4	0.2	0.1	0+	0+					1.4
020		0.1	0.2	0.3	0.4	0.4	0.3	0.1	0+	0+				1.8
030		0.1	0.2	0.3	0.8	0.6	0.4	0.1	0+	0+				2.6
040		0.1	0.2	0.4	0.7	0.4	0.3	0.1	0+	0+				2.2
050		0.1	0.2	0.4	0.4	0.2	0.2	0.1	0+	0+				1.7
060		0.2	0.3	0.4	0.5	0.3	0.3	0.1	0+	0+				2.1
070		0.2	0.4	0.5	0.7	0.4	0.2	0.1	0+					2.5
080		0.2	0.2	0.4	0.5	0.3	0.1	0+	0+					1.7
090		0.2	0.2	0.3	0.3	0.2	0.1	0+	0+					1.3
100		0.1	0.2	0.3	0.4	0.2	0.1	0+						1.4
110		0.1	0.2	0.3	0.4	0.2	0.1	0+						1.3
120		0.1	0.2	0.4	0.5	0.2	0.1	0+	0+					1.7
130		0.1	0.2	0.5	0.6	0.3	0.2	0.1	0+					2.0
140		0.1	0.2	0.4	0.5	0.2	0.1	0+	0+					1.6
150		0.1	0.2	0.4	0.6	0.2	0.1	0+	0+	0+				1.6
160		0.1	0.2	0.5	0.7	0.2	0.1	0+	0+					1.9
170		0.1	0.3	0.7	0.9	0.3	0.2	0+	0+					2.7
180		0.2	0.3	0.7	1.1	0.5	0.3	0+	0+					3.1
190		0.1	0.4	0.9	1.3	0.5	0.3	0+	0+					3.7
200		0.2	0.4	1.1	1.5	0.7	0.4	0.1	0+	0+				4.4
210		0.2	0.6	1.5	2.0	0.8	0.5	0.1	0+	0+				5.8
220		0.2	0.9	1.8	2.3	1.1	0.5	0.1	0+					6.7
230		0.3	1.1	2.3	2.8	1.2	0.4	0.1	0+					6.3
240		0.2	0.9	1.5	1.4	0.4	0.1	0+	0+					4.6
250		0.2	0.9	1.4	0.8	0.2	0+	0+						3.5
260		0.2	1.0	1.3	0.6	0.1	0+	0+						3.3
270		0.3	0.8	1.3	0.7	0.1	0+	0+						3.3
280		0.3	0.7	1.1	0.7	0.1	0+	0+						2.9
290		0.3	0.6	1.0	0.6	0.1	0+	0+						2.5
300		0.2	0.5	1.0	0.8	0.3	0.1	0+	0+					2.9
310		0.2	0.4	0.7	0.6	0.2	0.1	0+	0+					2.2
320		0.2	0.3	0.5	0.6	0.2	0.1	0+	0+					1.9
330		0.2	0.5	1.3	1.5	0.5	0.2	0+	0+					4.2
340		0.1	0.2	0.5	0.5	0.1	0.1	0+	0+					1.6
350		0.1	0.2	0.4	0.5	0.2	0.1	0+	0+					1.5
360		0.1	0.1	0.2	0.2	0.1	0.1	0+	0+					0.9
CALM	1.1													1.1
TOTAL	1.1	6.0	14.0	27.6	29.7	12.6	6.5	1.6	0.4	0+				

THE ENTRY '0+' INDICATES THAT THE % IS GREATER THAN ZERO BUT LESS THAN 0.05.



Frequency (%) of Windforce

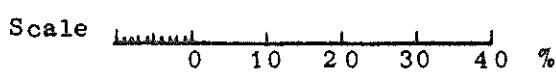
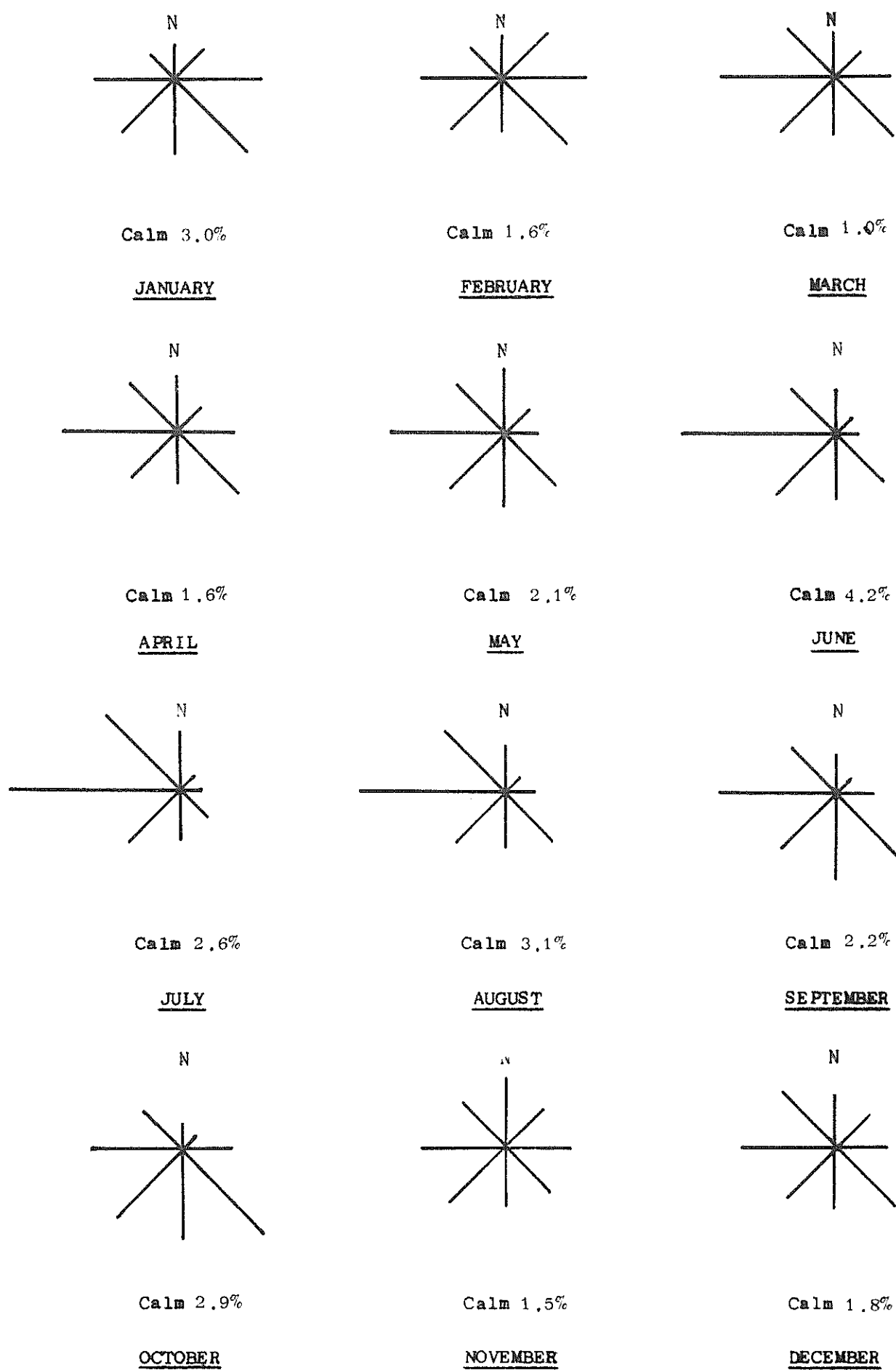
	0	1	2	3	4	5	6	7	8	9	10	11	12
JAN.	3.0	7.8	16.1	24.2	25.8	13.4	7.2	1.8	0.6	0.1	0.0	0.0	0.0
FEB.	1.6	5.3	13.4	26.3	26.5	15.4	8.7	2.3	0.4	0.0	*	0.0	0.0
MAR.	1.0	4.0	13.4	29.0	29.8	13.4	7.0	1.9	0.5	*	0.0	0.0	0.0
APR.	1.6	5.0	14.2	28.9	29.9	13.0	5.7	1.4	0.3	0.0	0.0	0.0	0.0
MAY	2.1	5.7	14.5	30.0	30.4	11.0	4.9	1.4	*	0.0	0.0	0.0	0.0
JUNE	4.2	8.6	16.2	30.1	28.2	9.3	2.9	0.4	0.1	0.0	0.0	0.0	0.0
JULY	2.6	6.6	19.0	32.7	28.0	8.8	2.1	0.2	0.0	0.0	0.0	0.0	0.0
AUG.	3.1	7.3	16.0	30.5	28.5	11.0	3.2	0.4	*	0.0	0.0	0.0	0.0
SEPT.	2.2	7.5	17.6	29.4	27.8	10.7	3.7	0.8	0.3	*	*	*	0.0
OCT.	2.9	5.4	14.7	30.1	27.6	12.6	5.3	1.1	0.3	*	*	0.0	0.0
NOV.	1.5	6.2	18.7	30.9	25.5	9.9	5.0	2.0	0.3	0.0	0.0	0.0	0.0
DEC.	1.8	4.9	15.5	28.7	27.5	12.2	7.0	1.8	0.5	0.1	0.0	0.0	0.0
YEAR	2.3	6.2	15.8	29.2	28.0	11.7	5.2	1.3	0.3	*	*	*	0.0

* Percentage greater than zero but less than 0.05.

MONTHLY FREQUENCY OF WIND DIRECTIONS (%)

SHANNON AIRPORT

1961-1970

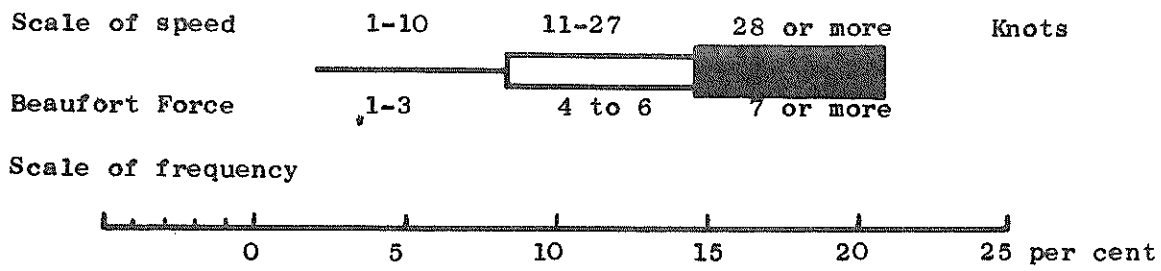
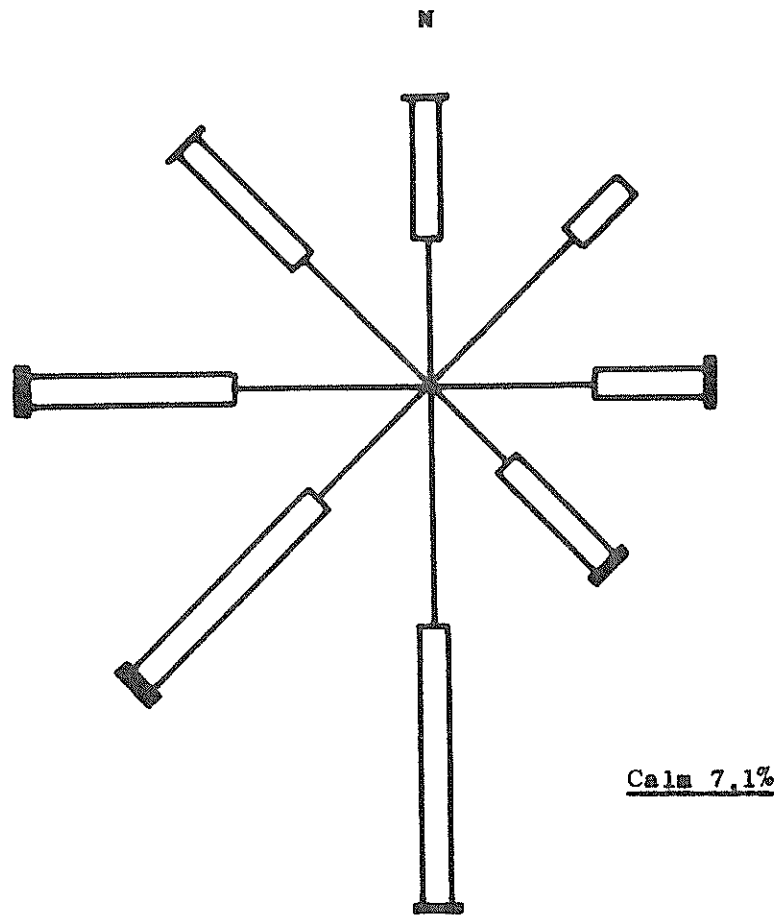


SHANNON AIRPORT													NUMBER OF SIMULTANEOUS OCCURRENCES OF SPECIFIED RANGES OF WIND SPEED AND DIRECTION 1961-1970	
DIRECTION	WIND SPEED IN KNOTS												TOTAL	
IN DEGREES	CALM	1-3	4-6	7-10	11-16	17-21	22-27	28-33	34-40	41-47	48-55	56-63	OVER 63	
010		153	372	489	223	47	15	2						1301
020		170	336	479	184	48	12	2						1231
030		149	354	581	301	49	18	1						1453
040		128	305	537	376	94	16	7						1463
050		124	273	391	209	61	13							1071
060		108	215	299	242	54	22							940
070		107	180	262	258	79	28	2						916
080		134	217	285	255	118	41	2						1052
090		149	283	469	469	168	69	9						1616
100		178	368	727	660	335	144	41	2					2455
110		187	569	1146	657	256	126	21	2					2964
120		255	652	1132	570	191	89	25	7					2921
130		202	543	751	684	331	143	28	7	1				2690
140		205	382	812	886	352	128	19	5					2789
150		171	347	868	1112	370	183	35	3					3089
160		138	306	797	1021	365	134	35	3	1				2800
170		107	267	676	881	387	186	33	3		1			2541
180		113	282	715	762	278	89	23						2262
190		113	301	639	688	214	66	9						2030
200		118	357	659	606	190	45	10						1985
210		112	333	665	789	262	95	19	3			1		2279
220		147	318	588	713	382	161	45	7	1	1			2363
230		97	299	608	809	408	238	76	20	3				2558
240		126	349	776	994	595	319	107	38	1				3305
250		141	457	1070	1403	728	407	129	33		1			4369
260		128	411	1061	1322	591	325	98	16					3952
270		120	405	1023	1227	628	306	111	29	3	1			3853
280		152	412	1055	1312	666	326	69	20	4				4016
290		114	494	1160	1371	591	298	70	20	1				4119
300		158	400	810	878	478	183	43	13	1				2964
310		129	370	644	720	332	131	31	5					2362
320		141	389	636	472	193	72	18	5					1926
330		152	527	701	332	112	43	9	1					1877
340		208	567	701	364	124	46	5						2015
350		217	636	789	441	108	23	2						2216
360		275	569	620	328	71	22							1885
CALM	2020													2020
TOTAL	2020	5426	13845	25621	24519	10256	4562	1136	242	16	4	1		87648

SHANNON AIRPORT PERCENTAGE FREQUENCIES OF SIMULTANEOUS OCCURRENCES OF SPECIFIED RANGES OF WIND SPEED AND DIRECTION 1961-1970

DIRECTION IN DEGREES	WIND SPEED IN KNOTS												TOTAL	
	Calm	1-3	4-7	7-10	11-16	17-21	22-27	28-33	34-40	41-47	48-55	56-63		OVER 63
010		0.2	0.4	0.6	0.3	0.1	0+	0+						1.5
020		0.2	0.4	0.5	0.2	0.1	0+	0+						1.4
030		0.2	0.4	0.7	0.3	0.1	0+	0+						1.7
040		0.1	0.3	0.6	0.4	0.1	0+	0+						1.7
050		0.1	0.3	0.4	0.2	0.1	0+							1.2
060		0.1	0.2	0.3	0.3	0.1	0+							1.1
070		0.1	0.2	0.3	0.3	0.1	0+	0+						1.0
080		0.2	0.2	0.3	0.3	0.1	0+	0+						1.2
090		0.2	0.3	0.5	0.5	0.2	0.1	0+						1.8
100		0.2	0.4	0.8	0.8	0.4	0.2	0+	0+					2.8
110		0.2	0.6	1.3	0.7	0.3	0.1	0+	0+					3.4
120		0.3	0.7	1.3	0.7	0.2	0.1	0+	0+					3.3
130		0.2	0.6	0.9	0.8	0.4	0.2	0+	0+	0+				3.1
140		0.2	0.4	0.9	1.0	0.4	0.1	0+	0+					3.2
150		0.2	0.4	1.0	1.3	0.4	0.2	0+	0+					3.5
160		0.2	0.3	0.9	1.2	0.4	0.2	0+	0+	0+				3.2
170		0.1	0.3	0.8	1.0	0.4	0.2	0+	0+		0+			2.9
180		0.1	0.3	0.8	0.9	0.3	0.1	0+			0+			2.6
190		0.1	0.3	0.7	0.8	0.2	0.1	0+						2.3
200		0.1	0.4	0.8	0.7	0.2	0.1	0+						2.3
210		0.1	0.4	0.8	0.9	0.3	0.1	0+	0+			0+		2.6
220		0.2	0.4	0.7	0.8	0.4	0.2	0.1	0+	0+	0+			2.7
230		0.1	0.3	0.7	0.9	0.5	0.3	0.1	0+	0+				2.9
240		0.1	0.4	0.9	1.1	0.7	0.4	0.1	0+	0+				3.8
250		0.2	0.5	1.2	1.6	0.8	0.5	0.1	0+		0+			5.0
260		0.1	0.5	1.2	1.5	0.7	0.4	0.1	0+					4.5
270		0.1	0.5	1.2	1.4	0.7	0.3	0.1	0+	0+	0+			4.4
280		0.2	0.5	1.2	1.5	0.8	0.4	0.1	0+	0+				4.6
290		0.1	0.6	1.3	1.6	0.7	0.3	0.1	0+	0+				4.7
300		0.2	0.5	0.9	1.0	0.5	0.2	0+	0+	0+				3.4
310		0.1	0.4	0.7	0.8	0.4	0.1	0+	0+					2.7
320		0.2	0.4	0.7	0.5	0.2	0.1	0+	0+					2.2
330		0.2	0.6	0.8	0.4	0.1	0+	0+	0+					2.1
340		0.2	0.6	0.8	0.4	0.1	0.1	0+						2.3
350		0.2	0.7	0.9	0.5	0.1	0+	0+						2.5
360		0.3	0.6	0.7	0.4	0.1	0+							2.2
CALM	2.3													2.3
TOTAL	2.3	6.2	15.8	29.2	28.0	11.7	5.2	1.3	0.3	0+	0+	0+		2.3

THE ENTRY '0+' INDICATES THAT THE % IS GREATER THAN ZERO BUT LESS THAN 0.05.



Frequency (%) of Windforce

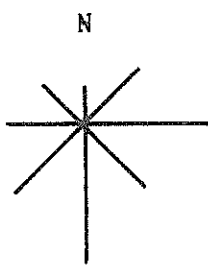
	0	1	2	3	4	5	6	7	8	9	10	11	12
JAN.	6.3	7.6	9.5	20.1	26.8	16.7	9.1	3.2	0.7	0.0	0.0	0.0	0.0
FEB.	4.7	7.5	10.4	22.8	27.5	16.8	7.4	2.6	0.3	*	0.0	0.0	0.0
MAR.	6.1	6.6	11.5	25.7	28.1	14.3	5.8	1.7	0.1	0.0	0.0	0.0	0.0
APR.	5.2	6.5	11.2	28.5	31.3	12.1	4.1	1.0	0.1	0.0	0.0	0.0	0.0
MAY	6.2	6.0	11.4	29.8	31.1	12.0	2.9	0.6	0.0	0.0	0.0	0.0	0.0
JUNE	10.0	7.9	14.2	33.0	25.9	7.4	1.5	0.1	*	0.0	0.0	0.0	0.0
JULY	9.6	8.4	15.4	35.6	25.3	4.9	0.8	*	0.0	0.0	0.0	0.0	0.0
AUG.	9.2	7.7	12.8	33.4	27.8	7.1	2.0	*	0.0	0.0	0.0	0.0	0.0
SEPT.	8.4	8.4	12.7	28.6	27.0	10.4	3.5	0.8	0.2	*	*	0.0	0.0
OCT.	6.4	7.9	11.7	24.3	28.3	13.9	6.3	1.1	0.1	*	0.0	0.0	0.0
NOV.	6.2	7.5	11.7	26.0	26.4	13.1	7.0	1.8	0.3	0.0	0.0	0.0	0.0
DEC.	6.4	6.6	9.1	22.4	29.1	17.2	7.1	1.7	0.4	*	0.0	0.0	0.0
YEAR	7.1	7.4	11.8	27.5	27.9	12.1	4.8	1.2	0.2	*	*	0.0	0.0

* Percentage greater than zero but less than 0.05.

MONTHLY FREQUENCY OF WIND DIRECTIONS (%)

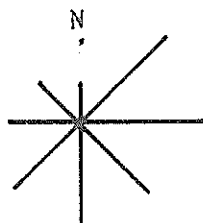
VALENTIA OBSERVATORY

1961-1970



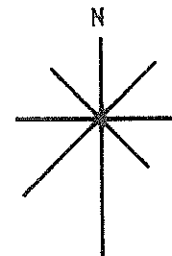
Calm 6.3%

JANUARY



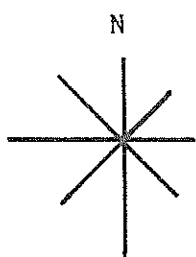
Calm 4.7%

FEBRUARY



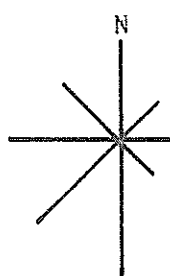
Calm 6.1%

MARCH



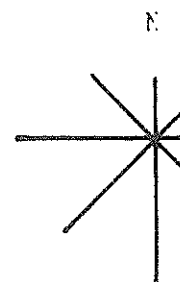
Calm 5.2%

APRIL



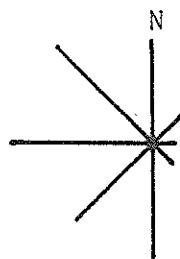
Calm 6.2%

MAY



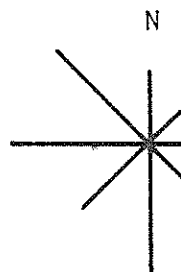
Calm 10.0%

JUNE



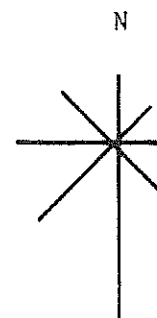
Calm 9.6%

JULY



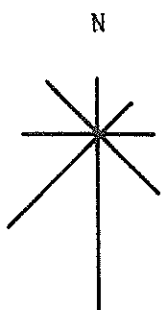
Calm 9.2%

AUGUST



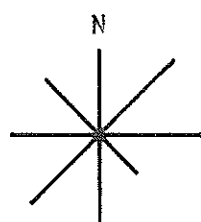
Calm 8.4%

SEPTEMBER



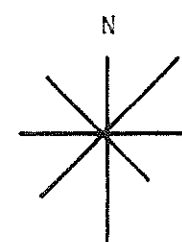
Calm 6.4%

OCTOBER



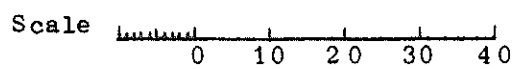
Calm 6.2%

NOVEMBER



Calm 6.4%

DECEMBER

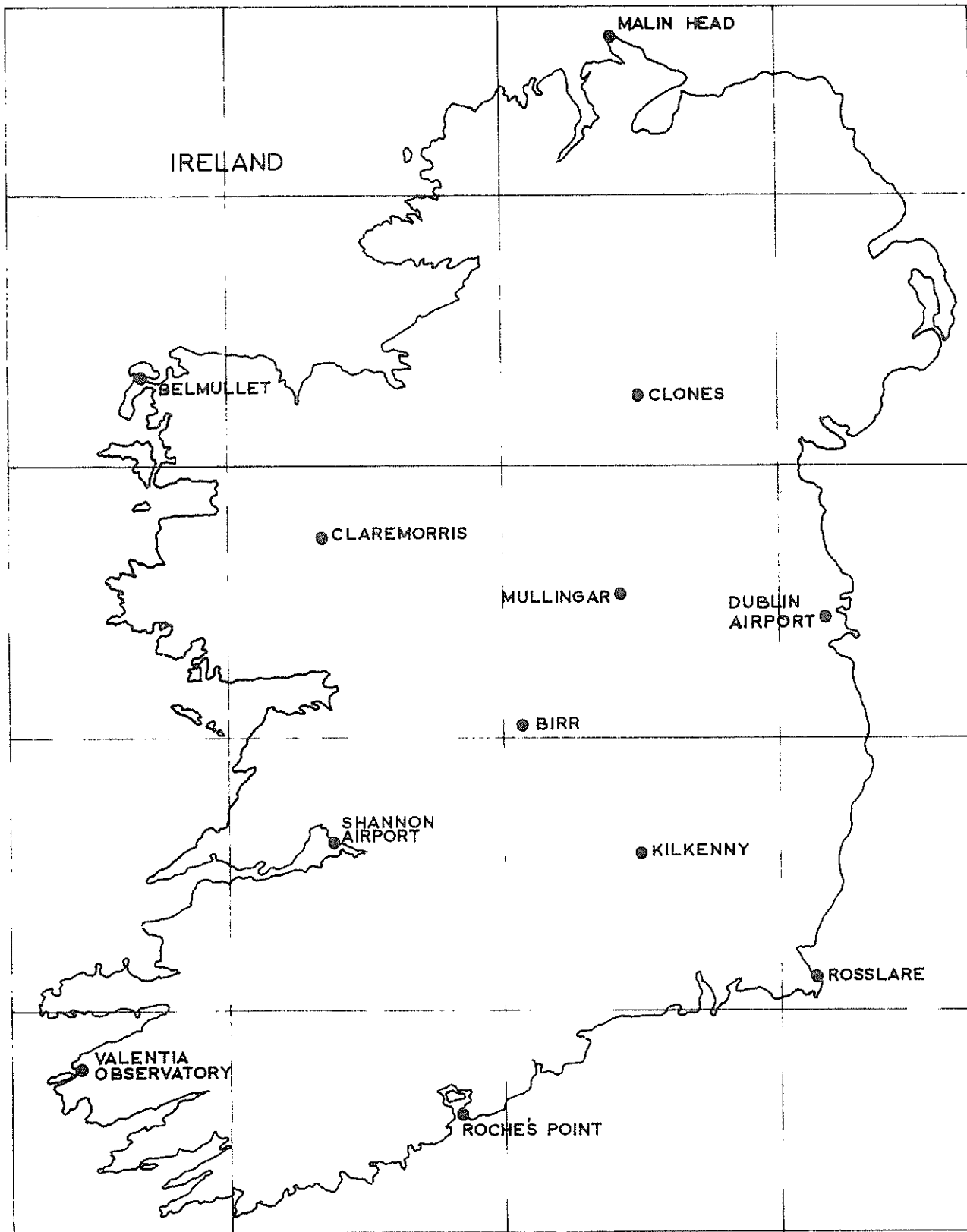


VALENZIA OBSERVATORY		NUMBER OF SIMULTANEOUS OCCURRENCES OF SPECIFIED RANGES OF WIND SPEED AND DIRECTION 1961-1970												TOTAL		
DIRECTION IN DEGREES	CALM	WIND SPEED IN KNOTS														
		1-3	4-6	7-10	11-16	17-21	22-27	28-33	34-40	41-47	48-55	56-63	OVER 63			
010		111	217	602	616	228	50	11	1							1836
020		207	193	442	490	150	82	18								1582
030		295	294	412	340	115	44	8								1508
040		394	350	357	252	71	18	1	1							1444
050		689	570	409	314	85	18									2085
060		663	539	470	367	114	43	3								2199
070		471	385	613	430	103	30	4								2036
080		275	313	718	388	84	28	11								1817
090		152	245	680	476	120	44	18	2							1737
100		125	208	614	603	313	163	66	17	2						2111
110		45	118	386	352	222	102	36	6							1267
120		60	141	367	355	152	73	14	1							1163
130		71	163	398	457	228	109	30	3							1459
140		68	125	449	550	310	126	29	3							1660
150		98	221	644	724	376	151	33	5							2252
160		120	305	823	894	372	131	23	2							2670
170		189	382	1128	1081	541	180	38								3539
180		211	484	1283	1312	626	198	39								4153
190		140	378	903	1131	534	162	27	5							3280
200		174	364	803	910	522	239	47	10							3069
210		98	251	718	979	540	276	66	11							2939
220		120	249	877	1234	539	258	53	10							3340
230		81	206	770	1045	496	236	83	14	1						2933
240		63	152	473	587	307	142	44	11		1					1779
250		81	163	490	592	338	119	29	7							1819
260		134	298	630	785	358	139	44	9	1						2398
270		173	448	1007	875	367	149	78	6	1						3104
280		177	448	999	795	370	168	50	8							3015
290		154	274	763	859	420	189	50	13							2722
300		152	310	802	800	316	131	52	8							2571
310		102	190	600	436	139	35	3	2							1507
320		116	297	797	672	226	48	7	7							2170
330		124	287	849	897	307	65	8	2							2539
340		98	193	584	641	183	58	12	2							1771
350		92	248	569	594	226	99	15								1843
360		164	335	697	596	229	87	13								2121
CALM	6208															6208
TOTAL	6208	6487	10344	24126	24429	10627	4190	1063	166	5	1					87646

VALENTIA OBSERVATORY PERCENTAGE FREQUENCIES OF SIMULTANEOUS OCCURRENCES OF SPECIFIED RANGES OF WIND SPEED AND DIRECTION 1961-1970

DIRECTION IN DEGREES	WIND SPEED IN KNOTS												TOTAL	
	Calm	1-3	4-7	7-10	11-16	17-21	22-27	28-33	34-40	41-47	48-55	56-63		OVER 63
010		0.1	0.2	0.7	0.7	0.3	0.1	0+	0+					2.1
020		0.2	0.2	0.5	0.6	0.2	0.1	0+						1.8
030		0.3	0.3	0.5	0.4	0.1	0.1	0+						1.7
040		0.4	0.4	0.4	0.3	0.1	0+	0+	0+					1.6
050		0.8	0.7	0.5	0.4	0.1	0+							2.4
060		0.8	0.6	0.5	0.4	0.1	0+	0+						2.5
070		0.5	0.4	0.7	0.5	0.1	0+	0+						2.3
080		0.3	0.4	0.8	0.4	0.1	0+	0+						2.1
090		0.2	0.3	0.8	0.5	0.1	0.1	0+	0+					2.0
100		0.1	0.2	0.7	0.7	0.4	0.2	0.1	0+	0+				2.4
110		0.1	0.1	0.4	0.4	0.3	0.1	0+	0+	0+				1.4
120		0.1	0.2	0.4	0.4	0.2	0.1	0+	0+					1.3
130		0.1	0.2	0.5	0.5	0.3	0.1	0+	0+					1.7
140		0.1	0.1	0.5	0.6	0.4	0.1	0+	0+					1.9
150		0.1	0.3	0.7	0.8	0.4	0.2	0+	0+					2.6
160		0.1	0.3	0.9	1.0	0.4	0.1	0+	0+					3.0
170		0.2	0.4	1.3	1.2	0.6	0.2	0+						4.0
180		0.2	0.6	1.5	1.5	0.7	0.2	0+						4.7
190		0.2	0.4	1.0	1.3	0.6	0.2	0+	0+					3.7
200		0.2	0.4	0.9	1.0	0.6	0.3	0.1	0+					3.5
210		0.1	0.3	0.8	1.1	0.6	0.3	0.1	0+					3.4
220		0.1	0.3	1.0	1.4	0.6	0.3	0.1	0+					3.8
230		0.1	0.2	0.9	1.2	0.6	0.3	0.1	0+	0+	0+			3.3
240		0.1	0.2	0.5	0.7	0.4	0.2	0.1	0+					2.0
250		0.1	0.2	0.6	0.7	0.4	0.1	0+	0+					2.1
260		0.2	0.3	0.7	0.9	0.4	0.2	0.1	0+	0+				2.7
270		0.2	0.5	1.1	1.0	0.4	0.2	0.1	0+	0+				3.5
280		0.2	0.5	1.1	0.9	0.4	0.2	0.1	0+					3.4
290		0.2	0.3	0.9	1.0	0.5	0.2	0.1	0+					3.1
300		0.2	0.4	0.9	0.9	0.4	0.1	0.1	0+					2.9
310		0.1	0.2	0.7	0.5	0.2	0+	0+	0+					1.7
320		0.1	0.3	0.9	0.8	0.3	0.1	0+	0+					2.5
330		0.1	0.3	1.0	1.0	0.4	0.1	0+	0+					2.9
340		0.1	0.2	0.7	0.7	0.2	0.1	0+	0+					2.0
350		0.1	0.3	0.6	0.7	0.3	0.1	0+						2.1
360		0.2	0.4	0.8	0.7	0.3	0.1	0+						2.4
CALM	7.1													7.1
TOTAL	7.1	7.4	11.8	27.5	27.9	12.1	4.8	1.2	0.2	0+	0+			

THE ENTRY '0+' INDICATES THAT THE % IS GREATER THAN ZERO BUT LESS THAN 0.05.



Location of stations

BEAUFORT SCALE OF WIND FORCE

<u>Beaufort Number</u>	<u>Short Description</u>	<u>Specification for use on Land</u>	<u>Wind Velocity at 10 metres Above Level Ground</u>	
			<u>Knots</u>	<u>Metres per second</u>
0	Calm	Smoke rises vertically	Less than 1	Less than 0.2
1	Light Air	Direction of wind shown by smoke but not by windvanes.	1 - 3	0.3 - 1.5
2	Light breeze	Wind felt on face; leaves rustle, ordinary vanes moved by wind.	4 - 6	1.6 - 3.3
3	Gentle breeze	Leaves and small twigs in constant motion; wind extends light flag.	7 - 10	3.4 - 5.4
4	Moderate breeze	Raises dust and loose paper; small branches are moved.	11 - 16	5.5 - 7.9
5	Fresh breeze	Small trees in leaf begin to sway; crested wavelets form on inland waters.	17 - 21	8.0 - 10.7
6	Strong breeze	Large branches in motion; whistling heard in tele- graph wires; umbrellas used with difficulty.	22 - 27	10.8 - 13.8
7	Near gale	Whole trees in motion; inconvenience felt when walking against the wind.	28 - 33	13.9 - 17.1
8	Gale	Breaks twigs off trees; generally impedes progress.	34 - 40	17.2 - 20.7
9	Strong gale	Slight structural damage occurs (chimney pots and slates removed).	41 - 47	20.8 - 24.4
10	Storm	Seldom experienced inland trees uprooted; consider- able structural damage occurs.	48 - 55	24.5 - 28.4
11	Violent Storm	Very rarely experienced; accompanied by widespread damage.	56 - 63	28.5 - 32.6
12	Hurricane	_____	64 and over.	32.7 and over.