

STUDIECENTRUM VOOR KERNENERGIE
CENTRE D'ETUDE DE L'ENERGIE NUCLEAIRE

METEOROLOGICAL OBSERVATIONS
AT THE NUCLEAR ENERGY RESEARCH CENTRE, MOL



YEARLY REPORT 1988

BLG 609

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M. LOOS, J. PAUWELS, A. SOHIER
and P. GOVAERTS

S.C.K./C.E.N.

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BLG 609

ACKNOWLEDGMENT

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The meteorological program of the SCK/CEN was only possible, thanks to the support of the Royal Meteorological Institute (KMI/IRM) and the Belgian Telemetric Air Pollution network, who own and are responsible for the maintenance of a part of the instrumentation.

INTRODUCTION

For the environmental control around the SCK/CEN meteorological observations have been considered necessary since the start of the activities of the Centre.

Initially the data were obtained from a classic climatological ground station. Once the meteorological tower of 120 m height was raised, the systematic study of the diffusive characteristics of the lower air layers increased the survey possibilities in an important way.

BRIEF DESCRIPTION OF THE INSTRUMENTATION

1. The climatological observations (Figure A)

The hourly shelter temperature as well as the relative humidity are recorded by means of a thermo-hygrograph Wissman, placed inside a shelter, located in Mol at the Belgian Lambert coordinates 201,22/211,00 (51°12'30" N.lat., 5°6' E. long.). The rainfall is followed continuously by a FUESS pluviograph, type E 4113, situated a few meters away from the above mentioned thermometer shelter.

The atmospheric pressure is recorded on a FUESS barograph, type B 5885.

2. The meteorological observations (Figure B)

The tower with the windvanes, anemometers and temperature sensors has the Lambert coordinates 200,38/ 212,25 at the S.C.K./C.E.N., Mol. (51°13'N.lat., 5°5'30" E.long.). The windvanes at the 24 m, 69 m and 114 m-levels are Geotechs 1565 B. The anemometers at the same levels are Geotechs 1564 B.

The temperature sensors, being Cu-Constantan thermocouples, are connected to VROY-KELATRON amplifiers. All signals are continuously recorded on analog recorders while a minicomputer-system interrogates all sensors every minute, validates and stores these data in order to make half-hourly averages (Figure C). Every half hour these averages, together with the extremes of the individual minute values, are printed out and also punched on papertape for later transfer to the data-bank.

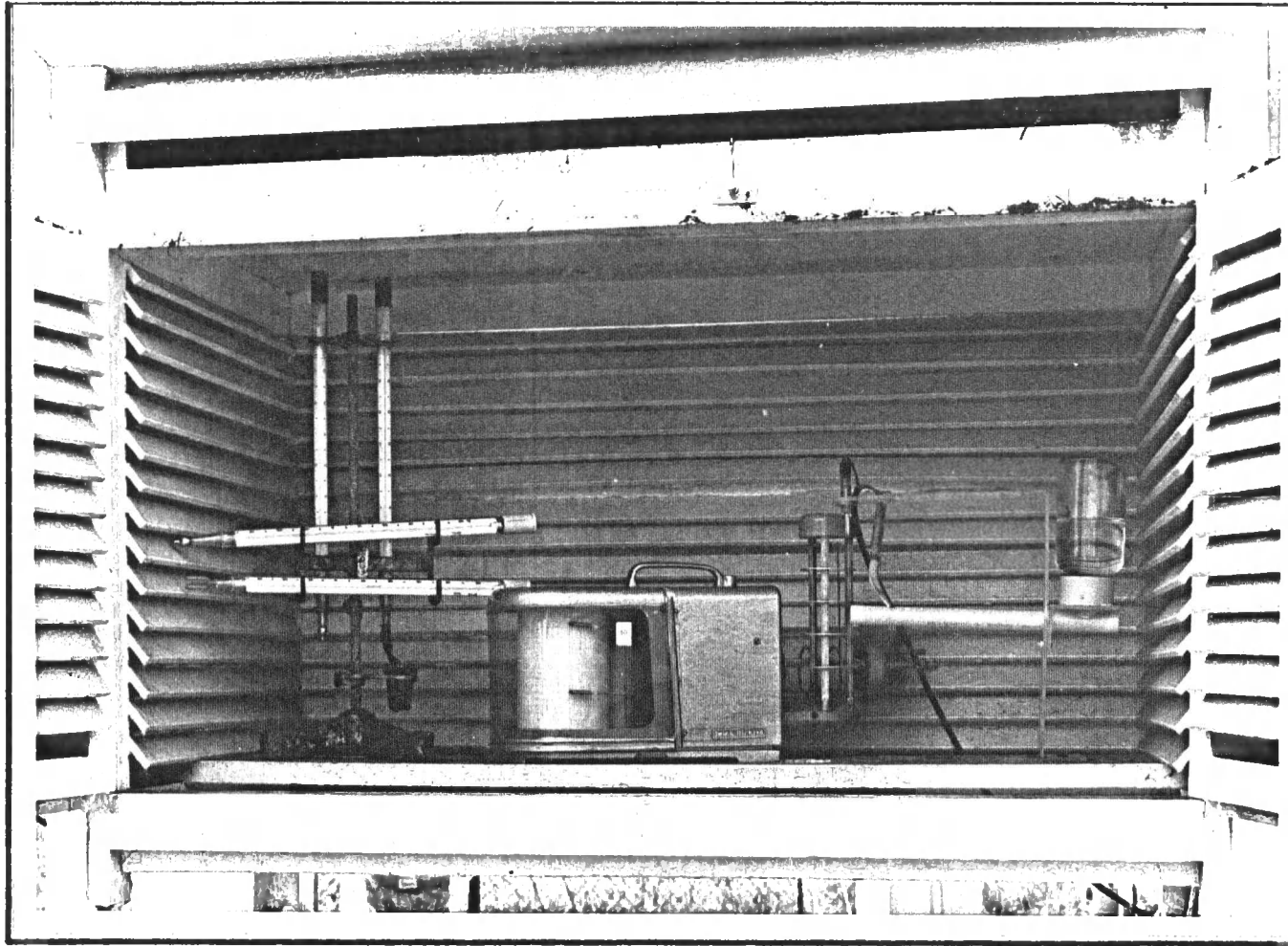


Figure A : The inside of the climatological shelter, SCK/CEN Mol.

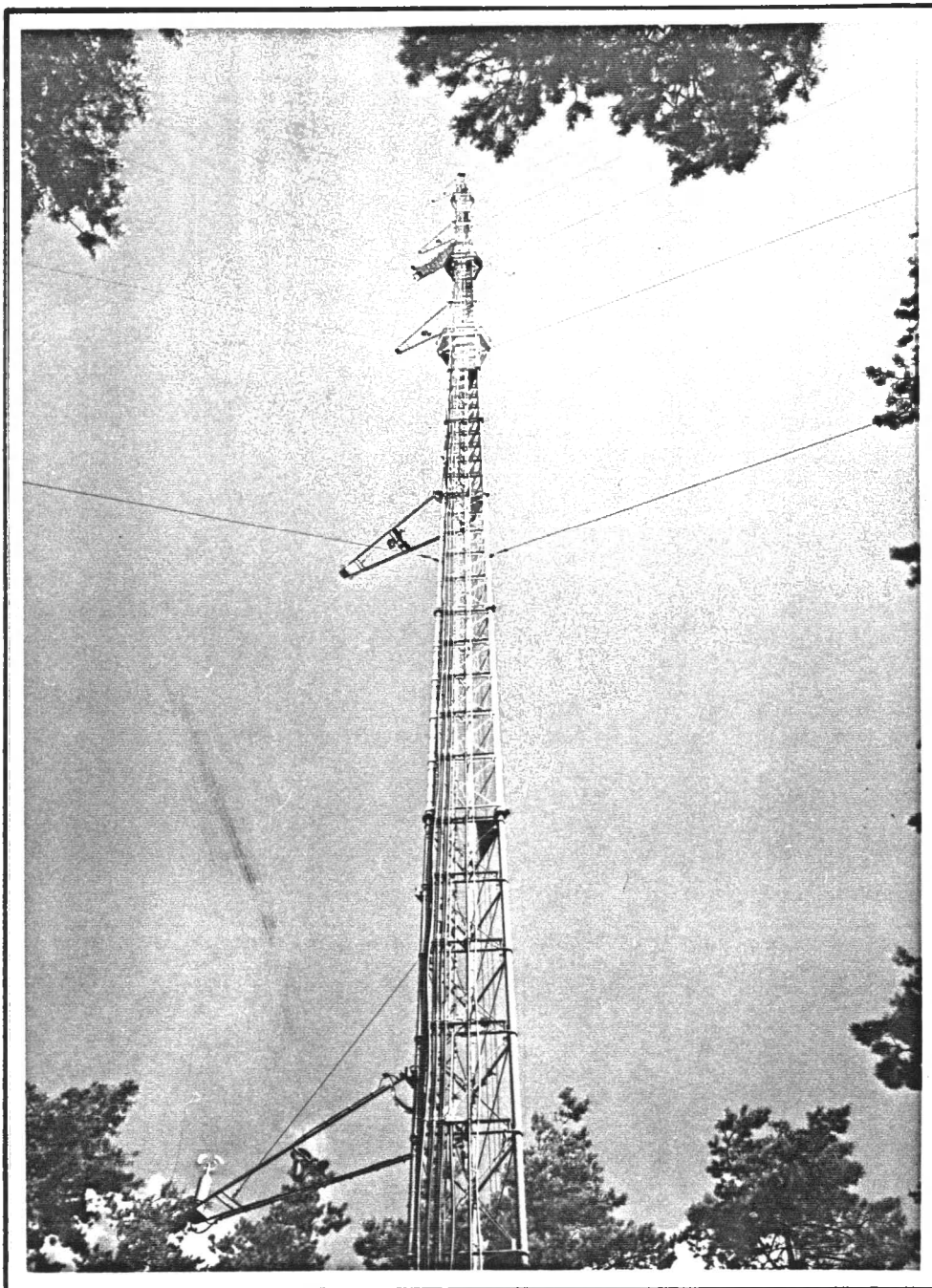


Figure B : The meteorological tower, SCK/CEN Mol.

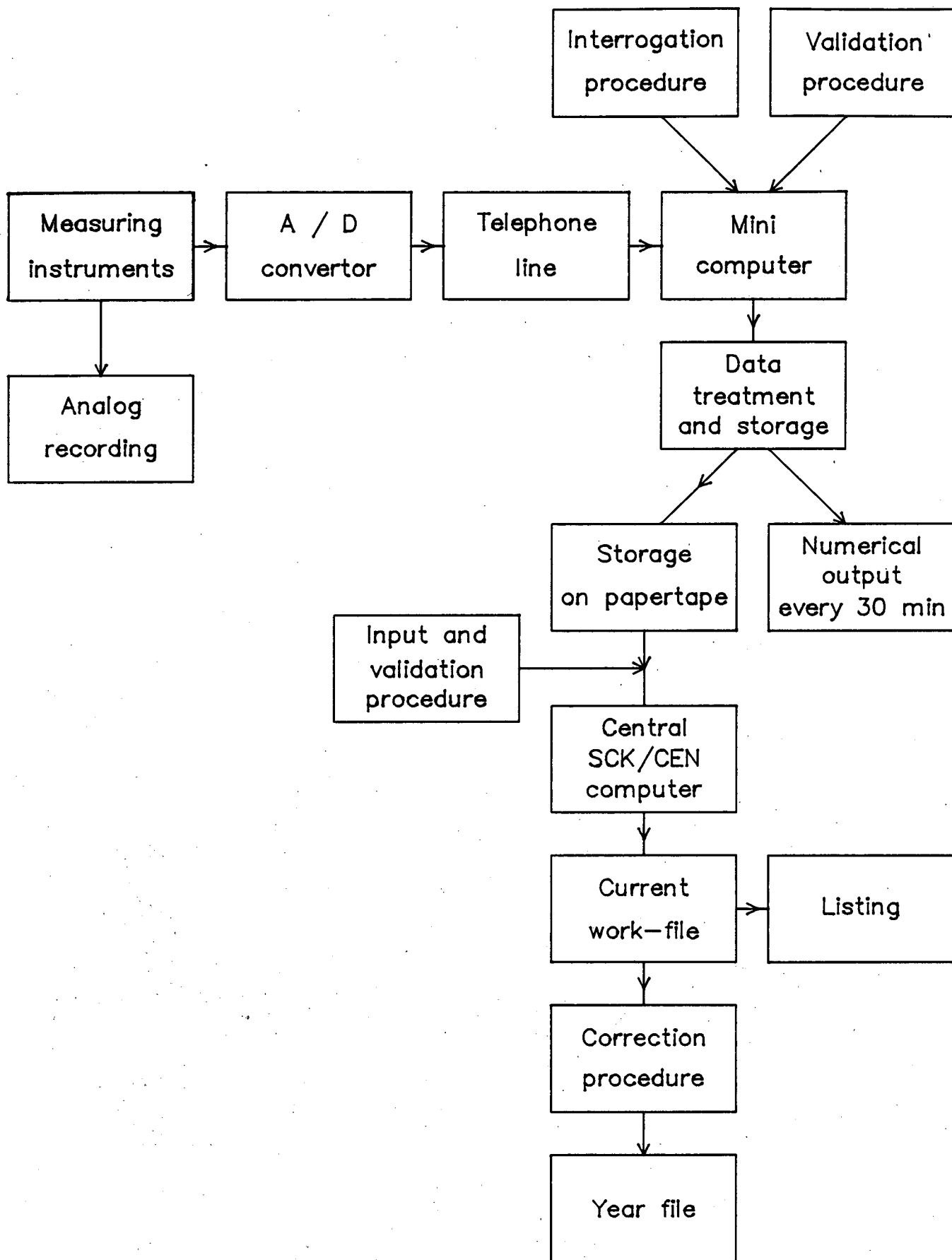


Figure C : Acquisition, validation, storage and output system for the meteorological data from the SCK/CEN tower, Mol, used up to May 1988.

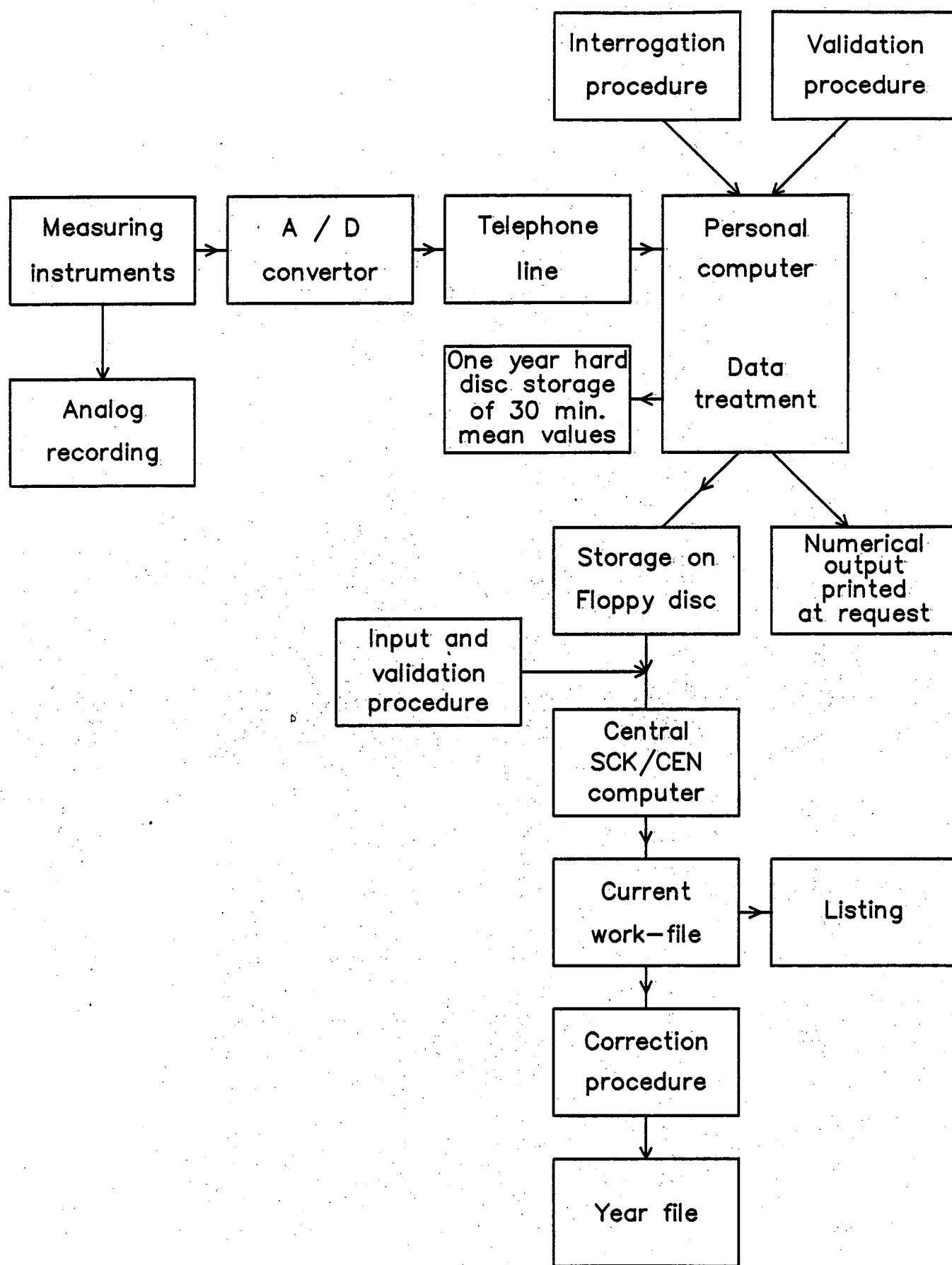


Figure D Acquisition, validation, storage and output system for the meteorological data from the SCK/CEN tower, Mol, used since May 1988.

PRESENTATION OF THE DATA

Instead of using lengthy tables for the presentation of all the data stored in the S.C.K./C.E.N. Air Pollution Data Bank, the actual yearly report tries to present the information under the form of summarizing figures and tables. Three kinds of listings are joined as appendix to this report. The first one gives the data with respect to the Meteo Year File (local hours), the second those of the Meteo Data Bank (GMT-time), while the third one prints the same data in a conveniently arranged and easily readable way. The latter is only used when the requested information is not too voluminous.

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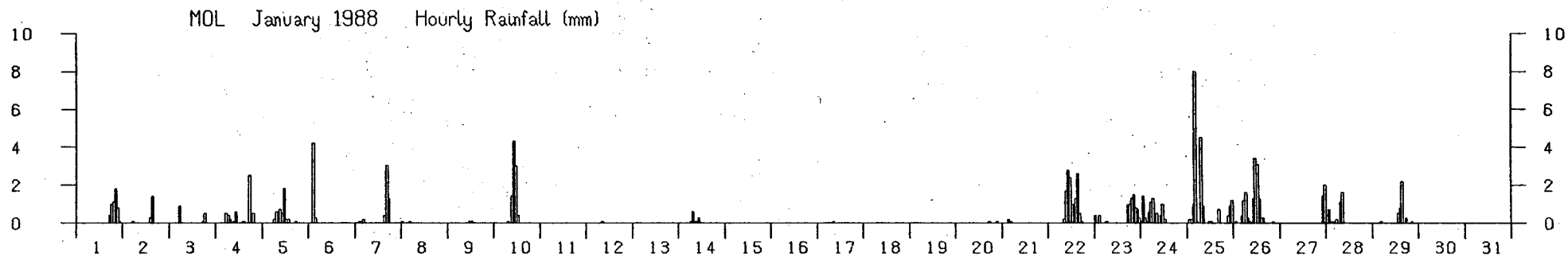
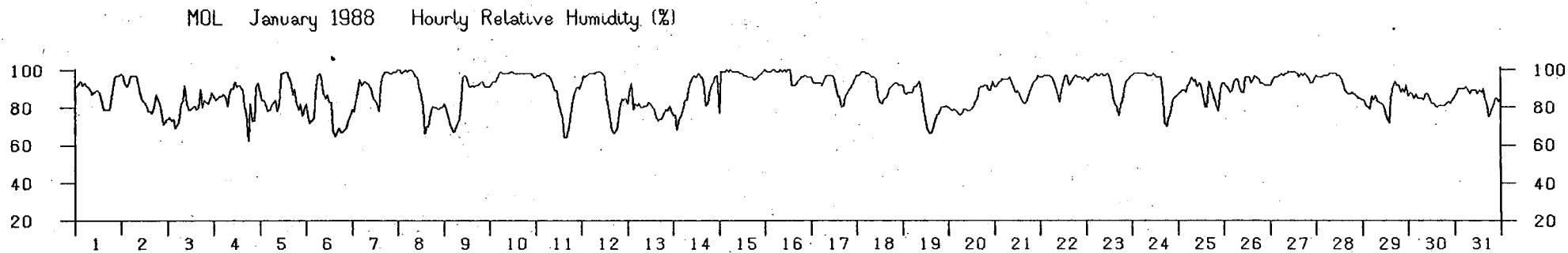
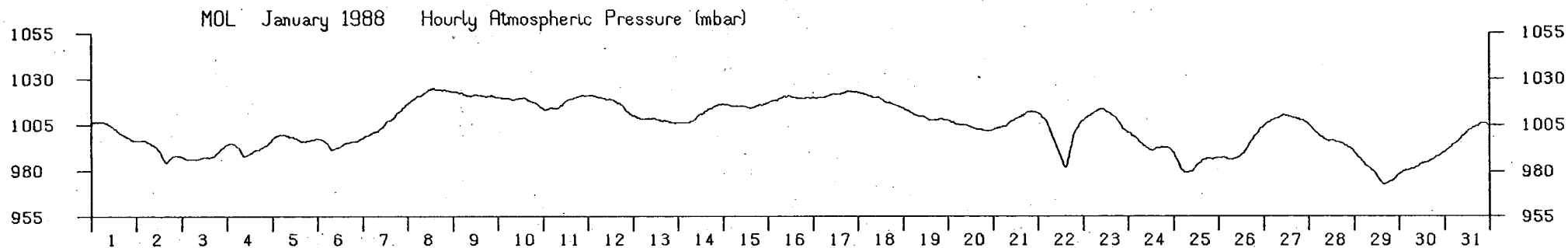
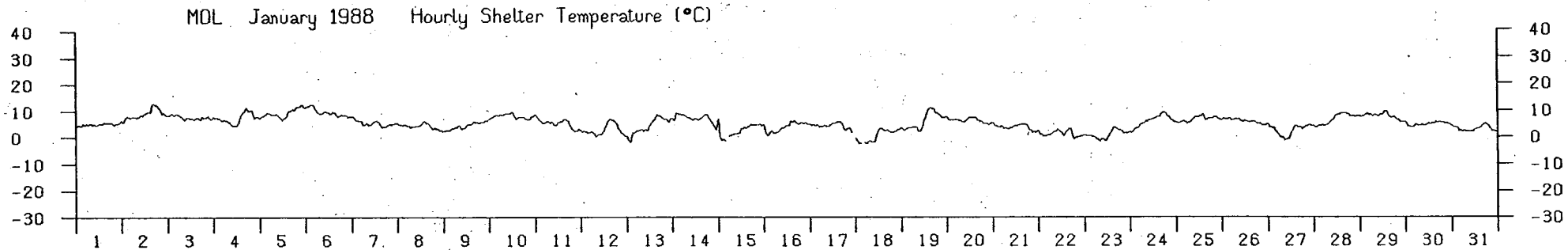
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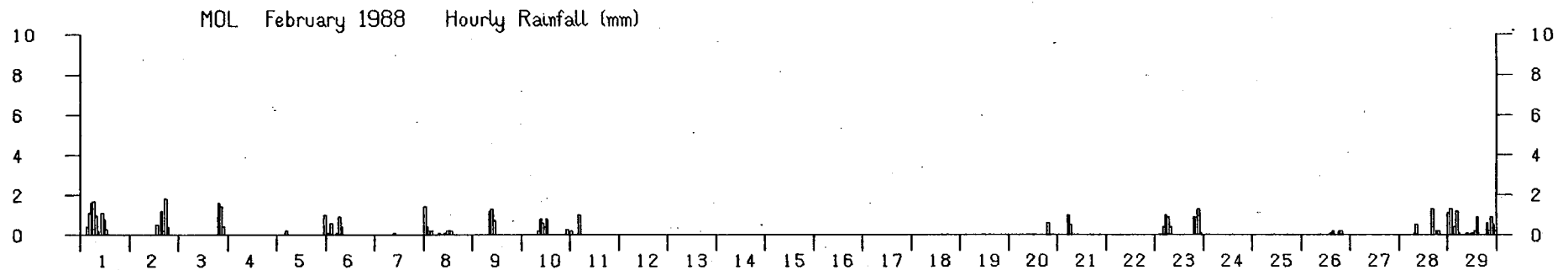
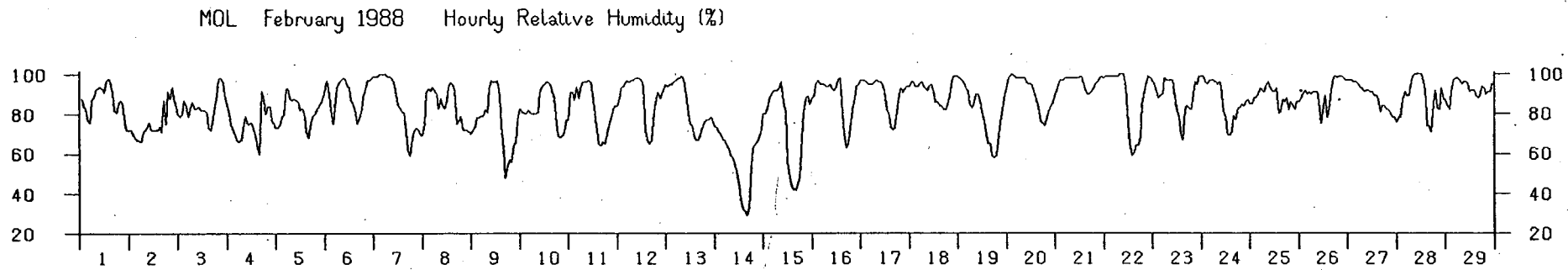
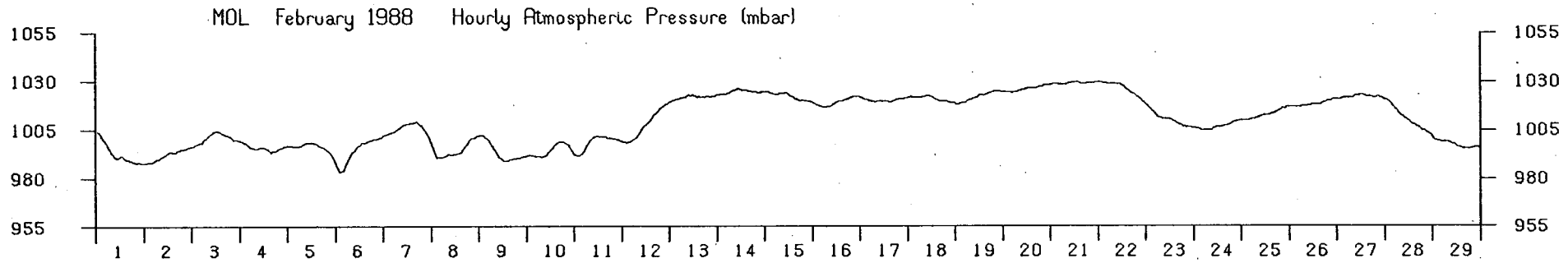
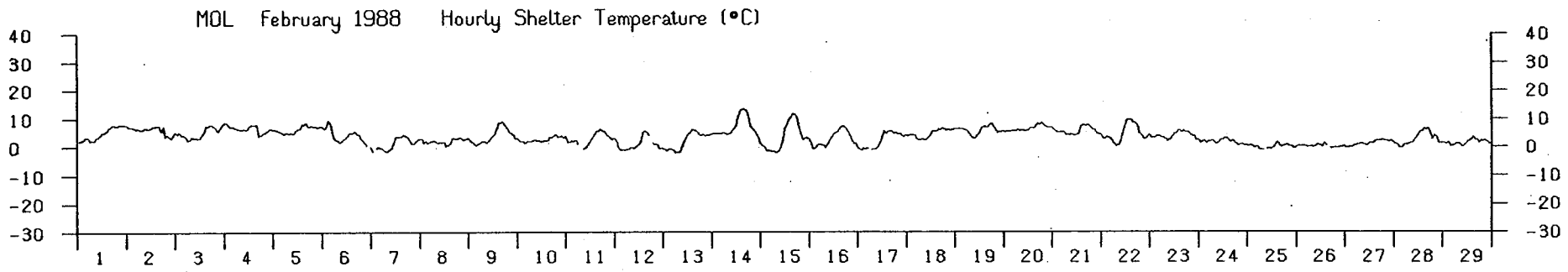
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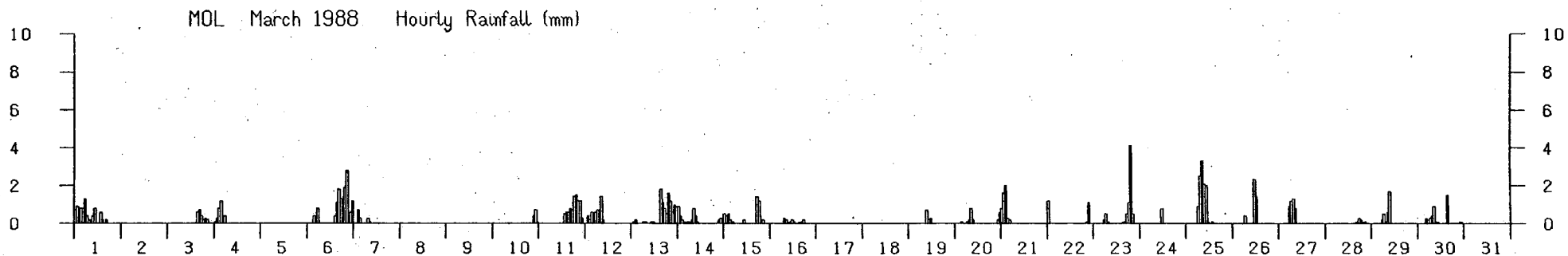
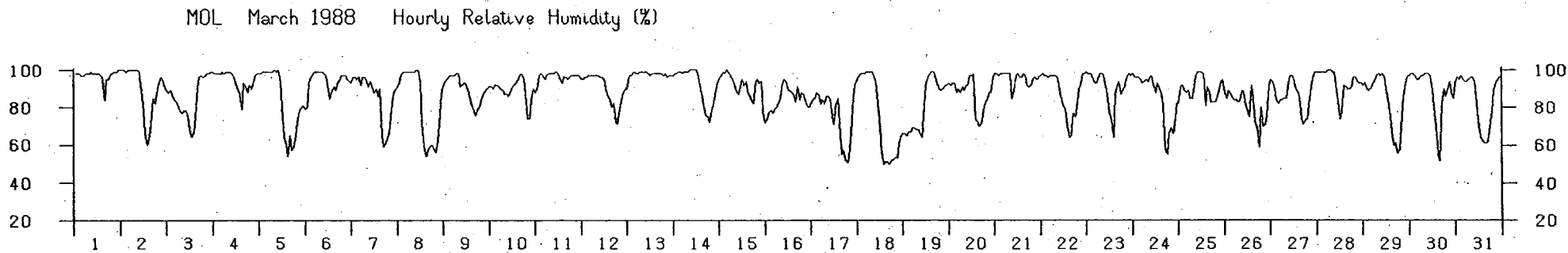
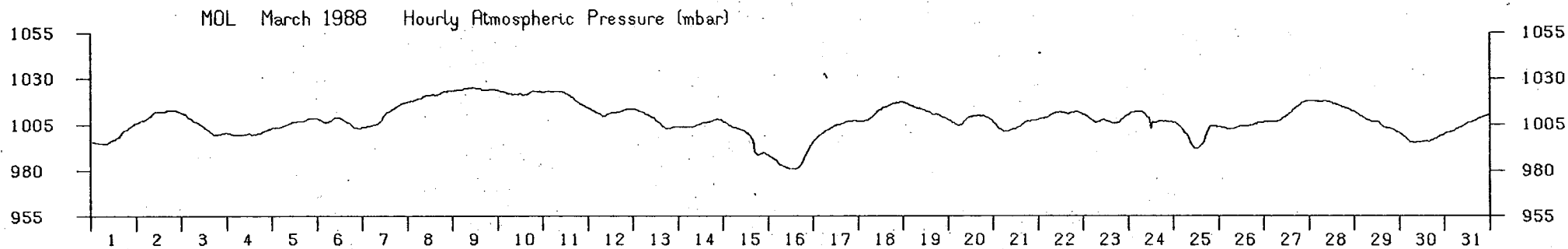
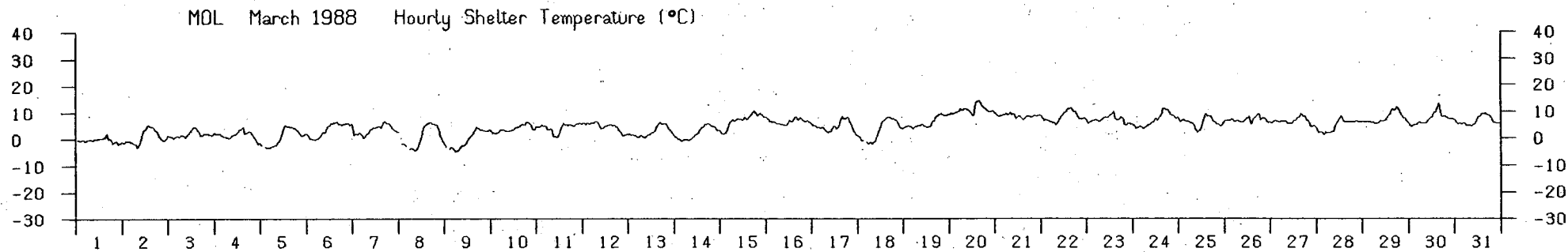
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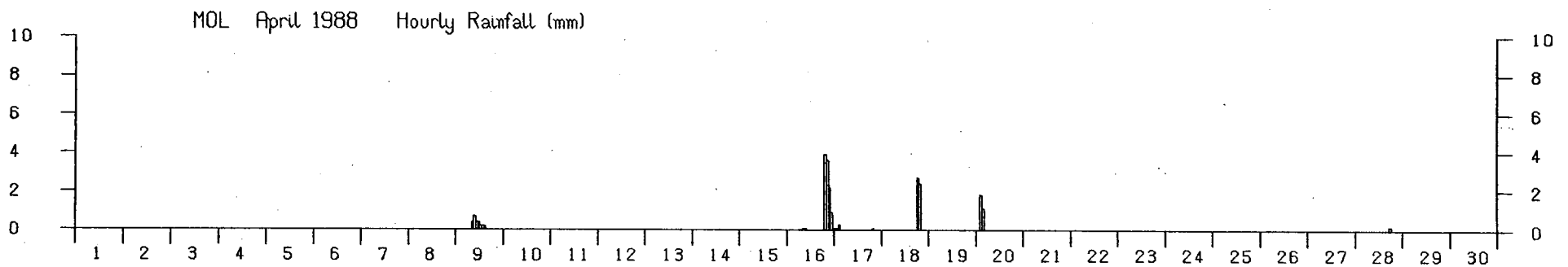
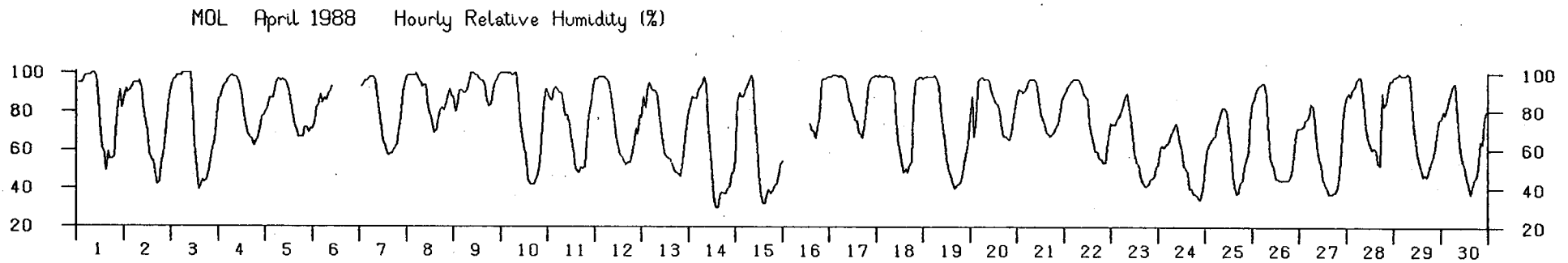
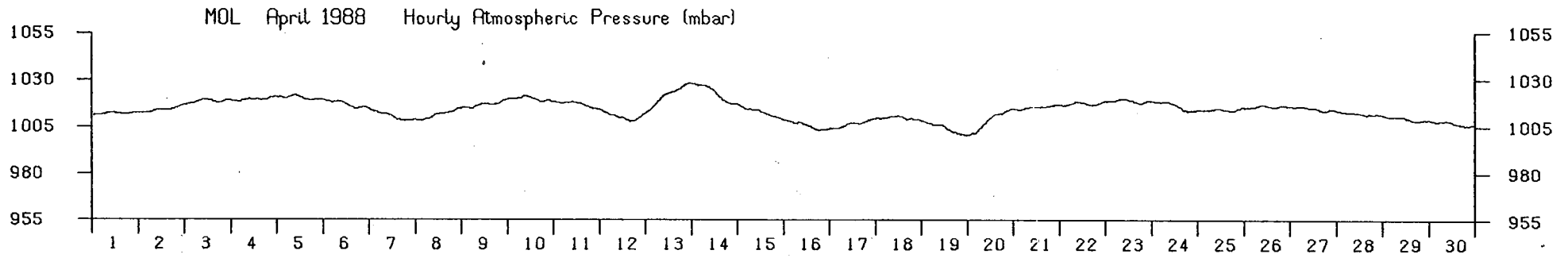
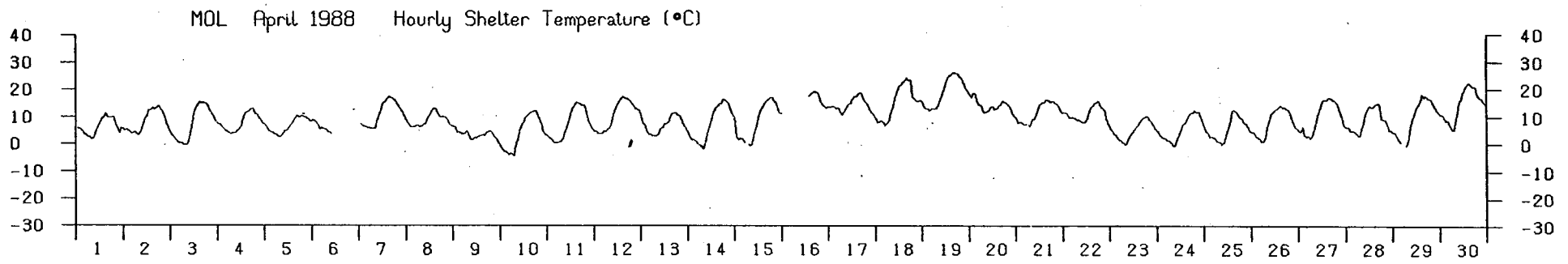
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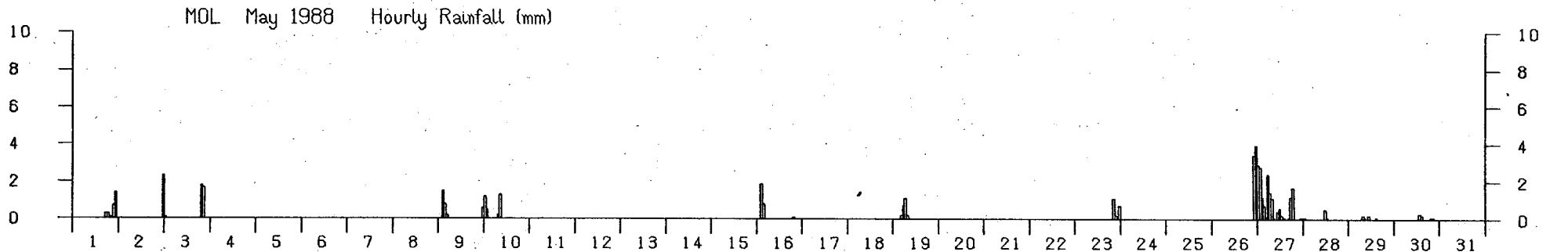
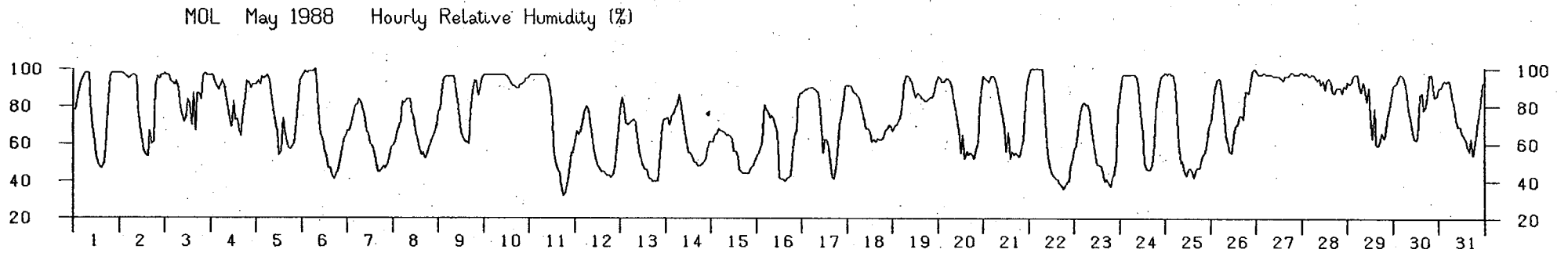
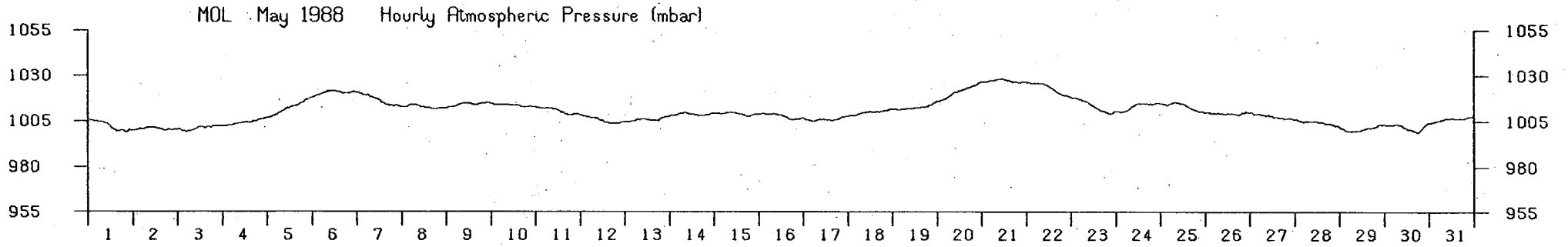
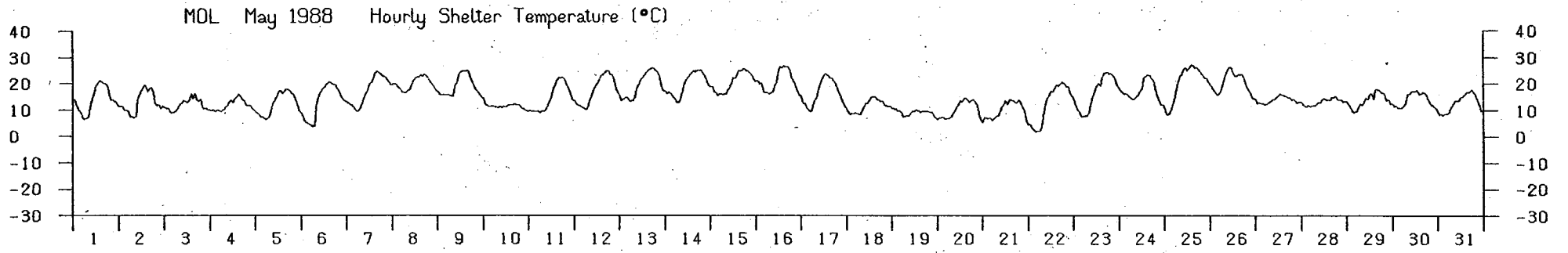
FIGURES 1.1 TO 1.12 : HOURLY SHELTER TEMPERATURES, ATMOSPHERIC PRESSURES,
RELATIVE HUMIDITIES AND AMOUNTS OF RAINFALL ON A
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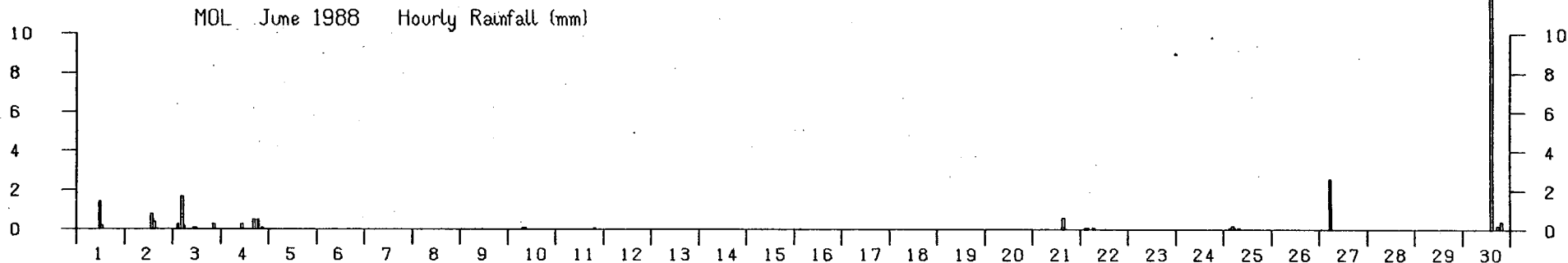
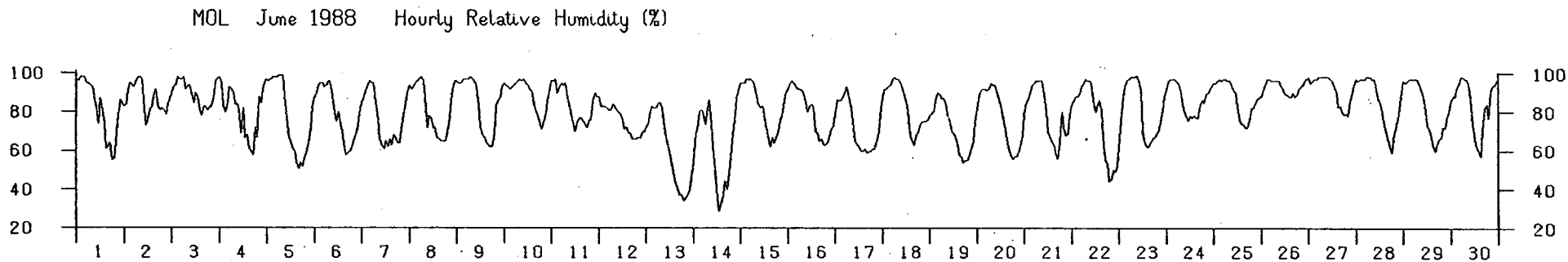
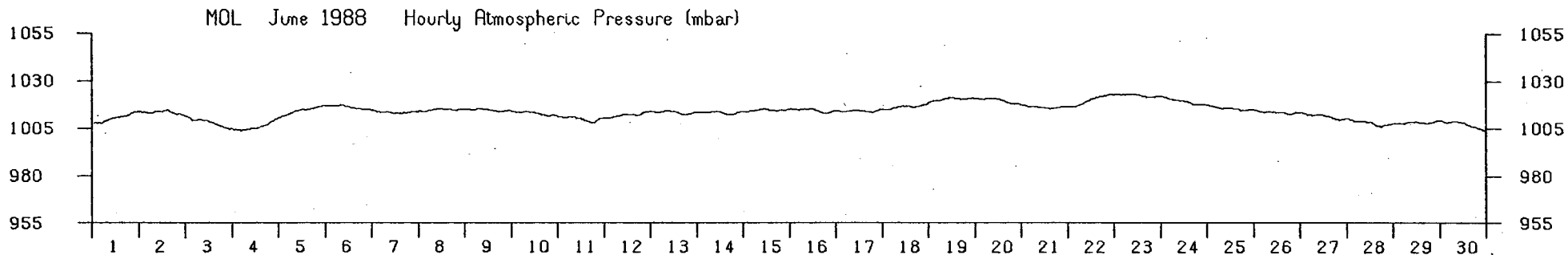
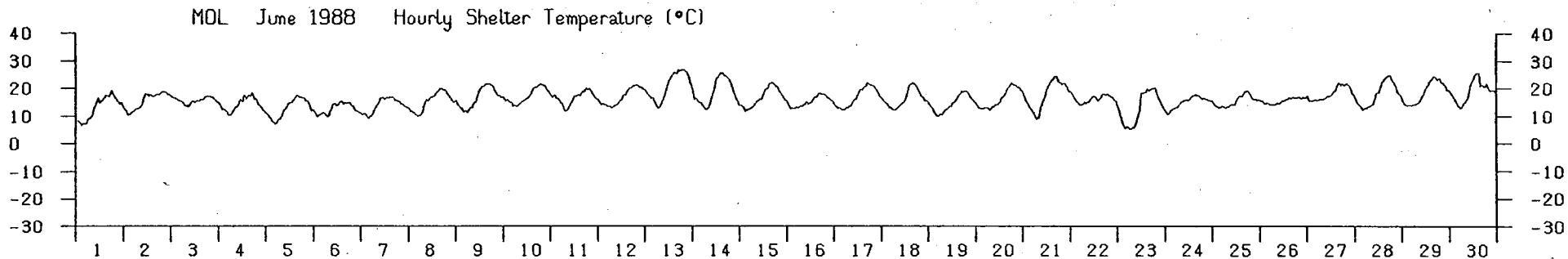


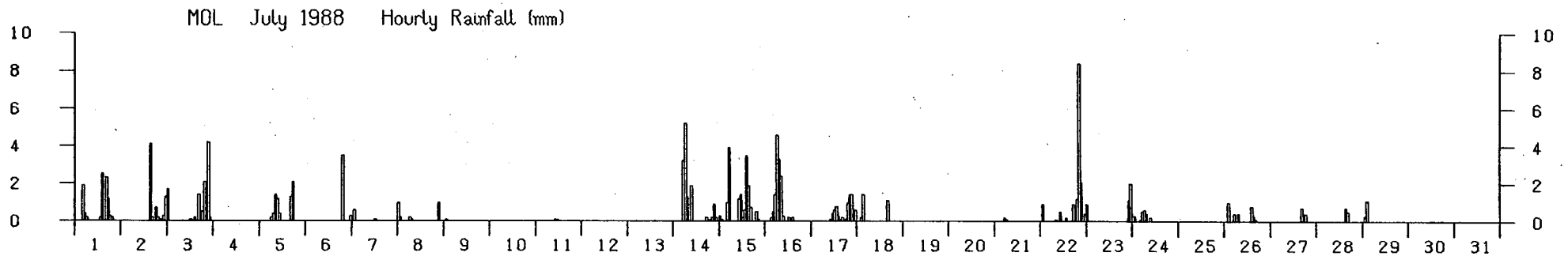
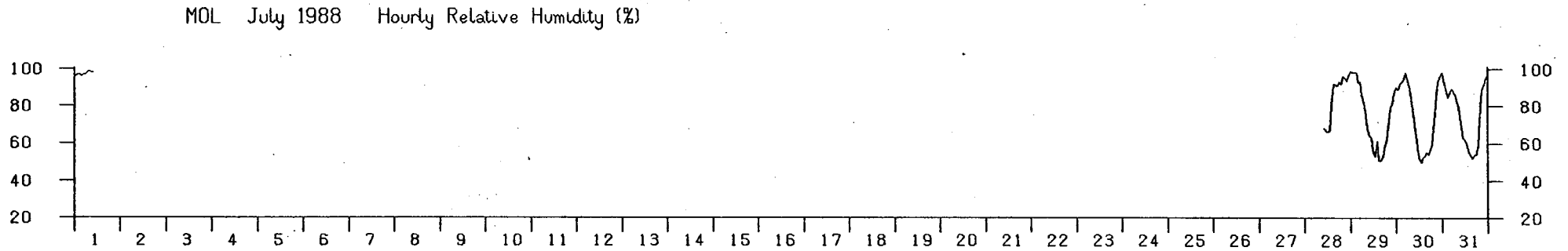
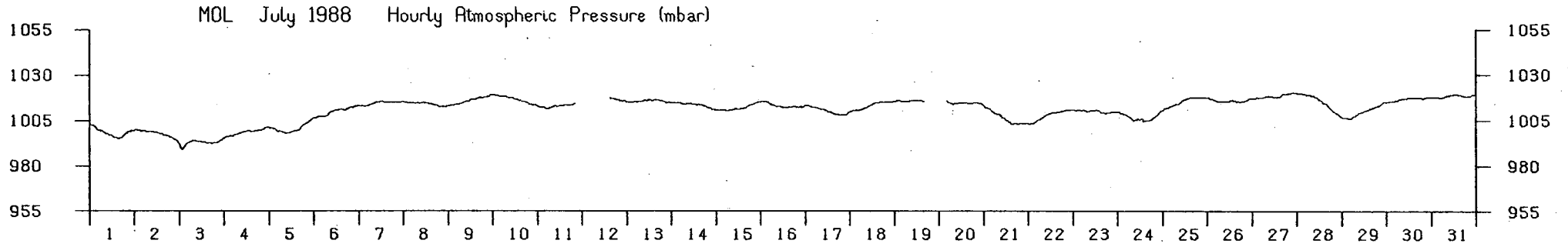
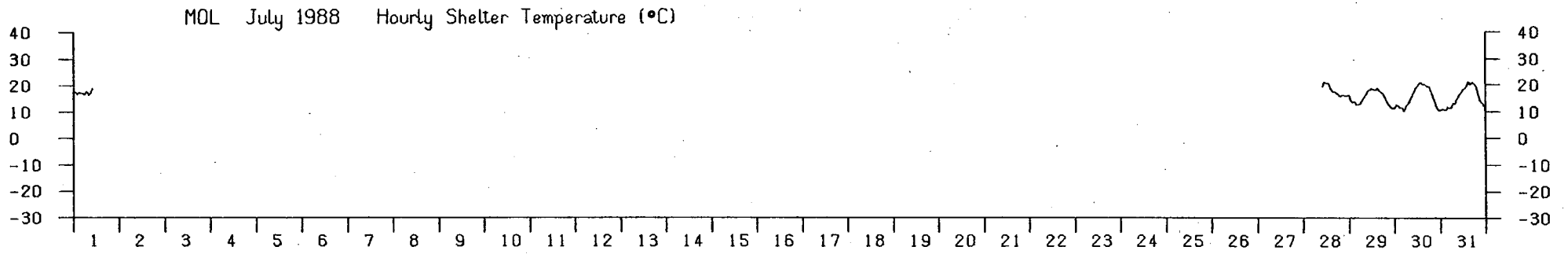


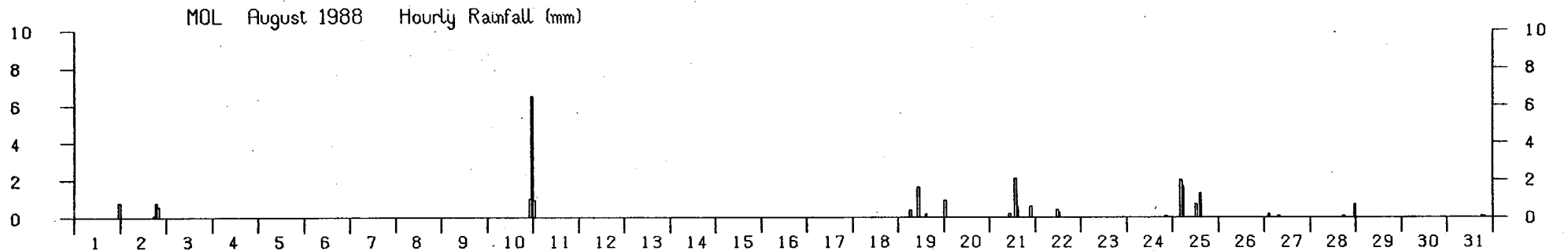
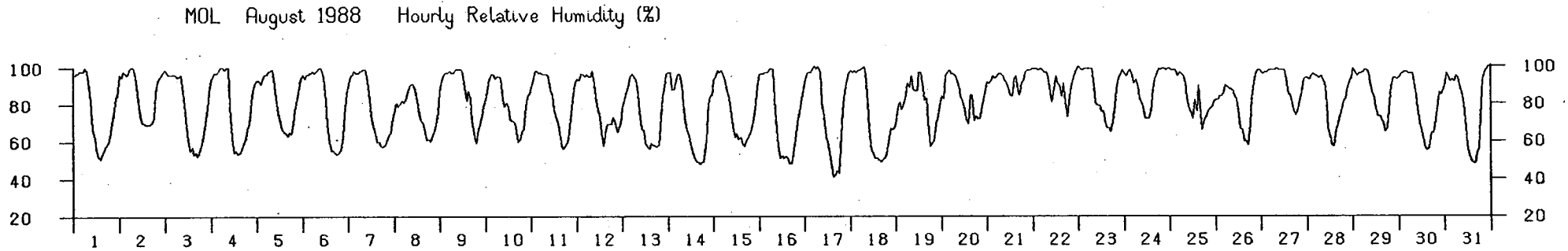
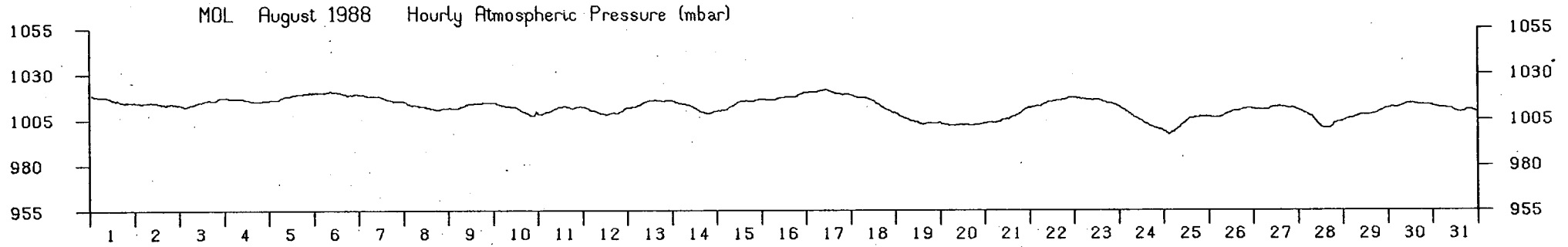
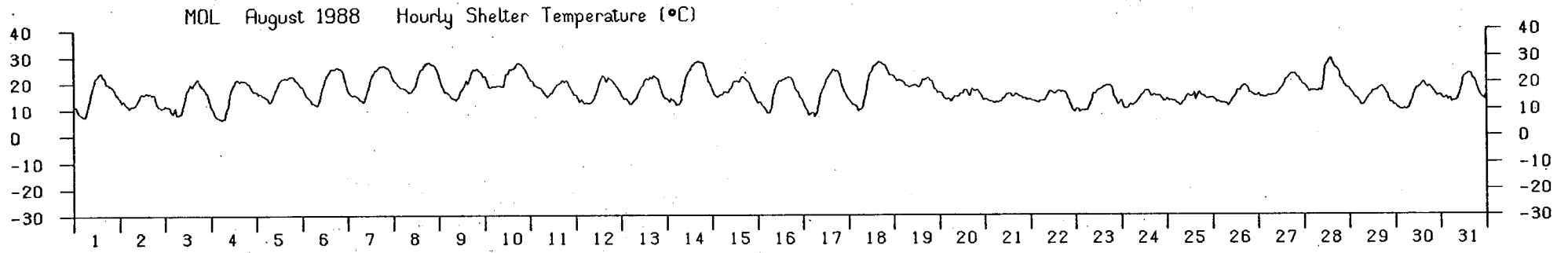


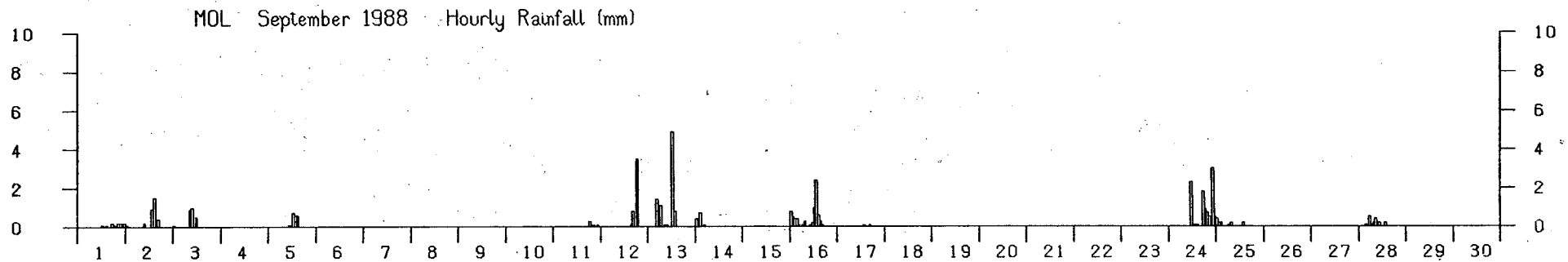
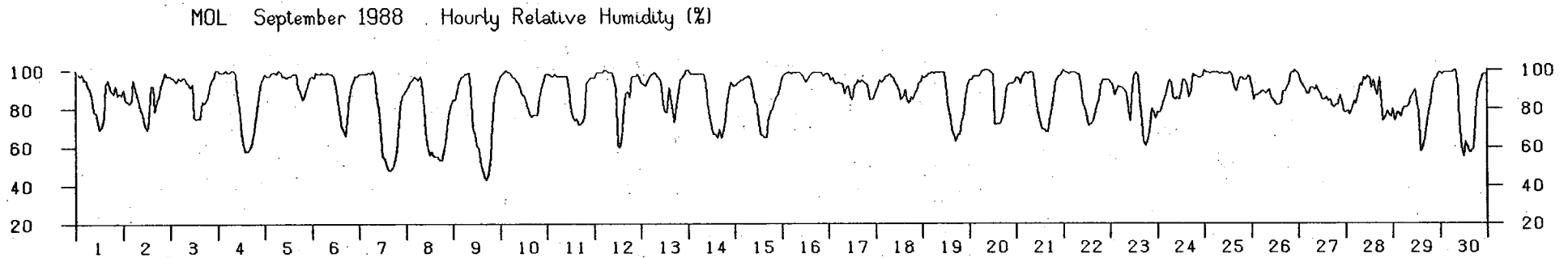
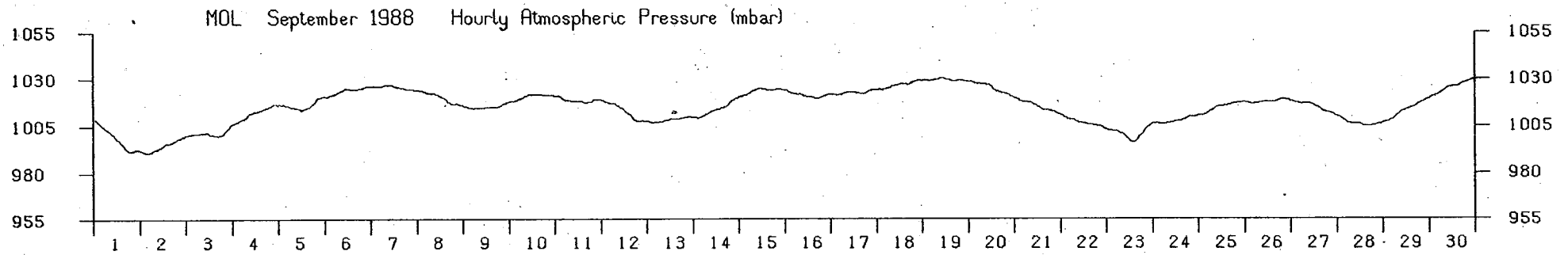
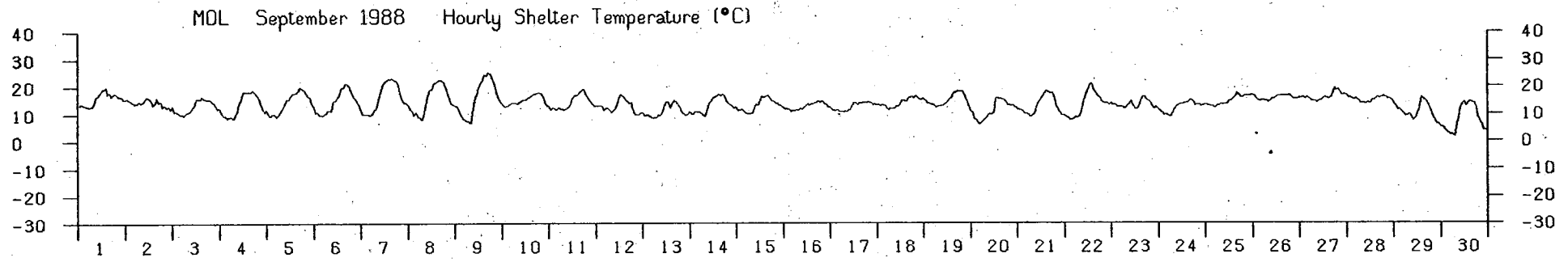




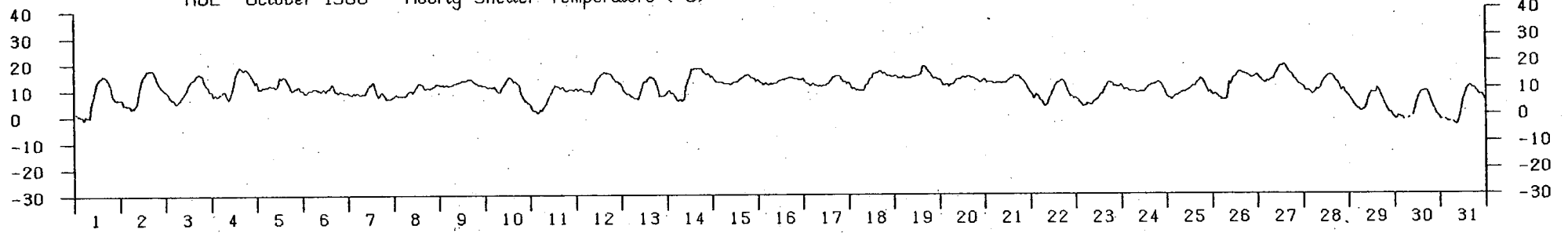




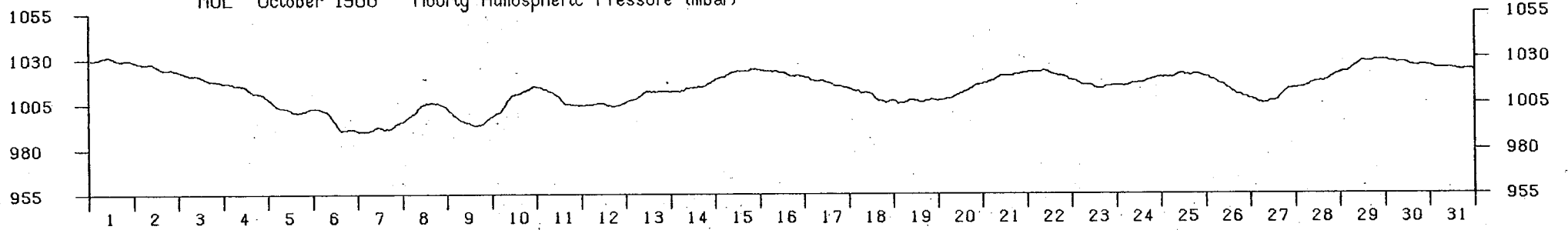




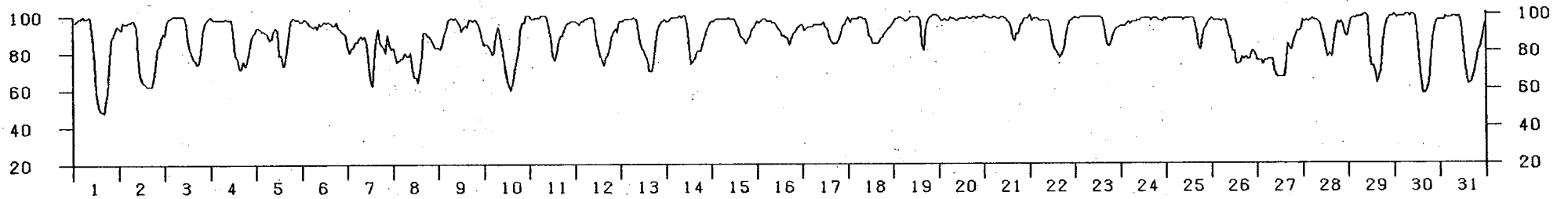
MOL October 1988 Hourly Shelter Temperature (°C)



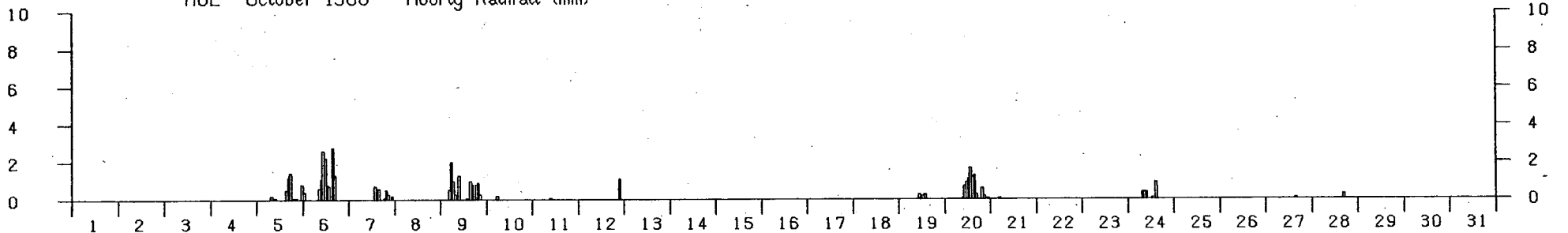
MOL October 1988 Hourly Atmospheric Pressure (mbar)



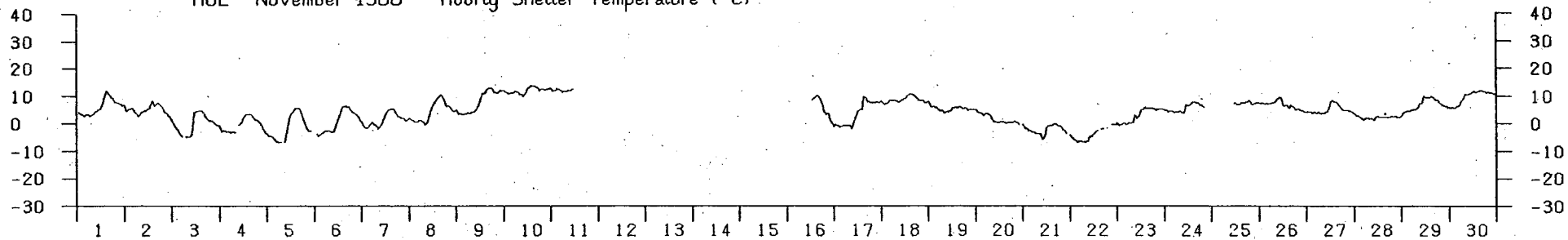
MOL October 1988 Hourly Relative Humidity (%)



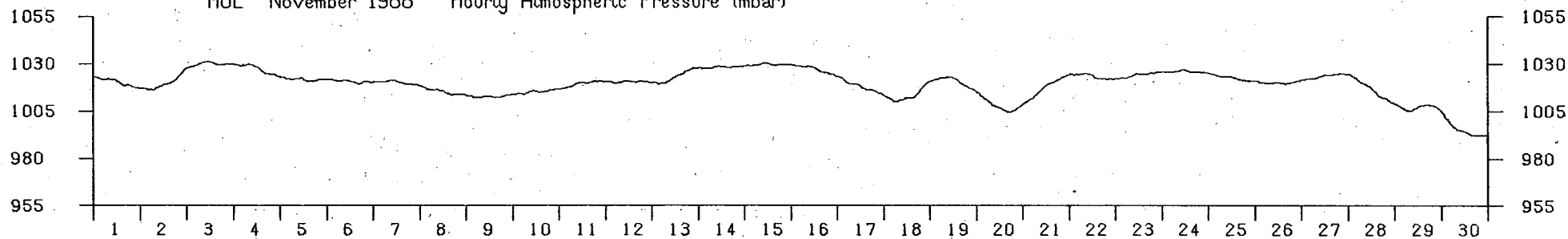
MOL October 1988 Hourly Rainfall (mm)



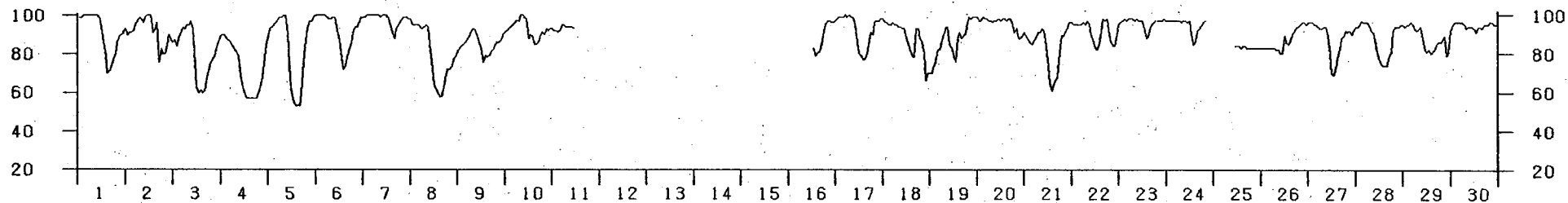
MOL November 1988 Hourly Shelter Temperature (°C)



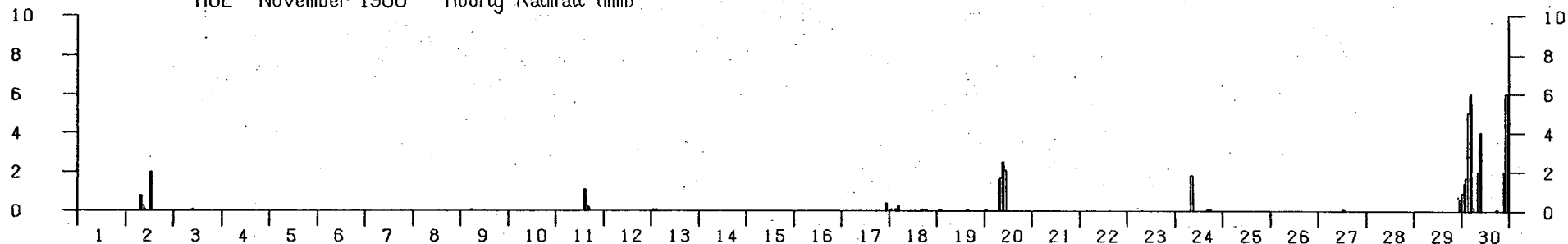
MOL November 1988 Hourly Atmospheric Pressure (mbar)



MOL November 1988 Hourly Relative Humidity (%)



MOL November 1988 Hourly Rainfall (mm)



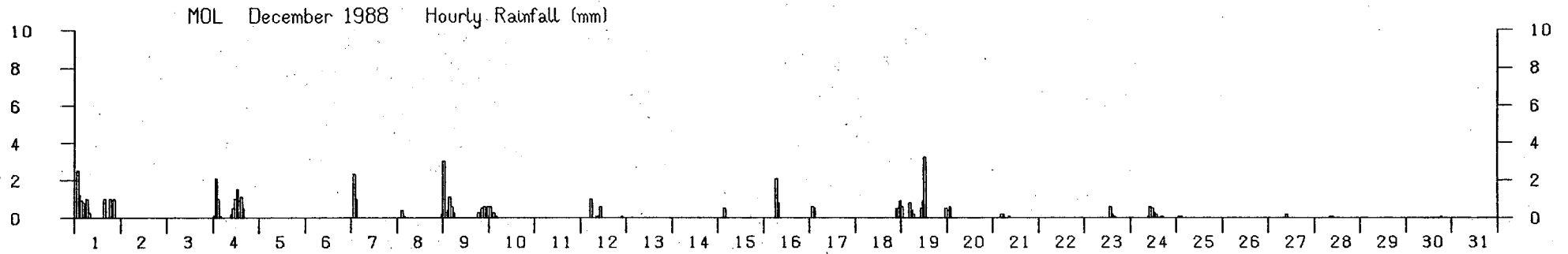
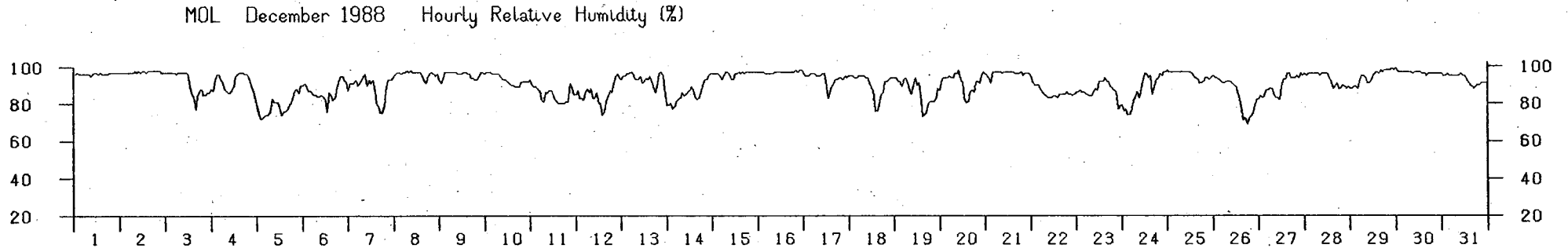
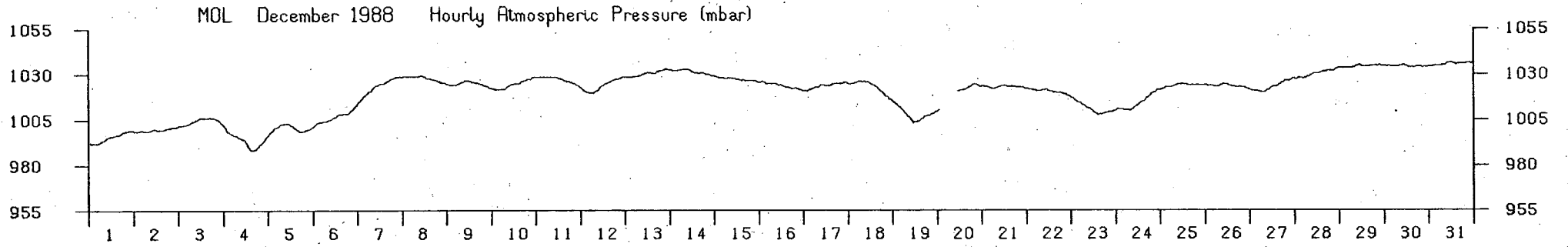
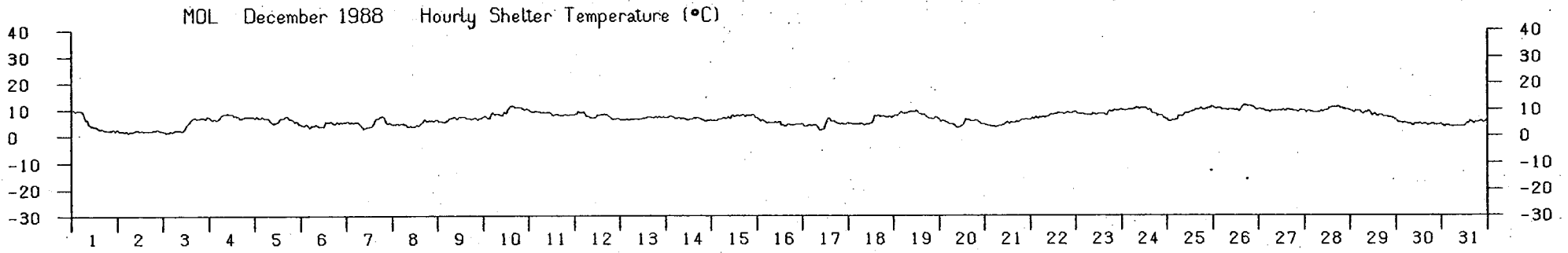


FIGURE 2 : AVERAGE DAILY AND MONTHLY SHELTER TEMPERATURES (BASED ON THE HOURLY AVERAGES).

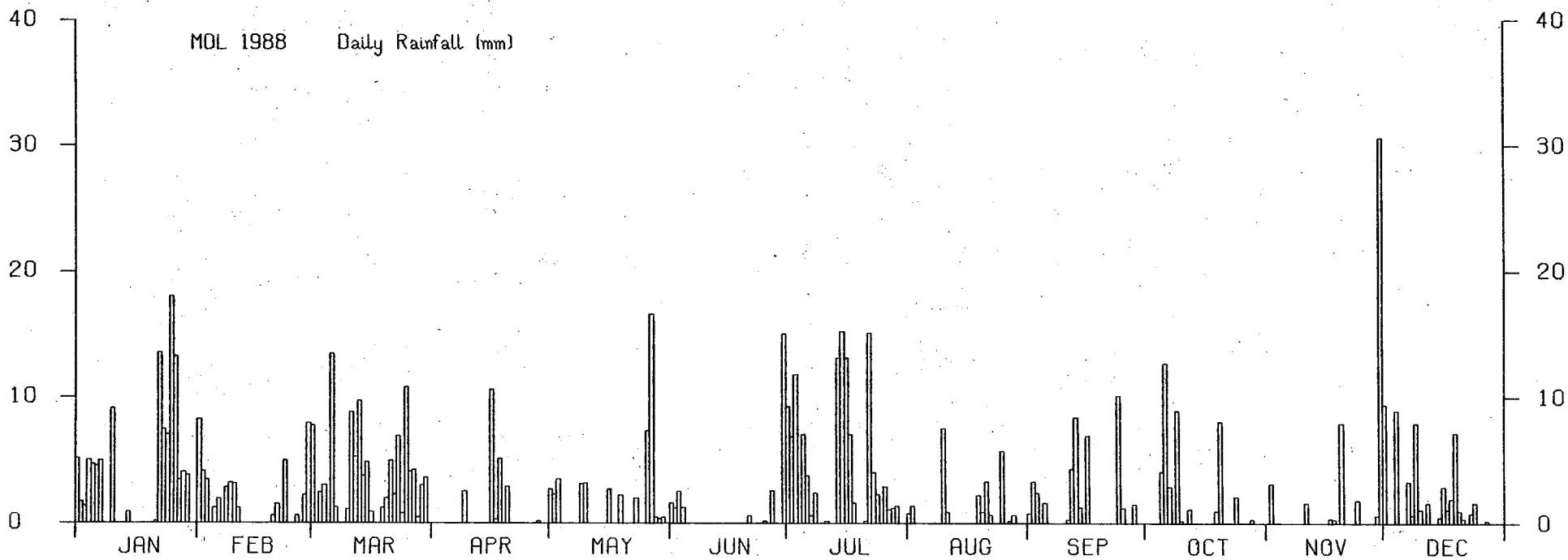
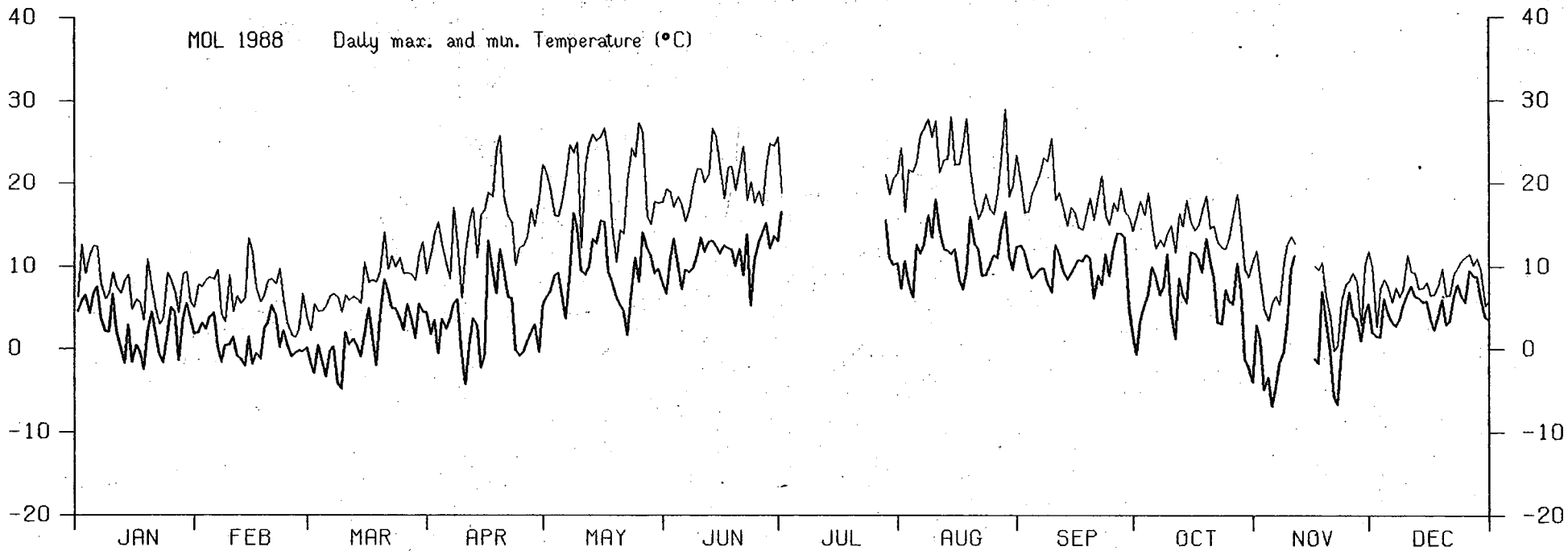
YEAR 1988

AVERAGE DAILY AND MONTHLY SHELTER TEMPERATURES (°C)

MONTH DAY	J	F	M	A	M	J	J	A	S	O	N	D
1	5.2	5.1	-0.2	6.3	14.0	13.2	****	16.2	16.0	7.5	6.2	4.9
2	9.1	6.1	1.0	8.1	12.8	15.6	****	13.3	14.3	10.6	4.9	2.0
3	7.7	5.2	2.0	7.6	11.9	15.7	****	14.5	13.0	10.7	0.1	4.4
4	7.4	6.5	1.5	7.6	11.8	14.0	****	15.0	13.5	12.7	-0.5	7.3
5	9.4	6.4	1.0	6.6	12.4	12.9	****	18.5	14.6	11.8	-1.0	6.2
6	9.4	4.0	3.6	****	13.5	12.6	****	19.3	14.6	9.9	0.8	4.6
7	5.3	1.5	3.5	11.0	17.7	13.9	****	20.3	16.3	8.8	1.5	5.1
8	4.1	2.2	0.9	8.5	19.8	15.3	****	22.0	15.6	10.2	4.5	4.8
9	4.4	4.1	0.0	3.0	18.9	16.7	****	19.4	16.1	12.5	8.1	6.5
10	7.9	2.7	3.9	4.2	11.2	17.3	****	22.4	15.0	10.4	11.9	9.3
11	5.0	3.1	4.3	7.3	14.8	16.6	****	18.0	14.4	7.4	****	8.5
12	2.8	1.0	4.4	10.7	17.6	16.9	****	16.9	12.7	12.5	****	7.6
13	4.4	2.3	2.6	6.7	19.5	20.8	****	17.3	11.1	9.9	****	6.7
14	7.0	6.9	2.1	7.6	19.8	18.5	****	20.4	13.2	12.7	****	6.6
15	2.4	3.6	7.0	8.5	20.5	16.7	****	17.7	13.2	13.3	****	7.2
16	3.7	2.8	6.4	****	20.5	15.1	****	16.2	12.6	13.1	****	4.8
17	3.9	2.5	4.5	13.9	16.4	16.8	****	16.3	12.6	12.5	3.8	4.4
18	0.7	4.7	3.3	15.4	11.5	16.2	****	19.9	14.0	13.1	8.5	5.9
19	6.1	5.8	6.0	19.1	8.9	14.5	****	19.3	14.7	14.9	5.2	8.0
20	6.1	6.5	10.7	13.6	10.1	16.4	****	15.2	11.3	13.0	1.4	5.0
21	3.5	5.6	8.4	11.5	9.9	17.7	****	13.9	12.9	12.5	-2.3	4.8
22	1.1	4.7	7.9	10.6	12.7	16.0	****	13.9	13.4	8.0	-3.9	8.0
23	0.9	4.1	6.9	5.1	16.5	12.9	****	14.1	13.2	7.5	3.2	8.6
24	6.0	1.8	6.9	5.8	16.9	15.0	****	13.6	12.3	9.7	5.6	9.2
25	6.6	0.2	5.9	5.5	20.8	15.4	****	13.9	14.8	9.2	****	8.7
26	5.9	0.3	7.0	8.0	20.0	15.6	****	14.7	15.6	11.8	6.6	10.4
27	2.5	1.3	6.4	10.1	13.7	18.1	****	18.2	16.1	14.3	5.0	9.6
28	6.7	2.8	4.8	8.4	13.1	17.9	****	20.7	15.0	10.5	2.2	9.8
29	7.6	1.5	7.5	10.6	13.7	18.7	14.9	14.6	10.4	4.1	7.0	8.1
30	4.7		7.2	14.7	13.8	19.0	15.3	14.8	7.8	2.4	9.8	4.5
31	2.9		6.4		12.7		15.3	16.9		3.8		4.5
MEAN	5.2	3.6	4.7	9.2	15.1	16.1	****	17.0	13.7	10.4	4.2	6.6

**** MEANS MISSING DATA

FIGURE 3 : DAILY MINIMUM AND MAXIMUM SHELTER TEMPERATURES AND AMOUNTS
OF RAINFALL.



FIGURES 4.1 and 4.2 : DAILY AND MONTHLY AMOUNTS OF RAINFALL, BASED ON
HOURLY VALUES FOR THE PLUVIOGRAPH AND ON DAILY
VALUES FOR THE PLUVIOMETER.

Remark : Pluviometer amounts, determined at 8.00 A.M., are in relation
to the preceding period of 24 hours, but are indicated as
belonging to the observation day.

YEAR 1988

DAILY AND MONTHLY RAINFALL (MM) - PLUVIOGRAPH

MONTH	J	F	M	A	M	J	J	A	S	O	N	D	
DAY													
1	5.1	8.2	7.7	0.0	2.7	1.6	9.2	0.8	0.8	0.0	0.0	9.4	
2	1.7	4.1	0.0	0.0	2.3	1.2	6.8	1.4	3.3	0.0	3.1	0.0	
3	1.4	3.4	2.4	0.0	3.5	2.5	11.8	0.0	2.4	0.0	0.0	0.0	
4	5.0	0.0	3.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	8.9	
5	4.6	1.2	0.0	0.0	0.0	0.0	7.0	0.0	1.6	4.1	0.0	0.0	
6	4.5	1.9	13.4	0.0	0.0	0.0	3.8	0.0	0.0	12.7	0.0	0.0	
7	4.9	0.0	1.3	0.0	0.0	0.0	0.6	0.0	0.0	2.9	0.0	3.3	
8	0.0	2.8	0.0	0.0	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.7	
9	0.0	3.2	0.0	2.5	3.1	0.0	0.0	0.0	0.0	8.9	0.0	7.9	
10	9.1	3.1	1.1	0.0	3.2	0.0	0.0	7.5	0.0	0.2	0.0	1.1	
11	0.0	1.2	8.8	0.0	0.0	0.0	0.2	0.9	0.3	0.0	1.6	0.0	
12	0.0	0.0	5.2	0.0	0.0	0.0	0.0	0.0	4.3	1.1	0.0	1.6	
13	0.0	0.0	9.7	0.0	0.0	0.0	0.0	0.0	8.4	0.0	0.0	0.0	
14	0.9	0.0	3.7	0.0	0.0	0.0	13.1	0.0	1.3	0.0	0.0	0.0	
15	0.0	0.0	4.8	0.0	0.0	0.0	15.2	0.0	0.0	0.0	0.0	0.5	
16	0.0	0.0	0.9	10.6	2.7	0.0	13.1	0.0	6.9	0.0	0.0	2.9	
17	0.0	0.0	0.0	0.3	0.0	0.0	7.0	0.0	0.0	0.0	0.4	1.1	
18	0.0	0.0	0.0	5.1	0.0	0.0	1.6	0.0	0.0	0.0	0.3	1.9	
19	0.0	0.0	1.2	0.0	2.2	0.0	0.0	2.2	0.0	1.0	0.0	7.1	
20	0.0	0.6	2.0	2.9	0.0	0.0	0.0	0.9	0.0	8.0	7.9	1.0	
21	0.2	1.5	4.9	0.0	0.0	0.6	0.2	3.3	0.0	0.0	0.0	0.4	
22	13.5	0.0	2.3	0.0	0.0	0.0	15.1	0.7	0.0	0.0	0.0	0.0	
23	7.4	4.9	6.9	0.0	2.0	0.0	4.0	0.0	0.0	0.0	0.0	0.8	
24	7.0	0.0	0.8	0.0	0.0	0.0	2.3	0.0	10.1	2.1	1.8	1.6	
25	18.0	0.0	10.8	0.0	0.0	0.2	0.0	5.7	1.2	0.0	0.0	0.0	
26	13.2	0.6	4.1	0.0	7.3	0.0	2.9	0.0	0.0	0.0	0.0	0.0	
27	3.4	0.0	4.2	0.0	16.6	2.6	1.1	0.2	0.0	0.0	0.0	0.2	
28	4.0	2.2	0.5	0.2	0.5	0.0	1.2	0.7	1.5	0.3	0.0	0.0	
29	3.8	7.9	3.0	0.0	0.4	0.0	1.4	0.0	0.0	0.0	0.6	0.0	
30	0.0		3.6	0.0	0.5	15.0	0.0	0.0	0.0	0.0	30.6	0.0	
31	0.0		0.0		0.0		0.0	0.0	0.0	0.0		0.0	
TOTAL	107.7	46.8	106.3	21.6	47.0	25.0	120.0	24.3	42.1	41.3	46.3	50.4	678.8

YEAR 1988

DAILY AND MONTHLY RAINFALL (MM) - PLUVIOMETER

Month Day	J	F	M	A	M	J	J	A	S	O	N	D	Year.
1	0.1	9.3	12.3	0.2	0.0	0.1	21.3	0.0	0.5	0.0	0.0	17.1	
2	7.4	2.2	8.2	0.0	5.2	2.2	7.4	1.8	4.3	0.0	1.8	1.1	
3	3.3	4.8	0.2	0.0	5.4	5.1	9.6	3.2	8.7	0.0	0.0	0.1	
4	3.2	5.1	6.6	0.0	8.0	1.6	13.1	0.0	0.1	0.0	0.0	9.8	
5	7.0	4.7	0.2	0.0	3.1	1.6	2.7	0.0	0.2	0.5	0.0	4.0	
6	9.3	4.7	3.0	0.5	0.1	0.7	5.8	0.0	2.6	12.2	0.0	0.2	
7	0.8	0.4	15.2	0.0	0.0	0.1	4.7	0.0	0.2	13.1	0.0	3.3	
8	6.7	6.7	0.0	0.0	0.0	0.0	2.3	0.0	0.0	4.2	0.0	1.2	
9	0.6	4.8	0.0	0.0	3.6	0.0	1.2	0.0	0.0	7.3	0.0	5.5	
10	1.8	4.0	0.2	2.8	3.7	0.0	0.1	0.0	0.0	7.1	0.2	5.5	
11	6.6	9.1	1.8	0.3	2.3	0.3	0.0	13.1	0.0	0.2	0.0	0.2	
12	0.4	0.3	16.5	0.0	0.0	0.1	0.0	0.0	1.0	0.0	2.4	1.4	
13	0.1	0.0	2.2	0.1	0.0	0.0	0.1	0.0	13.5	2.0	0.4	1.5	
14	1.5	0.0	14.1	0.0	0.0	0.0	18.6	0.0	9.2	0.0	0.0	0.2	
15	0.8	0.0	3.5	0.0	0.0	0.0	10.2	0.0	0.2	0.0	0.0	0.5	
16	0.0	0.0	5.6	0.3	2.7	0.0	26.9	0.0	4.5	0.0	0.0	2.9	
17	0.1	0.3	1.8	12.1	0.4	0.0	2.8	0.0	4.7	0.0	0.0	2.2	
18	0.0	0.3	0.0	0.7	0.0	0.0	9.2	0.0	0.5	0.0	0.0	0.1	
19	0.0	0.0	2.6	5.5	2.3	0.0	0.8	3.7	0.1	0.0	2.8	6.7	
20	0.0	0.6	2.3	3.6	0.9	0.0	0.0	2.2	0.0	1.1	11.6	8.8	
21	0.0	1.5	7.6	0.1	0.2	0.0	0.4	0.9	0.0	12.2	0.0	1.5	
22	1.2	0.0	2.1	0.0	0.0	1.0	2.1	6.0	0.0	0.2	0.0	0.4	
23	17.3	3.6	3.1	0.0	0.0	0.0	16.6	1.7	0.0	0.0	1.0	0.3	
24	16.6	3.1	8.8	0.0	2.8	0.0	23.1	0.2	5.5	1.5	0.8	3.7	
25	9.6	0.0	15.4	0.0	0.0	0.6	0.1	7.1	9.7	2.4	0.0	1.5	
26	12.2	0.0	0.8	0.0	0.0	0.3	5.8	2.4	0.2	0.1	0.2	0.1	
27	10.7	2.9	11.8	0.0	25.5	4.0	5.7	1.3	0.1	0.0	0.1	0.3	
28	9.3	1.3	0.4	0.0	5.2	0.1	1.8	0.2	2.0	0.4	0.1	0.3	
29	0.4	4.8	3.0	0.6	1.0	0.4	4.9	3.1	1.8	0.4	0.2	0.1	
30	5.6		4.2	0.0	0.5	0.0	0.0	0.3	0.2	0.0	10.1	0.2	
31	0.4		3.8		0.8		0.0	0.0		0.0		0.2	
TOTAL	133.0	74.5	157.3	26.8	73.7	18.2	197.3	47.2	69.8	64.9	31.7	80.9	975.3

FIGURE 5 : MONTHLY AND YEARLY DURATION OF RAINFALL (PLUVIOGRAPH DATA).

RAIN		
MONTH	HOURS	MM
J	59.1	107.7
F	35.3	46.8
M	82.9	106.3
A	10.2	21.6
M	24.1	47.0
J	6.7	25.0
J	53.6	120.0
A	8.8	24.3
S	25.4	42.1
O	28.3	41.3
N	15.3	46.3
D	40.8	50.4
1988	390.4	678.8

FIGURE 6 : STATISTICS OF THE HOURLY SHELTER TEMPERATURES ON A MONTHLY AND A YEARLY BASE.

Tminmin : overall minimum temperature (°C).
 Tminmean : mean of the daily minimum temperatures.
 Tmean : mean temperature.
 Tmaxmean : mean of the daily maximum temperatures.
 Tmaxmax : overall maximum temperature.
 sT : standard deviation of the hourly values with respect to the monthly and the yearly mean temperatures.
 (delta T) max 12 : maximum difference between hourly temperatures within moving periods of twelve hours, when increasing (Incr) and decreasing (Decr).
 Missing data : number of missing hourly data.

MONTH	TMINMIN	TMINMEAN	TMEAN	TMAXMEAN	TMAXMAX	ST	(DELTAT) INCR	MAX12 DECR
J	-2.4	2.6	5.2	7.5	12.6	2.8	7.9	9.0
F	-1.9	1.0	3.6	6.7	13.4	2.8	13.0	14.6
M	-4.7	1.7	4.7	7.9	14.1	3.4	9.5	10.4
A	-4.2	3.3	9.2	15.1	25.8	5.7	17.3	16.2
M	1.7	9.5	15.1	20.3	27.3	5.3	19.1	16.9
J	5.3	11.4	16.1	20.6	26.7	3.8	14.9	14.3
J	10.3	12.8	15.8	20.1	21.2	3.1	10.6	10.2
A	6.3	11.6	17.0	22.2	28.9	4.7	18.1	14.9
S	1.8	9.9	13.7	17.9	25.4	3.5	17.5	14.7
O	-3.9	6.4	10.4	14.5	18.9	4.2	15.8	12.4
N	-6.8	1.2	4.2	7.7	13.7	4.6	11.6	12.1
D	1.6	5.1	6.6	8.2	11.5	2.3	5.2	6.9
1988	-6.8	6.0	9.8	13.7	28.9	6.3	19.1	16.9

MISSING DATA 842

FIGURE 7 : STATISTICS OF THE HOURLY ATMOSPHERIC PRESSURES ON A MONTHLY AND A YEARLY BASE.

Pminmin : overall minimum pressure (mbar).
Pminmean : mean of the daily minimum pressures.
Pmean : mean pressure.
Pmaxmean : mean of the daily maximum pressures.
Pmaxmax : overall maximum pressure.
sP : standard deviation of the hourly values with respect to the monthly and the yearly mean values.
(delta P) max 6, max 12, max 24 : maximum differences between hourly pressures within moving periods of 6, 12 or 24 h respectively, when increasing (Incr) and decreasing (Decr).
Missing data : number of missing hourly values.

MONTH	PMINMIN	PMINMEAN	PMEAN	PMAXMEAN	PMAXMAX	SP
J	972.9	999.3	1004.1	1008.8	1024.6	12.7
F	983.3	1005.3	1009.4	1013.6	1029.6	12.8
M	980.9	1003.6	1007.6	1011.6	1024.8	8.5
A	1000.4	1011.5	1013.8	1016.2	1027.9	5.2
M	998.8	1007.8	1010.0	1012.2	1027.9	6.8
J	1003.5	1012.2	1013.8	1015.4	1023.2	4.2
J	989.1	1008.2	1010.6	1013.2	1020.1	6.9
A	996.7	1009.2	1011.7	1014.3	1021.2	5.1
S	990.8	1011.8	1015.1	1018.6	1030.4	9.1
O	989.9	1010.1	1013.3	1016.6	1031.4	9.8
N	992.2	1016.9	1019.4	1022.4	1030.9	7.4
D	988.4	1016.4	1019.7	1022.7	1036.1	11.7
1988	972.9	1009.3	1012.4	1015.4	1036.1	9.8

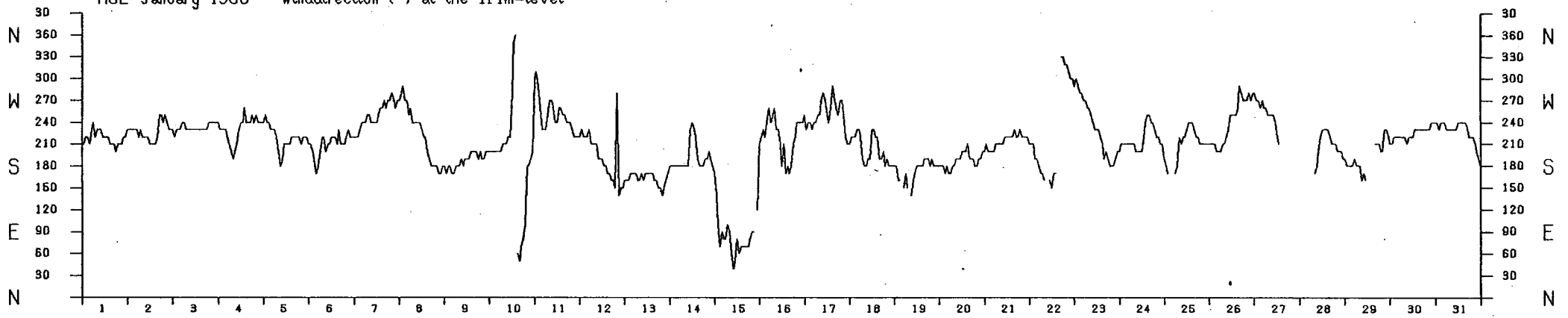
(DELTAP)MAX 6 (DELTAP)MAX 12 (DELTAP)MAX 24

INCR	21.2	27.2	28.6
DECR	15.3	26.7	27.1

MISSING DATA 38

FIGURES 8.1 TO 8.12 : AVERAGE HOURLY WIND DIRECTIONS AT THE 24 m-, 69m-
AND 114 m-LEVELS ON A MONTHLY BASE.

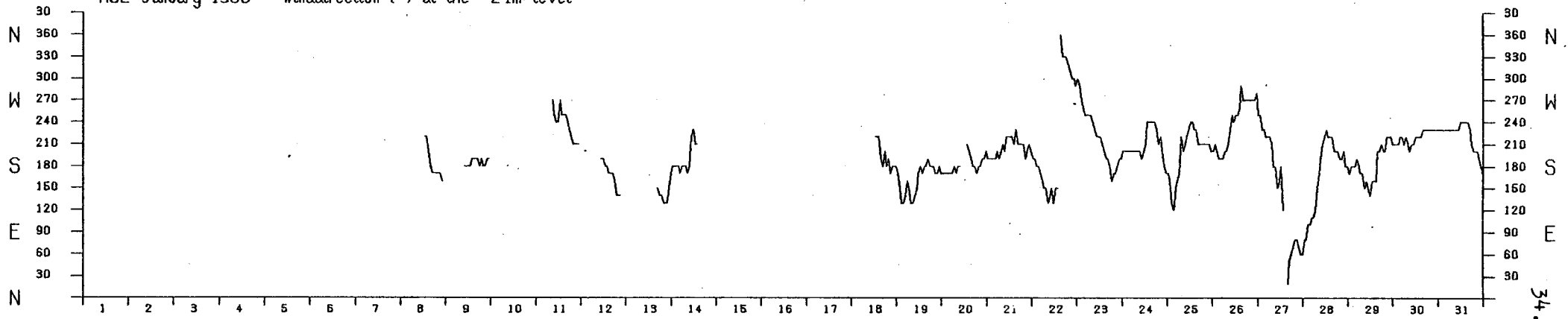
MOL January 1988 Winddirection (°) at the 114m-level

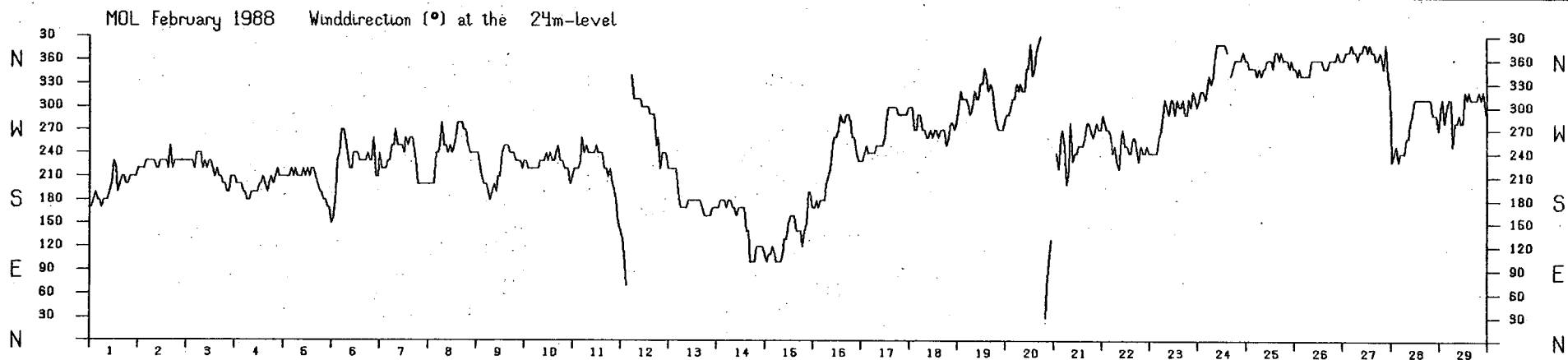
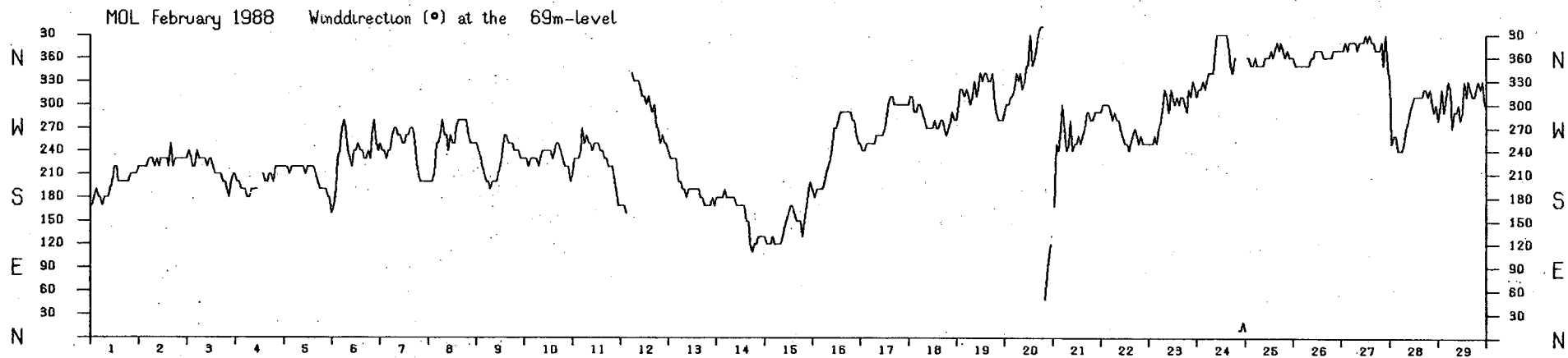
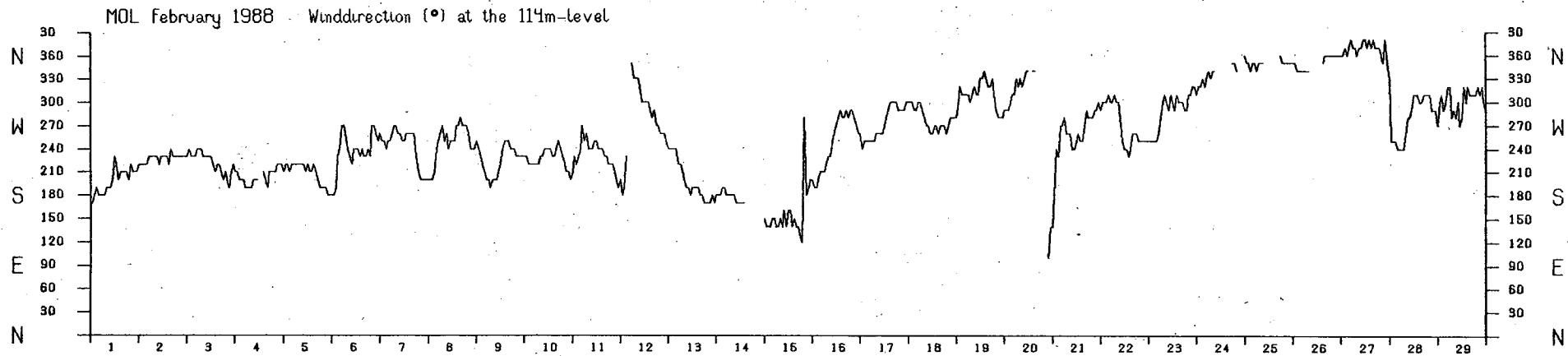


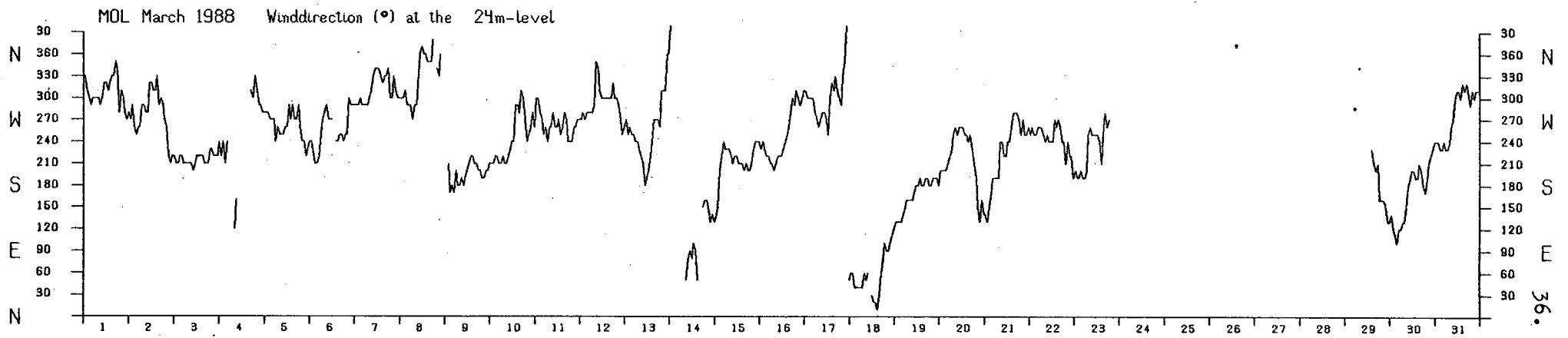
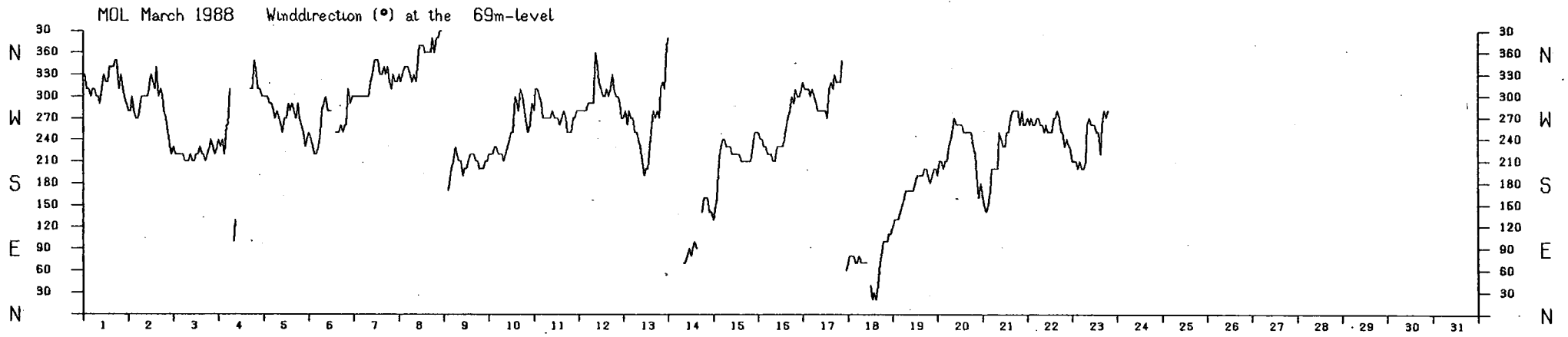
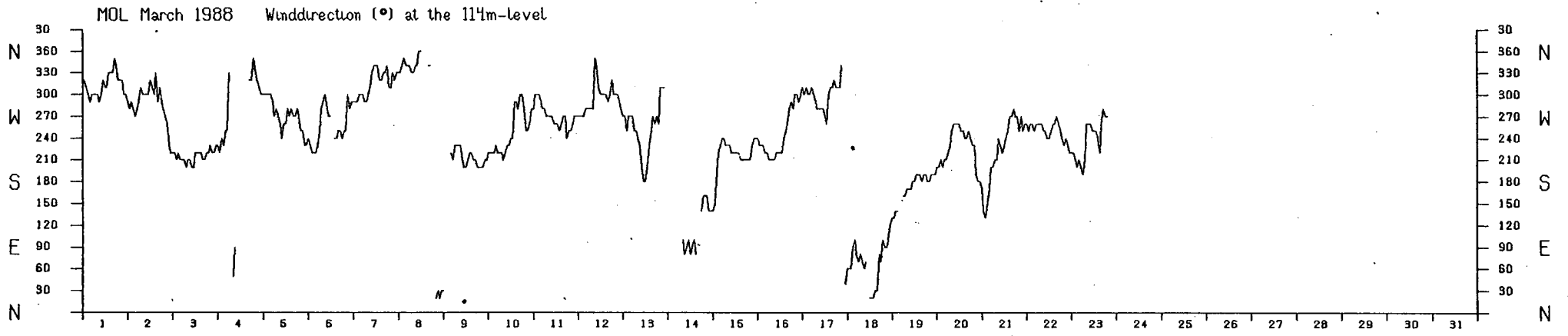
MOL January 1988 Winddirection (°) at the 69m-level

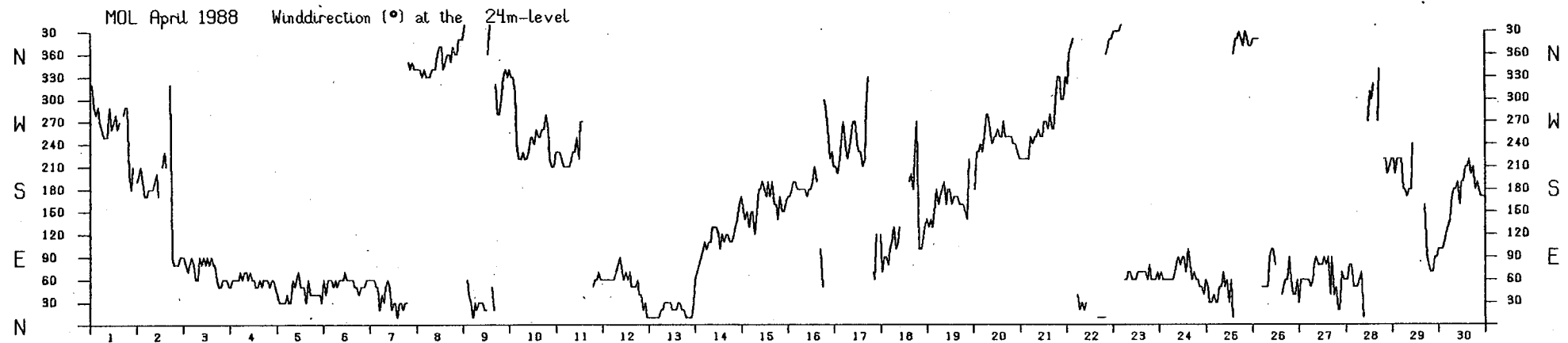
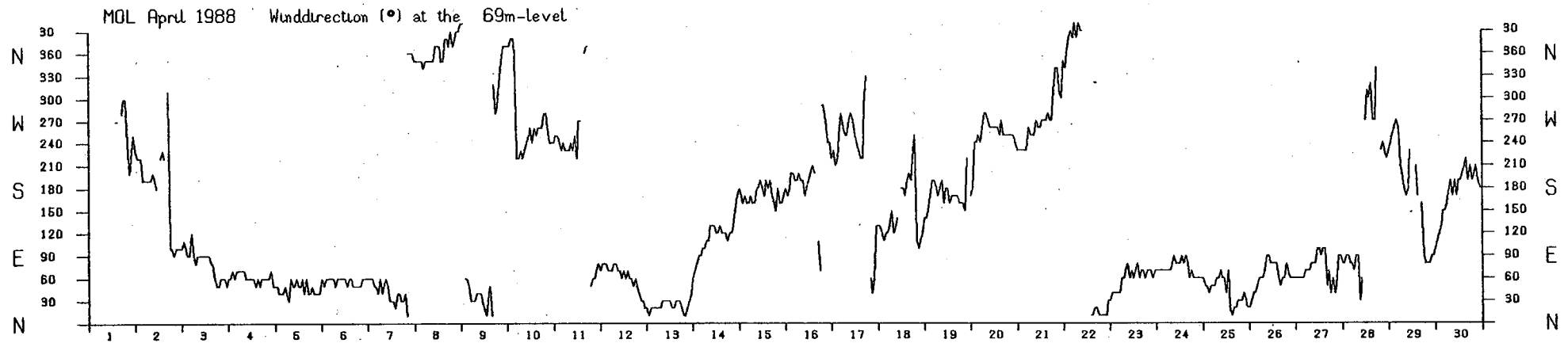
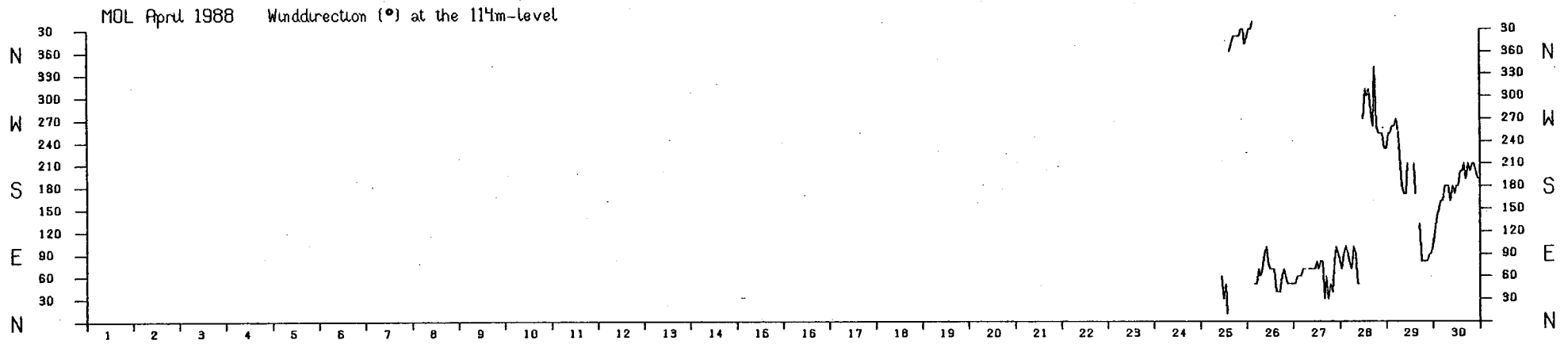


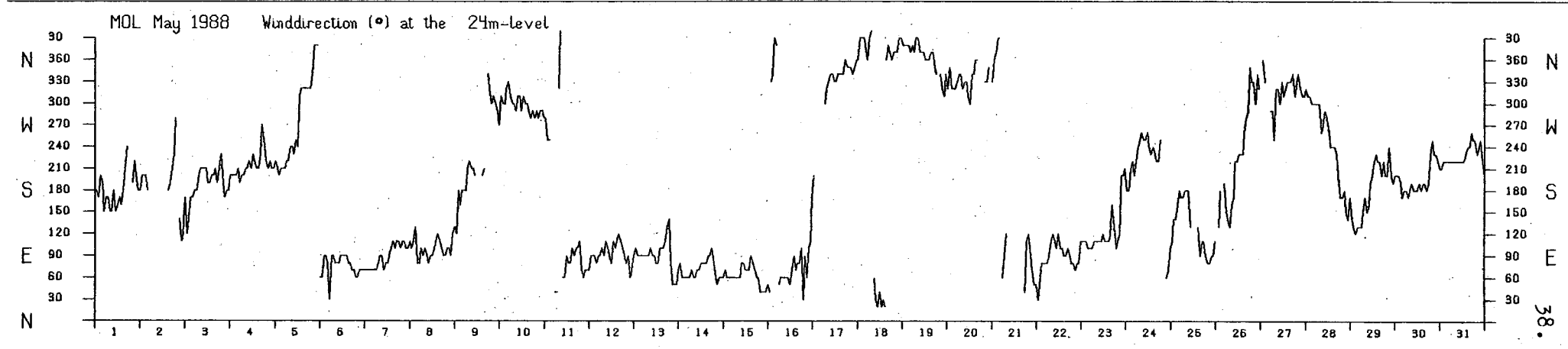
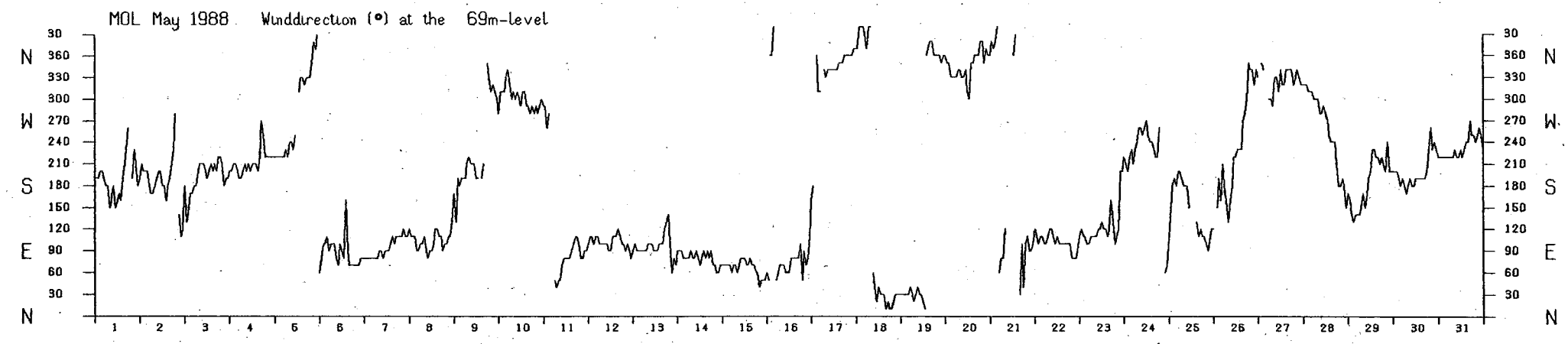
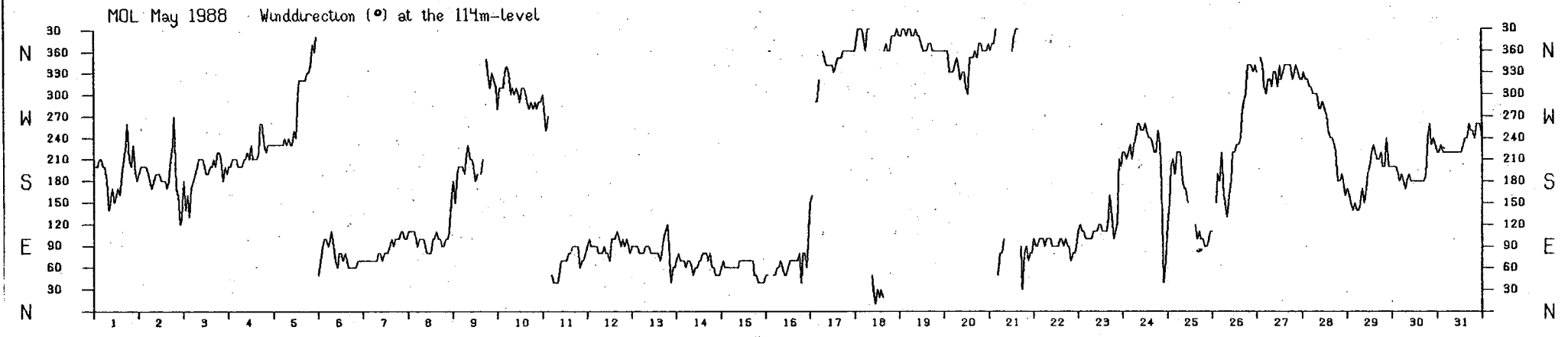
MOL January 1988 Winddirection (°) at the 24m-level

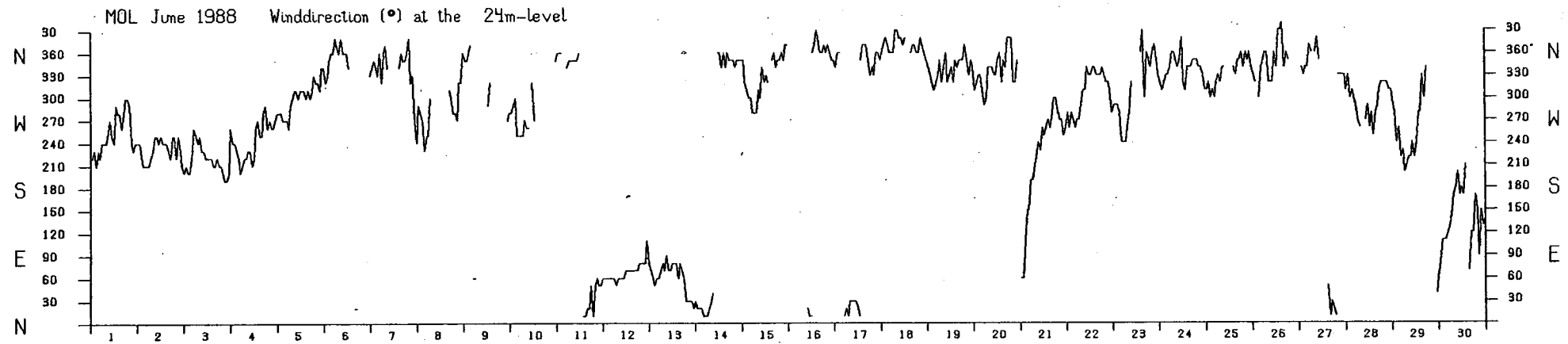
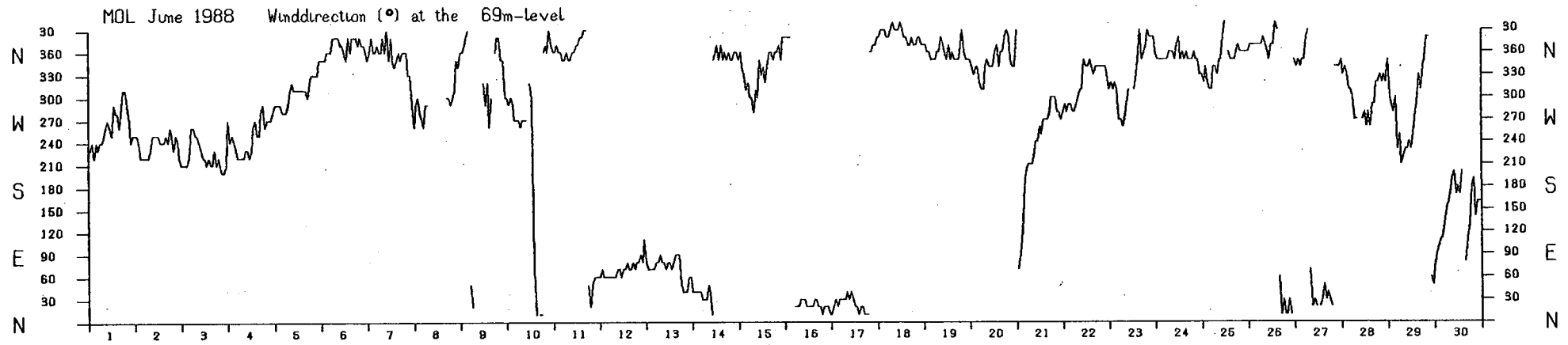
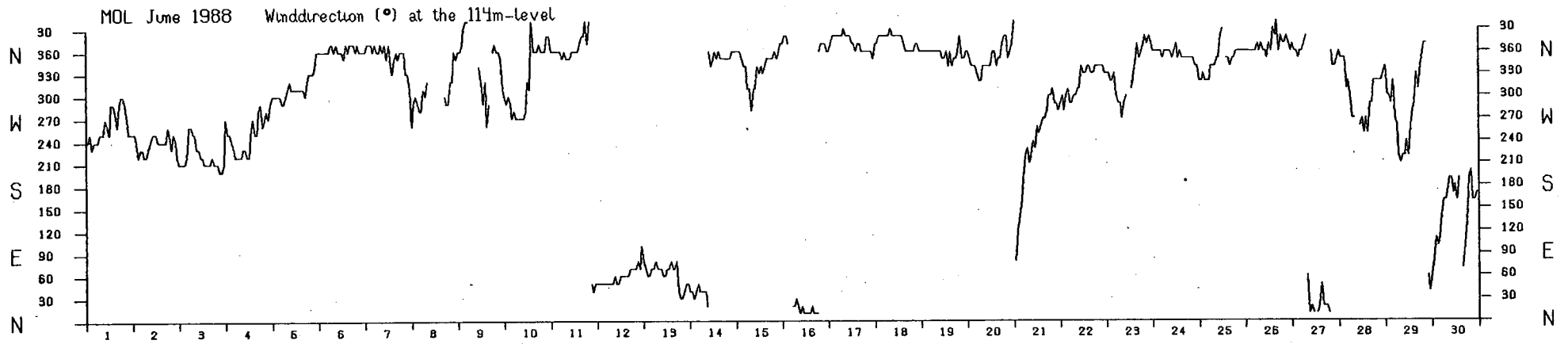


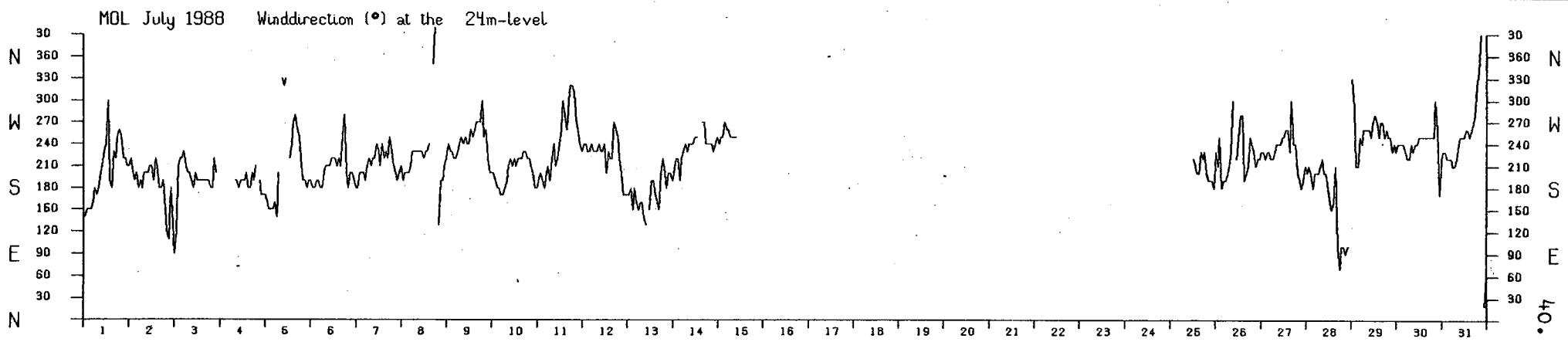
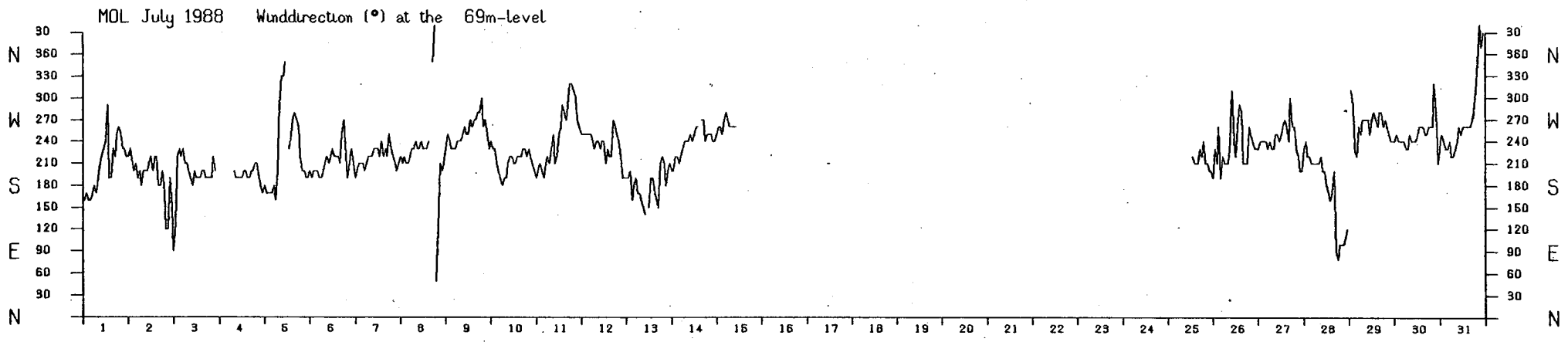
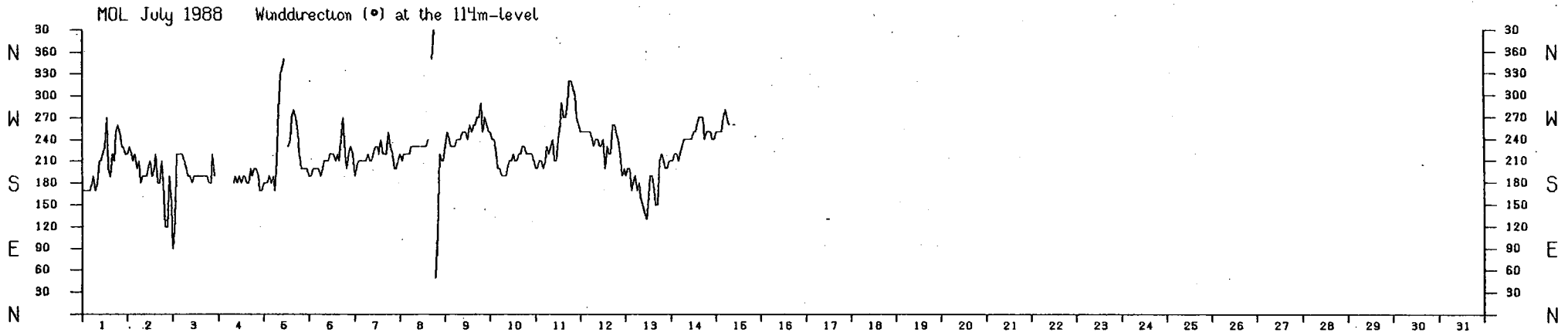


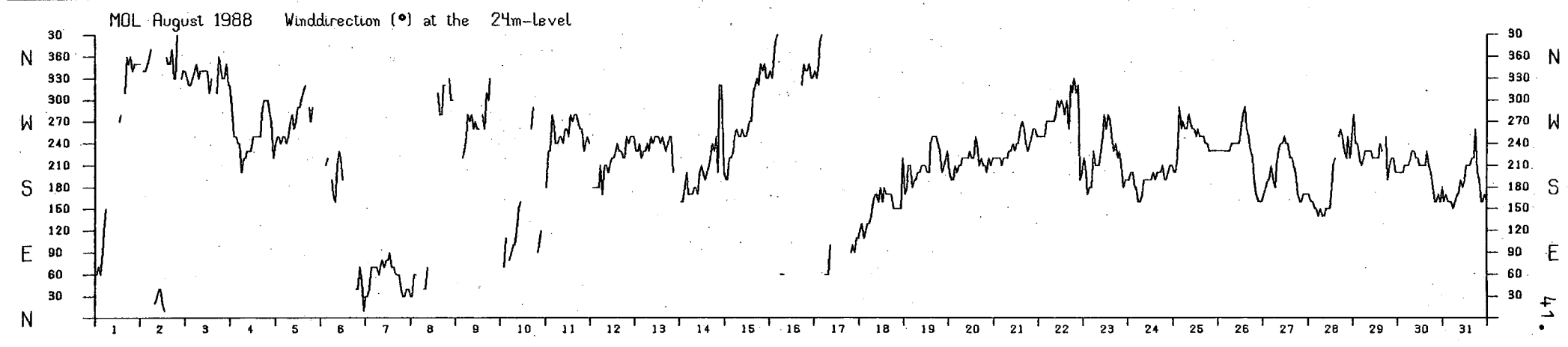
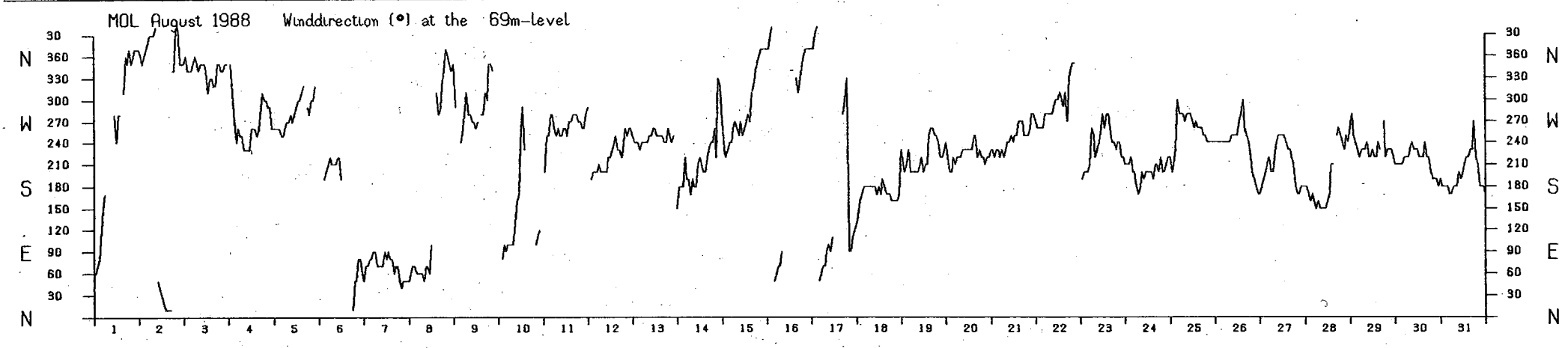
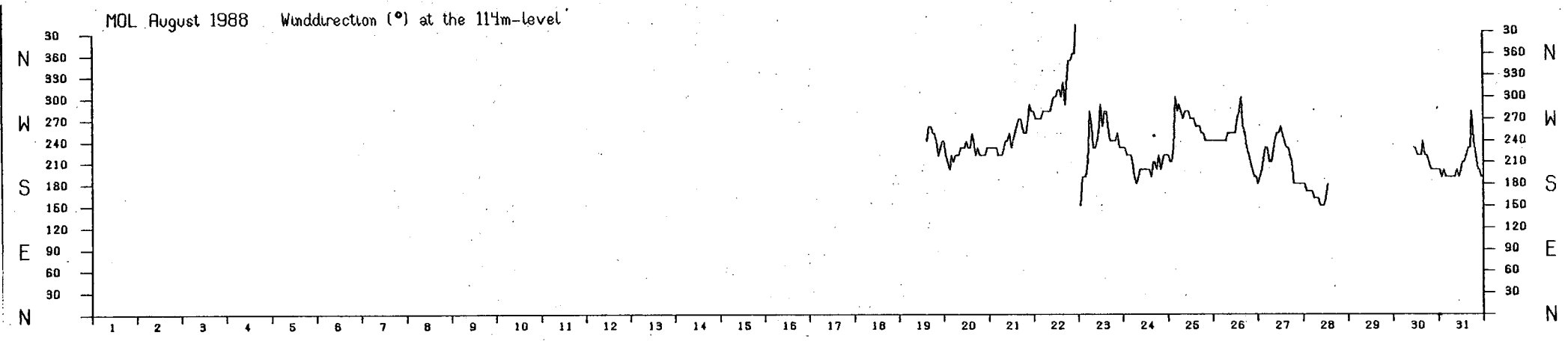


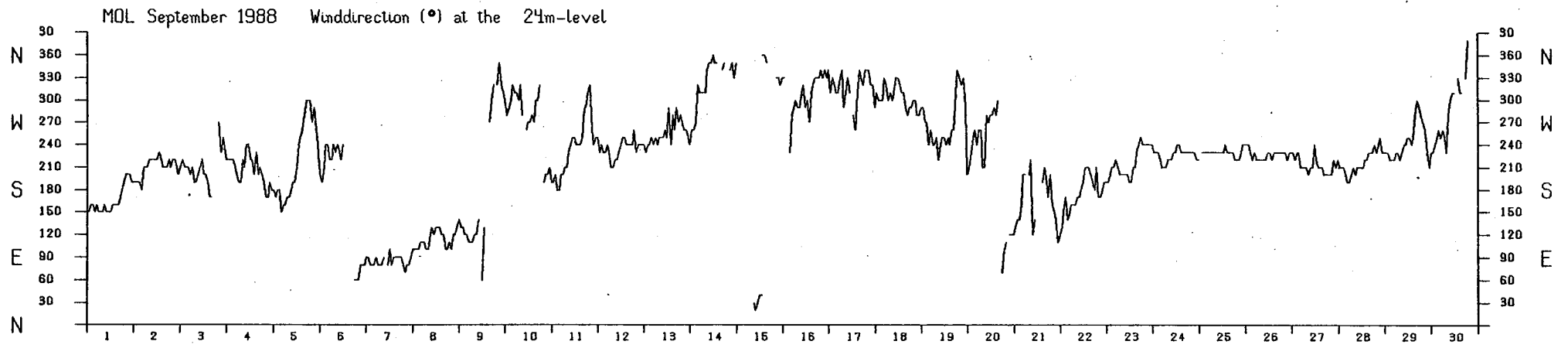
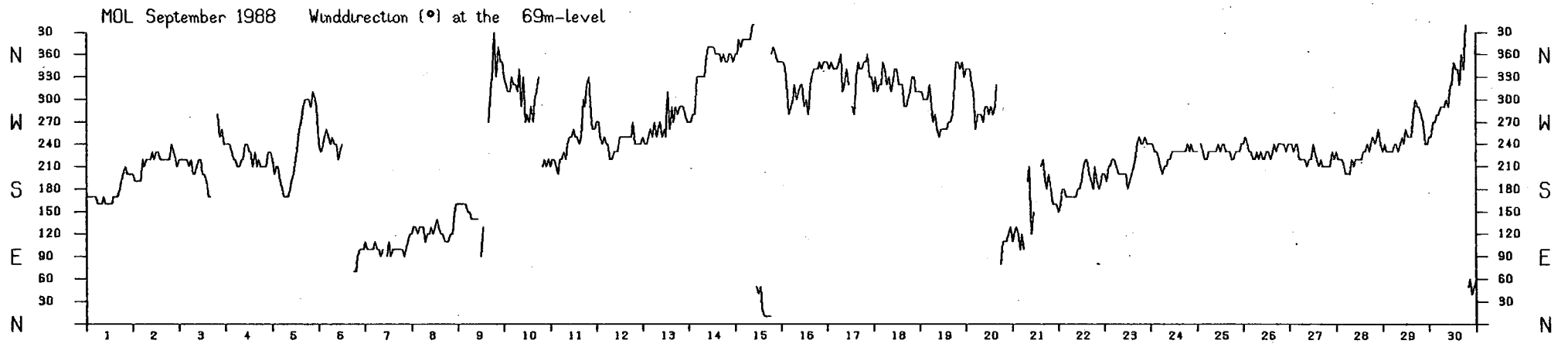
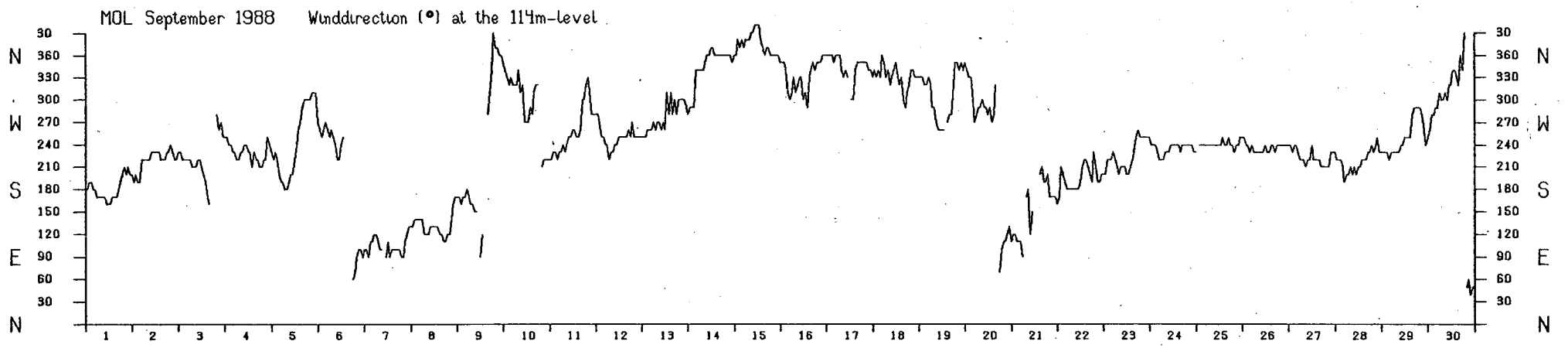


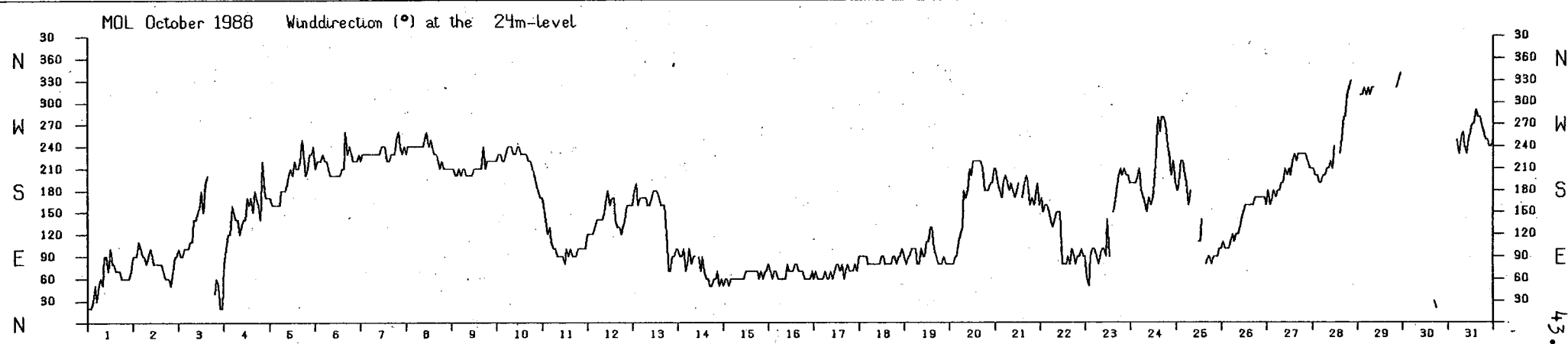
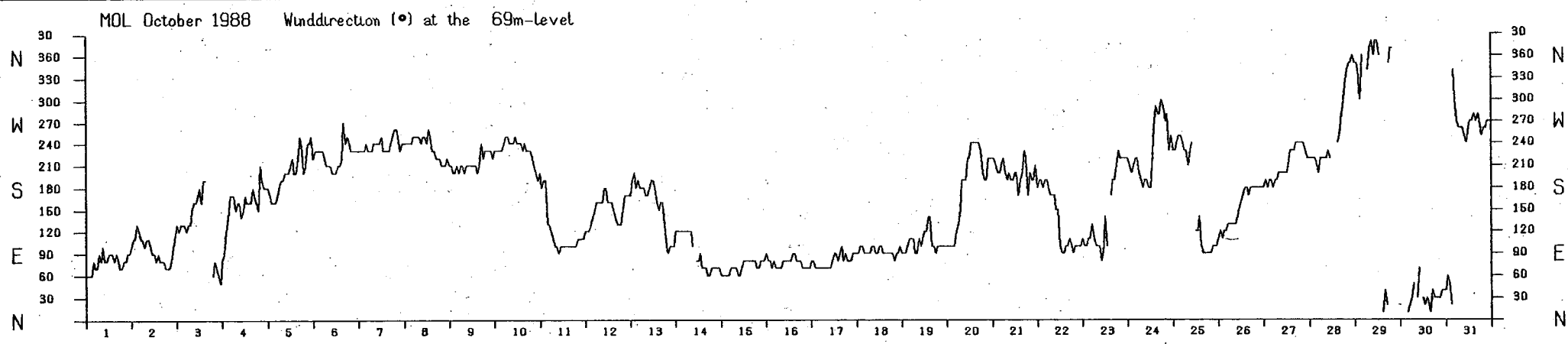
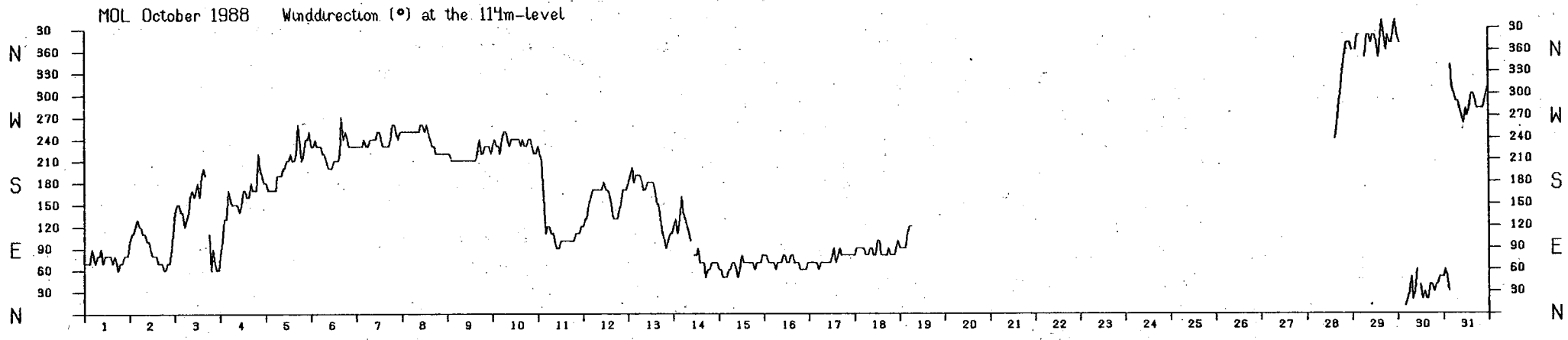


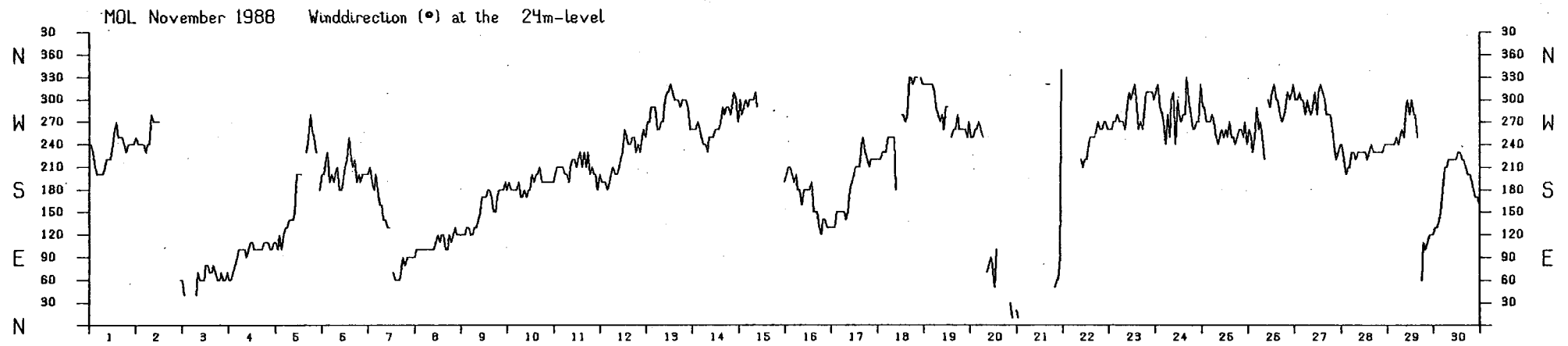
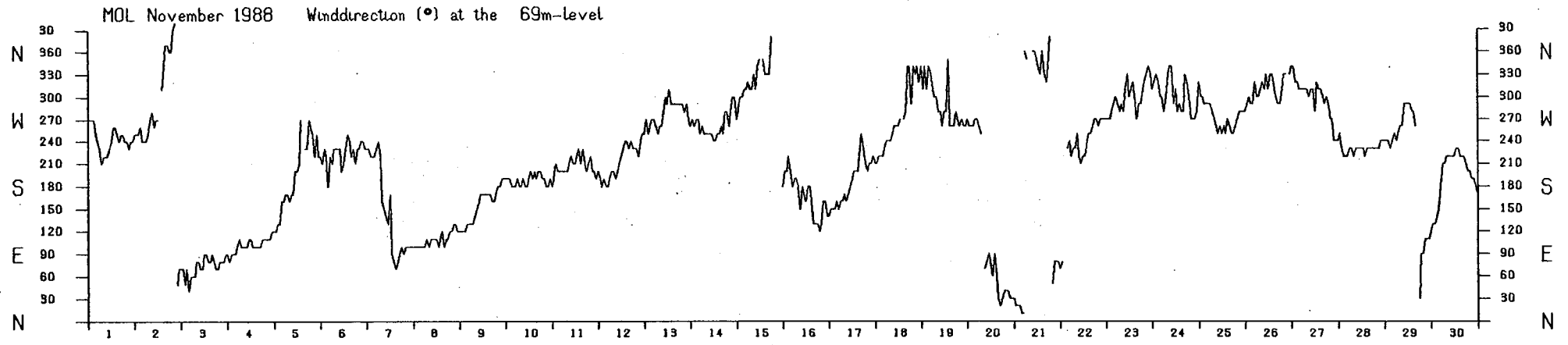
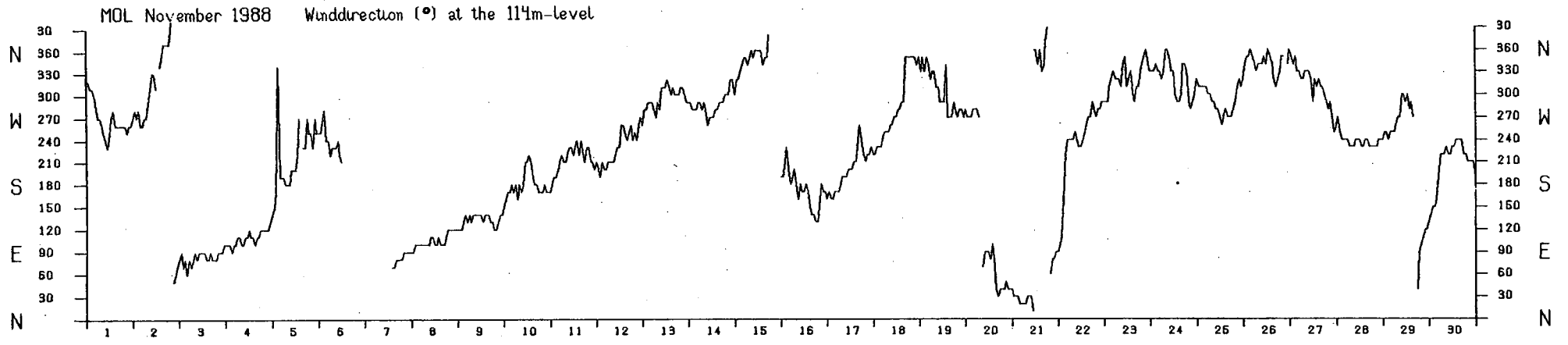


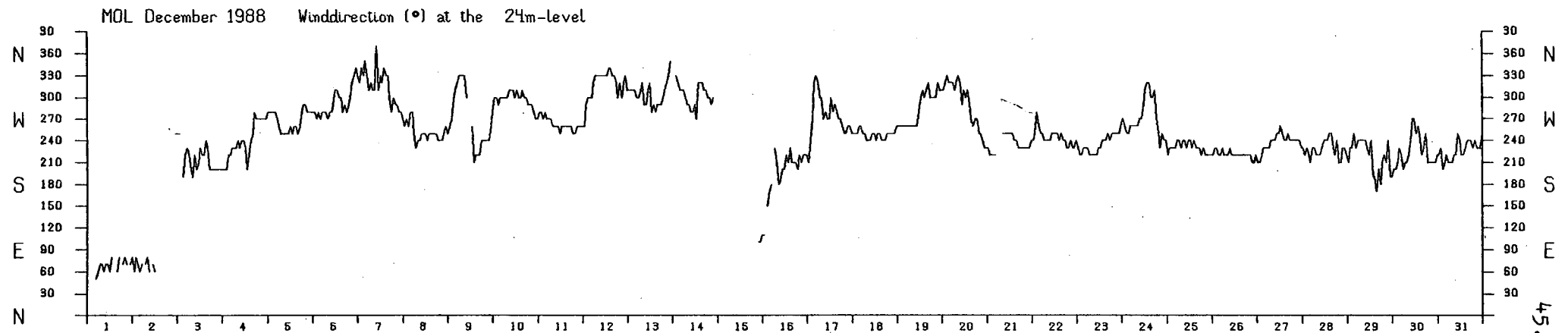
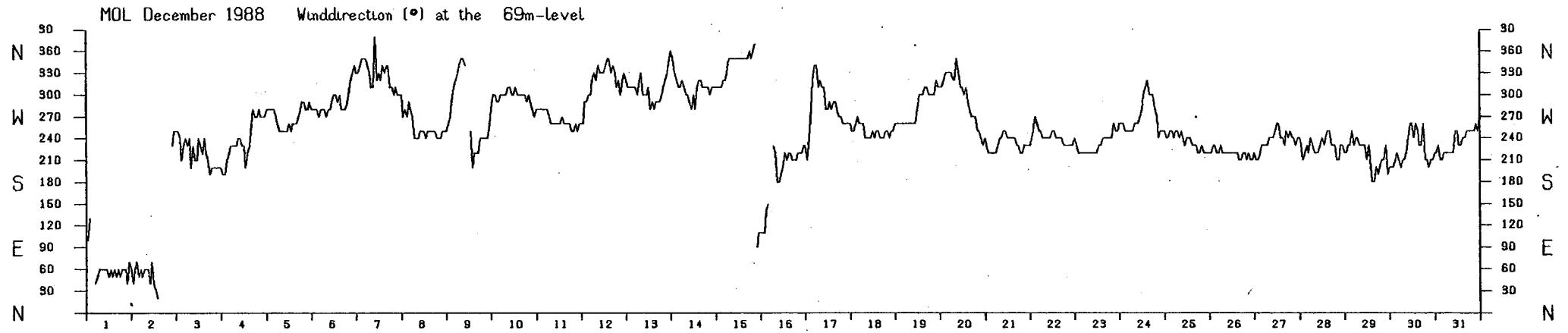
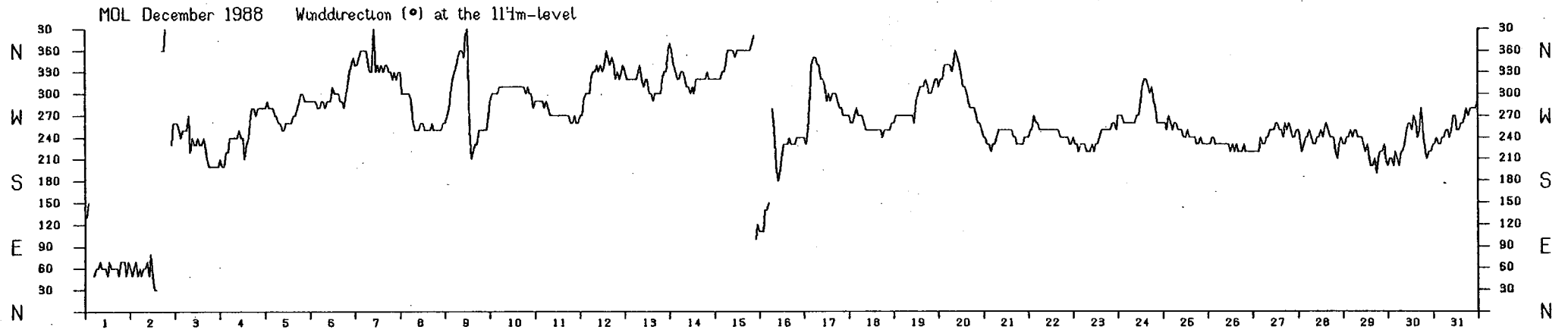




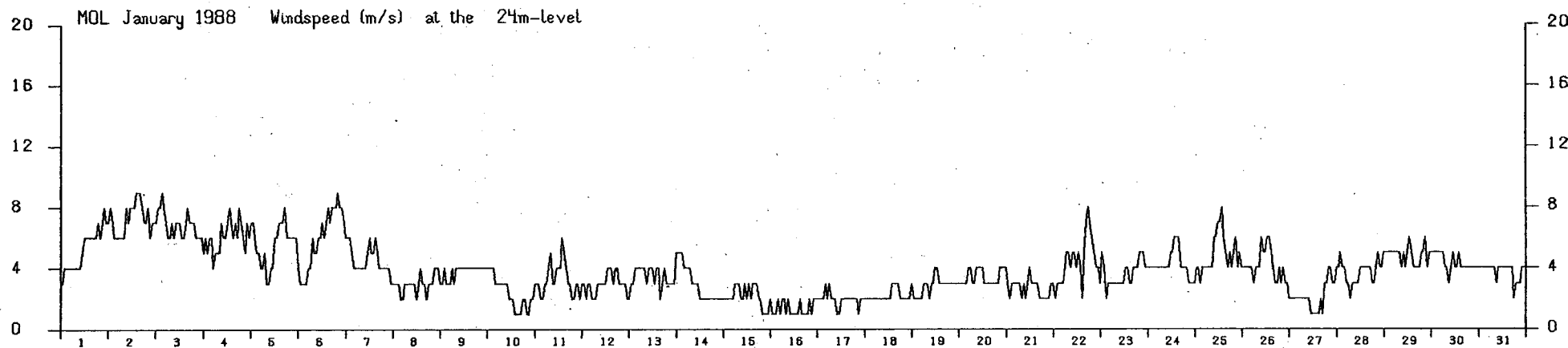
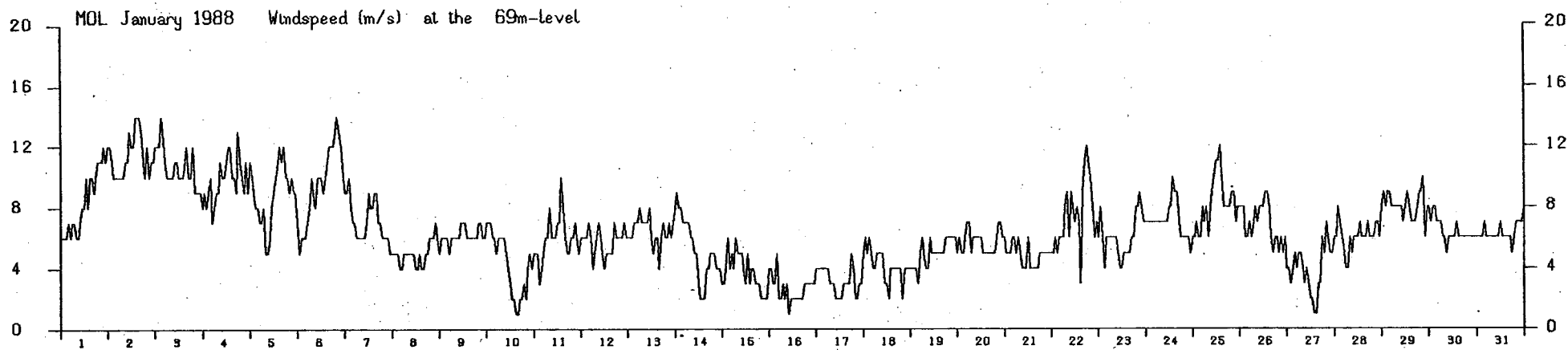
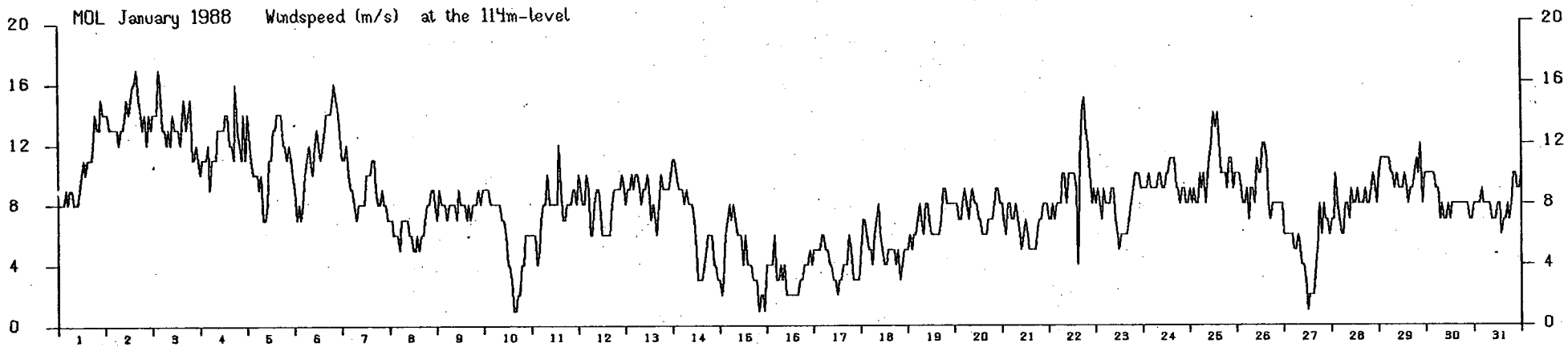


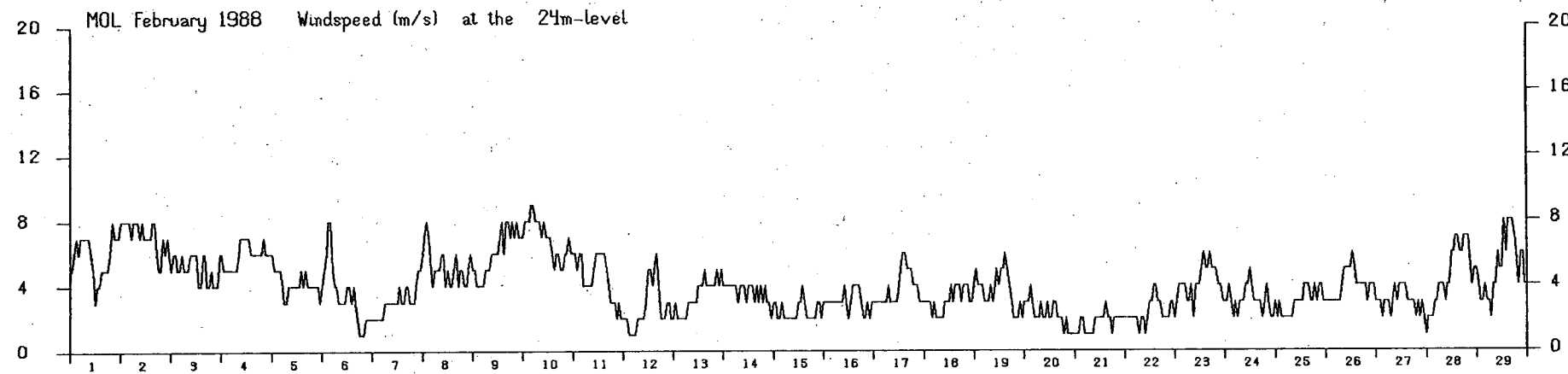
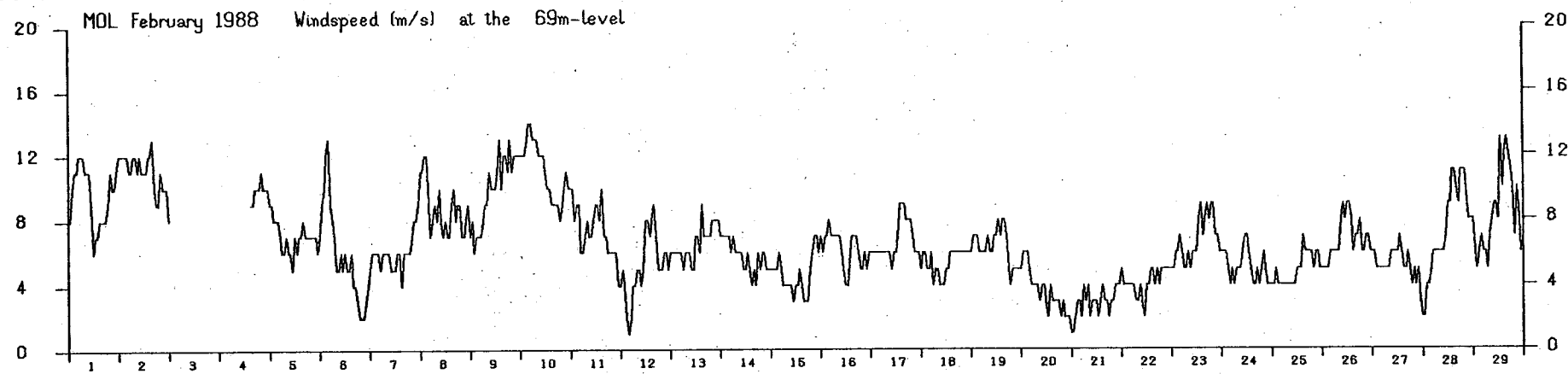
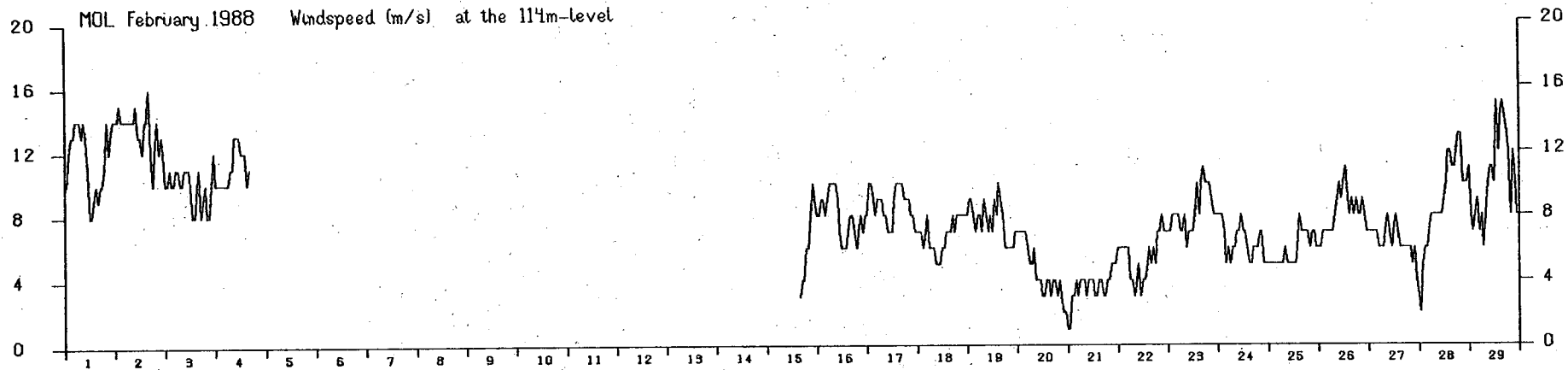


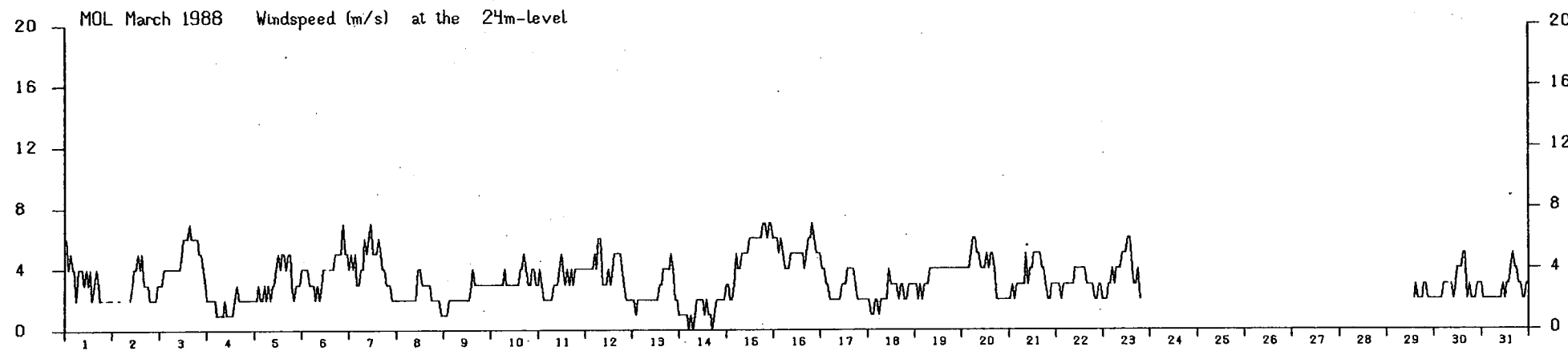
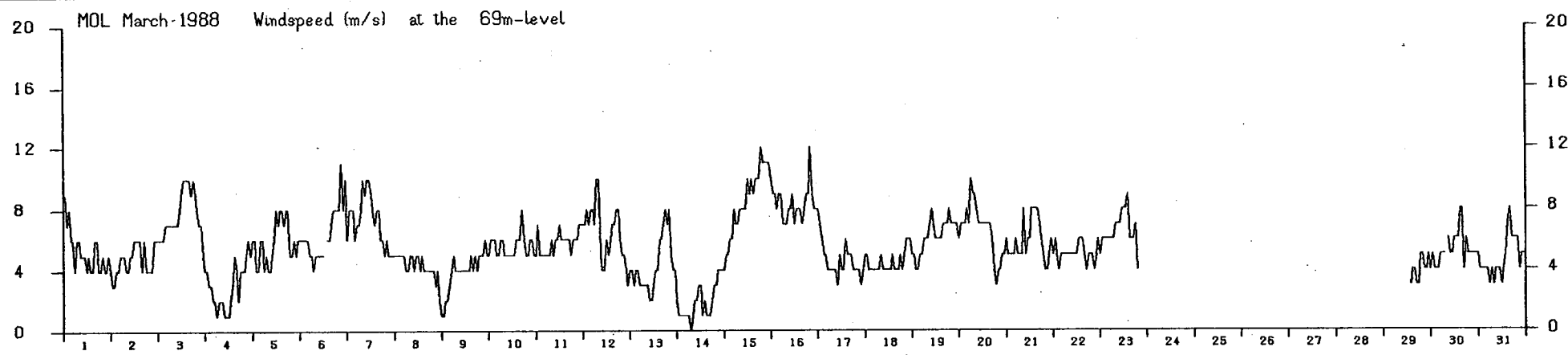
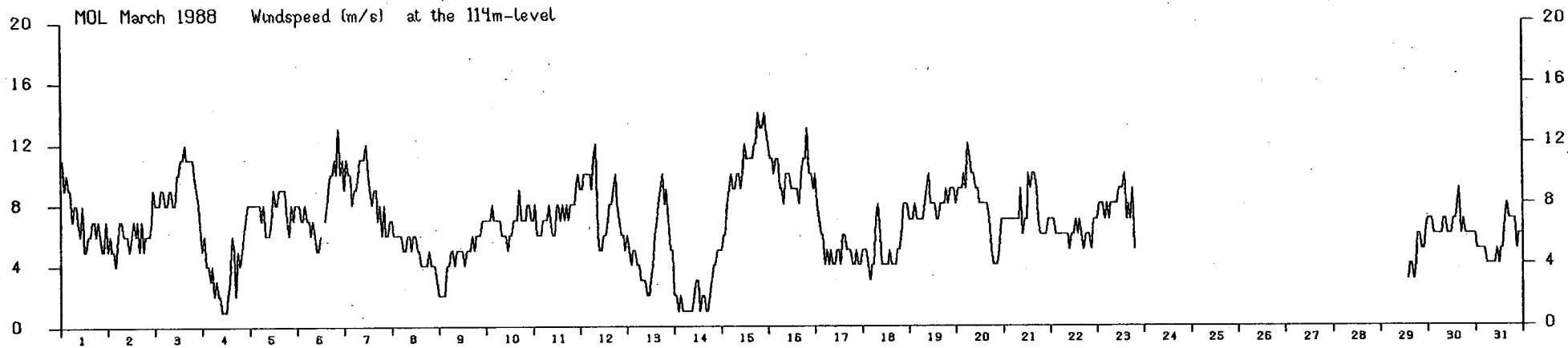


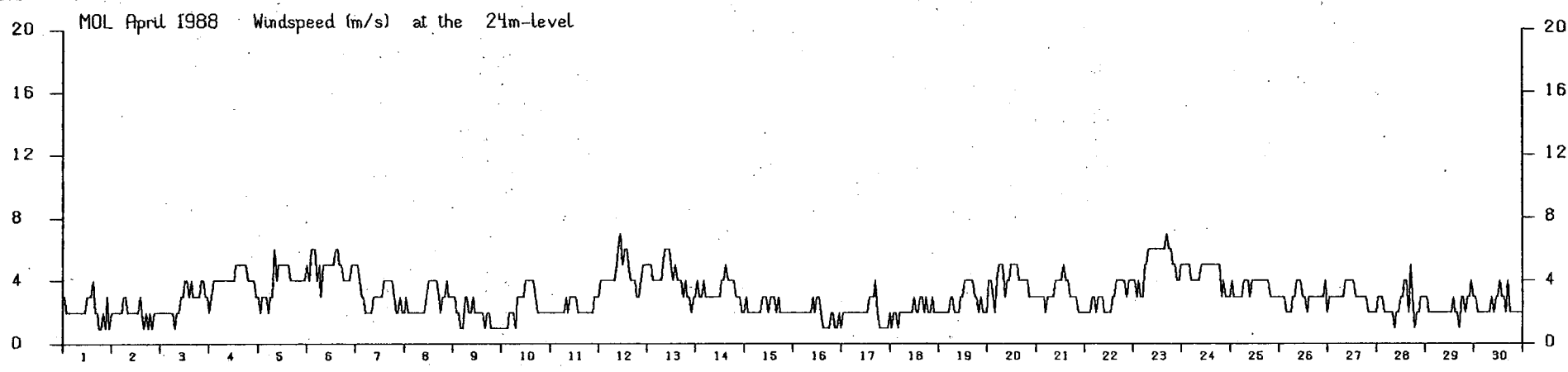
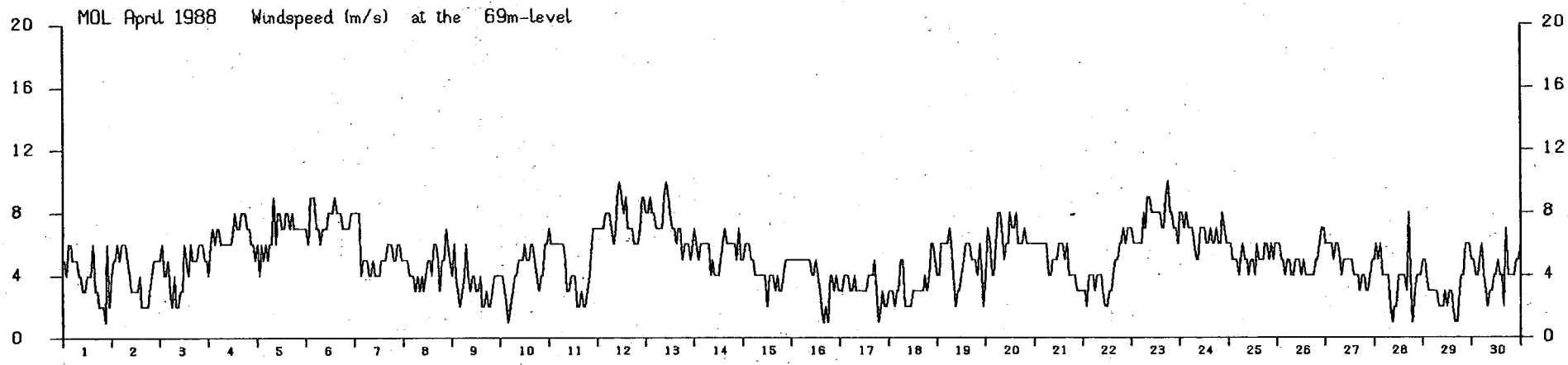
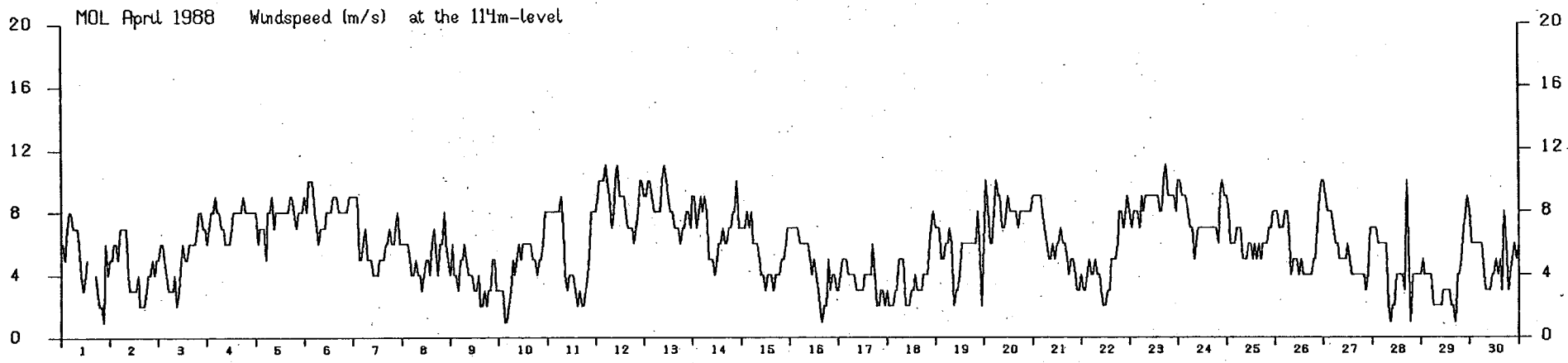


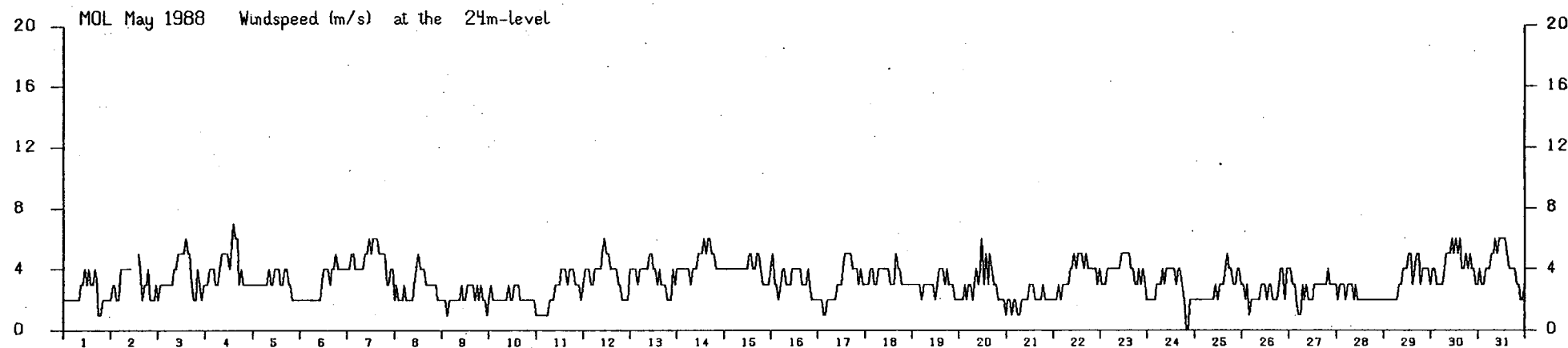
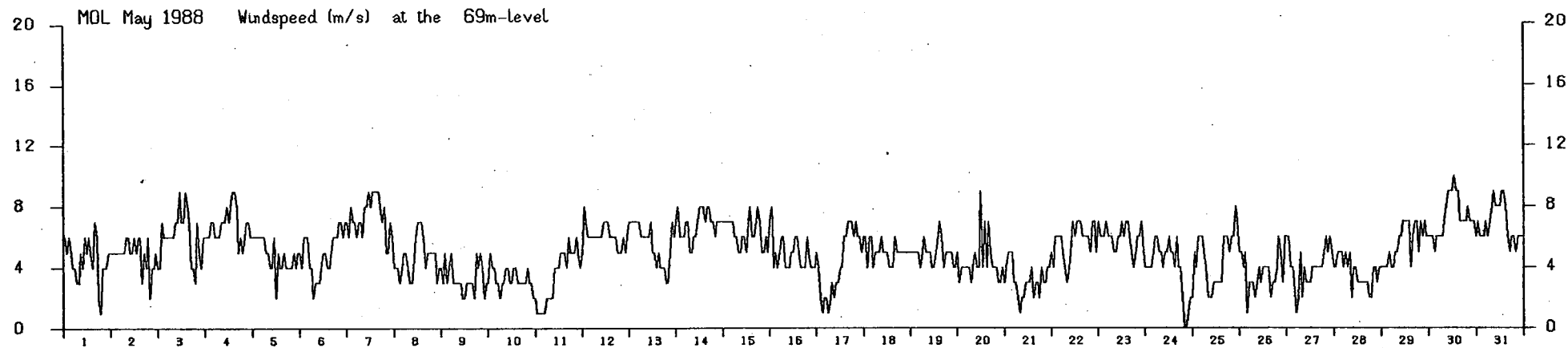
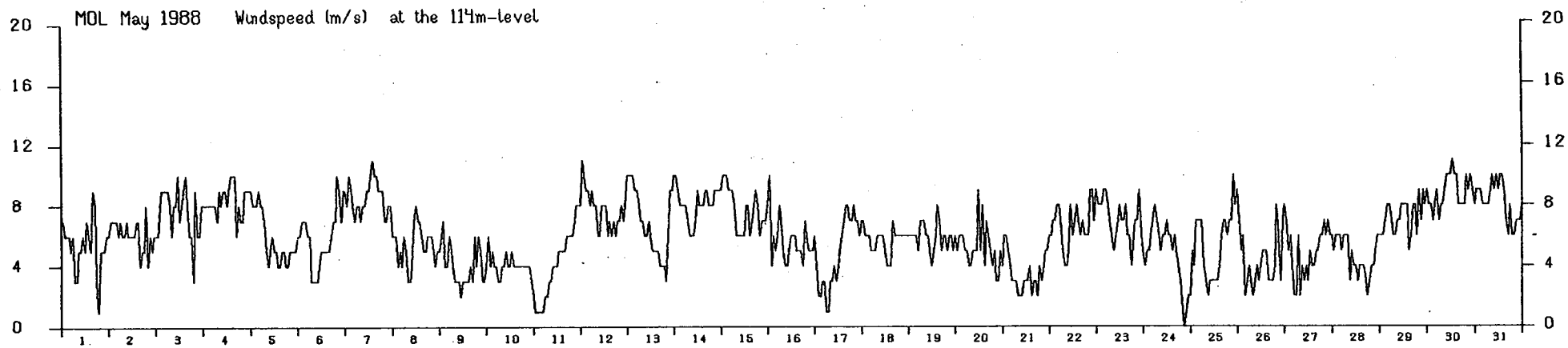
FIGURES 9.1 TO 9.12 : AVERAGE HOURLY WINDSPEEDS AT THE 24 m-, 69 m-
AND 114 m-LEVELS ON A MONTHLY BASE.

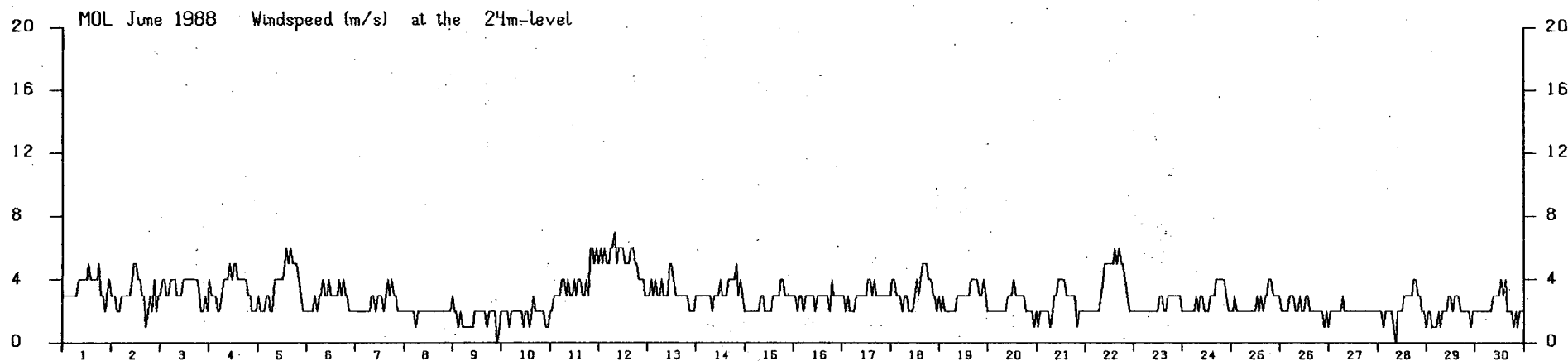
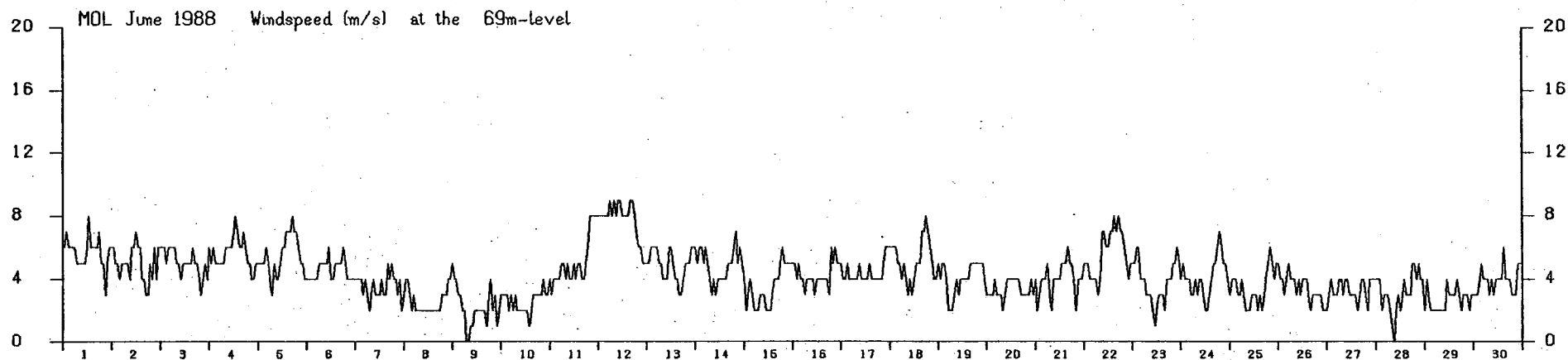
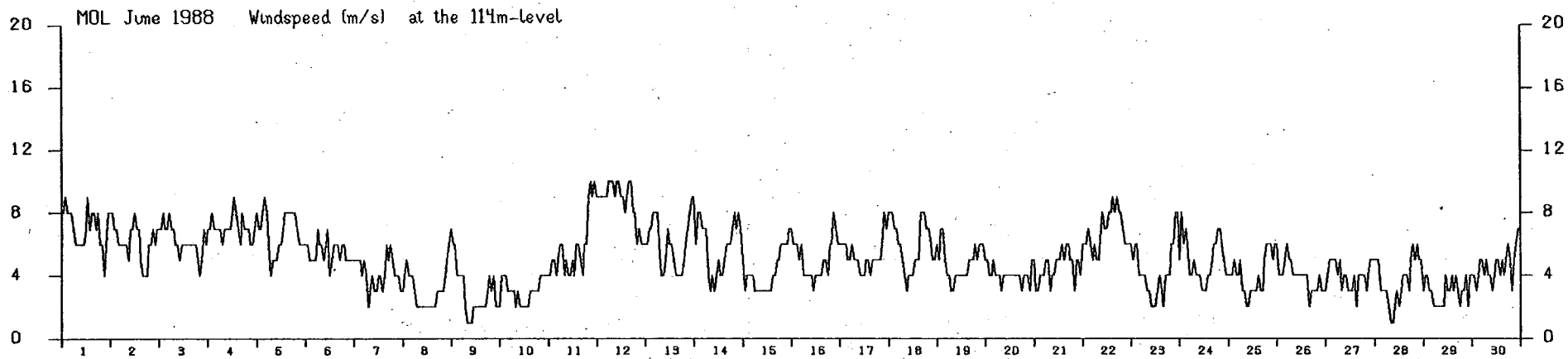


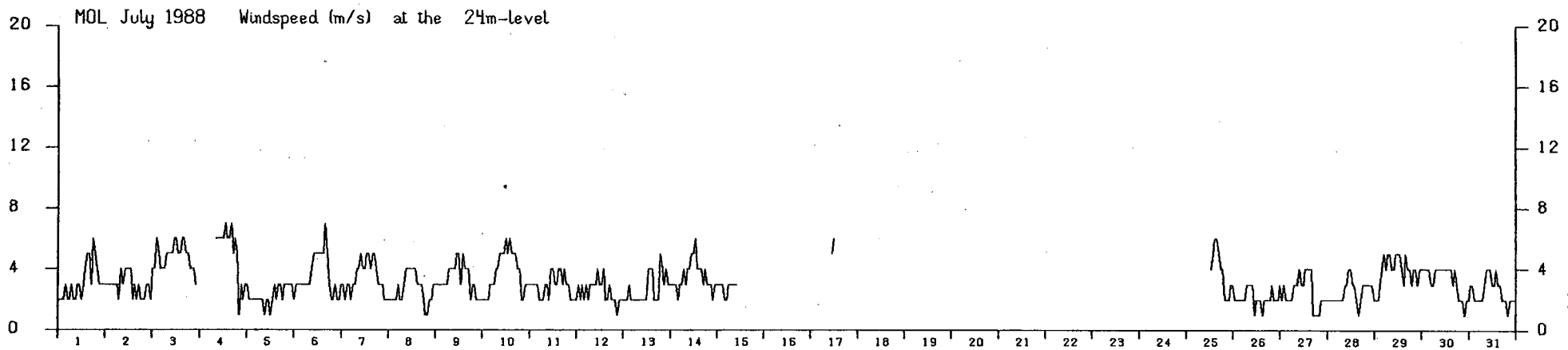
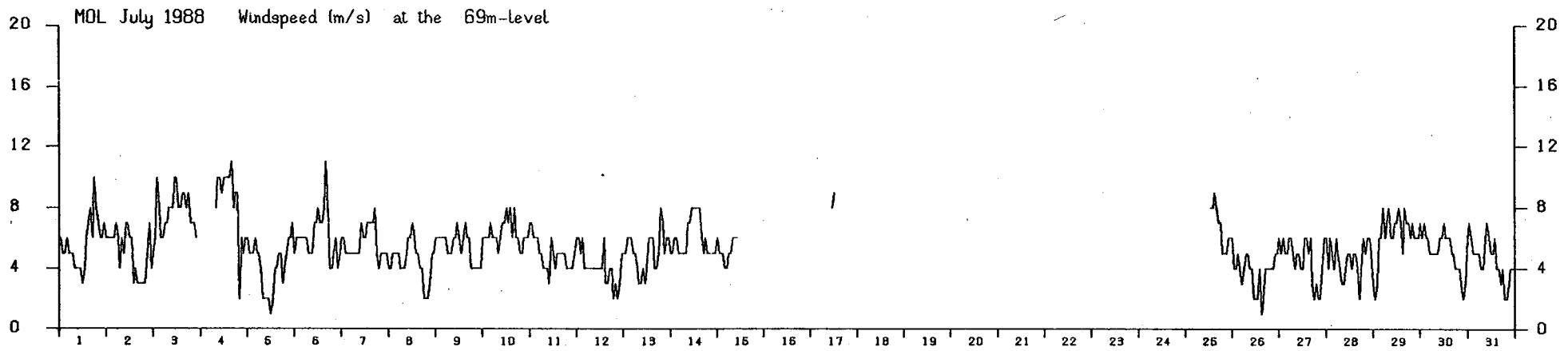
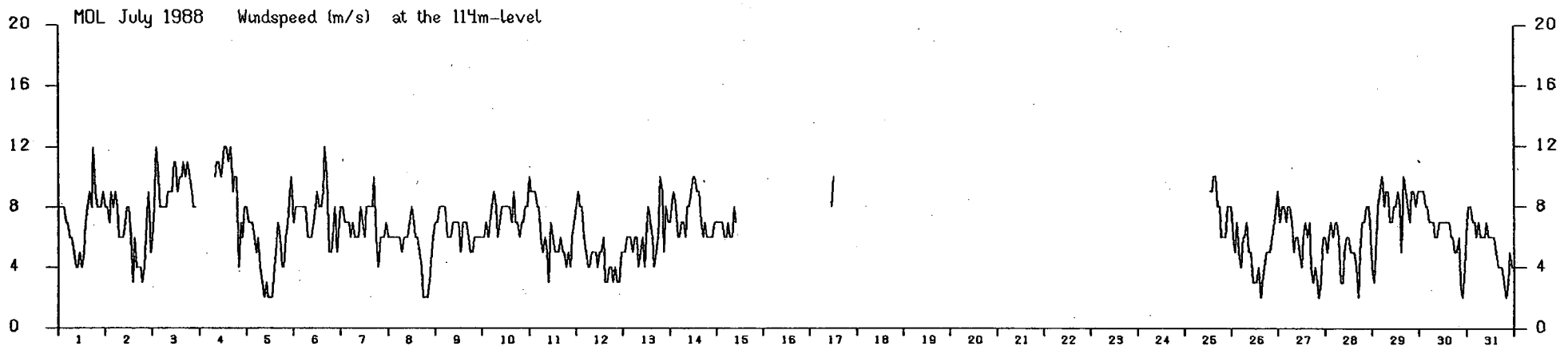


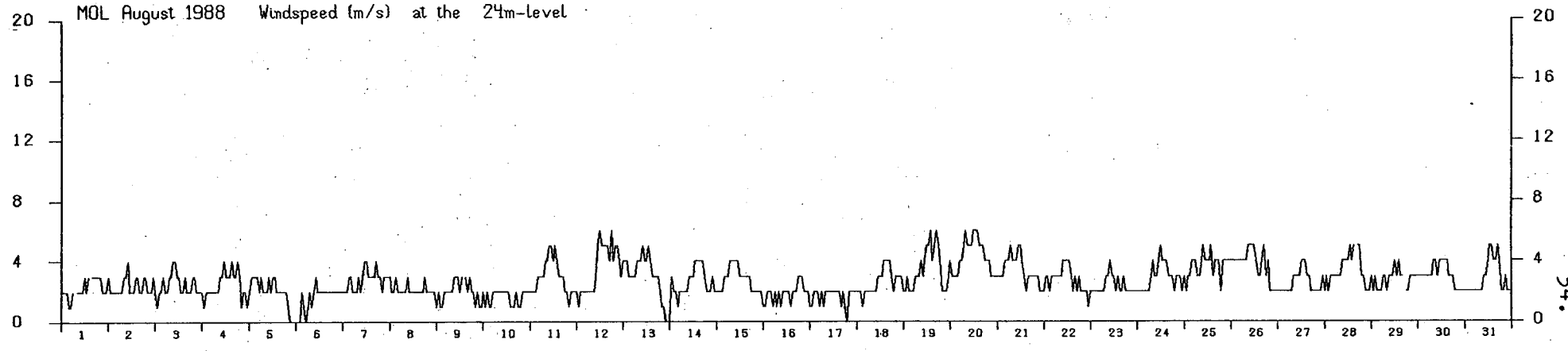
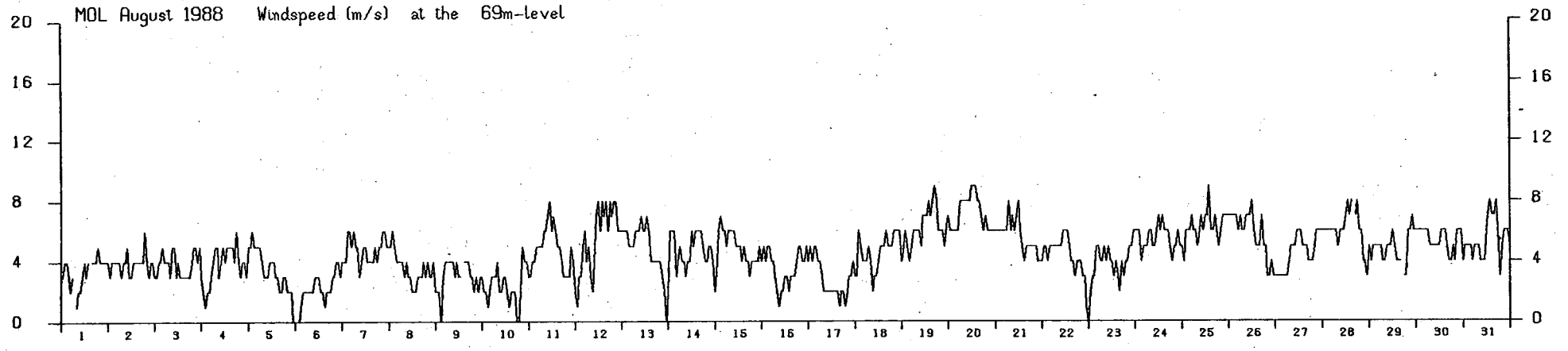
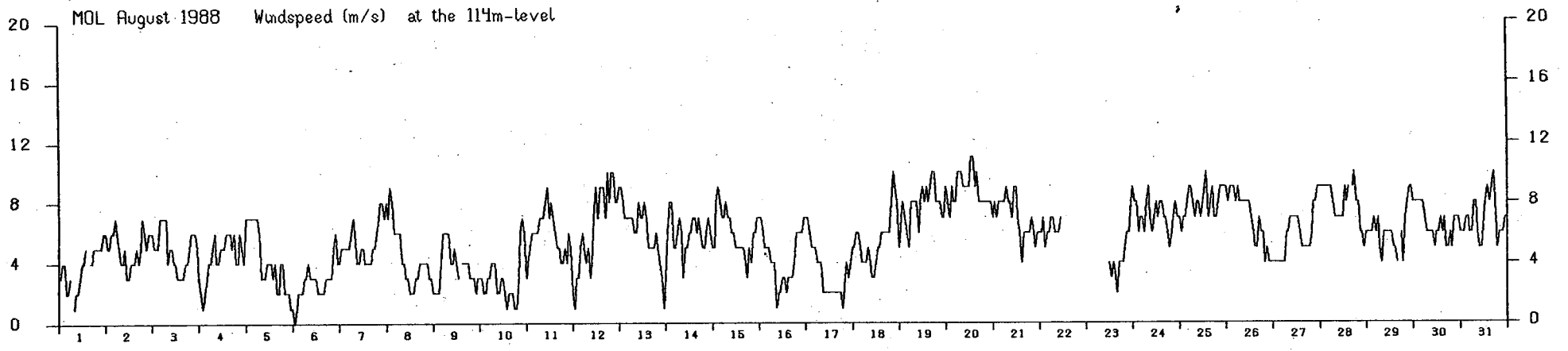


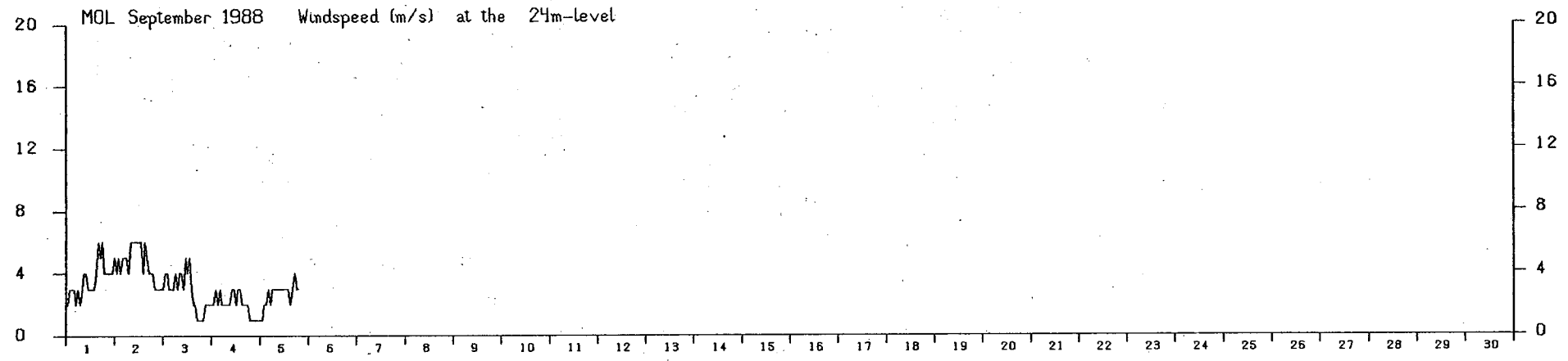
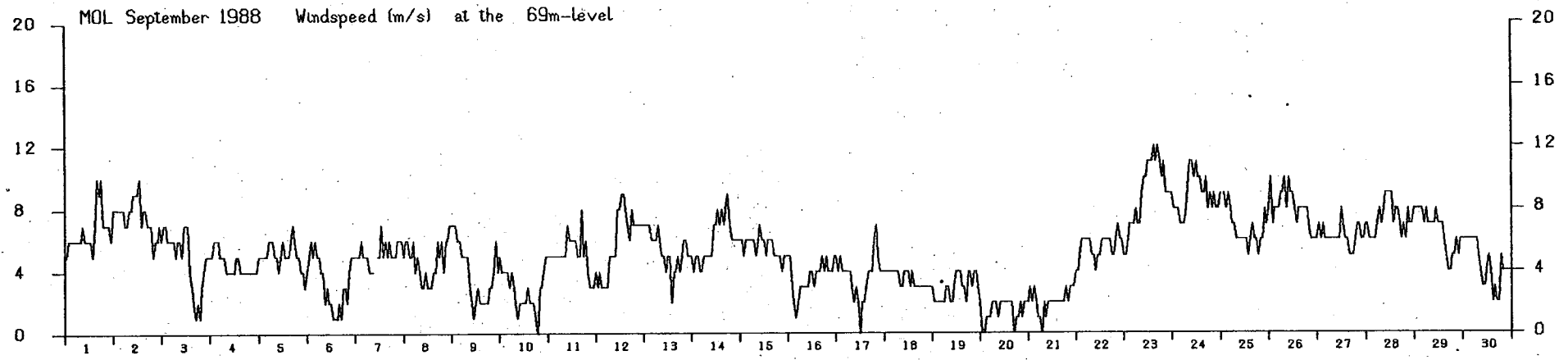
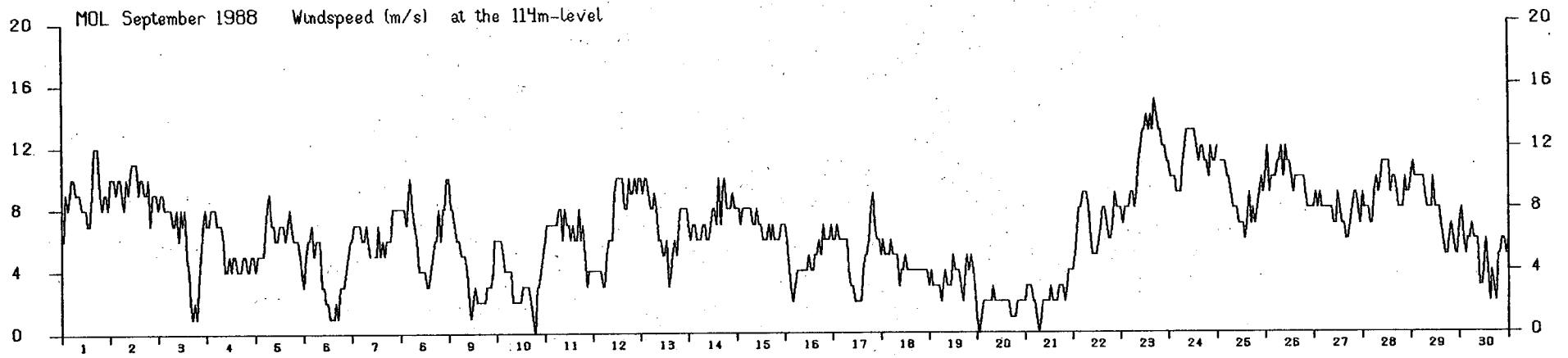


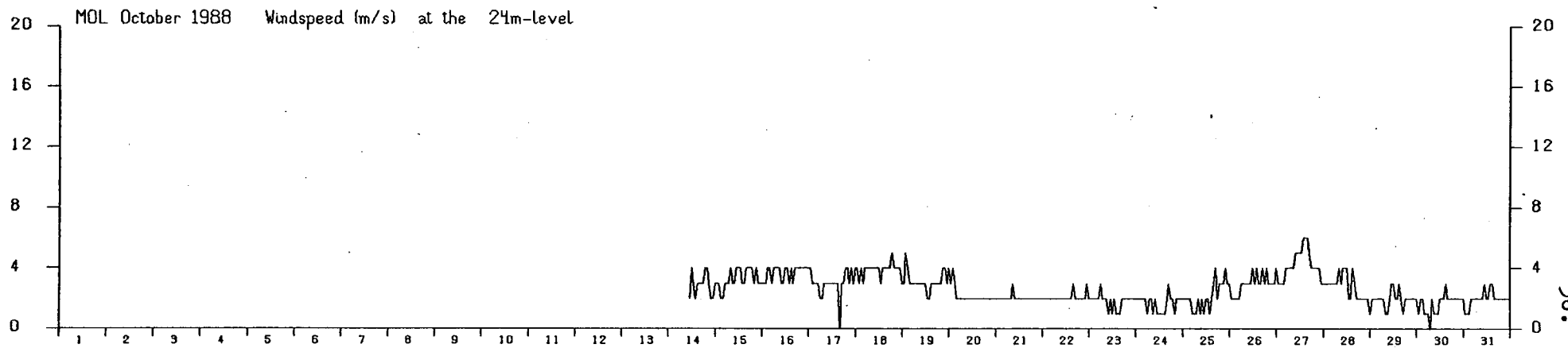
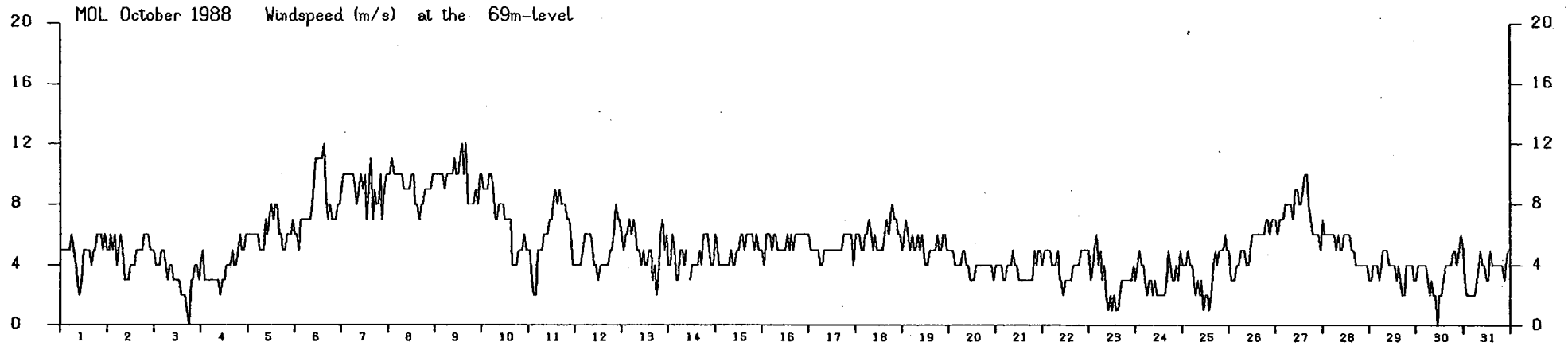
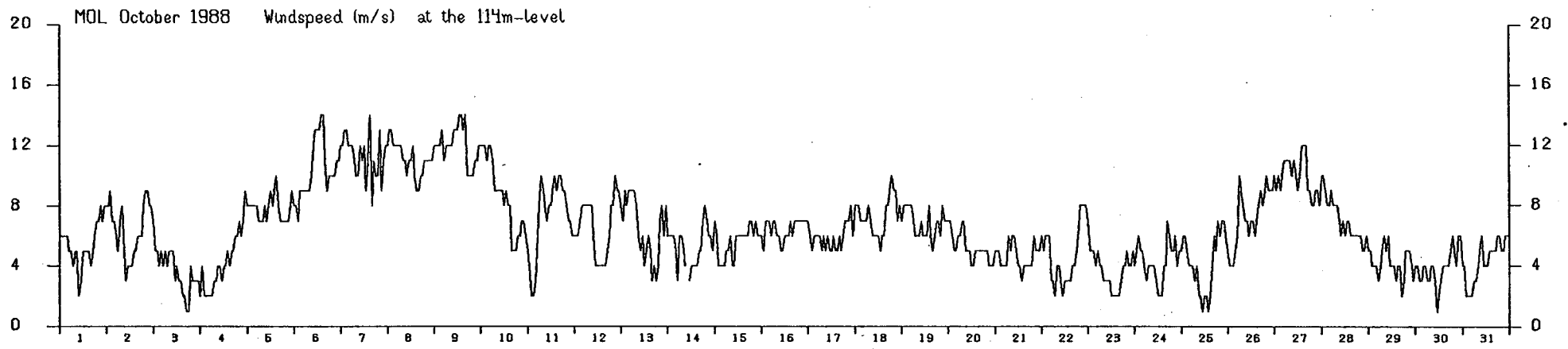


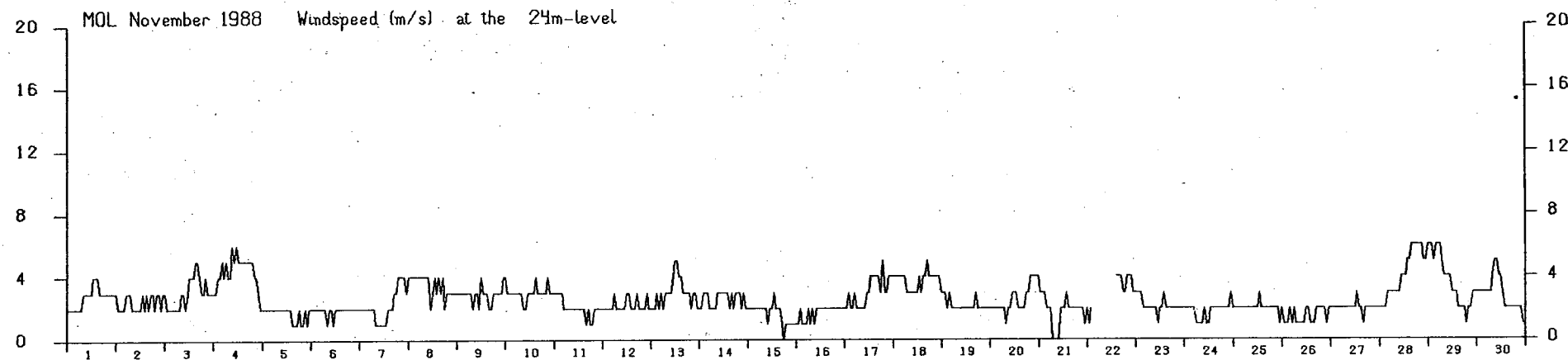
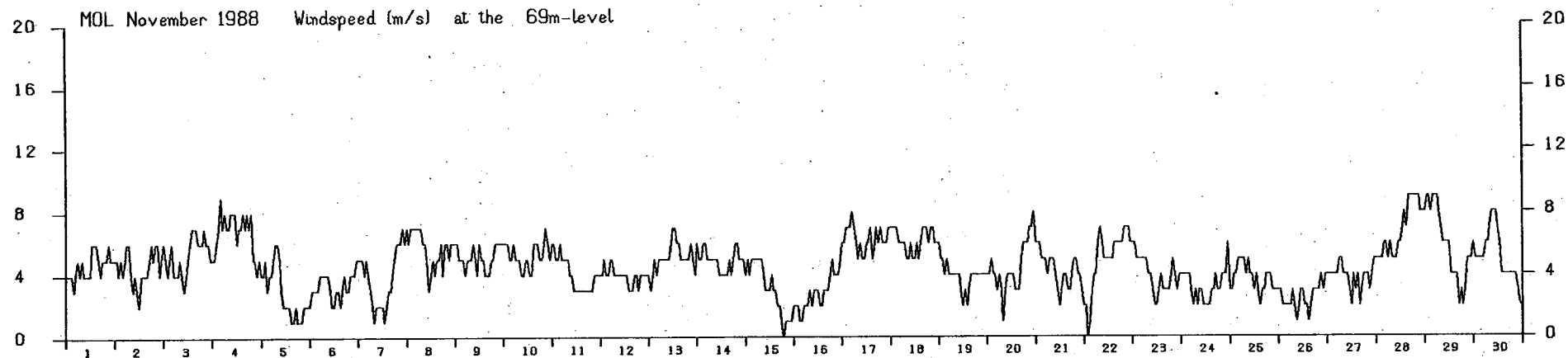
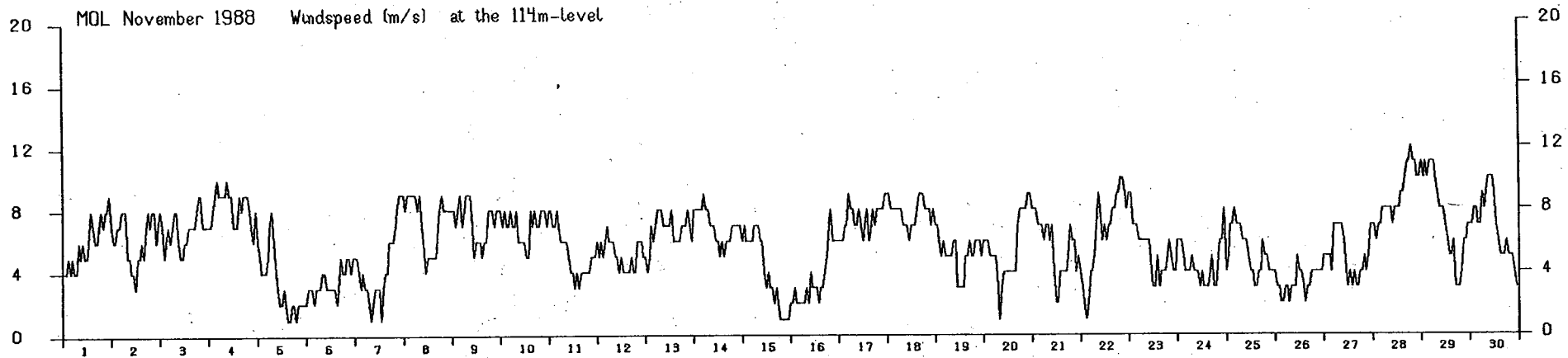


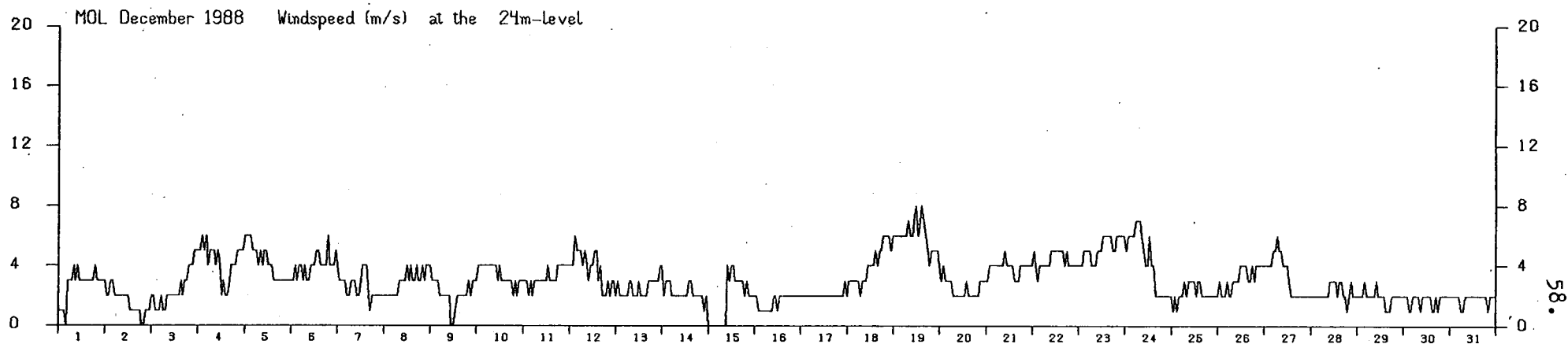
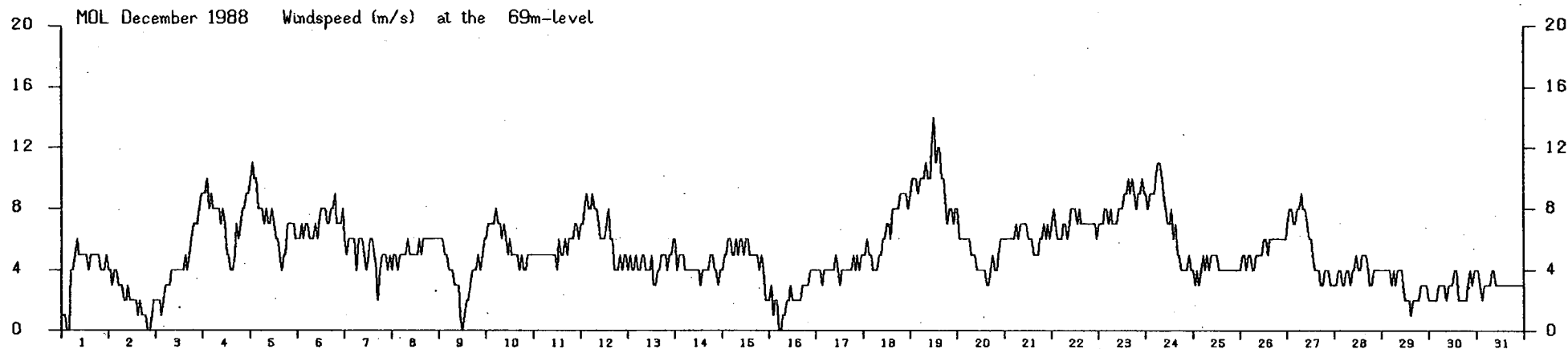
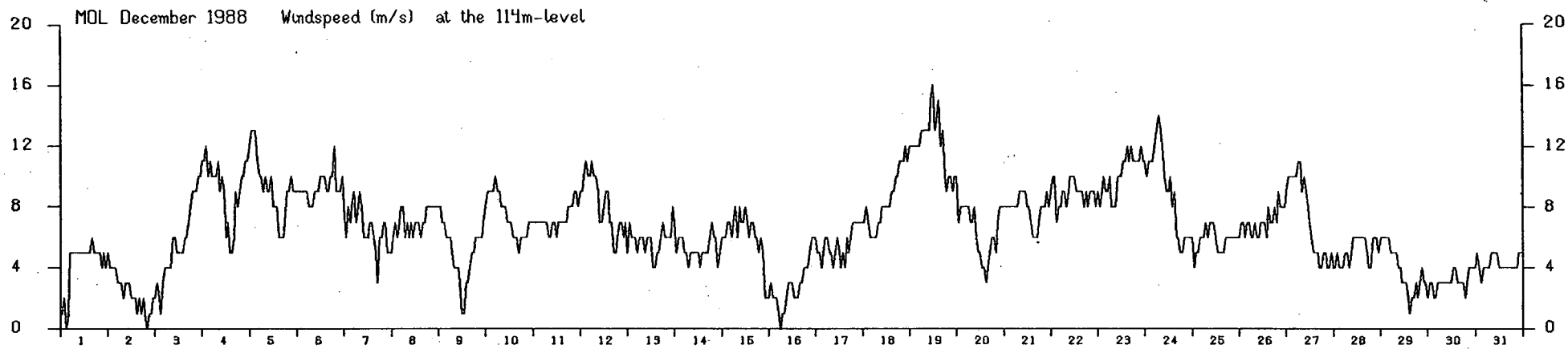












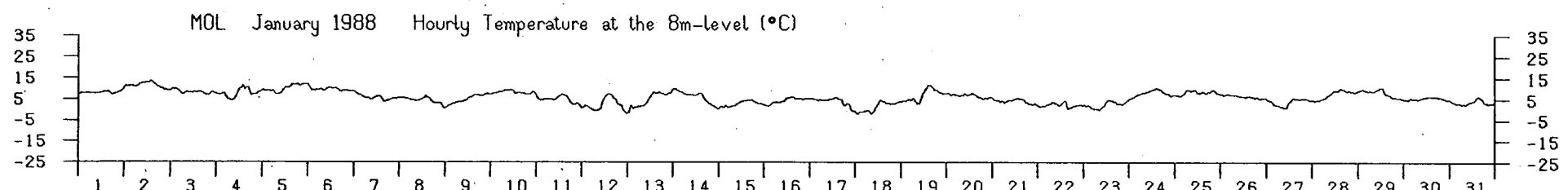
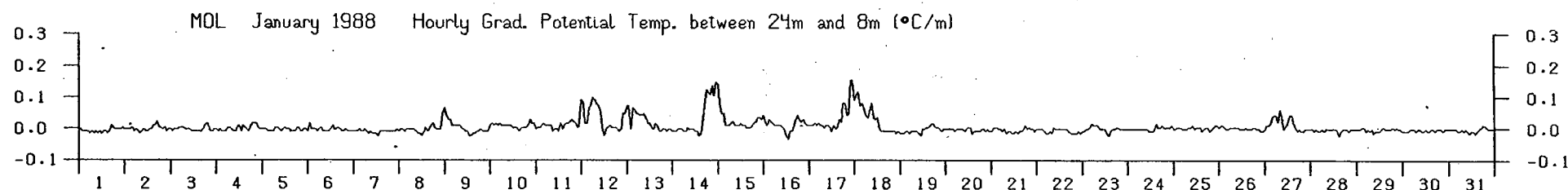
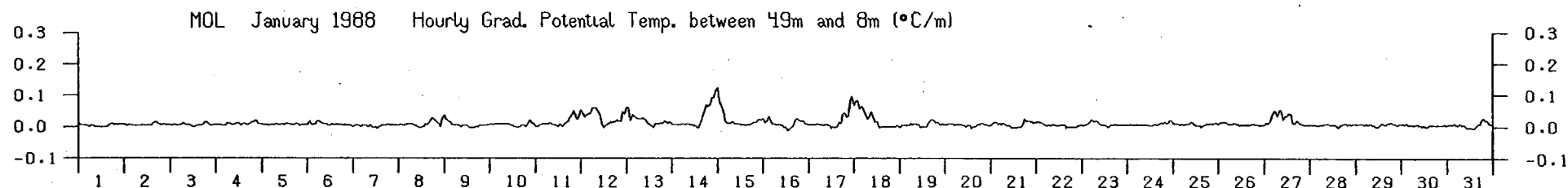
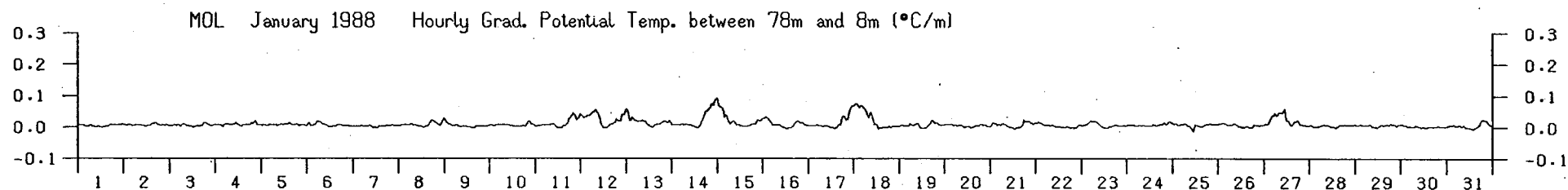
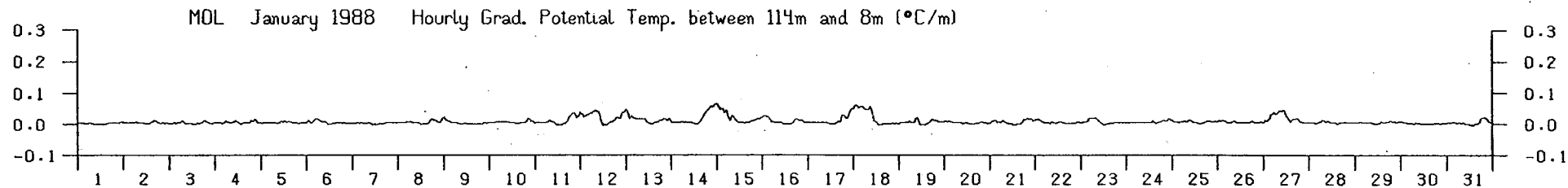
FIGURES 10.1 TO 10.12 : ON A MONTHLY BASE HOURLY VERTICAL GRADIENTS OF POTENTIAL TEMPERATURE BETWEEN THE 114 m-, 78 m-, 49 m- AND 24 m-LEVELS AND THE 8 m-LEVEL. HOURLY 8 m-LEVEL TEMPERATURES.

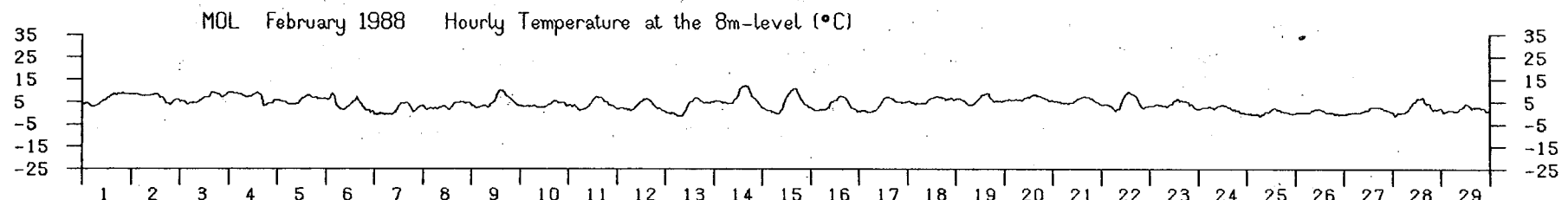
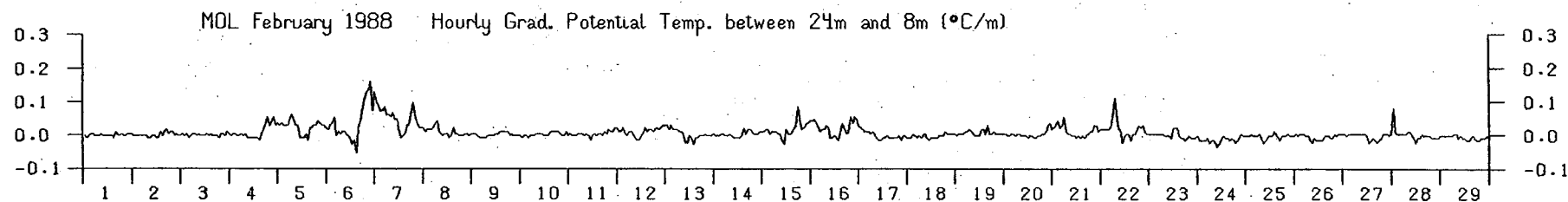
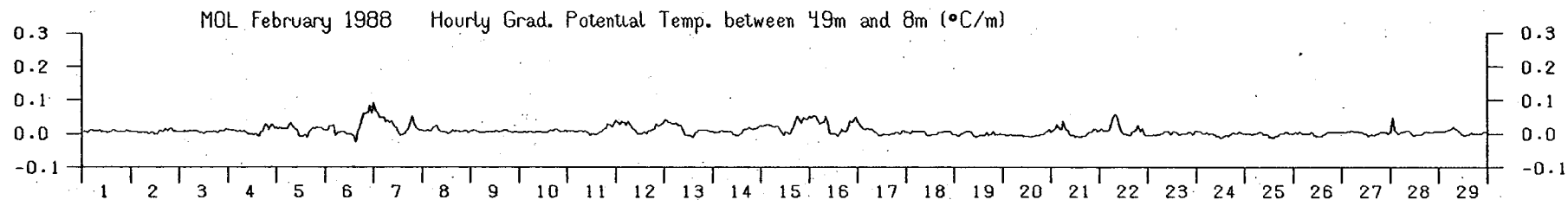
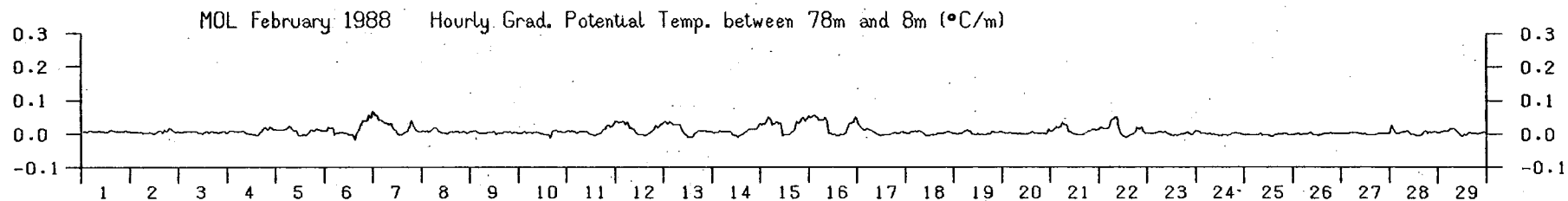
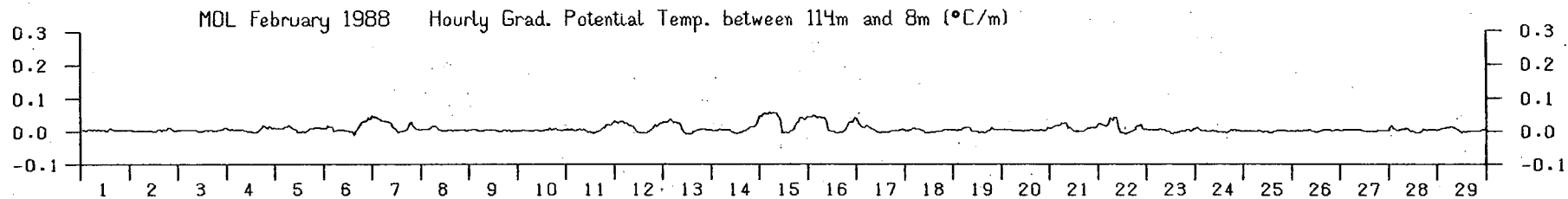
Positive potential temperature gradients correspond with stable situations. Since the vertical gradient of potential temperature is determined as :

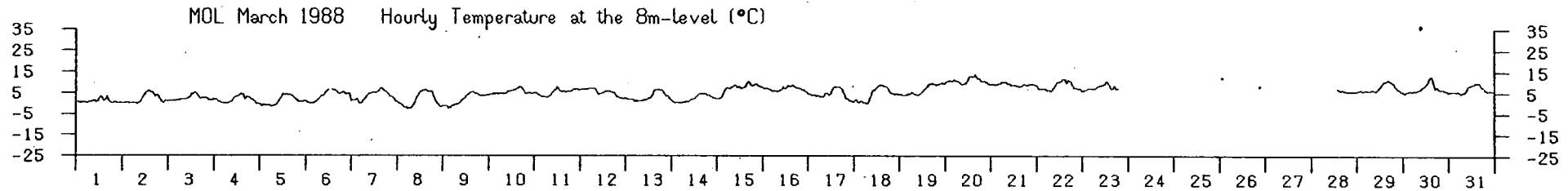
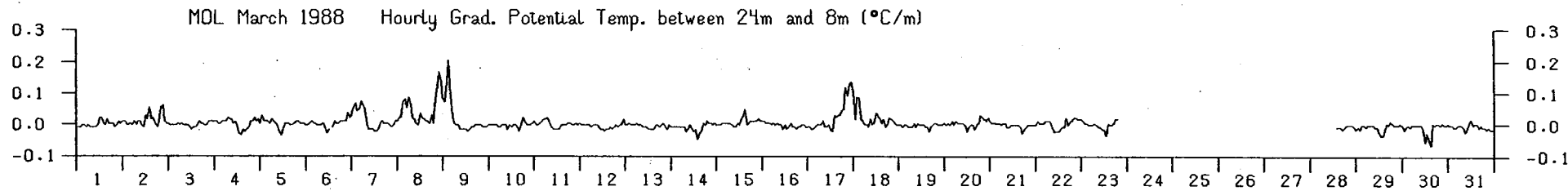
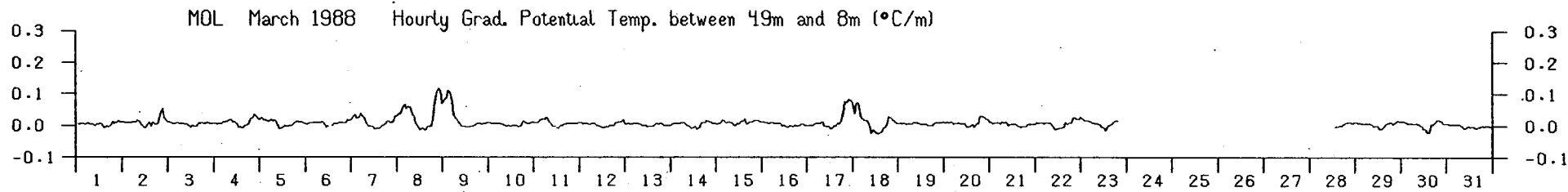
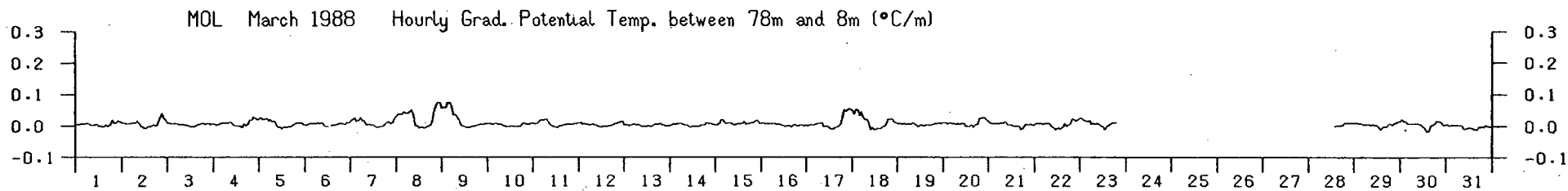
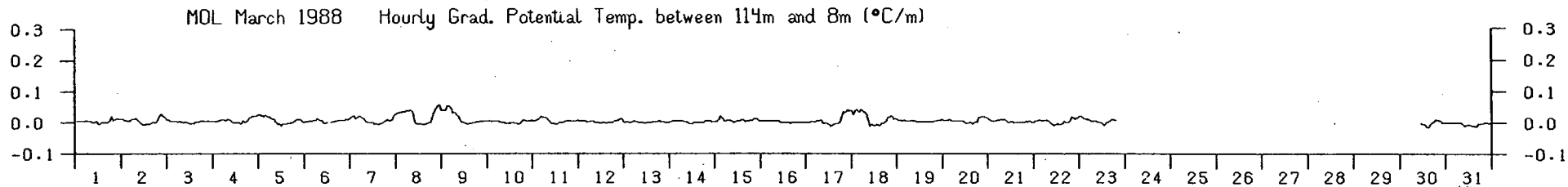
$$\frac{\partial\theta}{\delta z} = \frac{t_h - t_8}{h - 8} + 0,0098 \text{ } ^\circ\text{C/m}$$

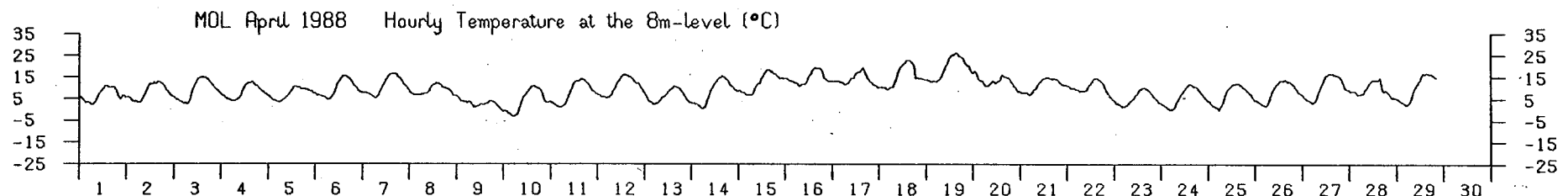
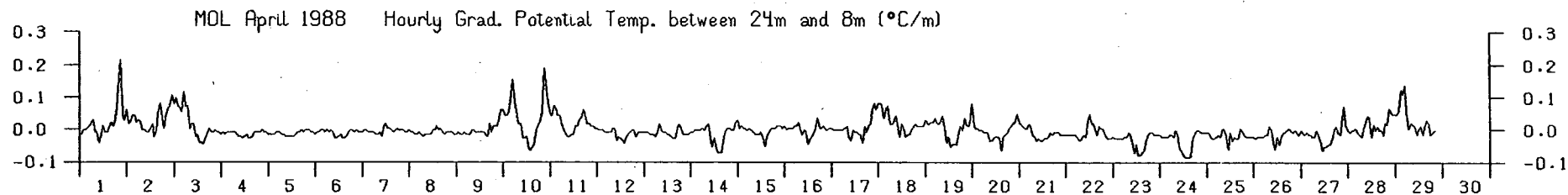
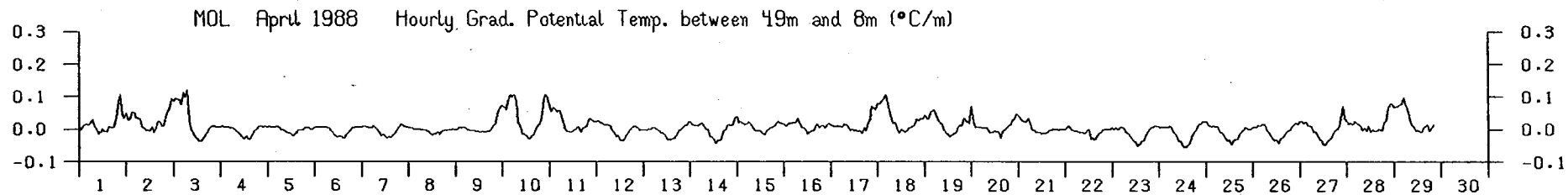
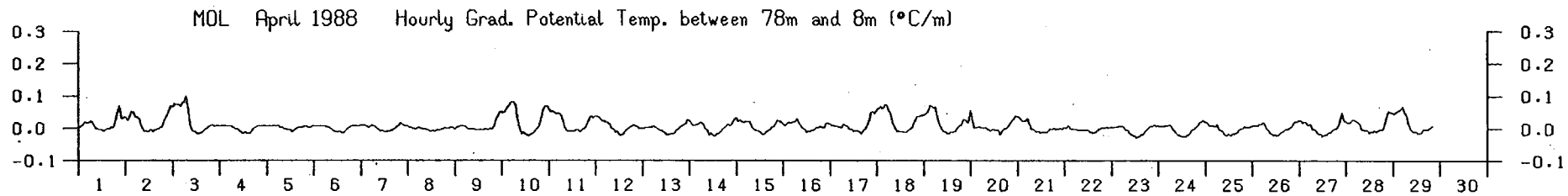
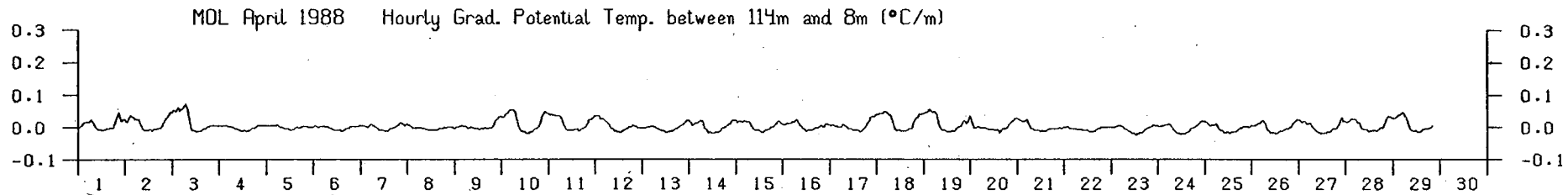
the formula to calculate the temperature at the h-level from the potential gradient (h m, 8 m) and the temperature at the 8 m-level is :

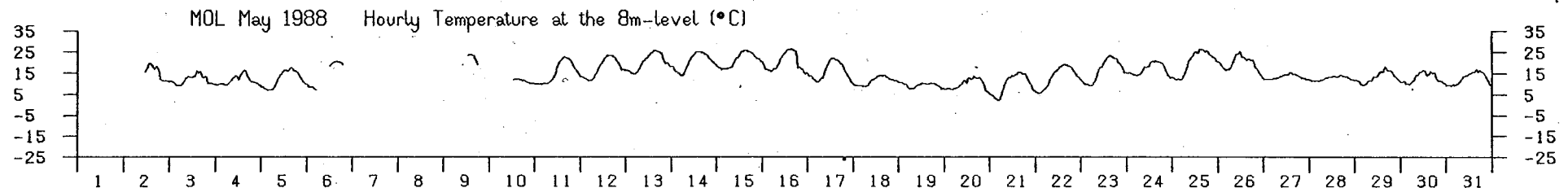
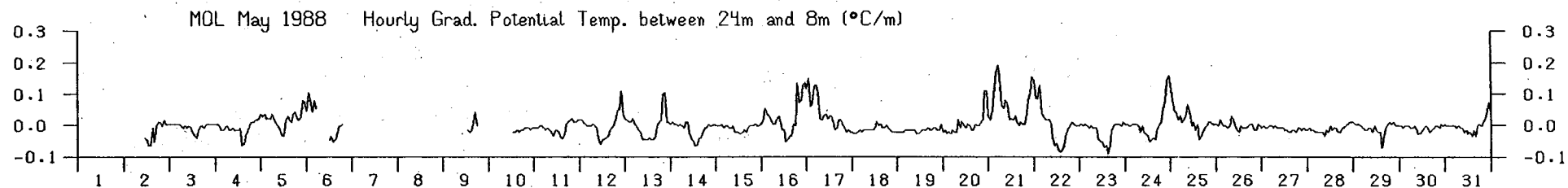
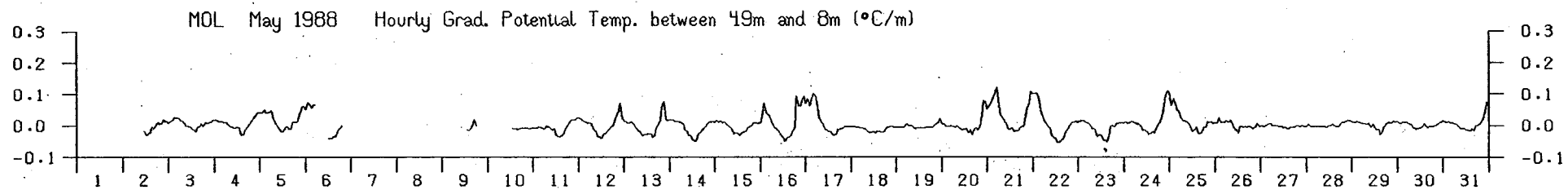
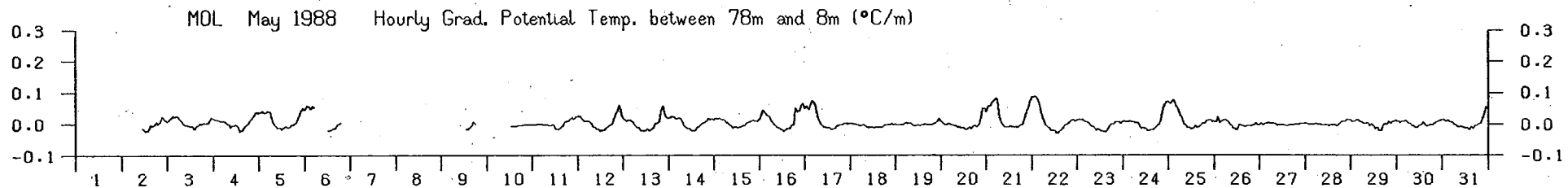
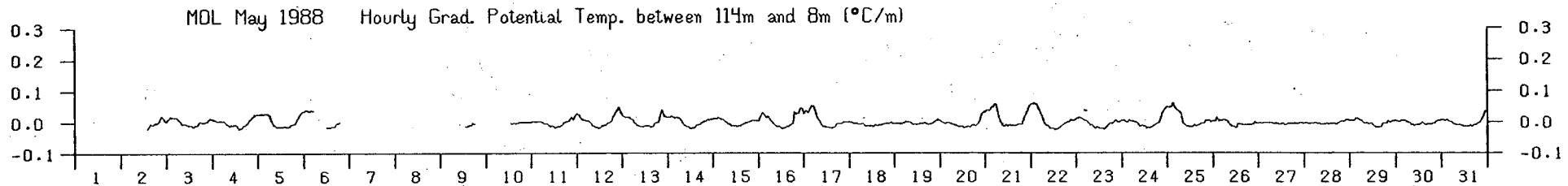
$$t_h = t_8 + \left[\frac{\partial\theta}{\delta z} (h \text{ m, } 8 \text{ m}) - 0,0098 \right] \cdot (h - 8) \text{ } ^\circ\text{C}$$

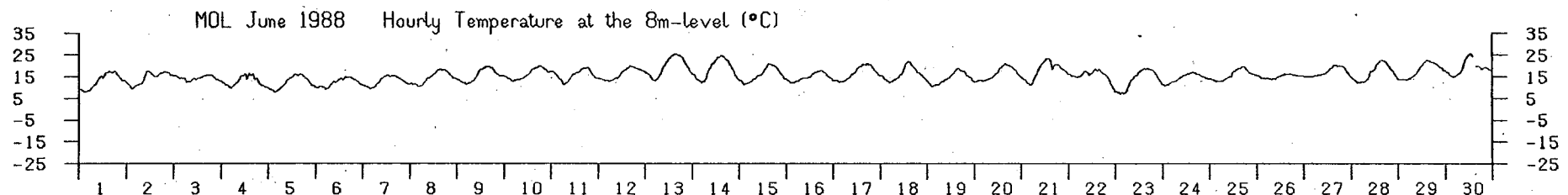
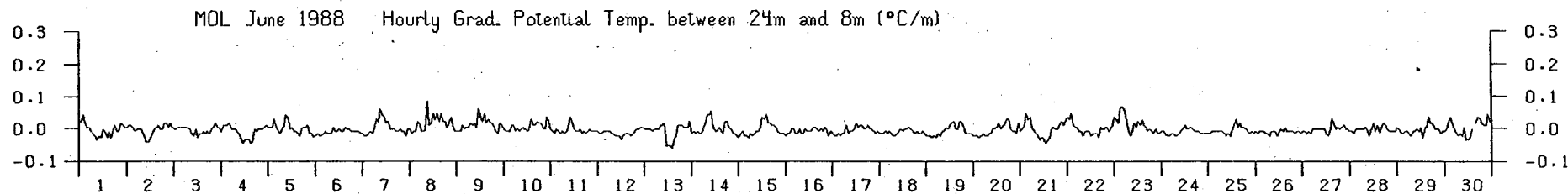
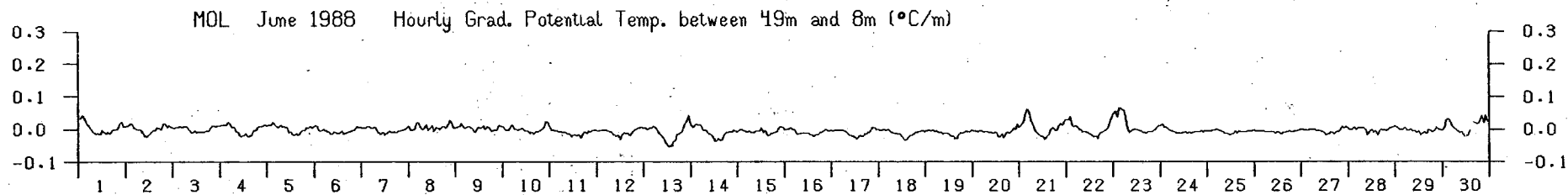
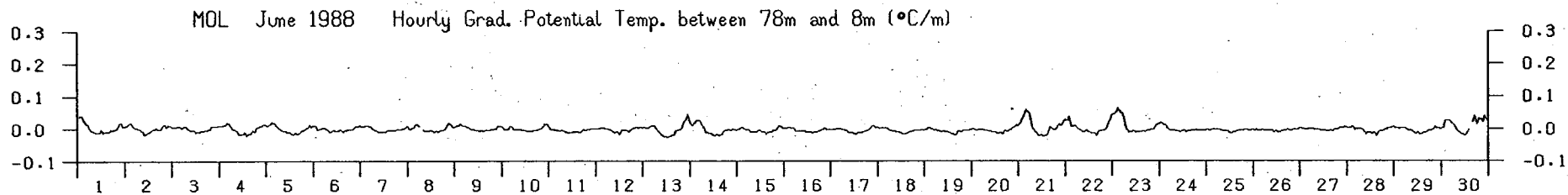
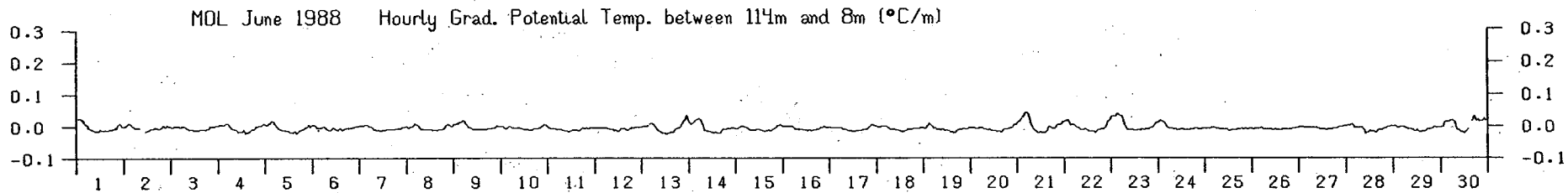


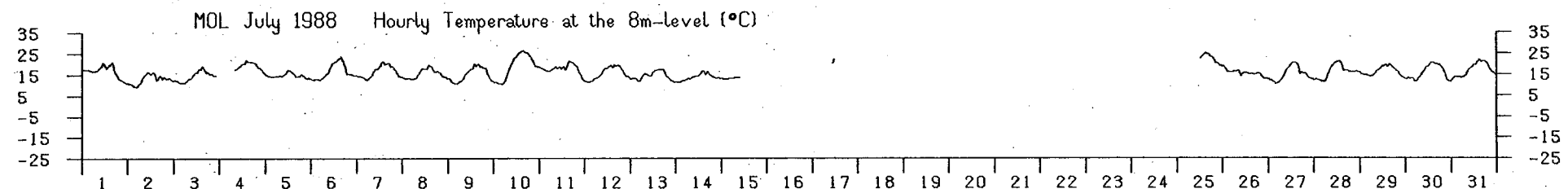
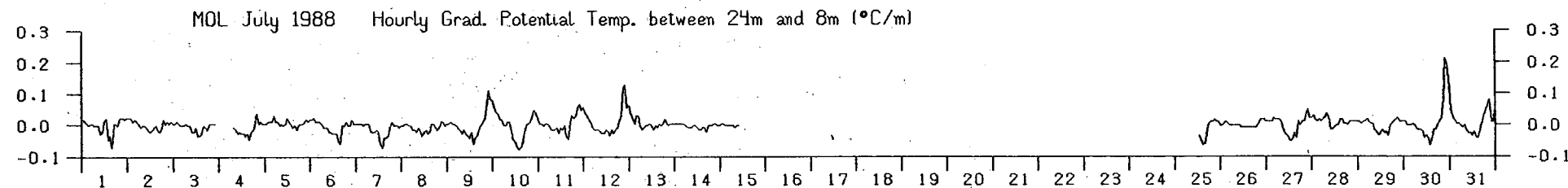
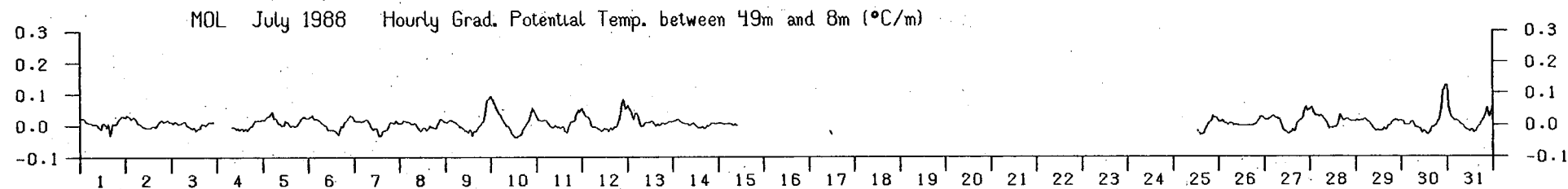
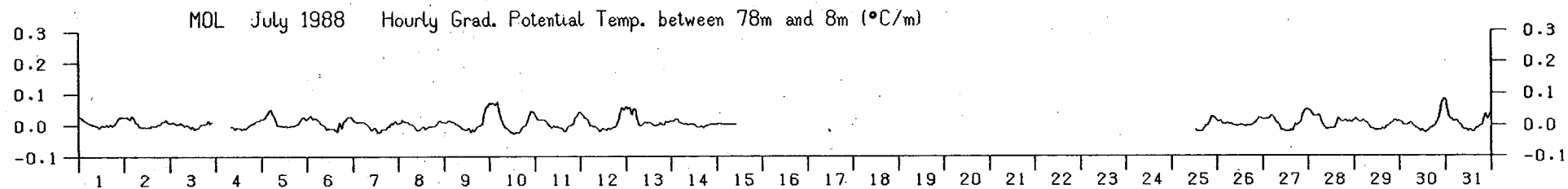
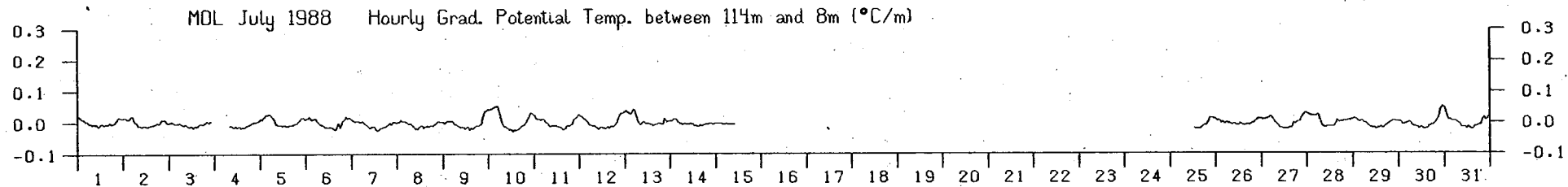


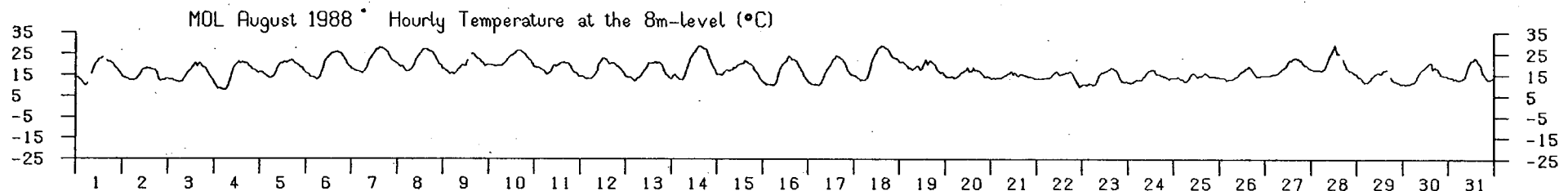
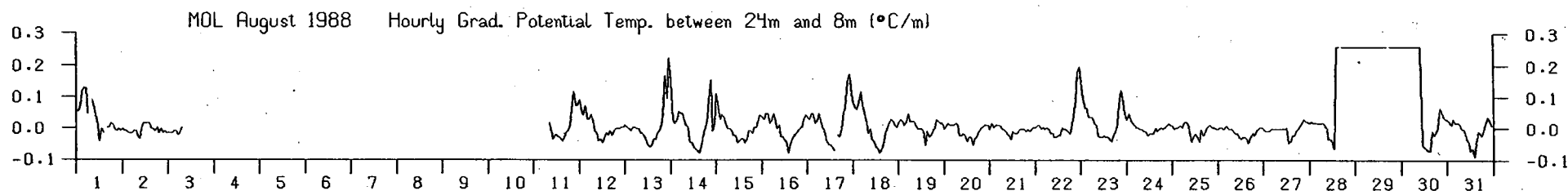
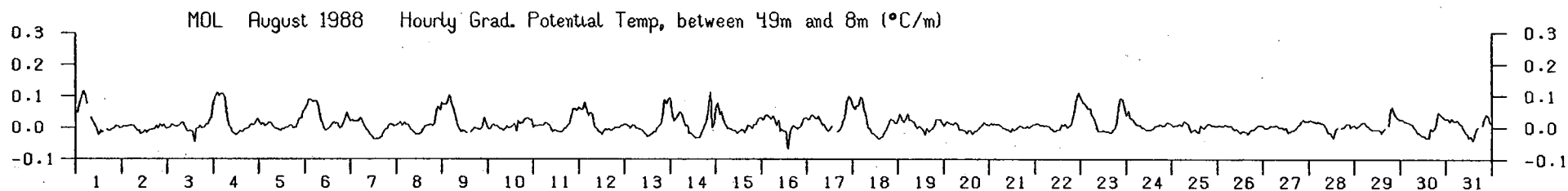
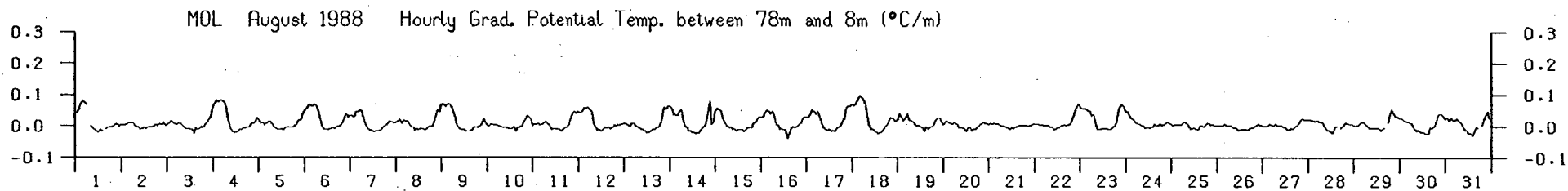
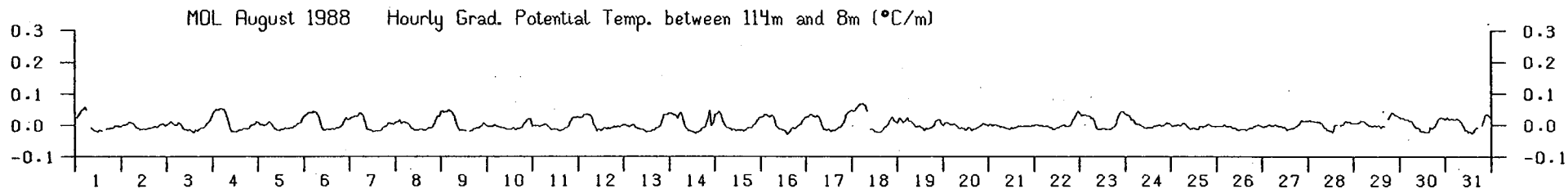


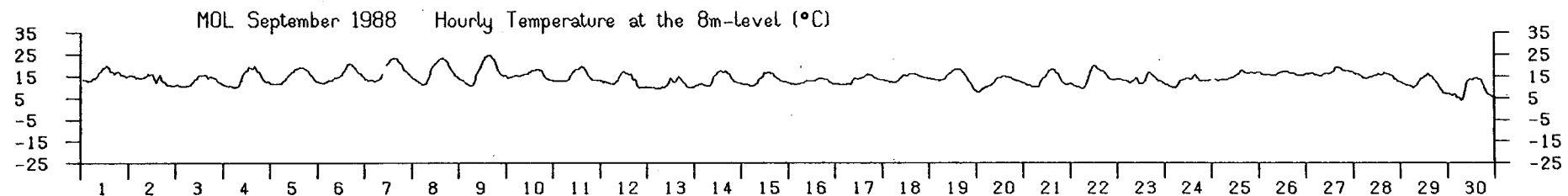
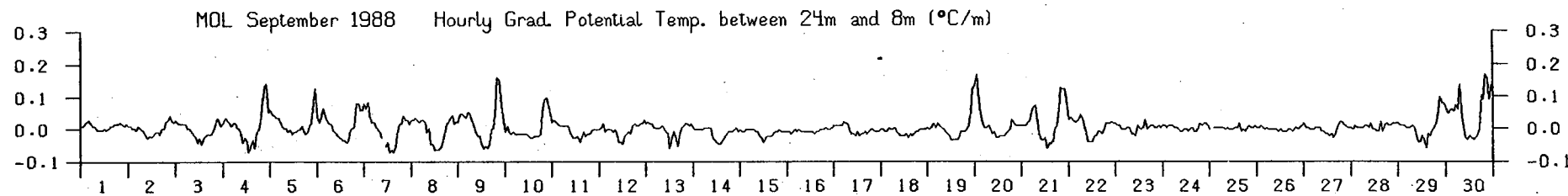
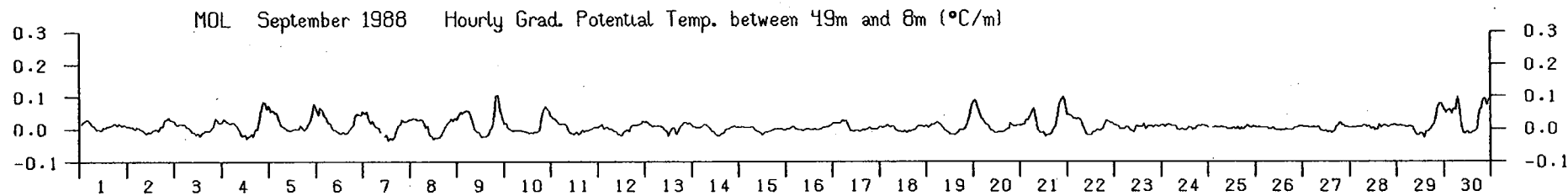
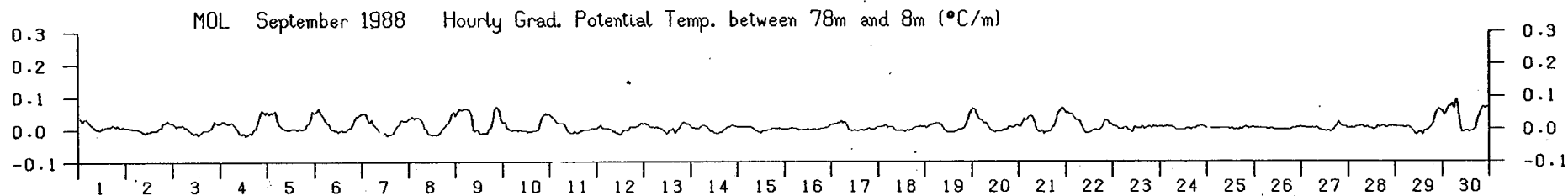
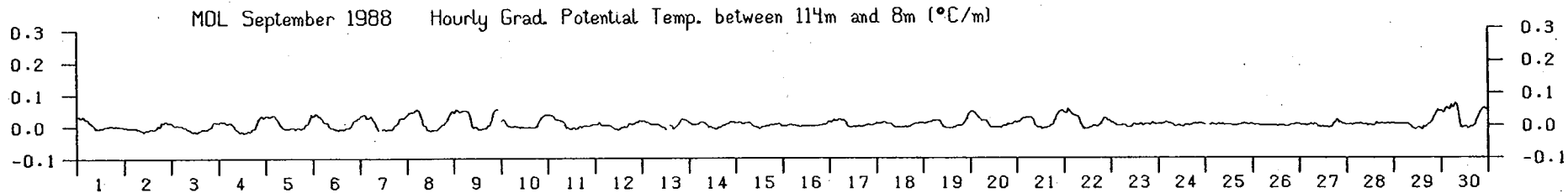


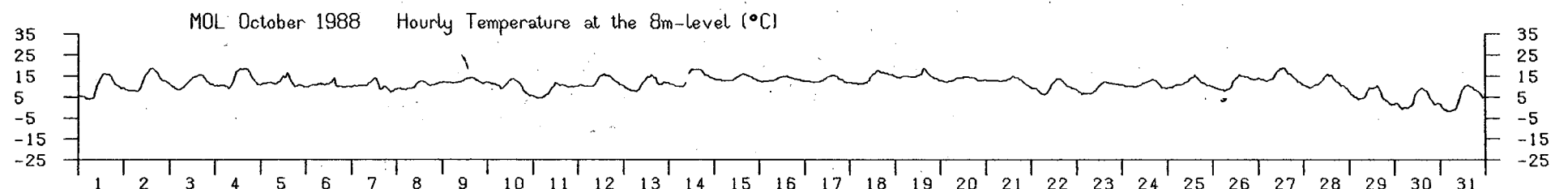
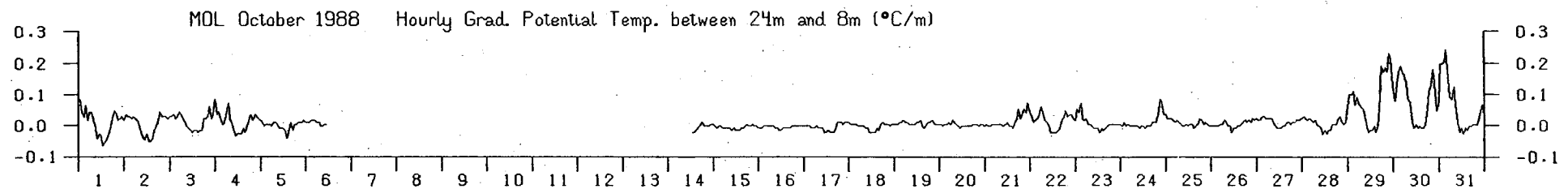
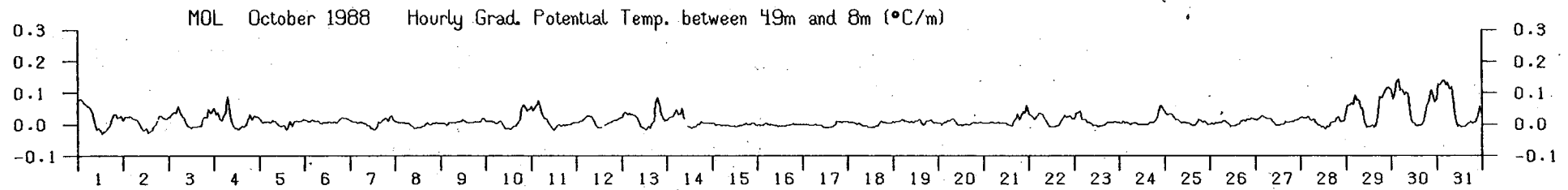
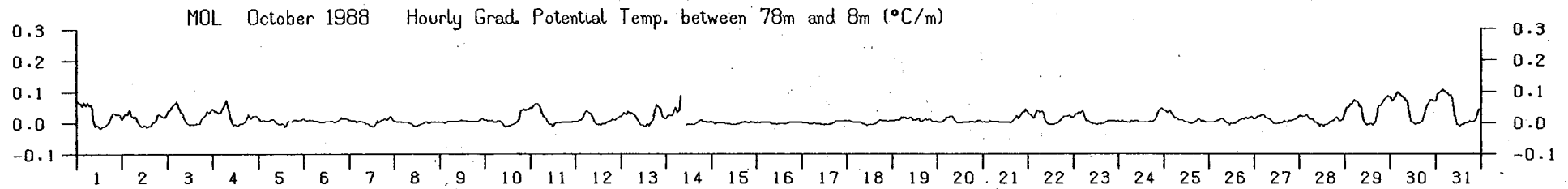
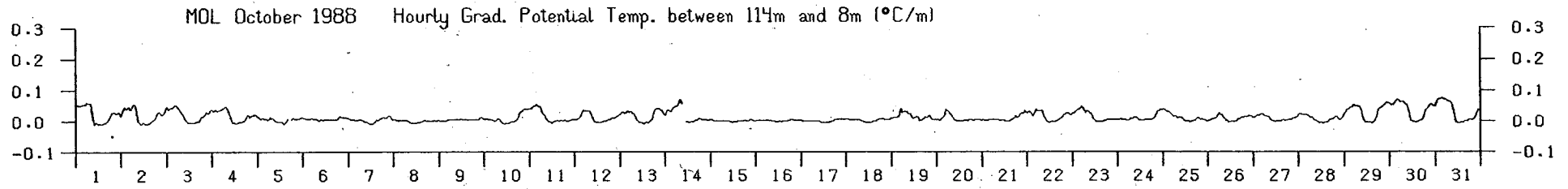


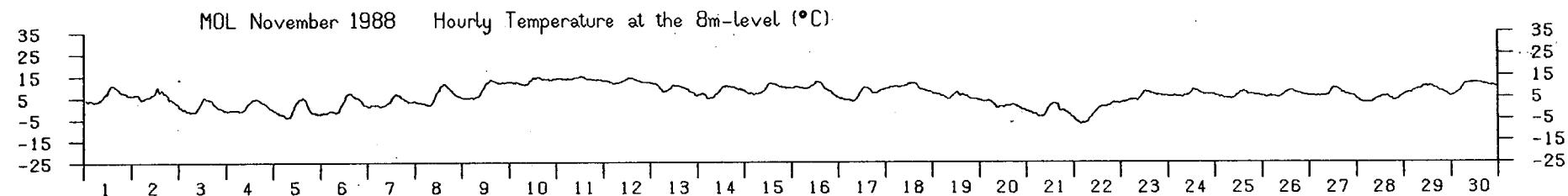
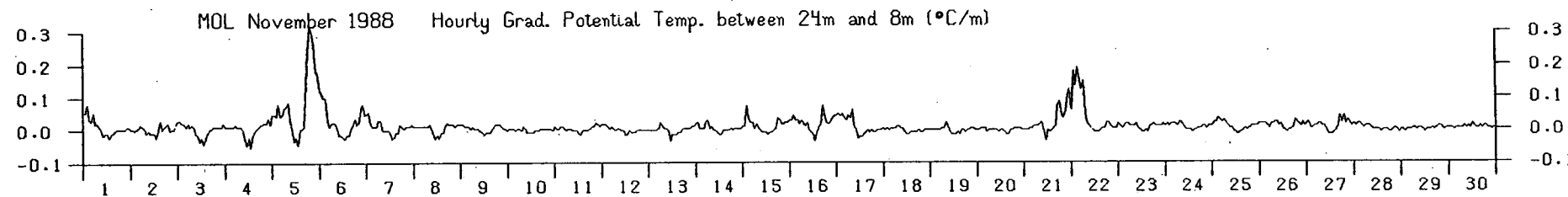
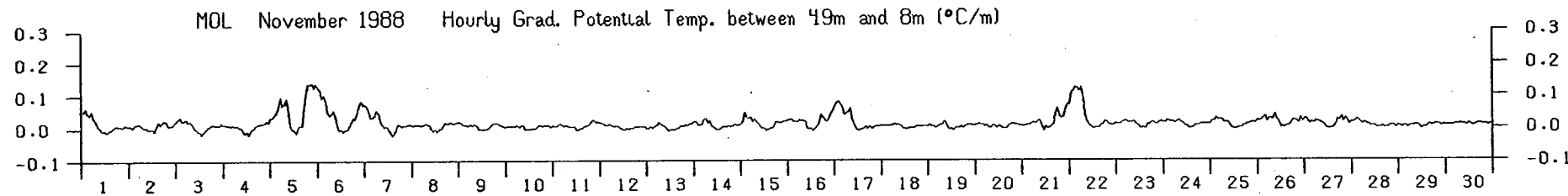
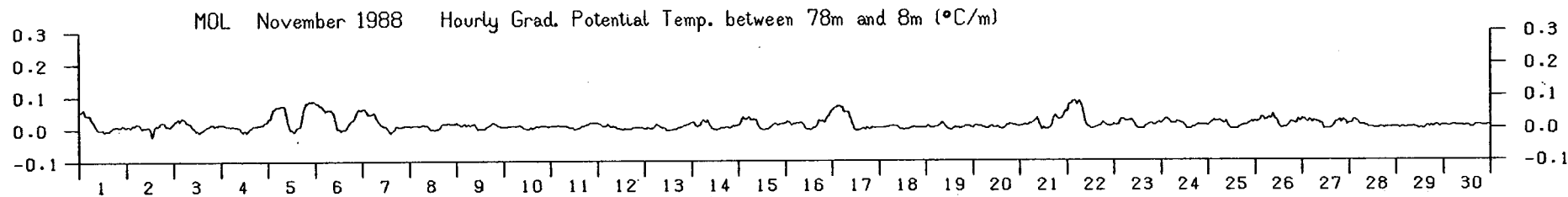
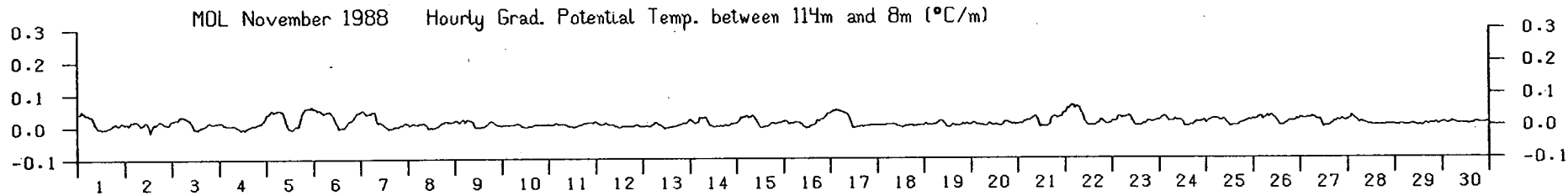


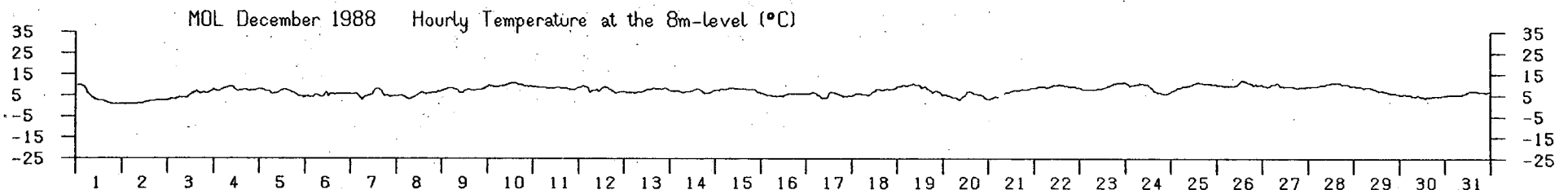
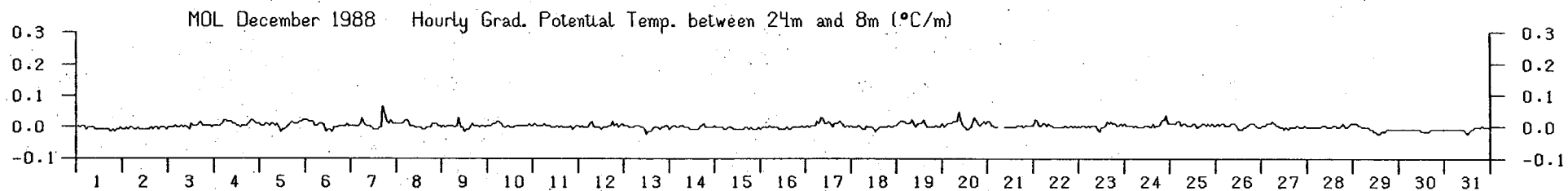
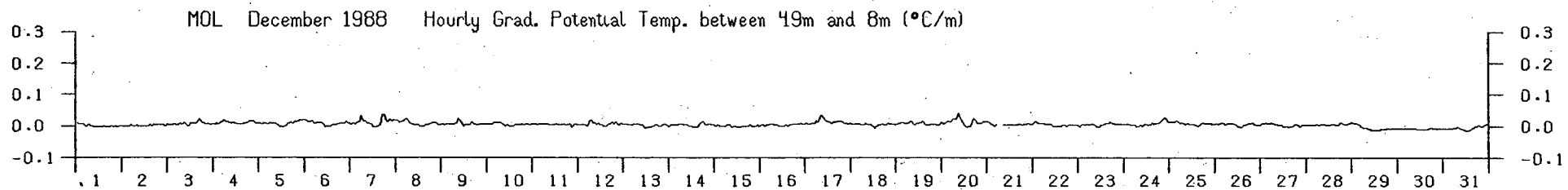
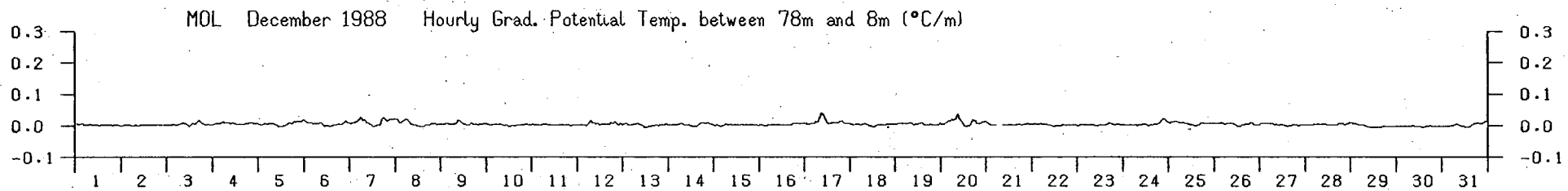
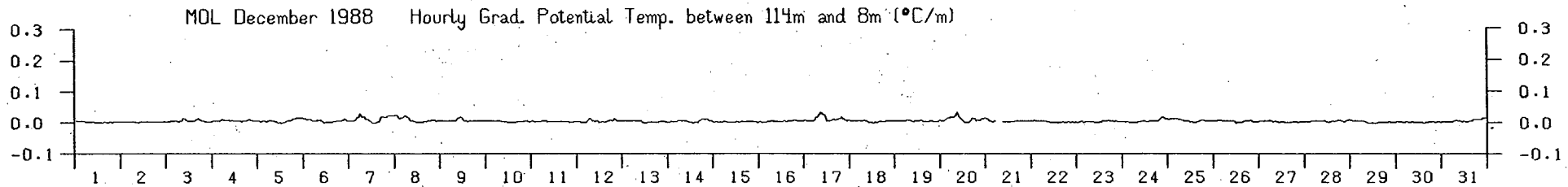












FIGURES 11.1 TO 11.12 : THE HOURLY VERTICAL GRADIENTS OF POTENTIAL TEMPERATURE BETWEEN THE 114 m- AND THE 8 m-LEVEL AND THE HOURLY WINDSPEEDS AT THE 69 m-LEVEL. THE HOURLY STABILITY CATEGORIES OF THE S.C.K./C.E.N. TURBULENCE TYPING SCHEME AND THE PASQUILL STABILITY CATEGORIES.

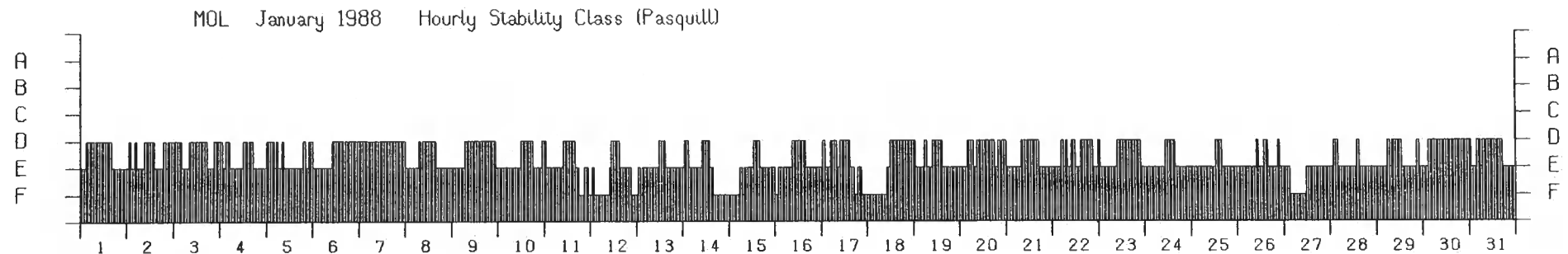
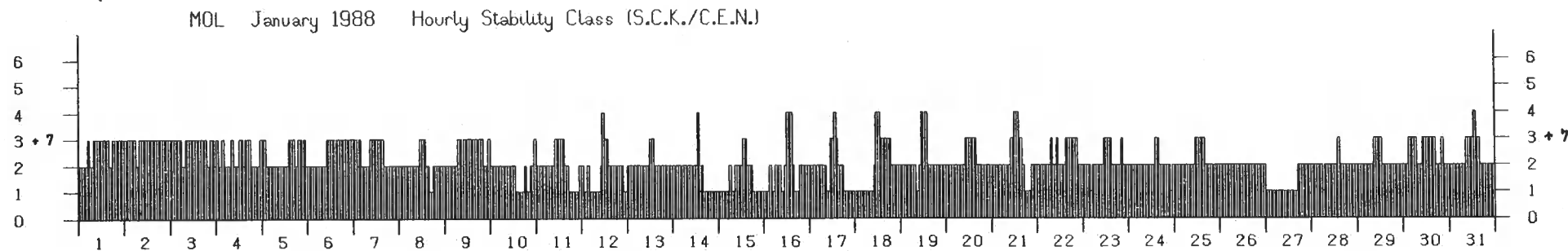
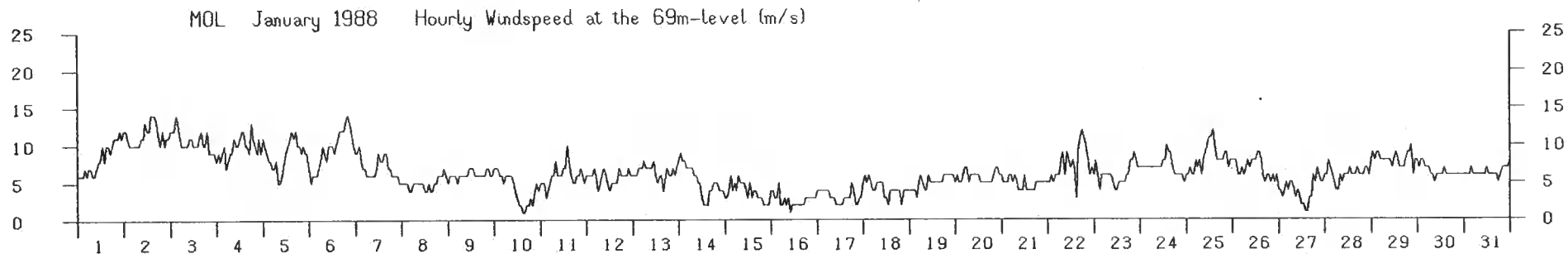
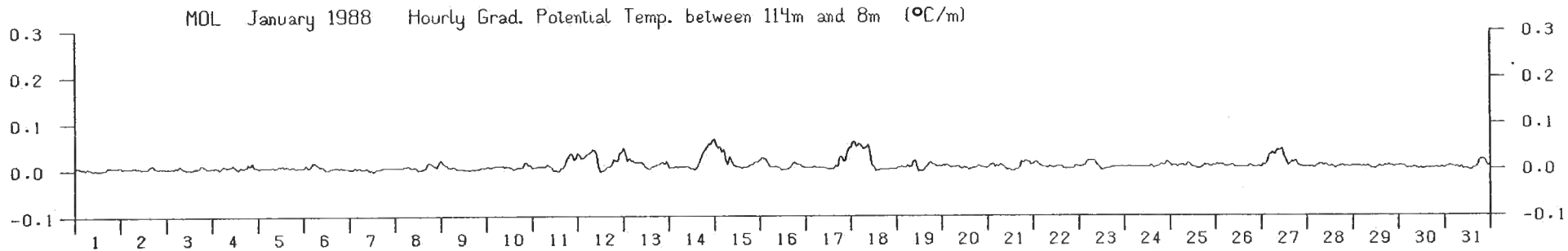
The S.C.K./C.E.N. categories are determined from the gradient of potential temperature between the 114 m- and the 8 m-level and the corresponding wind-speed at the 69 m-level [1], while the Pasquill categories are based on the temperature gradient over 100 m [2].

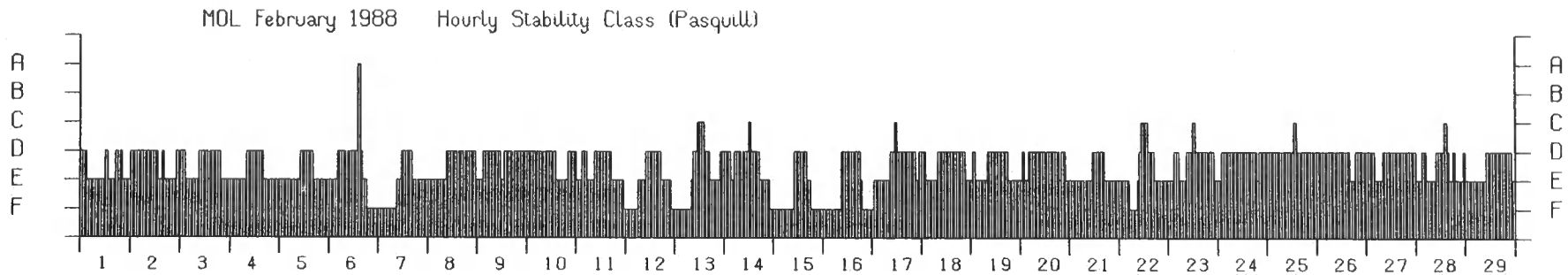
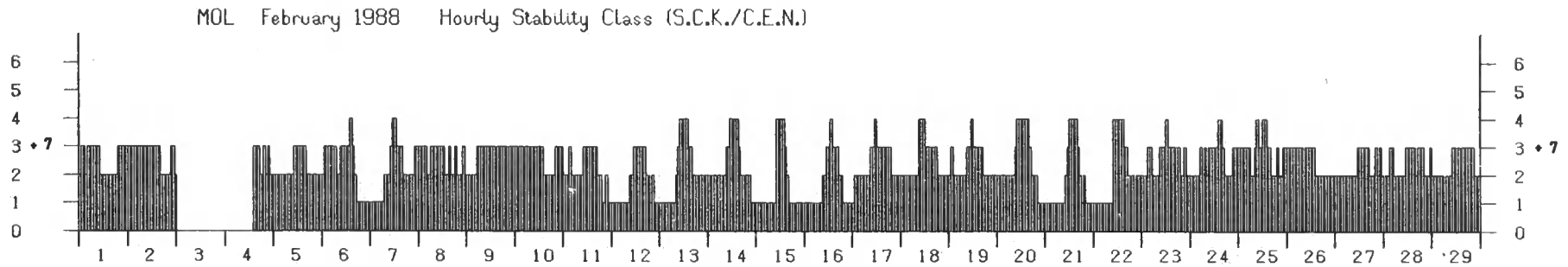
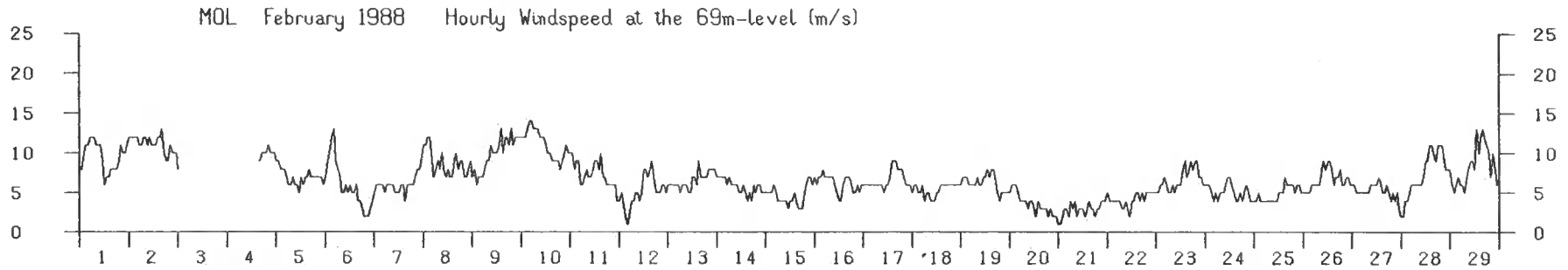
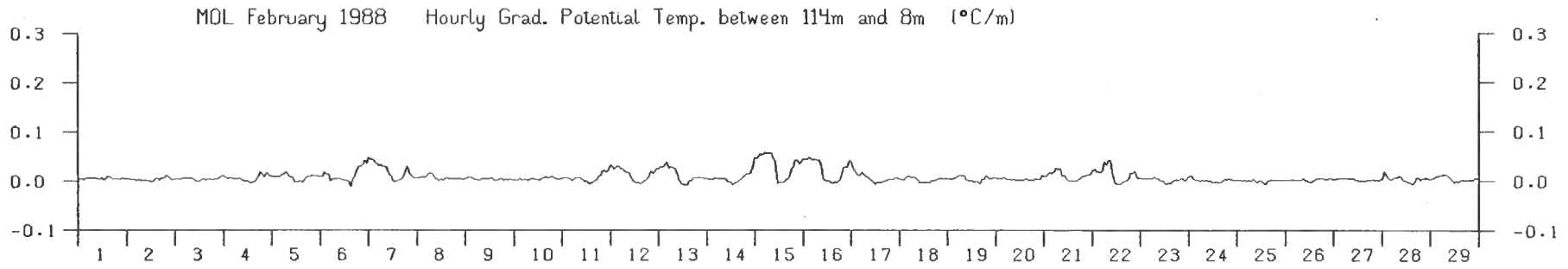
This gradient is obtained by means of the following formula :

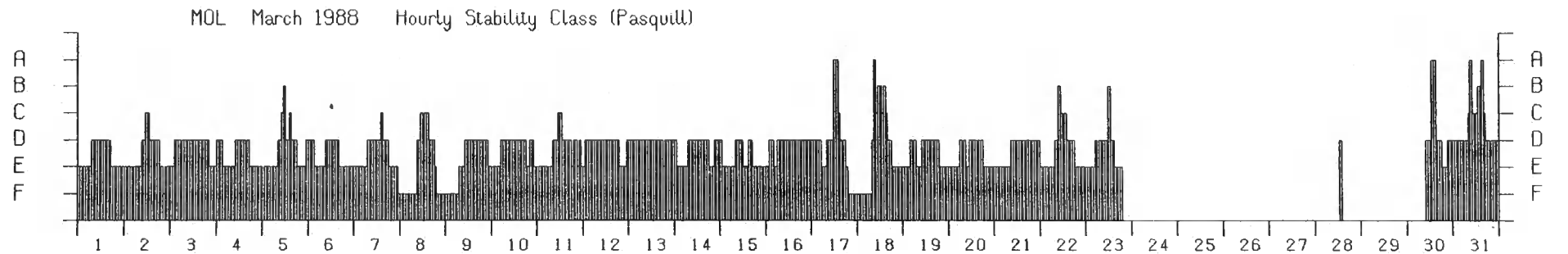
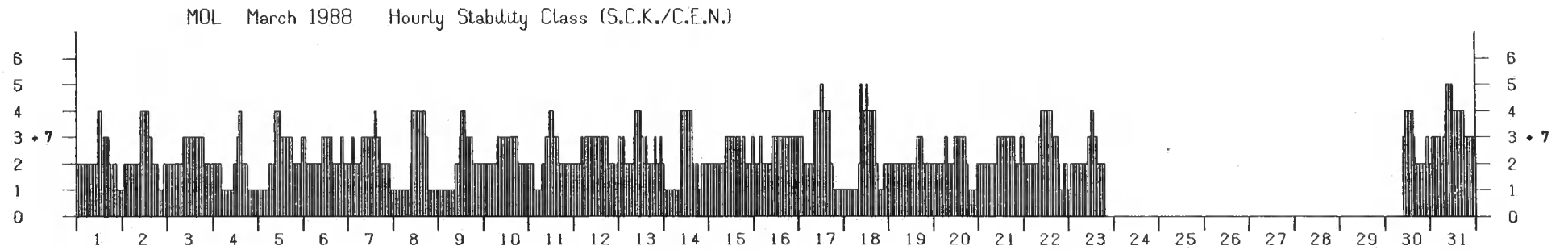
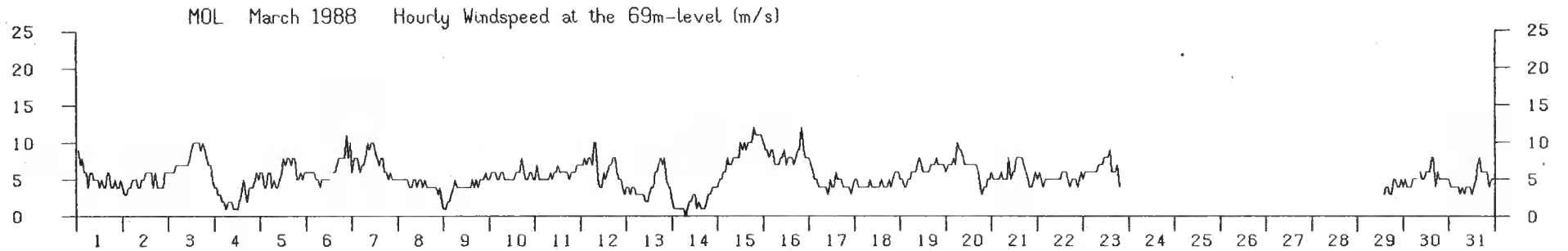
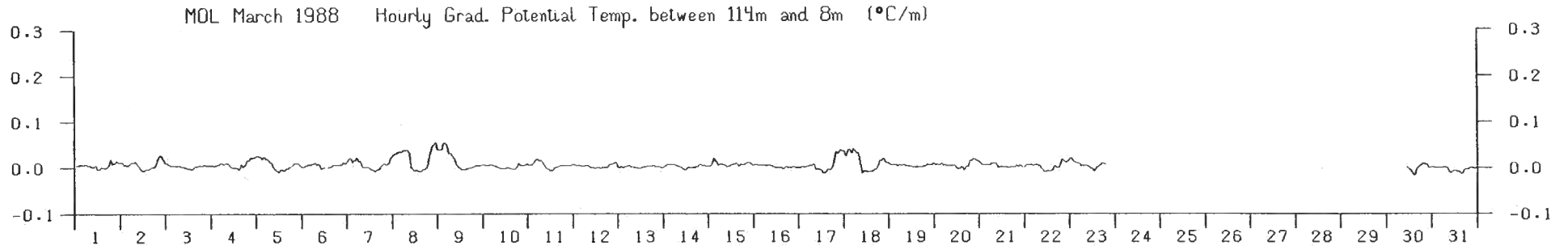
$$\Delta t (100 \text{ m}) = 100 \cdot \frac{\partial \theta}{\partial z} (114 \text{ m}, 8\text{m}) - 0,98 \quad ^\circ\text{C}/100\text{m}$$

[1] H. Bultynck and L. Malet, Tellus XXIV, 5, 455 (1972).

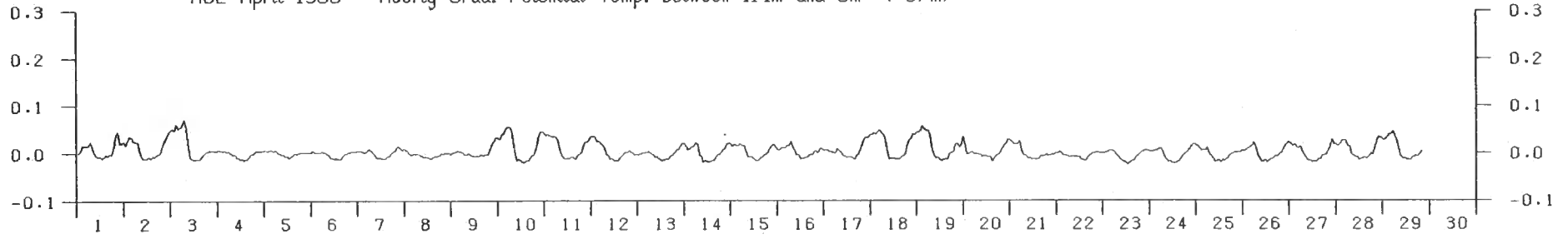
[2] N.R.C., Regulatory Guide 1.23 (1972).



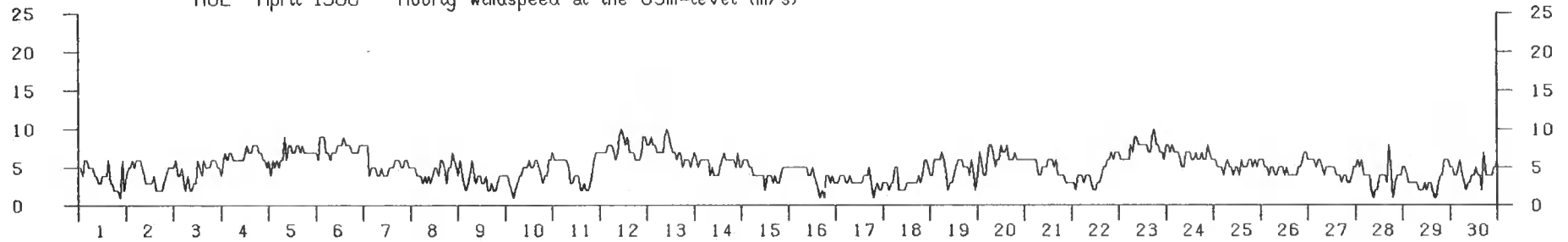




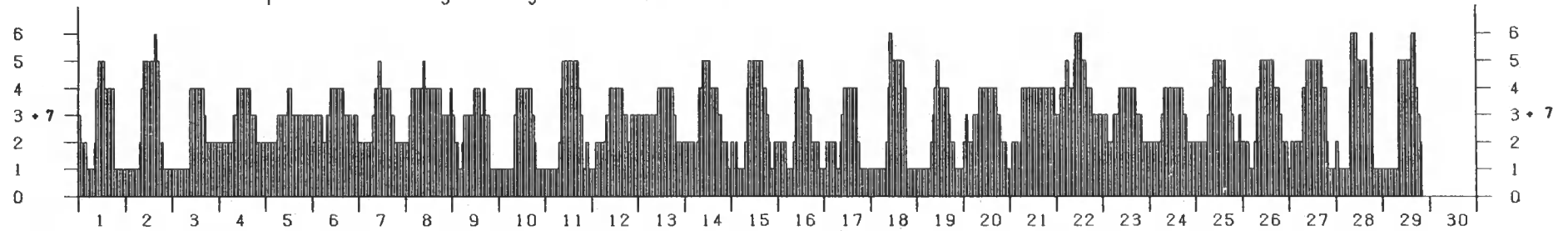
MOL April 1988 Hourly Grad. Potential Temp. between 114m and 8m (°C/m)



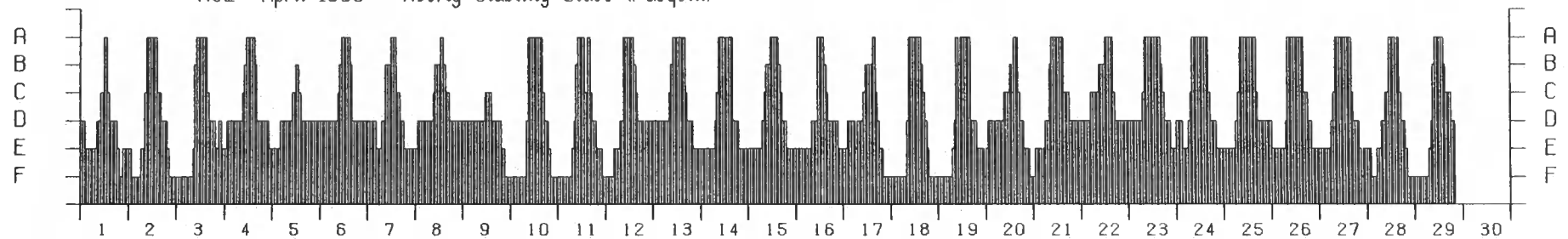
MOL April 1988 Hourly Windspeed at the 69m-level (m/s)

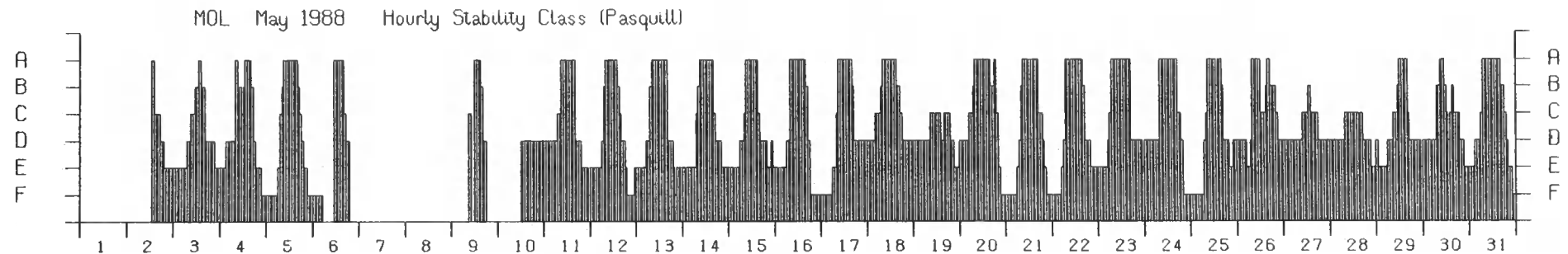
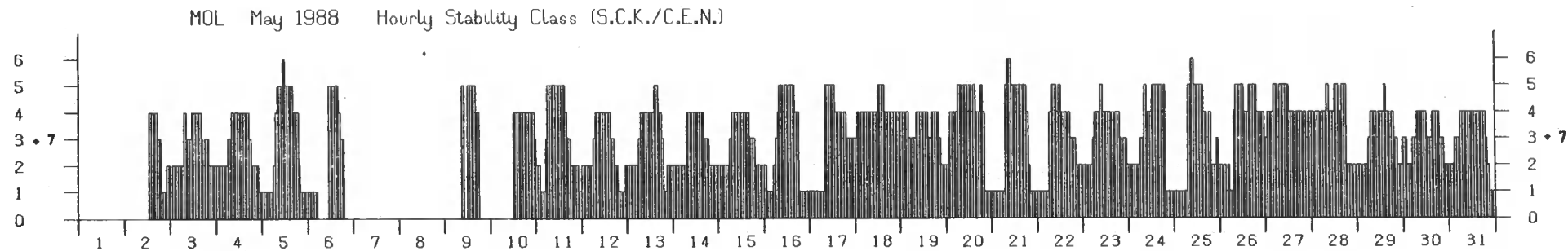
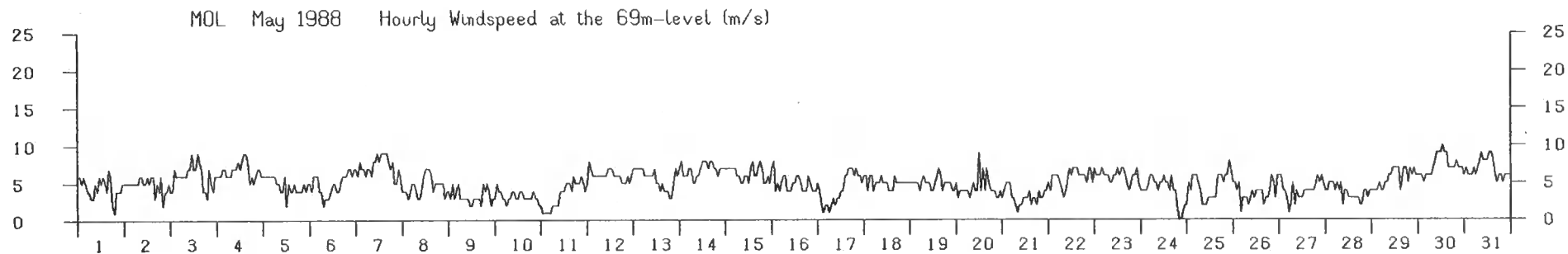
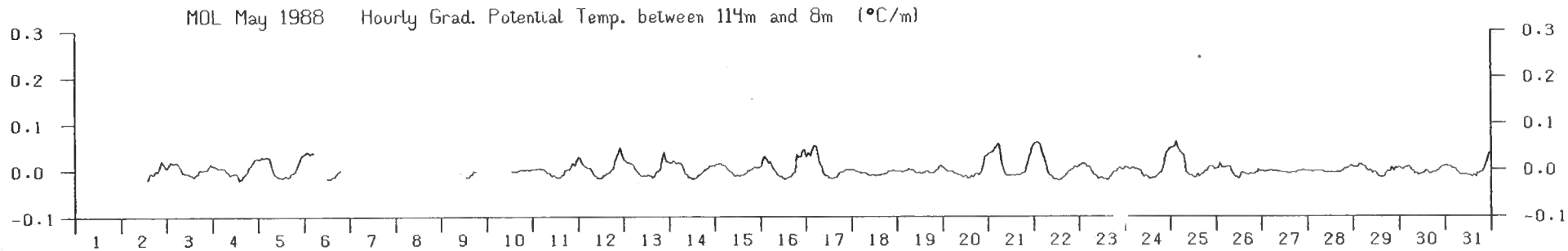


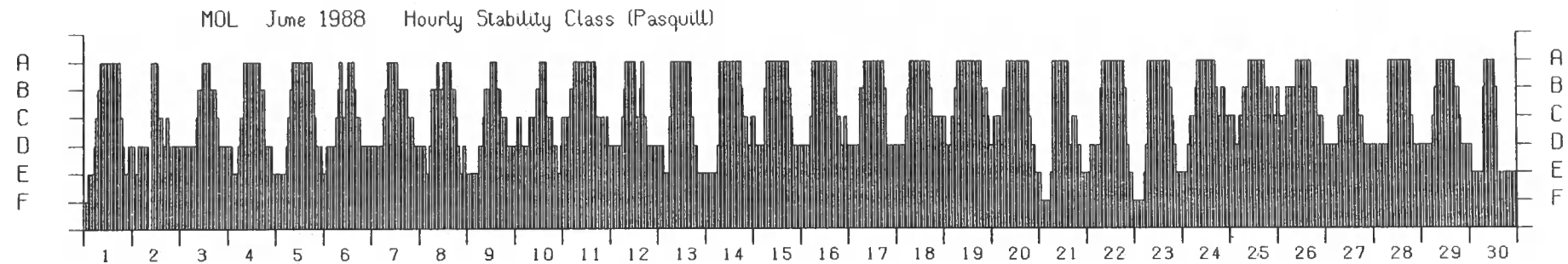
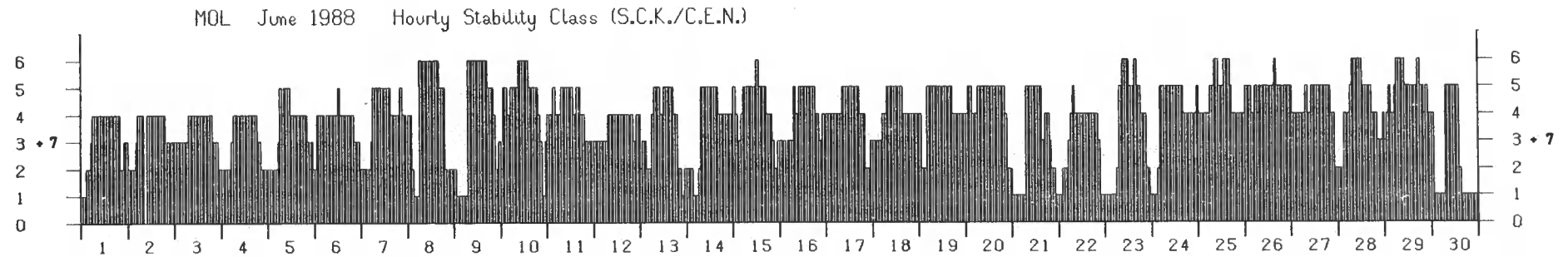
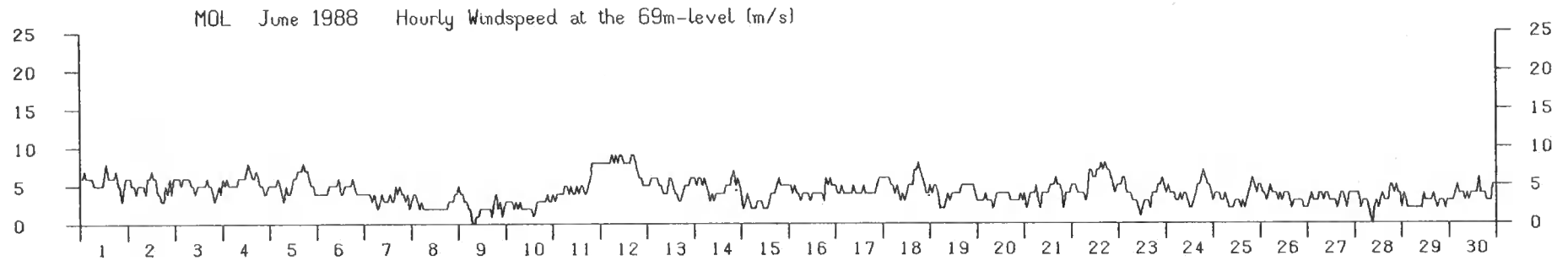
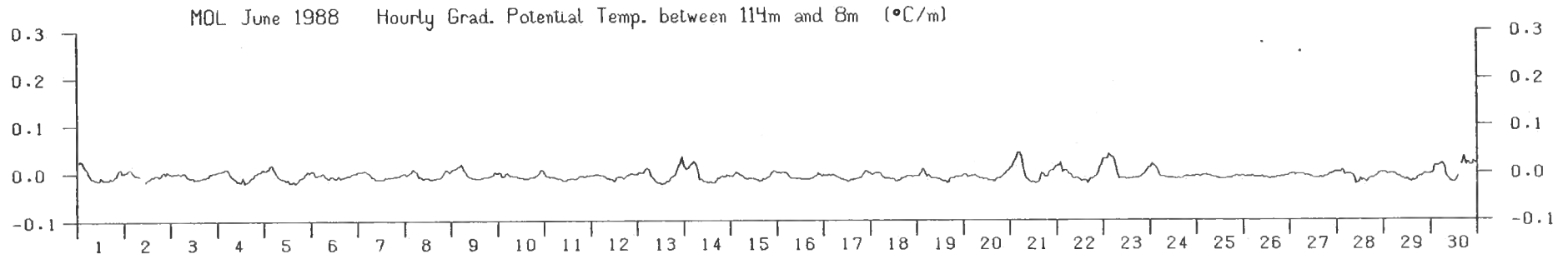
MOL April 1988 Hourly Stability Class (S.C.K./C.E.N.)

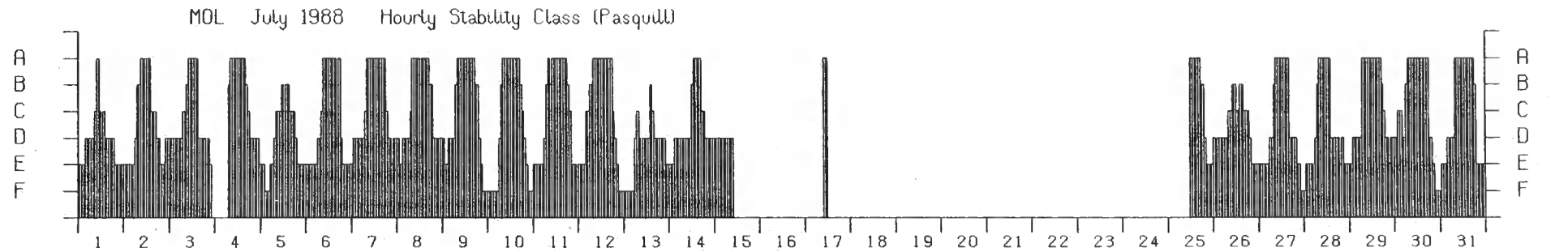
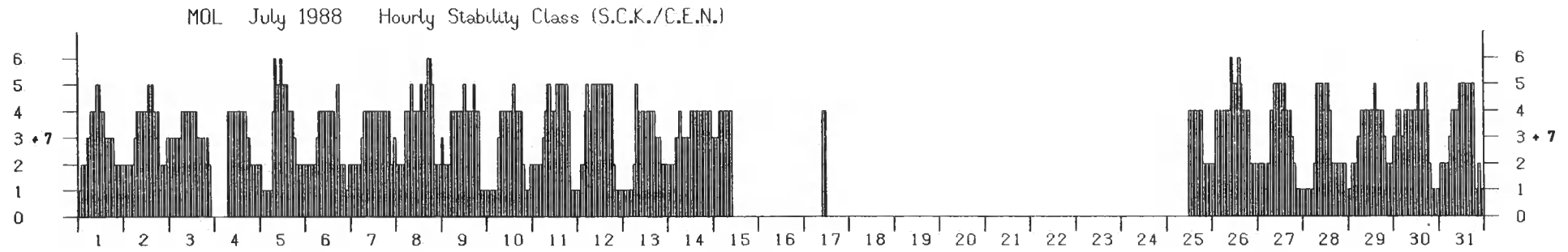
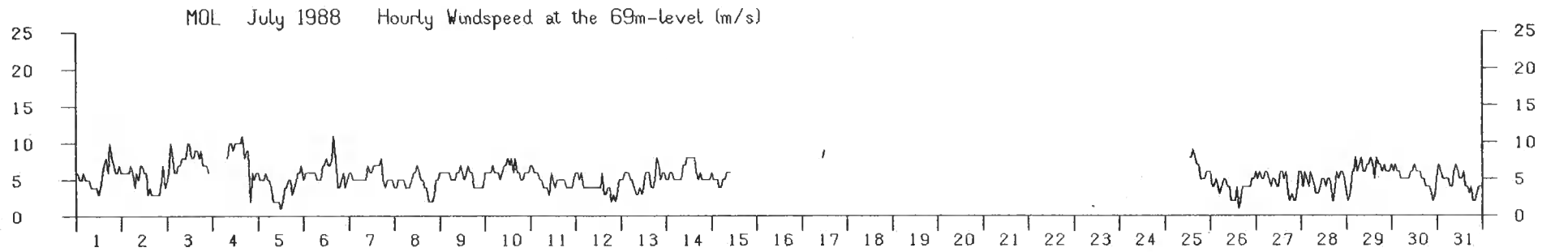
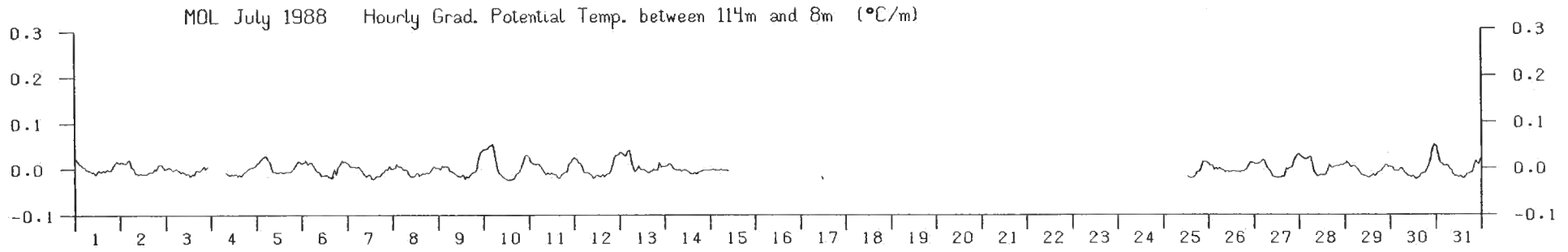


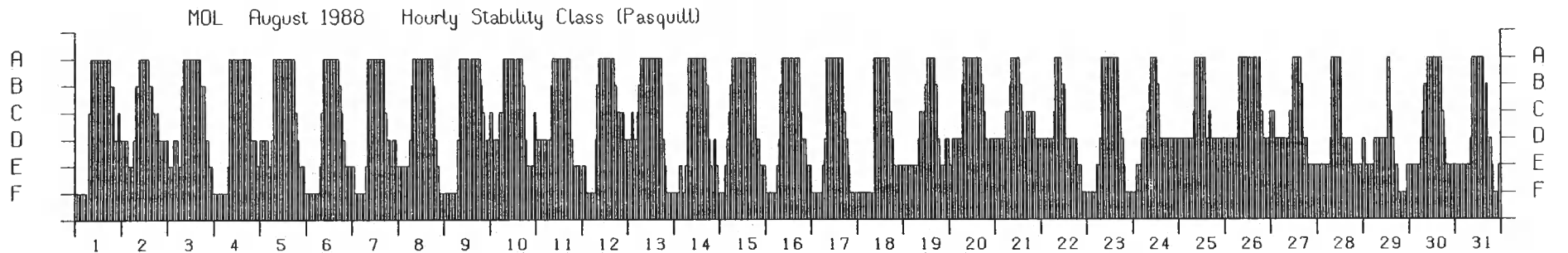
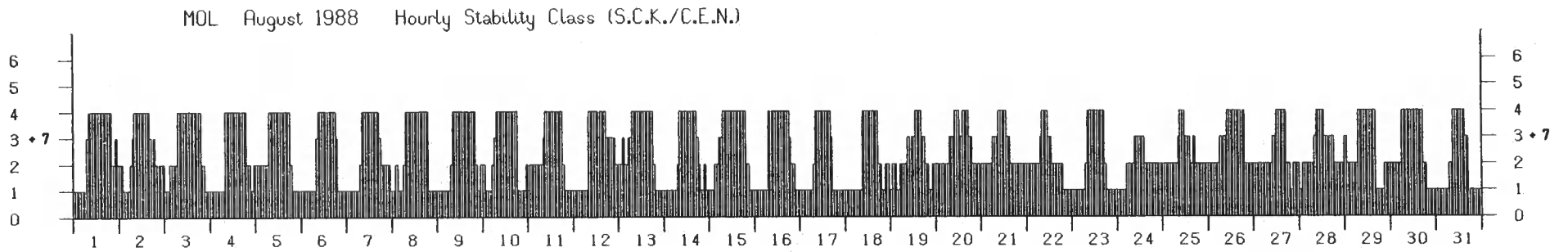
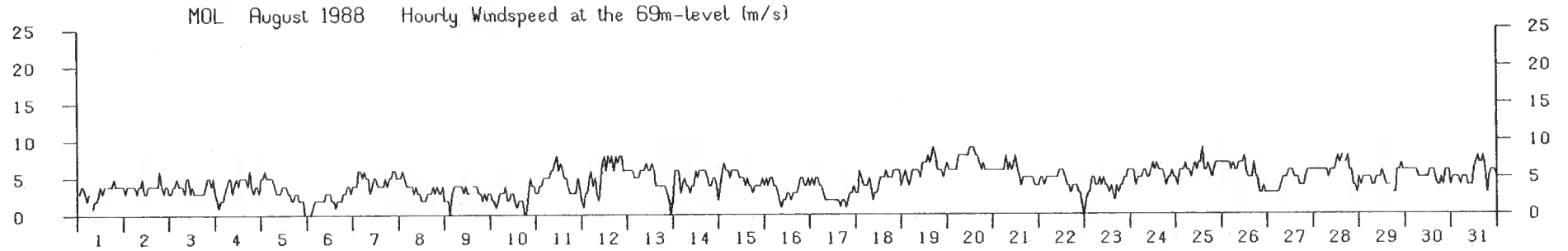
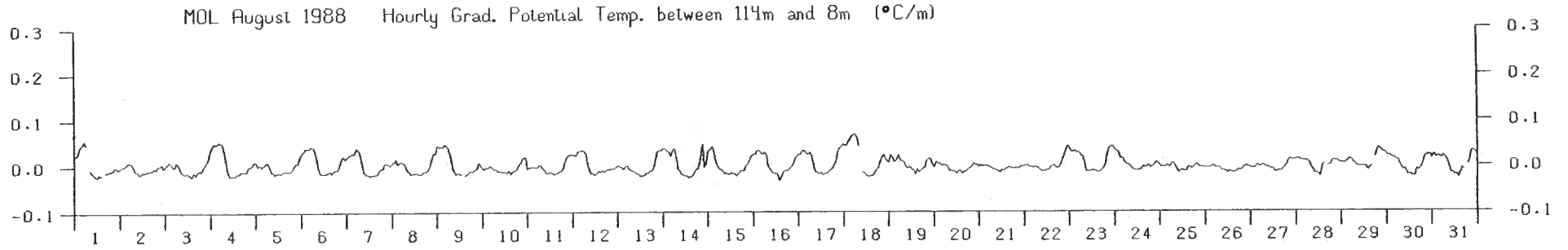
MOL April 1988 Hourly Stability Class (Pasquill)

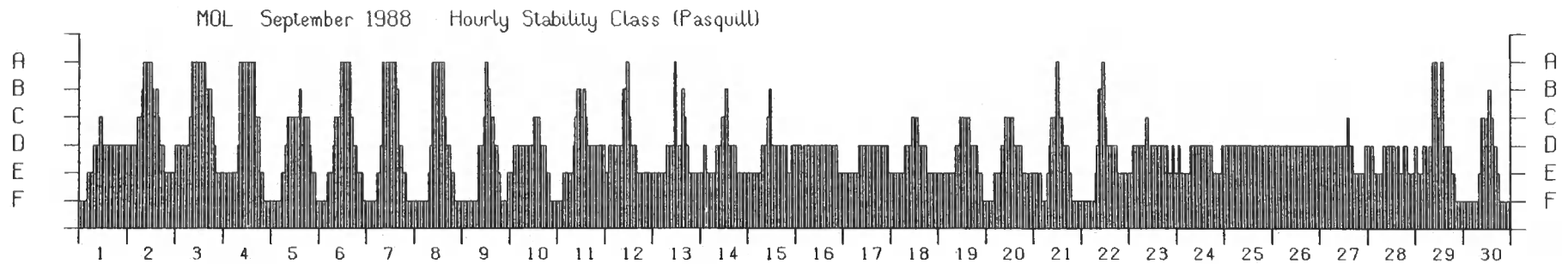
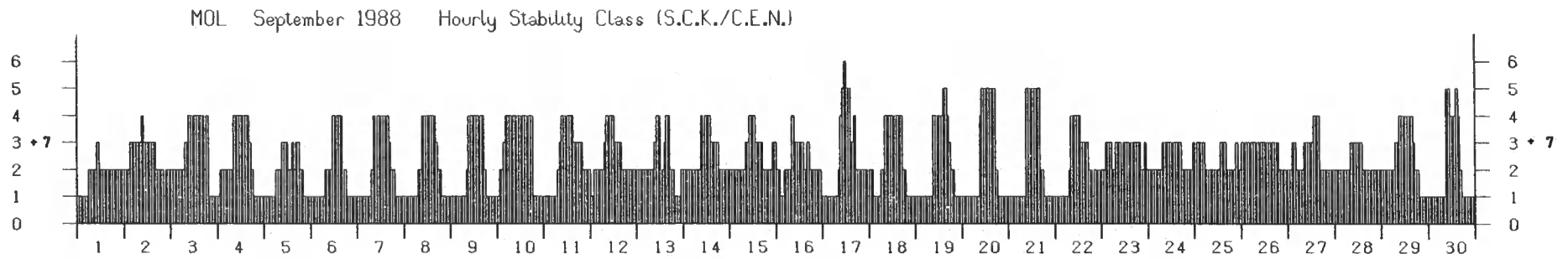
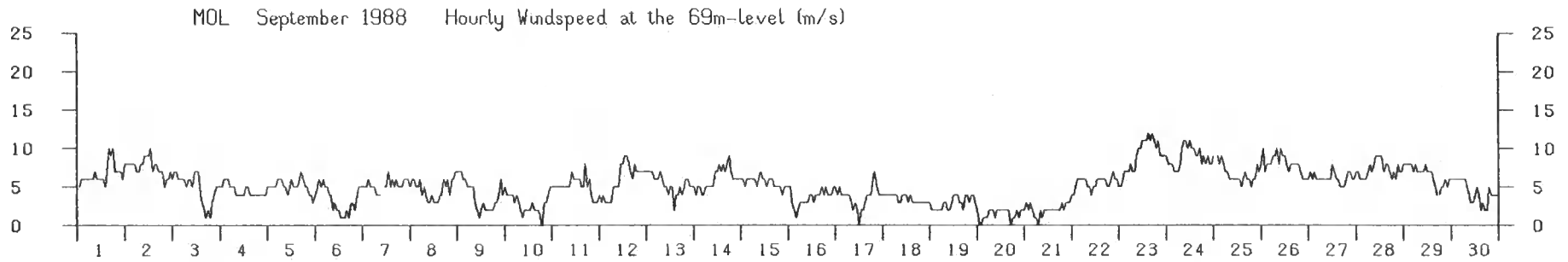
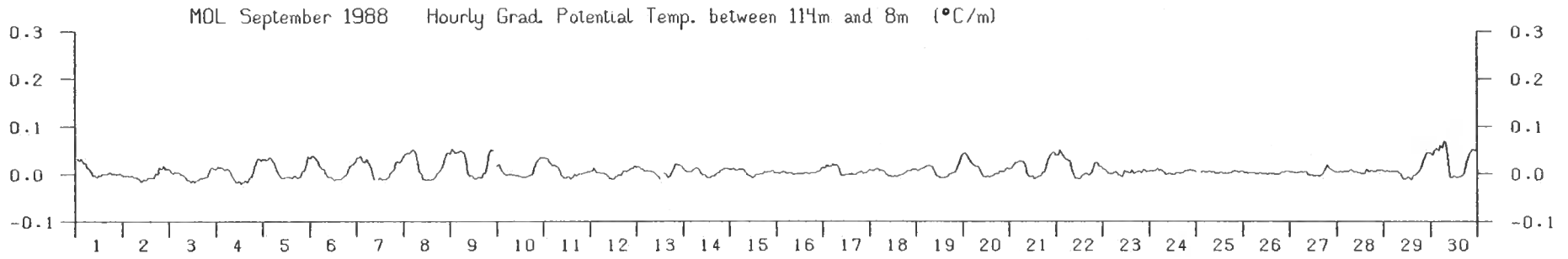




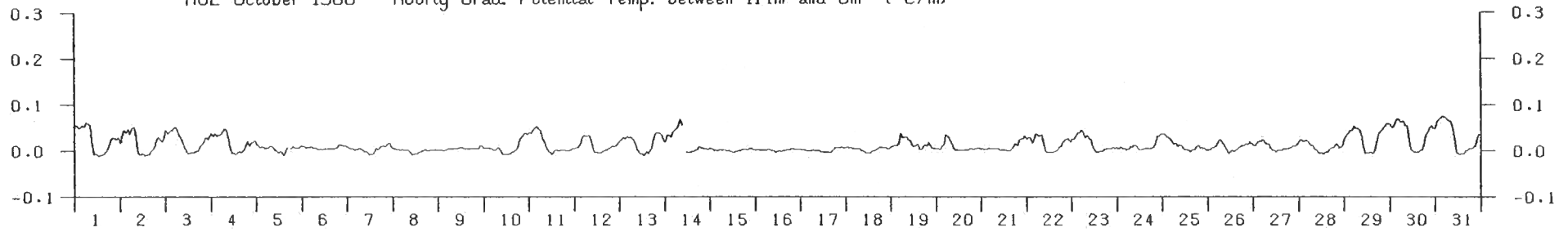




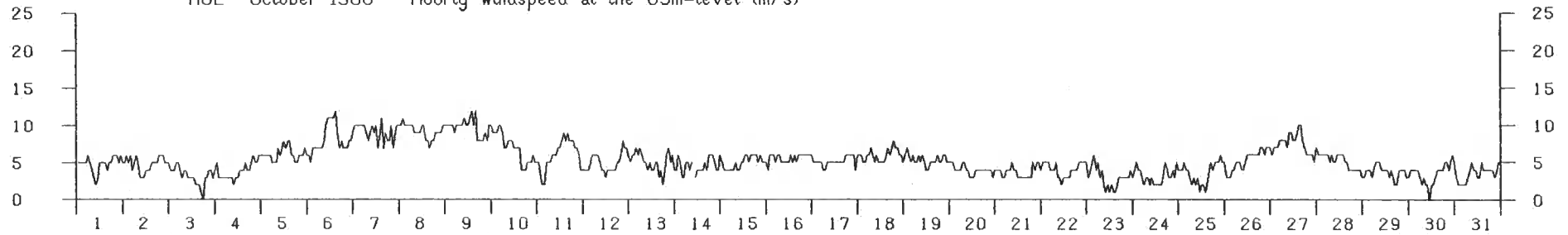




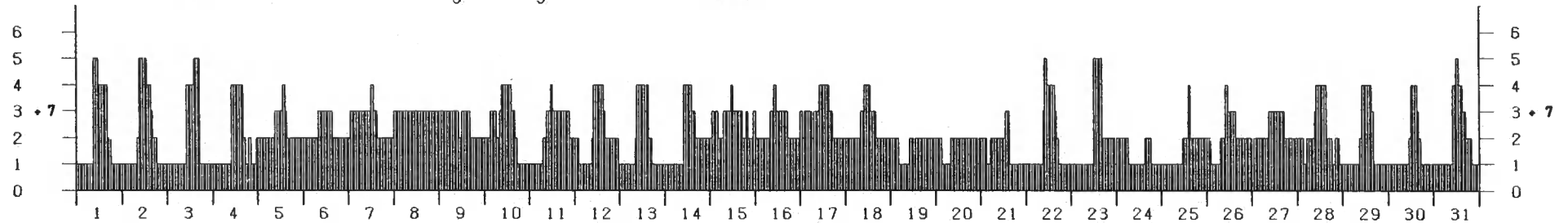
MOL October 1988 Hourly Grad. Potential Temp. between 114m and 8m (°C/m)



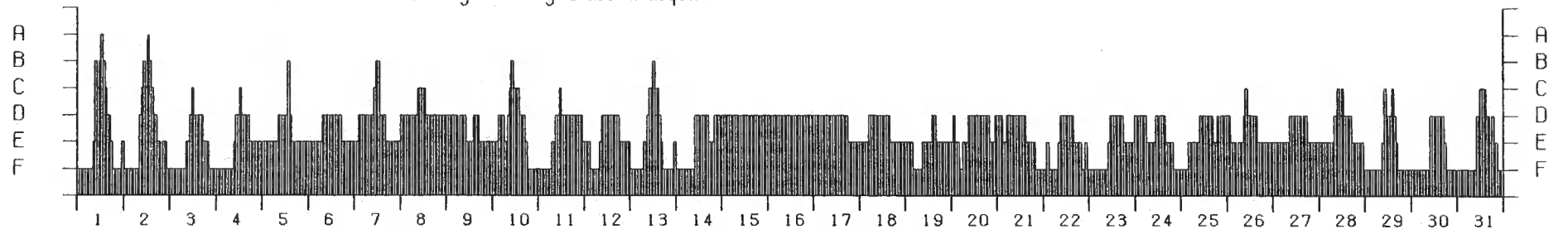
MOL October 1988 Hourly Windspeed at the 69m-level (m/s)

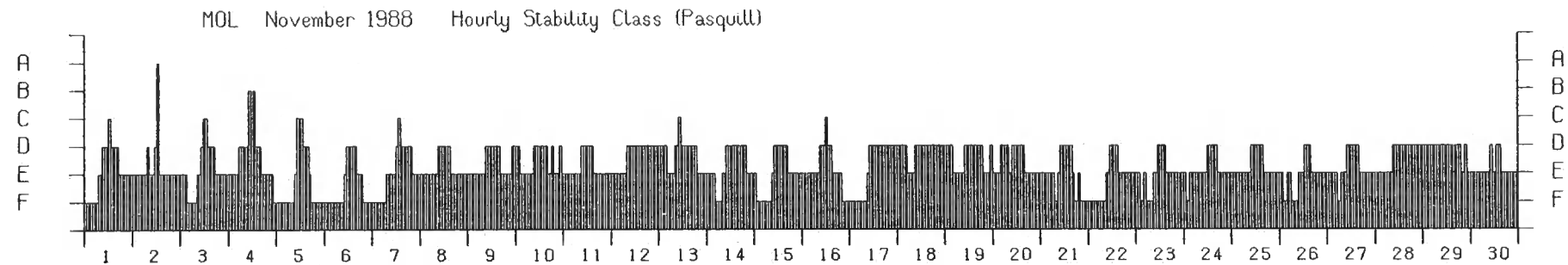
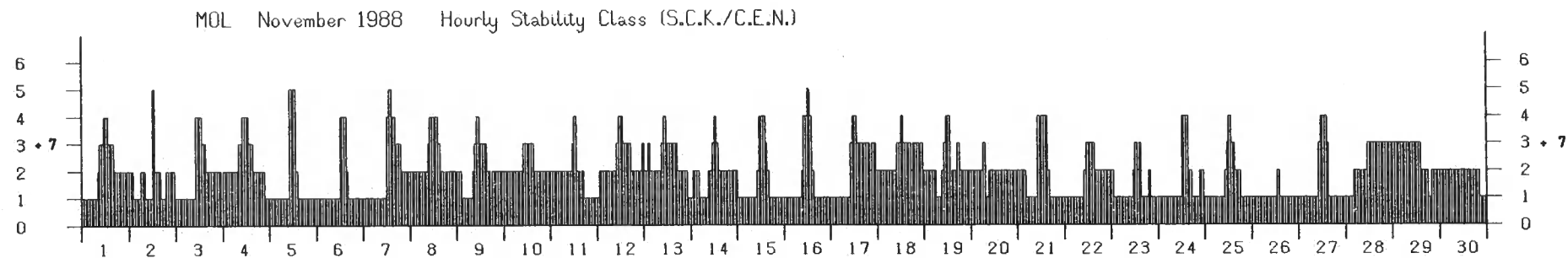
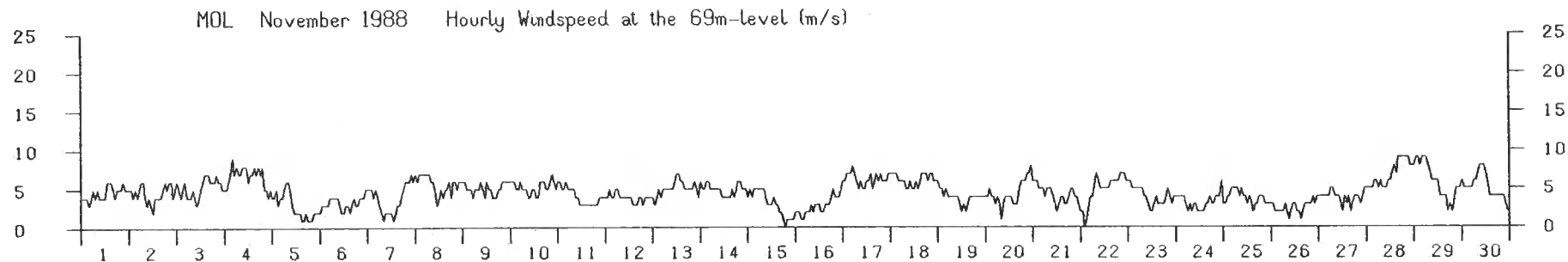
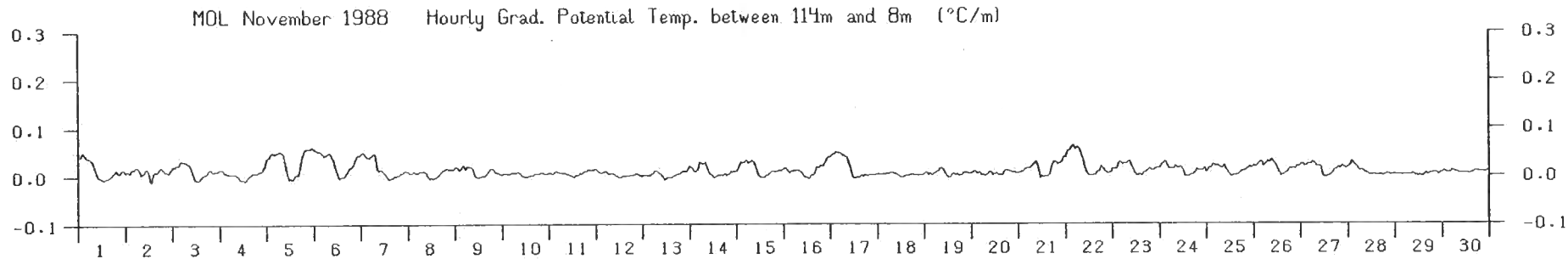


MOL October 1988 Hourly Stability Class (S.C.K./C.E.N.)



MOL October 1988 Hourly Stability Class (Pasquill)





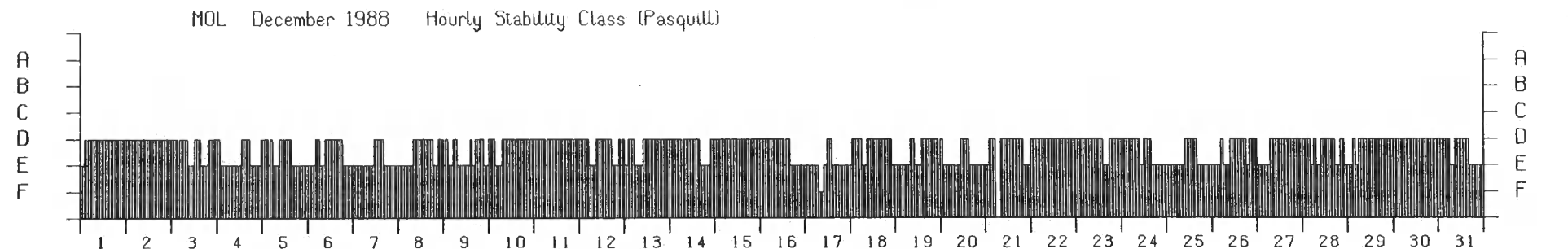
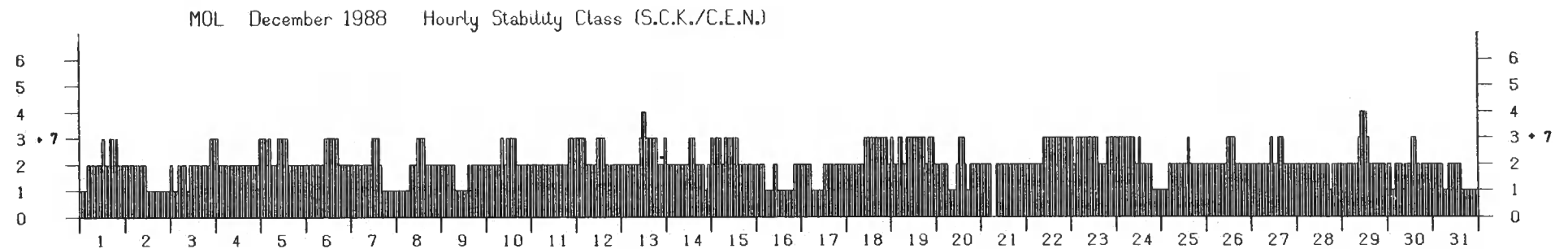
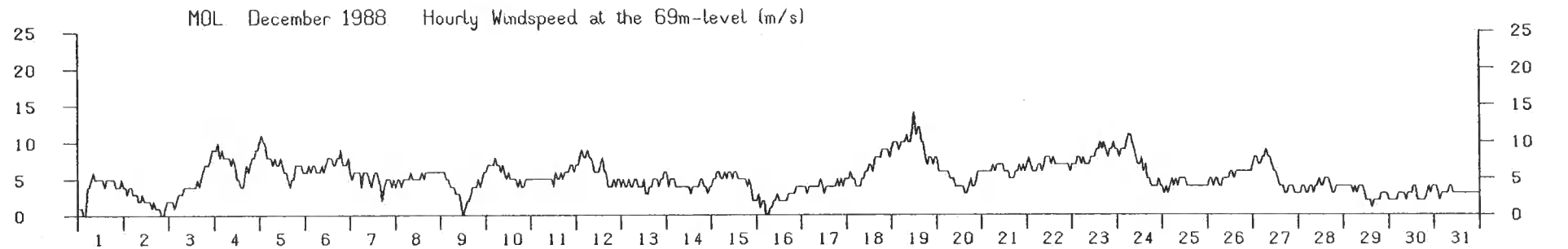
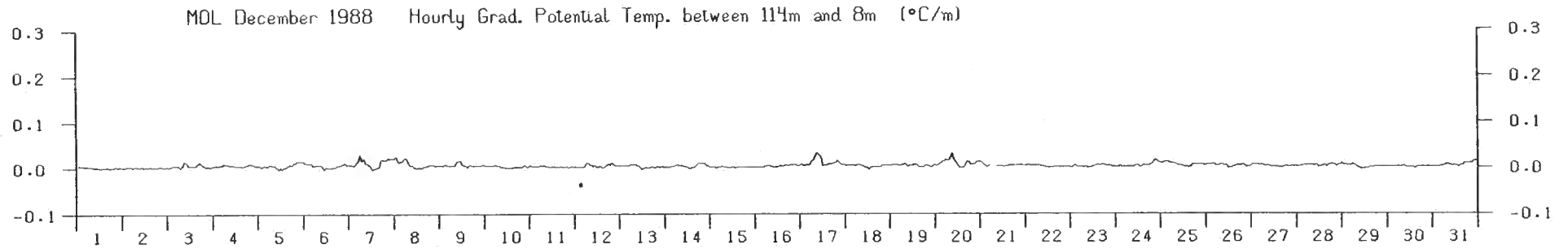


FIGURE 12 : MONTHLY AND YEARLY SURVEY OF THE (SIMULTANEOUS) AVAILABILITY OF THE HOURLY DATA.

F1 : winddirection 24 m-level
F2 : winddirection 69 m-level
F3 : winddirection 114 m-level
U1 : windspeed 24 m-level
U2 : windspeed 69 m-level
U3 : windspeed 114 m-level
E : S.C.K./C.E.N. stability category
F1U1 : winddirection 24 m and windspeed 24 m
F2U2 : winddirection 69 m and windspeed 69 m
F3U3 : winddirection 114 m and windspeed 114 m
F1U1E : winddirection 24 m and windspeed 24 m and stability category
F2U2E : winddirection 69 m and windspeed 69 m and stability category
F3U3E : winddirection 114 m and windspeed 114 m and stability category
POL. SUMM : April-September

	* F1	* F2	* F3	* U1	* U2	* U3	* E	* F1U1	* F2U2	* F3U3	* F1U1E	* F2U2E	* F3U3E
1/88	* 395	* 741	* 713	* 744	* 744	* 744	* 744	* 395	* 741	* 713	* 395	* 741	* 713
2/88	* 690	* 690	* 651	* 696	* 658	* 433	* 658	* 690	* 654	* 399	* 652	* 654	* 363
3/88	* 580	* 528	* 517	* 594	* 603	* 605	* 584	* 572	* 528	* 517	* 553	* 528	* 517
4/88	* 689	* 691	* 129	* 720	* 720	* 717	* 692	* 689	* 691	* 129	* 661	* 663	* 101
5/88	* 700	* 722	* 731	* 739	* 742	* 743	* 619	* 700	* 722	* 730	* 587	* 598	* 605
6/88	* 640	* 695	* 702	* 718	* 717	* 720	* 718	* 640	* 695	* 702	* 638	* 693	* 700
7/88	* 484	* 490	* 336	* 495	* 495	* 495	* 495	* 484	* 490	* 336	* 484	* 490	* 336
8/88	* 671	* 700	* 252	* 728	* 730	* 714	* 738	* 671	* 700	* 229	* 670	* 699	* 228
9/88	* 677	* 703	* 703	* 115	* 712	* 715	* 716	* 113	* 701	* 702	* 113	* 699	* 700
10/88	* 697	* 726	* 512	* 420	* 741	* 743	* 741	* 378	* 726	* 512	* 377	* 724	* 511
11/88	* 655	* 704	* 687	* 703	* 718	* 720	* 720	* 650	* 704	* 687	* 650	* 704	* 687
12/88	* 692	* 733	* 738	* 729	* 737	* 741	* 741	* 692	* 733	* 738	* 692	* 730	* 735

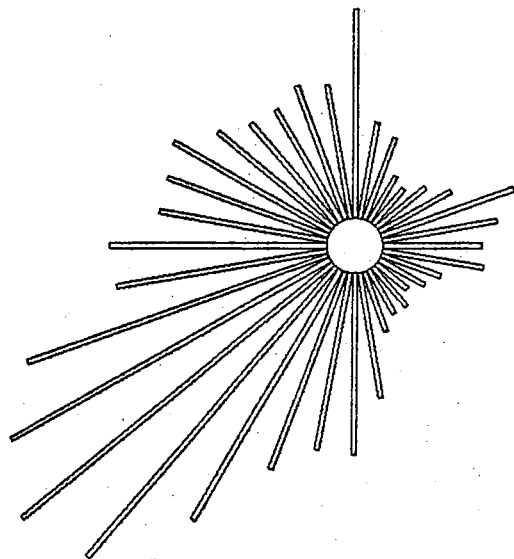
TOTAL *** * 7570 * 8123 * 6671 * 7401 * 8317 * 8090 * 8166 * 6674 * 8085 * 6394 * 6472 * 7923 * 6196
POL.SUMM 88 * 3861 * 4001 * 2853 * 3515 * 4116 * 4104 * 3978 * 3297 * 3999 * 2828 * 3153 * 3842 * 2670

FIGURE 13 : WINDROSES FOR THE 24 m-, 69 m- AND THE 114 m-LEVELS.

V : frequency of the hours with variable winddirection.

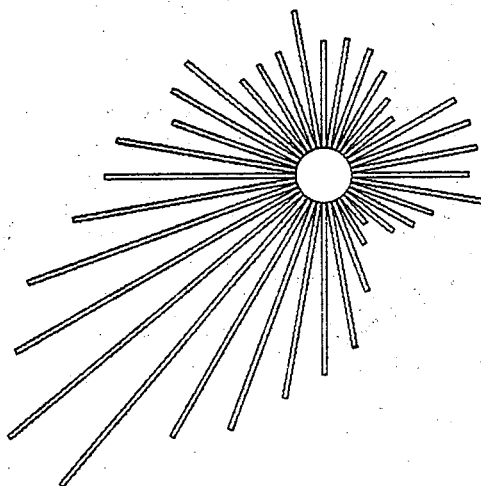
N : number of hourly data.

M : number of missing hourly data.



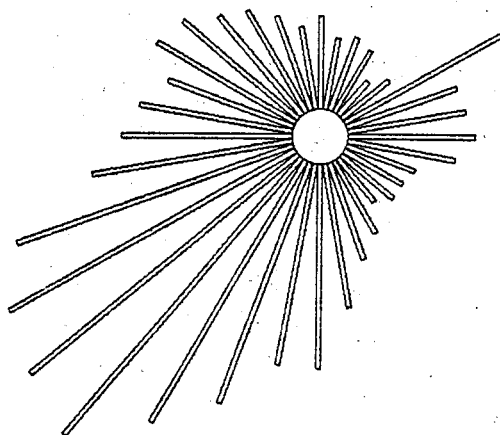
MOL 1988 at the 114m-level

V= 1.30 O= 0.00 N= 6759 M= 2025



MOL 1988 at the 69m-level

V= 1.93 O= 0.00 N= 8283 M= 501



MOL 1988 at the 24m-level

V= 3.62 O= 0.00 N= 7854 M= 930

FIGURE 14.1 and 14.2 : FREQUENCY OF OCCURRENCE AND AVERAGE WINDSPEED FOR THE DIFFERENT WINDDIRECTIONS SUBDIVIDED IN CLASSES OF TEN DEGREES (24 m-, 69 m- AND 114 m-LEVELS).

Dir : winddirection (10°-sectors)
N : number of hours with simultaneous data for windspeed and given direction
Freq : frequency of occurrence
Umean : average windspeed for the 10°-sector (m/s)
370 : variable winddirection
NT : total number of hours with simultaneous data for direction and windspeed, e.g. for the 24 m-level :
NT = 8056, Dir370 = 348, NT-Dir370 = 7708 corresponding to F1U1 in Figure 12.
M : total number of hours with non-simultaneously available windspeed and winddirection data.

MOL 1988 at the 24m-level

DIR	N	FREQ.	UMEAN
10	103	1.49	3.13
20	104	1.50	2.94
30	96	1.39	2.93
40	60	0.87	2.70
50	79	1.14	3.23
60	238	3.44	3.56
70	150	2.17	3.63
80	142	2.05	3.37
90	142	2.05	3.27
100	121	1.75	3.26
110	89	1.29	3.09
120	69	1.00	2.72
130	78	1.13	2.35
140	59	0.85	2.39
150	110	1.59	2.56
160	118	1.71	2.75
170	183	2.65	2.85
180	272	3.93	3.02
190	269	3.89	3.14
200	318	4.60	3.18
210	362	5.23	3.36
220	448	6.48	3.51
230	380	5.50	3.57
240	381	5.51	3.46
250	380	5.50	3.41
260	259	3.75	3.22
270	225	3.25	2.82
280	201	2.91	2.86
290	166	2.40	2.89
300	208	3.01	3.08
310	187	2.70	3.30
320	164	2.37	2.83
330	145	2.10	2.94
340	130	1.88	2.95
350	110	1.59	2.93
360	128	1.85	3.16
370	241	3.49	1.84
380	0	0.00	0.00

NT = 6915 M = 1869

370 = VARIABLE WINDDRICITION
 380 = WIND NULL
 UMEAN IN M/S

MOL 1988 at the 69m-level

DIR	N	FREQ.	UMEAN
10	166	2.02	4.71
20	159	1.94	4.63
30	137	1.67	4.59
40	106	1.29	4.77
50	91	1.11	4.66
60	182	2.21	5.60
70	188	2.29	5.37
80	188	2.29	5.21
90	173	2.11	4.99
100	196	2.39	5.16
110	129	1.57	5.06
120	110	1.34	4.48
130	91	1.11	4.13
140	55	0.67	4.40
150	79	0.96	4.85
160	144	1.75	5.08
170	223	2.71	5.30
180	255	3.10	5.19
190	290	3.53	5.56
200	359	4.37	5.94
210	404	4.92	6.09
220	559	6.80	6.12
230	559	6.80	6.36
240	482	5.87	5.97
250	423	5.15	5.91
260	335	4.08	5.40
270	282	3.43	4.80
280	269	3.27	4.87
290	196	2.39	4.60
300	217	2.64	5.02
310	223	2.71	4.97
320	145	1.76	4.70
330	150	1.83	4.66
340	152	1.85	4.26
350	209	2.54	4.31
360	159	1.94	4.58
370	132	1.61	2.02
380	0	0.00	0.00

NT = 8217 M = 567

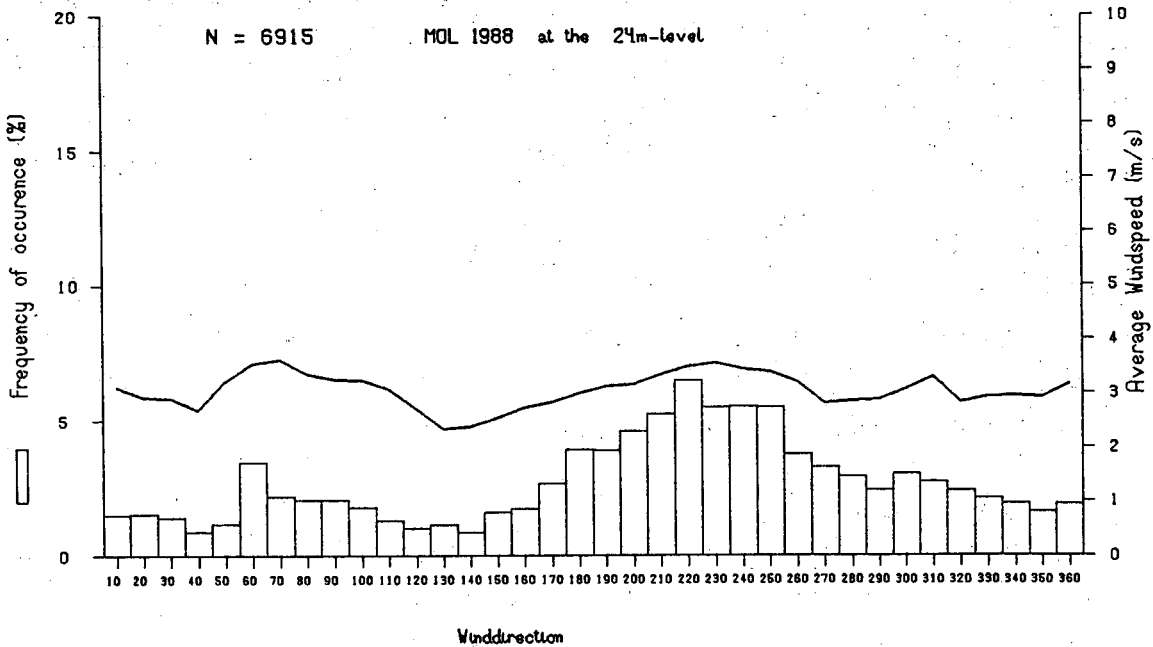
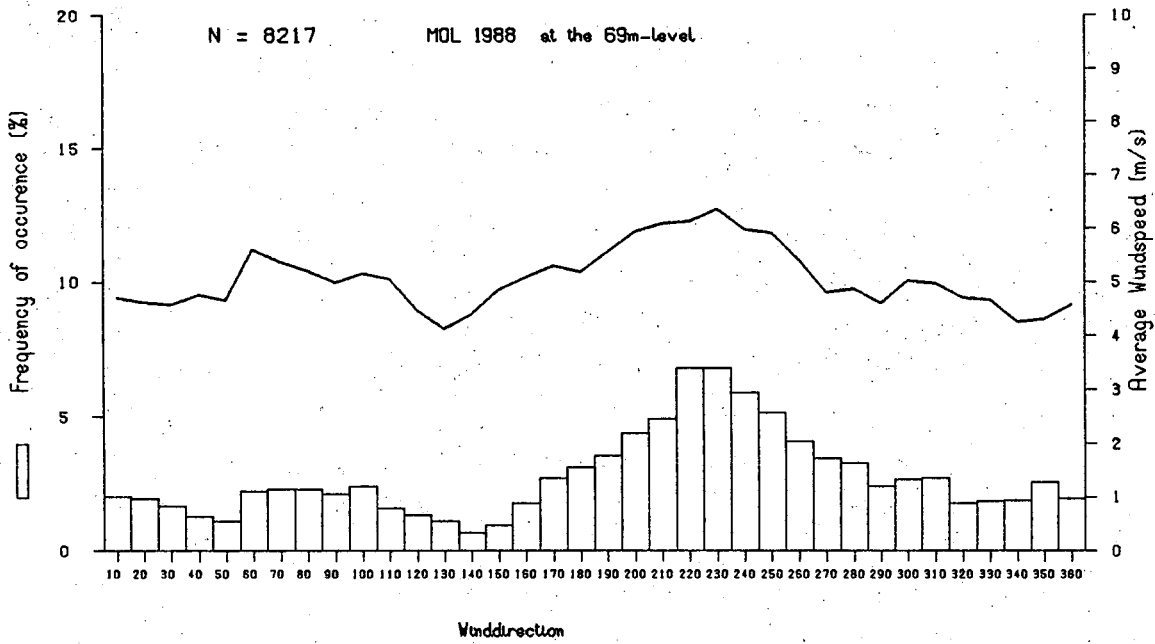
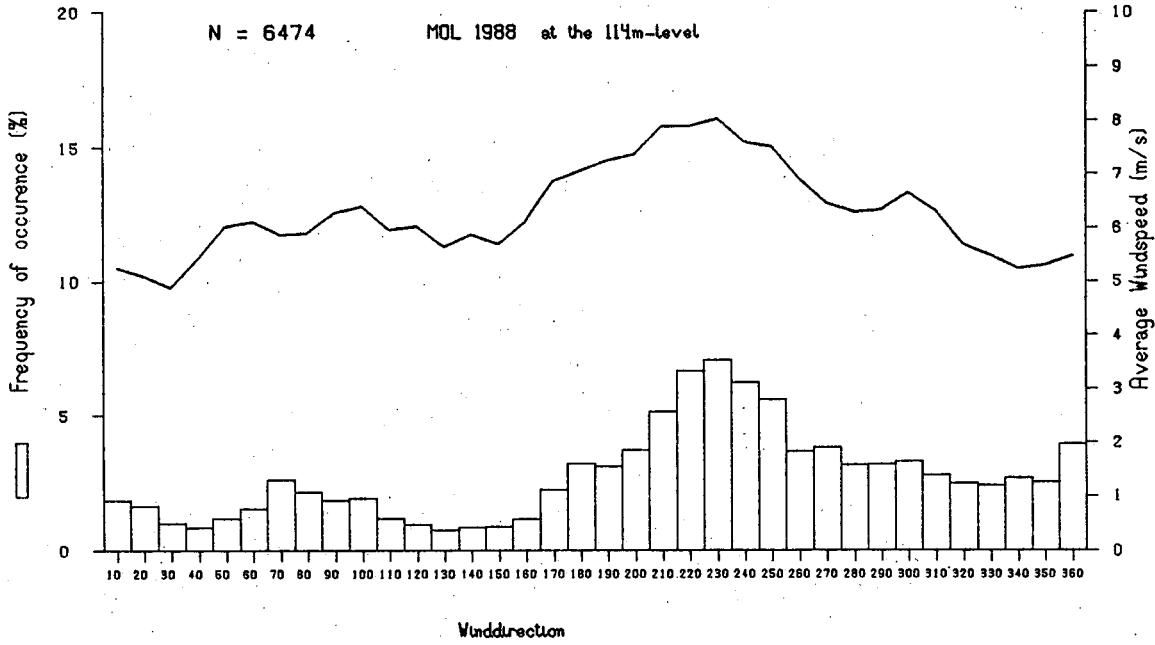
370 = VARIABLE WINDDRICITION
 380 = WIND NULL
 UMEAN IN M/S

MOL 1988 at the 114m-level

DIR	N	FREQ.	UMEAN
10	119	1.84	5.26
20	106	1.64	5.11
30	64	0.99	4.89
40	55	0.85	5.44
50	76	1.17	6.03
60	99	1.53	6.13
70	169	2.61	5.88
80	139	2.15	5.91
90	119	1.84	6.29
100	123	1.90	6.40
110	76	1.17	5.97
120	62	0.96	6.03
130	48	0.74	5.65
140	55	0.85	5.89
150	56	0.86	5.70
160	75	1.16	6.12
170	144	2.22	6.88
180	205	3.17	7.07
190	200	3.09	7.26
200	239	3.69	7.37
210	333	5.14	7.89
220	432	6.67	7.89
230	458	7.07	8.03
240	404	6.24	7.58
250	362	5.59	7.51
260	236	3.65	6.91
270	245	3.78	6.45
280	202	3.12	6.29
290	204	3.15	6.33
300	212	3.27	6.64
310	179	2.76	6.30
320	158	2.44	5.68
330	153	2.36	5.48
340	172	2.66	5.23
350	162	2.50	5.30
360	253	3.91	5.48
370	80	1.24	2.27
380	0	0.00	0.00

NT = 6474 M = 2310

370 = VARIABLE WINDDRICITION
 380 = WIND NULL
 UMEAN IN M/S



FIGURES 15.1 TO 15.3 : DISTRIBUTION OF THE HOURLY WINDSPEED AT THE 24 m-,
69 m- AND 114 m-LEVEL WITHIN 45°-SECTORS.

SECT = 45	means	NE - sector	from	23°	to	67°
SECT = 90		E - sector		68°	to	112°
SECT = 135		SE - sector		113°	to	157°
SECT = 180		S - sector		158°	to	202°
SECT = 225		SW - sector		203°	to	247°
SECT = 270		W - sector		248°	to	292°
SECT = 315		NW - sector		293°	to	337°
SECT = 360		N - sector		338°	to	22°

\bar{U} : average windspeed (m/s) based on the available N hourly values for the given sector.

$\overline{1/U}$: average of the available N hourly values for the given sector.

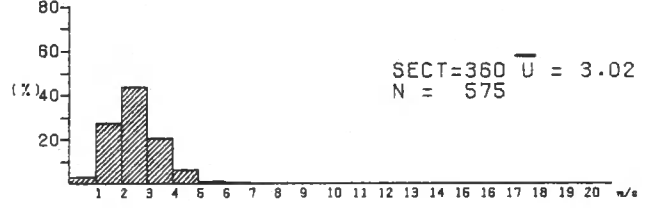
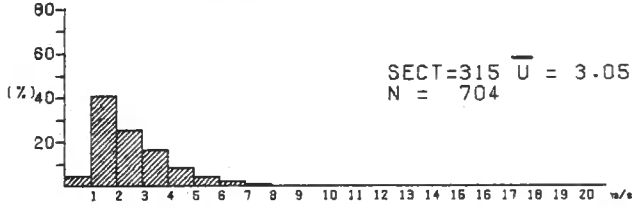
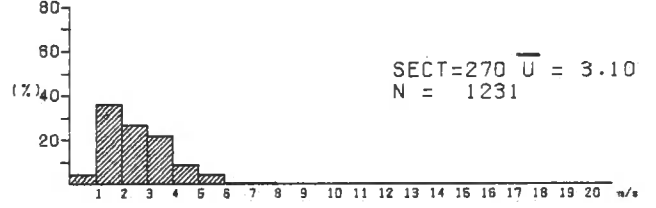
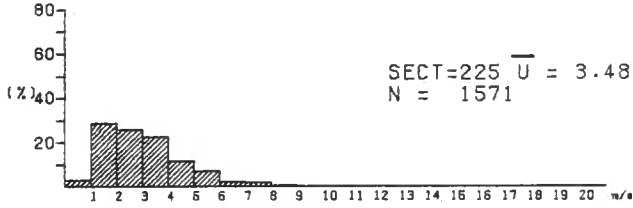
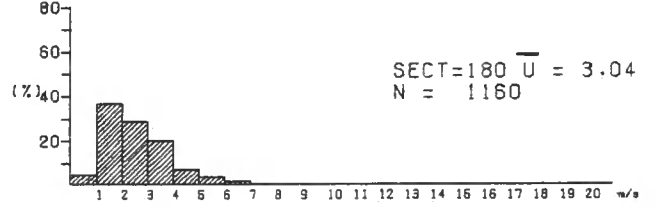
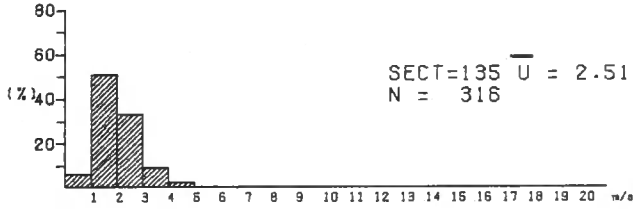
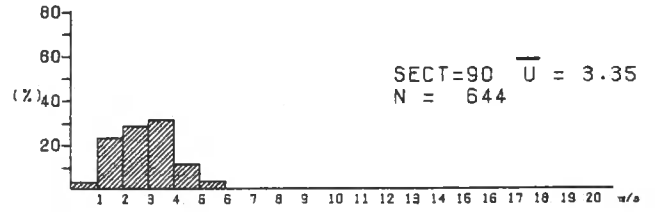
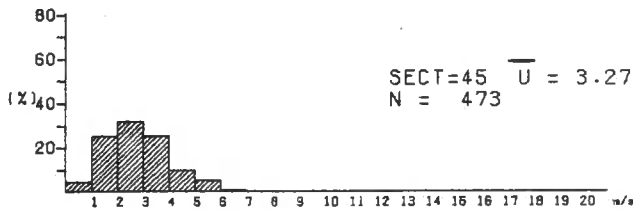
The upper part of each figure gives histograms with on the abscissa windspeed classes of 1 m/s and in ordinate the frequency of occurrence within the given sector.

The lower part of each figure represents 45°-sectorial cumulative frequency distributions of $1/u$ with on the abscissa probability not to exceed the value given in ordinate.

WS 24 m

MOL 1988 at the 24m-level

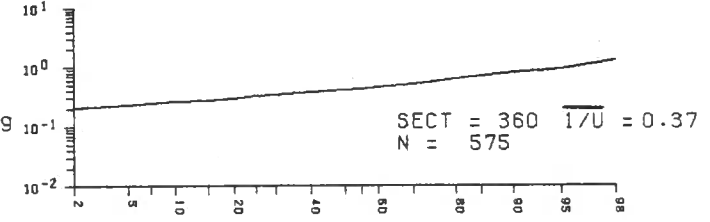
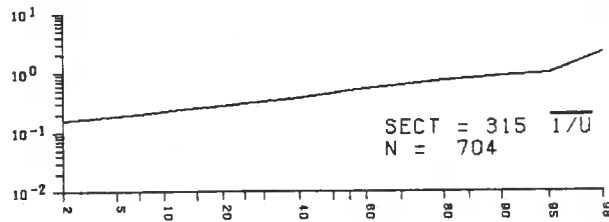
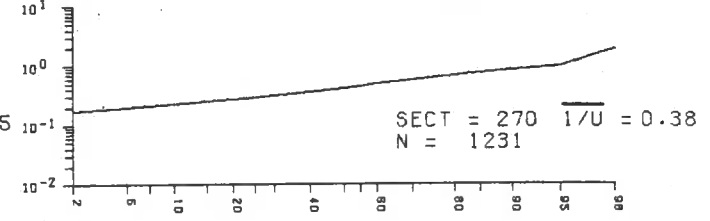
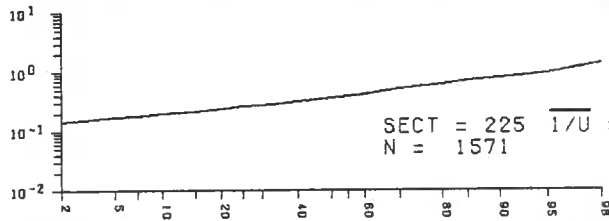
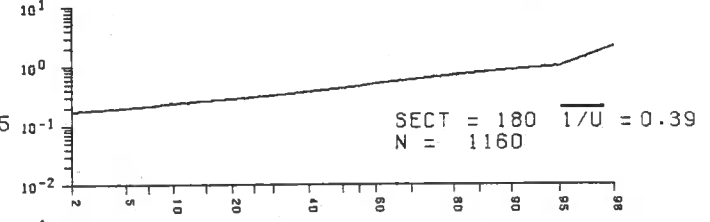
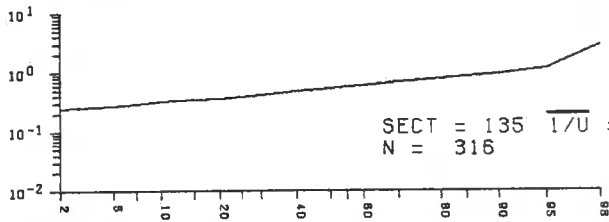
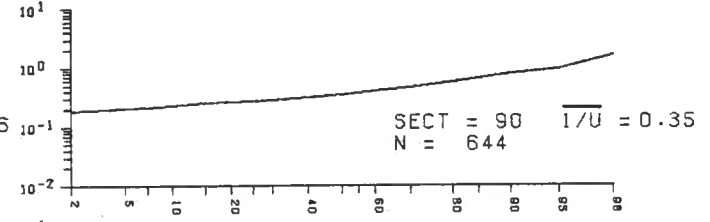
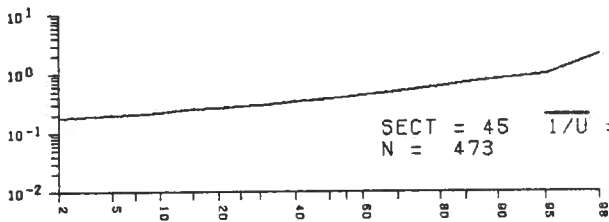
NT = 6674



WS 24 M

MOL 1988 at the 24m-level

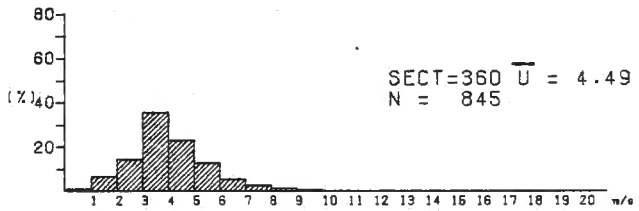
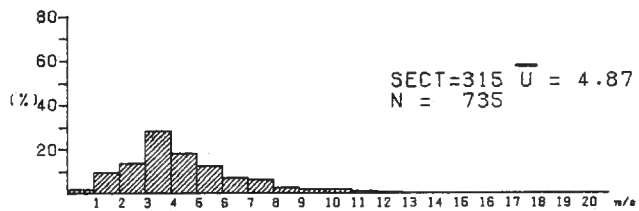
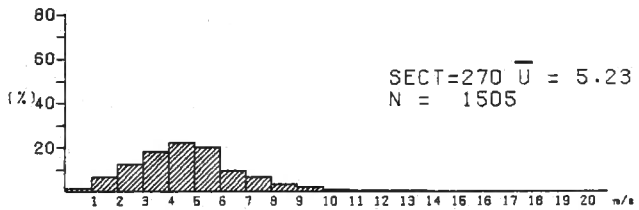
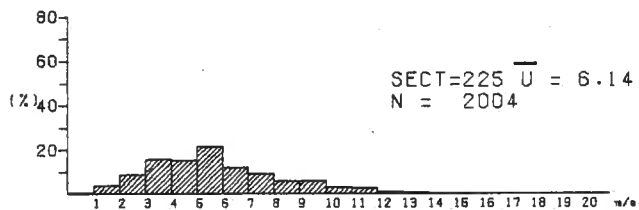
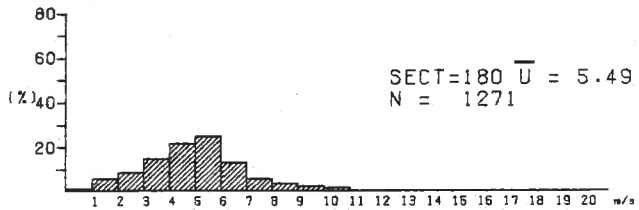
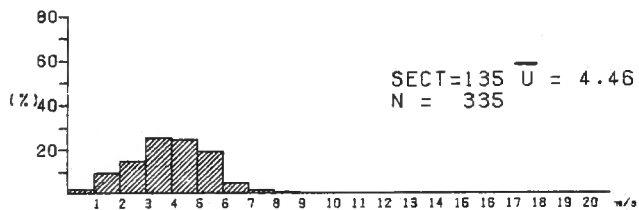
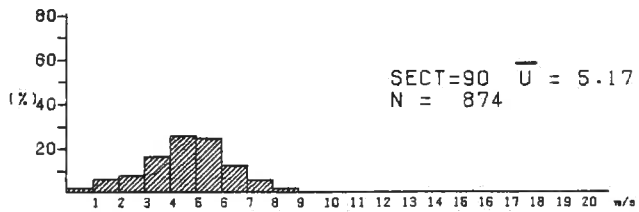
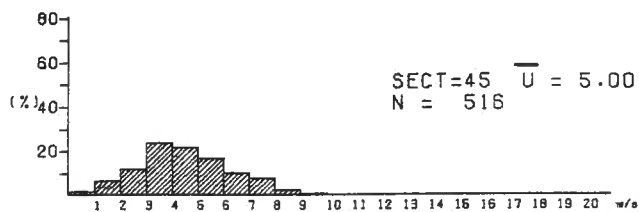
NT = 6674



WS 69 m

MDL 1988 at the 69m-level

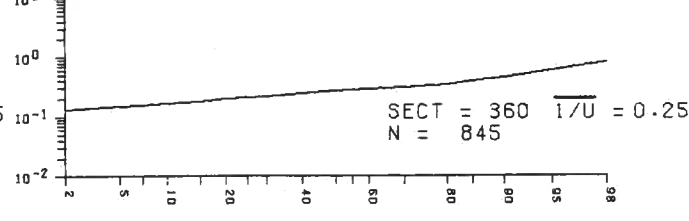
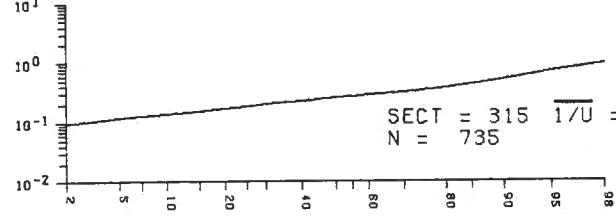
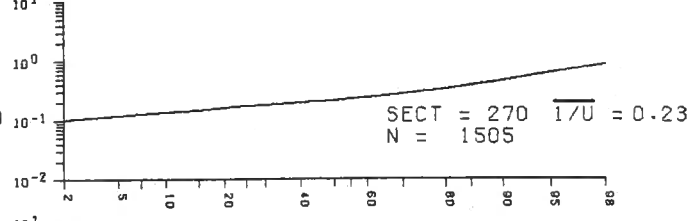
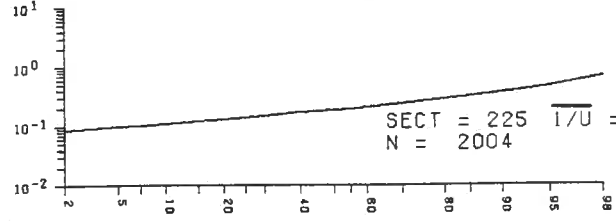
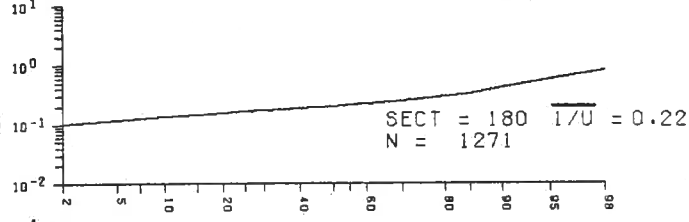
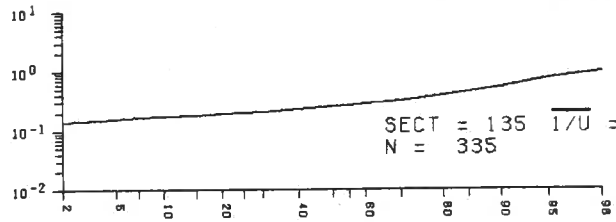
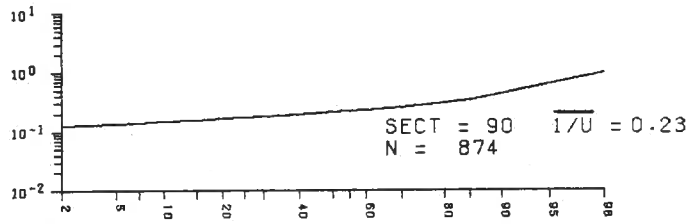
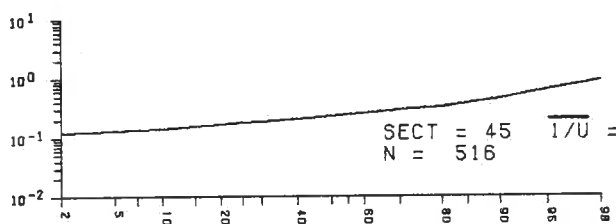
NT = 8085



WS 69 M

MDL 1988 at the 69m-level

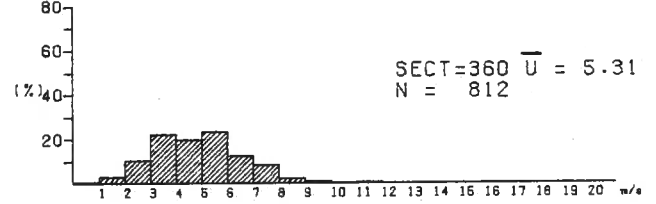
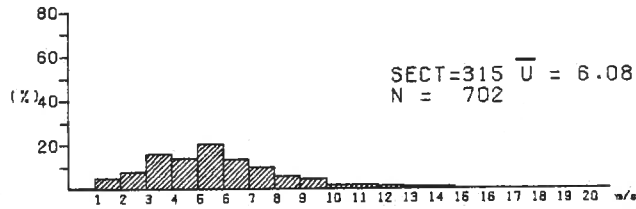
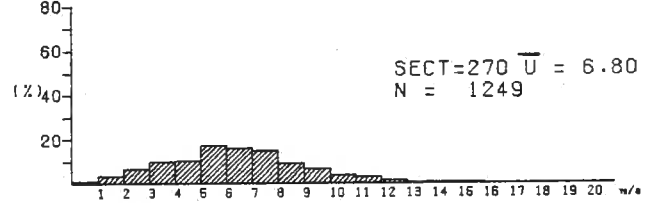
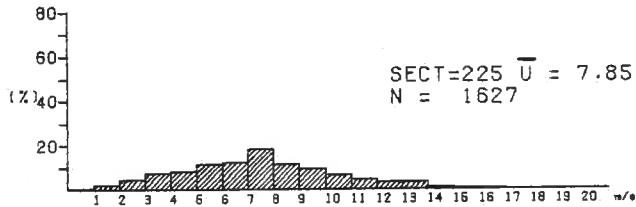
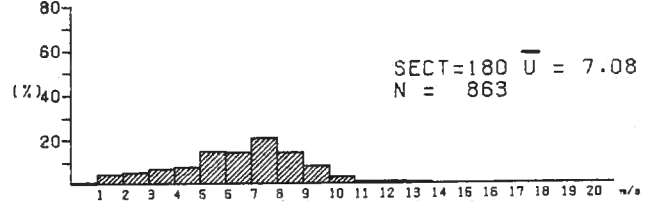
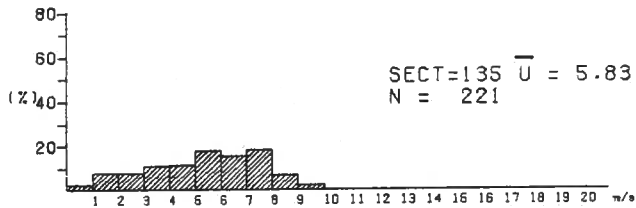
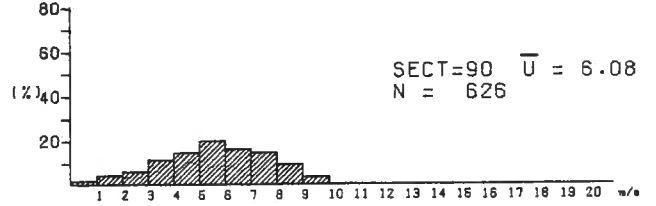
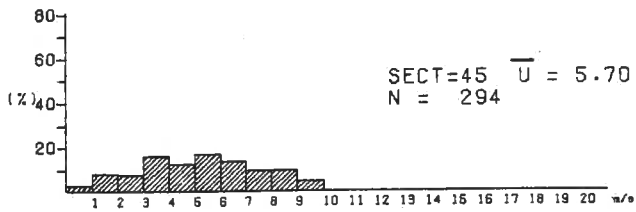
NT = 8085



WS 114m

MOL 1988 at the 114m-level

NT = , 6394



WS 114 M

MOL 1988 at the 114m-level

NT = 6394

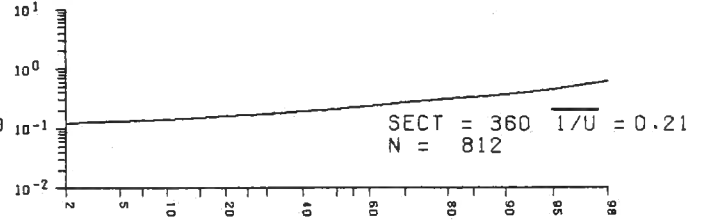
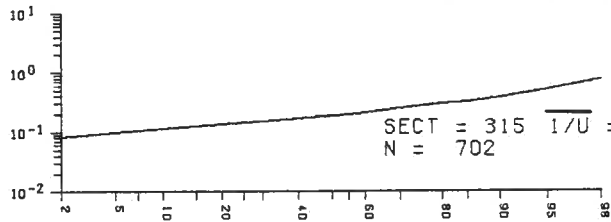
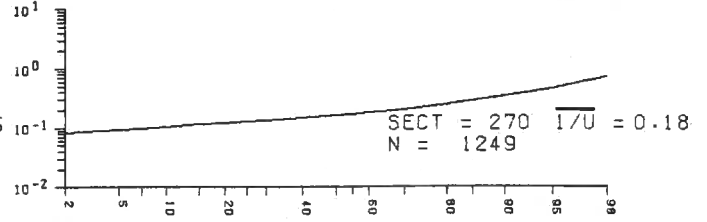
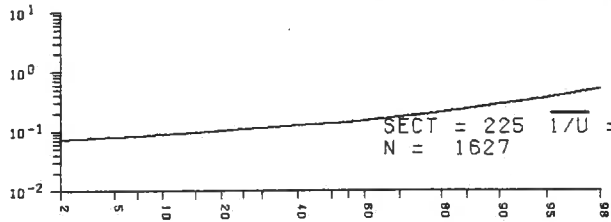
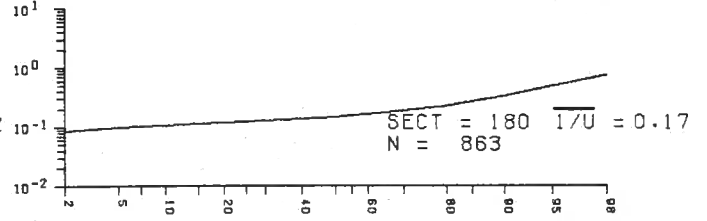
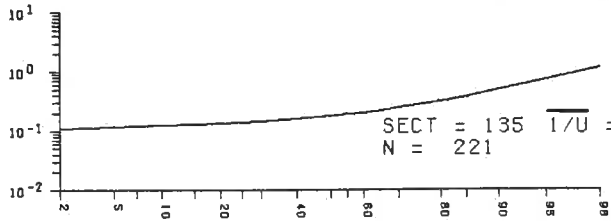
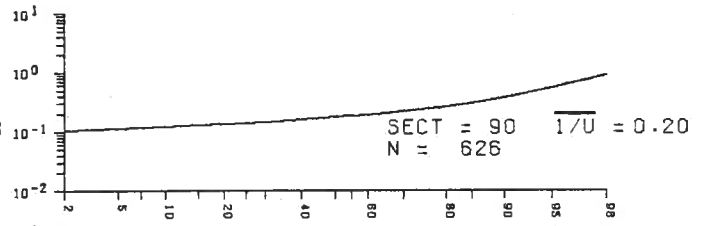
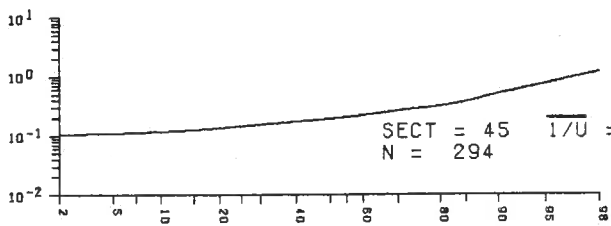


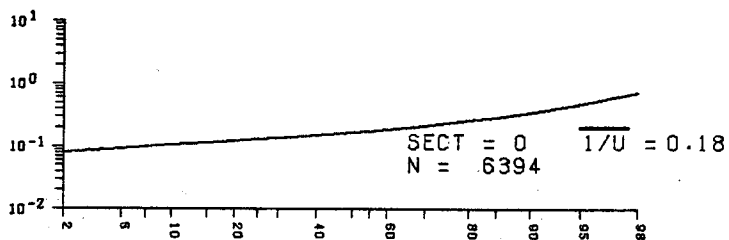
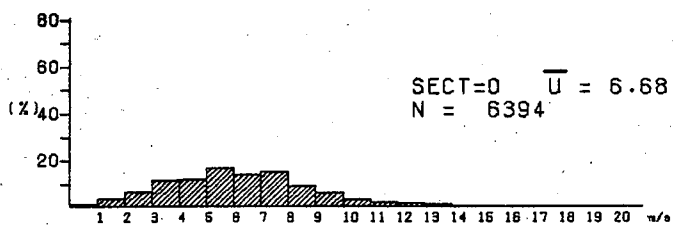
FIGURE 16 : OVERALL DISTRIBUTION OF THE HOURLY WINDSPEED AT THE 24 m-,
69 m- AND 114 m-LEVELS.

SECT = 0 means all winddirections

WS 114m

MOL 1988 at the 114m-level

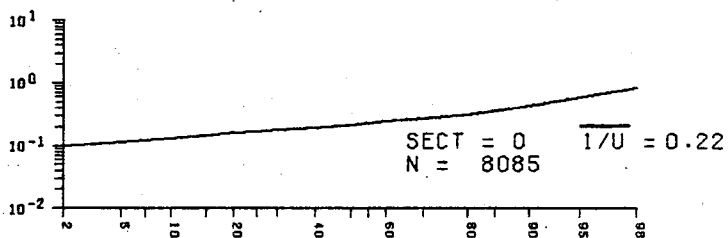
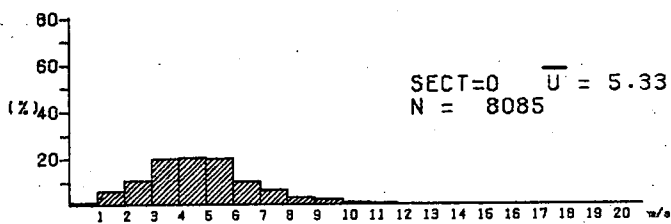
NT = 6394



WS 69 m

MOL 1988 at the 69m-level

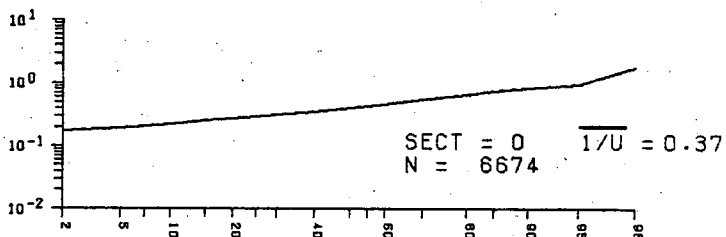
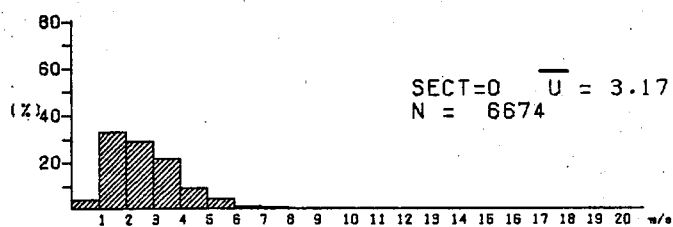
NT = 8085



WS 24 m

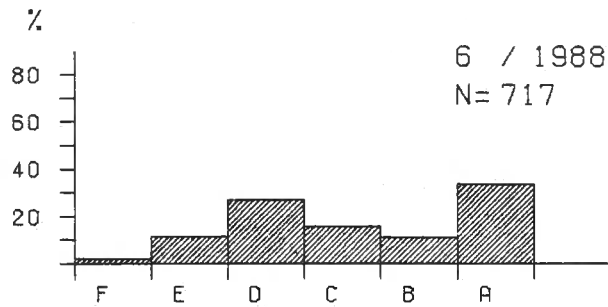
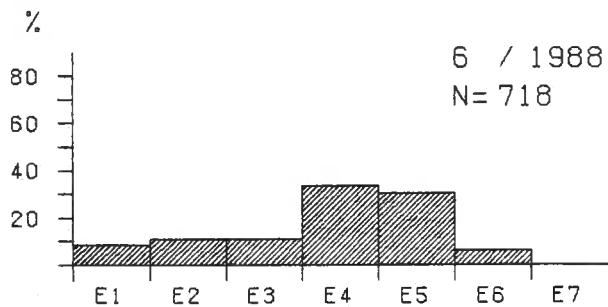
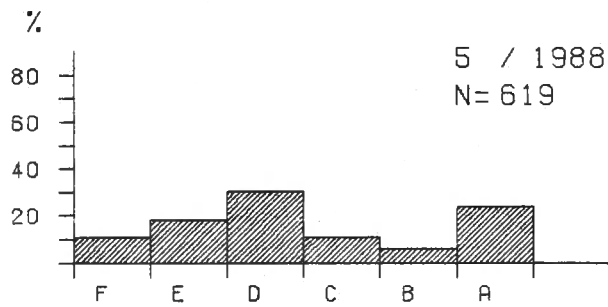
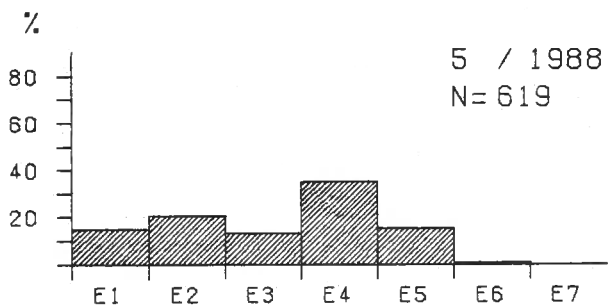
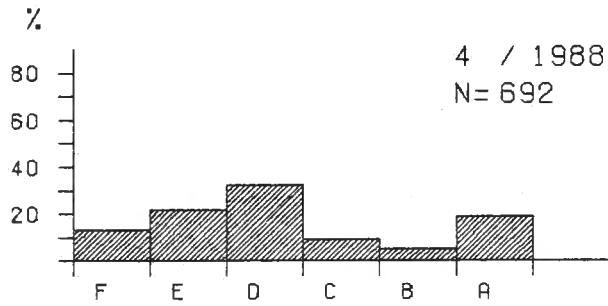
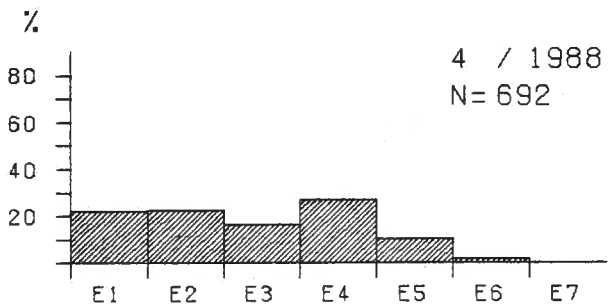
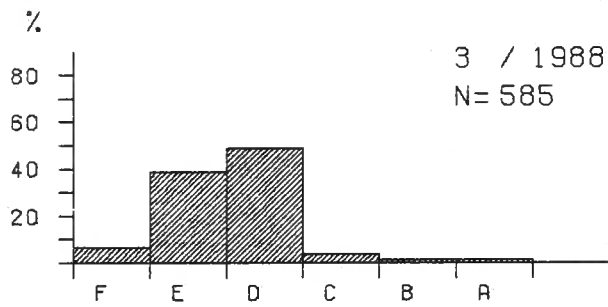
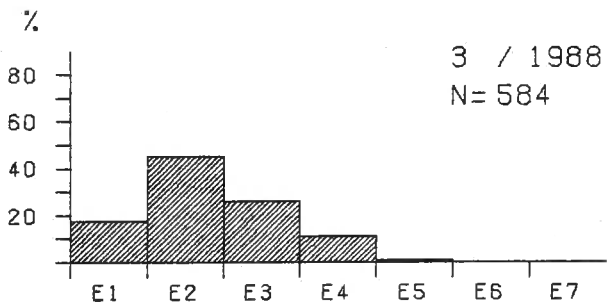
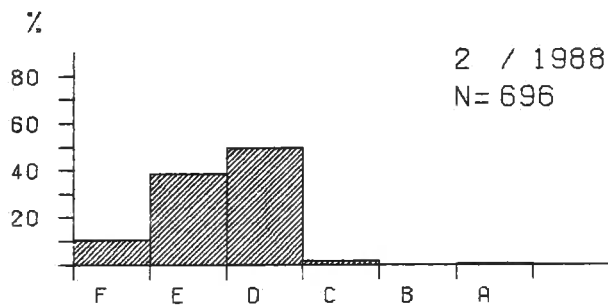
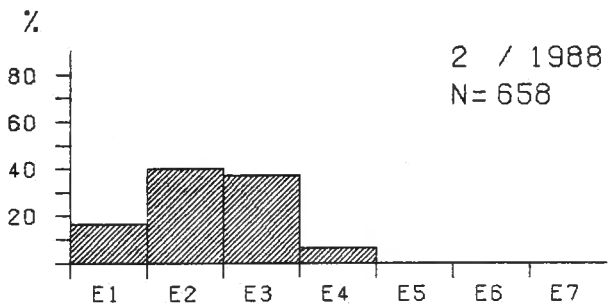
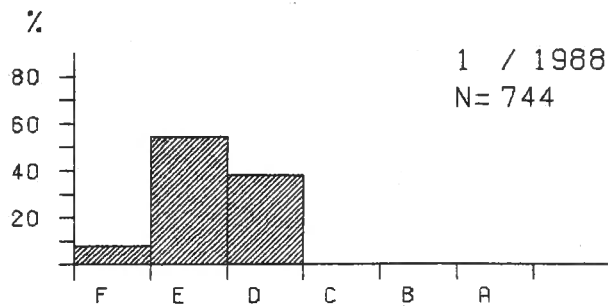
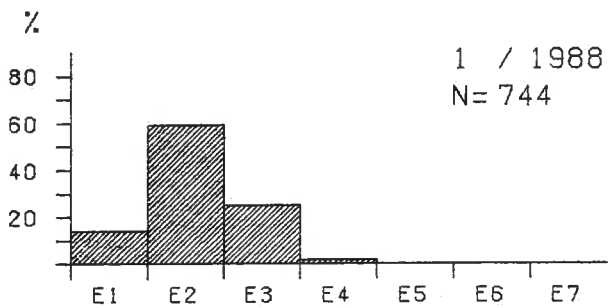
MOL 1988 at the 24m-level

NT = 6674



FIGURES 17.1 and 17.2 : MONTHLY DISTRIBUTION OF THE HOURLY STABILITY CATEGORIES IN RESPECTIVELY THE S.C.K./C.E.N. AND THE PASQUILL TURBULENCE TYPING SCHEME.

- E1 (S.C.K./C.E.N.) and F (Pasquill) are the most stable situations.
- E3 and D represent the neutral cases.
- E6 and A are the most unstable situations.
- E7 deals with neutral cases, characterised by 69 m-level windspeed larger than 11,4 m/s.



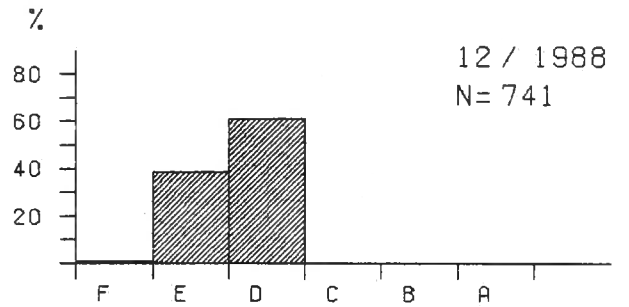
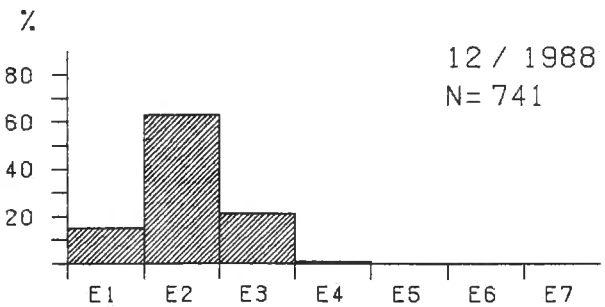
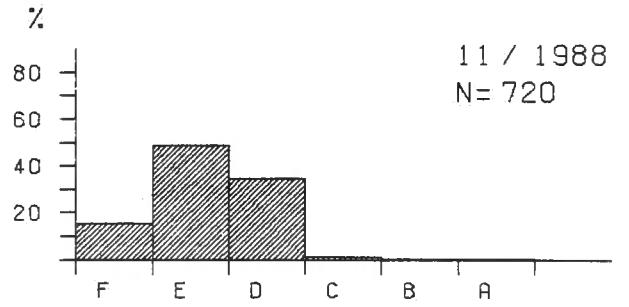
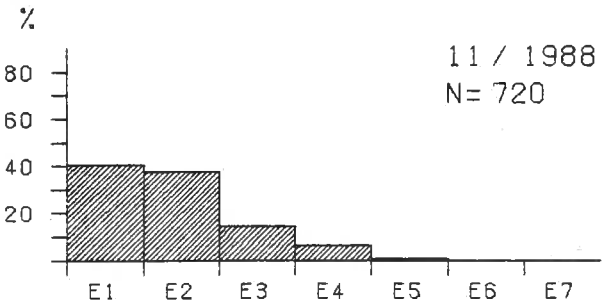
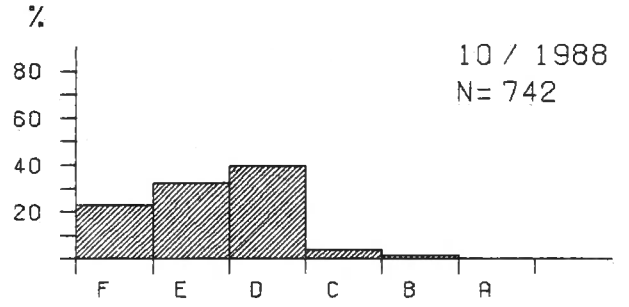
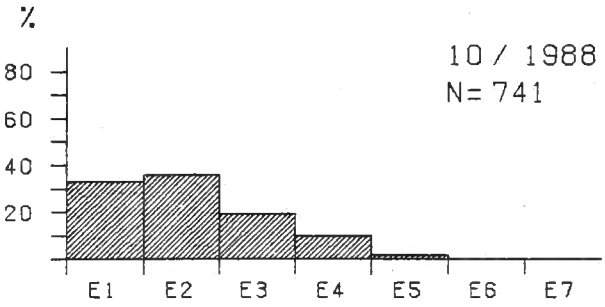
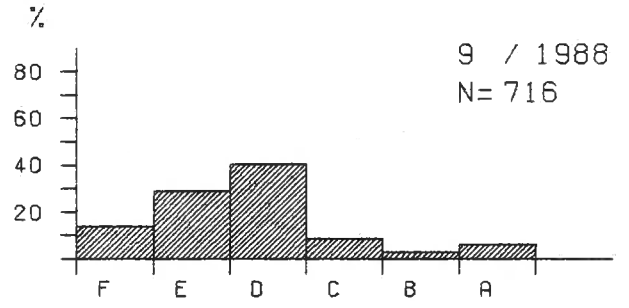
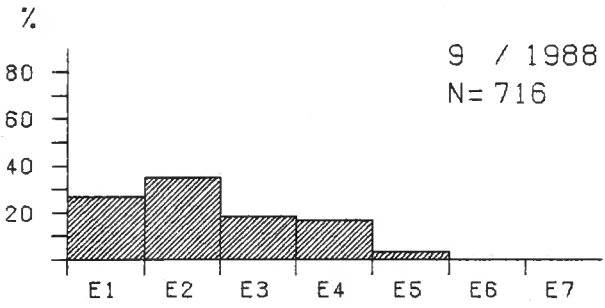
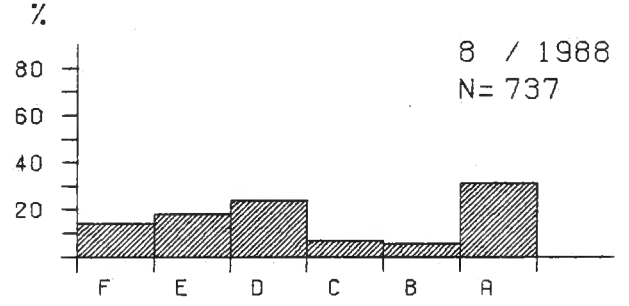
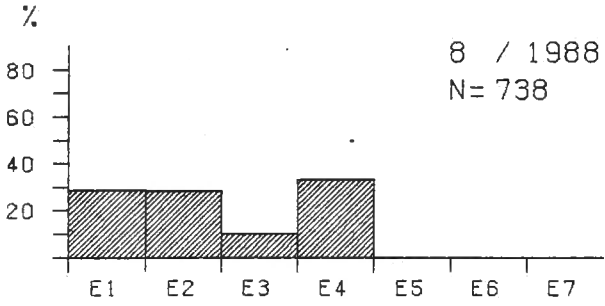
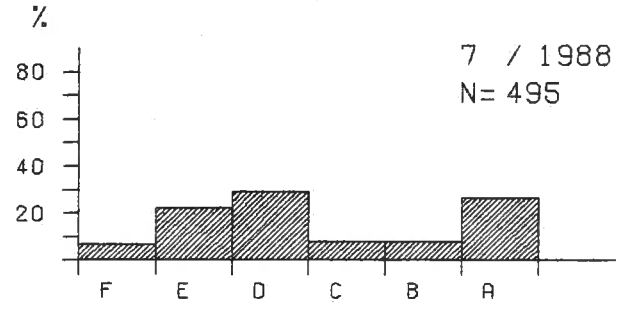
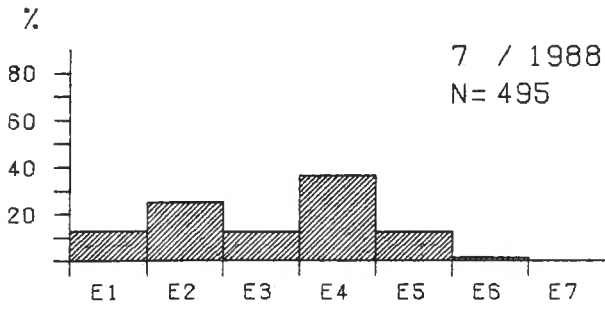
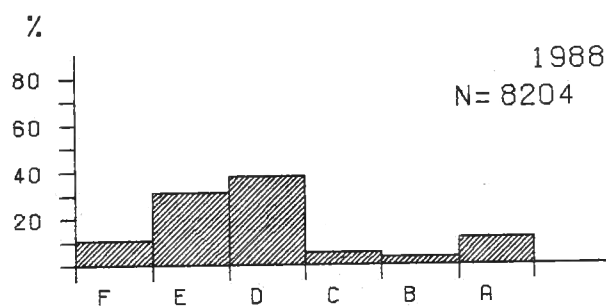
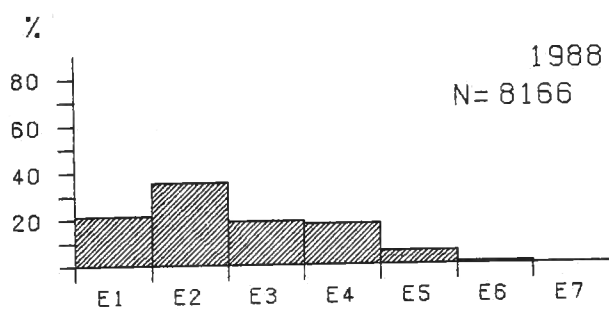


FIGURE 18 : YEARLY DISTRIBUTION OF THE HOURLY STABILITY CATEGORIES IN THE S.C.K./C.E.N. AND THE PASQUILL TURBULENCE TYPING SCHEME.



FIGURES 19.1 AND 19.2 : DURATION AND AMOUNT OF RAINFALL AS A FUNCTION OF THE
24 m-LEVEL WINDDIRECTION.

370 variable winddirection.

390 rainfall during hours with missing winddirection.

	HOURS	MM
10	2.2	3.9
20	2.3	1.5
30	3.1	3.3
40	1.1	1.1
50	2.2	1.8
60	2.9	4.1
70	2.1	3.0
80	2.3	4.0
90	3.0	5.7
100	1.4	2.9
110	0.7	0.6
120	4.2	5.3
130	7.4	8.5
140	5.3	5.6
150	10.3	24.7
160	6.1	9.7
170	7.4	19.3
180	15.7	31.5
190	10.8	14.8
200	31.1	46.8
210	17.8	25.7
220	20.8	38.2
230	17.7	27.7
240	23.6	38.2
250	17.1	28.6
260	21.1	39.8
270	11.7	17.3
280	8.3	9.8
290	10.3	21.5
300	11.9	19.0
310	12.8	16.5
320	7.4	12.9
330	6.8	8.5
340	3.5	9.2
350	1.6	2.6
360	5.2	8.3
370	11.8	37.5
390	59.8	119.4

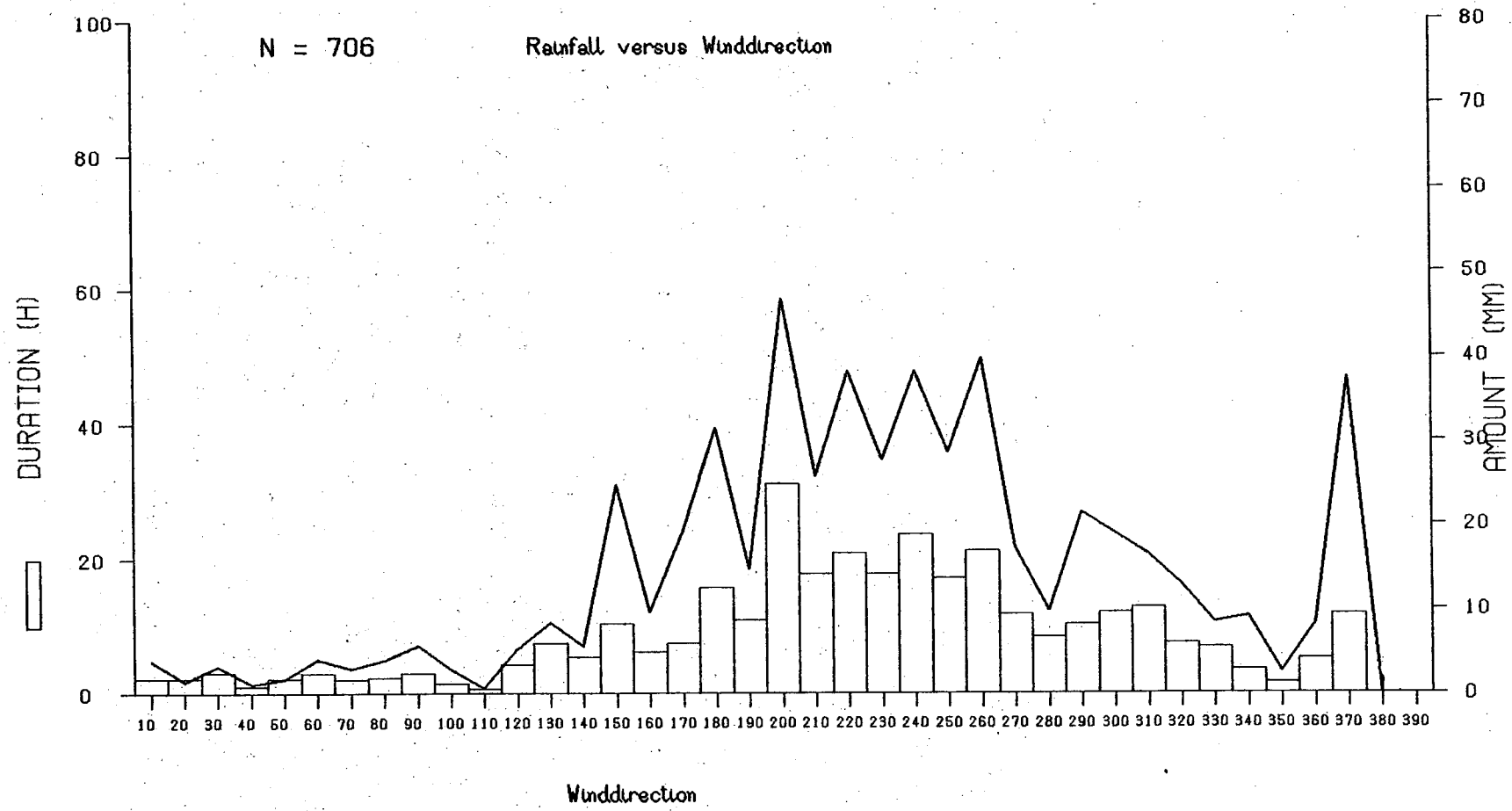


FIGURE 20 : YEARLY DISTRIBUTION OF THE S.C.K./C.E.N. STABILITY CATEGORIES
WITHIN 45°-SECTORS

The sectors have the same meaning as those of the figures 15.1 to 15.3.

The upper part gives the absolute numbers, the lower one the frequency of occurrence within each sector.

VAR means variable winddirection.

Mol 1988 at the 69 m-level

SECT.	E1	E2	E3	E4	E5	E6	E7	TOT.
045	142	221	138	136	57	7	0	701
090	184	194	68	144	40	0	0	630
135	210	156	23	55	18	1	0	463
180	262	506	145	120	43	1	4	1081
225	365	974	578	335	61	5	68	2386
270	191	409	186	211	67	8	4	1076
315	191	274	158	169	62	10	8	872
360	98	147	125	201	117	4	0	692
VAR	65	9	2	38	23	22	0	159
TOT.	1708	2890	1423	1409	488	58	84	8060

SECT.	E1	E2	E3	E4	E5	E6	E7	TOT.
045	20.3	31.5	19.7	19.4	8.1	1.0	0.0	100.0
090	29.2	30.8	10.8	22.9	6.3	0.0	0.0	100.0
135	45.4	33.7	5.0	11.9	3.9	0.2	0.0	100.0
180	24.2	46.8	13.4	11.1	4.0	0.1	0.4	100.0
225	15.3	40.8	24.2	14.0	2.6	0.2	2.8	100.0
270	17.8	38.0	17.3	19.6	6.2	0.7	0.4	100.0
315	21.9	31.4	18.1	19.4	7.1	1.1	0.9	100.0
360	14.2	21.2	18.1	29.0	16.9	0.6	0.0	100.0
VAR	40.9	5.7	1.3	23.9	14.5	13.8	0.0	100.0
TOT.	21.2	35.9	17.7	17.5	6.1	0.7	1.0	100.0

APPENDIX : COPIES OF THREE DIFFERENT DATA LISTINGS

EXAMPLE WITH RESPECT TO THE YEAR FILE (LOCAL TIME)

Consecutively :

First line

DAY, MONTH, YEAR, HOUR, MINUTES

TEMPERATURE at 8 m, 24 m, 49 m, 78 m and 114 m (°C)

MEASURED respectively CALCULATED STABILITY CATEGORY

WINDSPEEDS at 24 m, 49 m, 69 m, 78 m and 114 m (m/s)

Second line

WINDDIRECTIONS (30 min - average + 1 min extreme values) at 24 m, 69 m and 114 m (°)

For the 24 m-, 69 m- and 114 m-levels the VECTORIAL WINDSPEED and WINDDIRECTION together with the VARIABILITY PARAMETER

EXAMPLE WITH RESPECT TO THE METEO DATA BANK (GMT-TIME)

Consecutively on the only line :

82

DAY, MONTH, YEAR, HOUR

WINDSPEEDS at 24 m, 69 m and 114 m (m/s)

WINDDIRECTIONS at 24 m, 69 m and 114 m (10°)

WINDSPEEDS at 24 m, 49 m, 78 m and 114 m (0,1 m/s)

TEMPERATURES at 8 m, 24 m, 49 m, 78 m and 114 m (0,1°C)

INDEX for dry (0) or wet (1) weather

CALCULATED STABILITY CATEGORY INDEX

EXAMPLE OF A SYNOPTIC OUTPUT

Explanation of the symbols

TEMP : temperature (°C)

WS : windspeed (m/s)

E : stability category index

WD : winddirection (°)

WSV : vectorial windspeed (m/s)

WDV : vectorial winddirection (°)

S : variability parameter

EXAMPLE WITH RESPECT TO THE YEAR FILE (LOCAL TIME)

2 788 5 0	9.3	9.4	10.0	10.5	10.3	1 2	2.8	4.9	6.0	6.6	8.3			
198 182 212	211 207 216	218 213 225					2.8 198	921	6.0	211 968	8.3 217	967	0*	
2 788 530	9.0	9.2	9.8	10.3	10.2	1 1	2.7	4.8	6.0	6.6	8.0			
178 165 197	194 188 204	202 197 214					2.7 179	921	5.9	194 955	8.0 202	943	0*	
2 788 6 0	9.4	9.4	10.0	10.6	10.5	2 2	3.0	5.4	6.7	7.4	9.1			
184 174 193	194 190 199	199 190 207					3.0 184	939	6.7	194 973	9.1 199	944	0*	
2 788 630	10.3	10.2	10.6	10.8	10.5	2 2	3.1	5.0	6.3	7.0	9.2			
191 172 207	198 192 205	199 194 204					3.1 191	911	6.3	198 962	9.2 199	970	0*	
2 788 7 0	10.7	10.6	10.7	10.6	10.2	2 2	2.8	4.3	5.5	6.0	7.7			
193 168 222	200 177 214	205 182 218					2.7 194	840	5.4	200 889	7.6 205	896	0*	
2 788 730	11.1	10.9	11.0	11.1	10.5	2 2	2.6	4.1	5.0	5.5	7.0			
173 151 198	180 175 186	183 178 193					2.6 173	894	5.0	180 965	7.0 183	958	0*	
2 788 8 0	11.8	11.5	11.6	11.6	10.8	2 3	2.3	3.8	4.5	4.9	6.2			
176 160 198	184 174 192	181 177 187					2.2 177	891	4.5	184 958	6.2 181	977	0*	
2 788 830	13.1	12.8	12.9	12.5	11.6	2 4	3.7	4.9	5.3	5.5	6.0			
191 165 212	193 179 204	184 170 192					3.6 193	871	5.2	193 922	6.0 184	942	0*	
2 788 9 0	14.0	13.8	13.7	13.0	12.1	3 4	3.9	5.3	5.8	6.0	6.4			
197 170 225	201 184 218	194 185 202					3.8 197	851	5.7	201 917	6.4 194	951	0*	
2 788 930	14.7	14.4	14.2	13.4	12.5	4 4	3.9	5.4	5.7	5.9	6.1			
202 165 233	200 181 219	194 176 205					3.8 202	830	5.6	200 912	6.0 195	907	0*	
2 788 10 0	14.8	14.6	14.3	13.7	12.8	4 4	3.3	5.0	5.3	5.5	5.8			
199 161 224	202 176 220	194 179 206					3.2 199	831	5.2	202 886	5.7 194	925	0*	
2 788 1030	16.1	15.6	15.2	14.4	13.4	4 4	4.1	5.8	6.4	6.7	7.0			
197 152 232	201 174 225	198 184 217					4.0 199	817	6.3	201 886	6.9 198	886	0*	
2 788 11 0	15.8	15.5	15.2	14.6	13.6	4 4	4.0	6.2	6.7	7.0	7.4			
201 168 220	200 174 213	194 179 208					3.9 202	845	6.6	200 893	7.4 193	920	0*	
2 788 1130	16.0	15.6	15.4	14.8	13.9	3 4	4.4	6.3	6.9	7.1	7.8			
194 166 224	198 184 216	195 180 210					4.3 195	870	6.8	198 912	7.8 195	925	0*	
2 788 12 0	16.2	15.8	15.5	15.1	14.2	3 4	4.1	6.1	7.0	7.4	8.0			
206 188 231	209 189 233	204 188 218					4.0 206	872	6.9	209 887	7.9 205	913	0*	
2 788 1230	15.6	15.4	15.1	14.6	13.7	3 4	4.3	6.3	7.2	7.6	8.5			
194 168 229	192 177 210	190 173 213					4.2 193	857	7.1	192 908	8.4 189	900	0*	
2 788 13 0	15.1	14.6	14.4	13.9	13.0	4 4	4.5	5.9	6.4	6.8	7.6			
214 194 239	216 199 232	210 189 222					4.4 214	893	6.3	216 909	7.5 209	920	0*	
2 788 1330	16.0	15.4	15.1	14.6	13.6	4 5	3.6	4.3	4.5	4.7	4.8			
217 172 252	216 198 236	204 179 221					3.4 217	831	4.5	216 889	4.8 204	888	0*	
2 788 14 0	16.4	16.0	15.7	15.2	14.2	3 4	3.9	5.3	5.9	6.1	6.4			
189 160 221	195 167 213	190 170 204					3.8 188	838	5.8	195 878	6.3 190	898	0*	

EXAMPLE WITH RESPECT TO THE METEO DATA BANK (GMT-TIME)

C	D	M	Y	H	U1	U2	U3	F1	F2	F3	A1	A2	A3	A4	A5	A6	T1	T2	T3	T4	T5	T6	M1	M2	M3	T	C1	C2	C3	T1	T2	T3	E
82	04	9	88	00	02	05	07	22	24	25			021	040	054	074		107	111	116	118	113				0							1
82	04	9	88	01	03	06	08	22	24	24			027	048	064	084		105	108	112	116	110				0							2
82	04	9	88	02	02	06	08	22	23	24			024	044	061	080		104	106	109	112	108				0							2
82	04	9	88	03	03	06	08	21	22	23			026	046	061	078		104	104	107	109	103				0							2
82	04	9	88	04	02	05	07	20	22	23			024	043	057	073		100	101	103	106	100				0							2
82	04	9	88	05	02	05	07	19	21	22			024	043	056	071		097	099	101	104	098				0							2
82	04	9	88	06	02	05	07	19	21	22			024	042	056	071		099	098	100	101	094				0							1
82	04	9	88	07	02	04	06	22	22	23			021	040	046	059		112	111	110	109	098				0							2
82	04	9	88	08	02	04	04	21	22	23			023	034	036	039		135	131	129	126	114				0							2
82	04	9	88	09	03	04	04	24	24	24			029	040	038	040		155	147	144	140	129				0							4
82	04	9	88	10	03	04	05	24	24	24			030	042	043	046		170	164	157	153	141				0							4
82	04	9	88	11	02	04	04	22	23	23			022	035	038	044		173	165	161	158	146				0							4
82	04	9	88	12	03	05	05	22	23	23			032	044	045	049		190	177	174	170	158				0							4
82	04	9	88	13	03	05	05	20	21	21			030	045	046	050		189	179	175	171	160				0							4
82	04	9	88	14	02	04	04	23	23	23			024	035	035	038		184	177	174	170	159				0							4
82	04	9	88	15	02	04	04	20	21	22			024	035	034	038		194	183	180	177	166				0							4
82	04	9	88	16	02	04	04	21	22	22			021	036	039	045		173	170	168	166	155				0							3
82	04	9	88	17	02	04	05	20	21	21			016	035	041	051		170	168	166	164	153				0							2
82	04	9	88	18	01	04	05	19	21	21			011	035	040	048		155	157	160	159	150				0							1
82	04	9	88	19	01	04	04	17	21	22			012	034	037	042		136	149	156	158	148				0							1
82	04	9	88	20	01	04	04	17	21	22			012	033	034	037		125	145	156	158	148				0							1
82	04	9	88	21	01	04	05	19	23	25			008	033	042	050		121	142	151	153	146				0							1
82	04	9	88	22	01	04	05	18	23	24			012	038	041	047		124	131	145	151	144				0							1
82	04	9	88	23	01	05	04	18	22	23			014	043	043	043		119	127	145	150	143				0							1

EXAMPLE WITH RESPECT TO SYNOPTIC DATA (LOCAL TIME)

HOOGTE	8M	24M	49M	69M	78M	114M
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DATUM 3/ 1/88 OM 16 U 0

TEMP	8.3	8.0	8.0		7.8	7.6
WS		7.8		11.8	12.8	14.6
E				7		
WD				228		233
WSV				11.8		14.6
WDV				228		233
S				.956		.969

DATUM 3/ 1/88 OM 16 U 30

TEMP	8.1	7.8	7.8		7.7	7.5
WS		6.8		10.6	11.6	13.6
E				3		
WD				227		232
WSV				10.6		13.6
WDV				227		232
S				.956		.967

DATUM 3/ 1/88 OM 17 U 0

TEMP	8.0	7.8	7.8		7.6	7.4
WS		6.6		10.1	11.1	12.7
E				3		
WD				225		230
WSV				10.1		12.6
WDV				225		230
S				.953		.967

2