

DNMI DET NORSKE METEOROLOGISKE INSTITUTT

# *klima*

HANØYTANGEN , MARCH 1994

Knut A. Iden

RAPPORT NR. 18/94 KLIMA



DET NORSKE METEOROLOGISKE INSTITUTT  
P.O.BOX 43, BLINDERN 0313 OSLO  
TEL. : (02) 96 30 00

ISBN

REPORT NR.

18/94 KLIMA

DATE: May 18,  
1994.

TITLE

HANØYTANGEN , MARCH 1994

PREPARED BY

Knut A. Iden

ORDERED BY

KVÆRNER CONCRETE CONSTRUCTION  
CONTRACT NO: KCC/PAC004/001

SUMMARY

Monthly summary based on the meteorological data  
measured at the building site of Kværner at  
Hanøytangen, Askøy near Bergen.

SIGNATURE

*Knut A. Iden*

Knut A. Iden  
PROJ. RESPONSIBLE

*Bjørn Aune*

Bjørn Aune  
HEAD OF DIVISION

**MONTHLY REPORT MARCH 1994**

---

**PAC 004 WEATHER ANALYSIS IN HANØYTANGEN  
REPORT 5 : May 6 1994**

CLIENT : DNMI  
CONTRACT NO. : KCC/PAC004/001  
PROJECT NO. :  
DOCUMENT NAME : RAPPMAR.94  
PROJ. MANAGER : Knut A. Iden  
EXECUTED BY : Bjørn. H. Halvorsen and Knut A. Iden  
APPROVED BY : Bjørn Aune *Bjørn Aune* 16.05.1994  
COMPLETION DATE : May 06 1994  
REV 1. :

DSU : serial no. 6602  
Received : April 18 1994

**Comments regarding the data :**

The DSU serial no.6602 contains data for the period 01/3/94 to 5/4/94.

The DSU is read by the standard software (P3059) delivered from Aanderaa a/s. The calibration factors applied is provided by Aanderaa in a fax dated January 21 1994.

The processing is based on this data set and the following steps are conducted :

- . A SAS data set of the data for February are generated

In this step 10 min mean wind speed  $> 35$  m/s and gust wind speed  $> 40$  m/s are replaced with missing values. The wind speed in 30 m is also compared to the wind speed measured 18 m above the ground. If deviation is 10 m/s above or 5 m/s below the wind speed measured in 18 m, the wind speed in 30 m is replaced by missing value. The reason for this handling is there seem to be some disturbances connected to the measurements in the top of the mast (30 m above the ground).

The other meteorological parameters are checked to be inside reasonable intervals. The original data which is replaced due to the specified criterions are saved for an assessment. Appendix 2 gives a listing of these records.

- . Plots of the time series are generated and examined.
- . Un physical values (spikes) are eliminated.
- . Final plots of the time series are generated.

For wind speed and wind direction 10 min values are plotted. For the parameters air temperature (T), humidity (UU) and air pressure reduced to mean sea level (QFF), hourly means are plotted. The hourly mean for 11.00<sup>h</sup> is defined by the measurements for 10.30<sup>h</sup>, 10.40<sup>h</sup>, 10.50<sup>h</sup>, 11.00<sup>h</sup>, 11.10<sup>h</sup> and 11.20<sup>h</sup>.

- . Distribution tables wind speed /direction are generated. 22.5° intervals are applied for the direction.  $N=348.76^\circ - 11.25'$ ,  $NNE = '11.26 - 33.75'$  ...
- . Wind roses are generated.
- . Coefficient transfert tables are generated.
- . Duration table are generated.
- . Climatological summary table are updated.

Logging each 10 minute

**WIND**

Parameter	Height	Cover.	Unit	Mean	ST.D.	Max	Dir <sup>1</sup>	D.:Hour	Min	Dir <sup>1</sup>	D.:Hour
Wind speed	30 m	99.6 %	m/s	8.1	4.1	21.4	167	04:2245	0.4	164	16:1256
Wind speed	18 m	99.8 %	m/s	8.0	4.1	21.2	N/A	04:2245	0.4	N/A	16:1256
Wind speed	10 m	99.8 %	m/s	7.8	4.1	21.0	153	04:2245	0.4	042	20:0606
Wind gust	30 m	99.6 %	m/s	10.6	5.2	28.8	164 <sup>2</sup>	04:2255	0.4	164 <sup>2</sup>	16:1256
Wind gust	18 m	99.8 %	m/s	10.5	5.2	28.2	N/A	04:2245	0.4	N/A	16:1256
Wind gust	10 m	99.8 %	m/s	10.4	5.2	29.3	153 <sup>2</sup>	04:2255	0.4	042 <sup>2</sup>	20:0616

**OTHER METEOROLOGICAL DATA**

Parameter	Height	Cover.	Unit	Mean	ST.D.	Max	D.:hour	Min	D.:hour
Air Temp.	2. m <sup>3</sup>	99.7 %	C	3.0	2.7	10.5	31:0136	-5.1	21:0606
Rel. Hum.	2. m <sup>3</sup>	99.8 %	%	73	13.5	89	22:1026	29	01:1333
Air pr.	0. m <sup>3</sup>	99.7 %	hPa	999.1	10.9	1024.3	01:1053	969.4	13:1045

- 1 Direction is referenced to True North (accuracy +- 2°)
- 2 Direction of gust wind is not measured. The mean wind direction for the ten minute period when it has occurred is applied.
- 3 Air temperature sensor and humidity sensor are placed in the mast 2 m above the reference point on the ground while the pressure sensor have the same height as the reference.

The reference point on the ground is located 15.64 m above the mean sea level (NGO).

The time for the logging this month is not 00,10,20,30... as should be the case. In the beginning of the month the logging is made 03,13,23.. Later in the month the logging is made 05,15,25 ... and in the end of the month 06,16,26,... giving some problems to the computing of the hourly means strictly after the definition given.

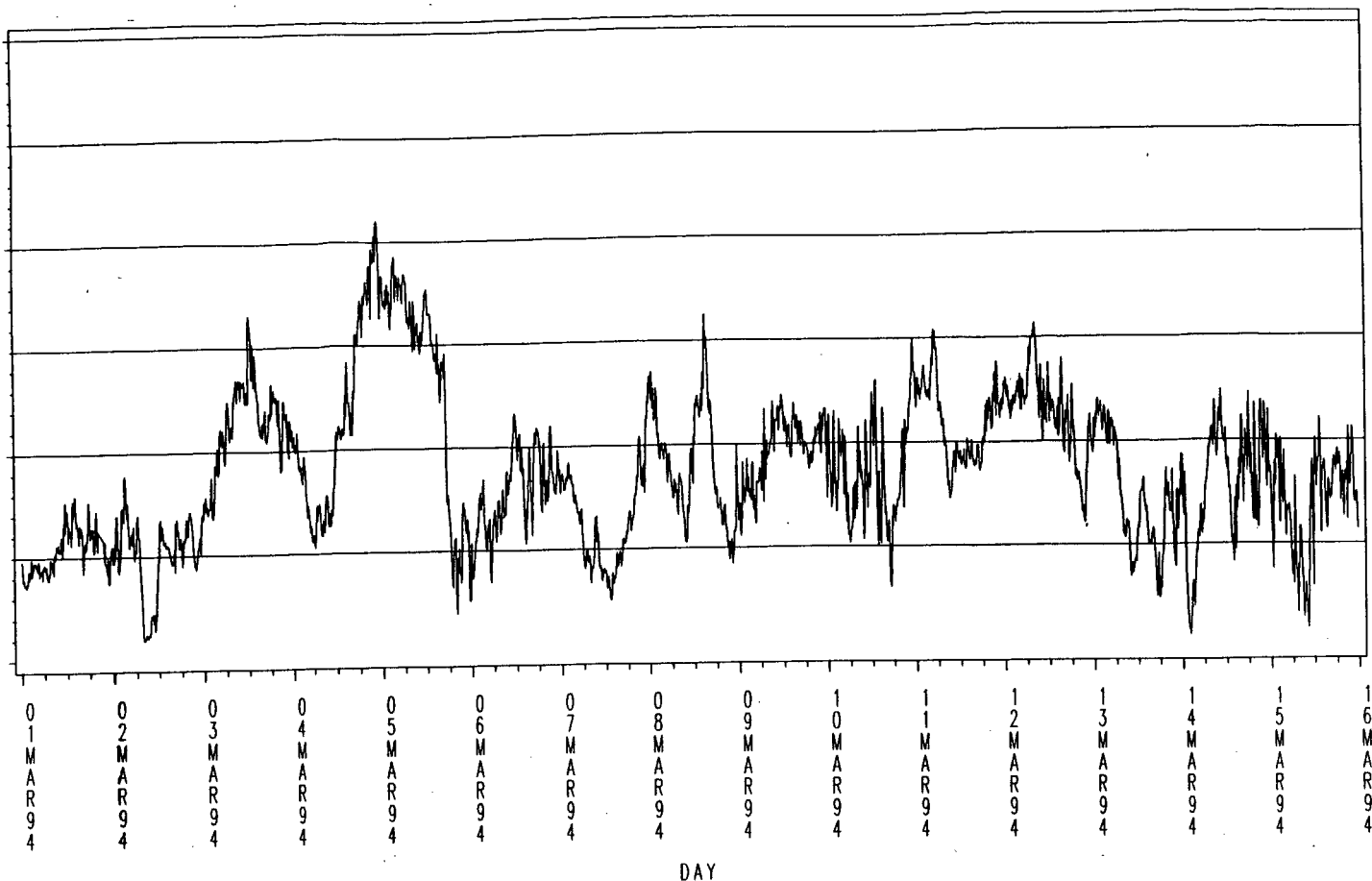
Unphysical values were encountered for the air temperature March 7 08<sup>35</sup> - 09<sup>45</sup> (14.86°C,11.82°C,10.50°C,14.02°C,10.13°C and 12.54°C). Our station at Flesland measured 5.1-5.3°C in the same period which is in good agreement with the measurements at Hanøytangen before and after the period with unphysical values. The values are removed.

The minimum of the wind speed (0.4 m/s) has occurred several times this month. It is the first occurrence which is given in the table.

## **PLOT OF TIME SERIES**

# HANØYTANGEN 1994

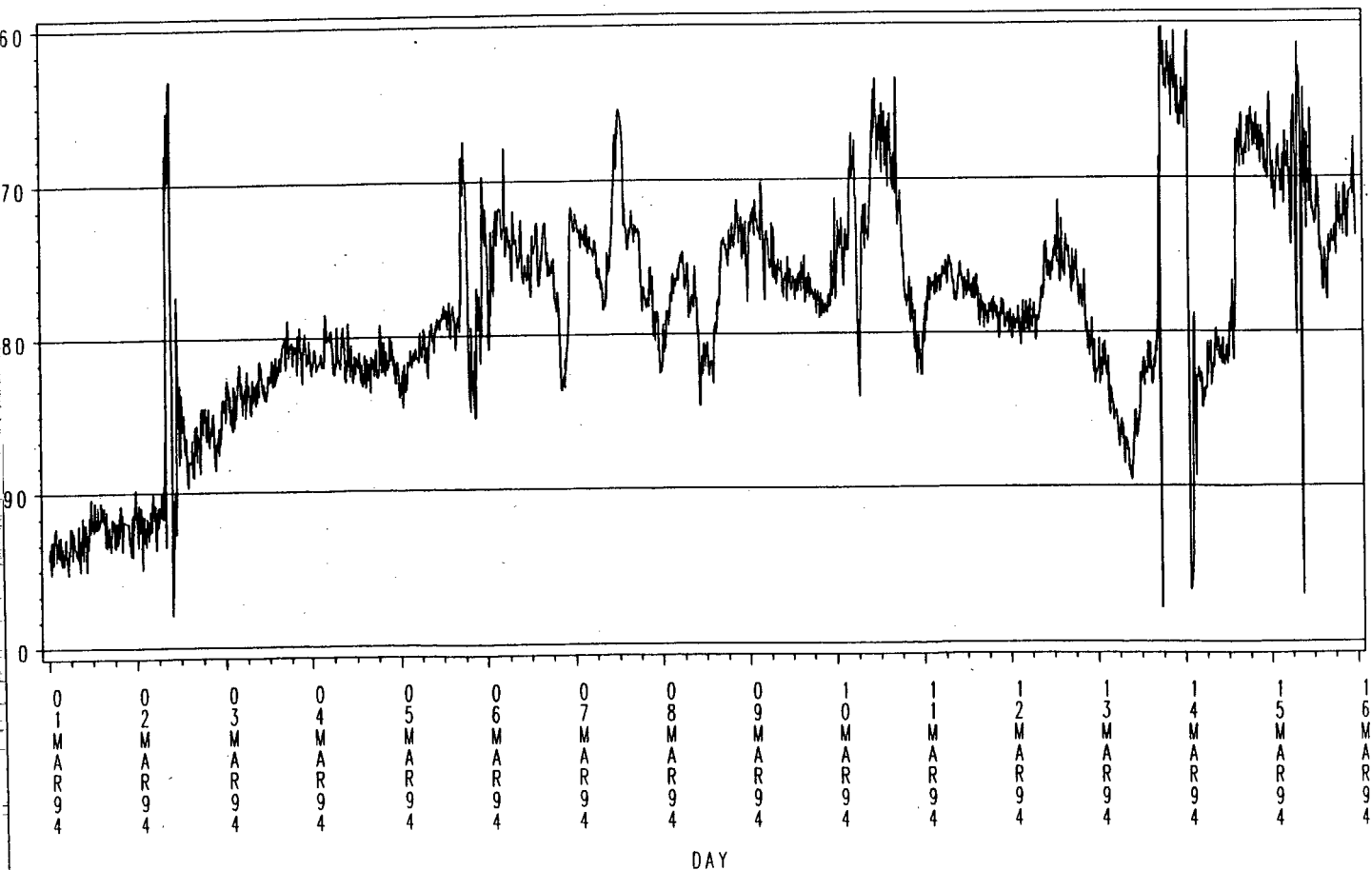
Wind speed 10 m above the ground (m/s)



DNMI - KLIMA-AVDELINGEN

# HANØYTANGEN 1994

Wind direction 10 m above the ground

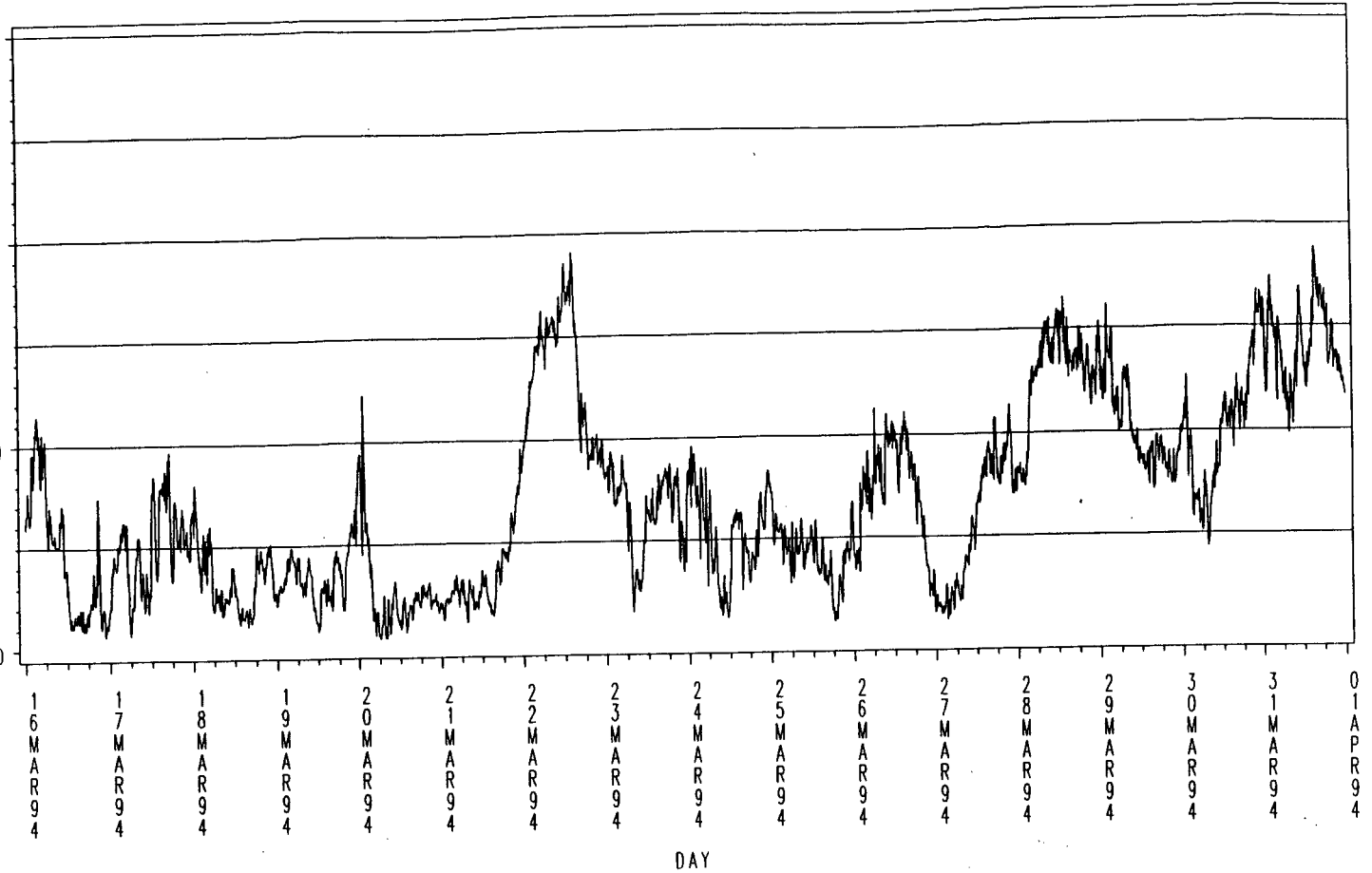


DNMI - KLIMA-AVDELINGEN



# HANØYTANGEN 1994

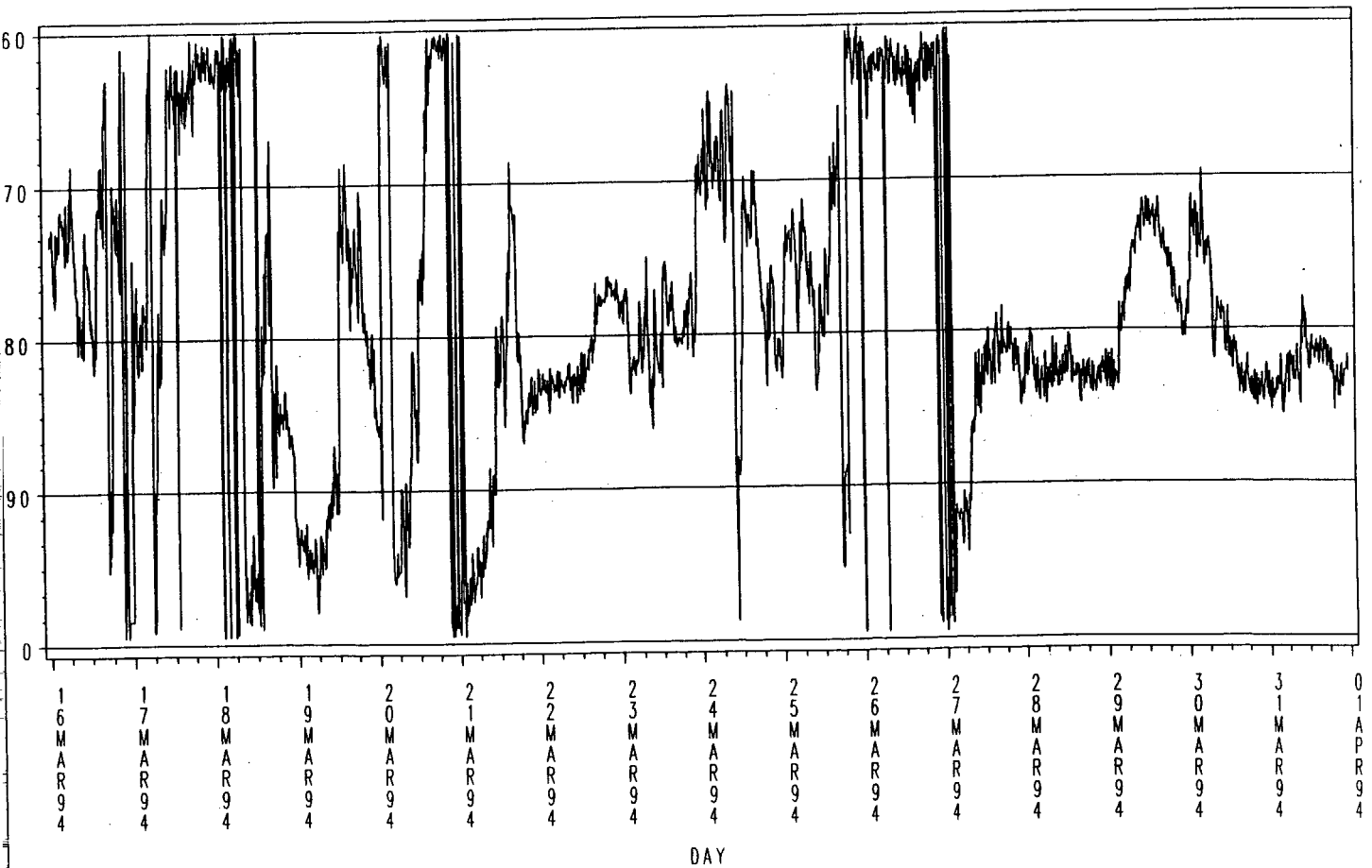
Wind speed 10 m above the ground (m/s)



DNMI - KLIMA-AVDELINGEN

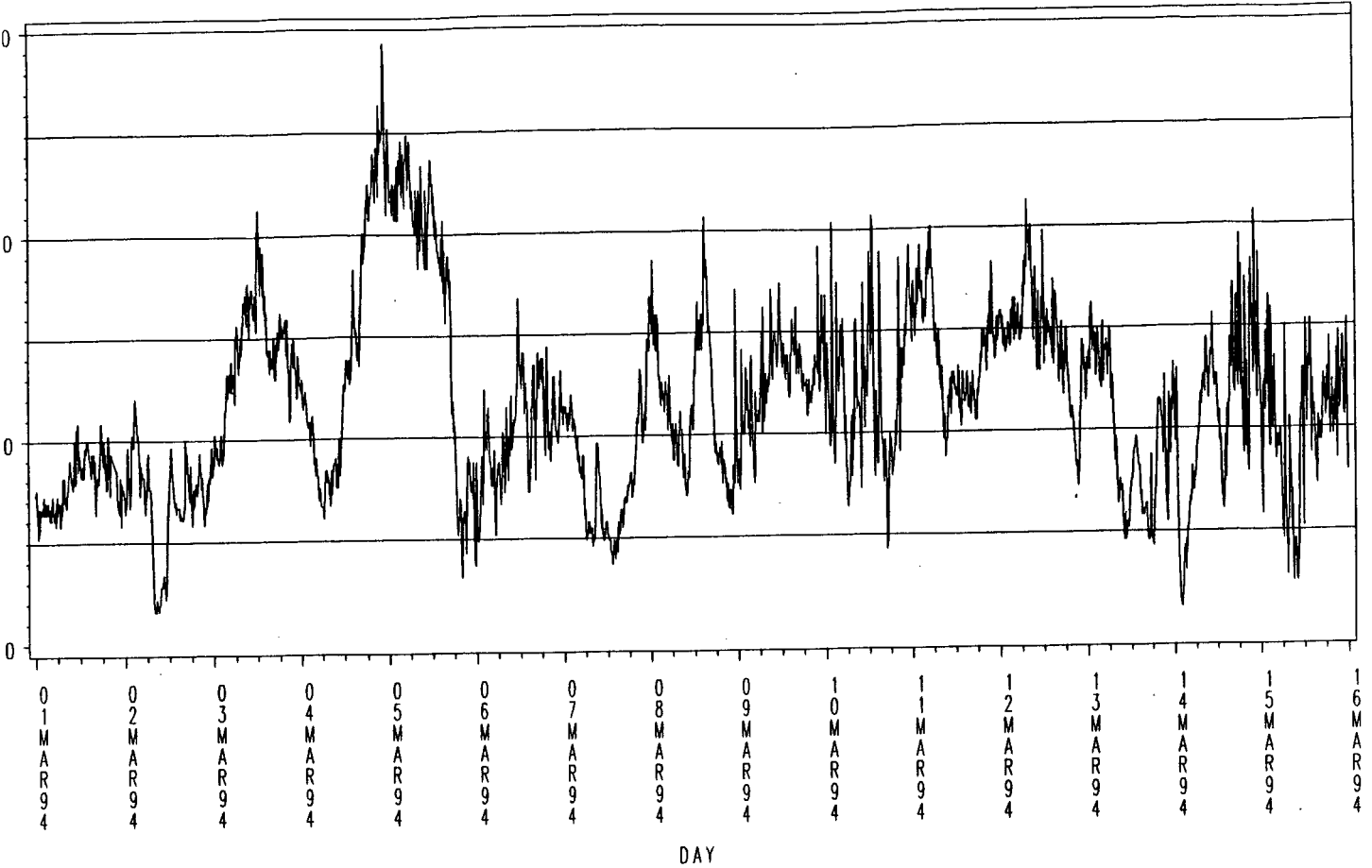
# HANØYTANGEN 1994

Wind direction 10 m above the ground



# HANØYTANGEN 1994

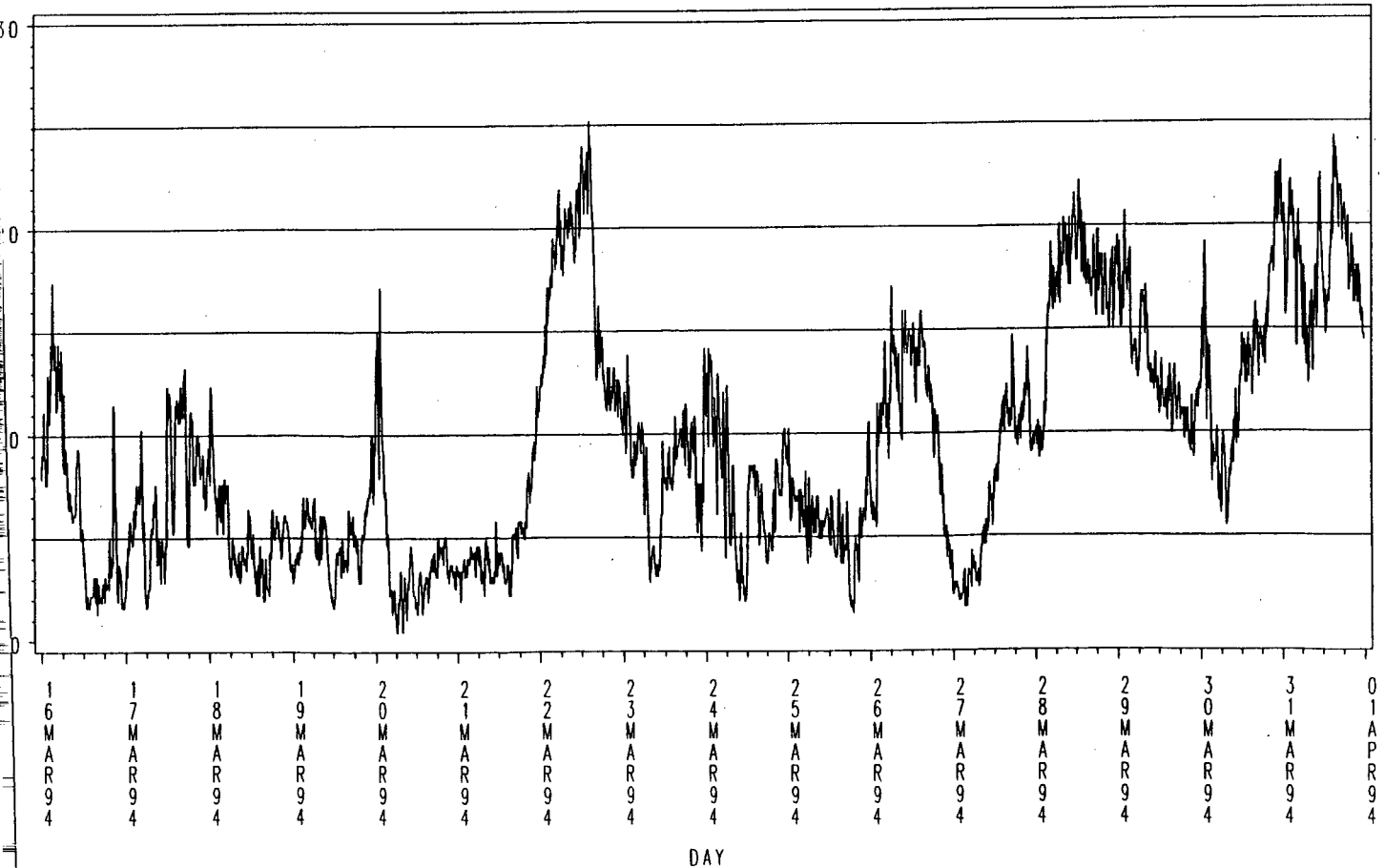
Gust wind speed 10 m above the ground (m/s)



DNMI - KLIMA-AVDELINGEN

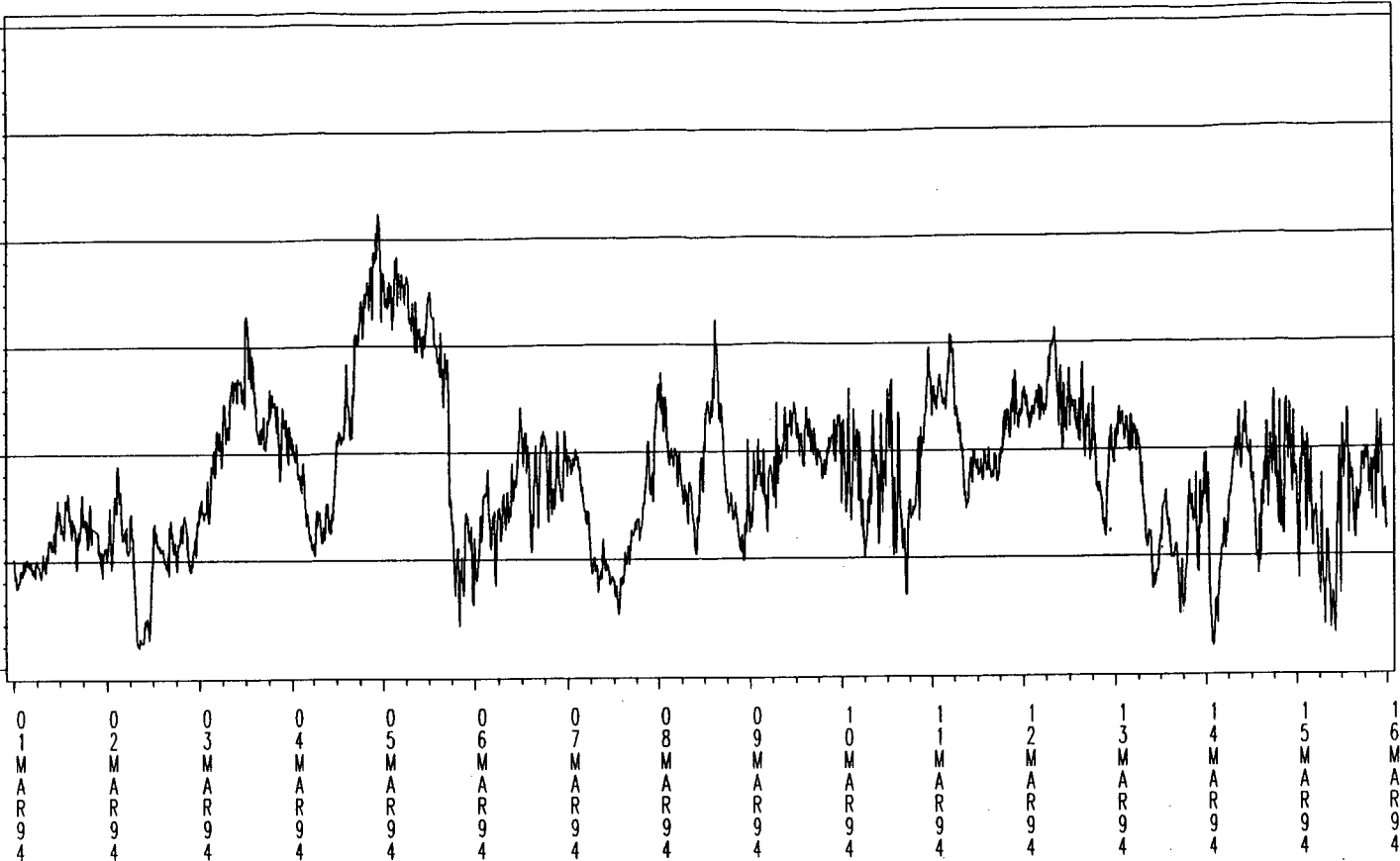
# HANØYTANGEN 1994

Gust wind speed 10 m above the ground (m/s)



# HANØYTANGEN 1994

Wind speed 18 m above the ground (m/s)

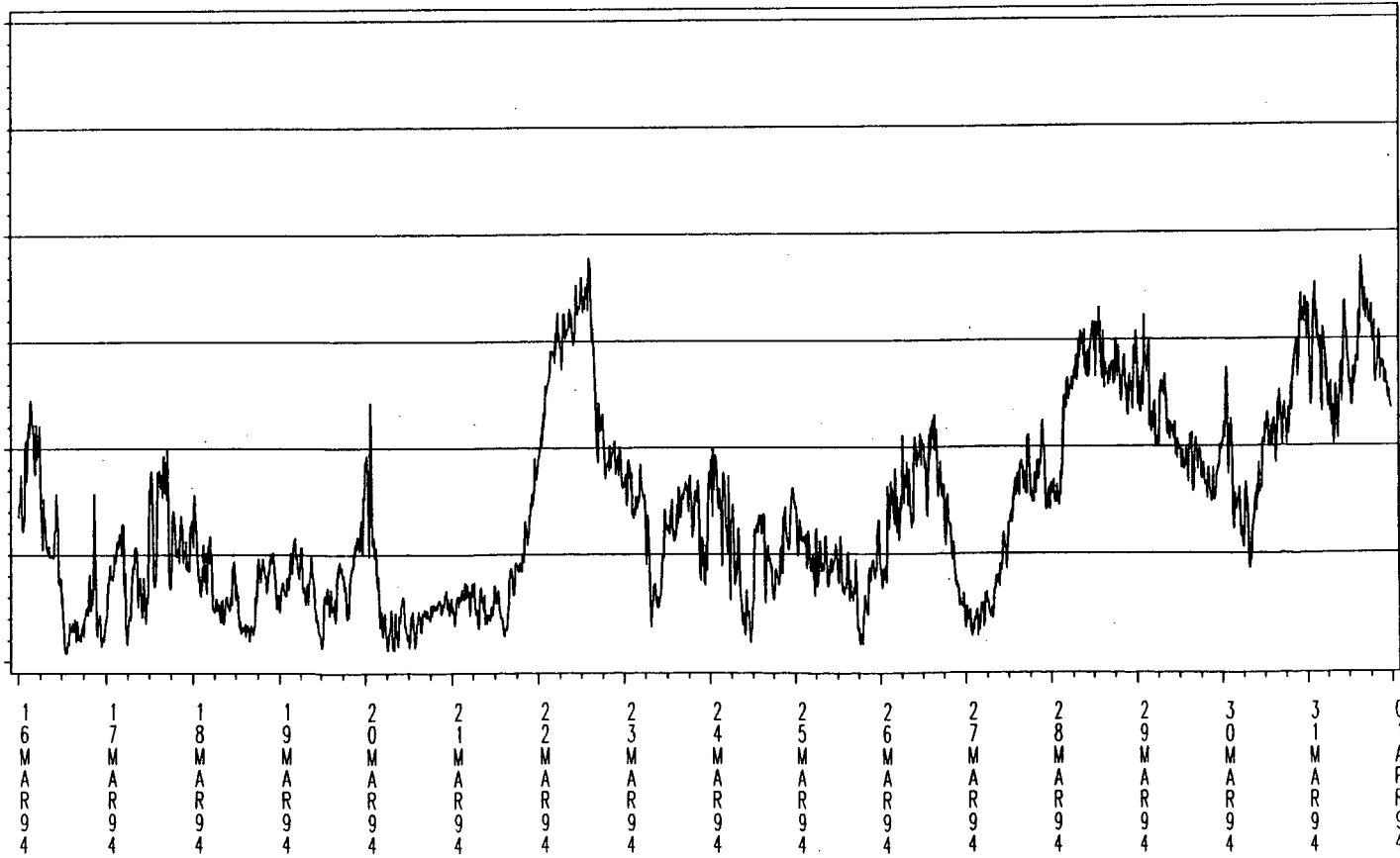


DAY

DNMI - KLIMA-AVDELINGEN

# HANØYTANGEN 1994

Wind speed 18 m above the ground (m/s)

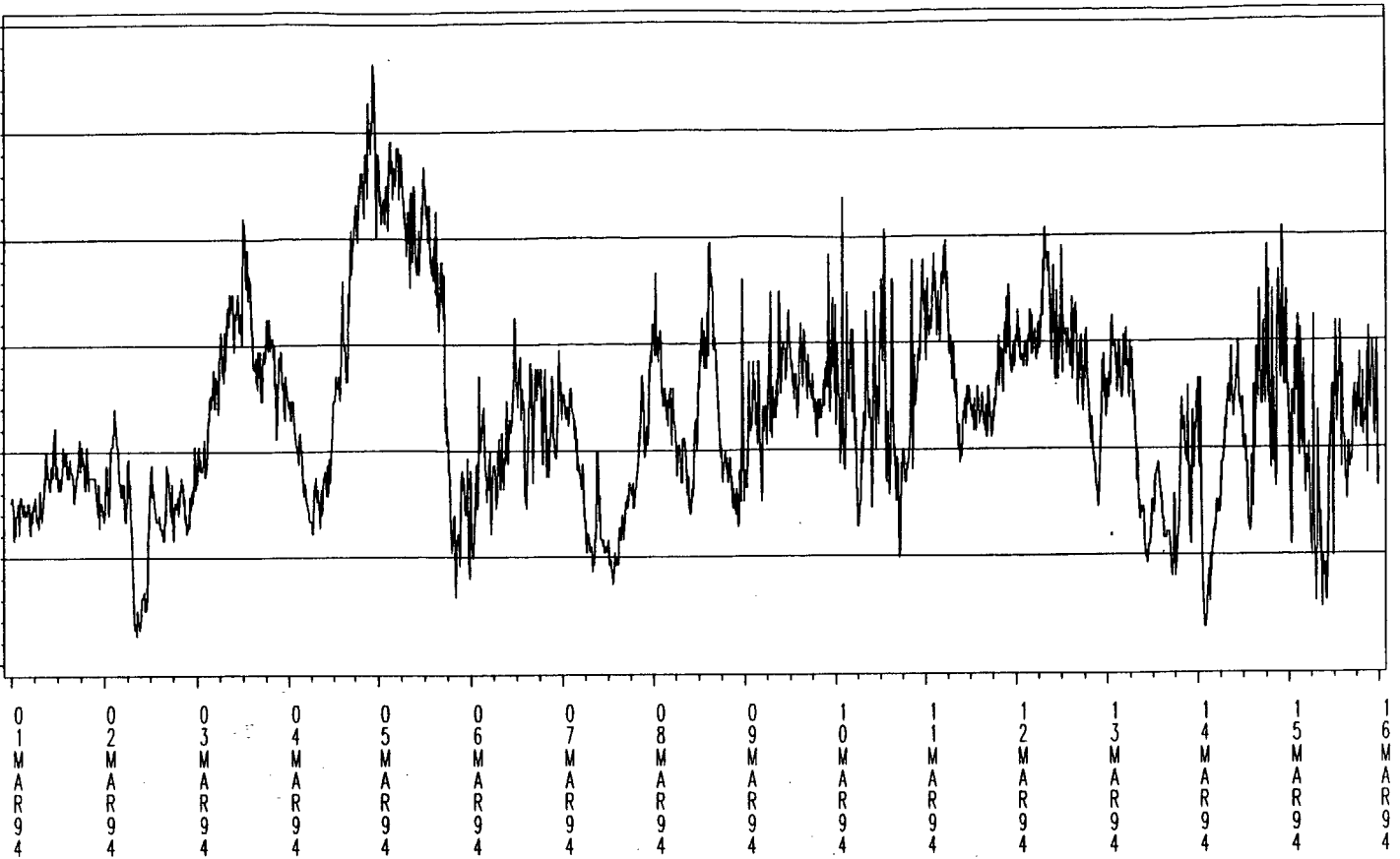


DAY

DNMI - KLIMA-AVDELINGEN

# HANØYTANGEN 1994

Gust wind speed 18 m above the ground (m/s)

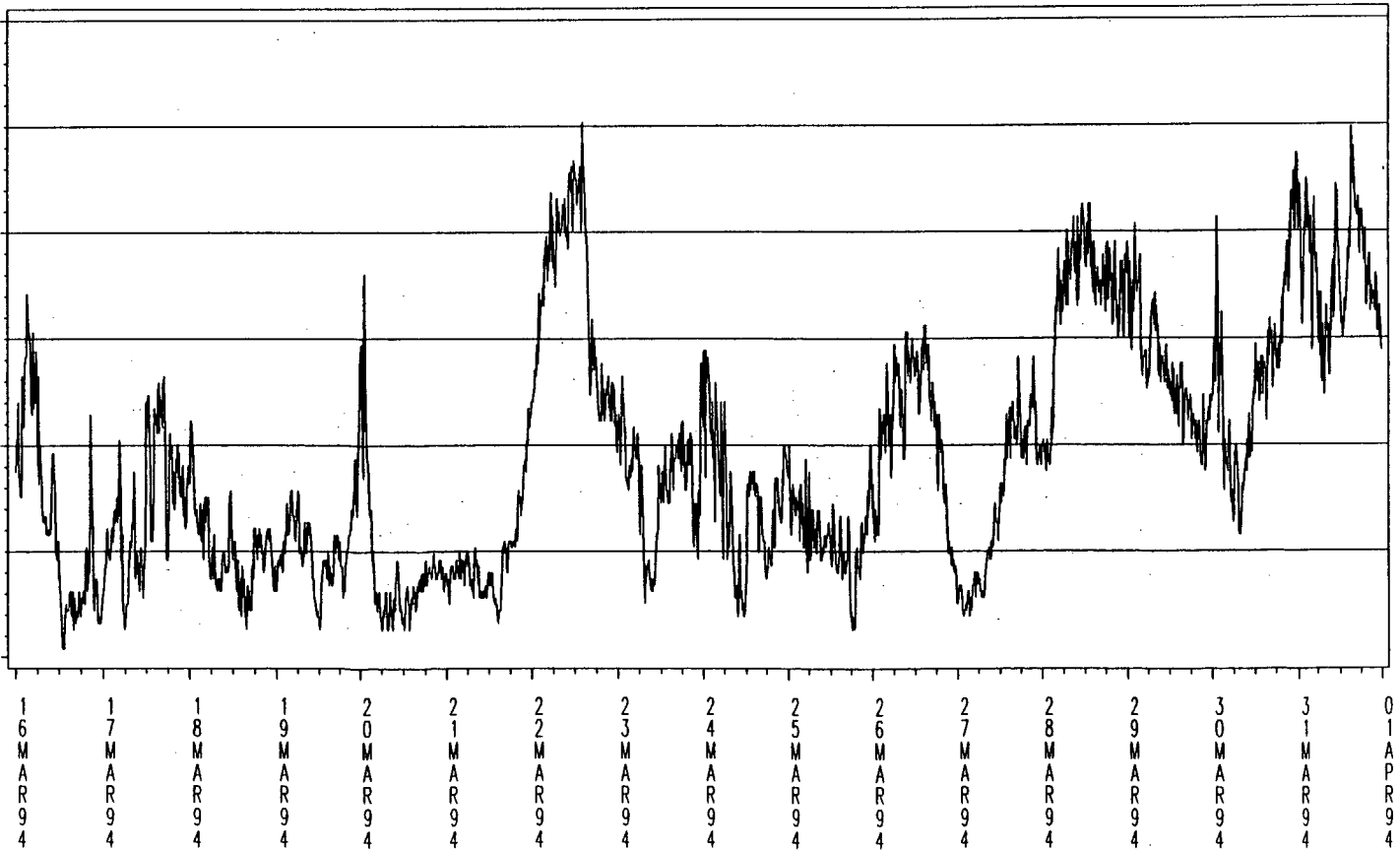


DAY

DNMI - KLIMAAVDELINGEN

# HANØYTANGEN 1994

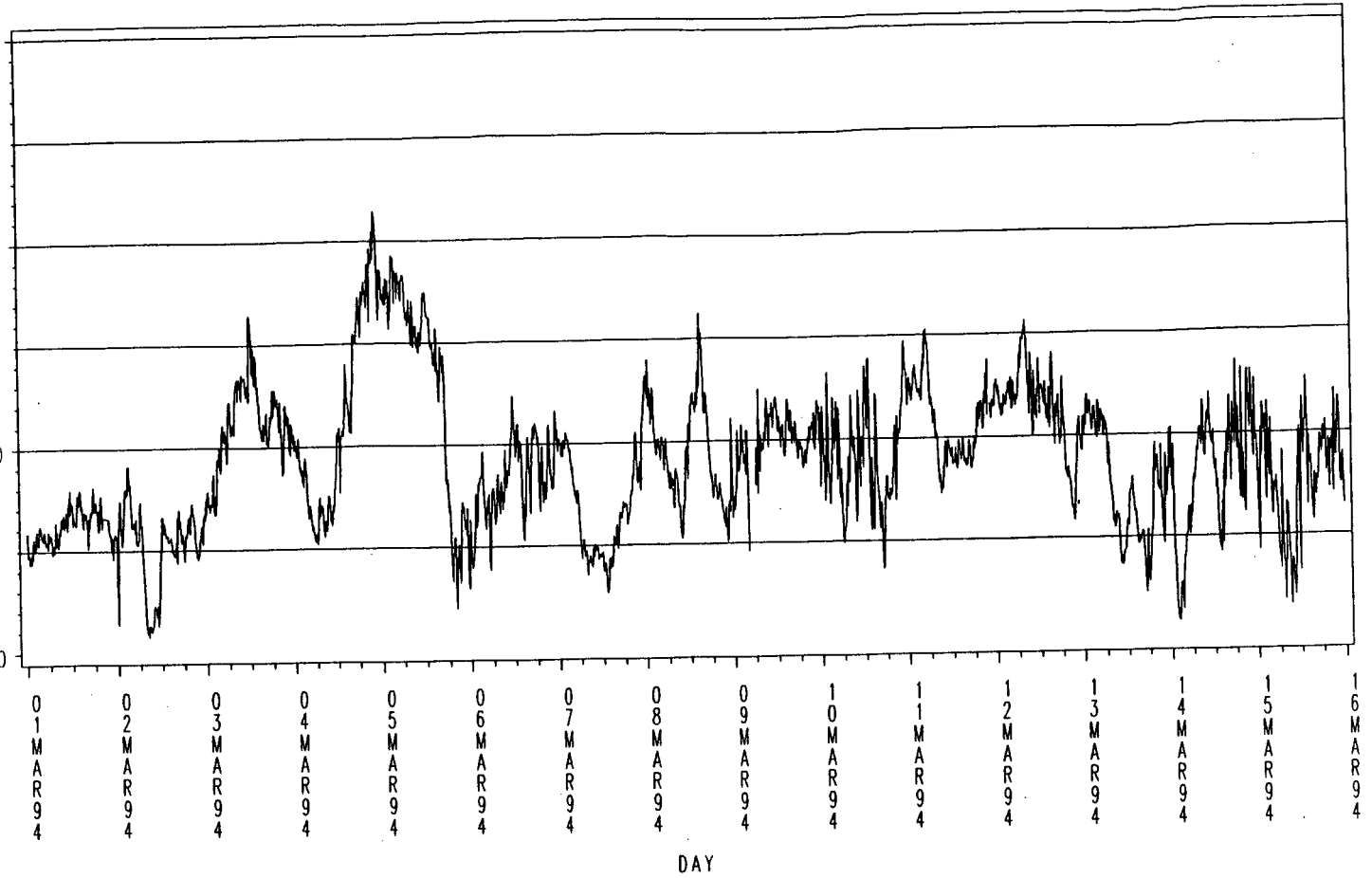
Gust wind speed 18 m above the ground (m/s)



DAY

# HANØYTANGEN 1994

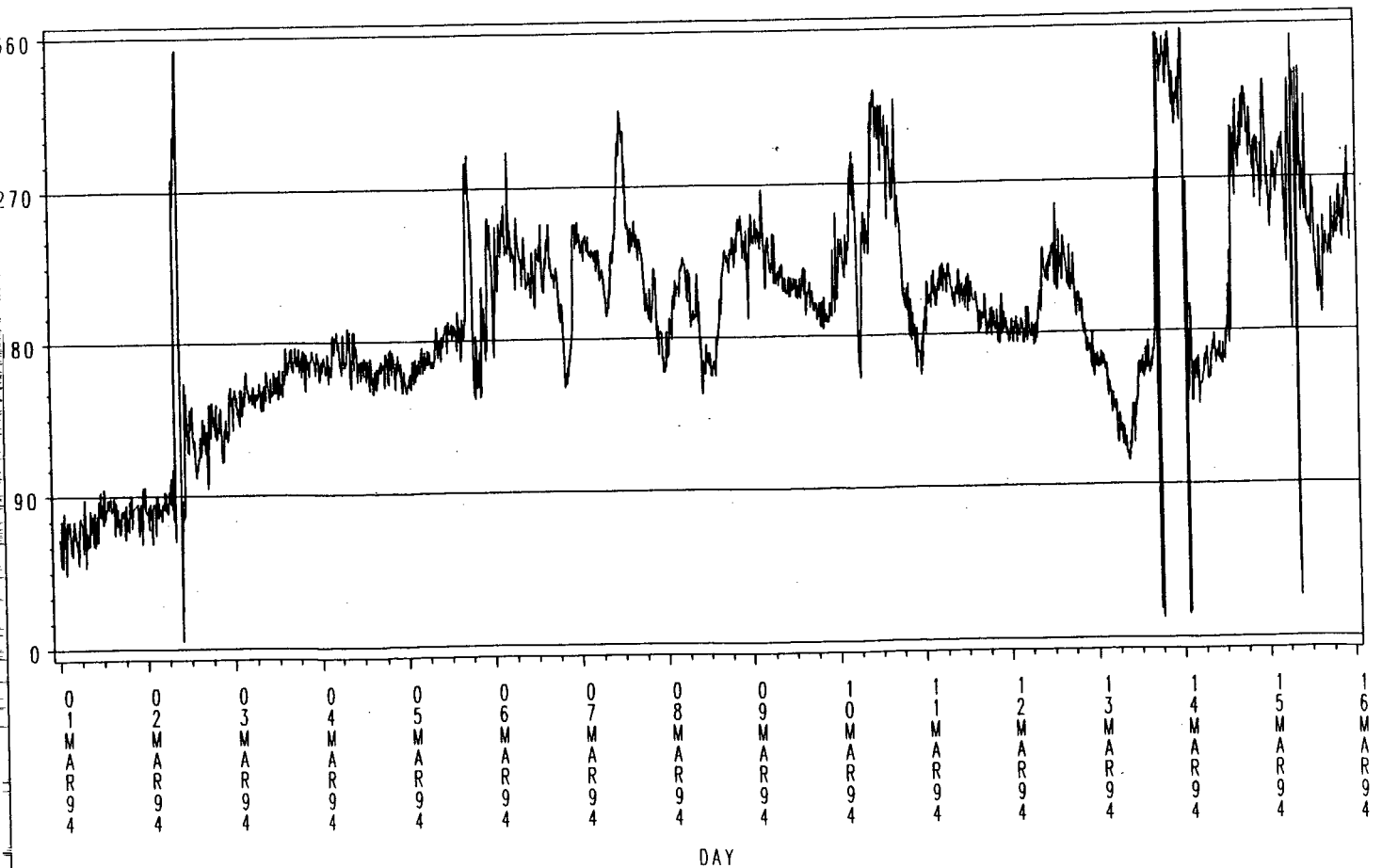
Wind speed 30 m above the ground (m/s)



DNMI - KLIMADELINGEN

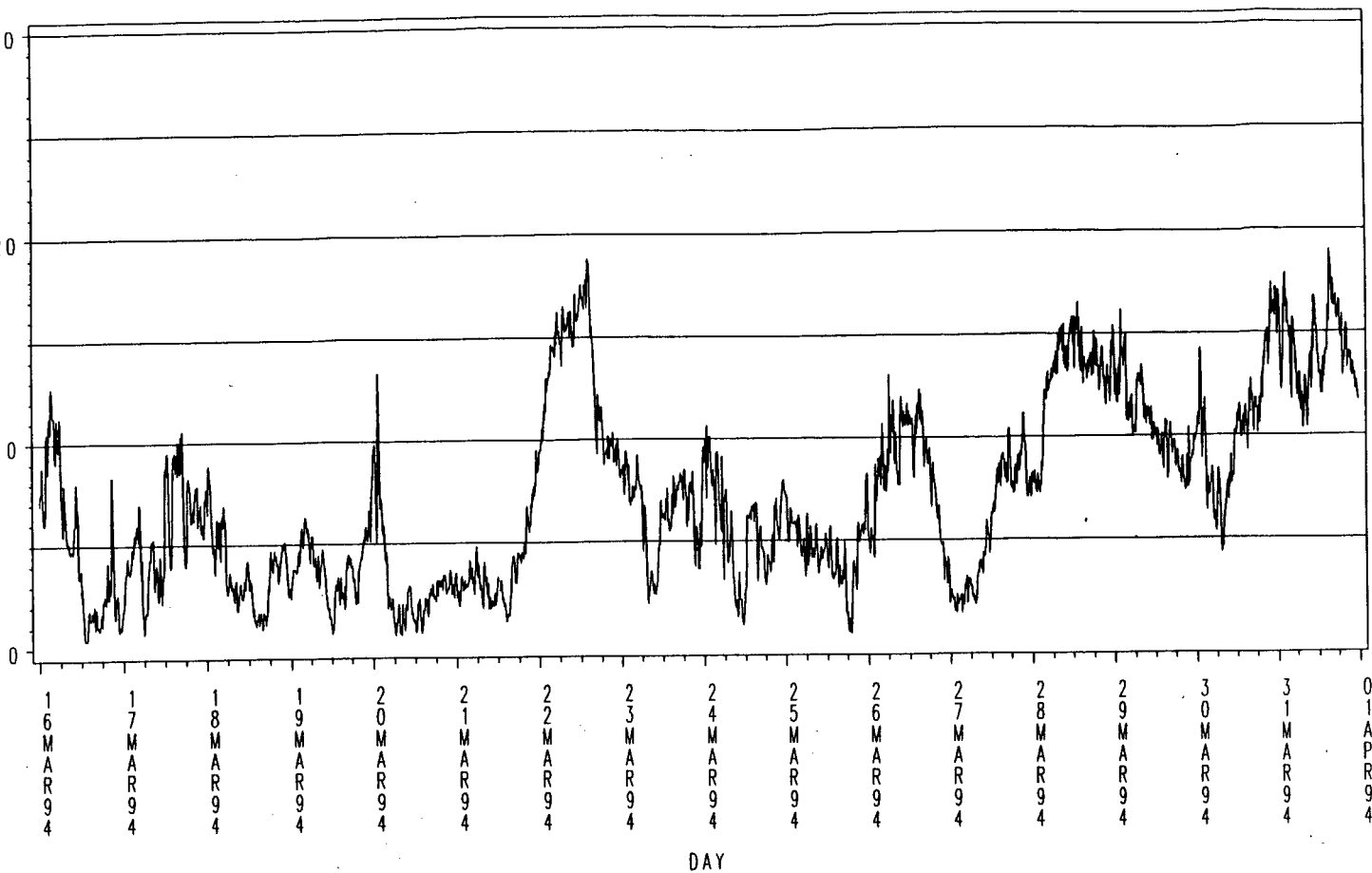
# HANØYTANGEN 1994

Wind direction 30 m above the ground



# HANØYTANGEN 1994

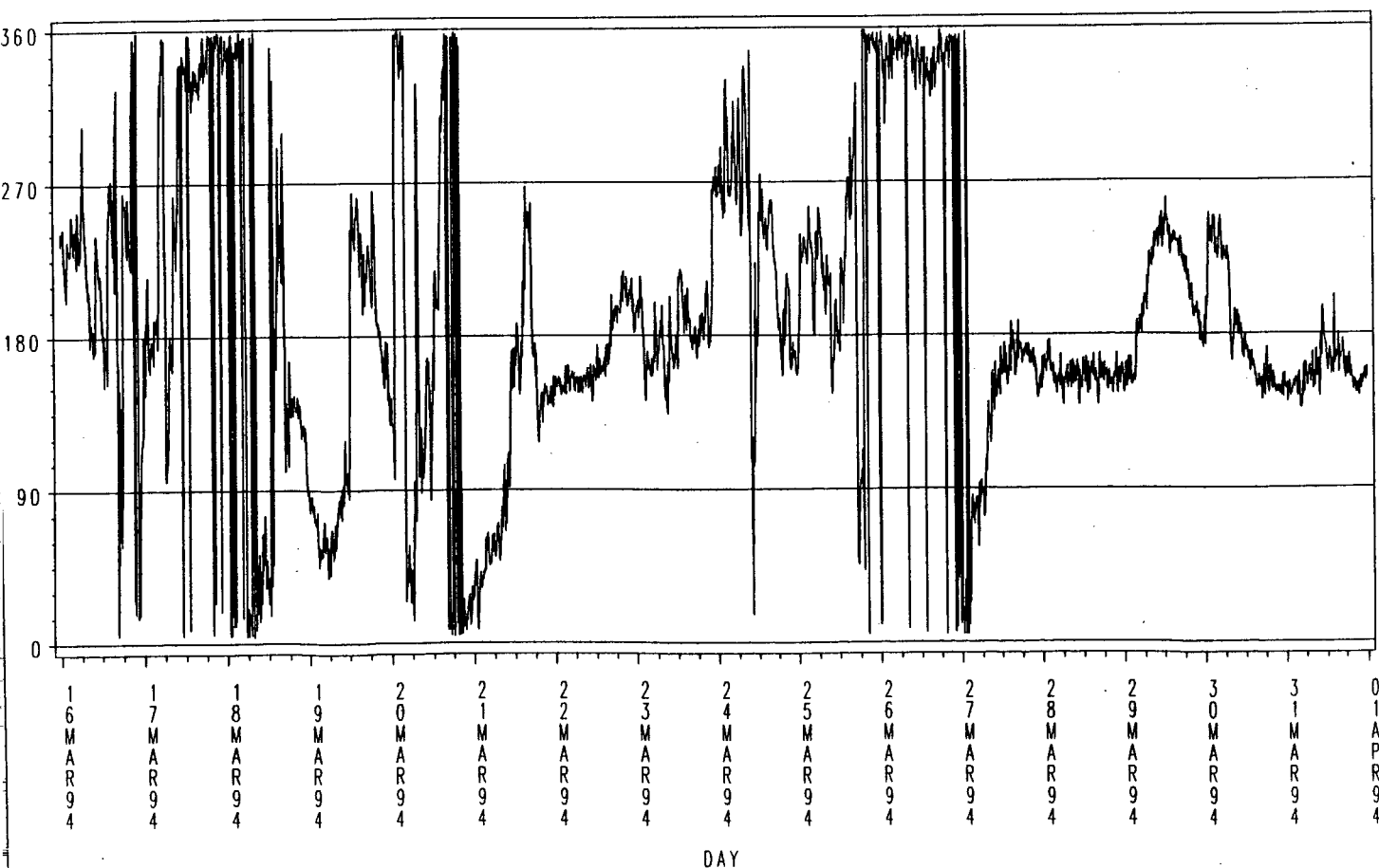
Wind speed 30 m above the ground (m/s)



DNMI - KLIMA-AVDELINGEN

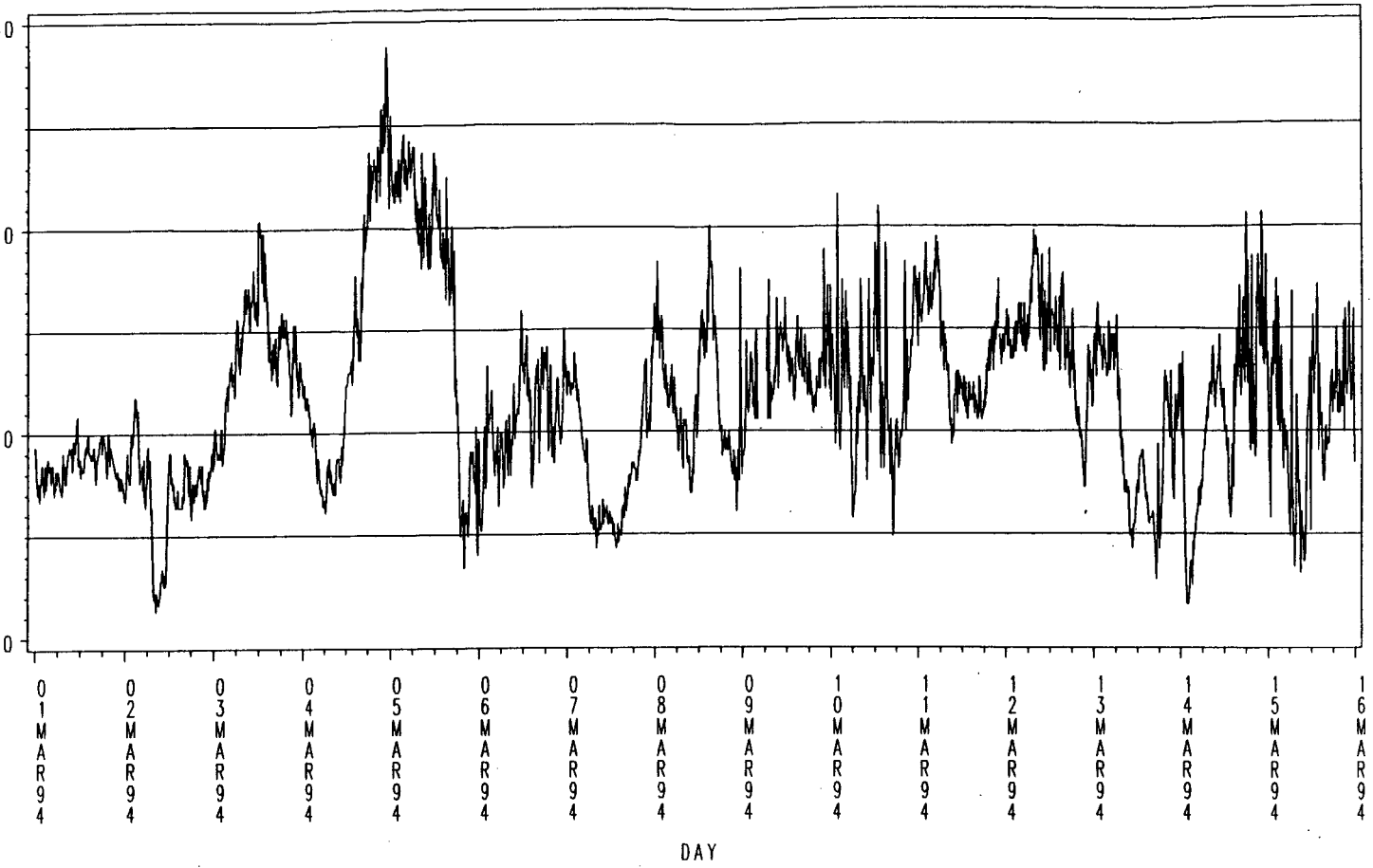
# HANØYTANGEN 1994

Wind direction 30 m above the ground



# HANØYTANGEN 1994

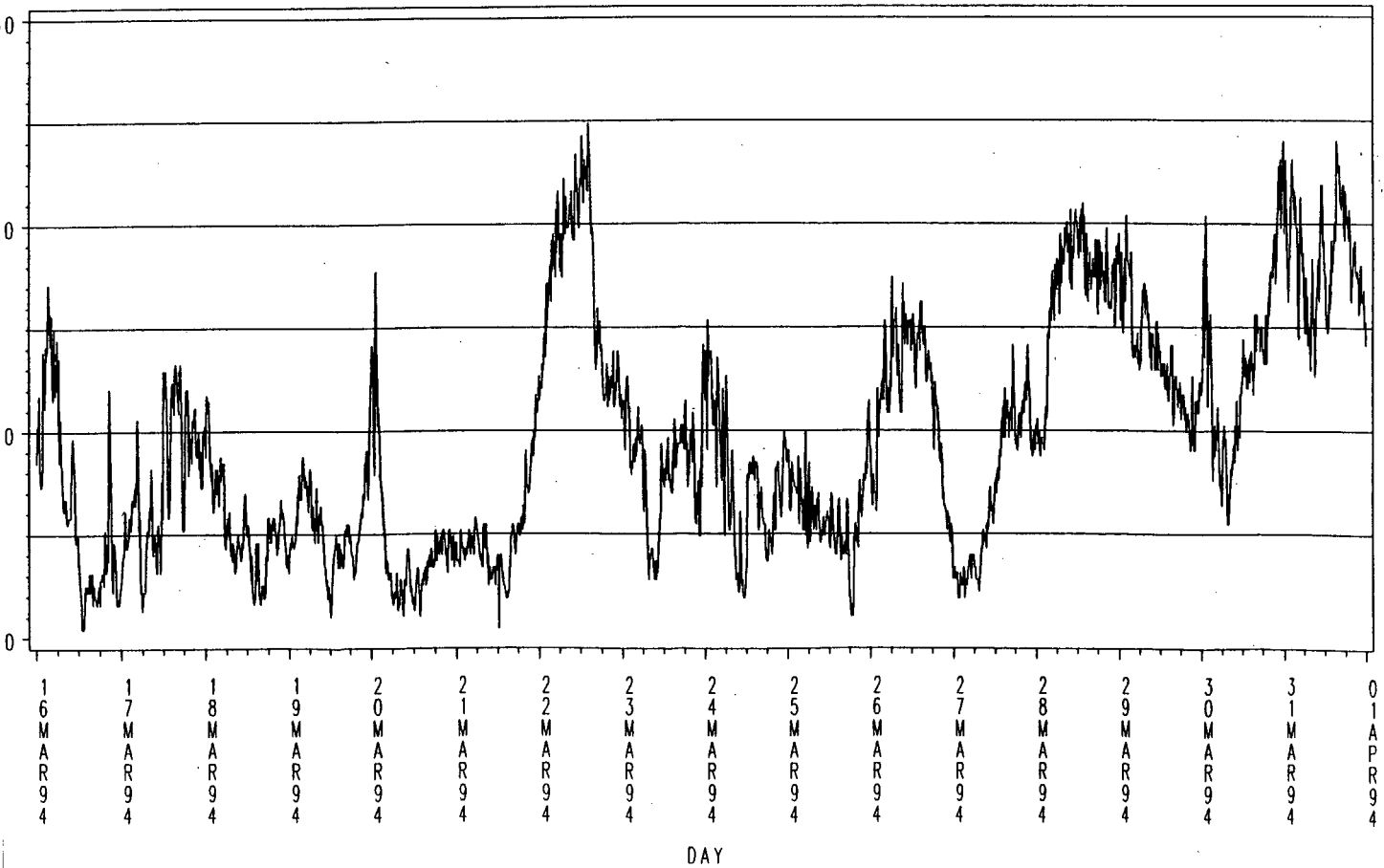
Gust wind speed 30 m above the ground (m/s)



DNMI - KLIMA-AVDELINGEN

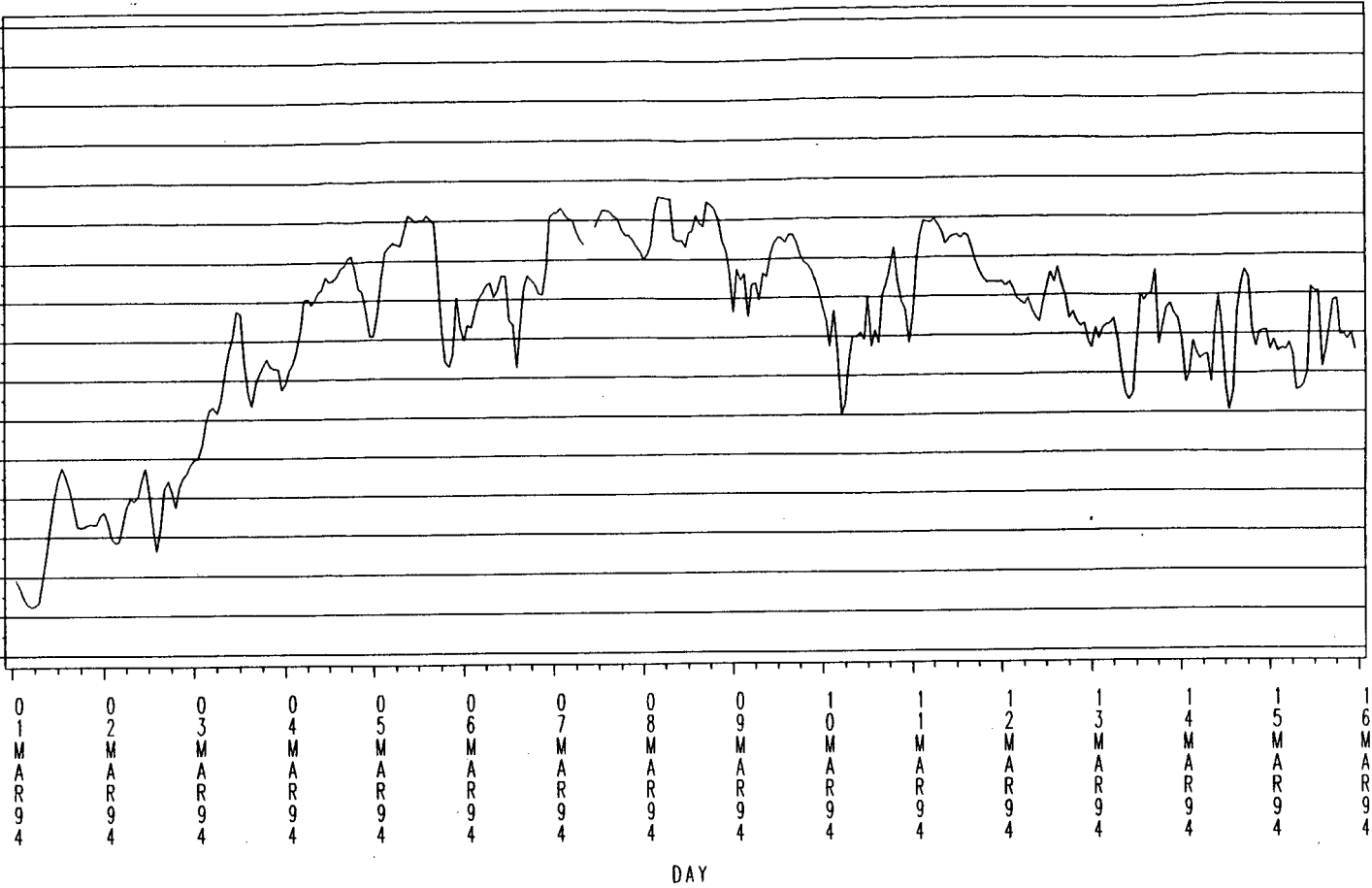
# HANØYTANGEN 1994

Gust wind speed 30 m above the ground (m/s)



# HANØYTANGEN 1994

Air Temperature in degrees C (Hourly Means)

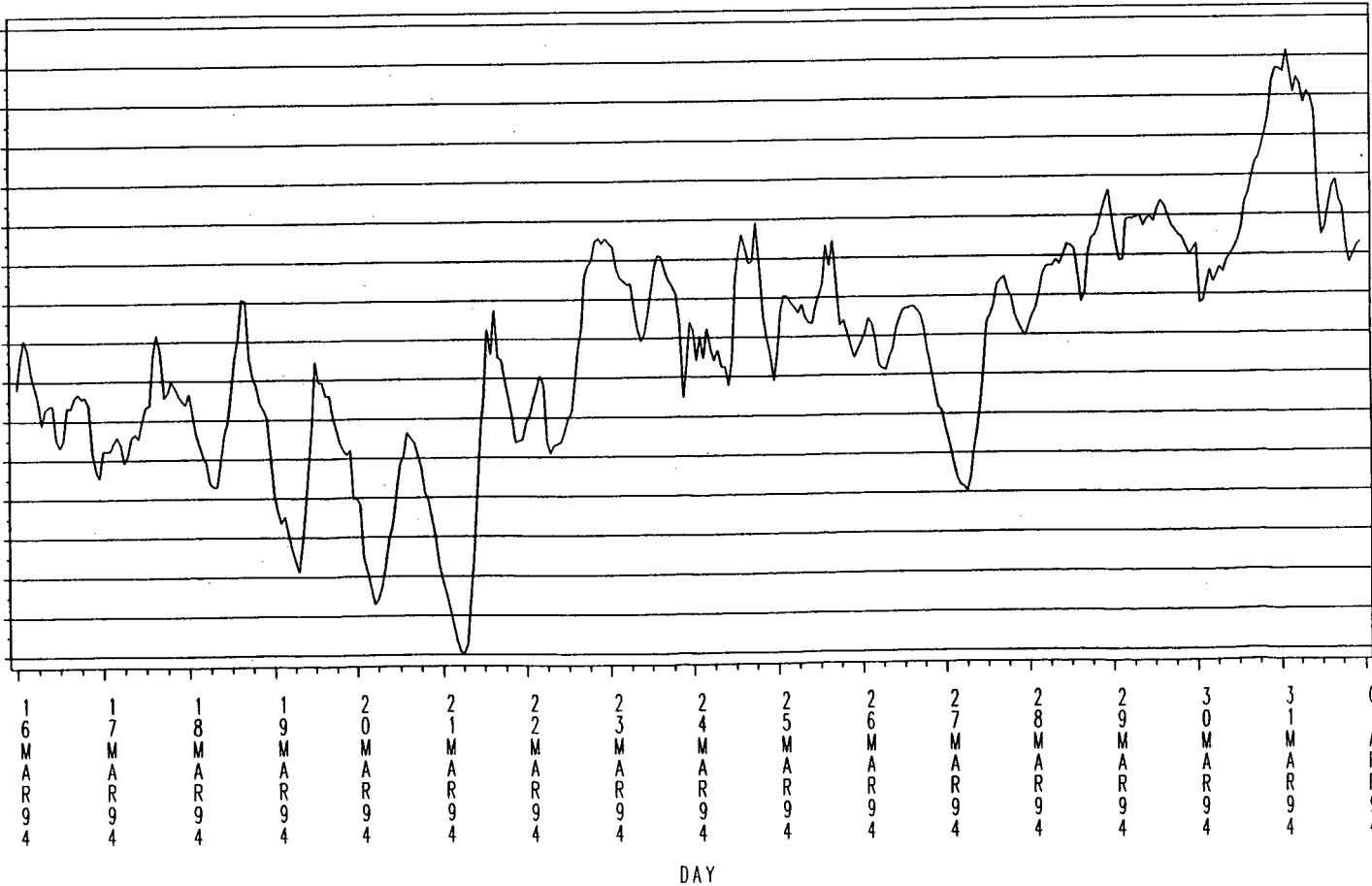


DAY

DNMI - KLIMAARBEIDEN

# HANØYTANGEN 1994

Air Temperature in degrees C (Hourly Means)

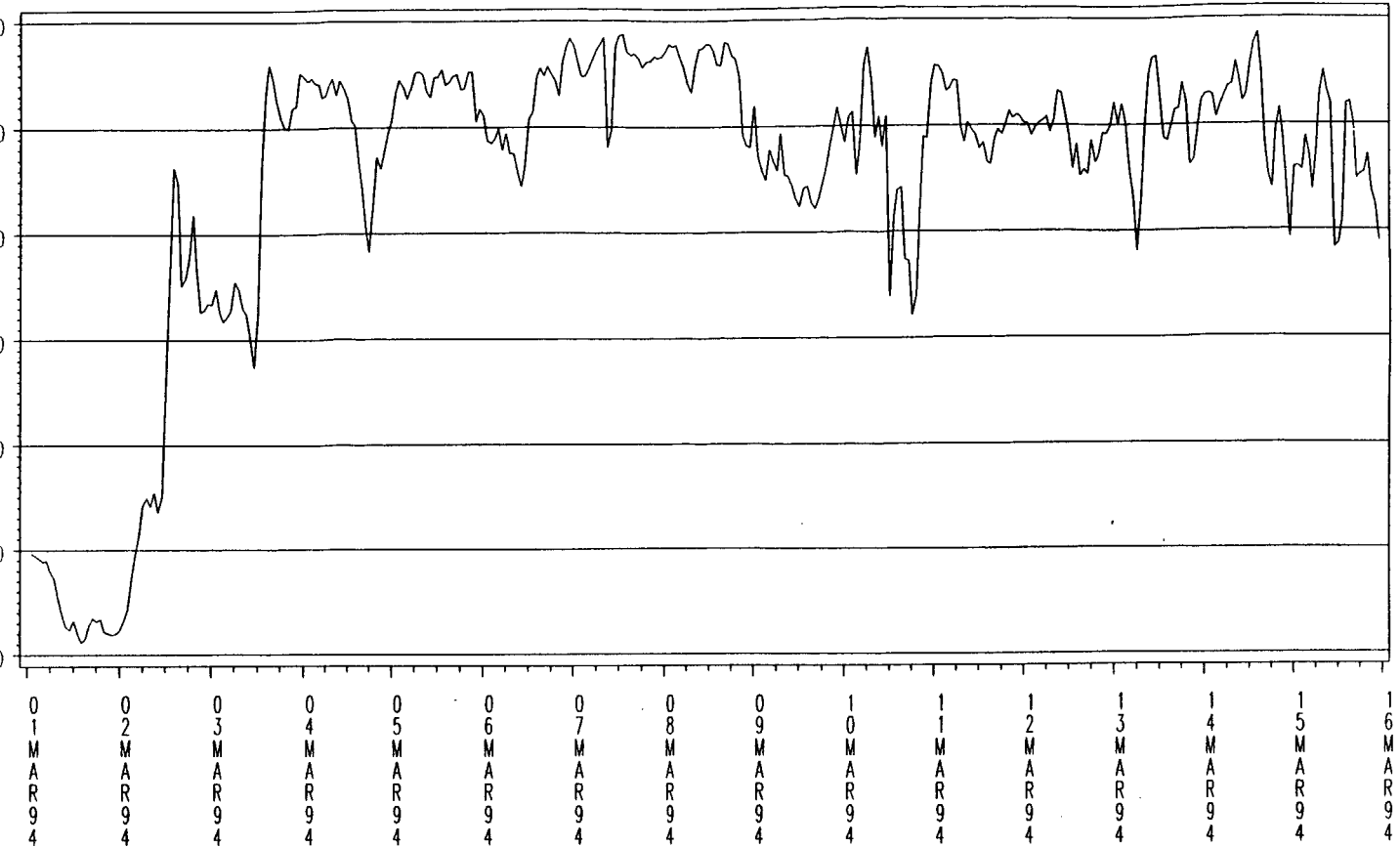


DAY



# HANØYTANGEN 1994

Air Humidity in % (Hourly Means)

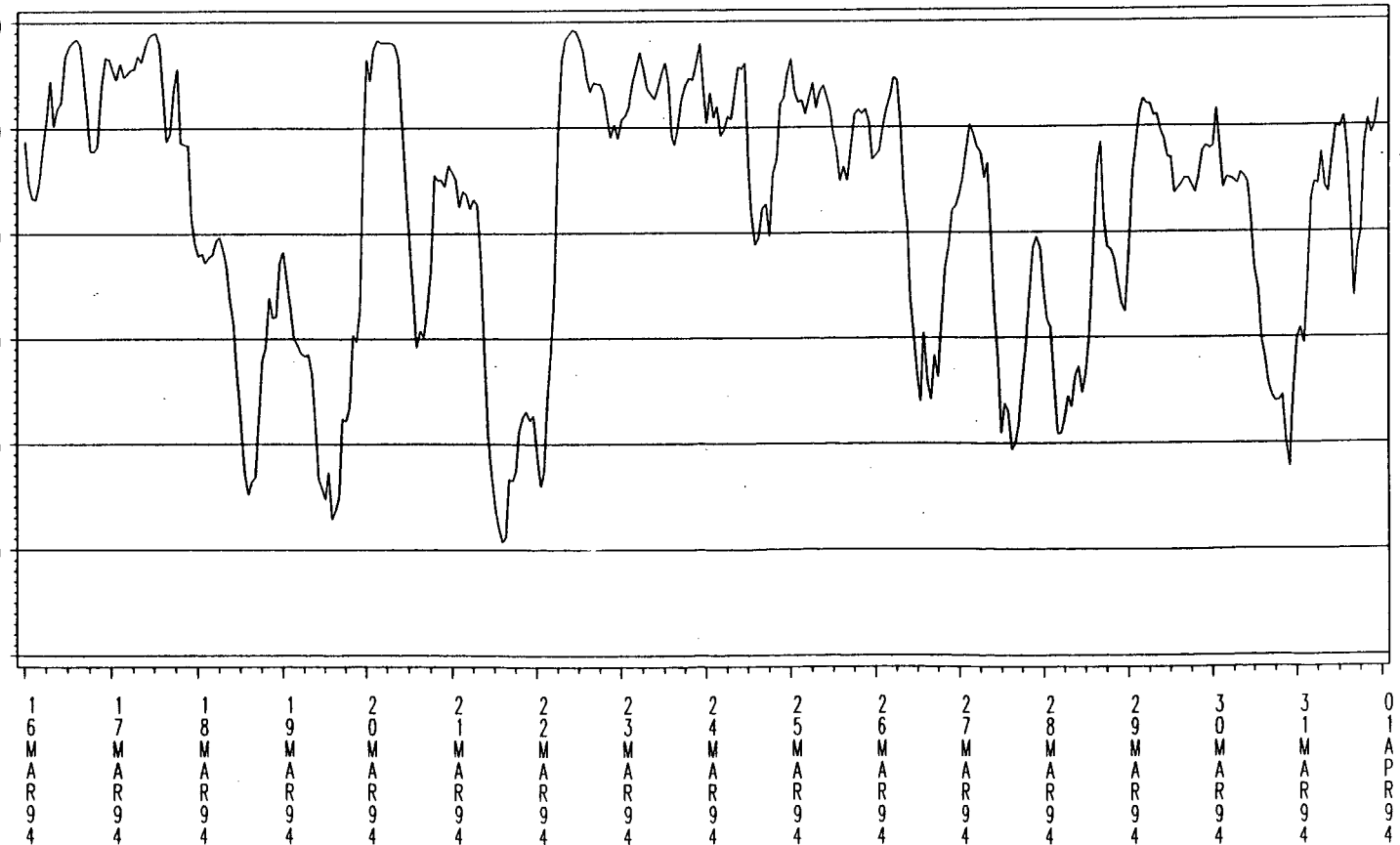


DAY

DNMI - KLIMAABDELINGEN

# HANØYTANGEN 1994

Air Humidity in % (Hourly Means)



DAY



## DISTRIBUTION TABLES / WIND ROSES

The distribution table gives details about the distribution of the wind speed for a certain wind direction or the distribution of the wind directions for a certain wind speed.

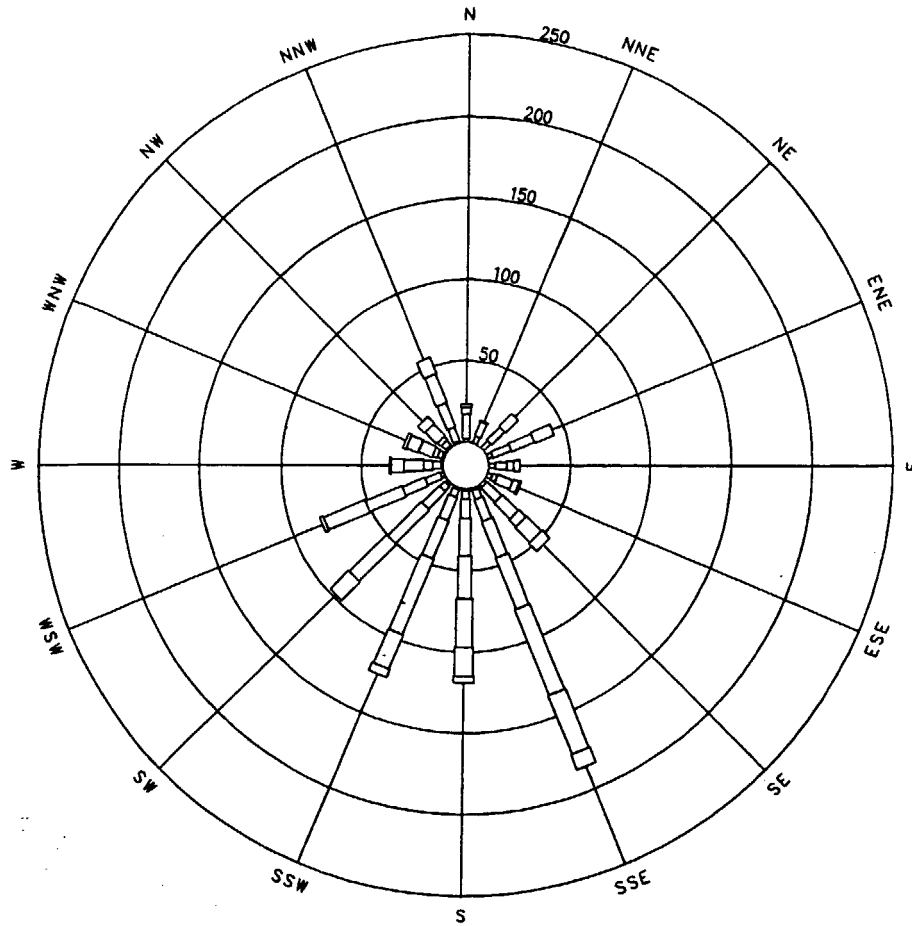
If for example, it is of interest to know the directions for which wind force 5 Beaufort have occurred this month, one has to look at the line for 5 Beaufort in the table.

If the information of the wind forces that have occurred this month for a certain direction is of interest, one has to look at the column for that specific direction.

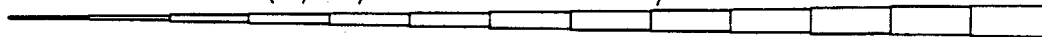
The frequencies in the table are given per thousand (Prm) of the data available this month.

The wind rose is a graphic representation of the information given in the distribution table. The same number of classes is applied. No Beaufort value is given to the centre of the wind rose. Thus, the first class outside the centre is 0 Beaufort (0-0.2 m/s). Due to the calibration of the wind sensors, this class will always be empty at Hanøytangen.

# HANOYTANGEN MARCH 1994 WIND DISTRIBUTION 10 M



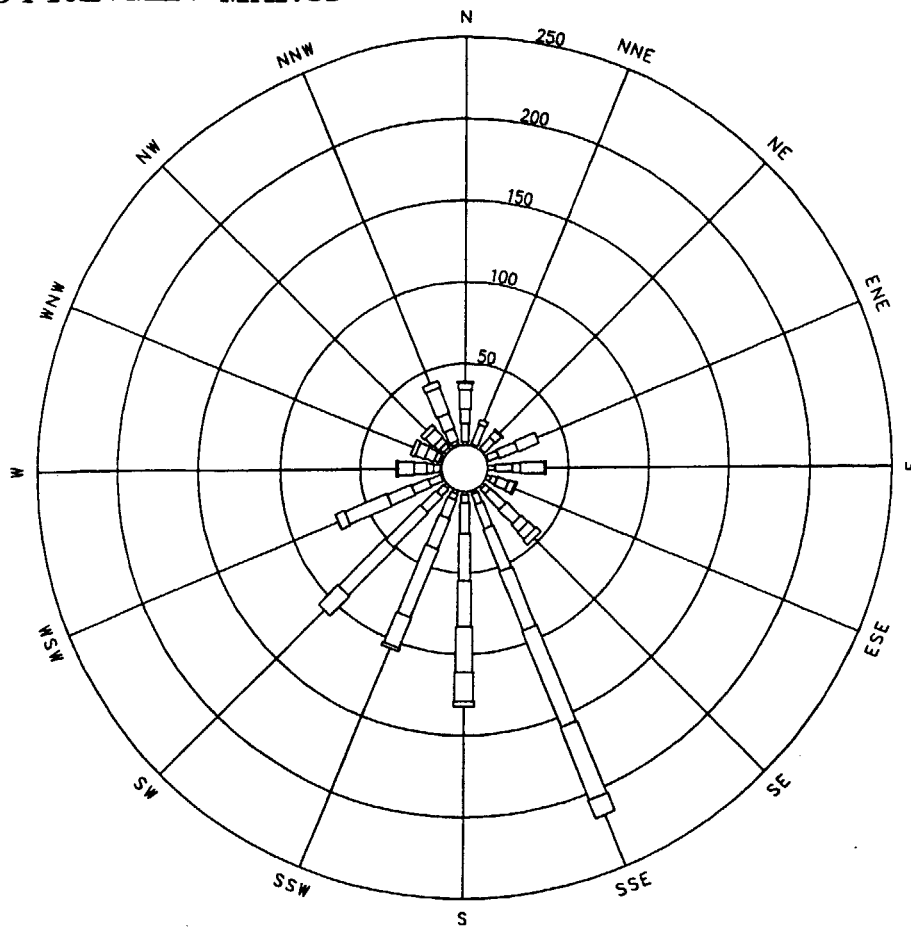
LENGTH : (NUMBER OF OBS/NUMBER OF DATA) \* 1000  
 WIDTH = SPEED (M/S / BEAUFORT SCALE)



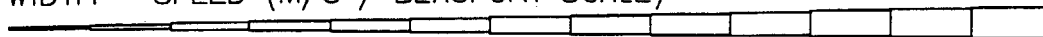
Wind direction (DD) / Wind speed (Beaufort and m/s) 10 m above the ground

Be- au- ft	DD																ALL
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
	Prm	Prm	Prm	Prm	Prm	Prm	Prm	Prm	Prm	Prm	Prm	Prm	Prm	Prm	Prm	Prm	
0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
.2																	
1	2	5	6	3	4	3	0	1	1	1	2	2	1	1	1	1	41
1.5																	
2	15	9	11	12	7	3	2	6	5	5	4	10	5	3	4	9	118
3.3																	
3	4	1	11	15	4	10	12	14	12	15	15	15	6	3	3	16	163
5.4																	
4	2	.	0	13	4	4	14	24	23	25	29	24	12	9	10	19	220
7.9																	
5	0	.	.	0	.	1	6	34	26	50	32	28	8	8	6	11	216
10.7																	
6	.	.	.	.	.	.	13	57	30	23	16	2	1	2	0	0	150
13.8																	
7	.	.	.	.	.	.	7	39	18	5	0	.	.	.	.	.	71
17.1																	
8	.	.	.	.	.	.	0	10	4	0	.	.	.	.	.	.	16
20.7																	
9	.	.	.	.	.	.	.	0	.	.	.	.	.	.	.	.	0
24.4																	
10	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
28.4																	
11	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
32.6																	
12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
ALL	25	16	29	46	20	24	58	189	124	128	101	84	35	29	27	59	1000

# HANOYTANGEN MARCH 1994 WIND DISTRIBUTION 30 M



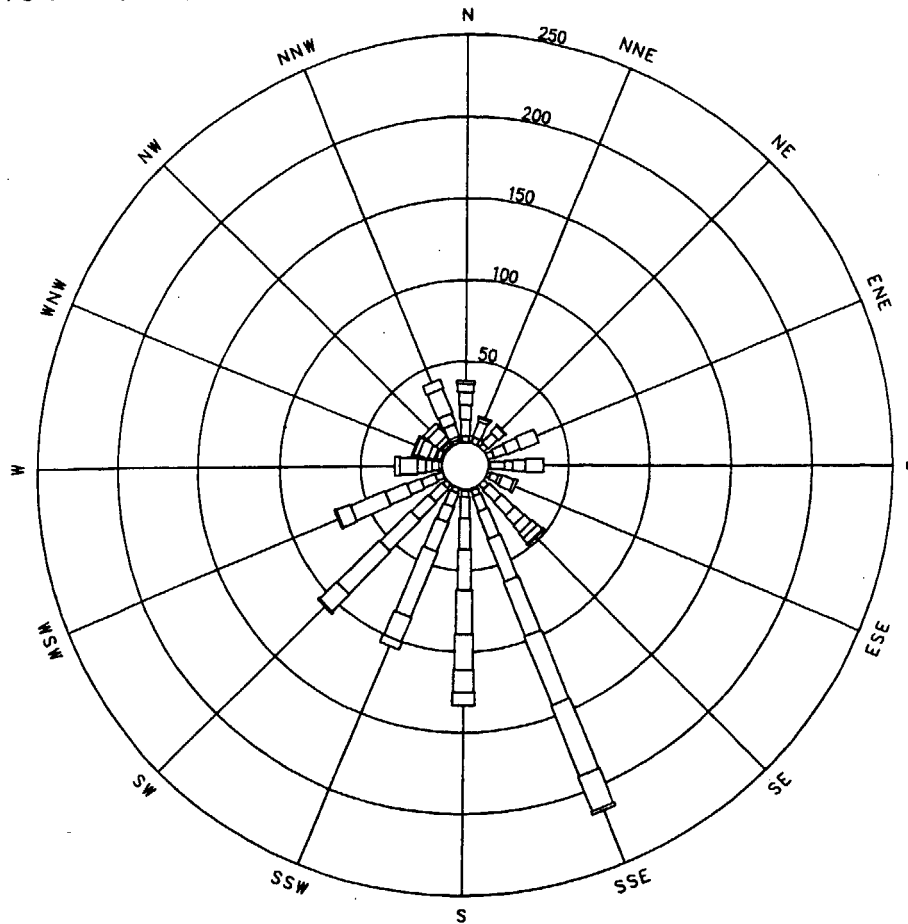
LENGTH : (NUMBER OF OBS/NUMBER OF DATA) \* 1000  
 WIDTH = SPEED (M/S / BEAUFORT SCALE)



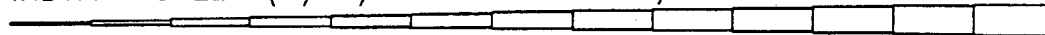
Wind direction (DD) / Wind speed (Beaufort and m/s) 30 m above the ground

Be- au- fo- rt	DD																ALL	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW		
	Prm	Prm	Prm	Prm	Prm	Prm	Prm	Prm	Prm	Prm	Prm	Prm	Prm	Prm	Prm	Prm		
0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
.2	1	2	1	1	1	5	3	2	2	2	2	2	1	1	1	0	1	33
1.5	2	11	13	9	7	10	4	4	7	5	4	6	8	4	1	2	2	106
3.3	3	9	3	5	12	5	7	13	16	19	12	13	11	4	3	3	8	152
5.4	4	12	0	1	14	15	4	12	28	29	20	30	16	8	6	4	10	217
7.9	5	4	.	.	0	1	1	6	39	28	45	40	28	10	6	7	17	237
10.7	6	1	.	.	.	.	.	6	64	28	20	17	6	1	3	3	4	158
13.8	7	.	.	.	.	.	.	4	48	18	2	0	0	.	0	.	.	75
17.1	8	.	.	.	.	.	.	0	12	3	0	.	.	.	.	.	.	16
20.7	9	.	.	.	.	.	.	0	.	.	.	.	.	.	.	.	.	0
24.4	10	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
28.4	11	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
32.6	12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
ALL	41	19	18	36	37	21	50	220	136	108	112	73	32	23	20	44	1000	

# HANOYTANGEN MARCH 1994 GUST WIND DISTR. 30 M



LENGTH : (NUMBER OF OBS/NUMBER OF DATA) \* 1000  
 WIDTH = SPEED (M/S / BEAUFORT SCALE)



Wind direction (DD)/ Gust wind speed (m/s) 30 m above the ground.

m/s	DD																	ALL
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW		
	Prm	Prm	Prm	Prm	Prm	Prm	Prm	Prm	Prm	Prm	Prm	Prm	Prm	Prm	Prm	Prm		
0-.2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
0.3-1.5	0	0	.	0	1	2	0	1	1	0	0	0	0	0	0	0	11	
1.6-3.3	4	4	3	4	9	5	4	4	4	3	3	5	2	1	1	2	65	
3.4-5.4	10	10	8	8	5	2	10	10	13	9	11	9	4	3	2	2	123	
5.5-7.9	9	2	5	9	8	8	11	18	19	10	15	9	4	1	1	8	143	
8.0-10.7	8	1	1	12	11	2	8	28	25	19	26	14	5	4	3	7	182	
10.8-13.8	5	.	.	0	0	0	6	36	27	43	36	23	11	6	7	16	221	
13.9-17.1	2	.	.	.	.	0	4	46	22	16	15	9	3	3	3	6	134	
17.2-20.7	0	.	.	.	.	.	4	47	14	5	1	1	0	1	0	0	78	
20.8-24.5	.	.	.	.	.	.	1	23	8	0	0	.	.	.	0	.	34	
24.5-28.4	.	.	.	.	.	.	.	2	0	.	.	.	.	.	.	.	2	
28.5-32.6	.	.	.	.	.	.	.	0	.	.	.	.	.	.	.	.	0	
> 32.6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
ALL	41	19	18	36	37	21	50	220	136	108	111	73	32	23	20	44	1000	

## COEFFICIENT TRANSFERT TABLES

The tables are actually histograms of the quotient given in the heading of the tables, plotted horizontally. They give details about the distribution of the quotients.

The class interval is 0.5 and the frequencies for the actual class is plotted at the midpoint of the class. If the quotient is 1 the wind speed in the two heights considered have the same value.

The classes start at 0.75 (.725-.774) and end at 1.80 (1.775-1.825). Quotients below or above these limits are counted in these classes respectively.

The tables are giving the frequencies in the actual classes in percent and also as cumulative frequencies in percent.

F30 = Wind speed 30 m above the ground

F18 = Wind speed 18 m above the ground

F10 = Wind speed 10 m above the ground

# HANØYTANGEN MARCH 1994

## QUOTIENT F30/F18

F30/F18 Midpoint		Freq	Cum. Freq	Percent	Cum. Percent
0.75		13	13	0.29	0.29
0.80		8	21	0.18	0.47
0.85		11	32	0.25	0.72
0.90		37	69	0.83	1.55
0.95	*****	338	407	7.60	9.15
1.00	*****	2665	3072	59.93	69.08
1.05	*****	680	3752	15.29	84.37
1.10	***	227	3979	5.10	89.48
1.15	**	149	4128	3.35	92.83
1.20	**	149	4277	3.35	96.18
1.25	*	82	4359	1.84	98.02
1.30	*	44	4403	0.99	99.01
1.35		25	4428	0.56	99.57
1.40		10	4438	0.22	99.80
1.45		3	4441	0.07	99.87
1.50		3	4444	0.07	99.93
1.55		0	4444	0.00	99.93
1.60		2	4446	0.04	99.98
1.65		0	4446	0.00	99.98
1.70		0	4446	0.00	99.98
1.75		0	4446	0.00	99.98
1.80		1	4447	0.02	100.00

Frequency



# HANØYTANGEN MARCH 1994

## QUOTIENT F30/F10

F30/F10 Midpoint		Freq	Cum. Freq	Percent	Cum. Percent
0.75	*	29	29	0.65	0.65
0.80		15	44	0.34	0.99
0.85		21	65	0.47	1.46
0.90	**	84	149	1.89	3.35
0.95	*****	601	750	13.51	16.87
1.00	*****	1764	2514	39.67	56.53
1.05	*****	474	2988	10.66	67.19
1.10	*****	455	3443	10.23	77.42
1.15	*****	395	3838	8.88	86.31
1.20	*****	260	4098	5.85	92.15
1.25	***	131	4229	2.95	95.10
1.30	**	85	4314	1.91	97.01
1.35	*	42	4356	0.94	97.95
1.40	*	32	4388	0.72	98.67
1.45		17	4405	0.38	99.06
1.50		10	4415	0.22	99.28
1.55		6	4421	0.13	99.42
1.60		9	4430	0.20	99.62
1.65		4	4434	0.09	99.71
1.70		3	4437	0.07	99.78
1.75		4	4441	0.09	99.87
1.80		6	4447	0.13	100.00

Frequency

# HANØYTANGEN MARCH 1994

## QUOTIENT F18/F10

F18/F10 Midpoint		Freq	Cum. Freq	Percent	Cum. Percent
0.75		14	14	0.31	0.31
0.80		5	19	0.11	0.43
0.85		14	33	0.31	0.74
0.90		31	64	0.70	1.44
0.95	*****	413	477	9.27	10.70
1.00	*****	2557	3034	57.37	68.07
1.05	*****	672	3706	15.08	83.15
1.10	*****	418	4124	9.38	92.53
1.15	***	196	4320	4.40	96.93
1.20	*	64	4384	1.44	98.36
1.25		20	4404	0.45	98.81
1.30		22	4426	0.49	99.30
1.35		12	4438	0.27	99.57
1.40		10	4448	0.22	99.80
1.45		1	4449	0.02	99.82
1.50		3	4452	0.07	99.89
1.55		0	4452	0.00	99.89
1.60		0	4452	0.00	99.89
1.65		0	4452	0.00	99.89
1.70		0	4452	0.00	99.89
1.75		1	4453	0.02	99.91
1.80		4	4457	0.09	100.00



# CLIMATOLOGICAL SUMMARY

Observation Period :												Location:	
From : 01/03/94												Level:	2 m a.gr.
To : 31/03/94	HANØYTANGEN 1994												
Coverage : 99.7 %													
Number of data :4451	CLIMATOLOGICAL SUMMARY												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
<b>Air Temperature</b>													
Mean Day min.	0.2	-2.1	0.8										
Abs min	-4	-6.3	-5.1										
Mean Day max.	3.8	3.3	5.3										
Abs max.	6.7	6.4	10.5										
Mean	2.1	0.1	3										
<b>Relative Humidity</b>													
Mean Day min.	61	44	59										
Abs min.	44	27	29										
Mean Day max.	81	73	84										
Abs max.	89	90	89										
Mean	70	60	73										
<b>Air pressure</b>													
Mean Day min.	991.6	1016.7	993.4										
Abs min.	966.2	989.7	969.4										
Mean Day max.	1003.5	1023.6	1004.7										
Abs max.	1019.6	1045.2	1024.3										
Mean	998	1020	999.1										
<b>Coefficient Transfert</b>													
from level 10 to 18	1.051	1.046	1.024										
from level 10 to 30	1.117	1.088	1.055										
from level 18 to 30	1.059	1.036	1.029										
<b>Remarks:</b>													
The summary is based on air temperature, humidity and pressure measured each 10 minute.													

**Appendix 1****BEAUFORT SCALE OF WIND**

<b>BEAUFORT NUMBER</b>	<b>DESCRIPTIVE TERM</b>	<b>MEAN VELOCITY IN KNOTS</b>	<b>MEAN VELOCITY IN m/s</b>
0	Calm	< 1	0 - 0.2
1	Light air	1 - 3	0.3 - 1.5
2	Light breeze	4 - 6	1.6 - 3.3
3	Gentle breeze	7 - 10	3.4 - 5.4
4	Moder. breeze	11 - 16	5.5 - 7.9
5	Fresh breeze	17 - 21	8.0 - 10.7
6	Strong breeze	22 - 27	10.8 - 13.8
7	Near gale	28 - 33	13.9 - 17.1
8	Gale	34 - 40	17.2 - 20.7
9	Strong gale	41 - 47	20.8 - 24.4
10	Storm	48 - 55	24.5 - 28.4
11	Violent storm	56 - 63	28.5 - 32.6
12	Hurricane	64 and over	32.7 and over

## Appendix 2

Records where at least one of the parameters is outside the  
criteria set in the automatic filter.

HANOYTANGEN 1994 1.3-5.4

08:07 Wednesday, April 20, 1994 1

### RECORDS WITH PARAMETERS OUTSIDE THE CRITERIONS

OBS	AAR	MND	DAG	TIME	MIN	REF	F30	G30	DD30	F18	G18	F10	G10	DD10	T	UU	P
1	1994	J	9	4	5	645	4.58	1.59	232.19	7.93	9.65	7.49	9.65	240.56	3.61	75.87	996.42
2	1994	J	9	4	15	645	29.20	0.47	229.05	7.11	9.05	6.82	8.46	225.91	3.70	77.49	996.42
3	1994	J	9	4	25	645	19.57	29.12	208.46	6.44	7.56	6.14	7.56	217.18	3.52	78.20	996.42
4	1994	J	9	4	45	645	2.79	1.59	232.54	8.31	12.04	8.16	12.04	232.54	4.25	78.71	996.42
5	1994	J	9	4	55	645	20.77	10.10	234.98	9.05	11.44	8.16	10.84	236.73	4.43	76.68	996.42
6	1994	J	9	5	5	645	10.10	48.29	236.38	9.13	10.84	8.08	10.55	240.22	4.52	76.28	996.59
7	1994	J	9	5	15	645	20.69	19.72	238.82	9.35	12.04	8.16	10.84	234.98	4.61	75.47	996.59
8	1994	J	9	5	25	645	38.74	48.29	226.60	9.20	11.74	8.16	10.55	235.68	4.70	74.05	996.76
9	1994	J	9	5	35	645	21.96	2.94	223.81	9.20	12.04	8.83	11.14	227.65	4.80	74.66	996.76
10	1994	J	9	5	45	645	10.10	48.29	220.67	8.68	10.55	8.61	10.55	223.81	4.61	76.28	996.76
11	1994	J	9	5	55	645	1.00	0.47	217.53	8.53	10.25	8.46	10.55	217.88	4.52	77.29	996.93
12	1994	J	9	6	5	645	7.79	1.30	223.81	7.86	12.34	7.71	12.04	223.46	4.34	76.68	996.76
13	1994	J	11	22	5	645	0.40	0.40	179.14	13.01	16.81	13.16	16.22	190.31	4.34	80.74	997.61
14	1994	J	21	12	16	645	38.60	0.40	173.21	2.79	3.38	2.86	3.68	169.72	2.70	43.76	1016.38
15	1994	J	30	16	46	645	11.22	0.40	154.36	11.14	15.32	10.92	15.32	150.52	7.27	54.80	1002.17

---

PAC 004 WEATHER ANALYSIS IN HANØYTANGEN  
REPORT 5 : May 6 1994