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METEOROLOGISCH INSTITUUT**

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Sea surface temperature and mixed layer  
depth during the JASIN 78 experiment.

De Bilt, 1979

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Sea surface temperature and mixed layer depth  
during the JASIN 78 experiment

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Introduction

This report is part of the general interest data set of the JASIN-78 experiment. It contains 8 sea surface temperature charts and a plot of mixed layer depth versus time. The figures are intended to obtain a first idea of the conditions during the experiment. It should be noted that unvalidated material was used to prepare this report.

Sea surface temperatures.

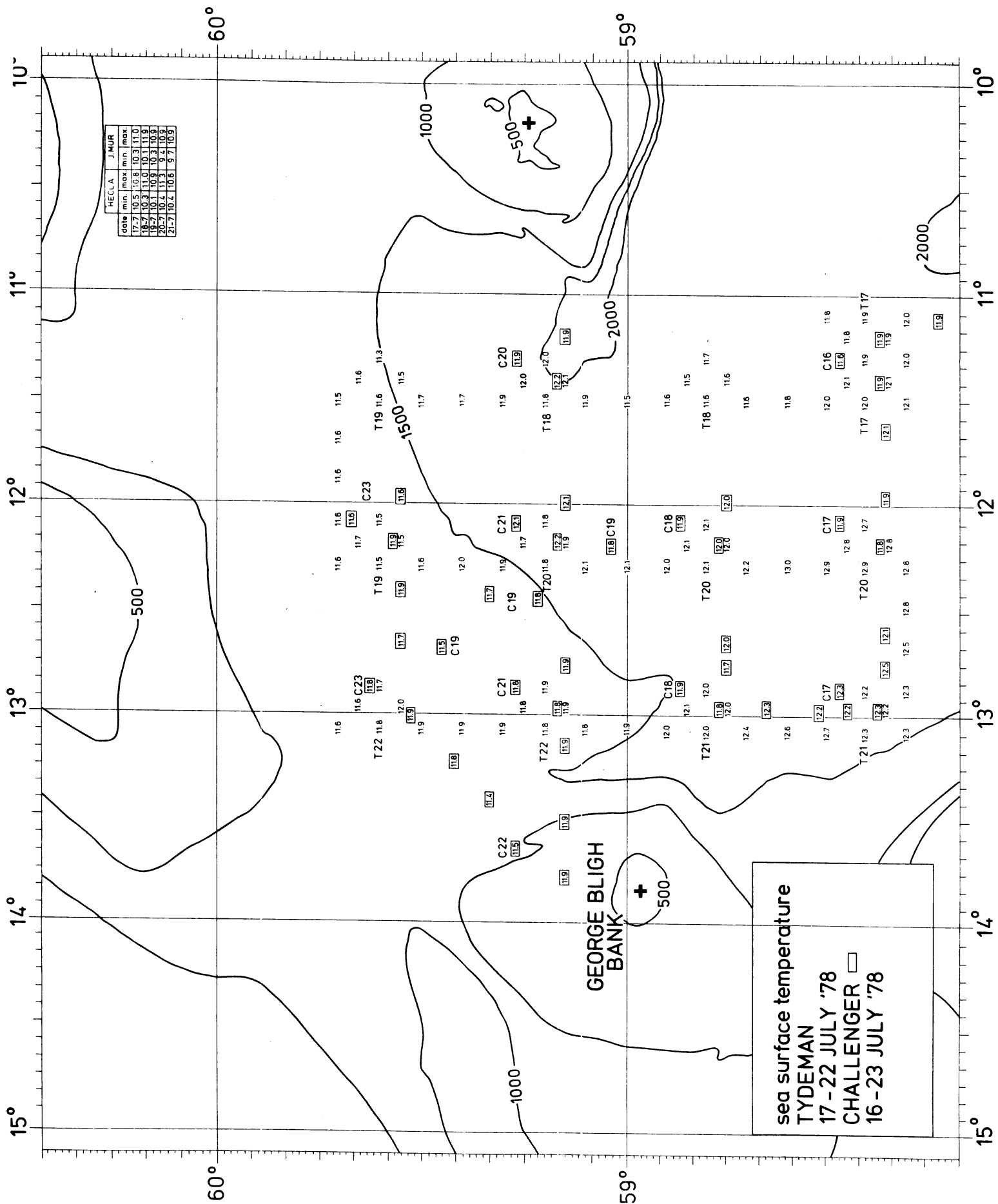
The following data were included in the sea surface temperature charts:

- a. SST of TYDEMAN as measured by a temperature sensor mounted about 3 meters below the surface.
- b. SST of CHALLENGER as measured with the STD temperature sensor in pumped water or in situ during profiling.
- c. SST of JOHN MURRAY from the WMO observations (bucket).
- d. SST of GARDLINE ENDURER from the WMO observations (bucket).
- e. SST of HECLA from the WMO observations (bucket).
- f. SST of METEOR from the WMO observations (bucket). To the data of METEOR prior to 1300/27 July  $0.3^{\circ}\text{C}$  was added. From the data of METEOR from 0100/3 Aug. to 1200/4 Aug.  $0.4^{\circ}\text{C}$  was subtracted. These corrections followed from a preliminary inspection of the intercomparisons and from a comparison with the intake temperature of METEOR. (T. Guymer, private communication)

The charts are drawn for 6 day periods, one for each TYDEMAN survey. Near each TYDEMAN and CHALLENGER triangle the date of the observations is indicated, prefixed with a T or a C. It should be noted that it was not possible to contour the isotherms due to the asynoptic character of the charts and the advection during each 6 day period.

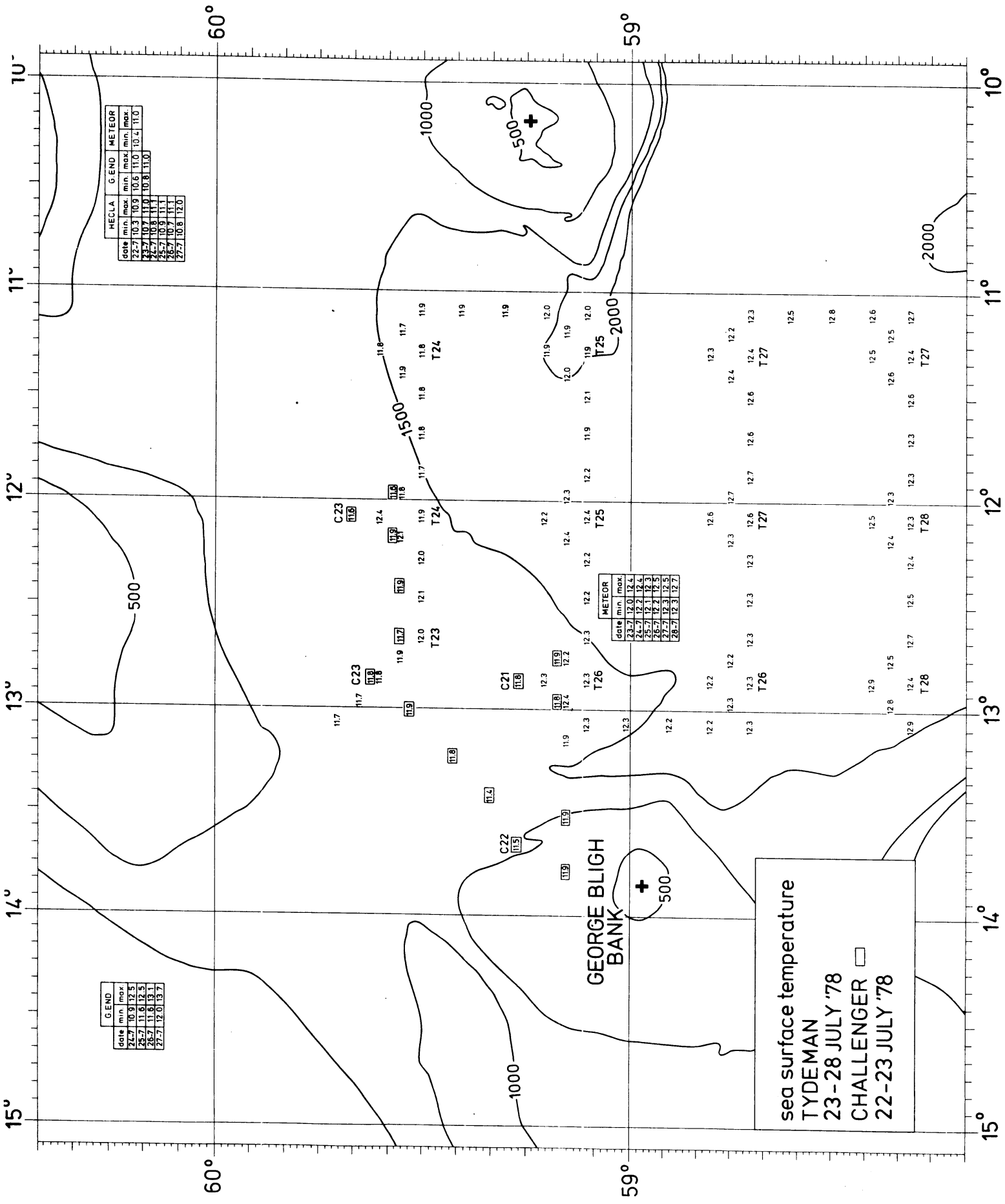
Mixed layer depth

For all TYDEMAN yoyo stations the mixed layer depth for each profile was read from the temperature versus depth plots. These were averaged for each station (about one hour duration). For stations of long duration averaging was done for periods of about  $1\frac{1}{2}$  to  $2\frac{1}{2}$  hours. As the mixed layer depth the shallowest depth with a temperature gradient of more than  $0.007^{\circ}\text{C}/\text{m}$  was used. This seemed to be the best way to monitor the restratification during calm weather. It should be noted that the scale of the plots from which the mixed layer depth was derived was 1 cm for  $0.5^{\circ}\text{C}$  and 25 m, so the determination of the mixed layer depth was rather subjective. Errors in the zero point equivalent of up to about 3 meter are possible.



HECLA		JMUR		
date	min	max	min	max
17-7	10.5	10.8	10.3	11.0
18-7	10.3	11.0	10.3	10.9
19-7	10.2	11.0	10.3	10.9
20-7	10.4	11.3	9.2	10.9
21-7	10.4	10.8	9.7	10.9

sea surface temperature  
 TYDEMAN  
 17-22 JULY '78  
 CHALLENGER  
 16-23 JULY '78



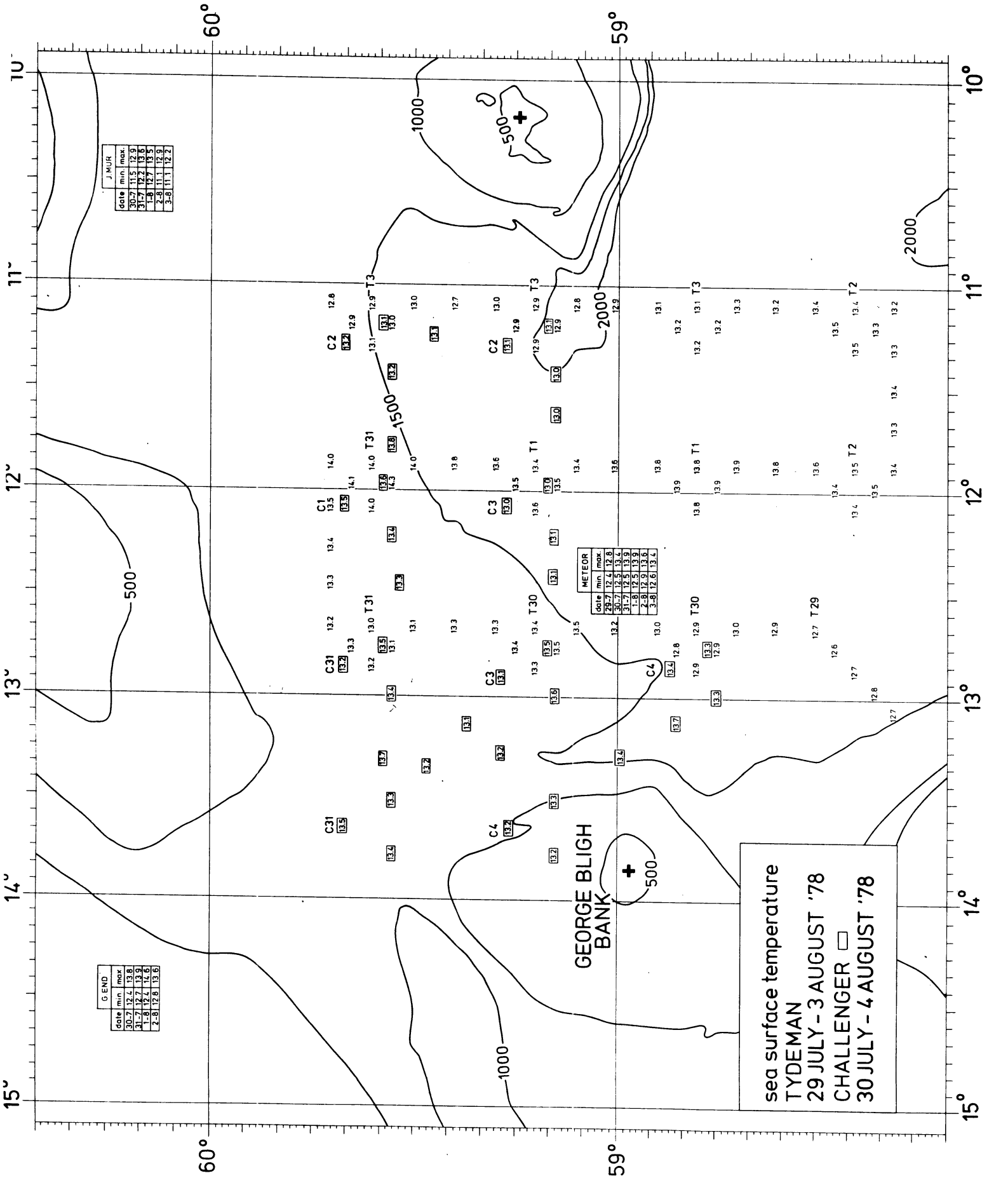
date	MECLA		G. END		METEOR	
	min.	max.	min.	max.	min.	max.
22-7	10.3	10.9	10.6	11.0	10.4	11.0
23-7	10.7	11.0	10.8	11.0		
24-7	10.9	11.1				
25-7	10.9	11.1				
26-7	10.9	11.1				
27-7	10.7	11.1				
27-7	10.6	12.0				

date	METEOR	
	min.	max.
23-7	12.0	12.4
24-7	12.2	12.4
25-7	12.1	12.3
26-7	12.3	12.5
27-7	12.3	12.7

date	G. END	
	min.	max.
22-7	10.9	12.5
25-7	11.6	12.5
26-7	11.6	13.1
27-7	12.0	13.7

sea surface temperature  
 TYDEMAN  
 23-28 JULY '78  
 CHALLENGER □  
 22-23 JULY '78

GEORGE BLIGH BANK



J. WUR

date	min.	max.
30-7	13.5	12.9
31-7	13.7	13.9
1-8	13.7	13.9
2-8	13.1	12.9
3-8	11.1	12.2

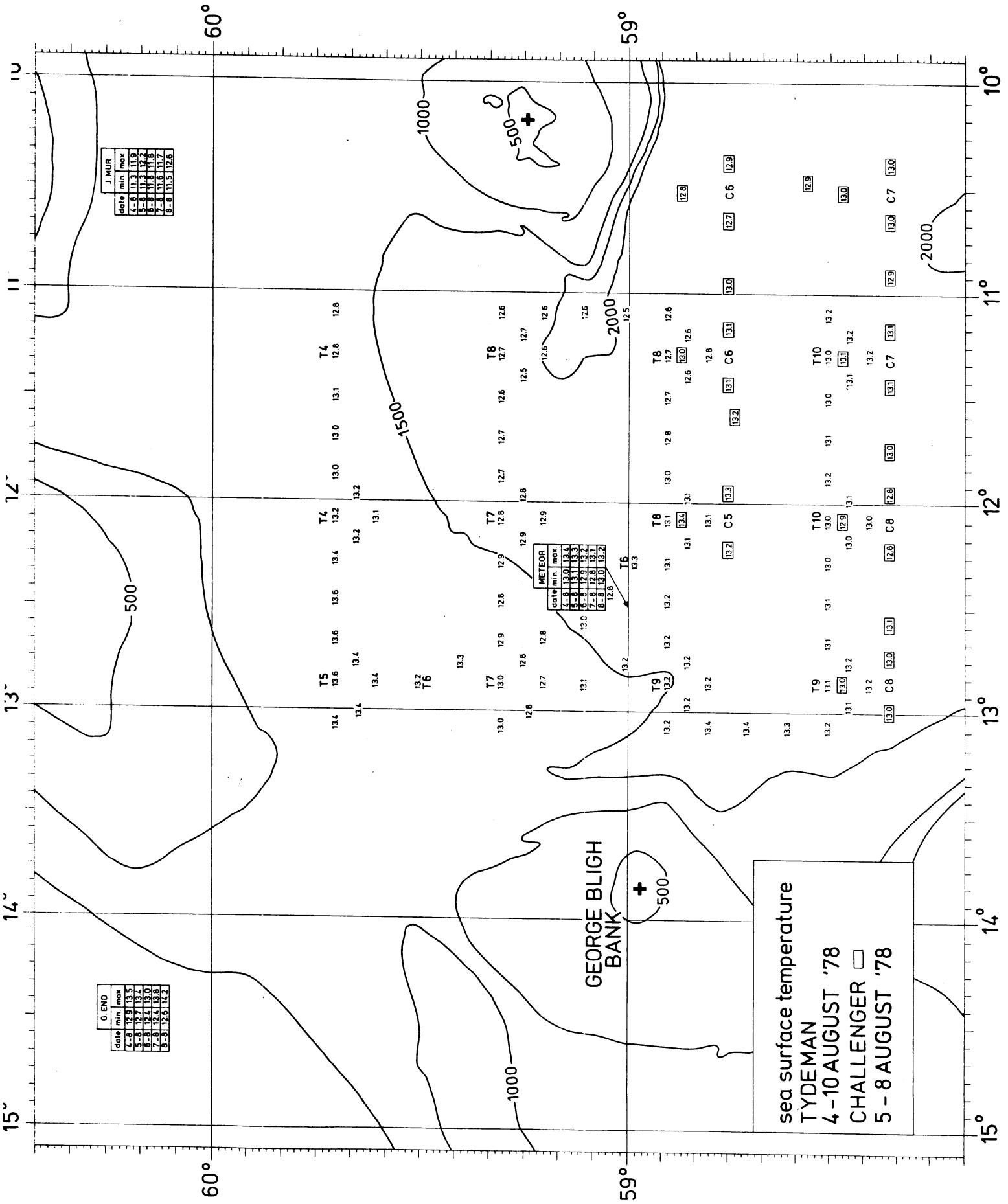
METEOR

date	min.	max.
29-7	12.4	12.8
30-7	12.5	13.4
31-7	12.5	13.9
1-8	12.9	13.8
2-8	12.9	13.8
3-8	12.6	13.4

G. END

date	min.	max.
30-7	12.4	13.8
31-7	12.7	13.9
1-8	12.4	14.6
2-8	12.8	13.6

sea surface temperature  
 TYDEMAN  
 29 JULY - 3 AUGUST '78  
 CHALLENGER □  
 30 JULY - 4 AUGUST '78



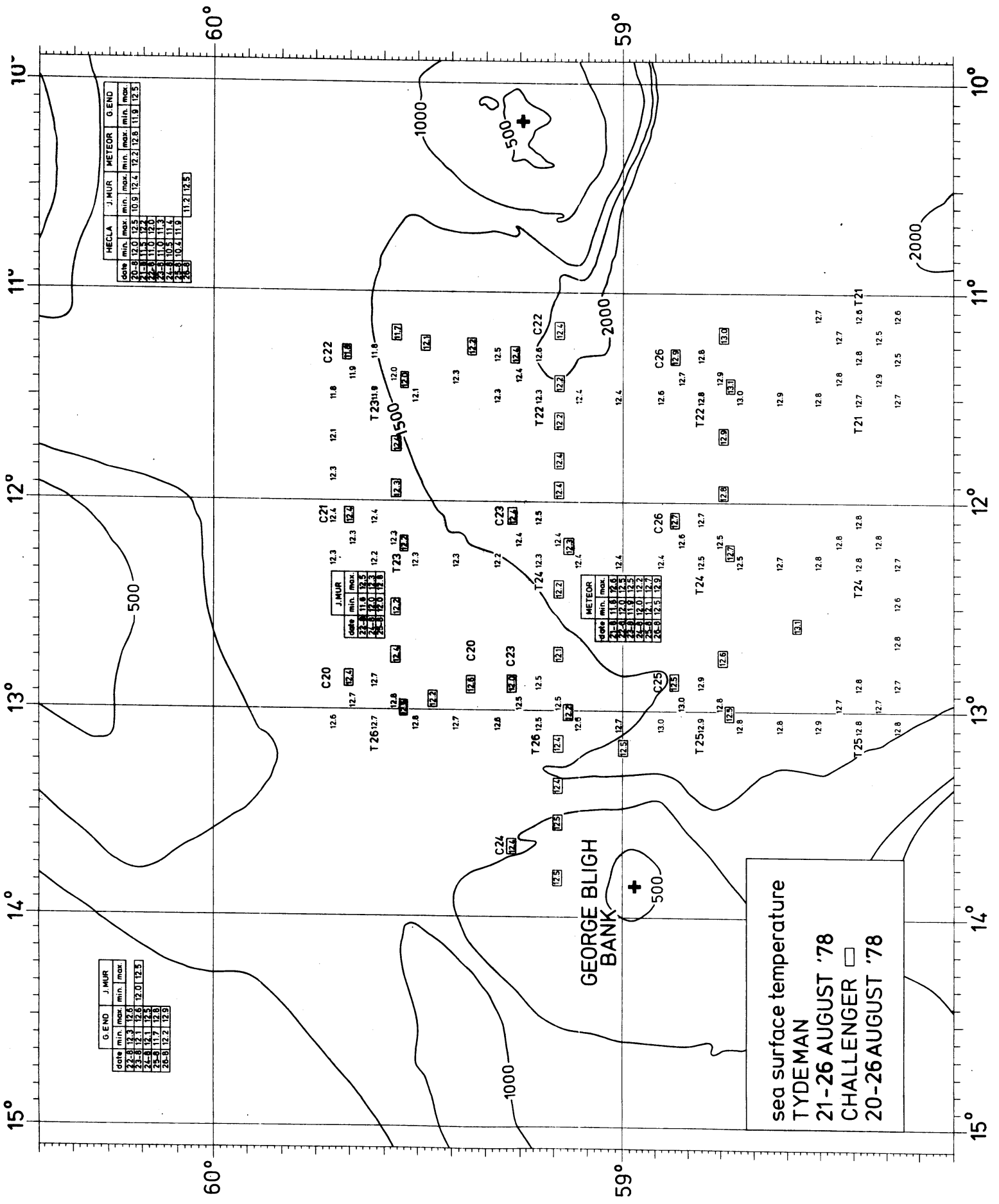
J. MUR		
date	min	max
4-8	11.3	11.9
5-8	11.3	12.2
6-8	11.6	11.8
7-8	11.6	11.7
8-8	11.5	12.6

O. END		
date	min	max
4-8	12.9	13.5
5-8	12.7	13.4
6-8	12.4	13.0
7-8	12.4	13.9
8-8	12.8	14.2

METEOR		
date	min	max
4-8	13.0	13.3
5-8	12.9	13.2
6-8	12.9	13.2
7-8	12.8	13.1
8-8	13.0	13.2

sea surface temperature  
 TYDEMAN  
 4-10 AUGUST '78  
 CHALLENGER □  
 5-8 AUGUST '78



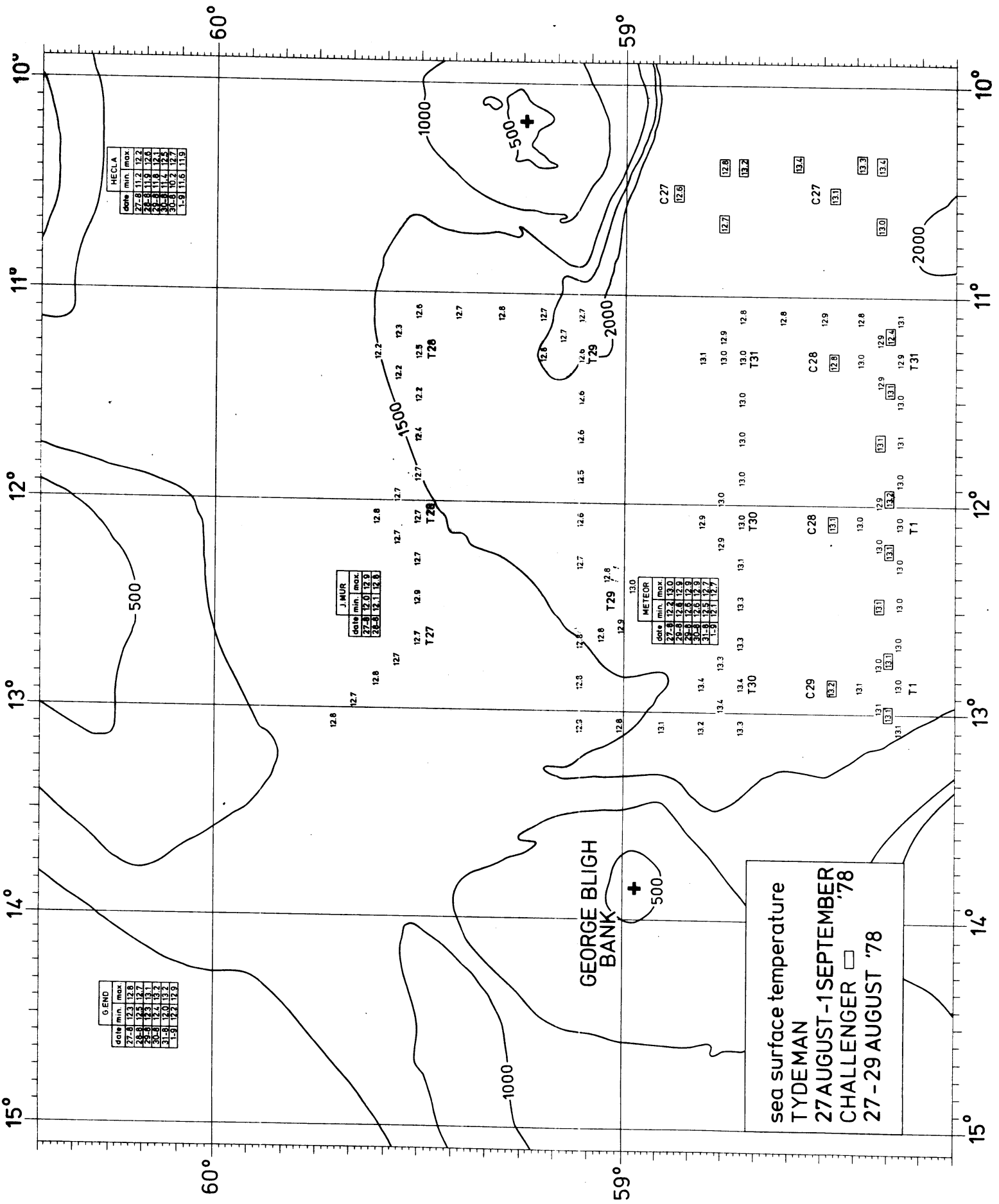


date	HECLA		J. MUR		METEOR		G. END	
	min.	max.	min.	max.	min.	max.	min.	max.
20-8	12.0	12.5	10.9	12.4	12.2	12.8	11.9	12.5
21-8	11.6	12.0	11.2	11.7	11.6	12.1	11.3	11.8
22-8	11.7	12.1	11.0	11.3	10.5	11.4	10.4	11.9
23-8	11.7	12.0	10.5	11.4	10.4	11.9	11.2	12.5

date	J. MUR	
	min.	max.
22-8	11.6	12.5
23-8	12.0	12.3
24-8	12.0	12.8

date	METEOR	
	min.	max.
21-8	11.9	12.6
22-8	11.8	12.5
23-8	11.9	12.3
24-8	12.0	12.2
25-8	12.1	12.7
26-8	12.5	12.9

sea surface temperature  
 TYDEMAN  
 21-26 AUGUST '78  
 CHALLENGER  
 20-26 AUGUST '78



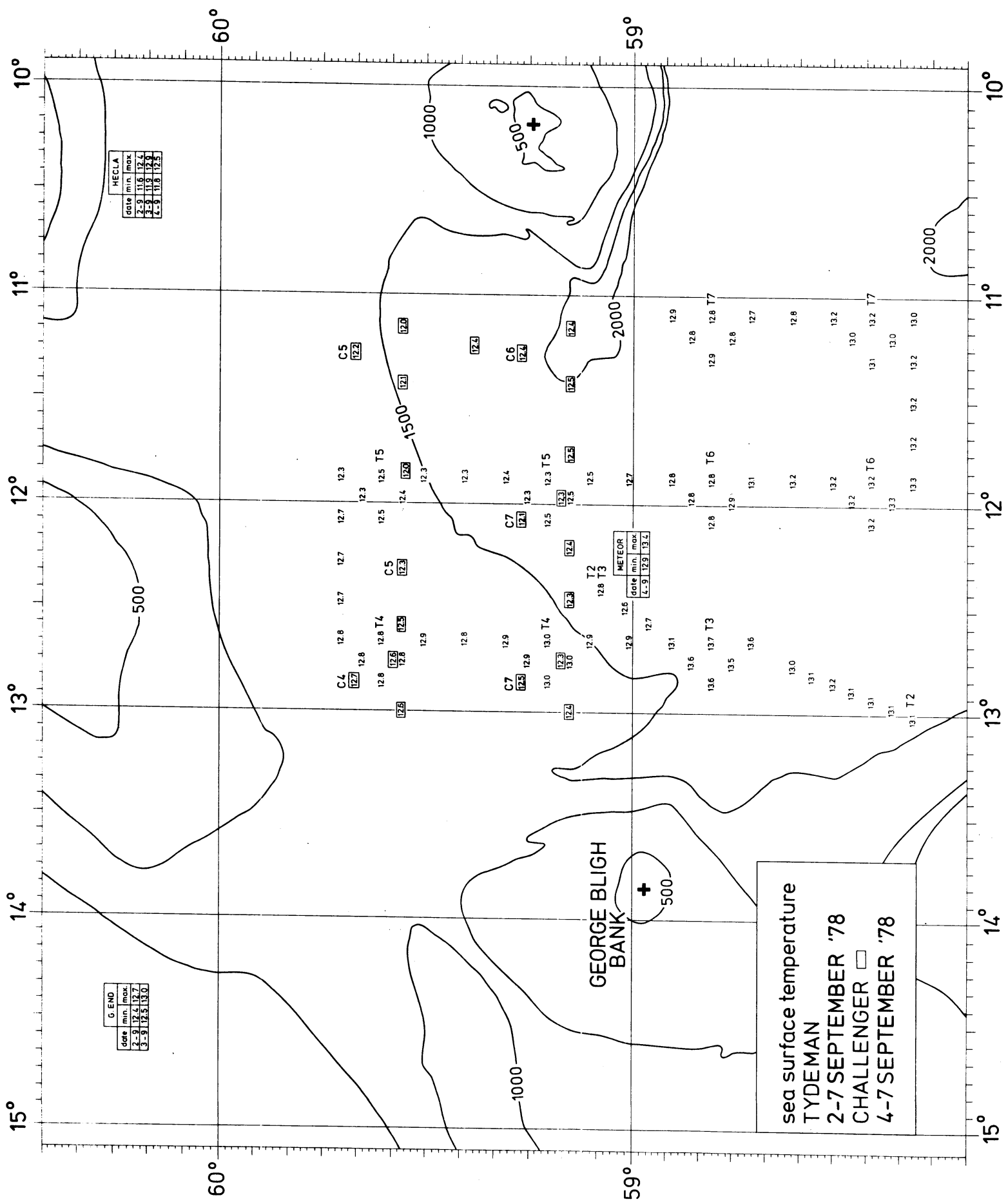
GEND		
date	min.	max.
27-8	12.3	12.8
28-8	12.5	12.7
29-8	12.3	13.1
30-8	12.4	13.2
31-8	12.0	13.2
1-9	12.1	12.9

HECLA		
date	min.	max.
27-8	11.2	12.2
28-8	11.9	12.6
29-8	11.8	12.4
30-8	10.5	12.9
31-8	11.5	11.9

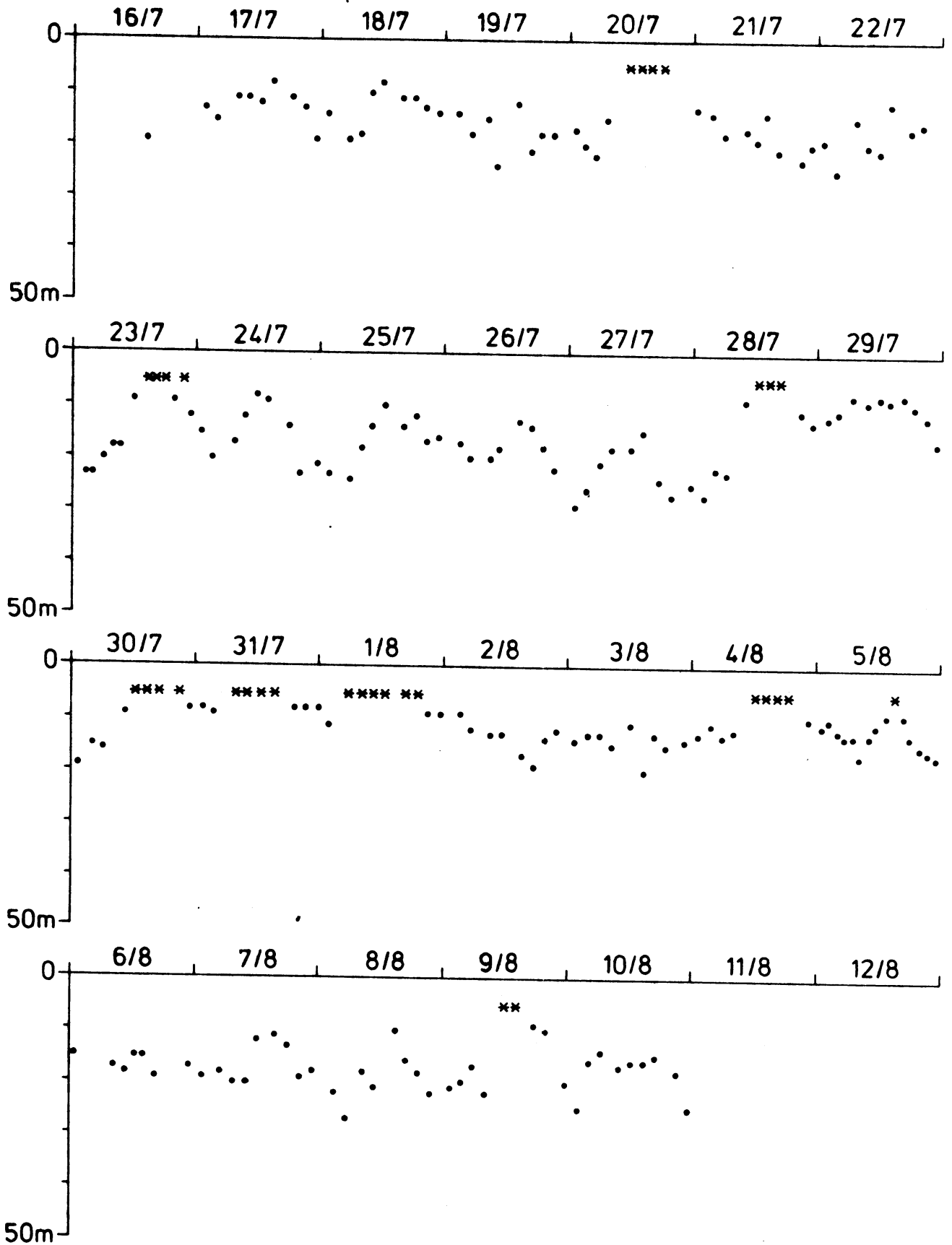
J.MUR		
date	min.	max.
27-8	12.0	12.8
28-8	12.1	12.8

METEOR		
date	min.	max.
27-8	12.2	13.0
28-8	12.4	12.9
29-8	12.6	12.9
30-8	12.6	12.9
31-8	12.5	12.7
1-9	12.1	12.7

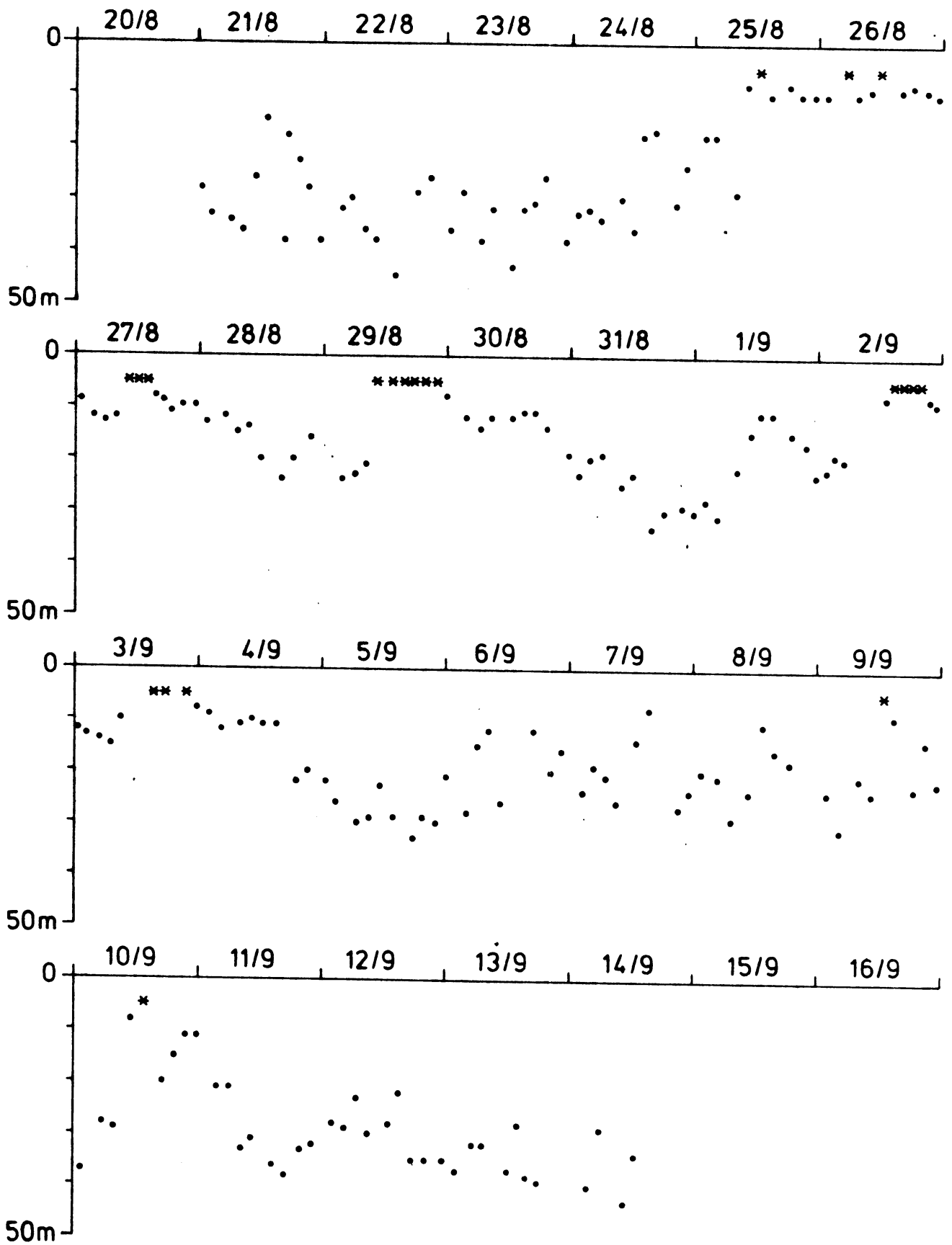
sea surface temperature  
 TYDEMAN  
 27 AUGUST - 1 SEPTEMBER '78  
 CHALLENGER   
 27 - 29 AUGUST '78







averaged mixed layer depth for Tydeman yoyo's phase 1  
 \* : less than 8 m



average mixed layer depth from Tydeman yoyo's phase 2  
 \* : less than 8m