

[Appendix]

Fig. 1(1)~(5) Location map of track line (MC11,MS13,MC12,MC13,and MC02 Area)

Fig. 2(1)~(5) Bathymetric map based on MBES (MC11,MS13,MC12,MC13,and MC02 Area)

Fig. 3(1)~(4) Topographic gradient map based on MBE

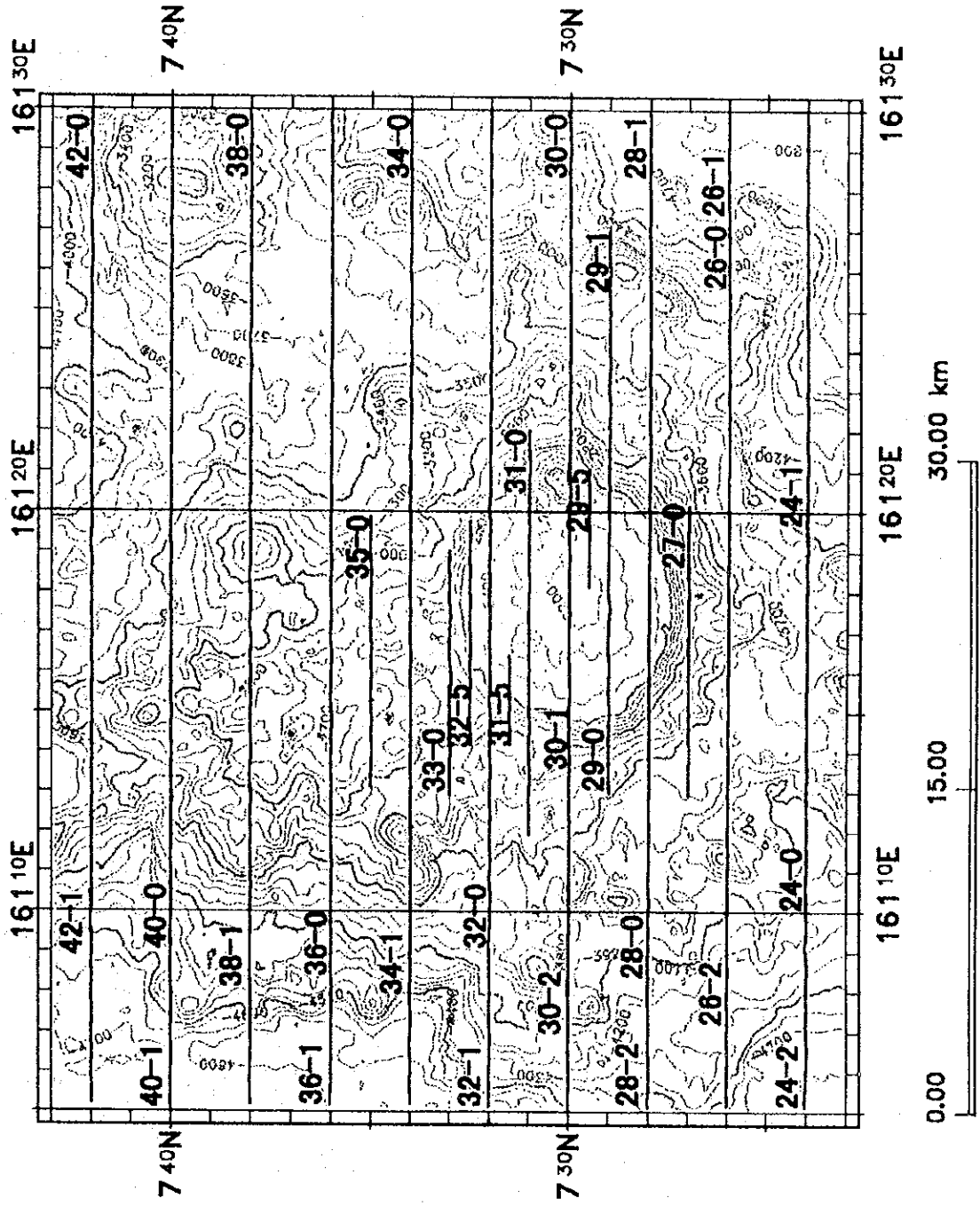
(MC11,MS13,MC12, and MC13 Area)

Fig. 4 Columnar charts of LC core

Fig. 5(1)~(8) Route map of FDC observation and exposed rate diagram of manganese crusts (MC11,MS13,MC12,MC13,and MC02 Area)

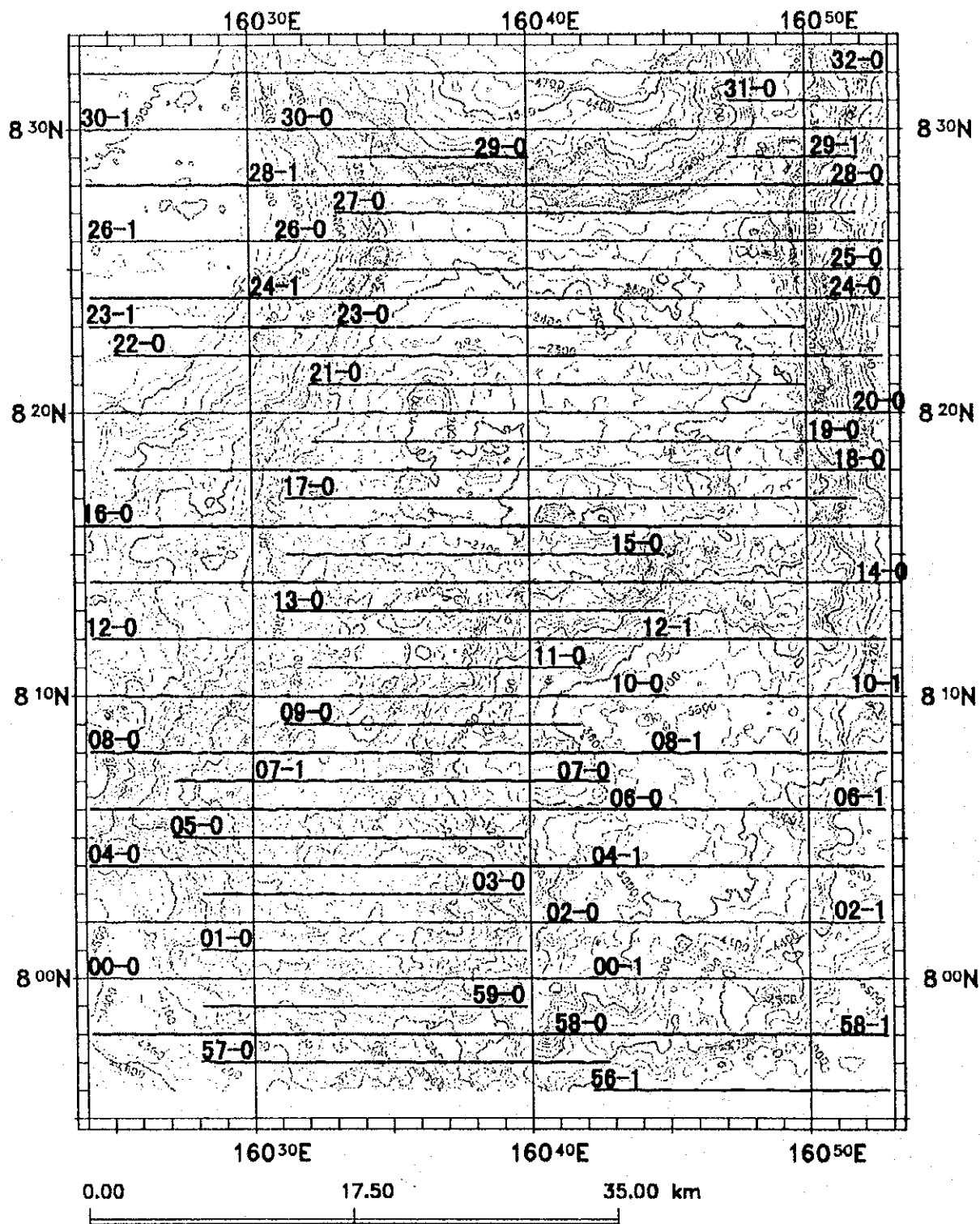
Fig. 6(1),(2) Results of CTD measurement(Temperature),(Salinity)

(1/300000 AT 8°00' N)



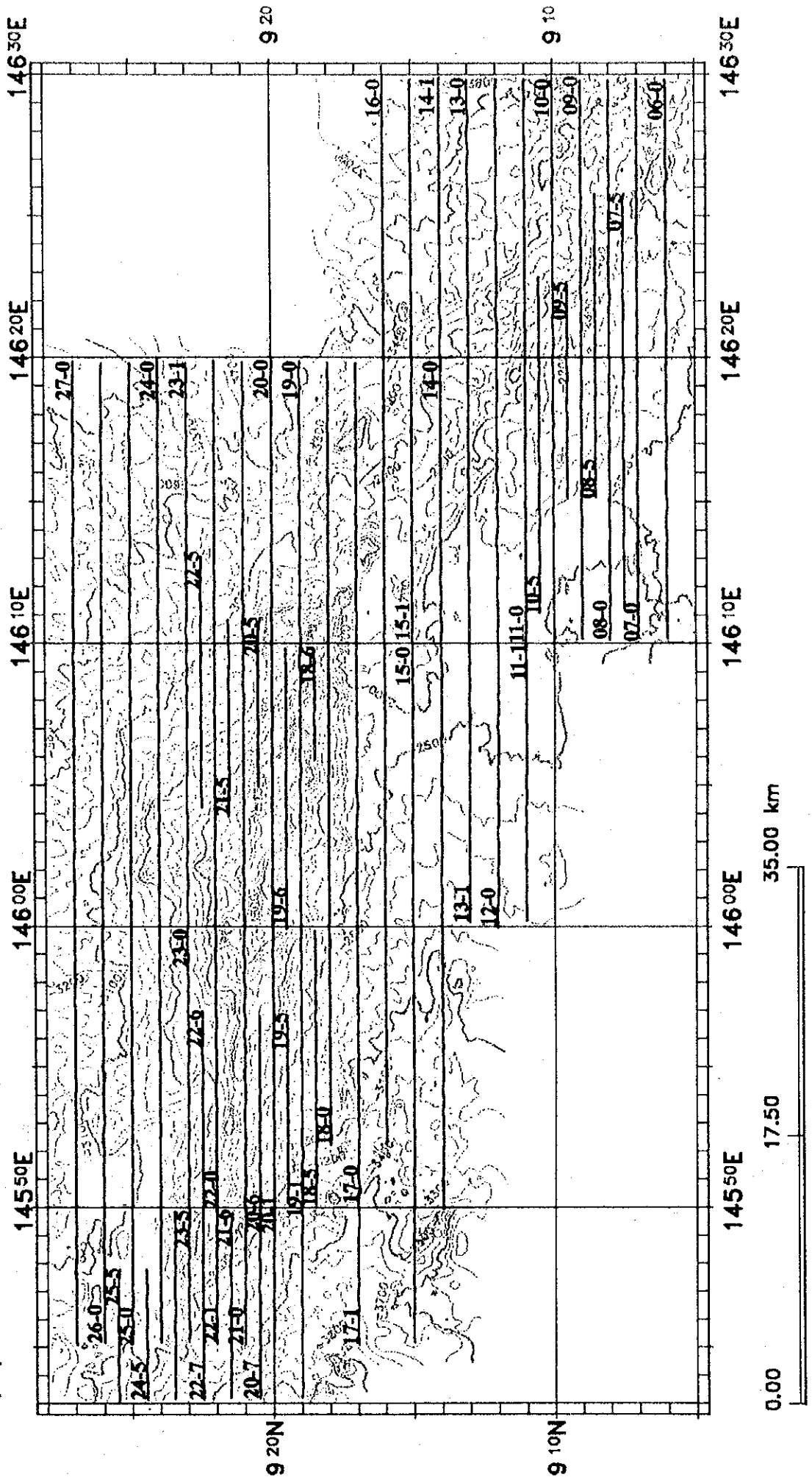
Appendix Fig.1 (1) Location map of track line of MC11 area.

(1/350000 AT 8°00' N)



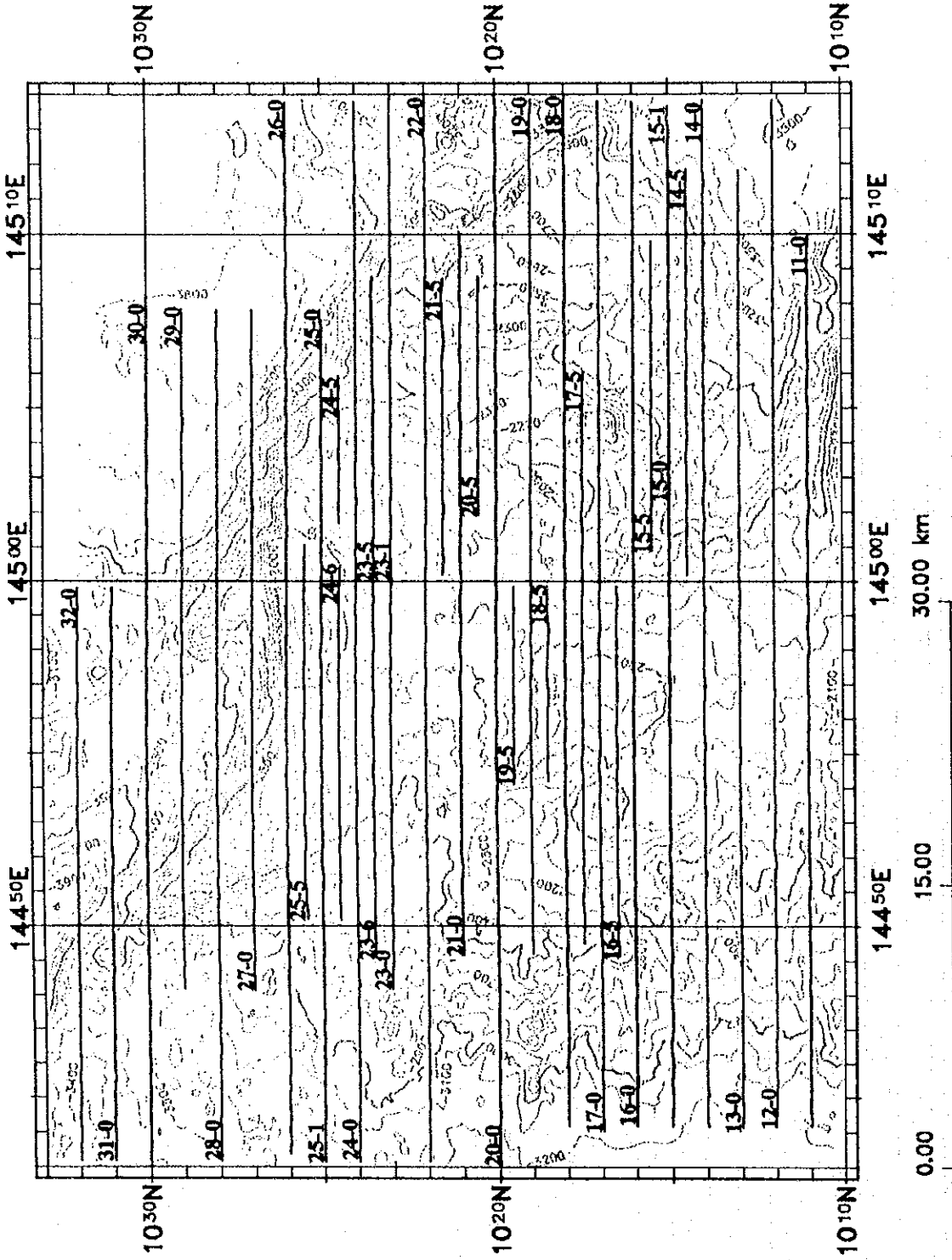
Appendix Fig.1 (2) Location map of track line of MS13 area.

(1/350000 AT 9°00' N)

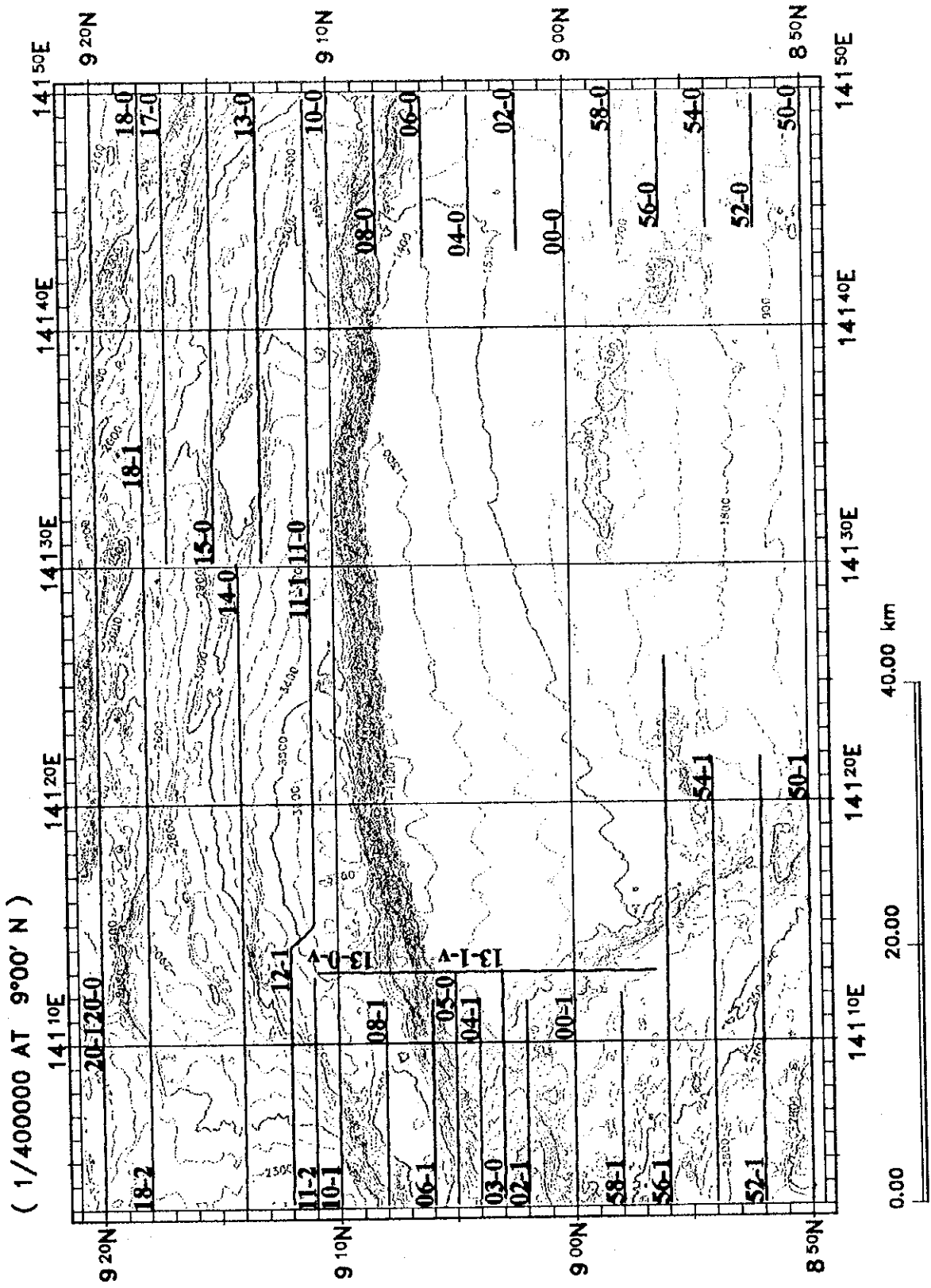


Appendix Fig.1 (3) Location map of track line of MC12 area.

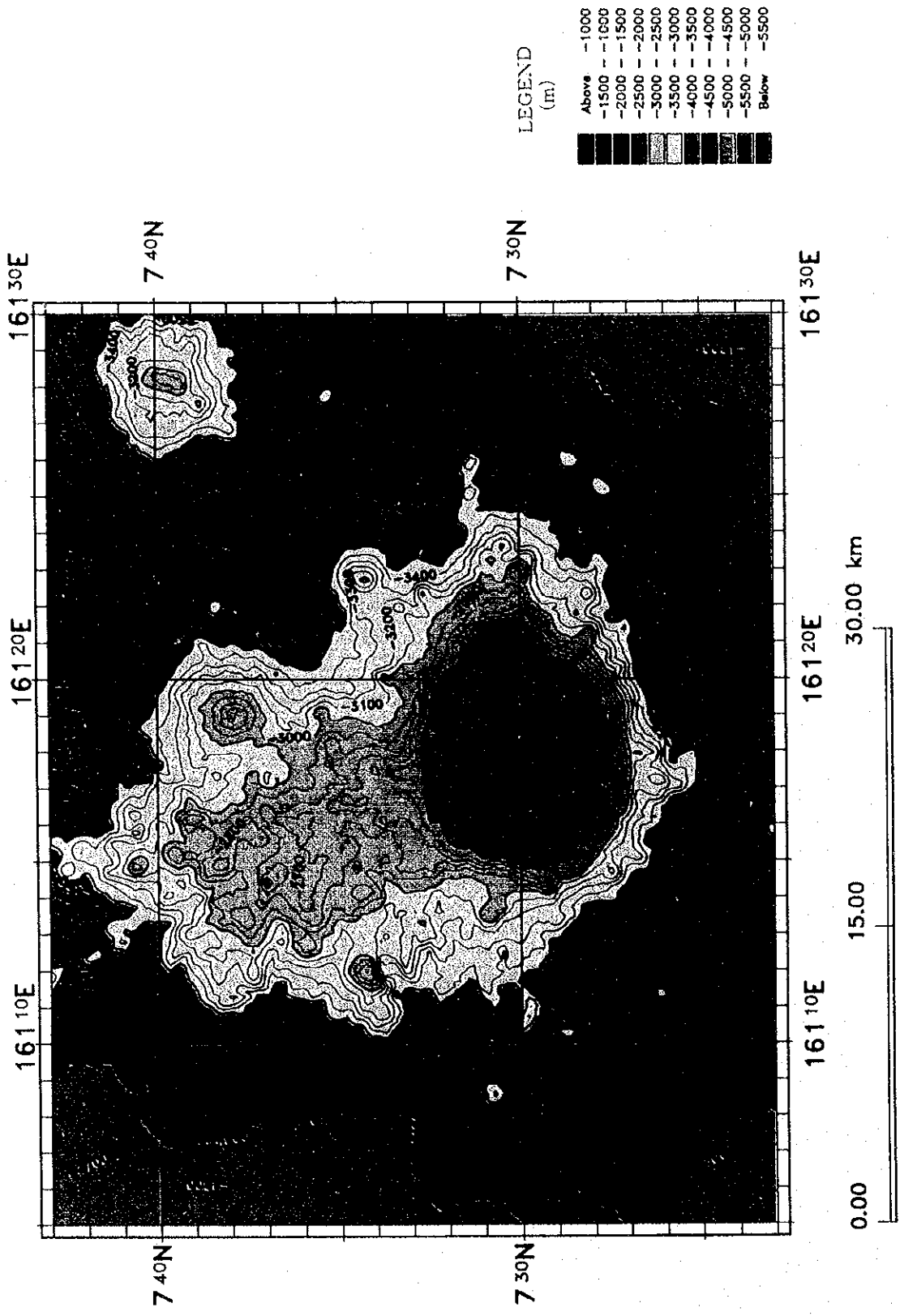
(1/300000 AT 10°00' N)



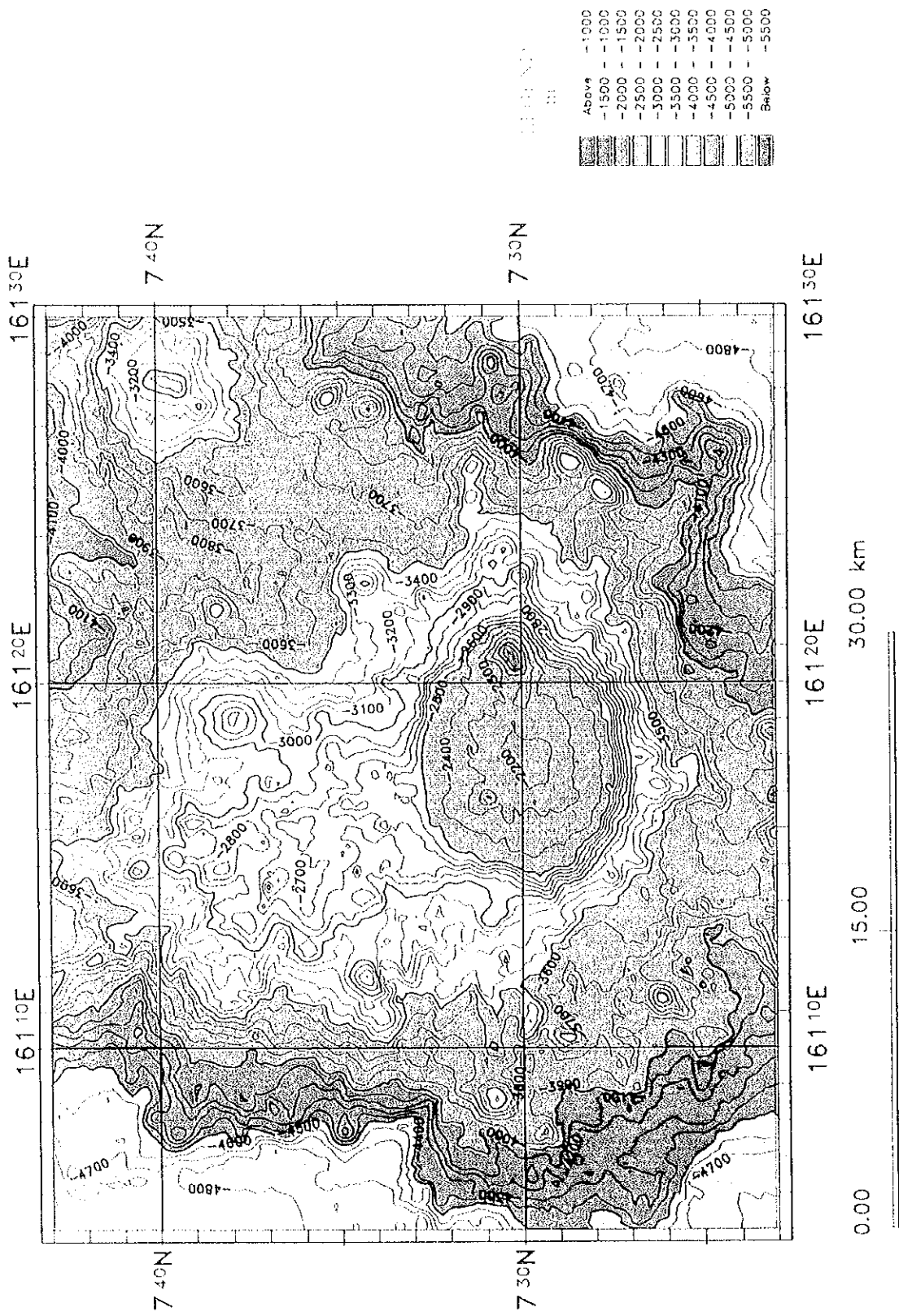
Appendix Fig.1 (4) Location map of track of MC13 area.



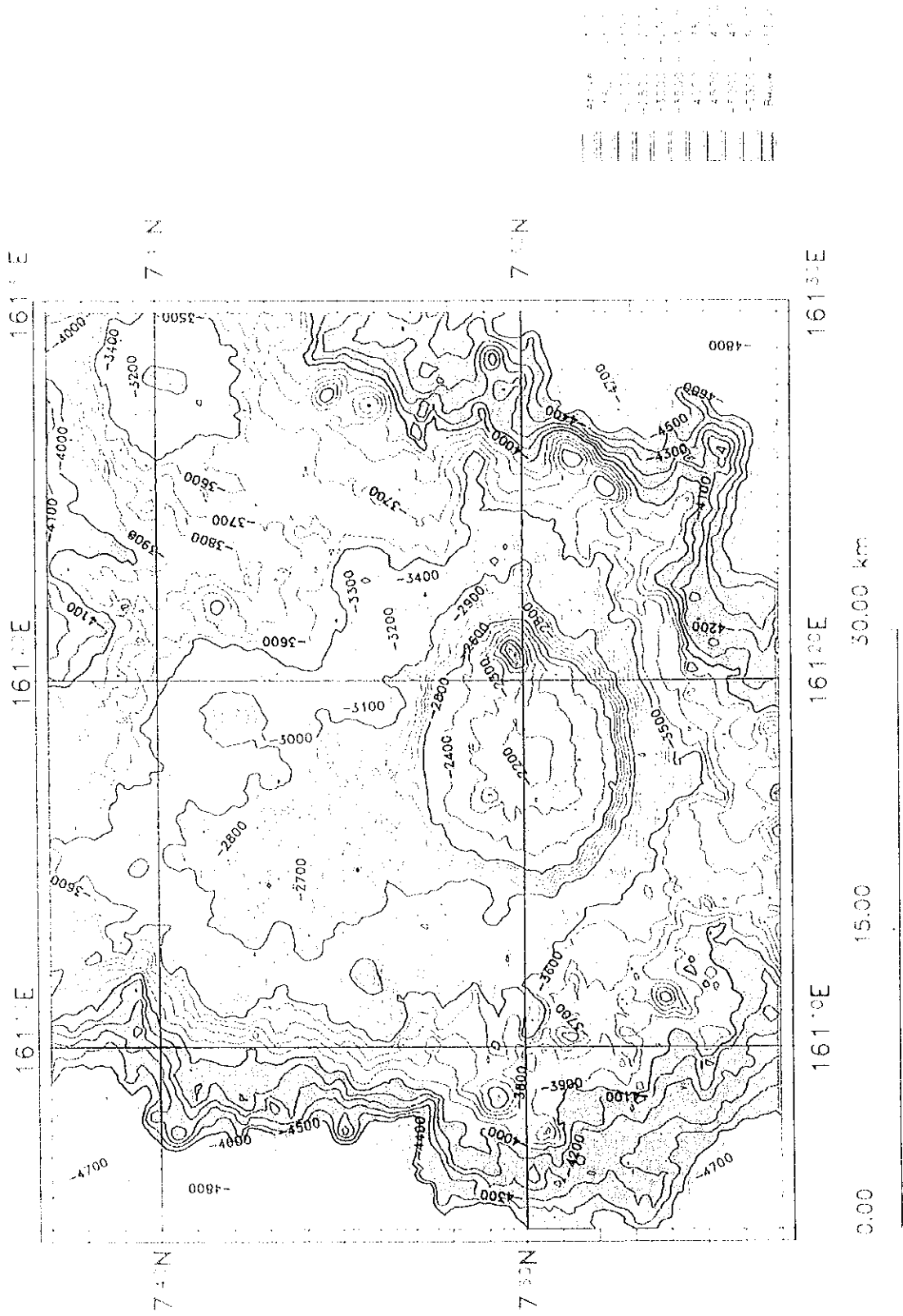
Appendix Fig.1(5) Location map of track line of MC02 area.



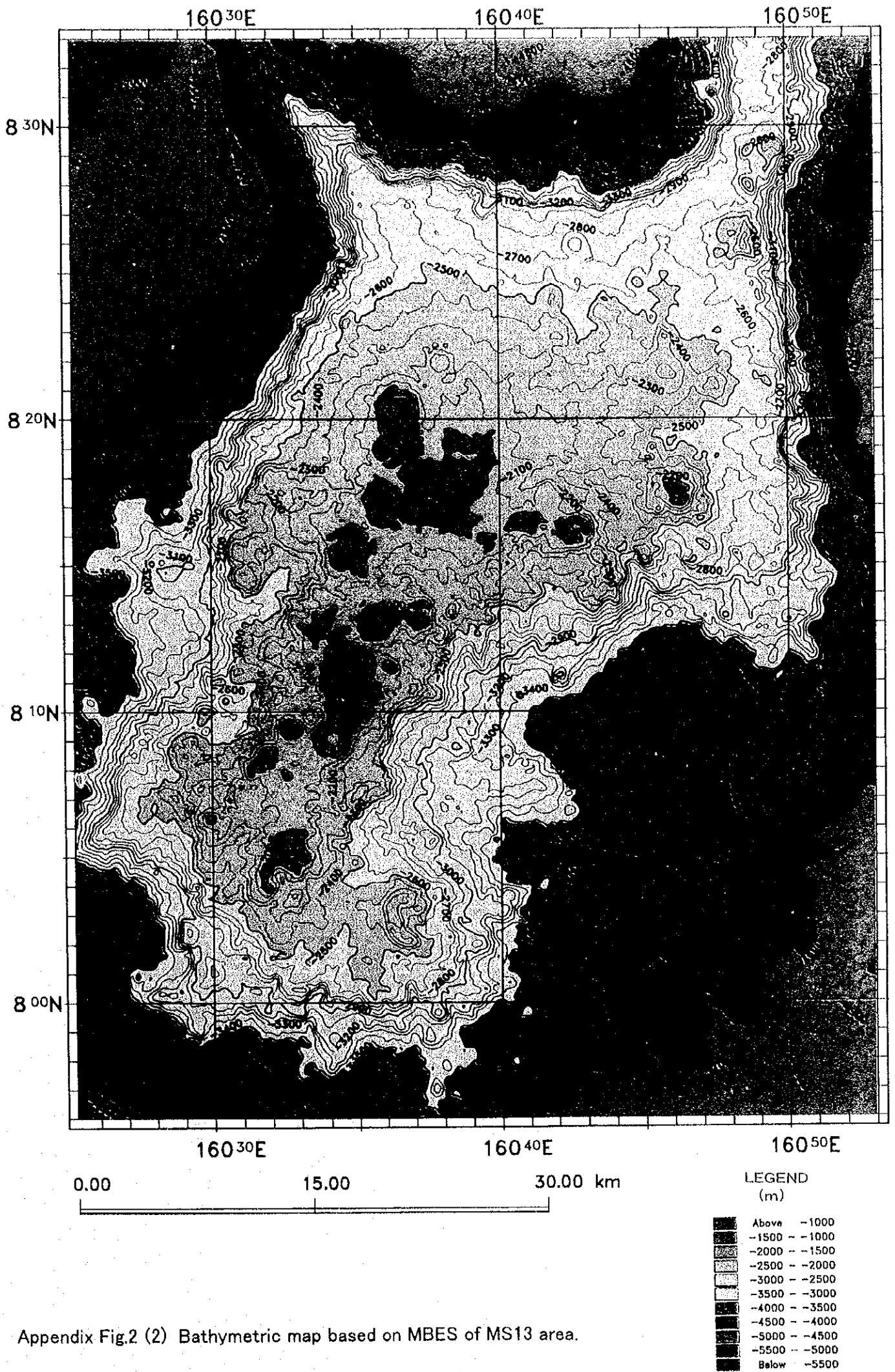
Appendix Fig.2 (1) Bathymetric map based on MBES of MC11 area.



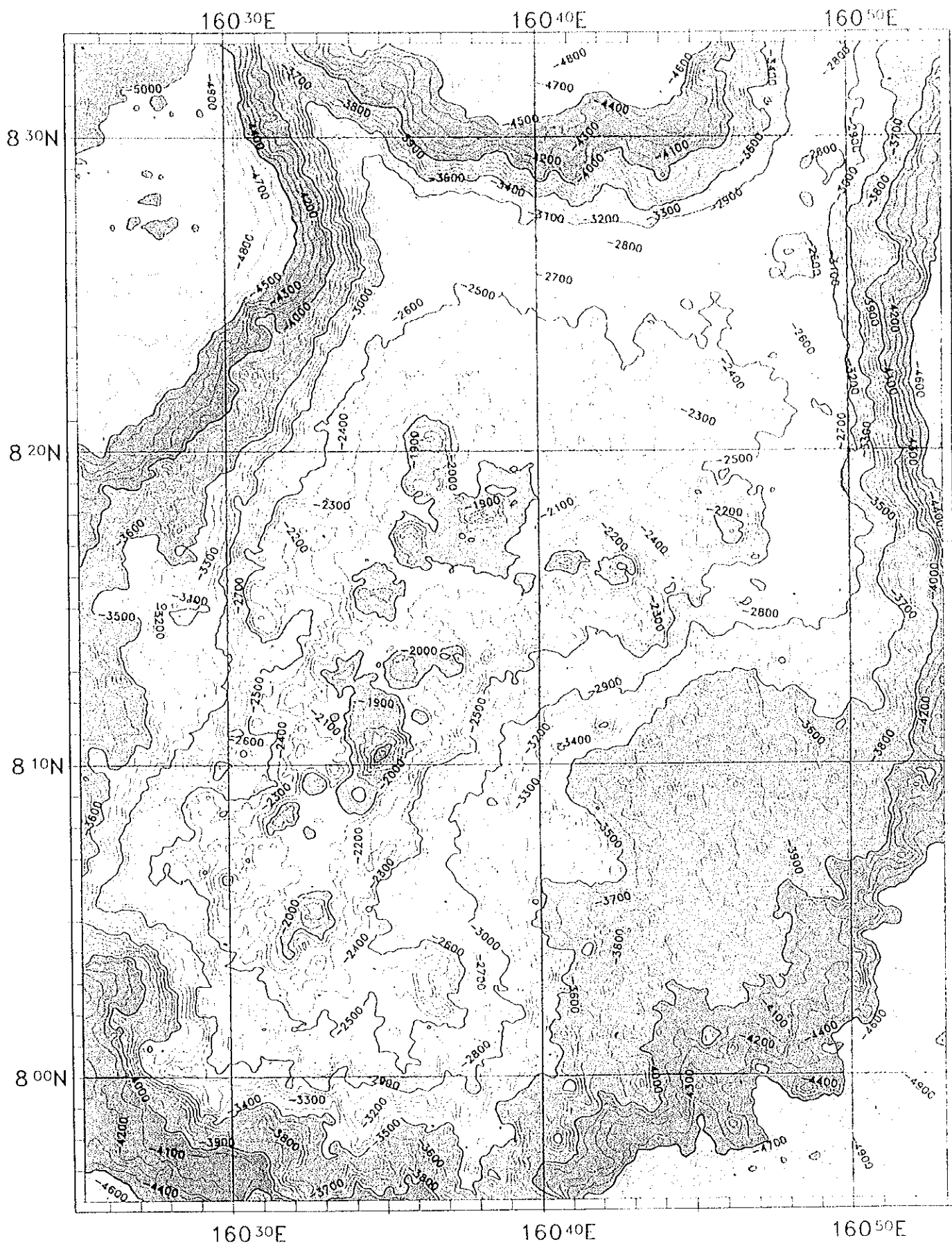
Appendix Fig.2 (1) Bathymetric map based on MBES of MC11 area.



Appendix Fig 2 1 Bathymetric map based on MBES of MC11 area

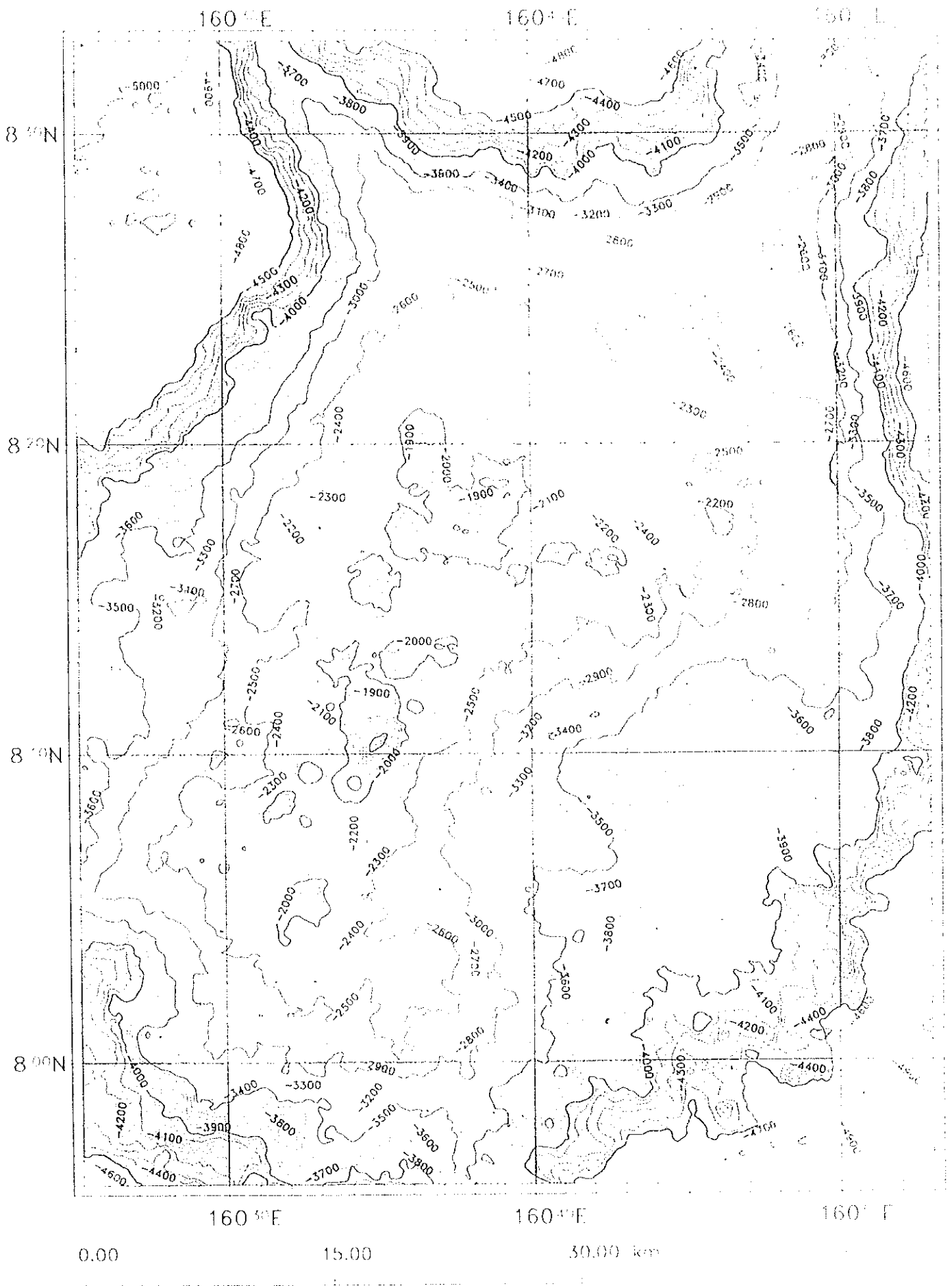


Appendix Fig.2 (2) Bathymetric map based on MBES of MS13 area.

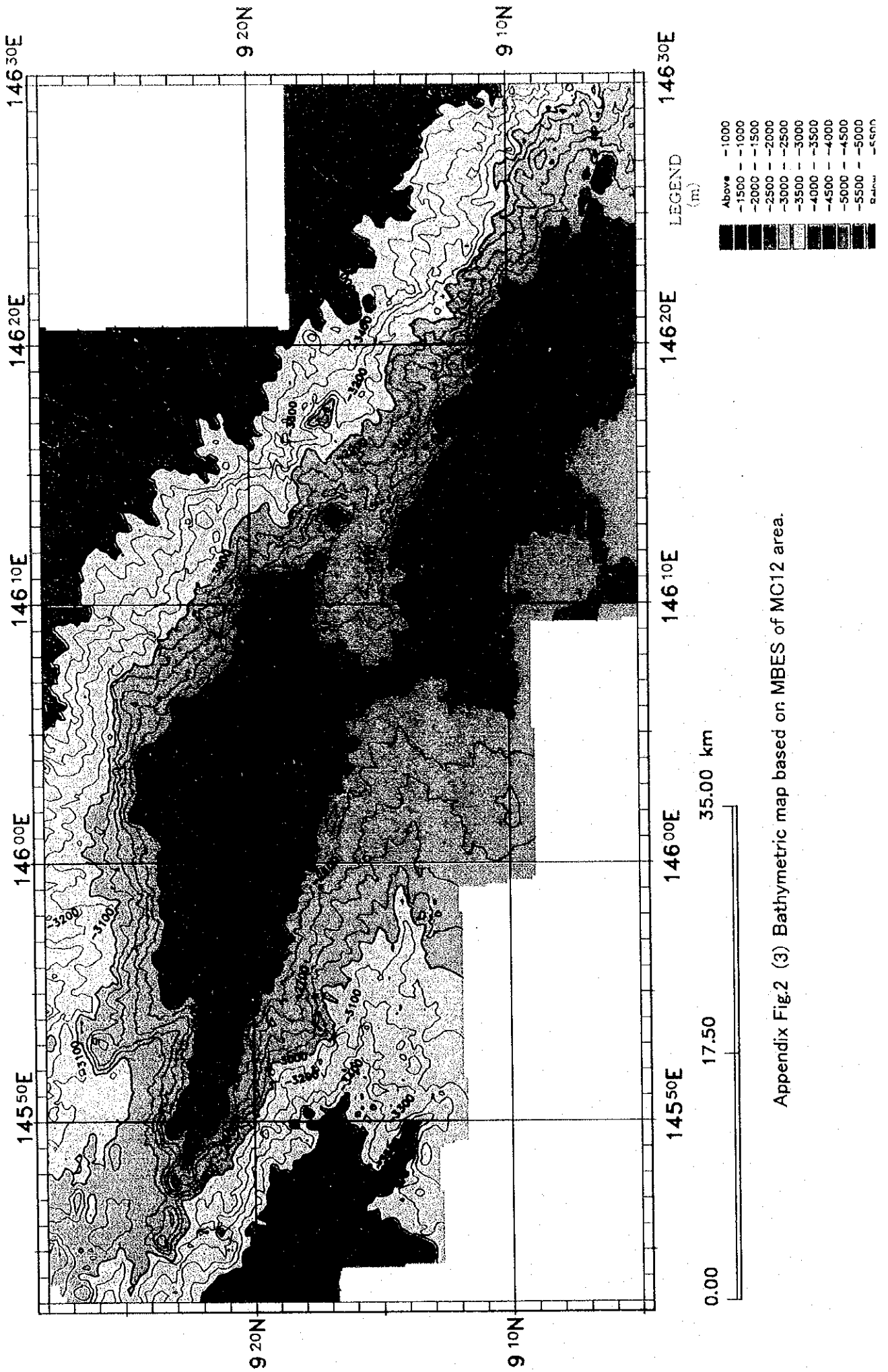


Legend	
(Dotted line)	Above -1000
(Short dashed line)	-1500 - -1000
(Long dashed line)	-2000 - -1500
(Dash-dot line)	-2500 - -2000
(Solid line)	-3000 - -2500
(Thick solid line)	-3500 - -3000
(Thick dashed line)	-4000 - -3500
(Thick dash-dot line)	-4500 - -4000
(Thick solid line with dots)	-5000 - -4500
(Thick dashed line with dots)	-5500 - -5000
(Thick solid line with dots and dashes)	Below -5500

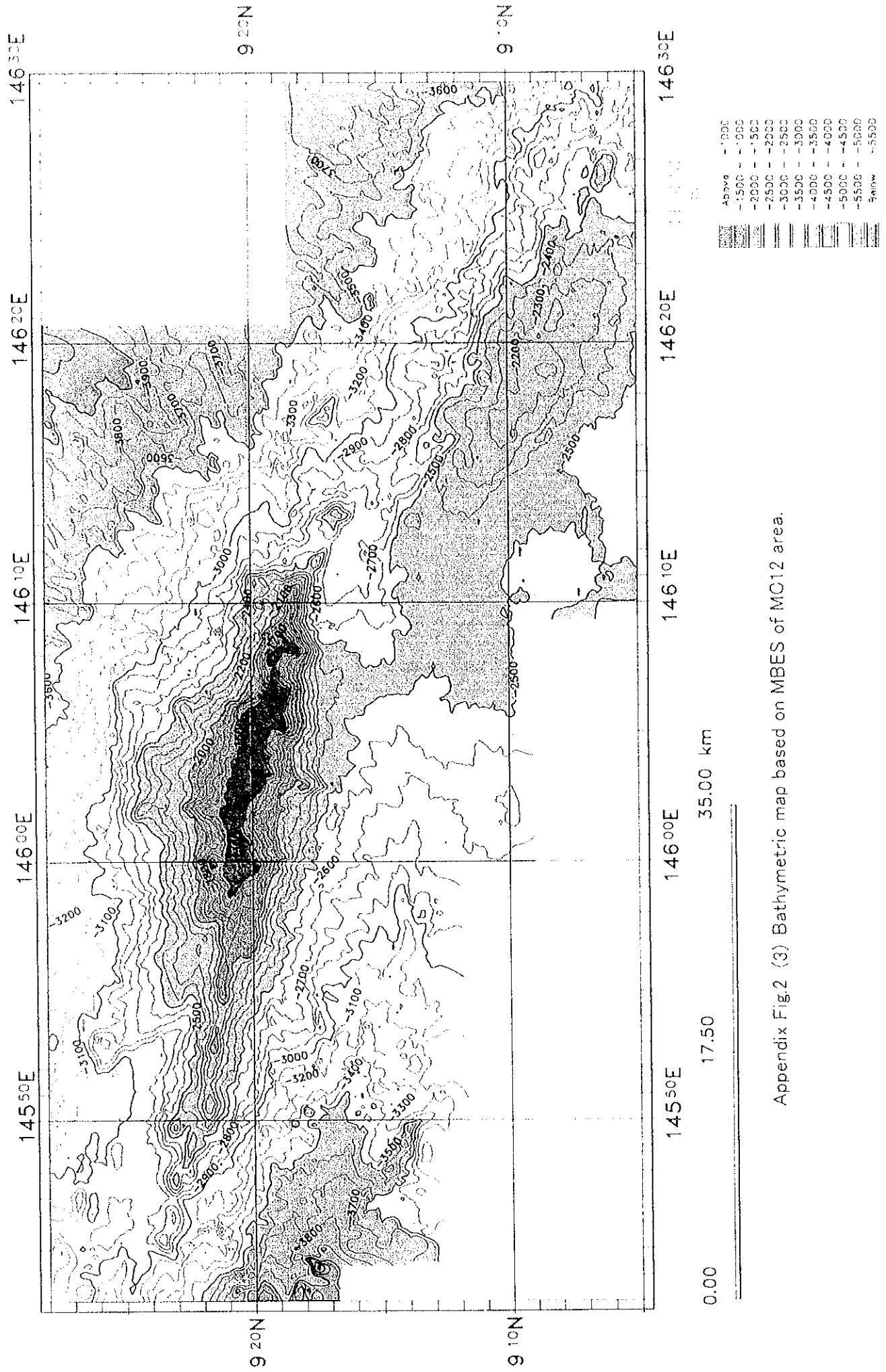
Appendix Fig.2 (2) Bathymetric map based on MBES of MS13 area.



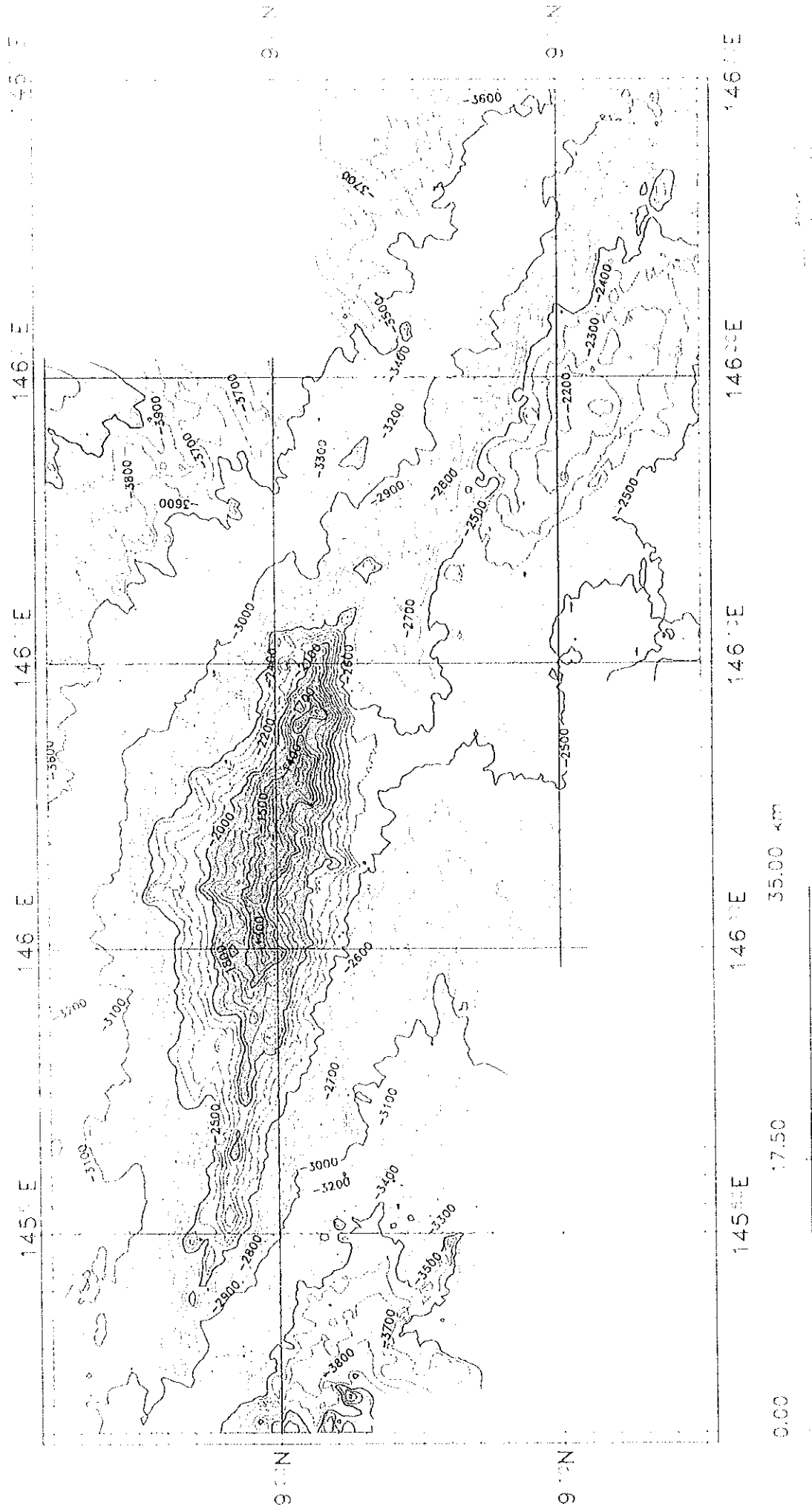
Appendix Fig 2-2 Bathymetric map based on MB13 of MB13 area



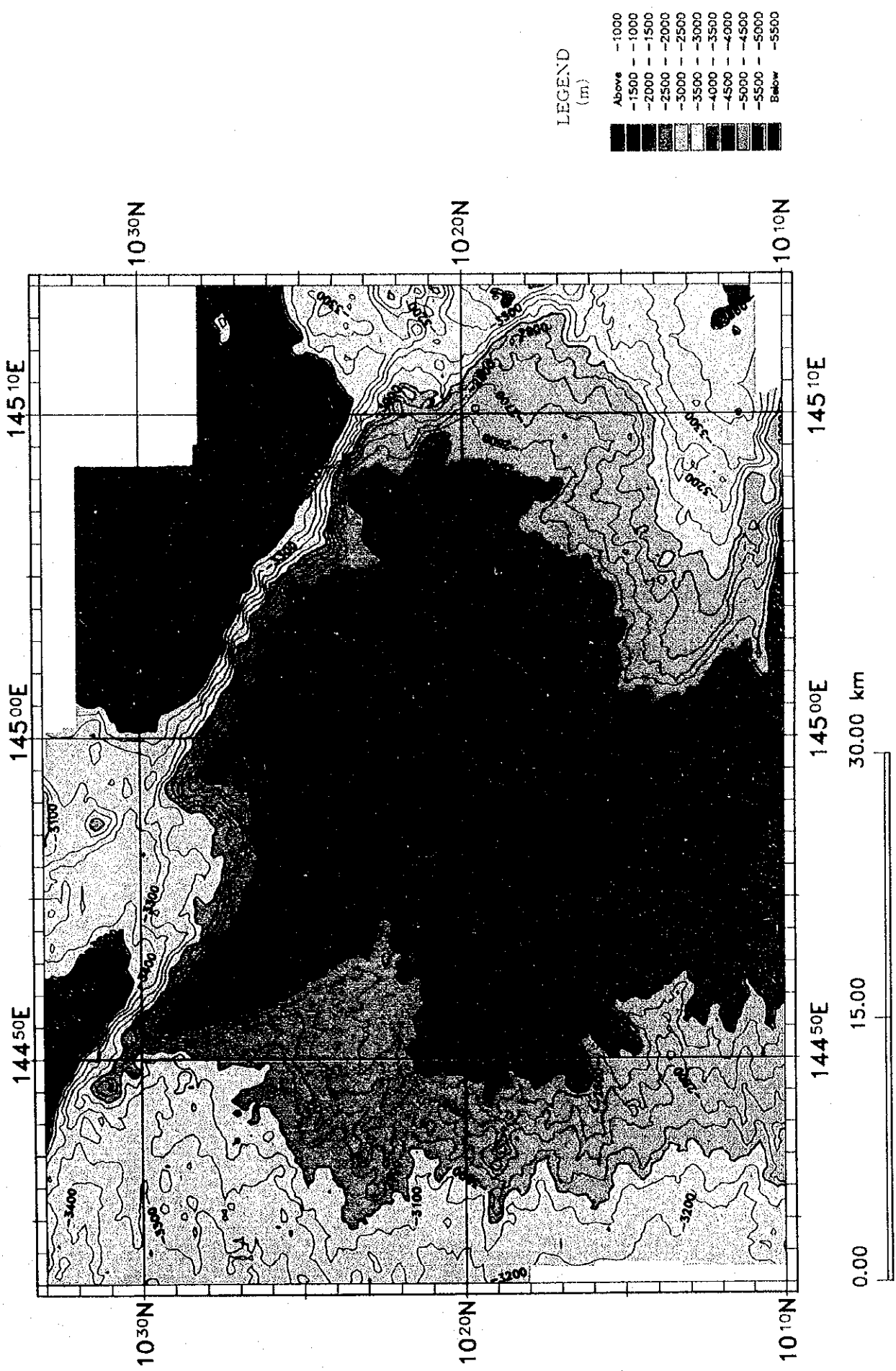
Appendix Fig.2 (3) Bathymetric map based on MBES of MC12 area.



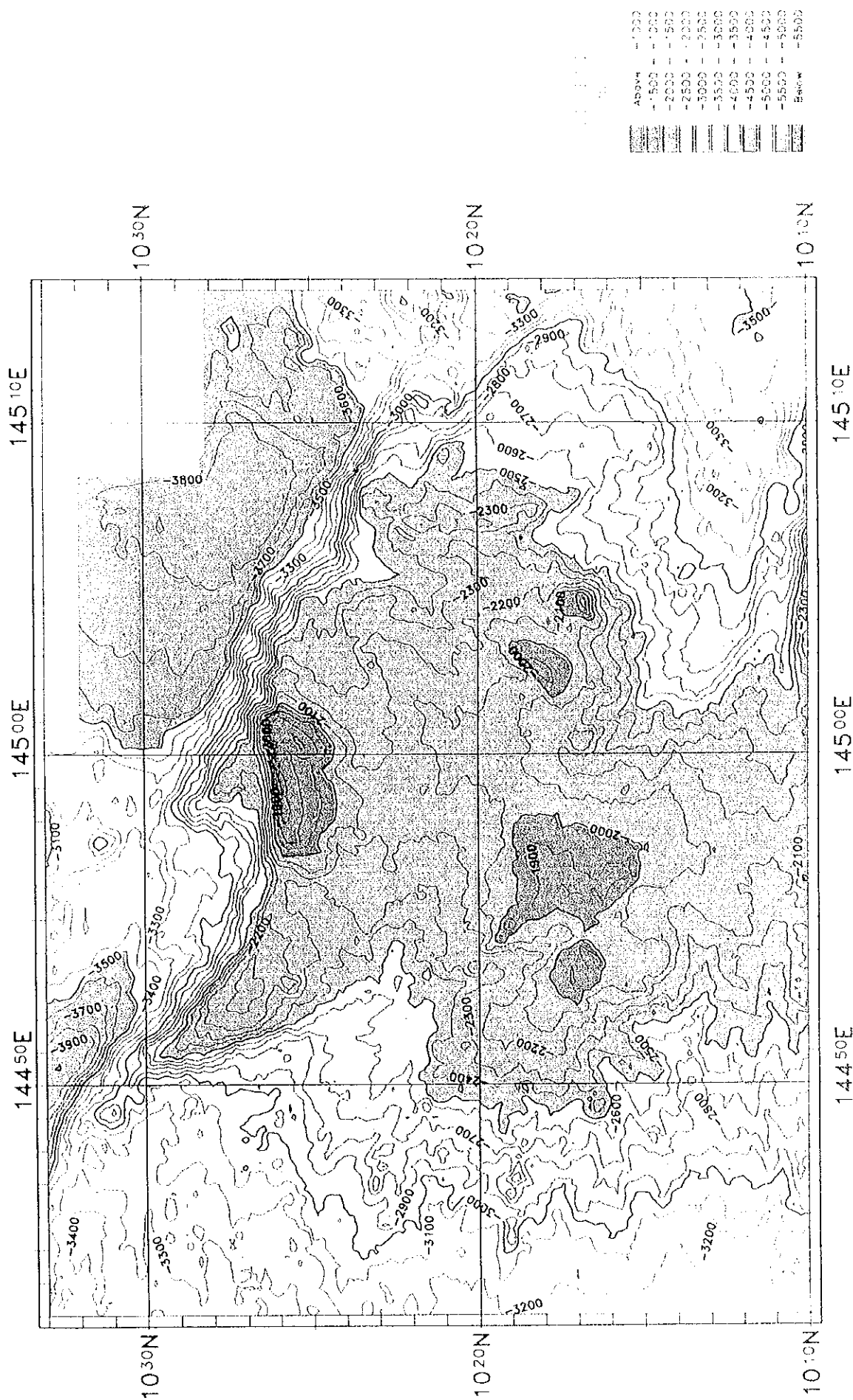
Appendix Fig.2 (3) Bathymetric map based on MBES of MC12 area.



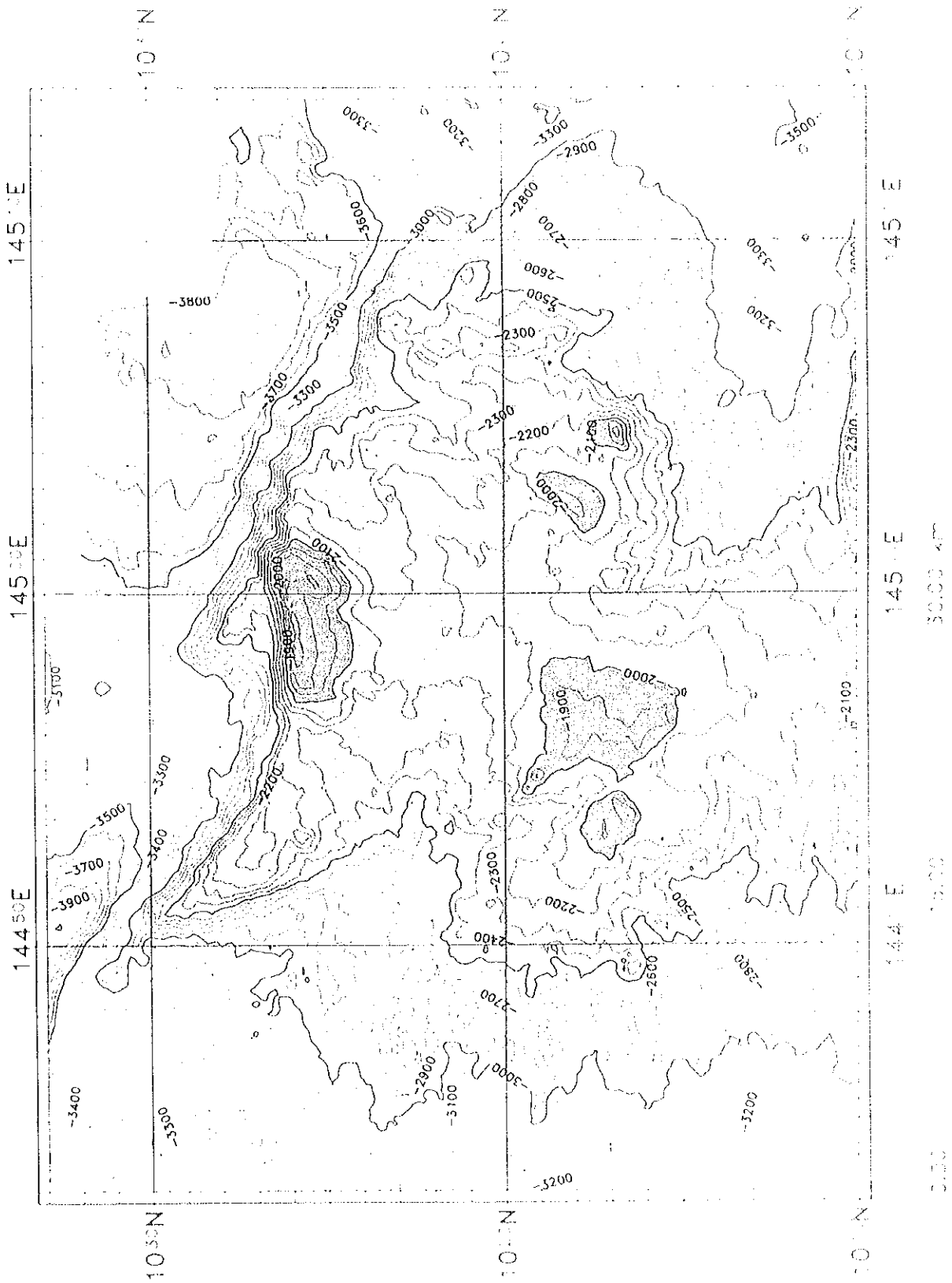
Appendix Fig.2 3 Bathymetric map based on MBES of MC12 area

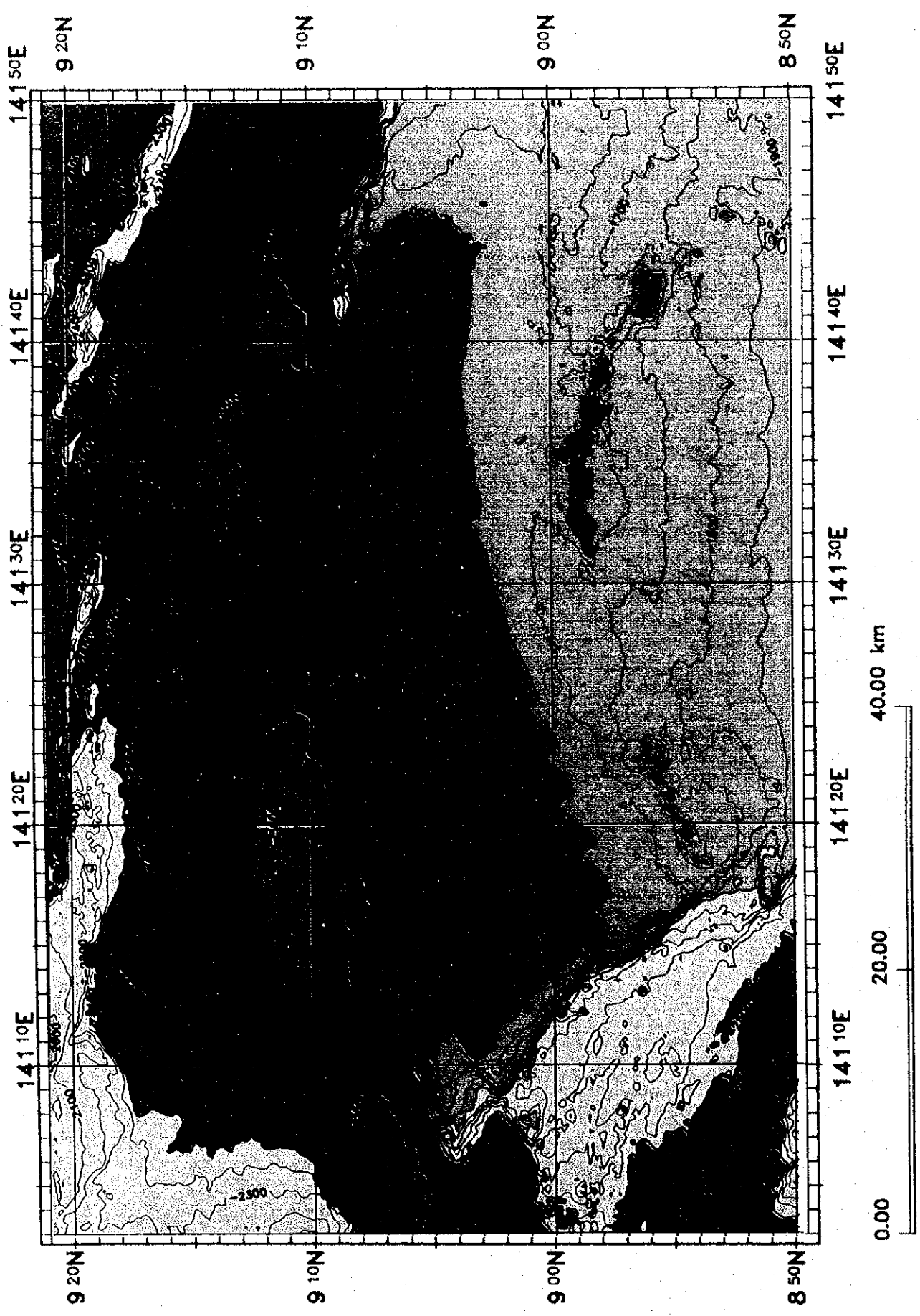


Appendix Fig.2 (4) Bathymetric map based on MBES of MC13 area.

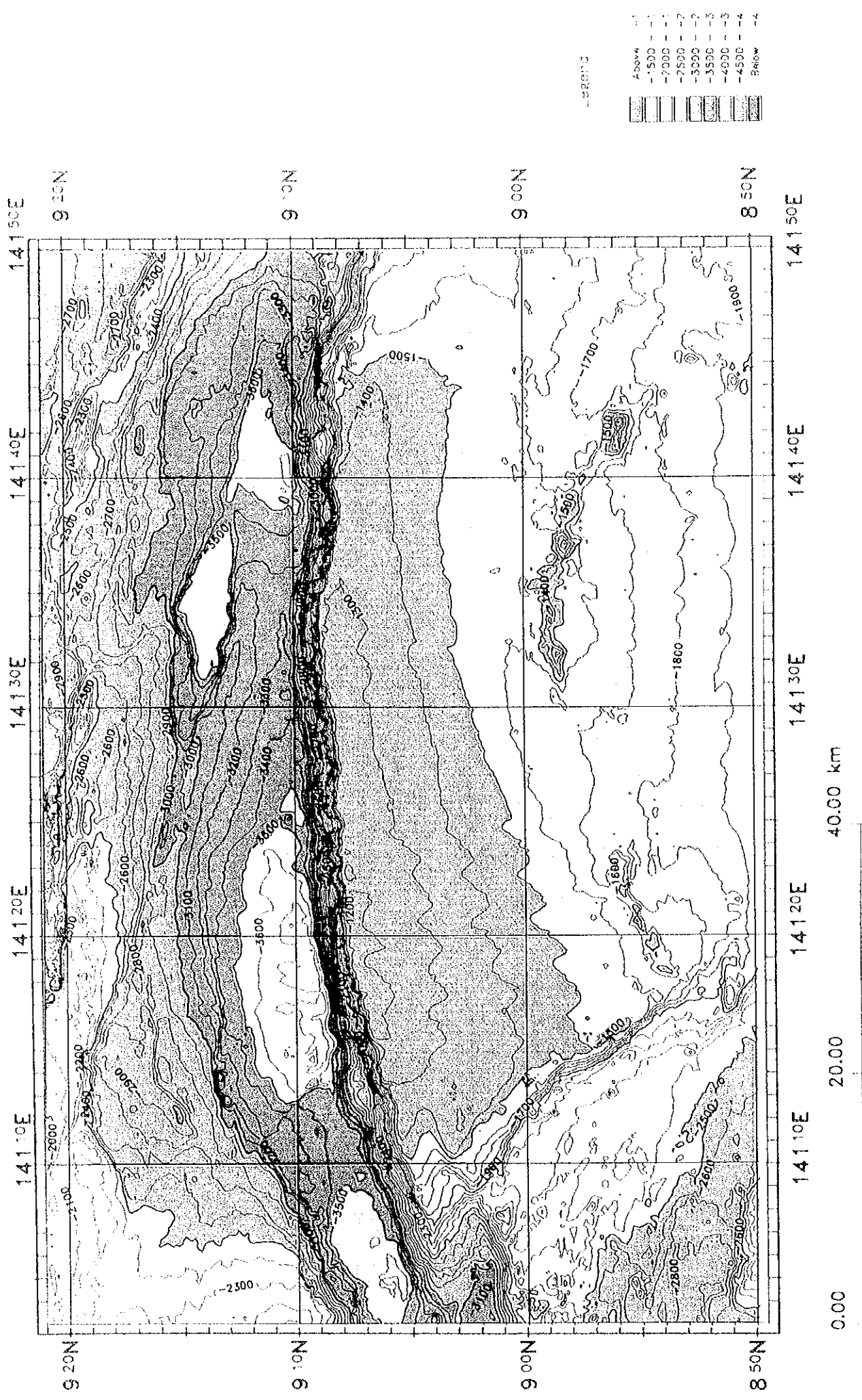


Appendix Fig.2 (4) Bathymetric map based on MBES of MC13 area.

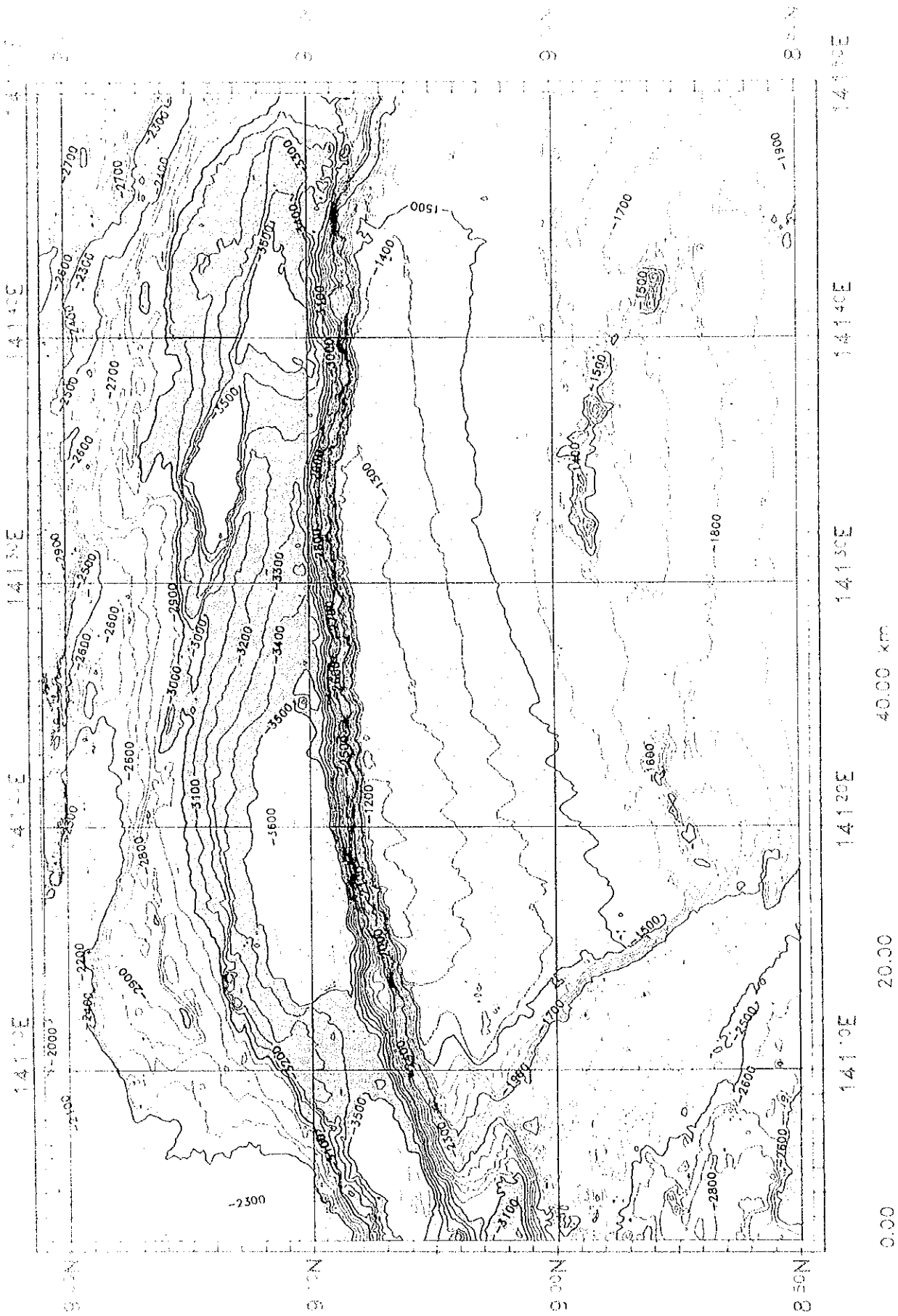




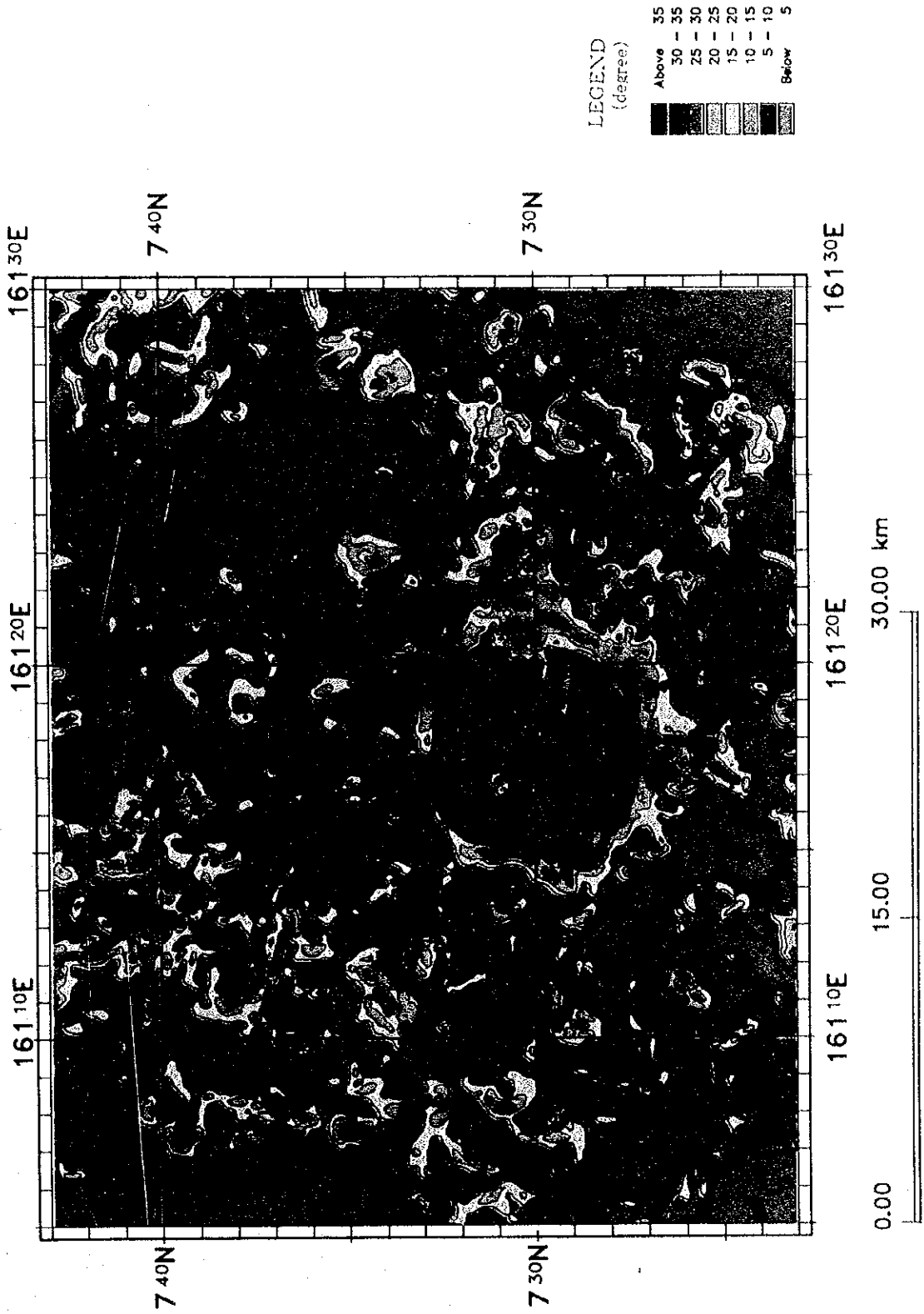
Appendix Fig.2(5) Bathymetric map based on MBES of MC02 area.



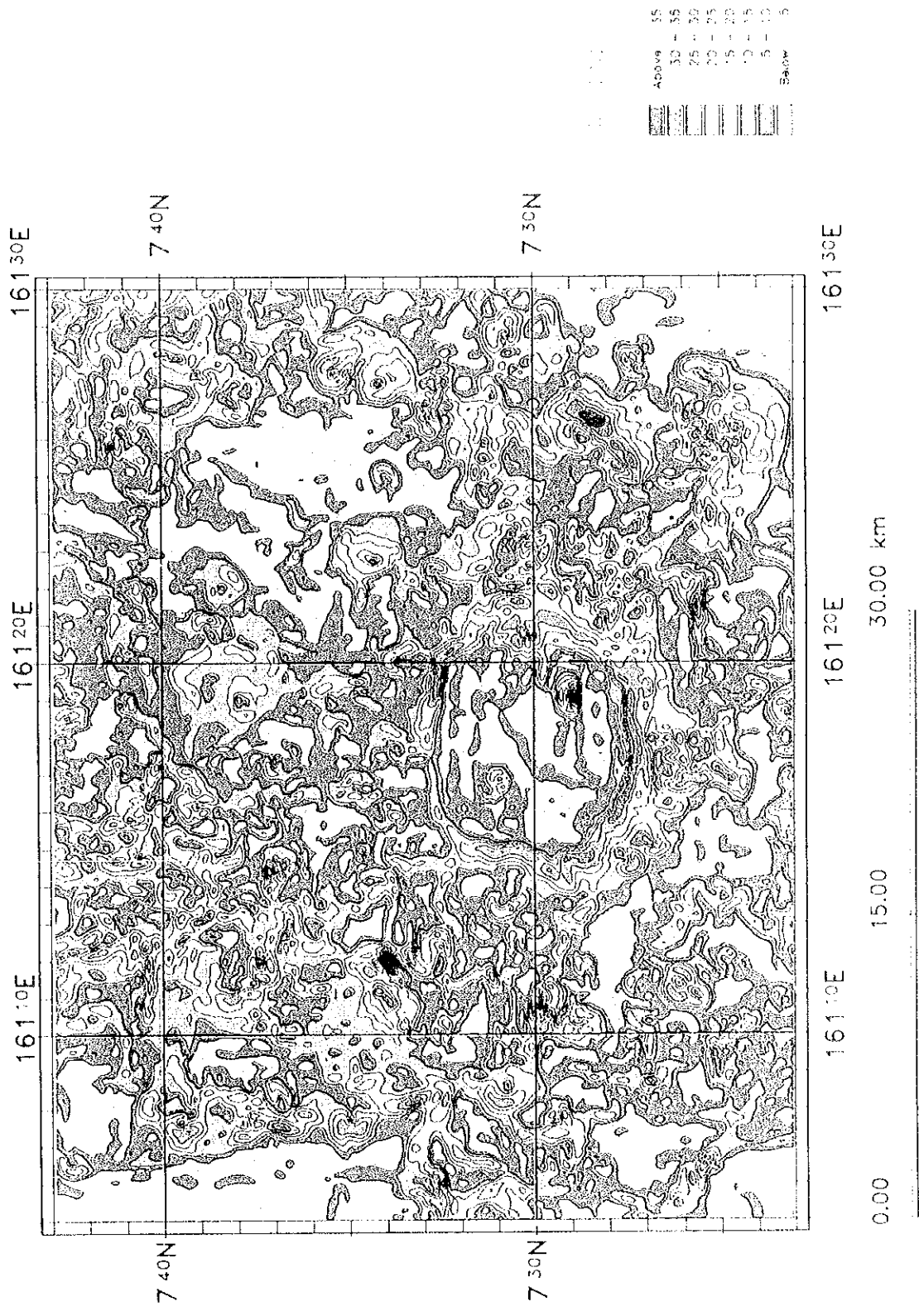
Appendix Fig.2(5) Bathymetric map based on MBES of MC02 area.



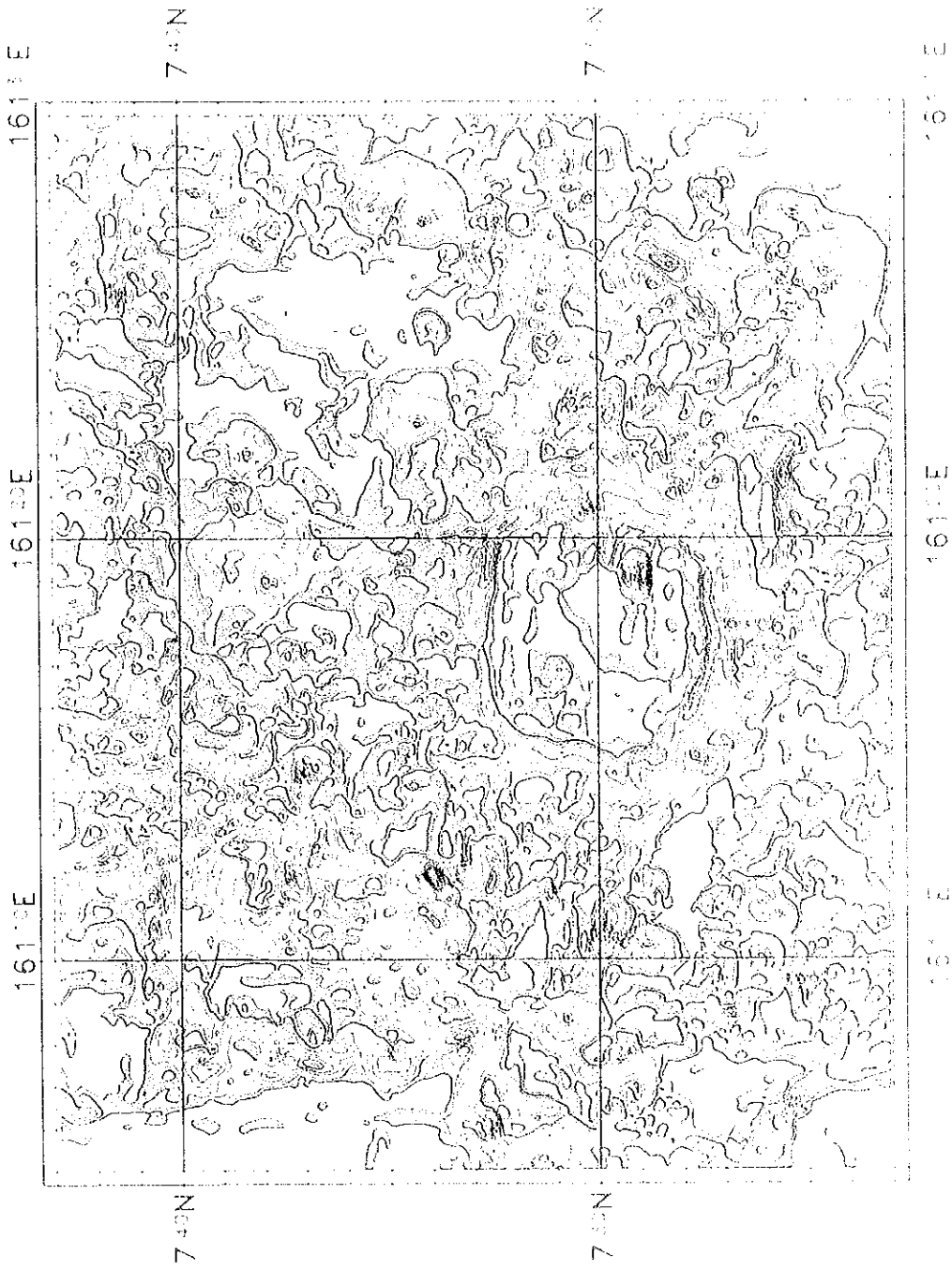
Appendix Fig 2.5: Bathymetric map based on MBFS of MCO2 4-84



Appendix Fig.3 (1) Topographic gradient map based on MBES of MC11 area.

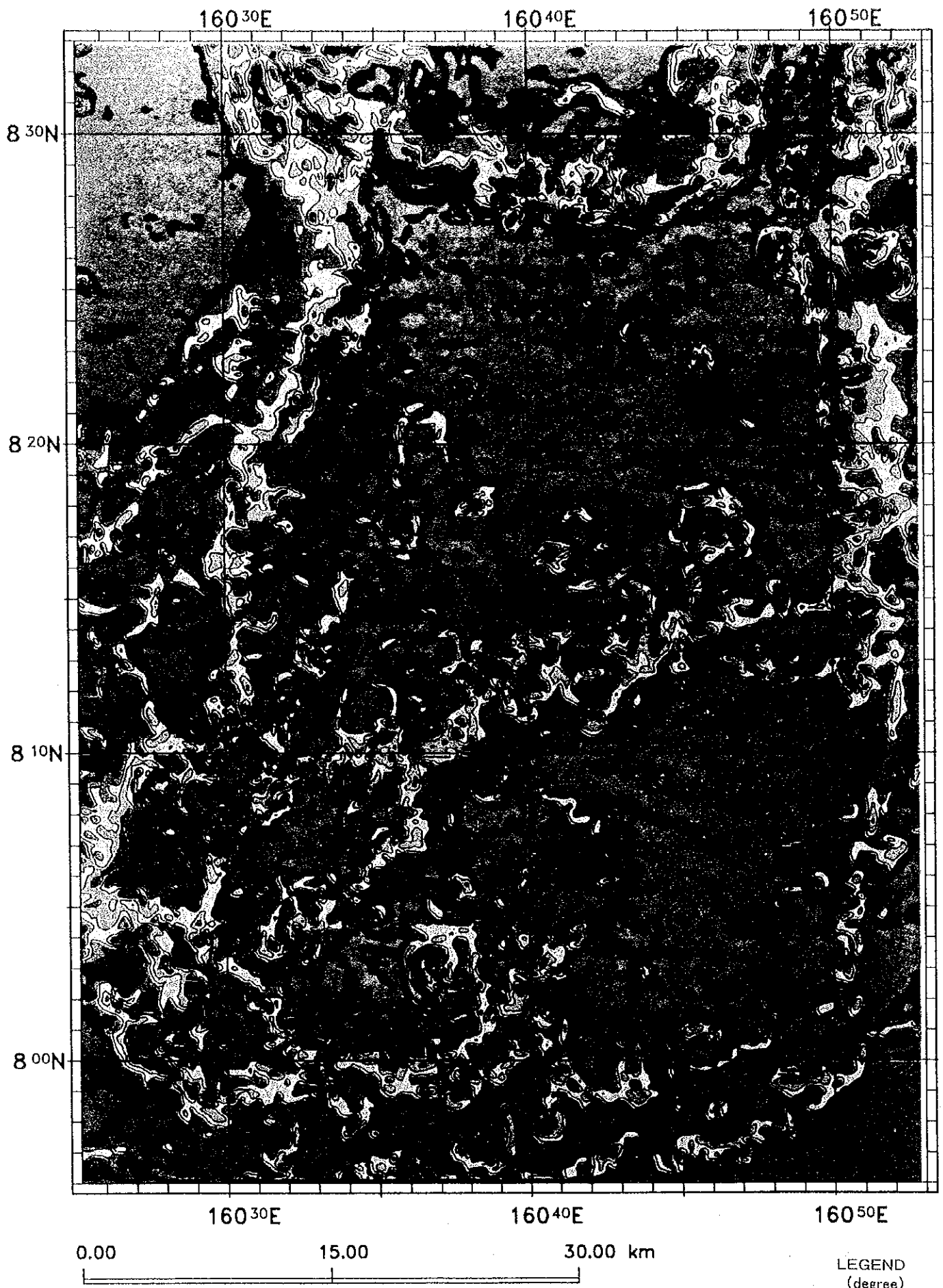


Appendix Fig.0 (1) Topographic gradient map based on MIBES of MIC11 area.

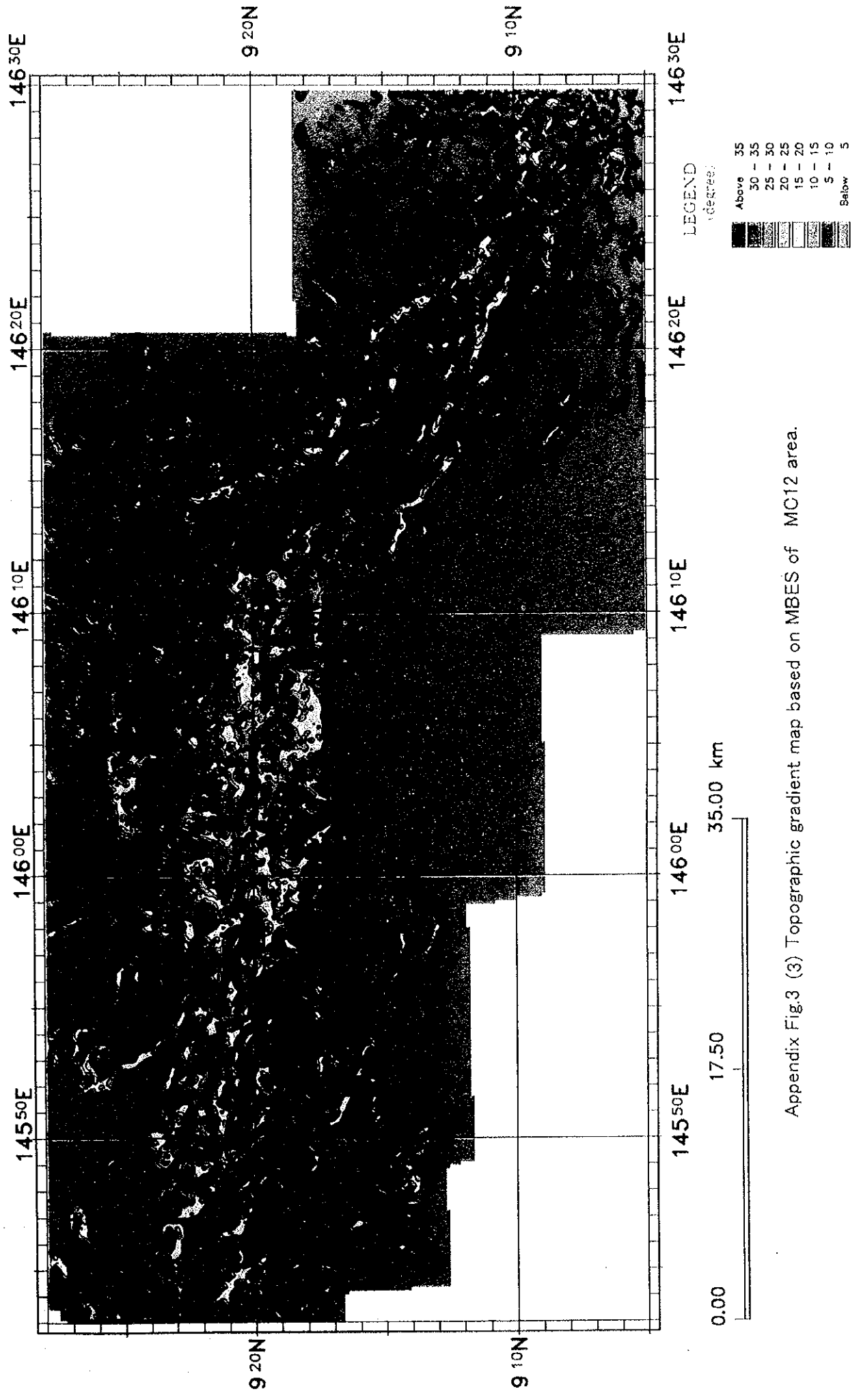


30.00 AM

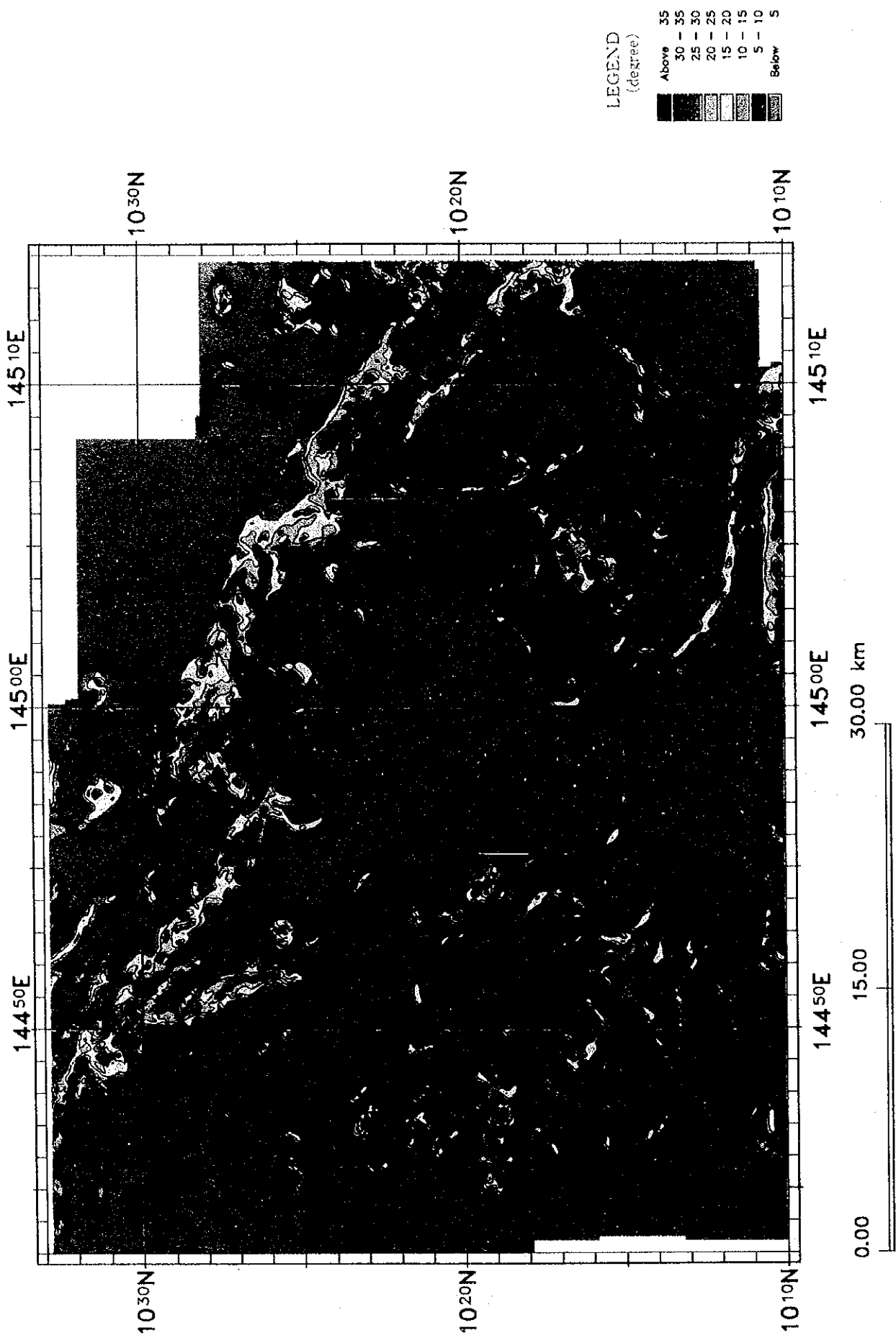
...



Appendix Fig.3 (2) Topographic gradient map based on MBES of MS13 area.



Appendix Fig.3 (3) Topographic gradient map based on MBES of MC12 area.



Appendix Fig.3 (4) Topographic gradient map based on MBES of MC13 area.

Sampling No.	Color	Geological Column	Description	Thickness (cm)
10YR 7/3		Foraminiferal sand including much clay between 30 to 35cm point. Slight sample at 66 cm point.		71
50				
71				

Sampling No.	Color	Geological Column	Description	Thickness (cm)
7.5YR 4/4		Barakish ooze	At surface part, water contain hily and very soft. 5~8cm part, clay become to be hard result on shrinking oxide	98
50				
100				
9R				

Sampling No.	Color	Geological Column	Description	Thickness (cm)
10YR 7/4		Barakish ooze	At surface part, water contain hily and very soft. At 90cm point, 2cm nodule sampled	140
50				
100			Between surface and 80cm point. Spots which are trace scattering	
150				





Sampling No.	Color	Geological Column	Description	Thickness (cm)
			Not sampled. Crust Sticking at point of bit.	

Sampling No.	Color	Geological Column	Description	Thickness (cm)
7.5YR 7/2		White~brownish foraminiferal sand.	Between surface to 80cm point, including clay and some part, shows clay excel layer, partially, including coarse foraminiferal sand or white clay	129
50				
100				
129				

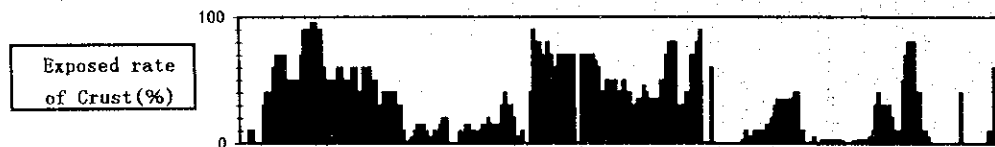
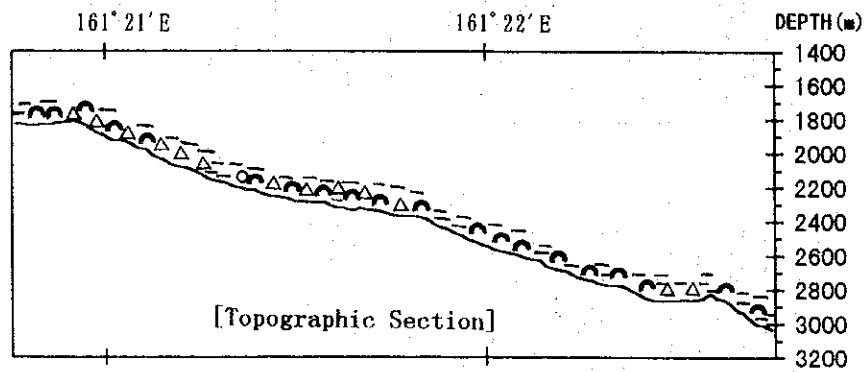
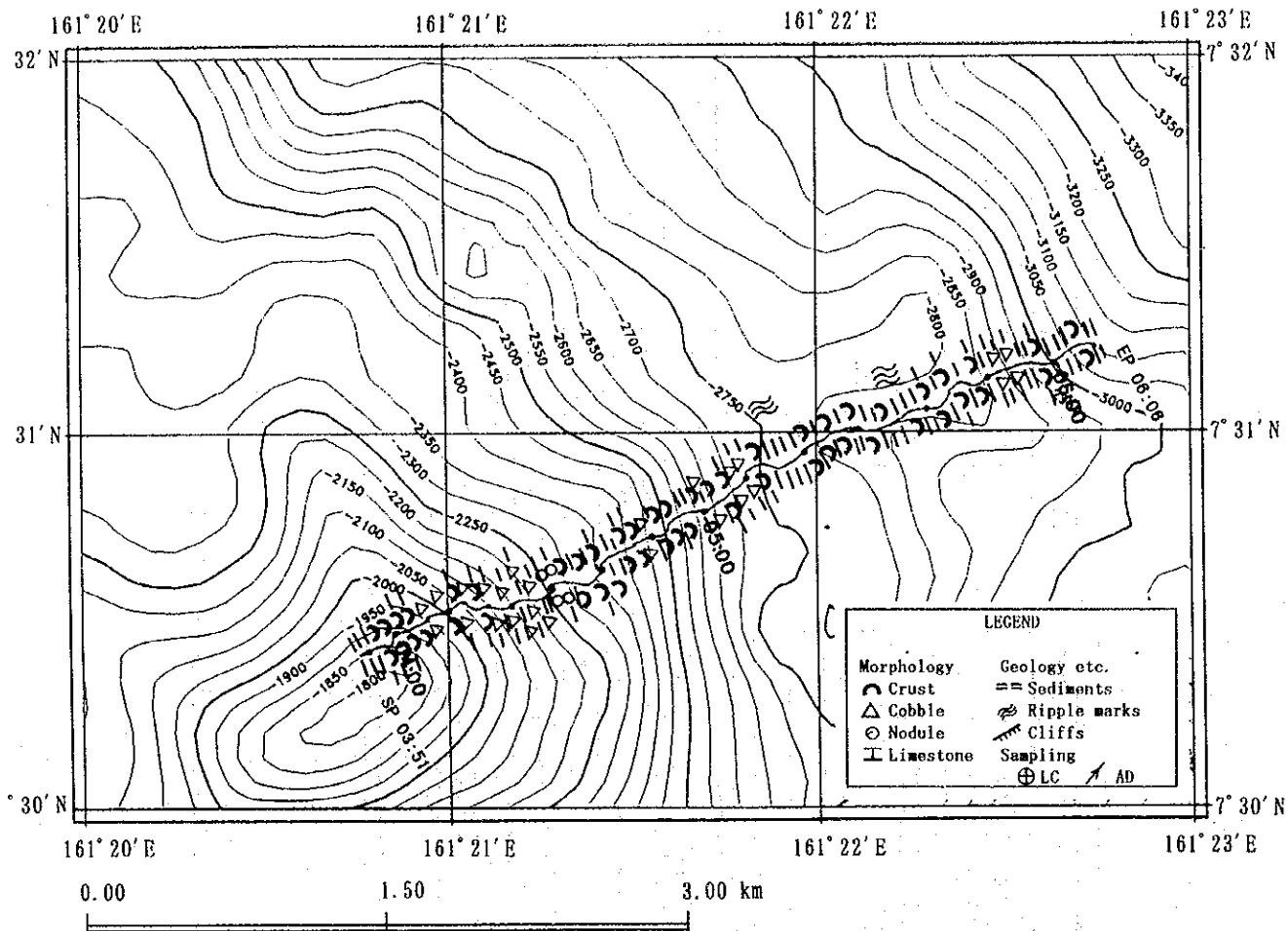
Sampling No.	Color	Geological Column	Description	Thickness (cm)
7.5YR 8/2		Calcareous clay		215
50			Including foraminifera sand and micro-nodule in the whole. Water contain high and soft	
100				
150			At 30cm, 43cm, 210cm point, φ some cm nodule sampled.]	
200				

Sampling No.	Color	Geological Column	Description	Thickness (cm)
			Not sampled. Crust sticking at point of bit.	

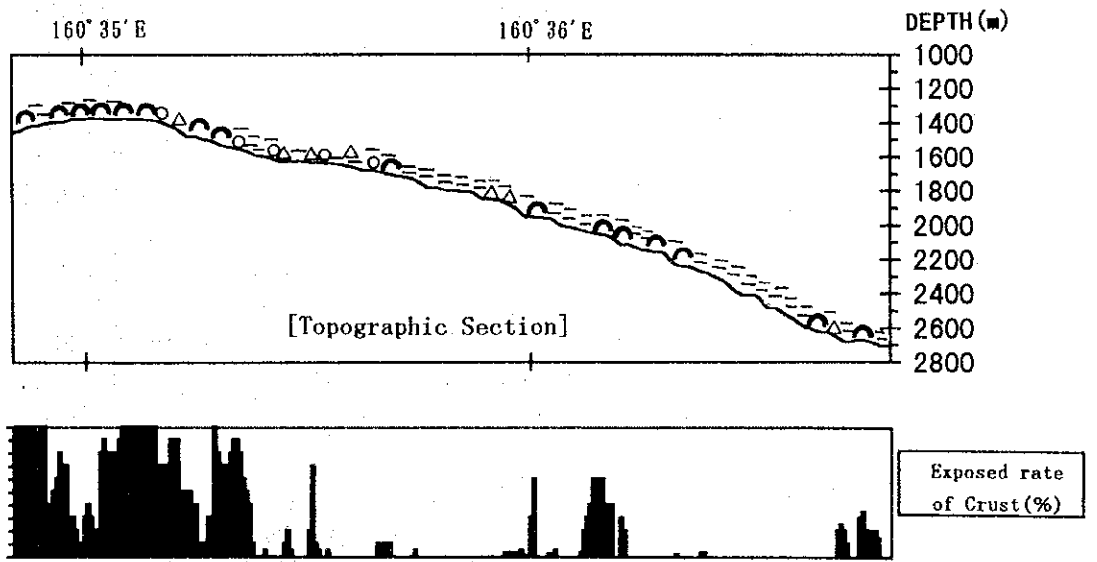
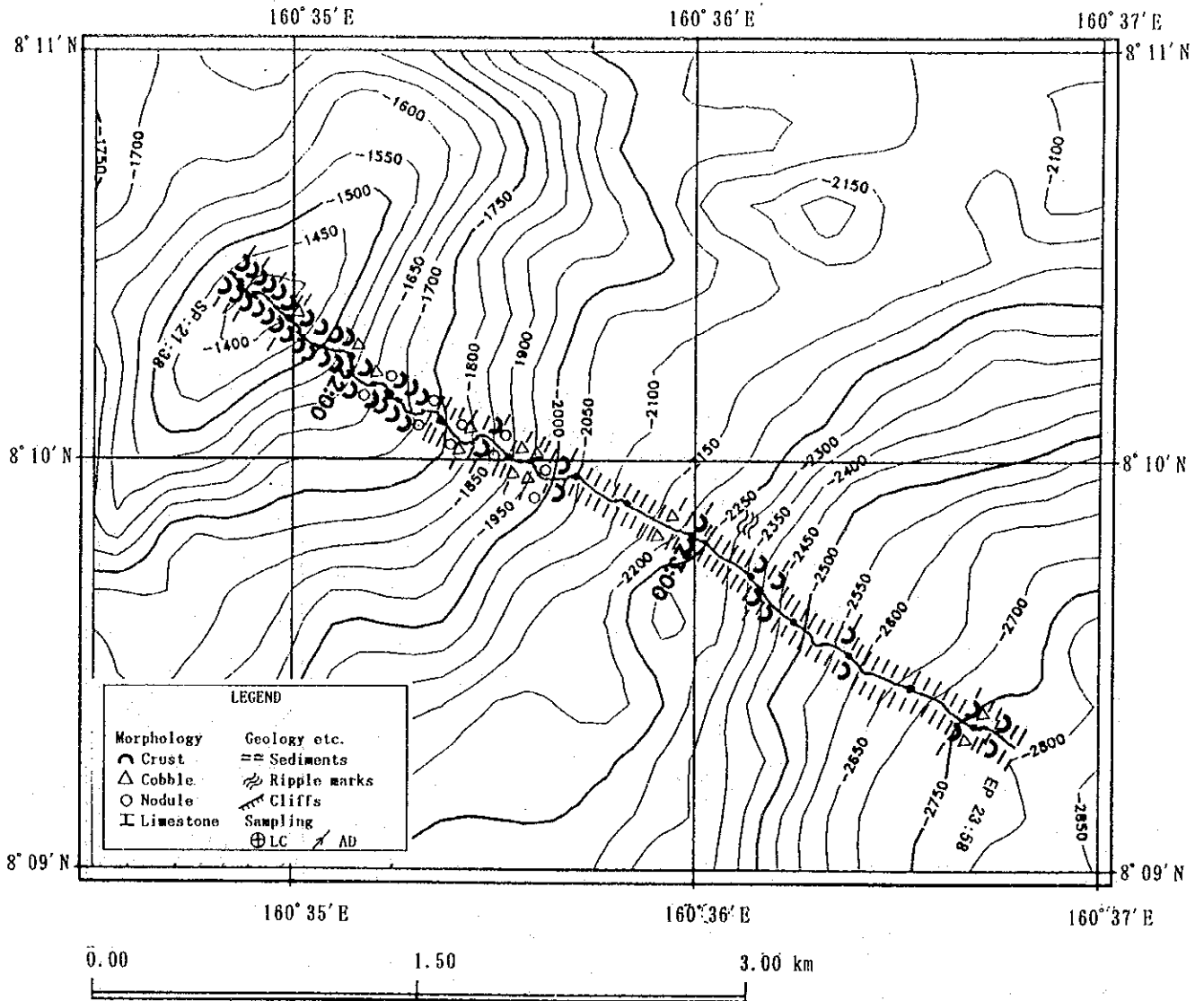
Sampling No.	Color	Geological Column	Description	Thickness (cm)
			Not sampled. Crust sticking at point of bit.	

- Legend
-  Clay
 -  Sand
 -  Rock-Crust
 -  Nodule

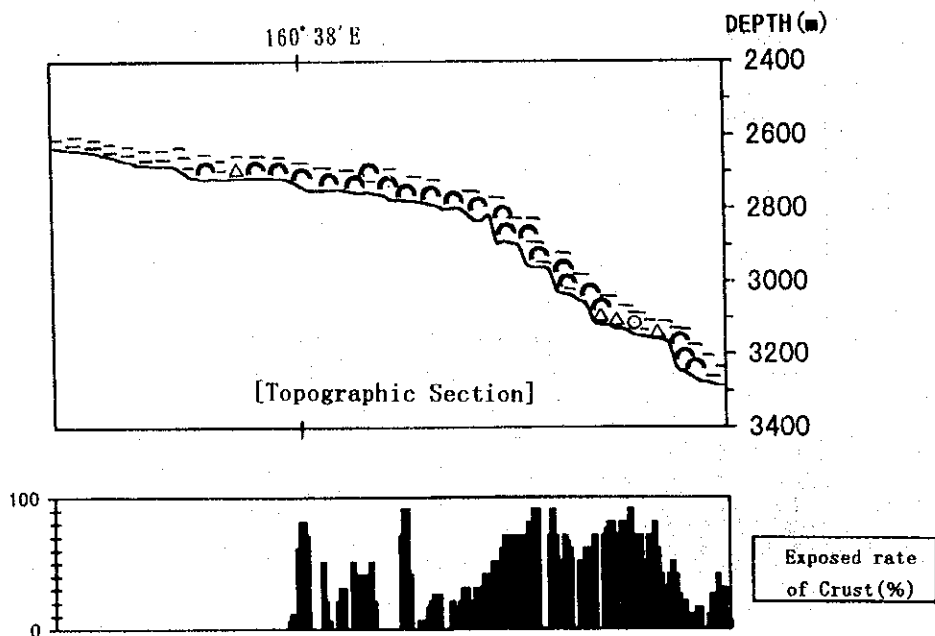
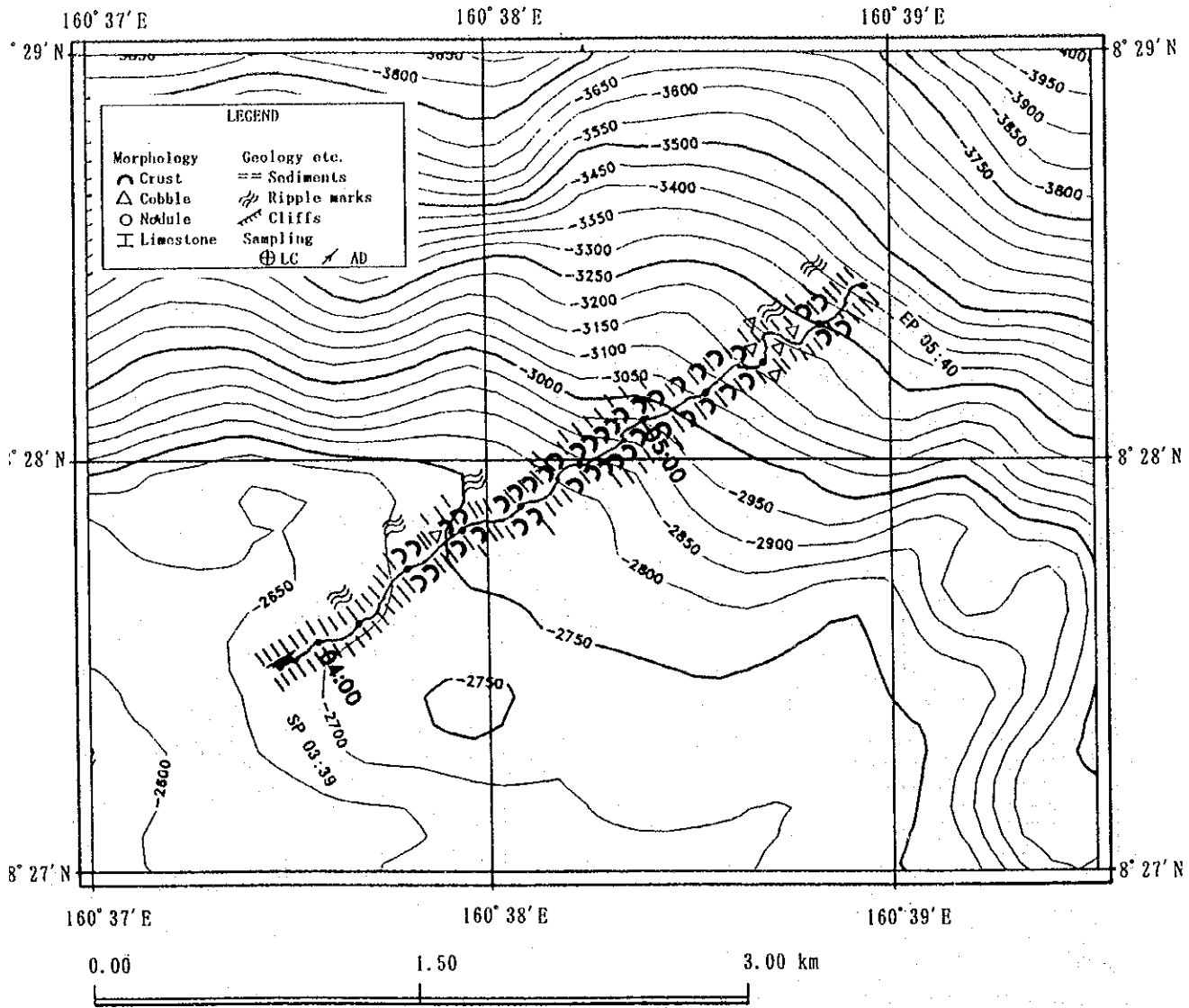
Appendix Fig. 4 Columnar charts of LC core



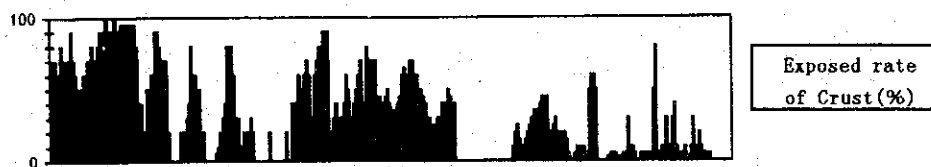
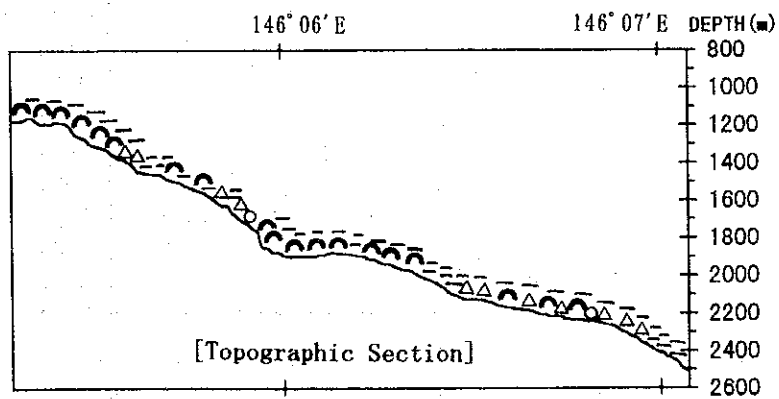
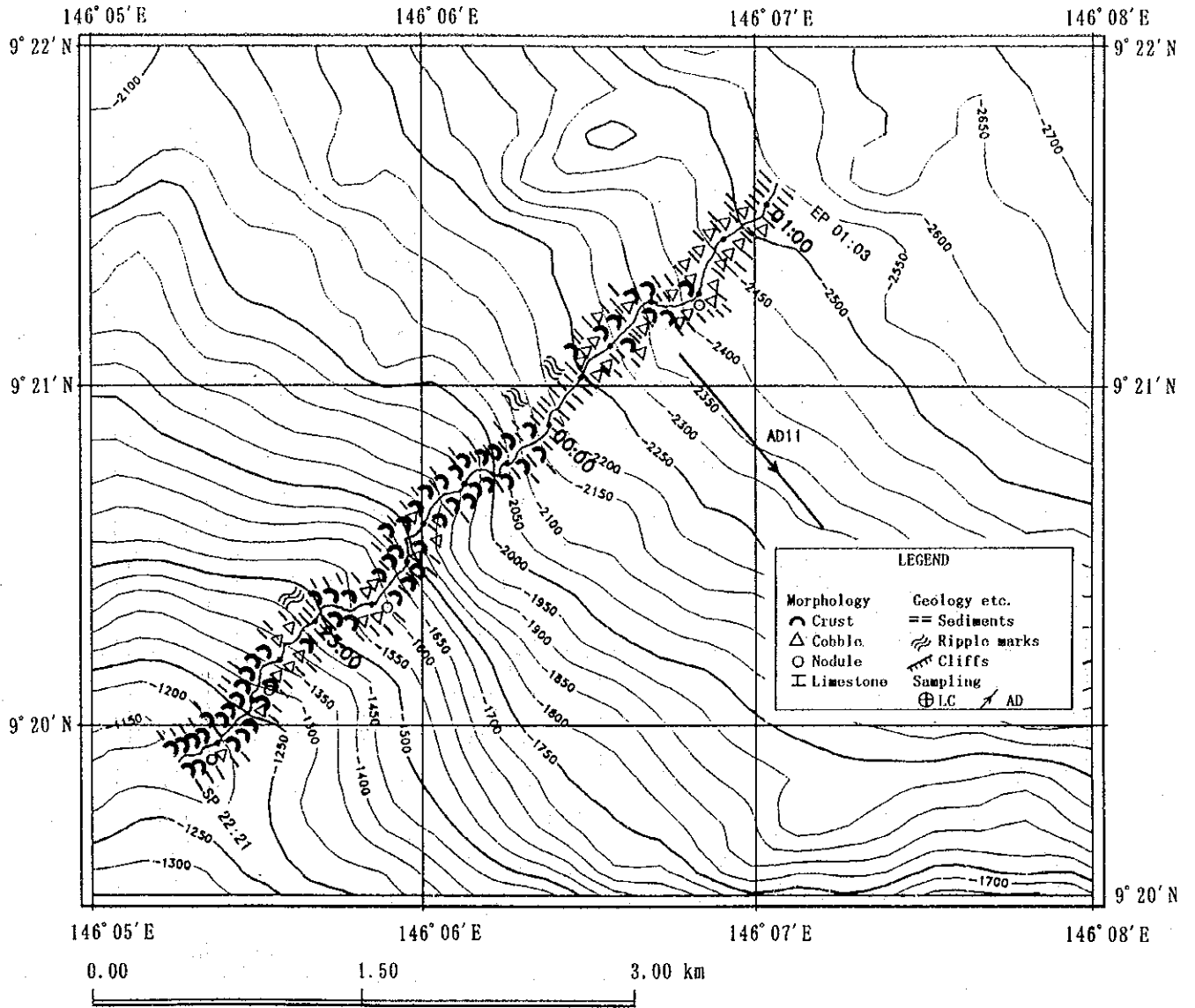
Appendix Fig. 5(1) Route map of FDC observation and exposed rate diagram of manganese crusts (MC11 area : Line 98SMC11FDC01)



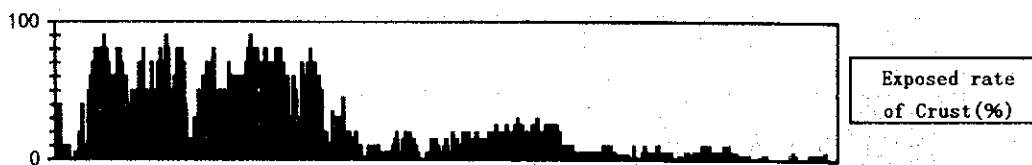
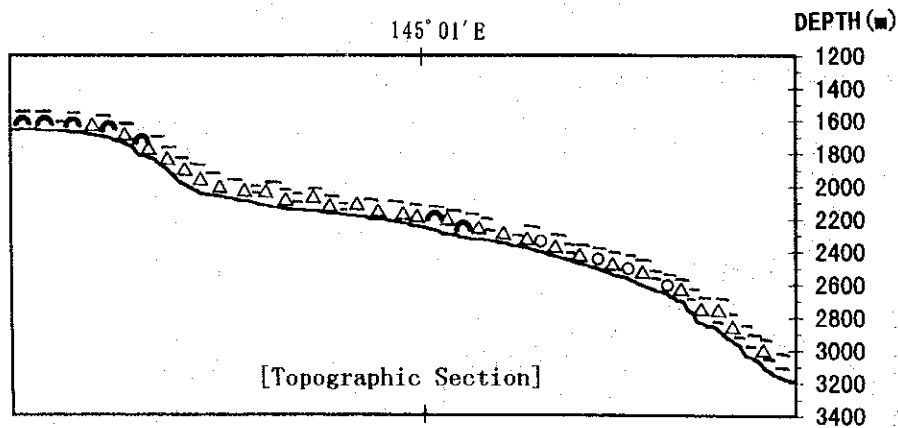
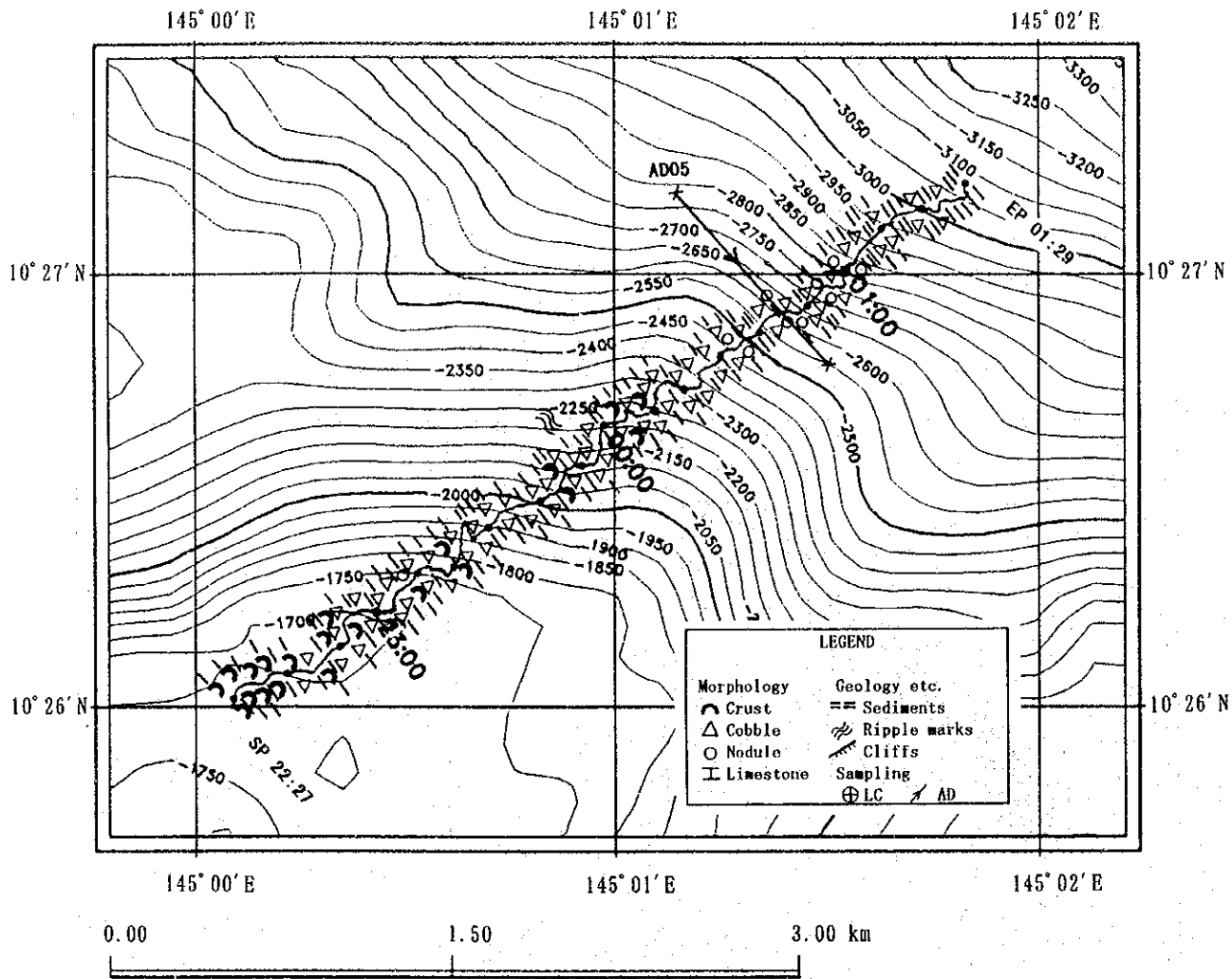
Appendix Fig. 5(2) Route map of FDC observation and exposed rate diagram of manganese crusts (MS13 area : Line 98SMS13FDC01)



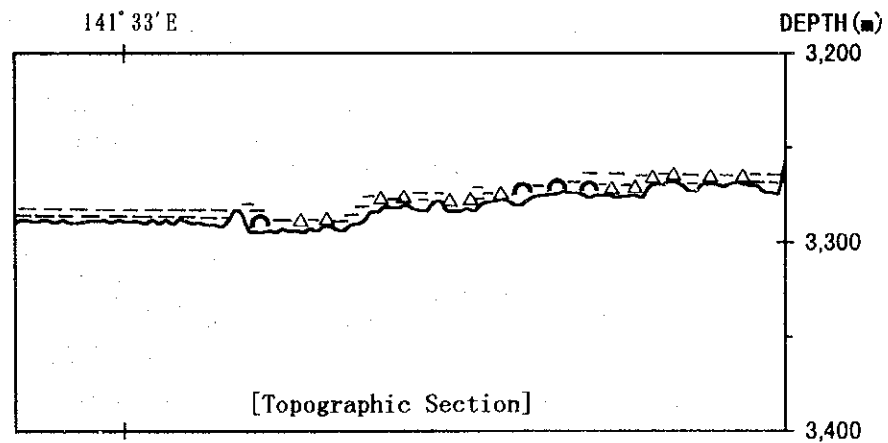
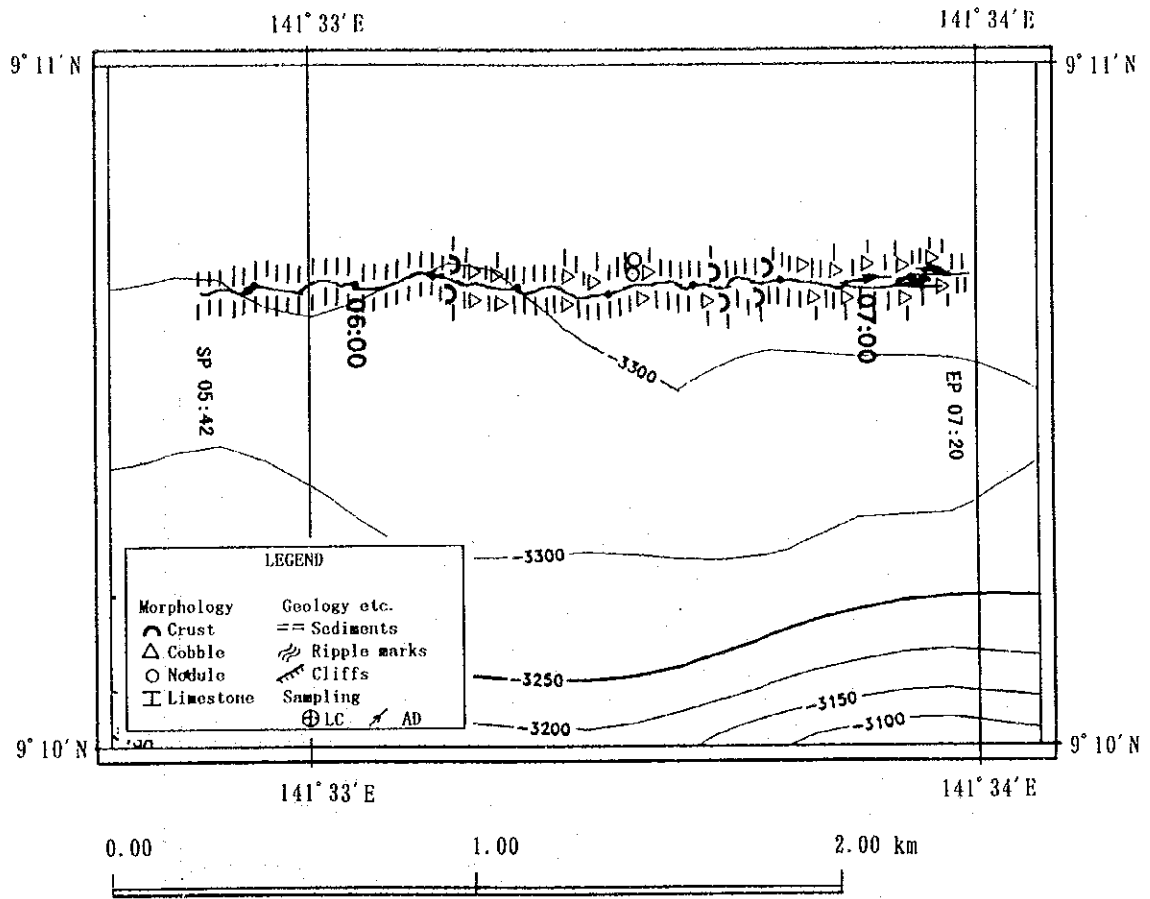
Appendix Fig. 5(3) Route map of FDC observation and exposed rate diagram of manganese crusts (MS13 area : Line 98SMS13FDC02)



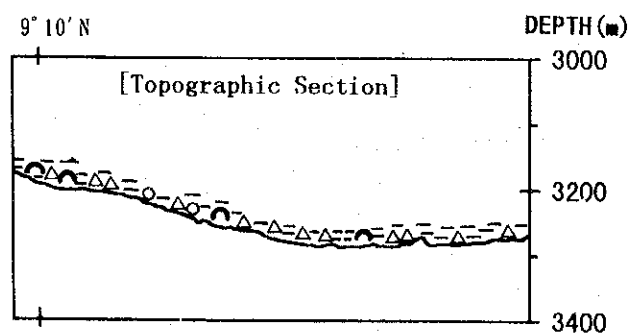
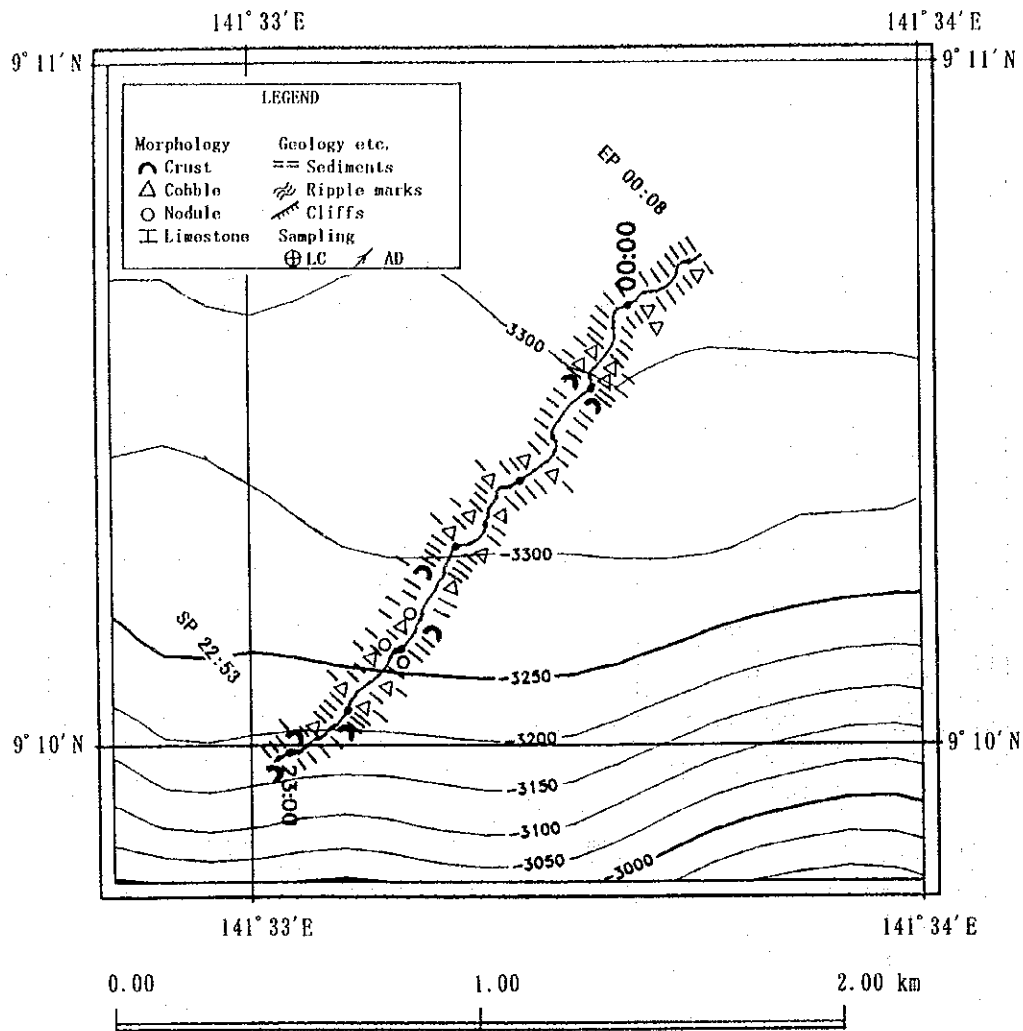
Appendix Fig. 5(4) Route map of FDC observation and exposed rate diagram Of manganese crusts (MC12 area : Line 98SMC12FDC01)



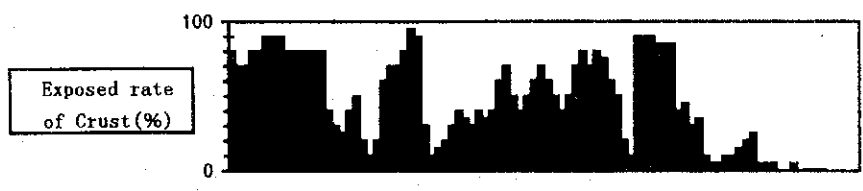
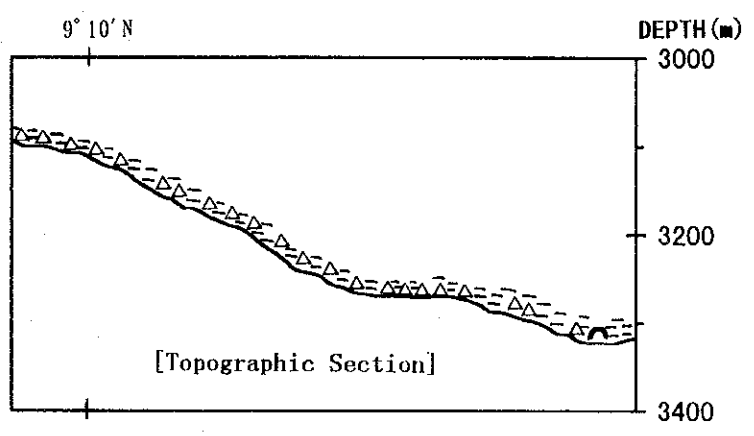
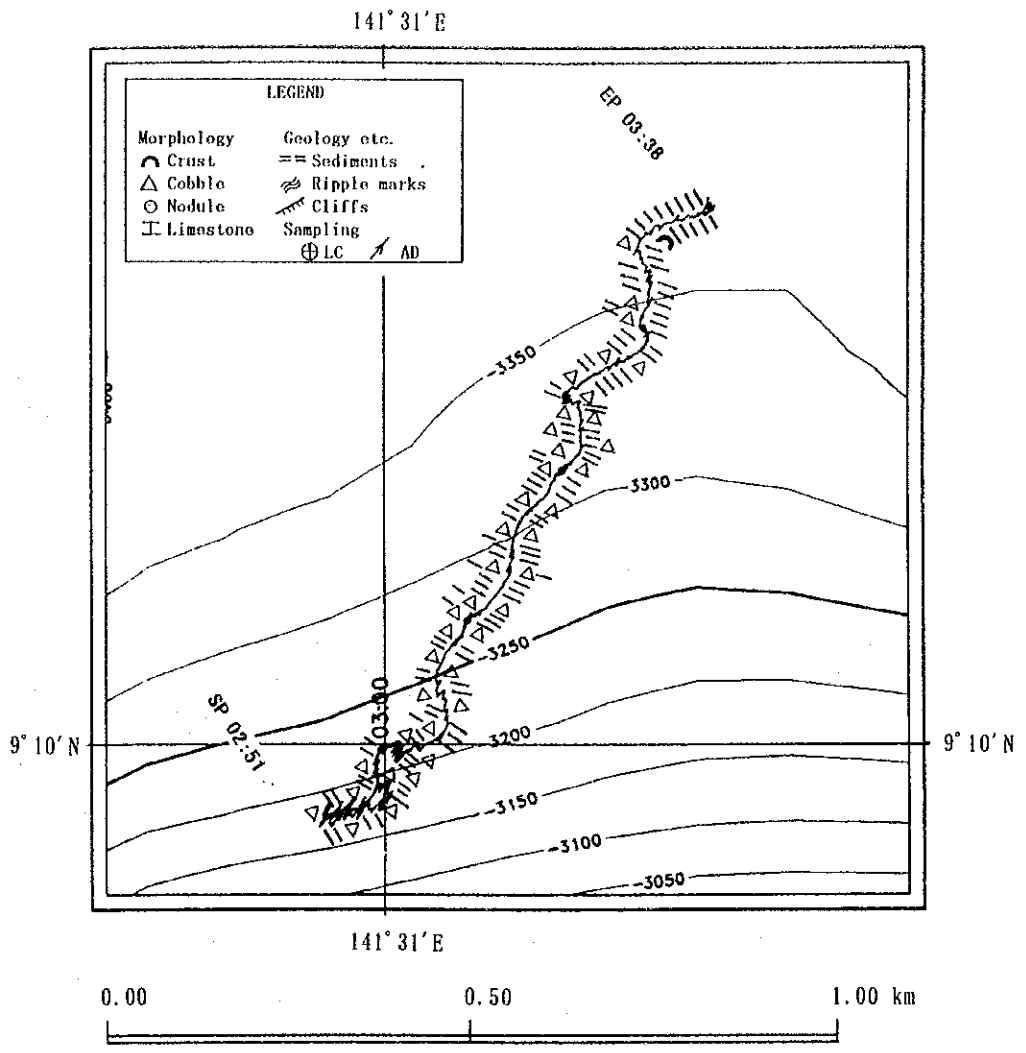
Appendix Fig. 5(5) Route map of FDC observation and exposed rate diagram Of manganese crusts (MC13 area : Line 98SMC13FDC01)



Appendix Fig. 5(6) Route map of FDC observation Of manganese crusts
(MC02 area : Line 98SMC02FDC01)

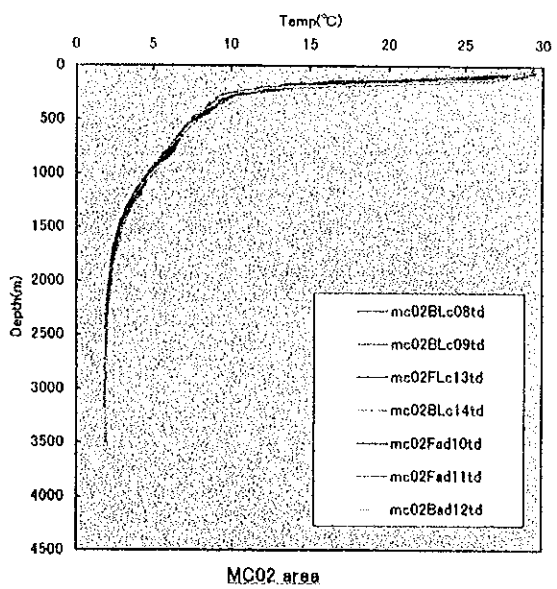
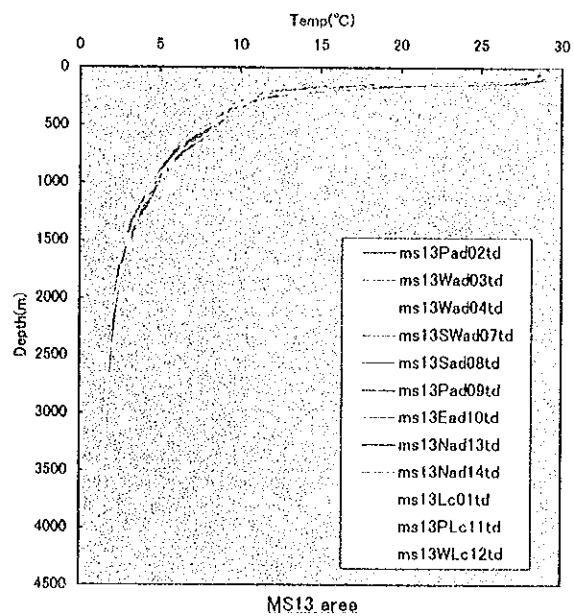
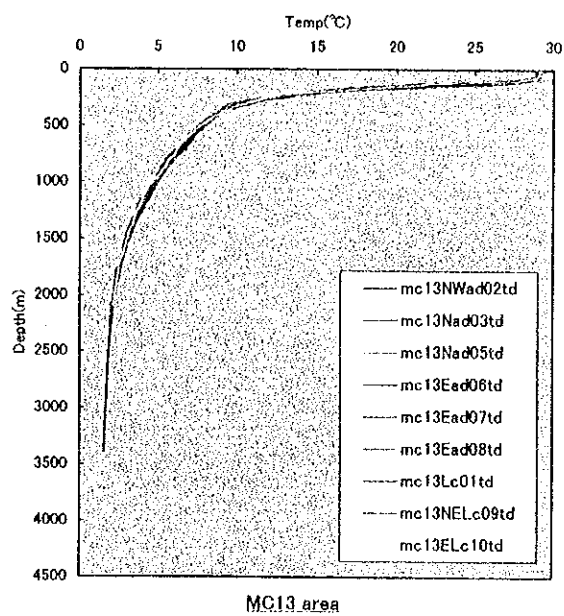
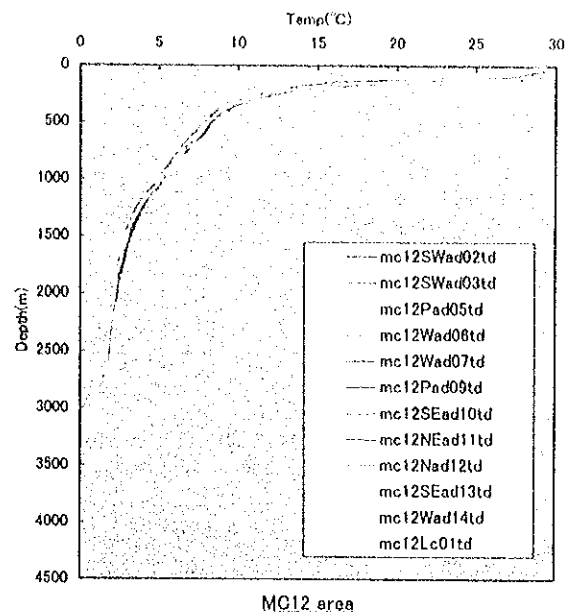
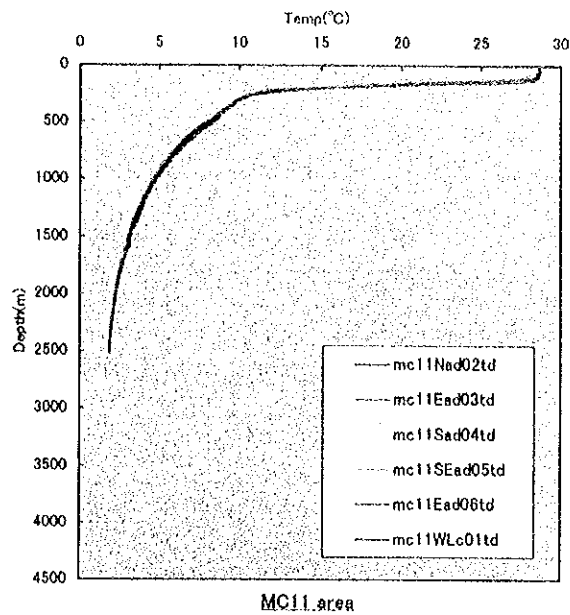


Appendix Fig. 5(7) Route map of FDC observation Of manganese crusts
(MC02 area : Line 98SMC02FDC02)



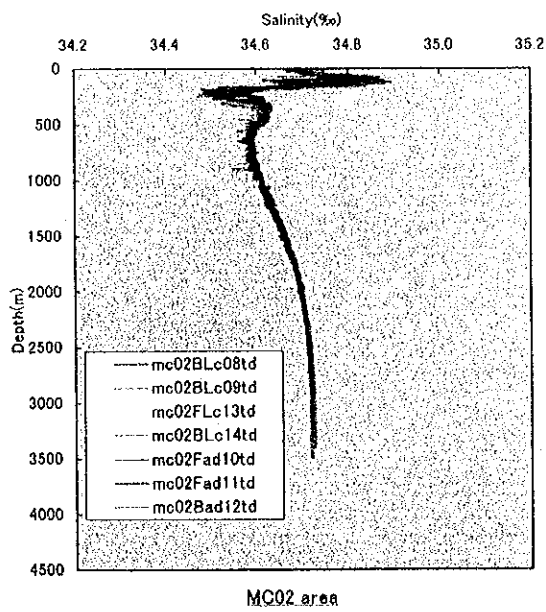
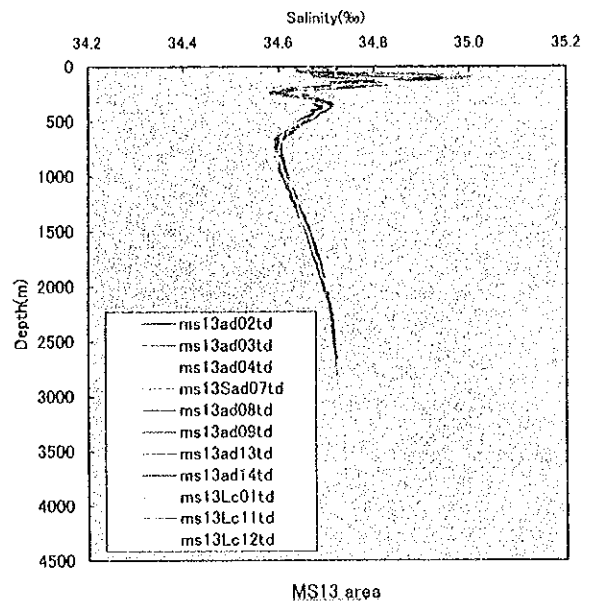
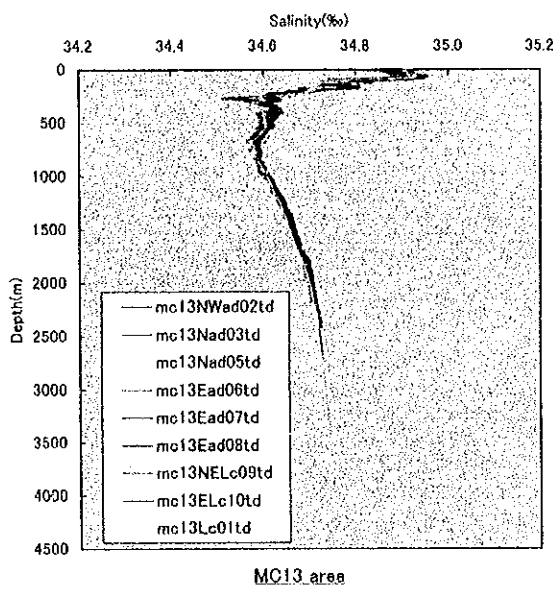
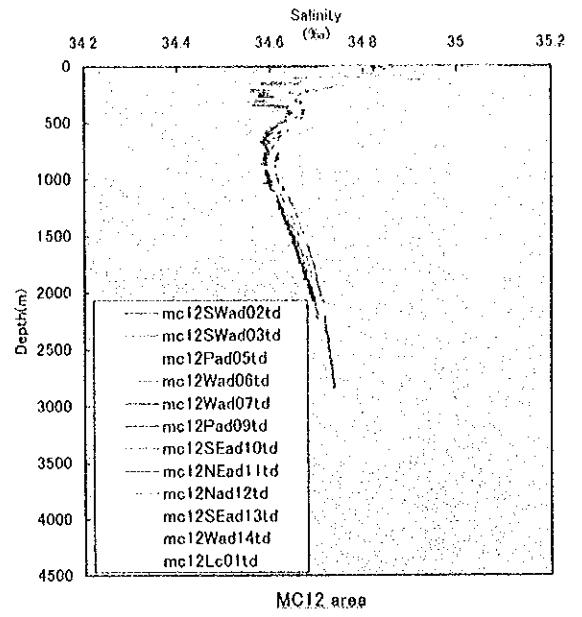
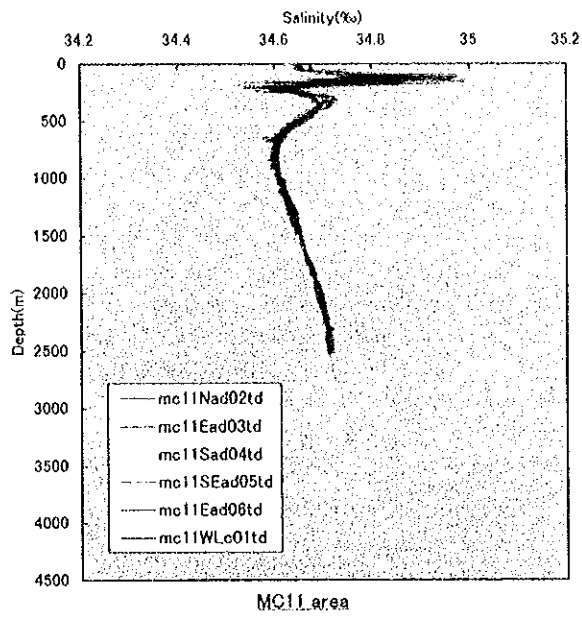
Appendix Fig. 5(8) Route map of FDC observation and exposed rate diagram of manganese crusts (MC02 area : Line 98SMC02FDC03)



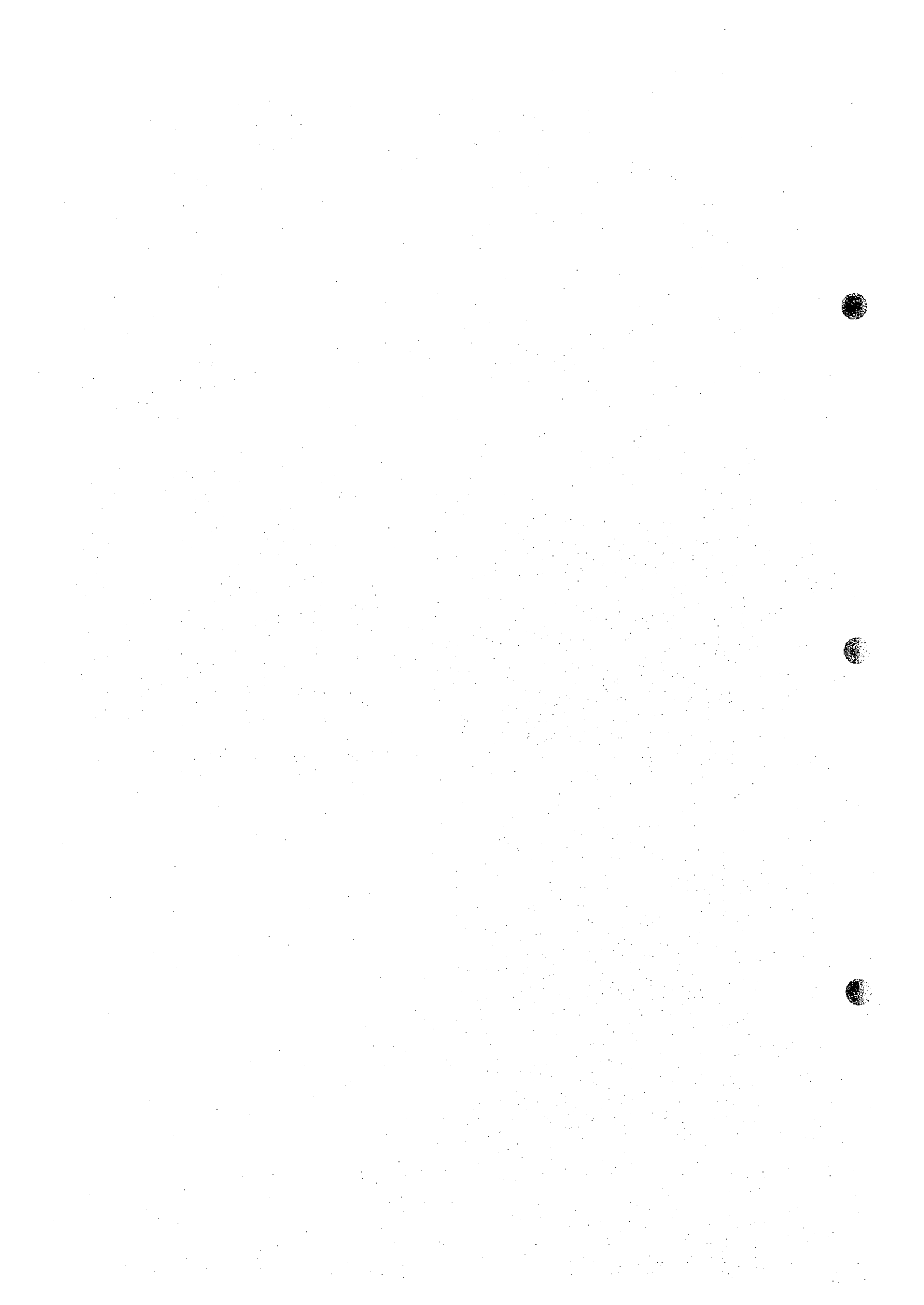


Appendix Fig.6(1) Results of CTD measurement (Temperature)





Appendix Fig.6(2) Results of CTD measurement (Salinity)



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