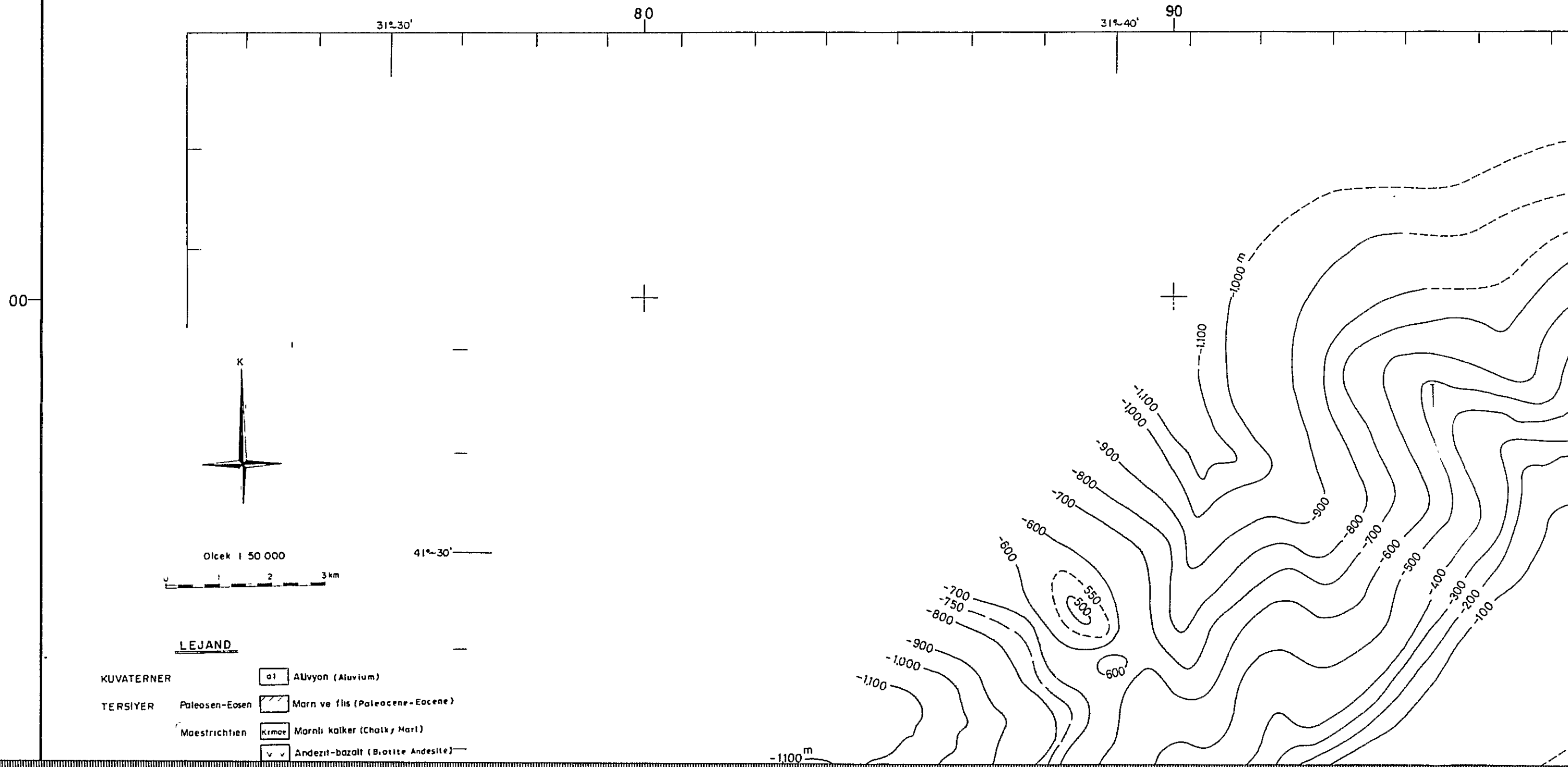
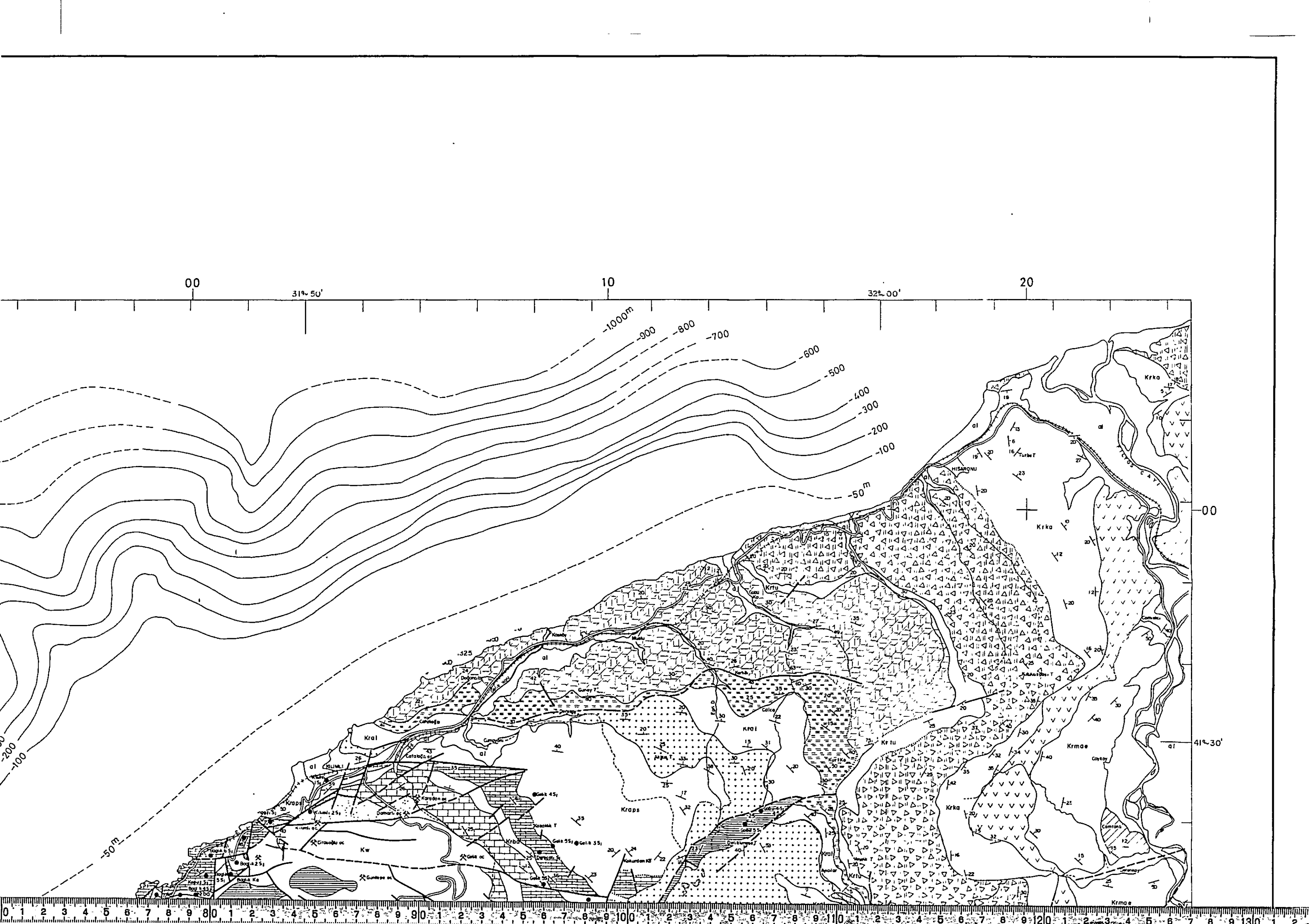


Figure 45 Bathymetry Map of Offshore Area of Zonguldak

Scale 1 : 50,000

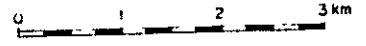






Ölçek 1 50 000

41°-30'



LEJAND

KUVATERNER	a1	Alüvyon (Alluvium)
TERSİYER		
	Paleosen-Eosen	Marn ve flis (Paleocene-Eocene)
Maestrichtien	Krmae	Marnlı kalker (Chalky Marl)
Kampanien	Krka	Marnlı kalker (Marly Alternation)
Santonien		
Koniasien	Krtu	Marnlı kalker (Bedded Marl)
Turonien		
		Volkanit, Pillow-lava (Glaucönitic Alternation)
KRETASE		
Senomanien	Krse	Flis (Flisch)
		Mavi marn (Blue Marl)
Aiblen	Kral	Glokonlî kumtasî (Glaucönitic Sandstone)
		Vekbey kumtasî (Velibey Sandstone)
Apsien	Kraps	Marn, flis (Marty flisch)
		Kalker (Apcian Limestone)
Barremien	Krba	incüvez serisi (Incüvez)
		Kalker (Barremian Limestone)
KARBONİFER		
Westfalen		Karadon serisi (Karadon Conglomerate)
	Kw	Kozlu serisi (Kozlu Coal Bearing)
Namurien		Alacaağızî serisi (Argillaceous Alternation)
Vizeen		Dolomîtk kalker (Dolomitic Limestone)
DEVONİEN		
		Kalker, kuvarsit (Devonian Arenaceous)

-500 — Depth Contour Line of Sea Bottom

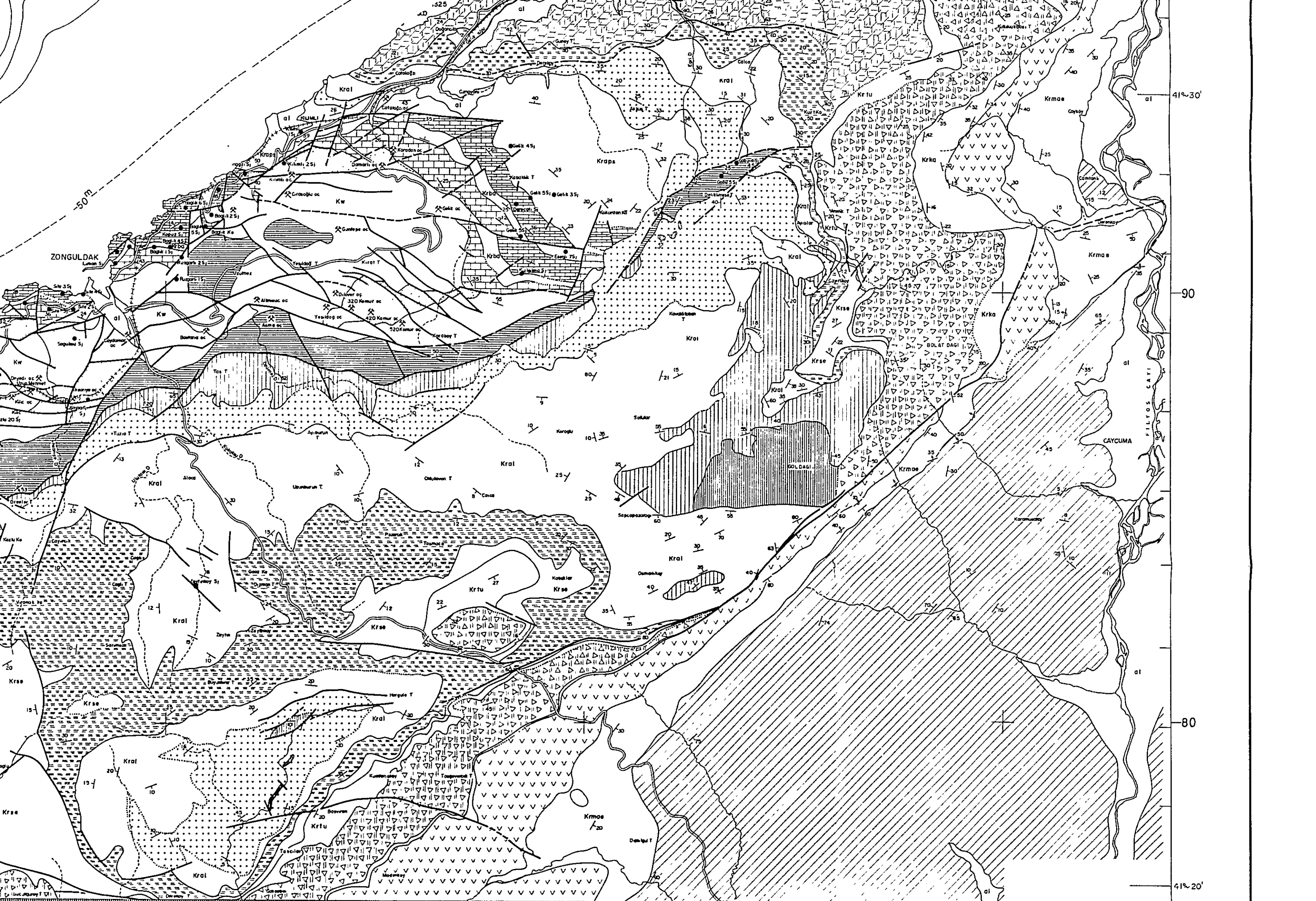


90

80

41°-20'

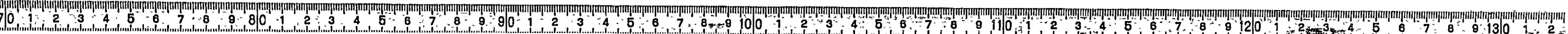
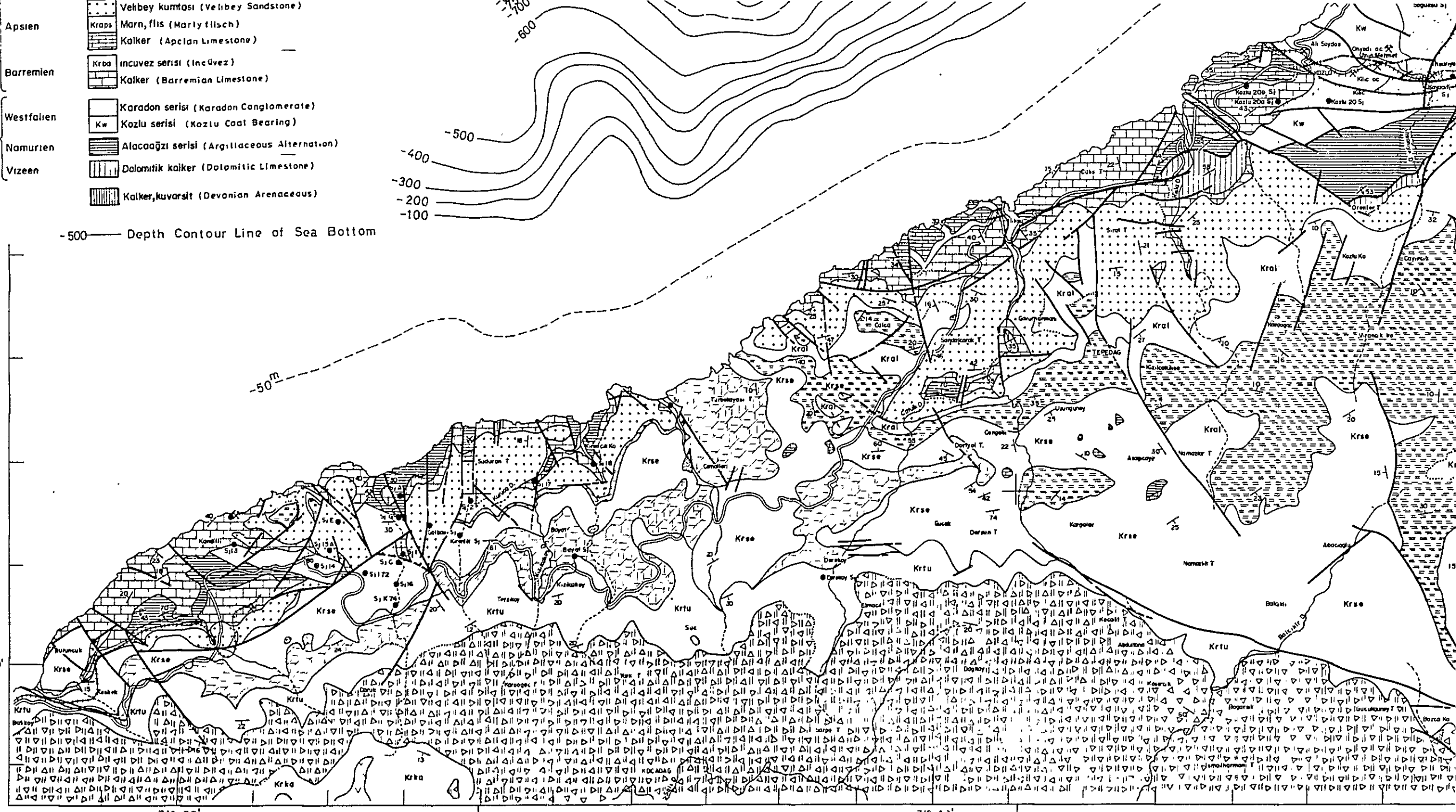


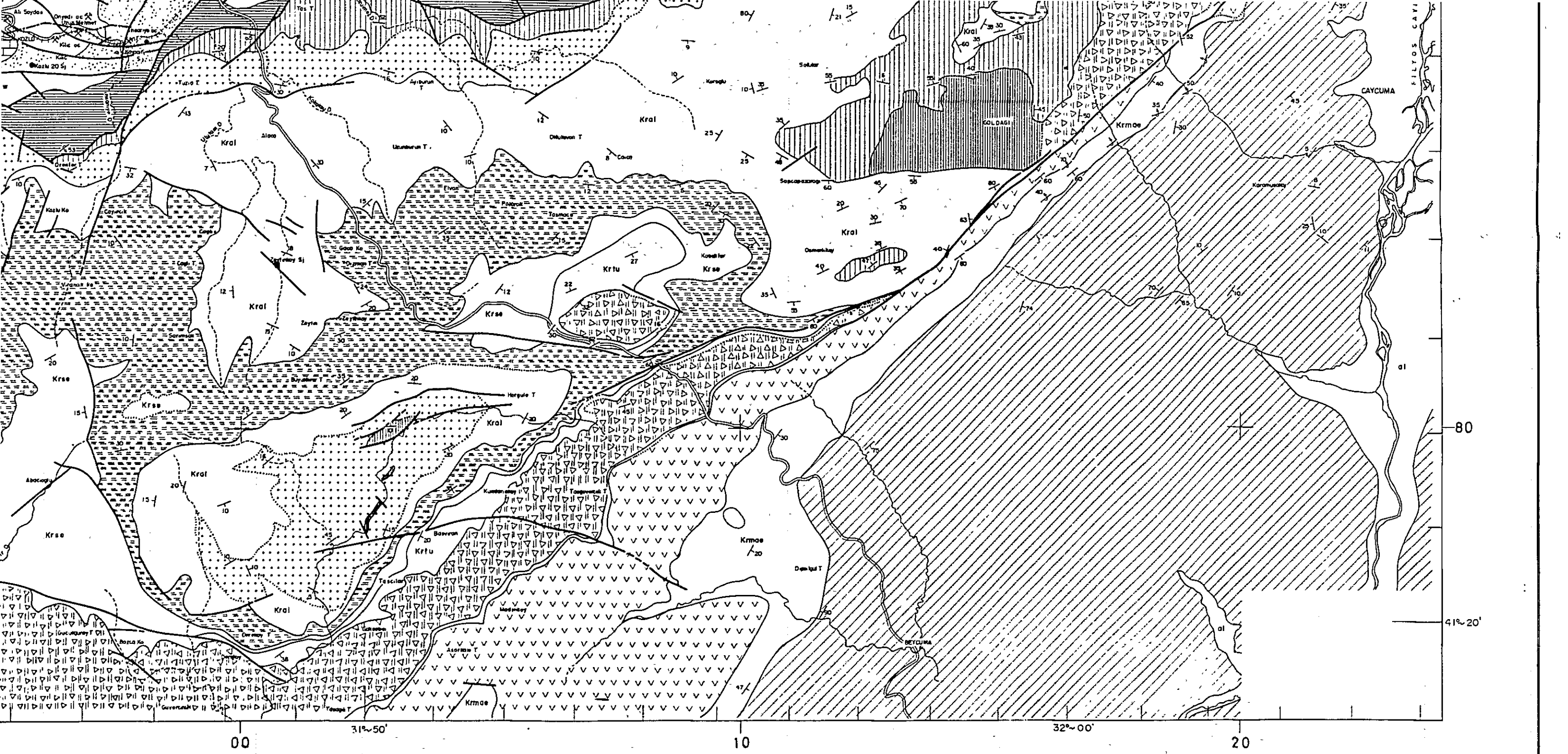


- Velibey kumtası (Velibey Sandstone)
- Krapa Marn, flis (Marly flisch)
- Kalker (Apclan Limestone)
- Krapa incuvez serisi (Incüvez)
- Kalker (Barremian Limestone)
- Karadon serisi (Karadon Conglomerate)
- Kw Kozlu serisi (Kozlu Coat Bearing)
- Alacaözü serisi (Argillaceous Alternation)
- Dolomitik kalker (Dolomitic Limestone)
- Kalker, kuvarslı (Devonian Arenaceous)

Apsien
 Barremien
 Westfalen
 Namurien
 Vizeen
 KARBONIFER
 DEVONIEN

-500 — Depth Contour Line of Sea Bottom





COAL DEVELOPMENT PROJECT AT OFFSHORE AREA OF ZONGULDAK COAL FIELD	
Bathymetry Map of Offshore Area of Zonguldak	
Scale 1 : 50,000	
Japan International Cooperation Agency (JICA)	
Date : Aug, 1982	Fig. 45

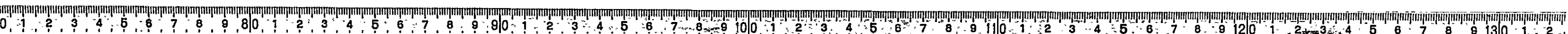
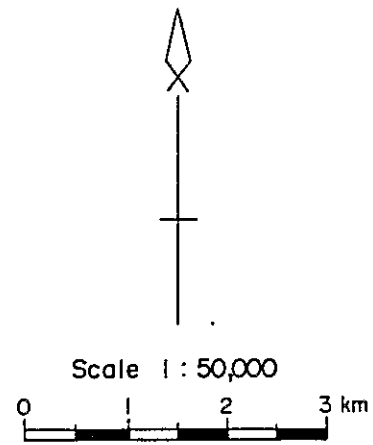
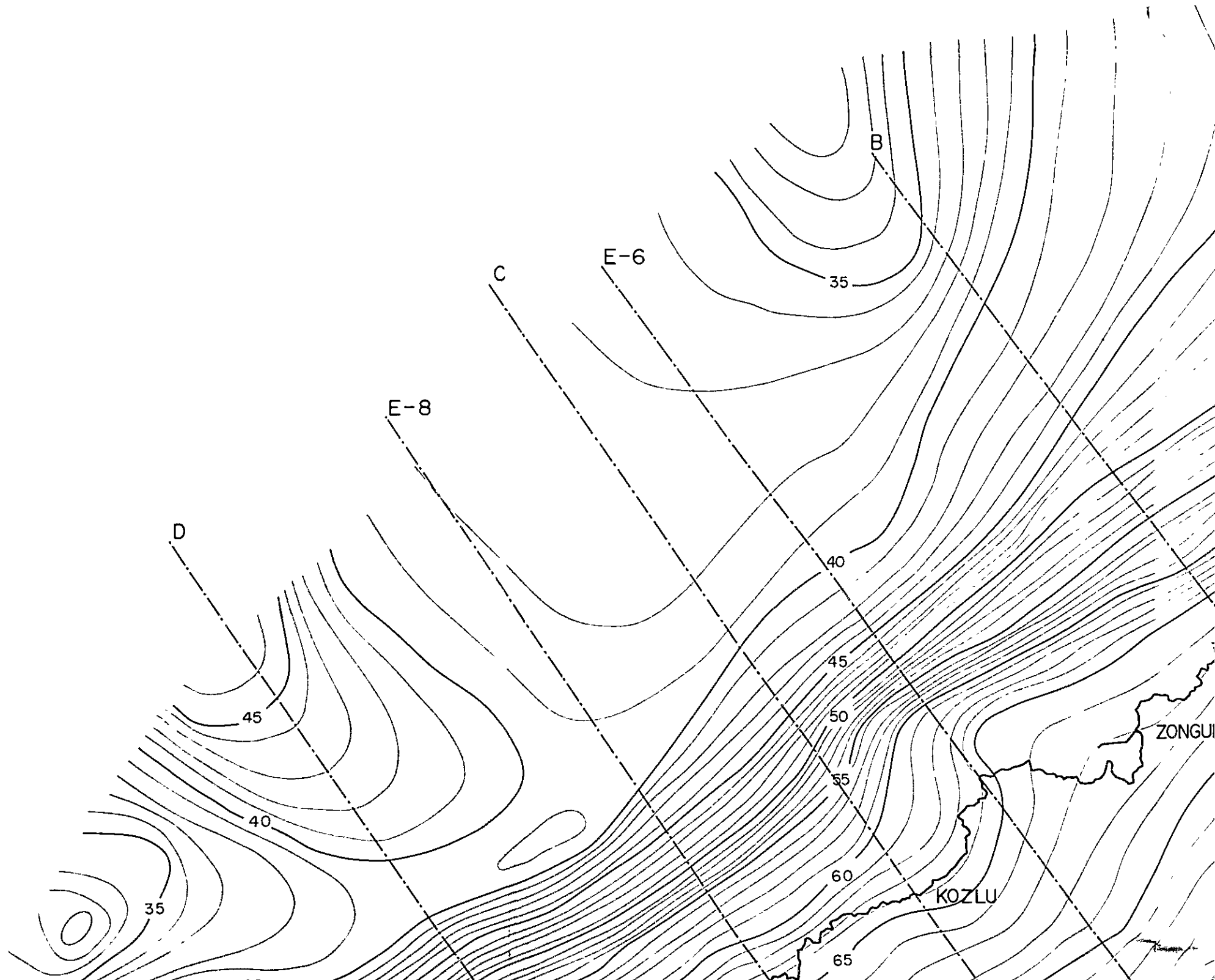


FIGURE 46

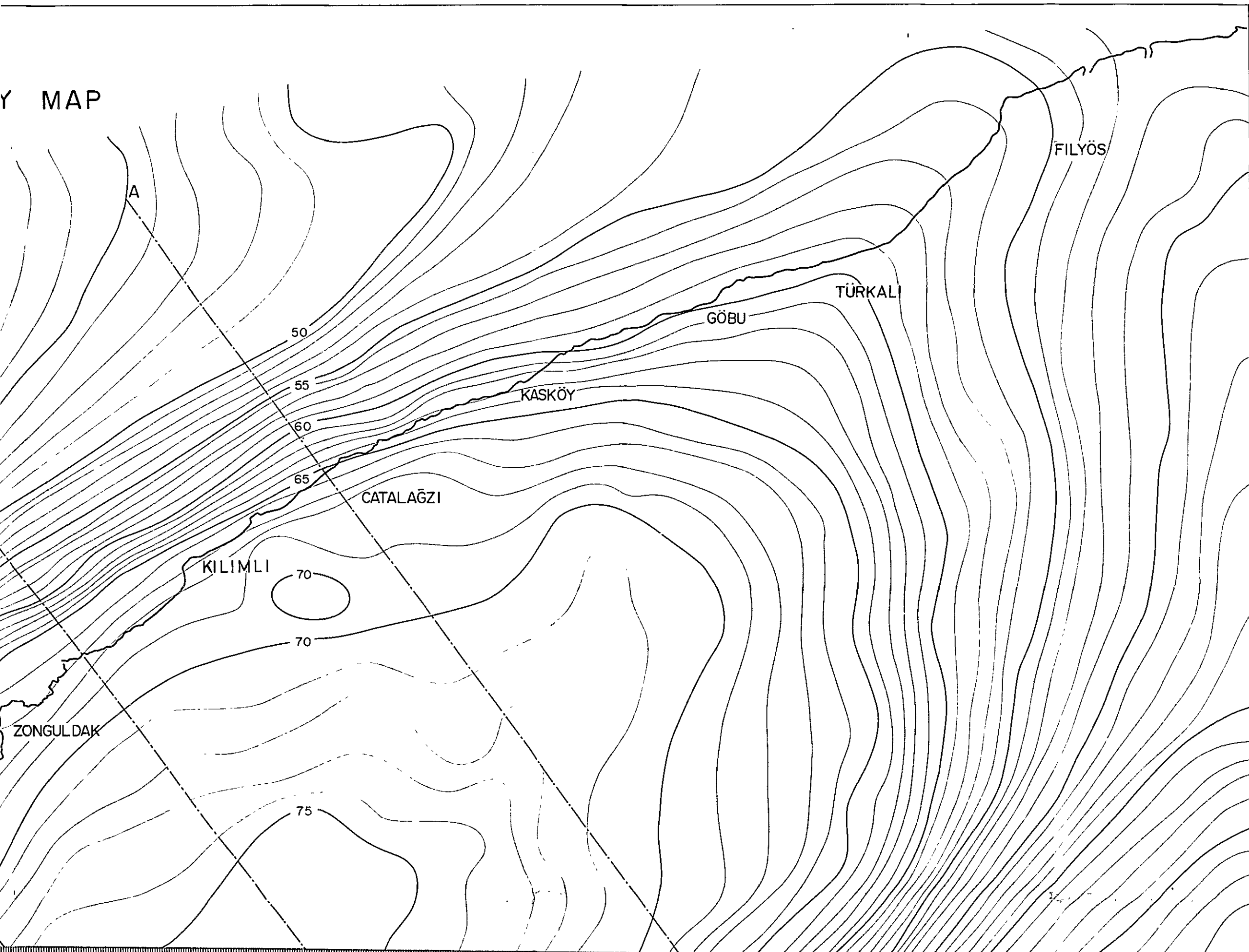
BOUGUER ANOMALY M

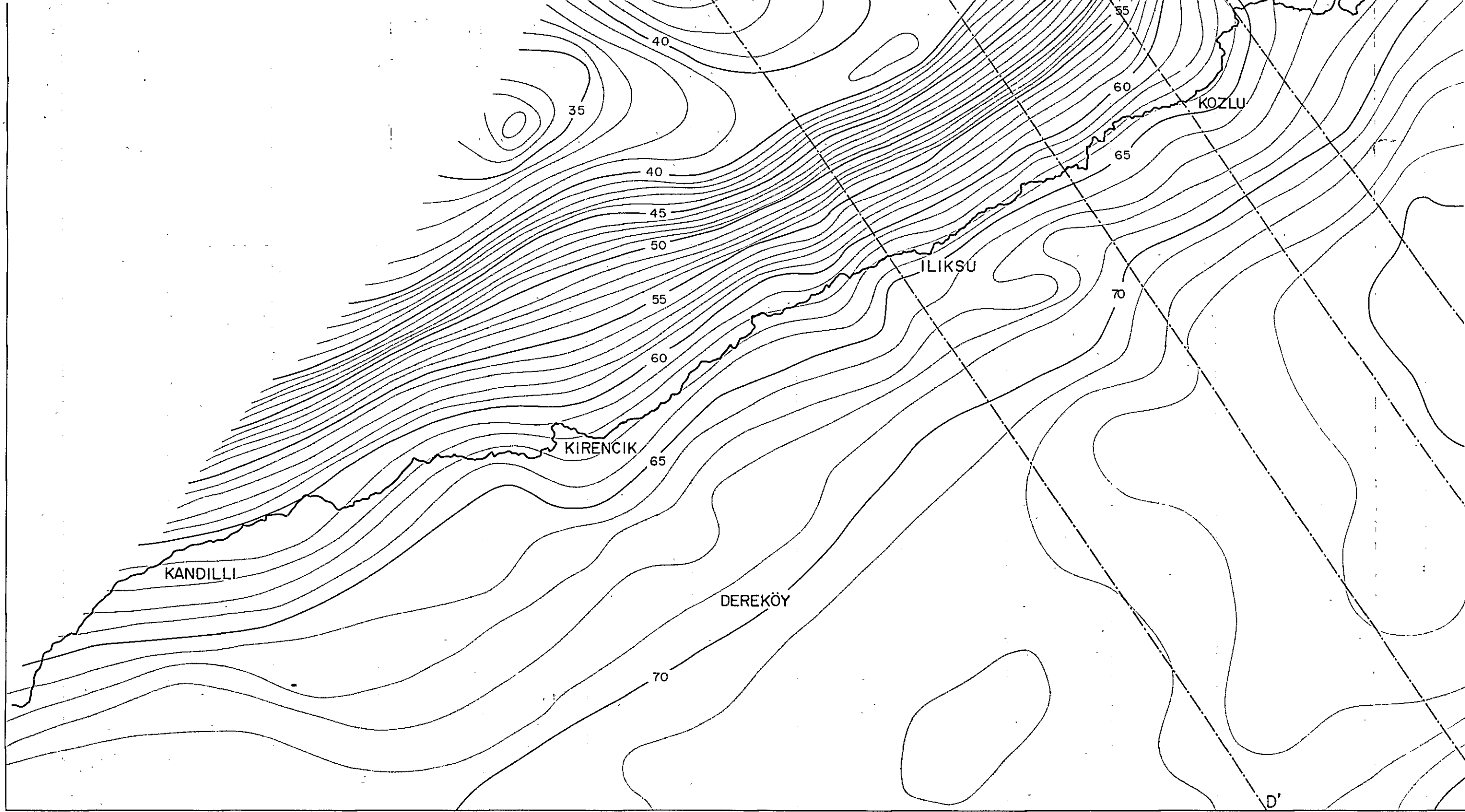


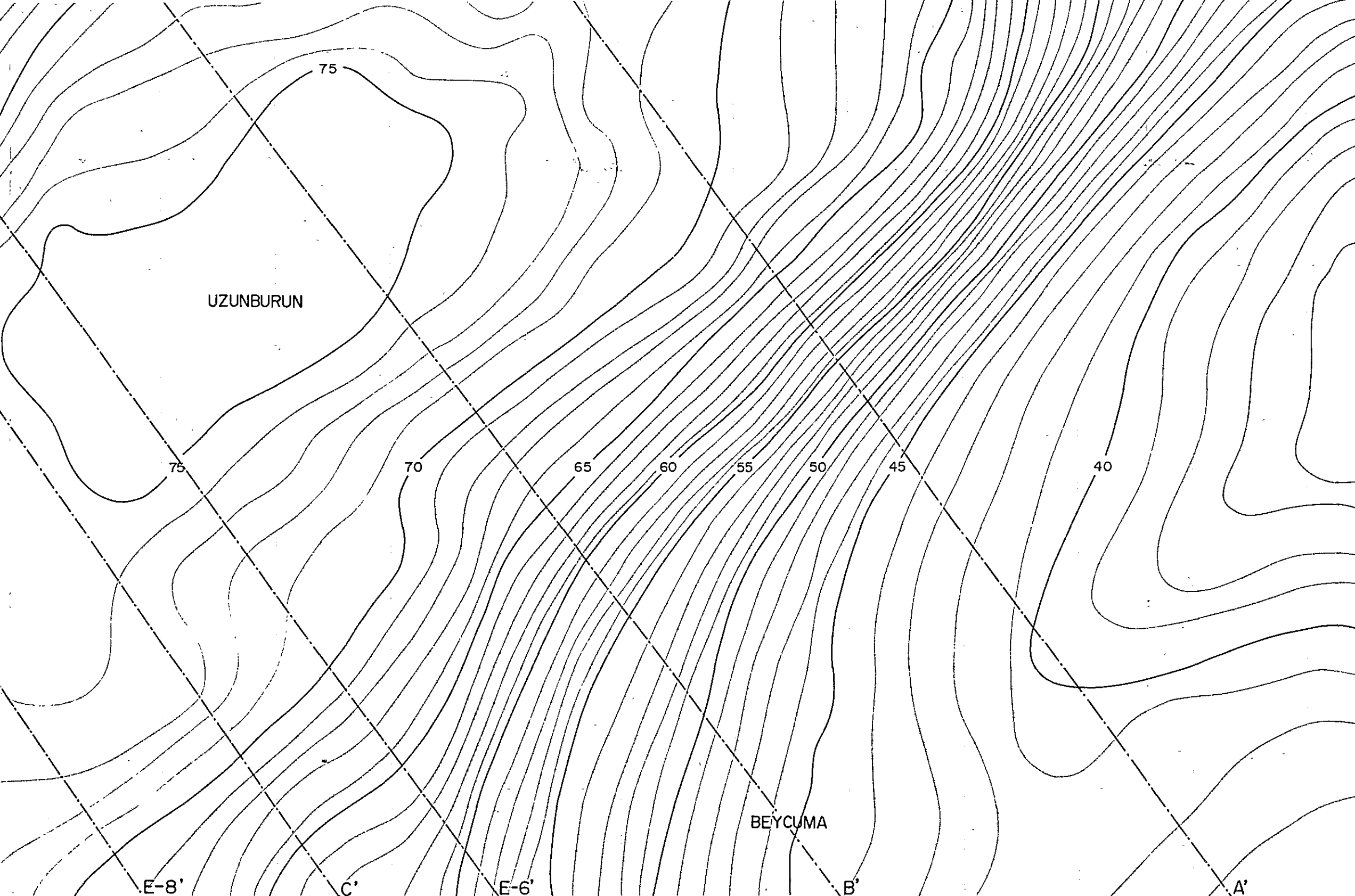
LEGEND
- - - - - Profile Lines
bouguer anomaly contours
in every 1.0 mgals



Y MAP







COAL DEVELOPMENT PROJECT AT OFFSHORE
AREA OF ZONGULDAK COAL FIELD

BOUGUER ANOMALY MAP

Scale 1 : 50,000

Japan International Cooperation Agency (JICA)

Date: Aug., 1982 Fig 46

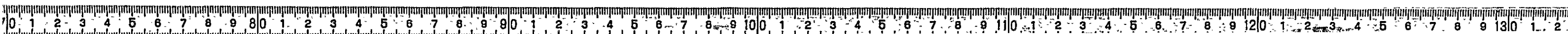
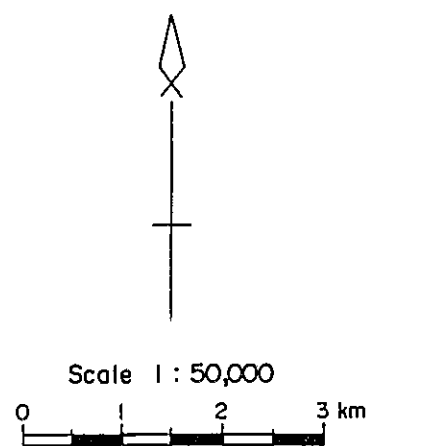


Figure 47

RESIDUAL GRAVITY MAP

NORMAL STRUCTURE

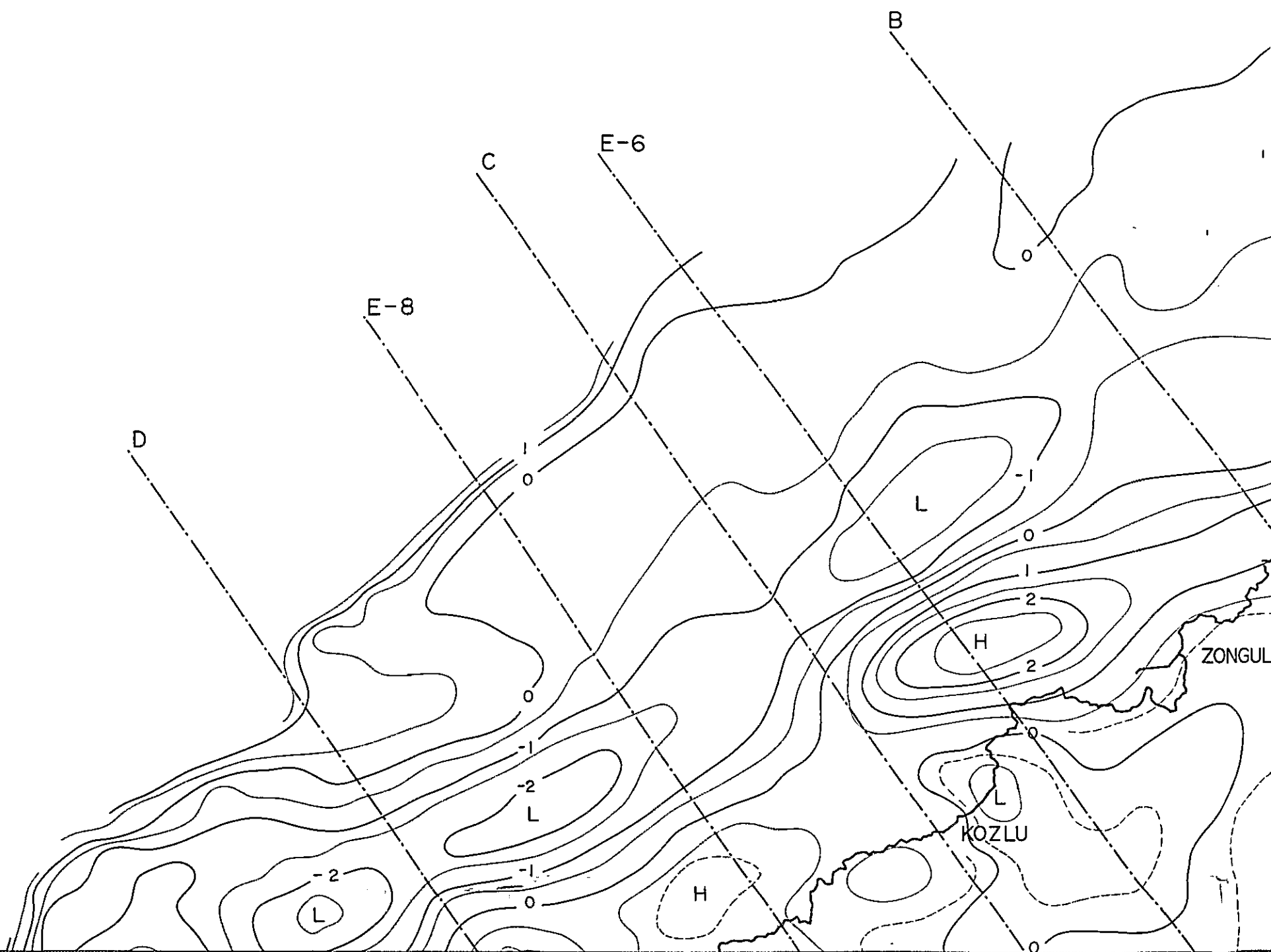


LEGEND

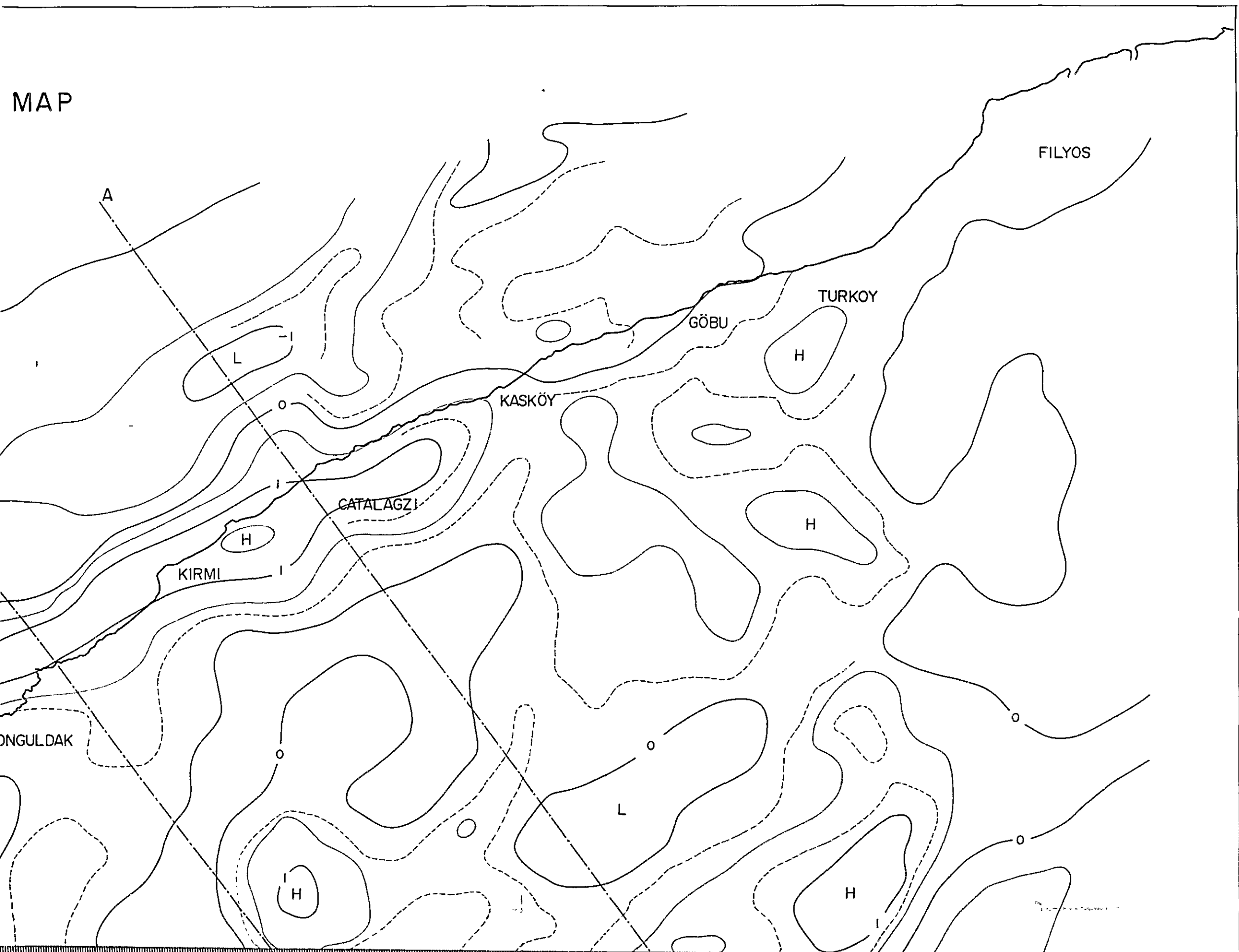
— Profile Lines

residual gravity contours
in every 0.5 mqals.

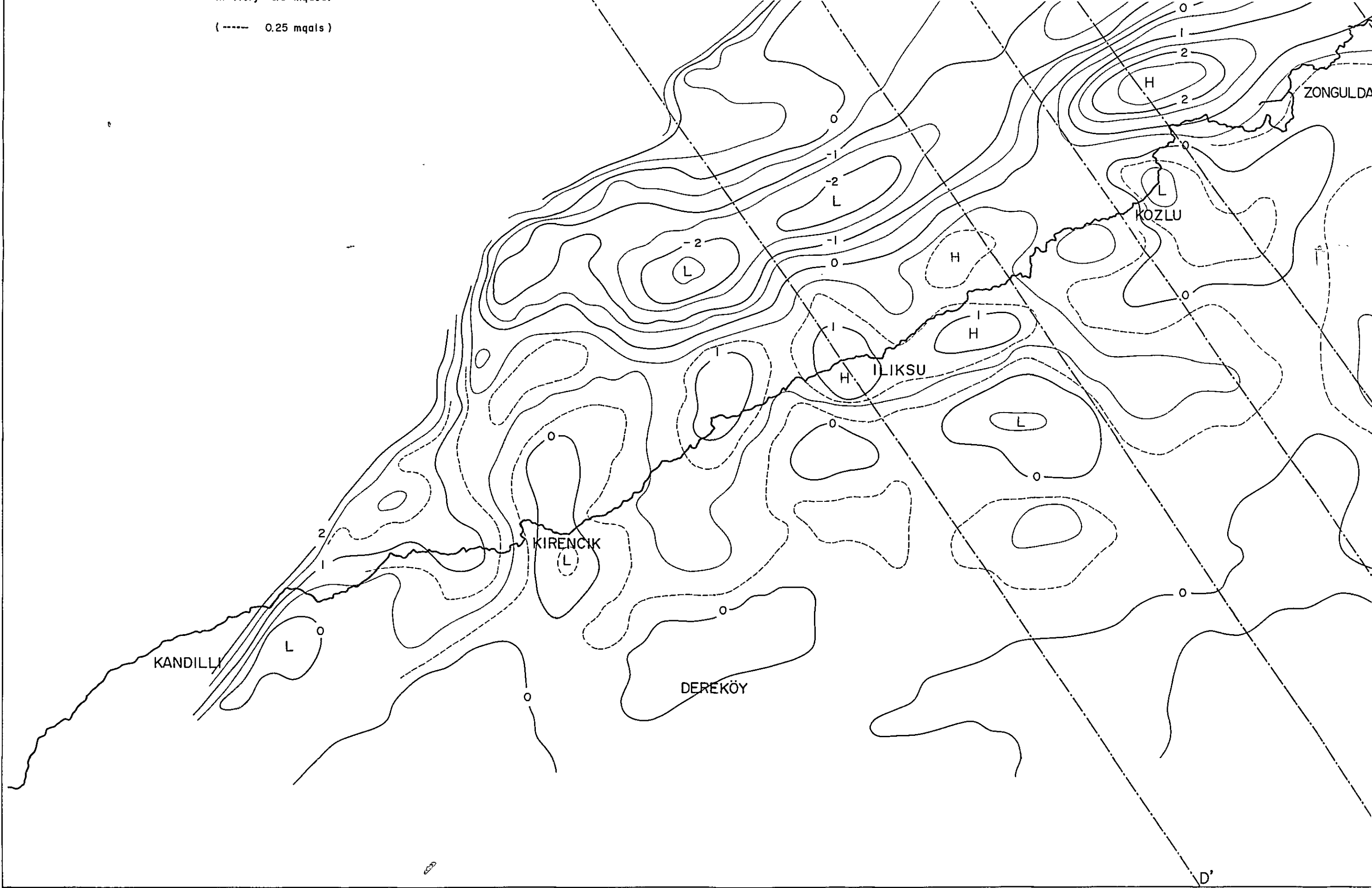
(----- 0.25 mqals)

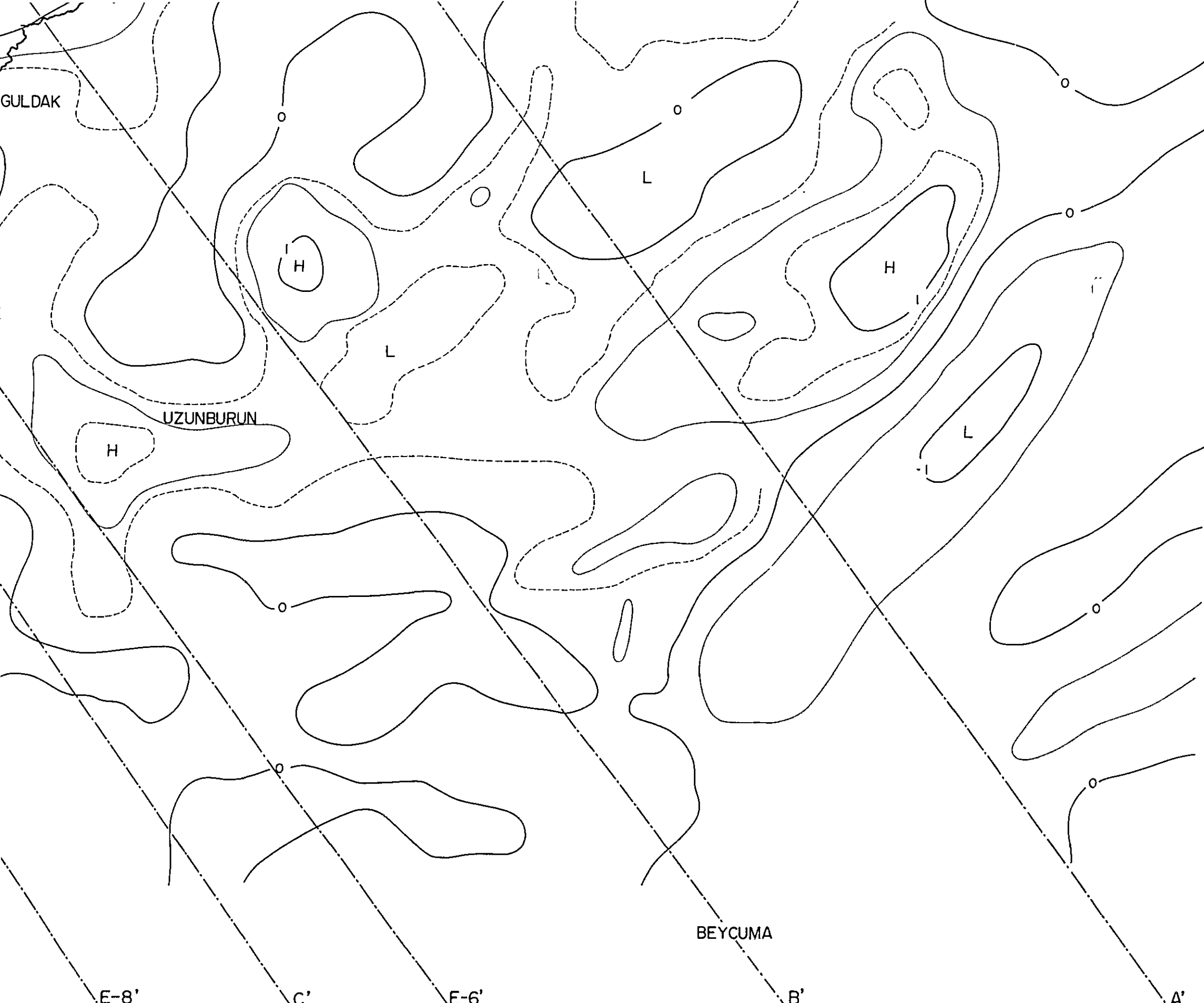


MAP



(----- 0.25 mqals)





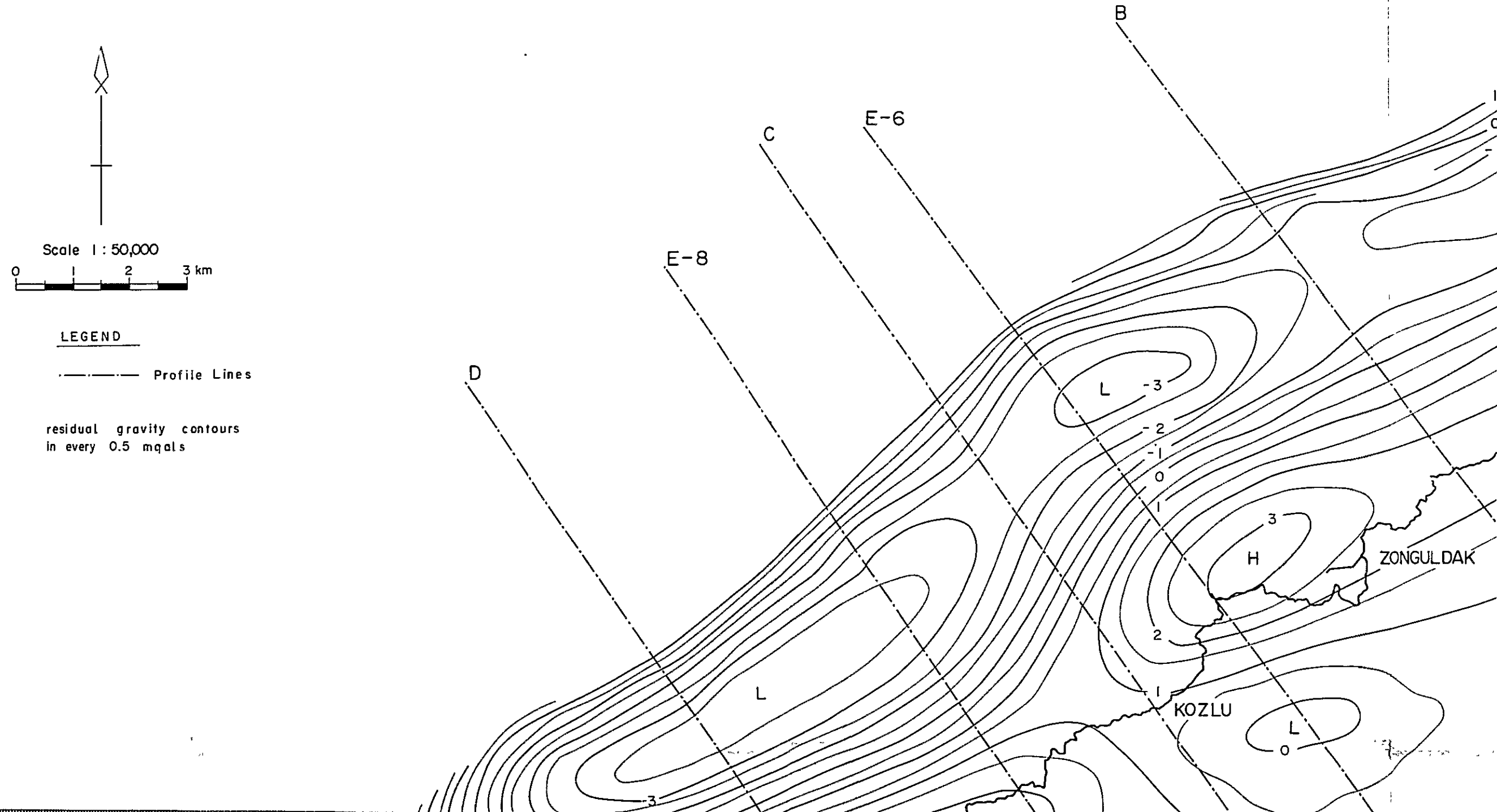
COAL DEVELOPMENT PROJECT AT OFFSHORE AREA OF ZONGULDAK COAL FIELD	
RESIDUAL GRAVITY MAP NORMAL STRUCTURE Scale 1 : 50,000	
Japan International Cooperation Agency (JICA)	
Date Aug., 1982	Fig 47



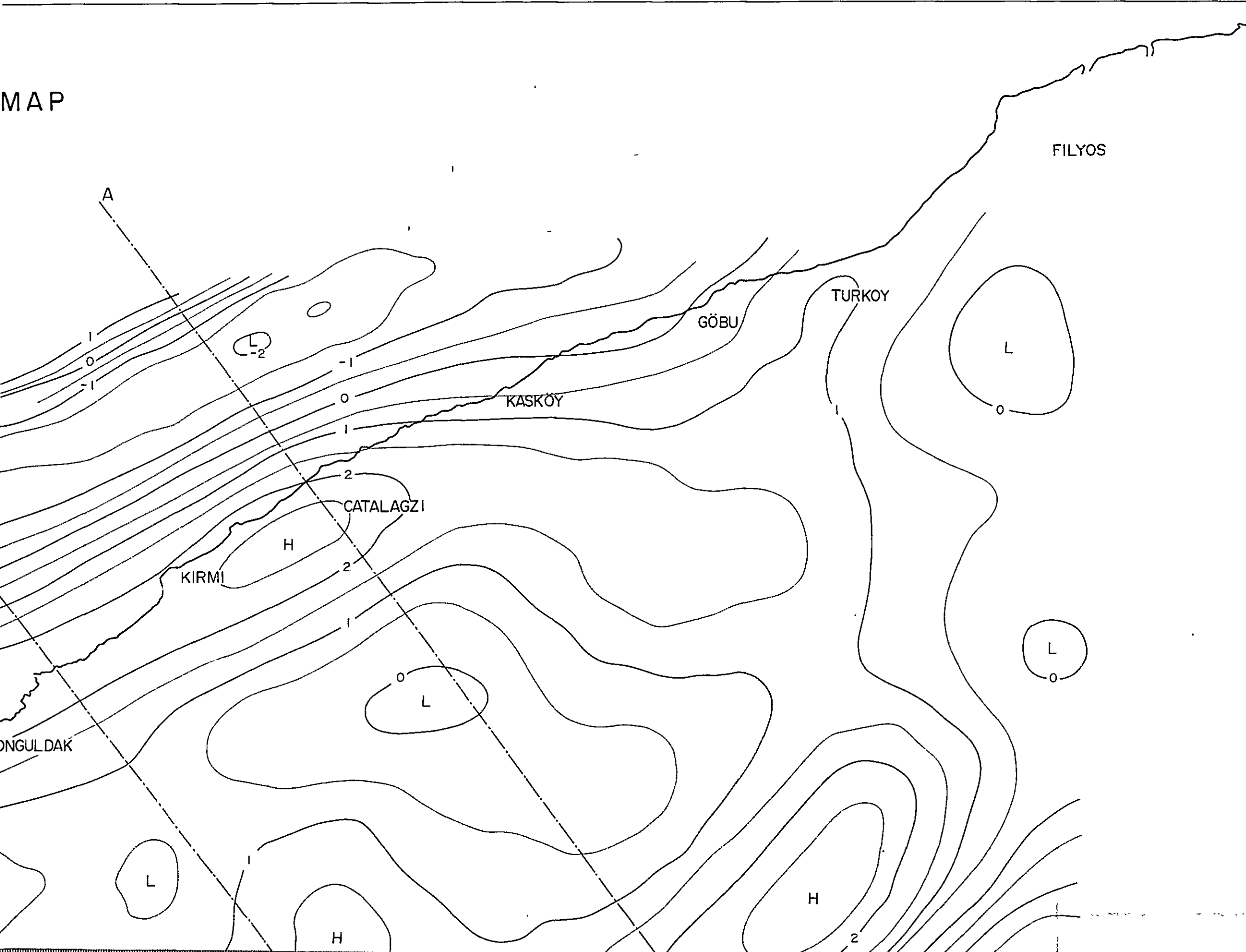
Figure 48

RESIDUAL GRAVITY MAP

REGIONAL STRUCTURE



MAP



ONGULDAK

FİLYOS

TURKOY

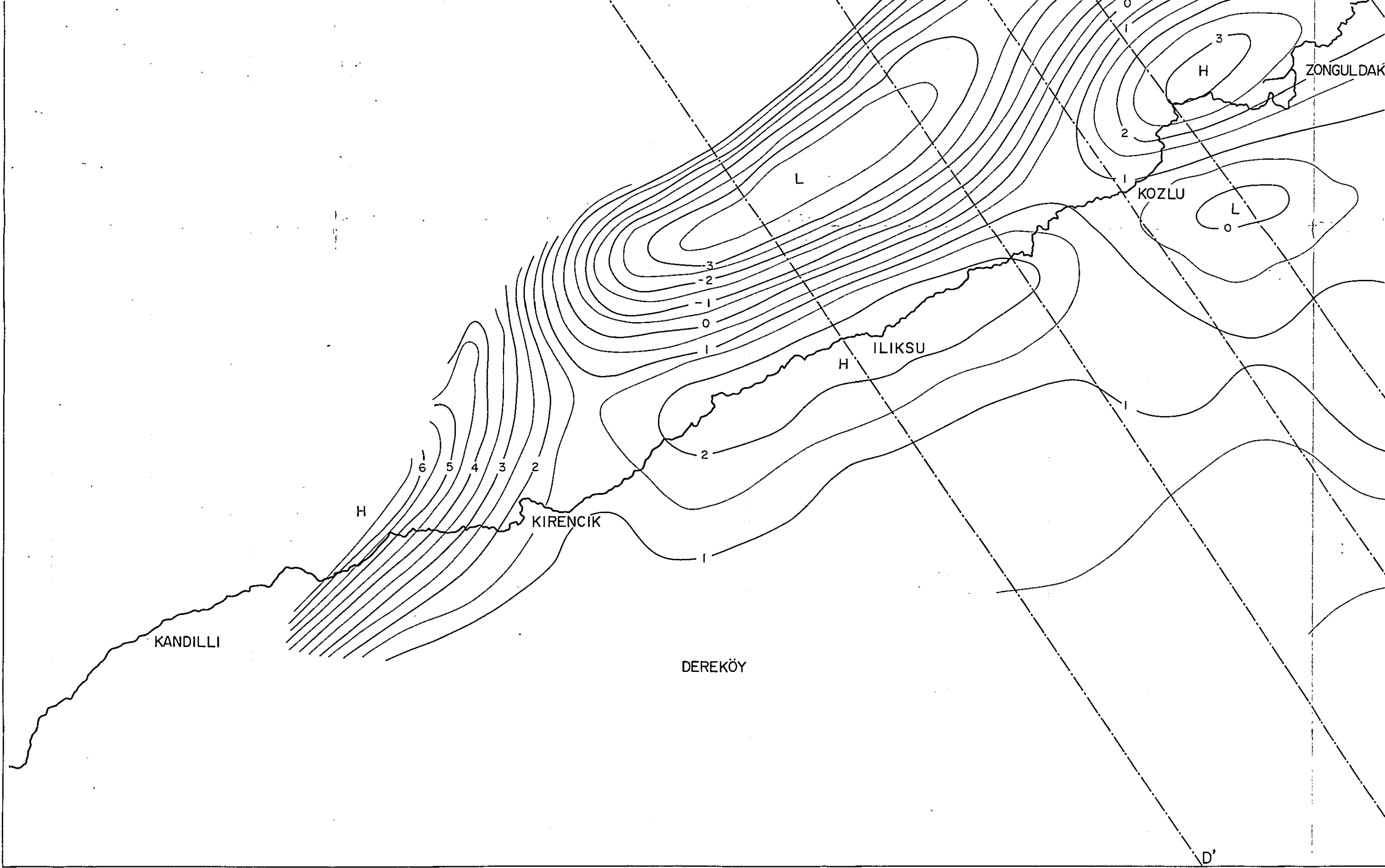
GÖBU

KASKÖY

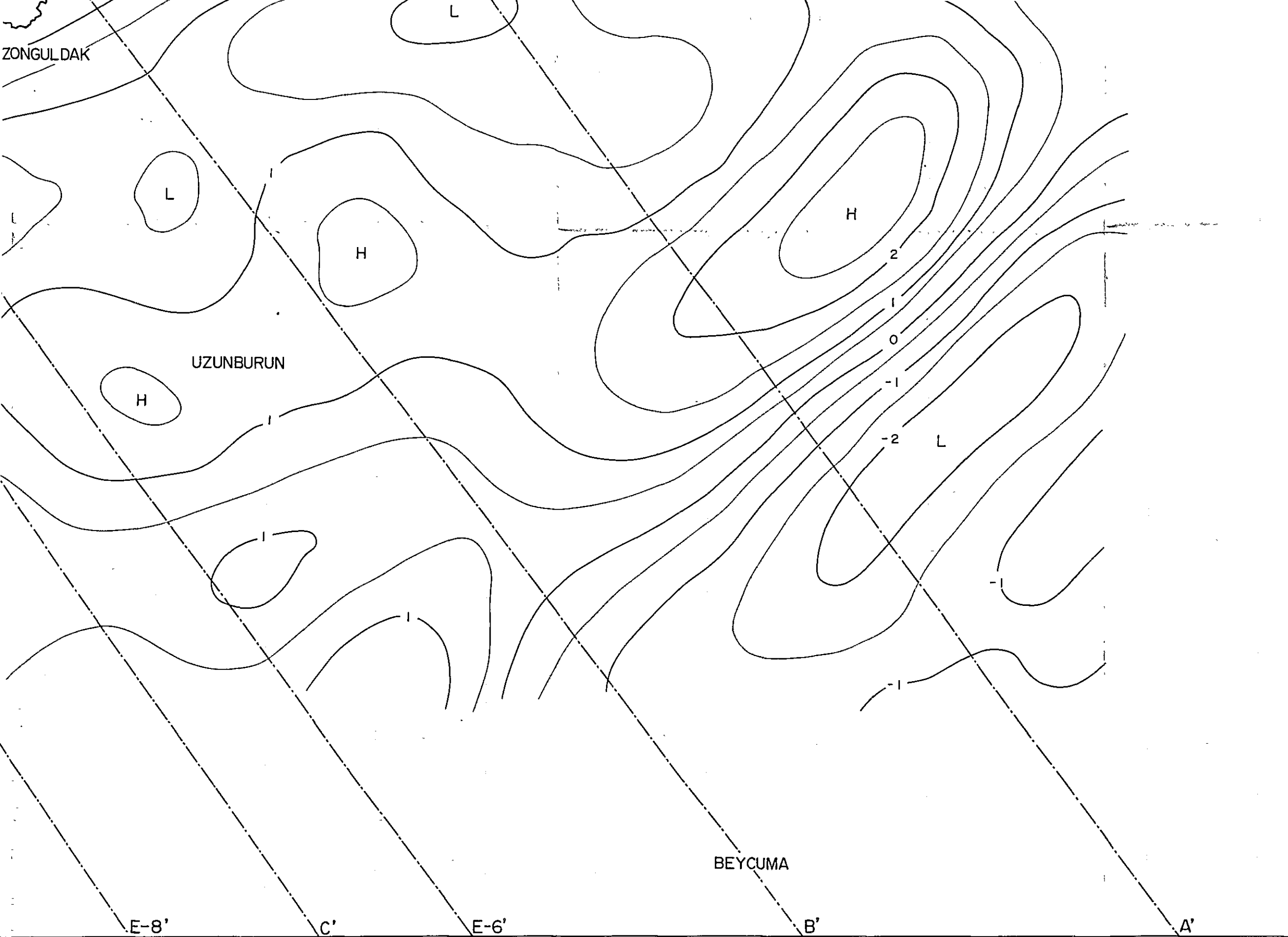
CATALAGZI

KIRMI





ZONGULDAK



UZUNBURUN

BEYCUMA

COAL DEVELOPMENT PROJECT AT OFFSHORE AREA OF ZONGULDAK COAL FIELD	
RESIDUAL GRAVITY MAP REGIONAL STRUCTURE	
Scale 1 : 50,000	
Japan International Cooperation Agency (JICA)	
Date: Aug., 1982	Fig. 4B

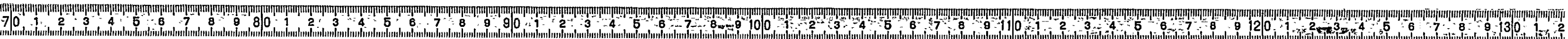
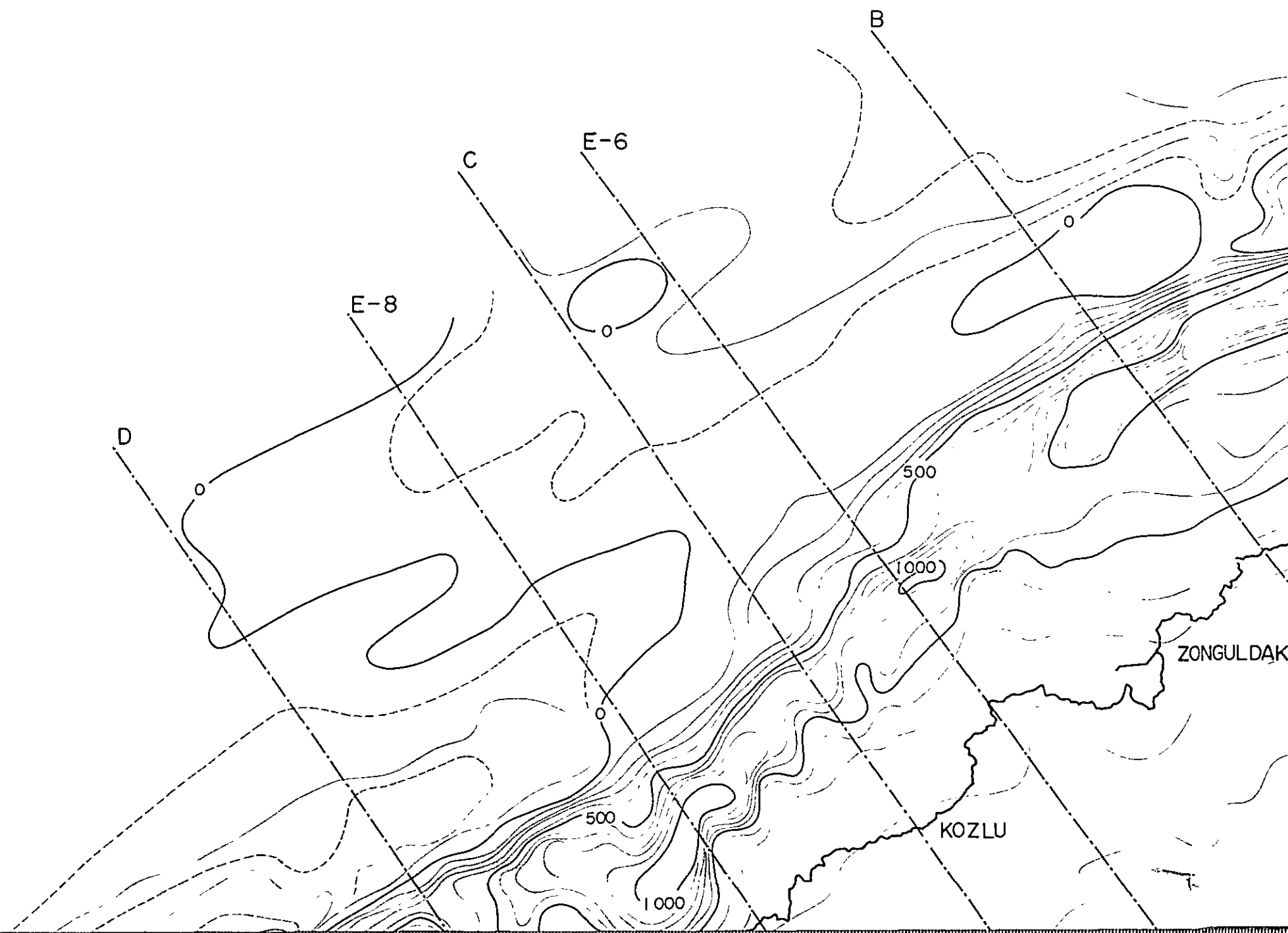
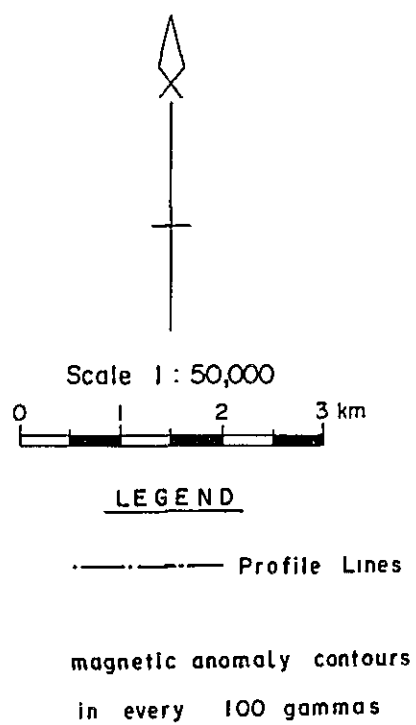
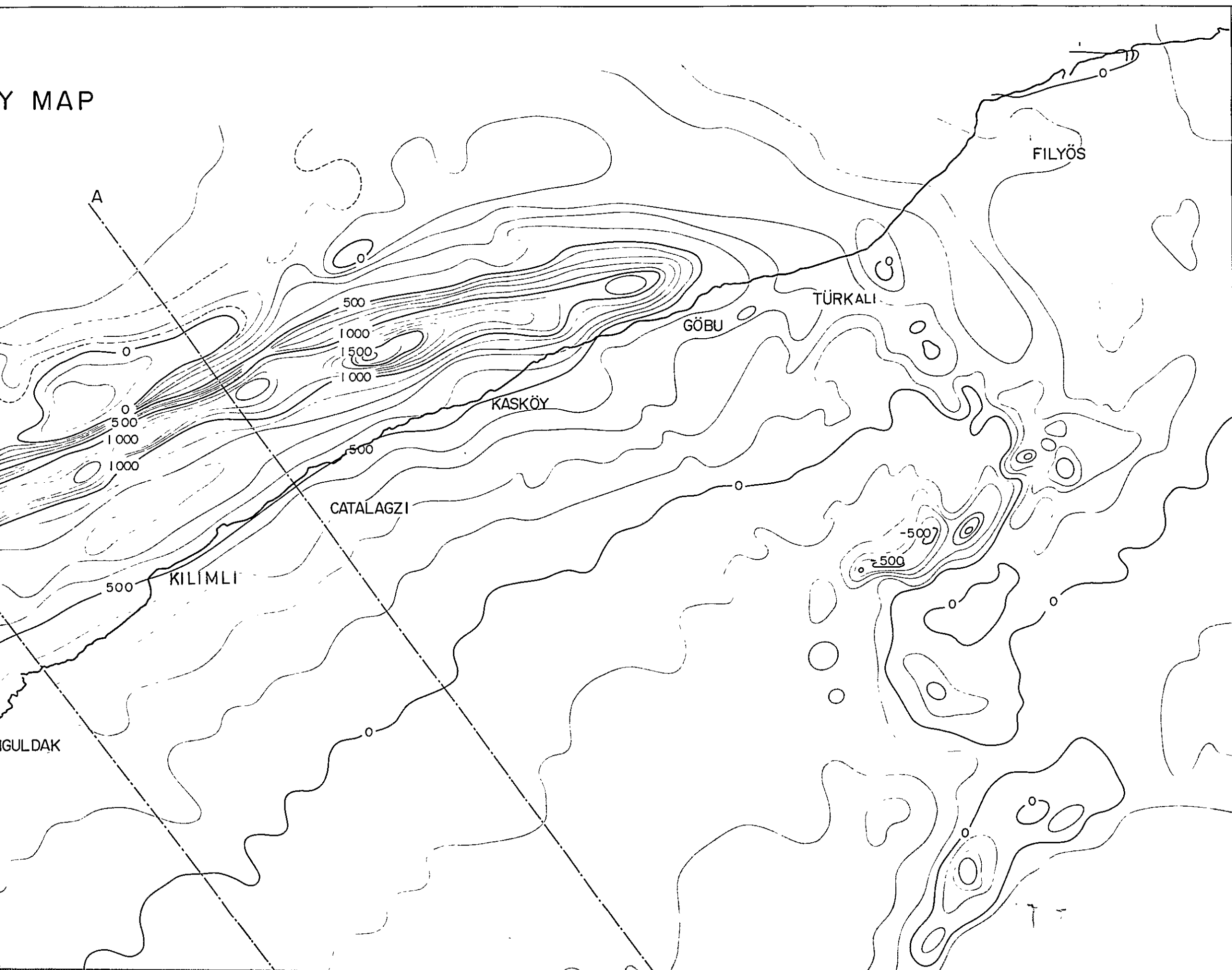


FIGURE 50 MAGNETIC ANOMALY M

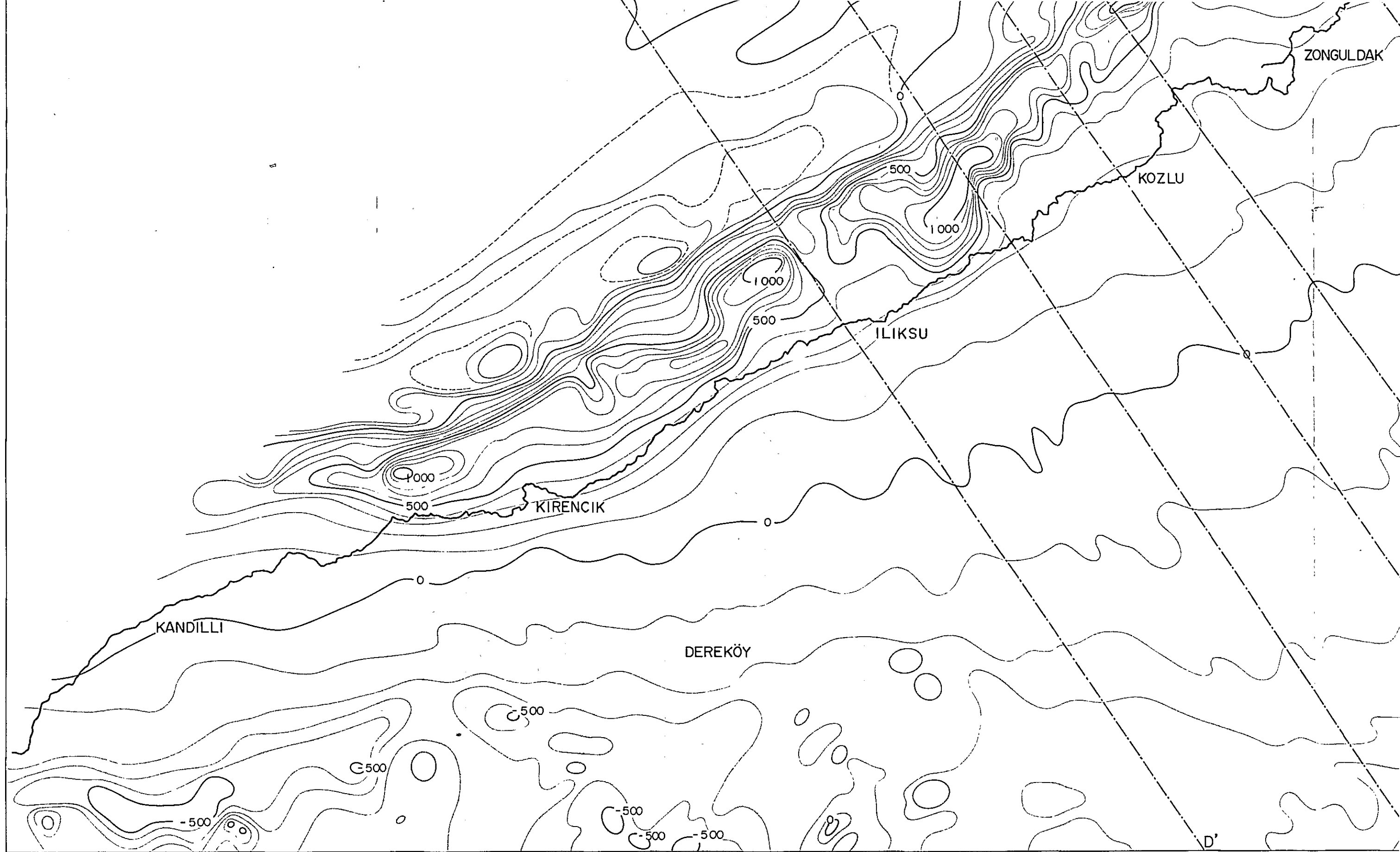


Y MAP



GULDAK





ZONGULDAK

UZUNBURUN

BEYCUMA

E-8'

C'

E-6'

B'

A'

COAL DEVELOPMENT PROJECT AT OFFSHORE
 AREA OF ZONGULDAK COAL FIELD

MAGNETIC ANOMALY MAP

Scale 1 : 50,000

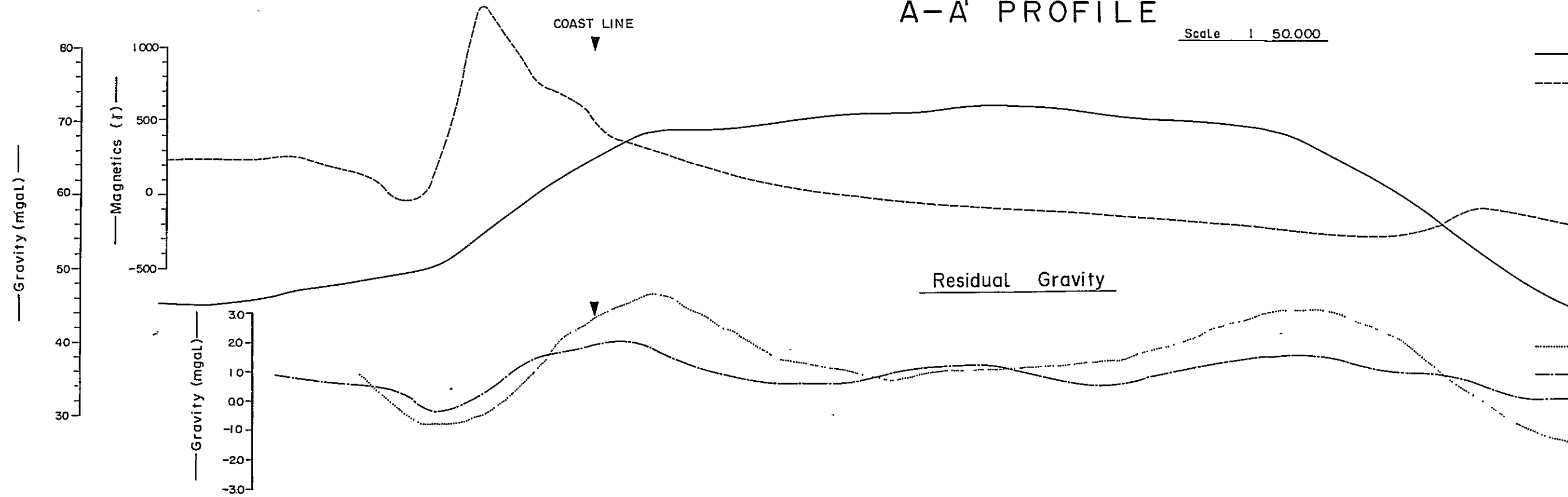
Japan International Cooperation Agency (JICA)

Date Aug., 1982 | Fig 50

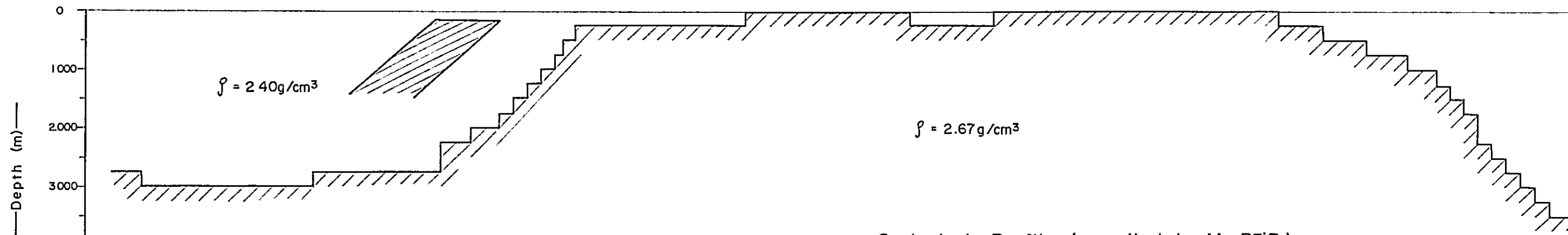


A-A' PROFILE

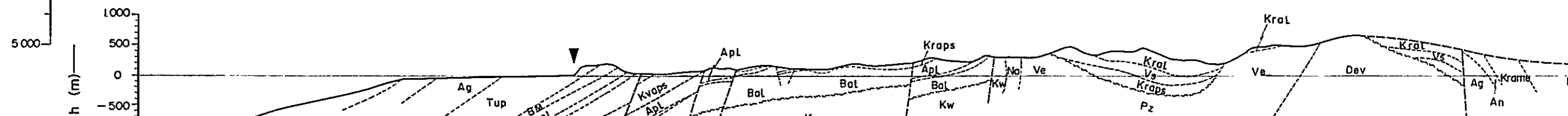
Scale 1:50,000



Results of Quantitative Analysis

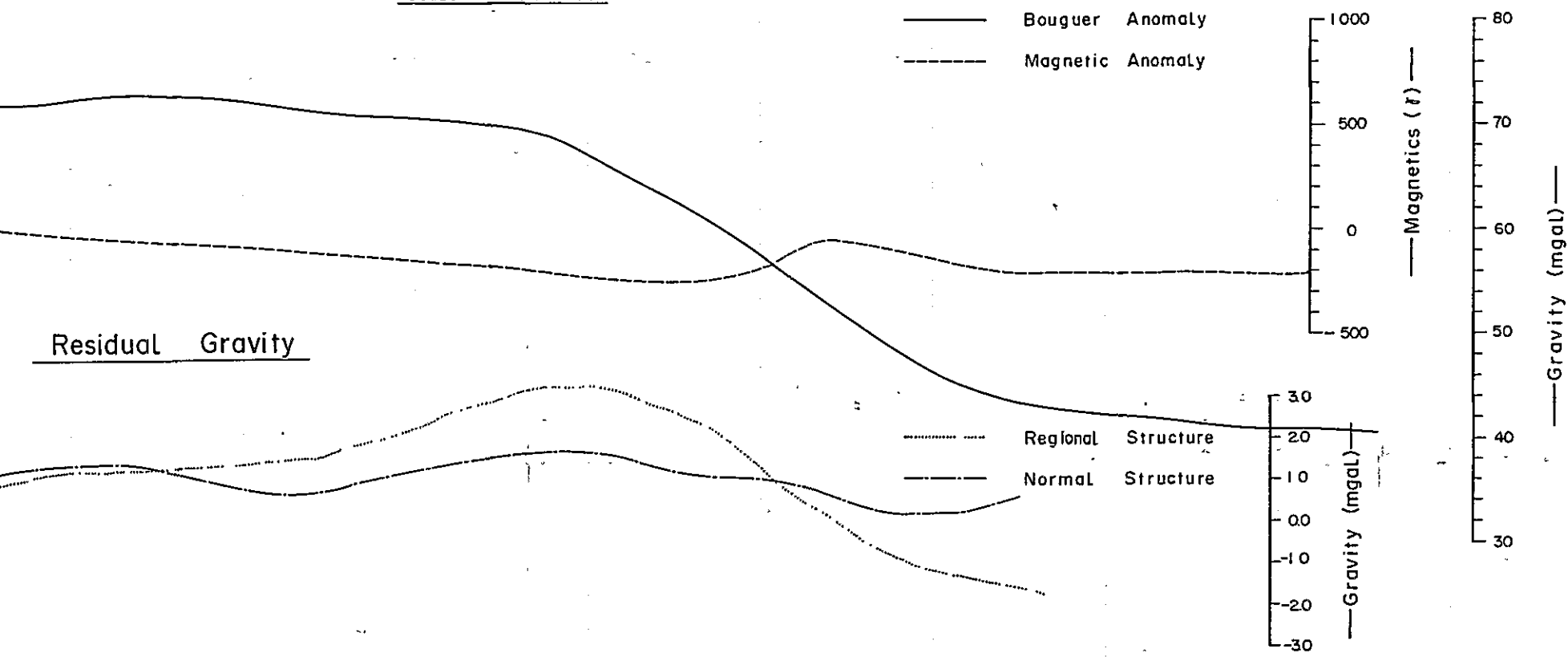


Geological Profile (compiled by Mr. Bōjō)



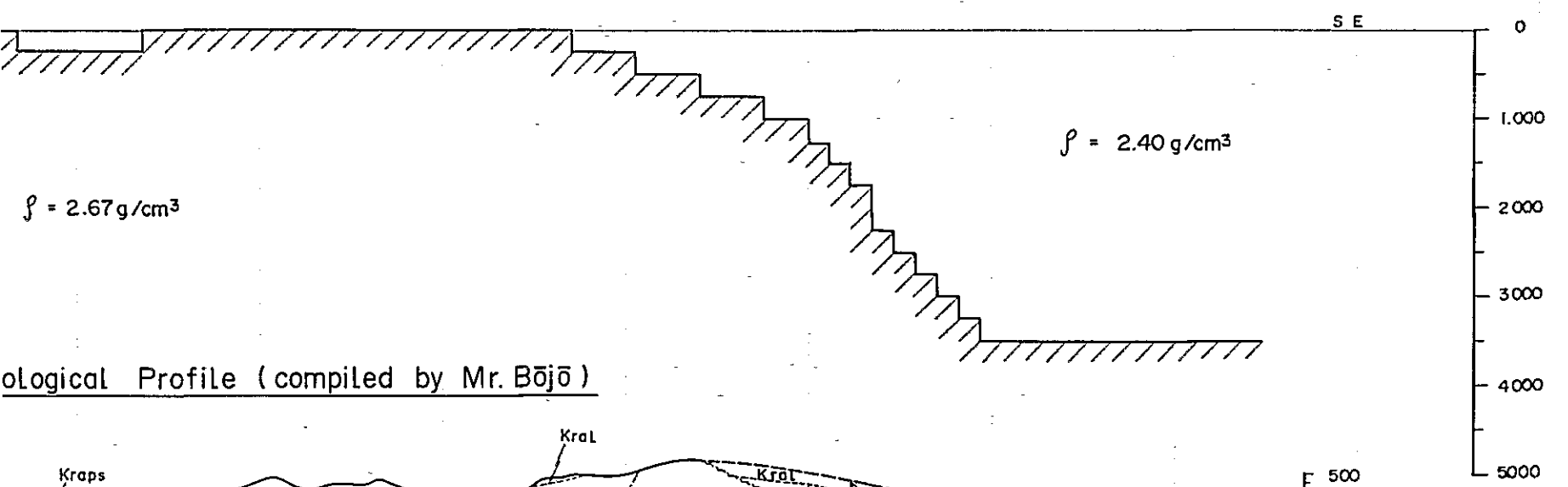
A-A' PROFILE

Scale 1 : 50 000

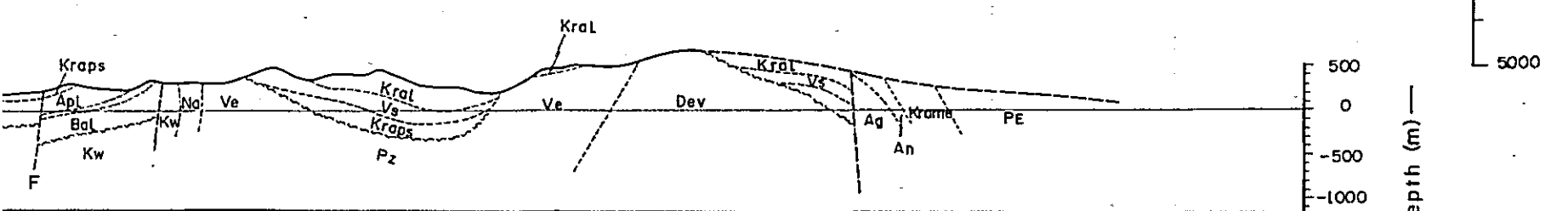


Residual Gravity

Results of Quantitative Analysis



Geological Profile (compiled by Mr. Bōjō)



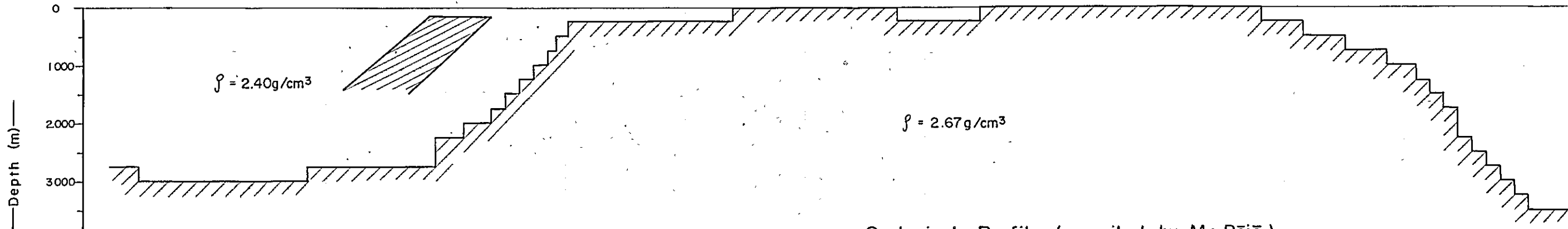
COAL DEVELOPMENT PROJECT AT OFFSHORE
AREA OF ZONGULDAK COAL FIELD



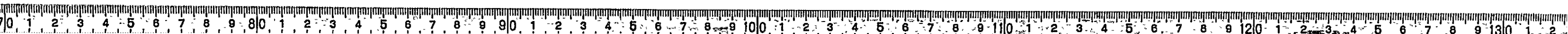
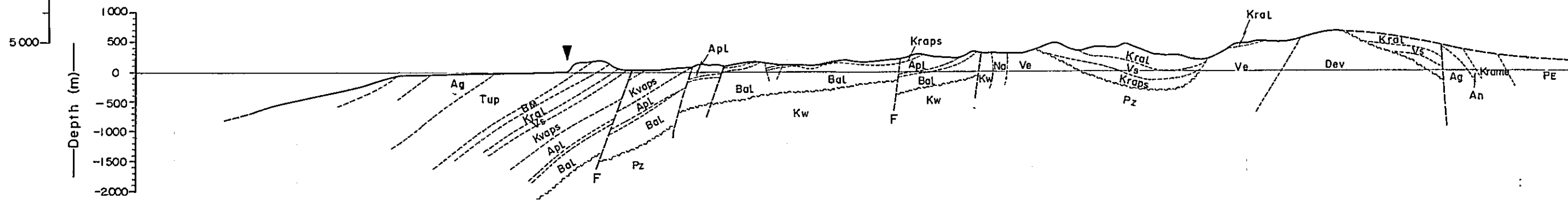
— Gravity —

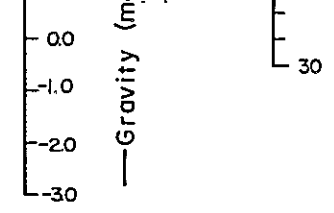
0.0
-1.0
-2.0
-3.0

Results of Quantitative Analysis

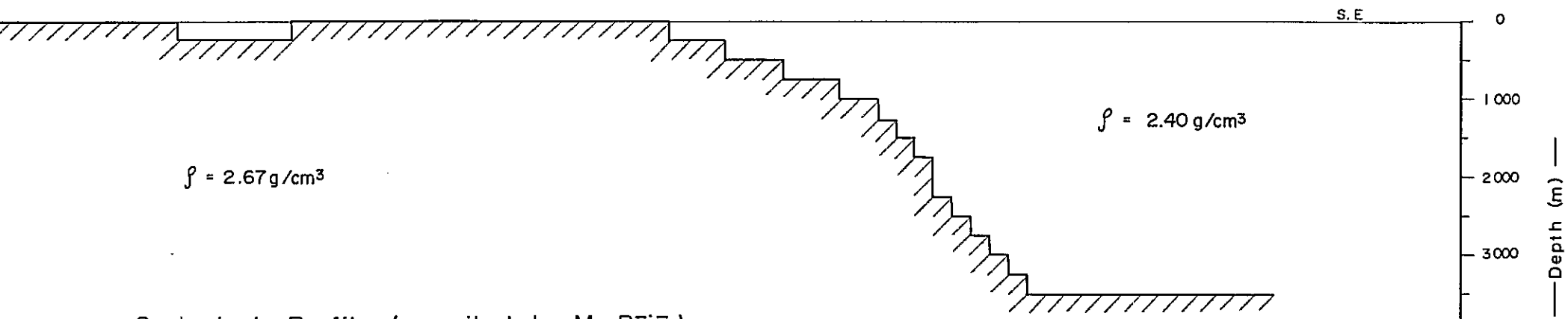


Geological Profile (compiled by Mr. Bōjō)

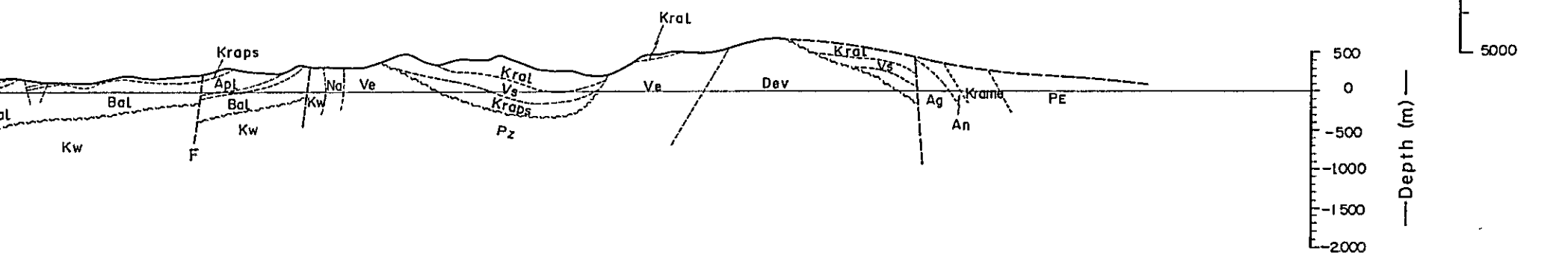




Results of Quantitative Analysis



Geological Profile (compiled by Mr. Bōjō)

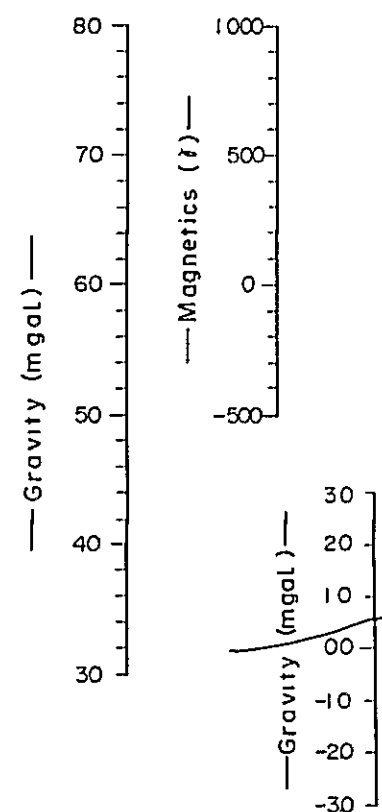


COAL DEVELOPMENT PROJECT AT OFFSHORE AREA OF ZONGULDAK COAL FIELD	
Quantitative Interpretation Profile (A - A' Profile)	
Japan International Cooperation Agency (JICA)	
Date. Aug., 1982	Fig. 51



B-B' PROFILE

Scale 1:50,000

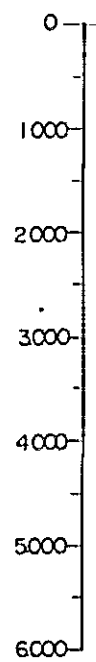


COAST LINE

Residual Gravity

Results of Quantitative Analysis

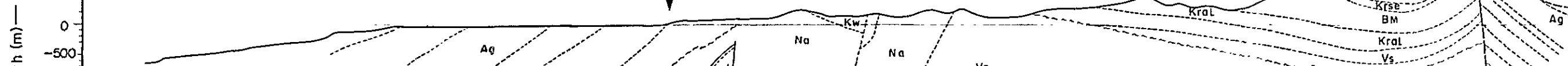
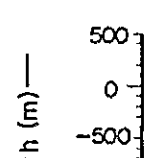
Depth (m)



$\rho = 2.40 \text{ g/cm}^3$

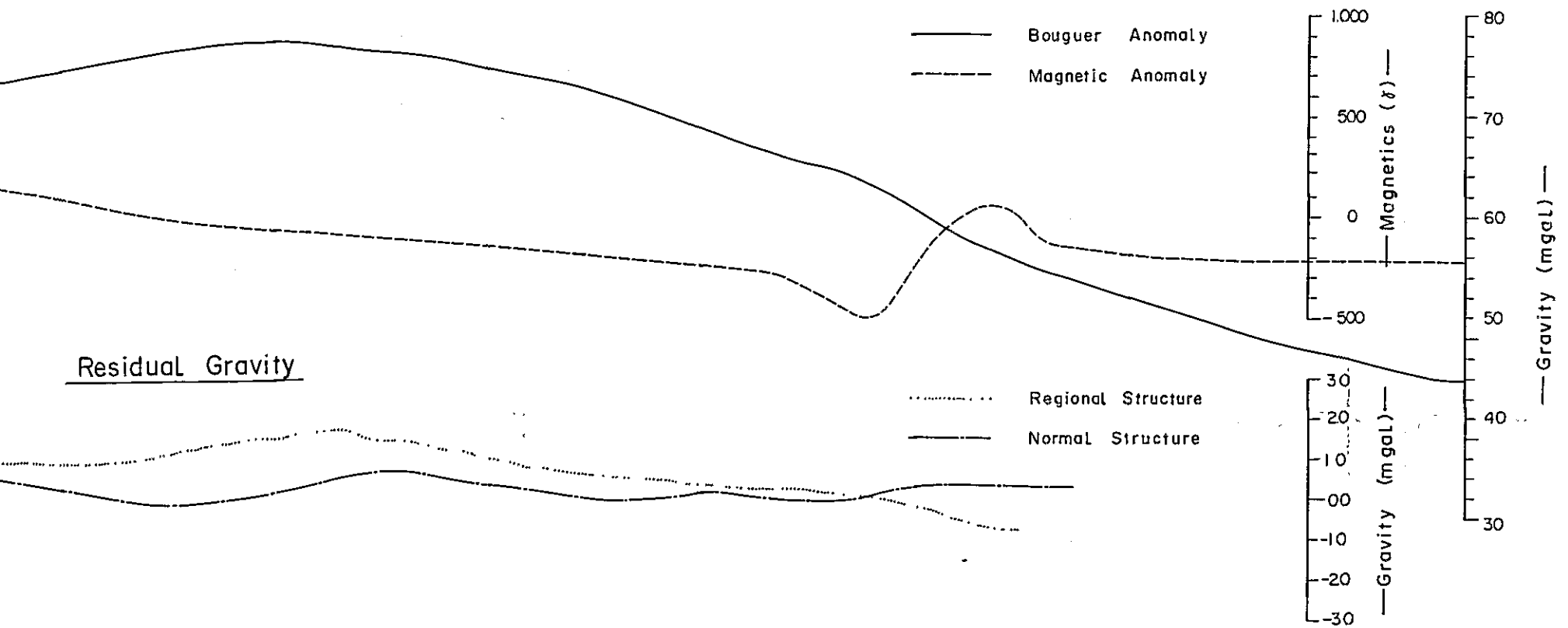
$\rho = 2.67 \text{ g/cm}^3$

Geological Profile (compiled by Mr. Bōjō)



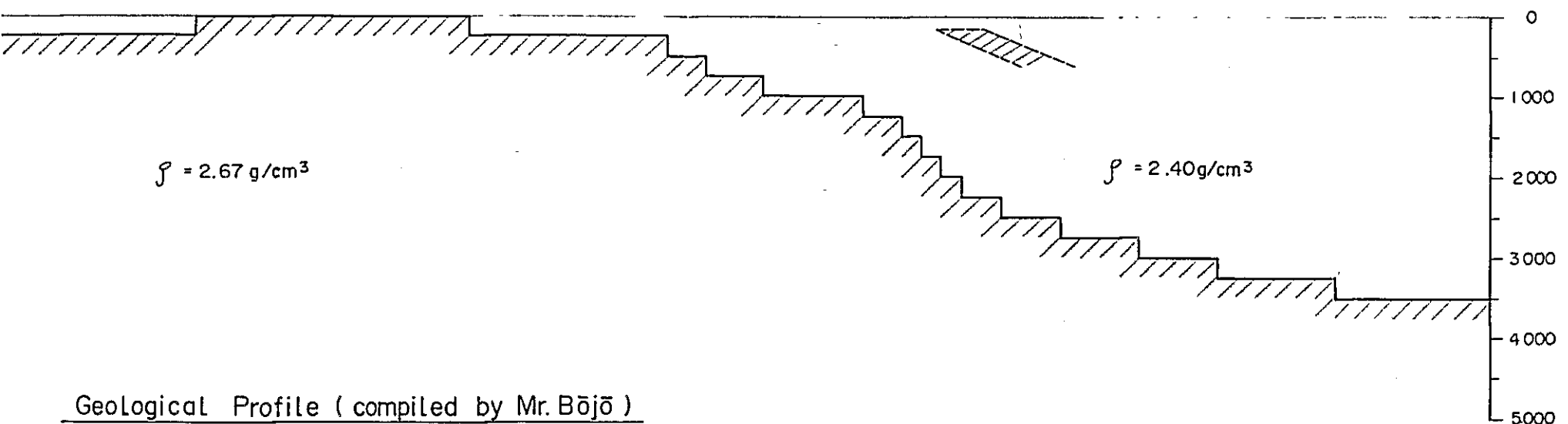
B-B' PROFILE

Scale 1 : 50 000

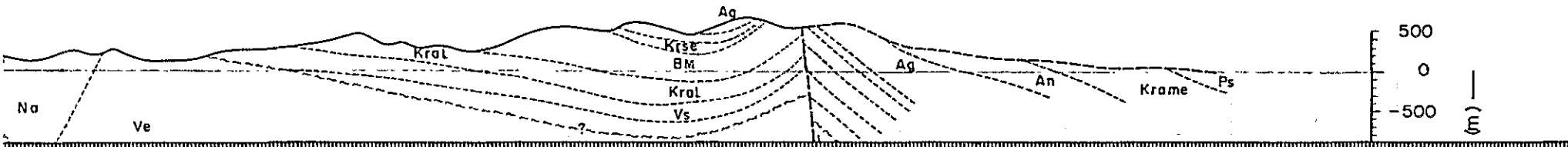


Residual Gravity

Results of Quantitative Analysis

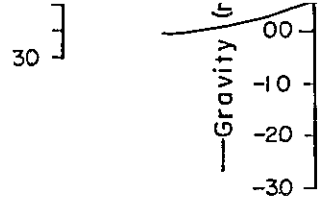


Geological Profile (compiled by Mr. Bōjō)

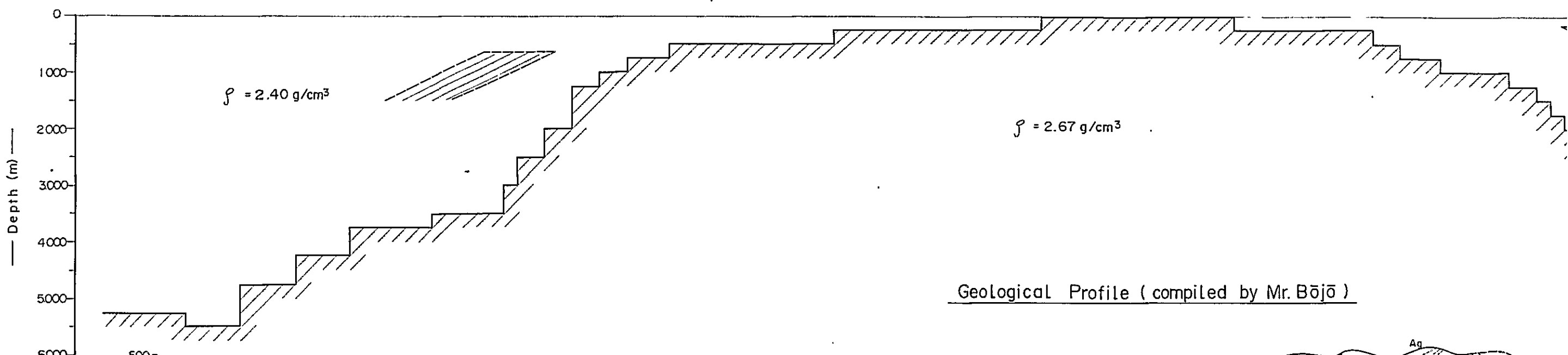


COAL DEVELOPMENT PROJECT AT OFFSHORE
AREA OF ZONGULDAK COAL FIELD

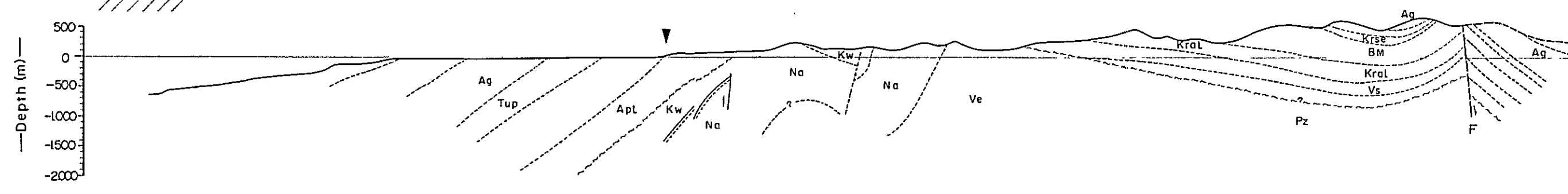


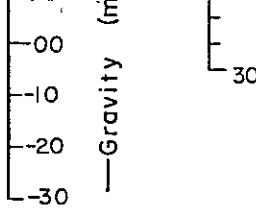


Results of Quantitative Analysis

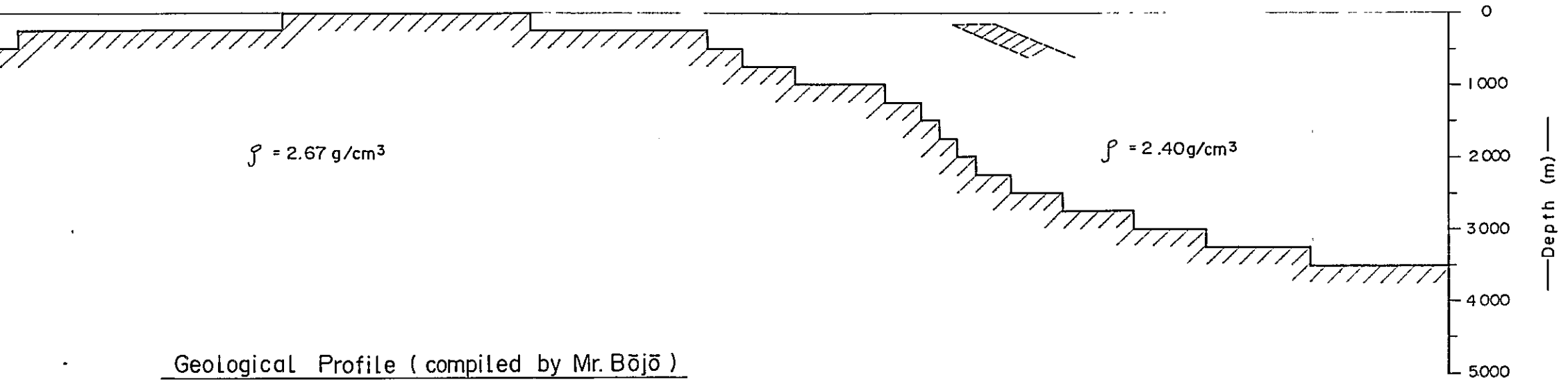


Geological Profile (compiled by Mr. Bōjō)

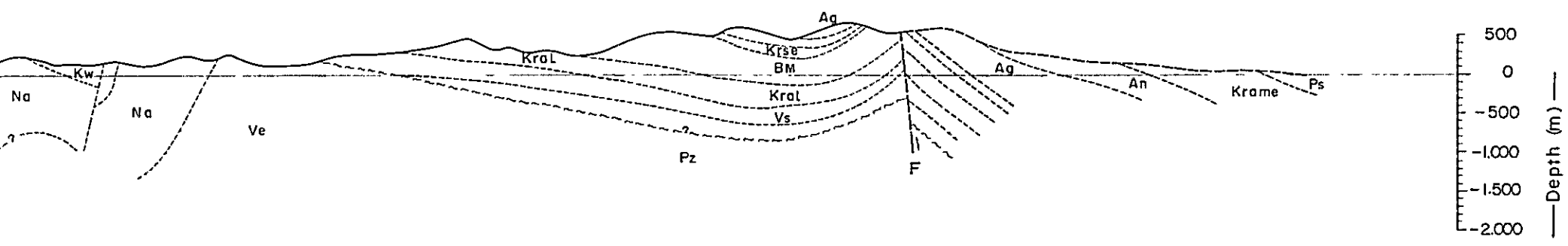




Results of Quantitative Analysis



Geological Profile (compiled by Mr. Bōjō)

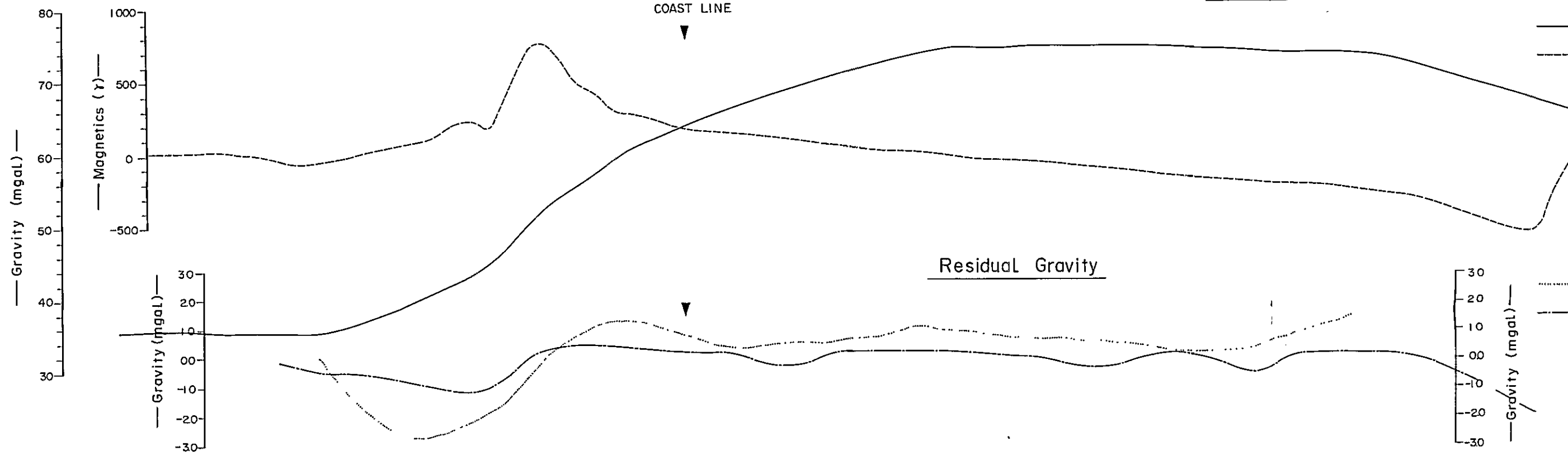


COAL DEVELOPMENT PROJECT AT OFFSHORE AREA OF ZONGULDAK COAL FIELD	
Quantitative Interpretation Profile (B - B' Profile)	
Japan International Cooperation Agency (JICA)	
Date: Aug., 1982	Fig. 52

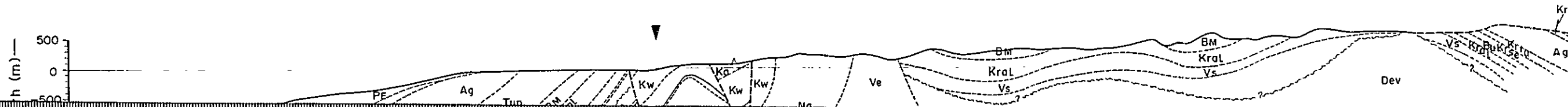
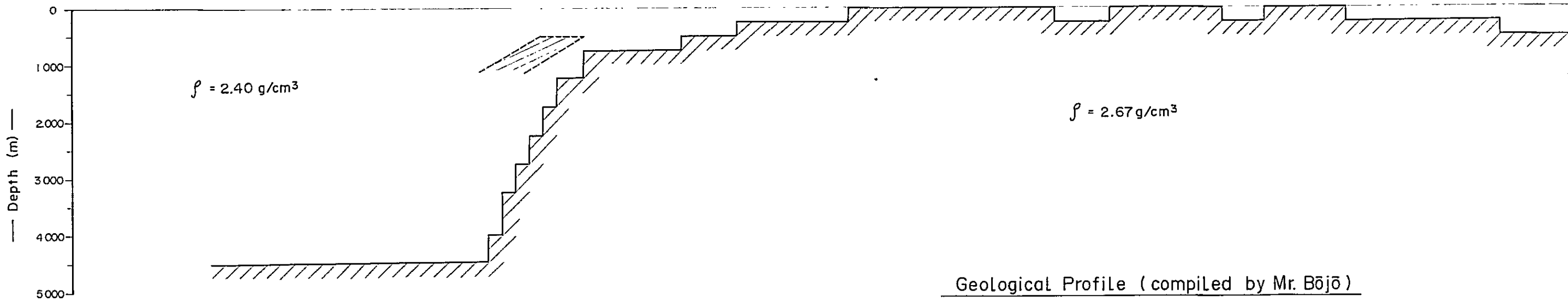


C-C' PROFILE

Scale 1:50,000



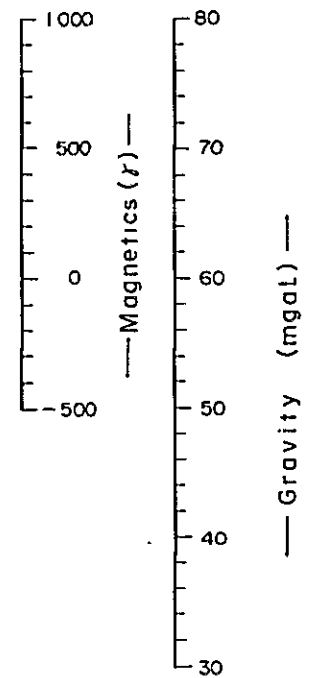
Results of Quantitative Analysis



C-C' PROFILE

Scale 1 : 50,000

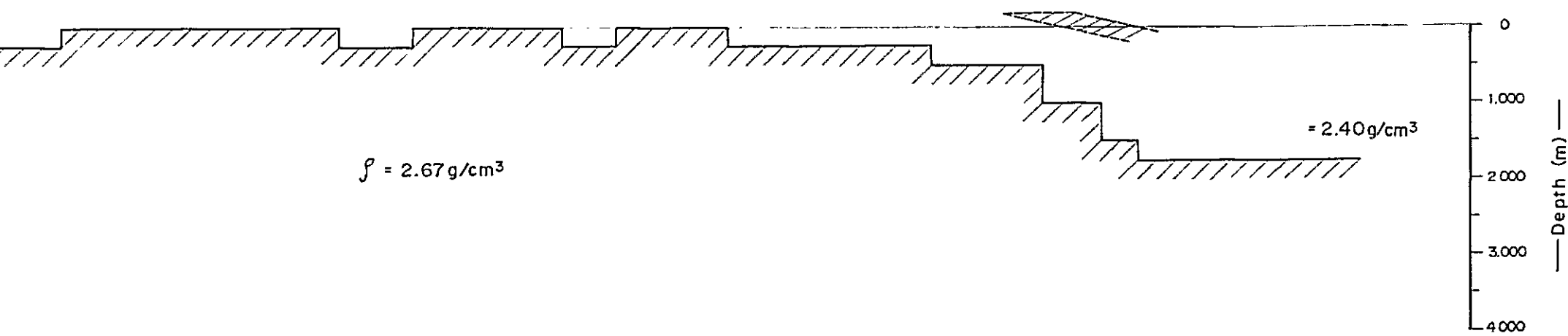
— Bouguer Anomaly
 - - - - - Magnetic Anomaly



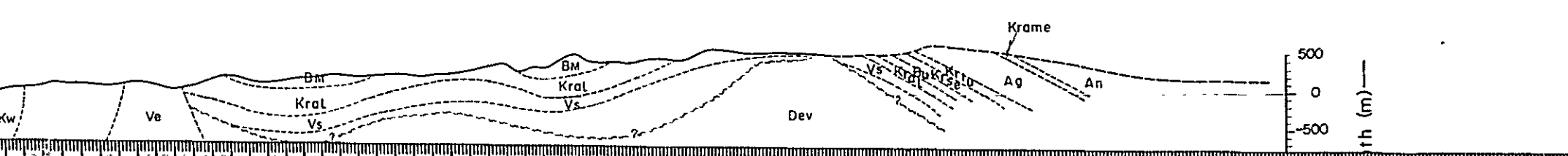
Residual Gravity

— Regional Structure
 - - - - - Normal Structure

Results of Quantitative Analysis

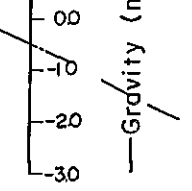
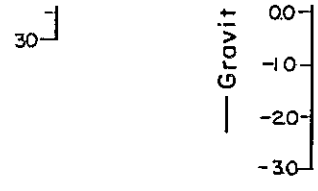


Geological Profile (compiled by Mr. Bōjō)

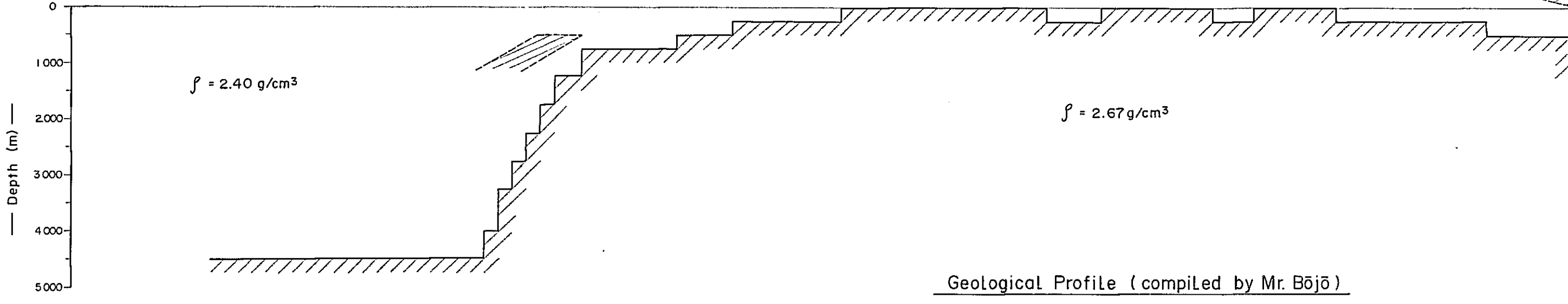


COAL DEVELOPMENT PROJECT AT OFFSHORE
 AREA OF TONGHILDAK COAL FIELD

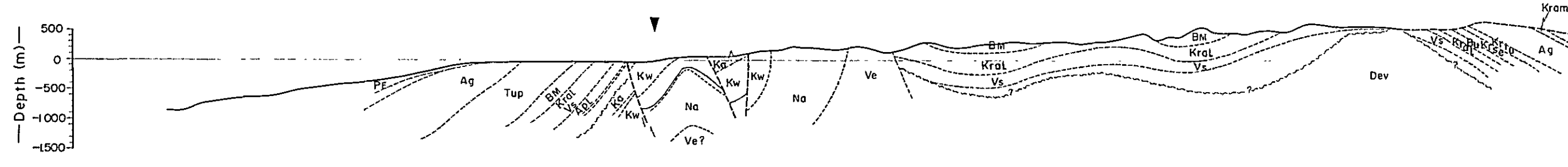




Results of Quantitative Analysis



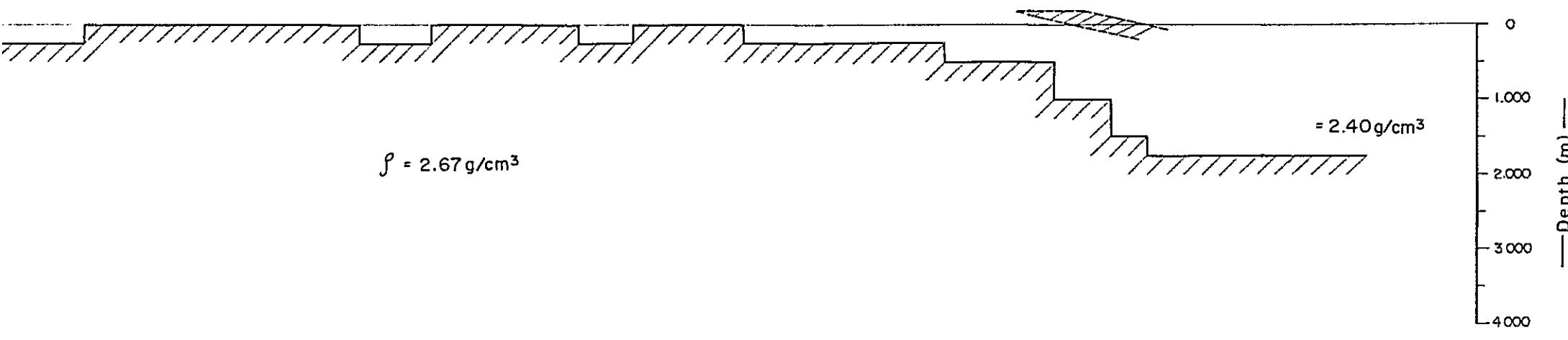
Geological Profile (compiled by Mr. Bōjō)



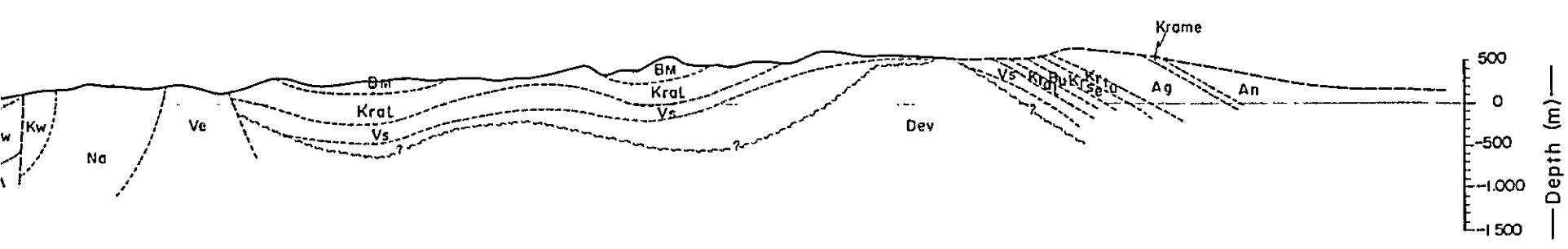
Gravity (mg)
 00
 -10
 -20
 -30

30

Results of Quantitative Analysis



Geological Profile (compiled by Mr. Bōjō)

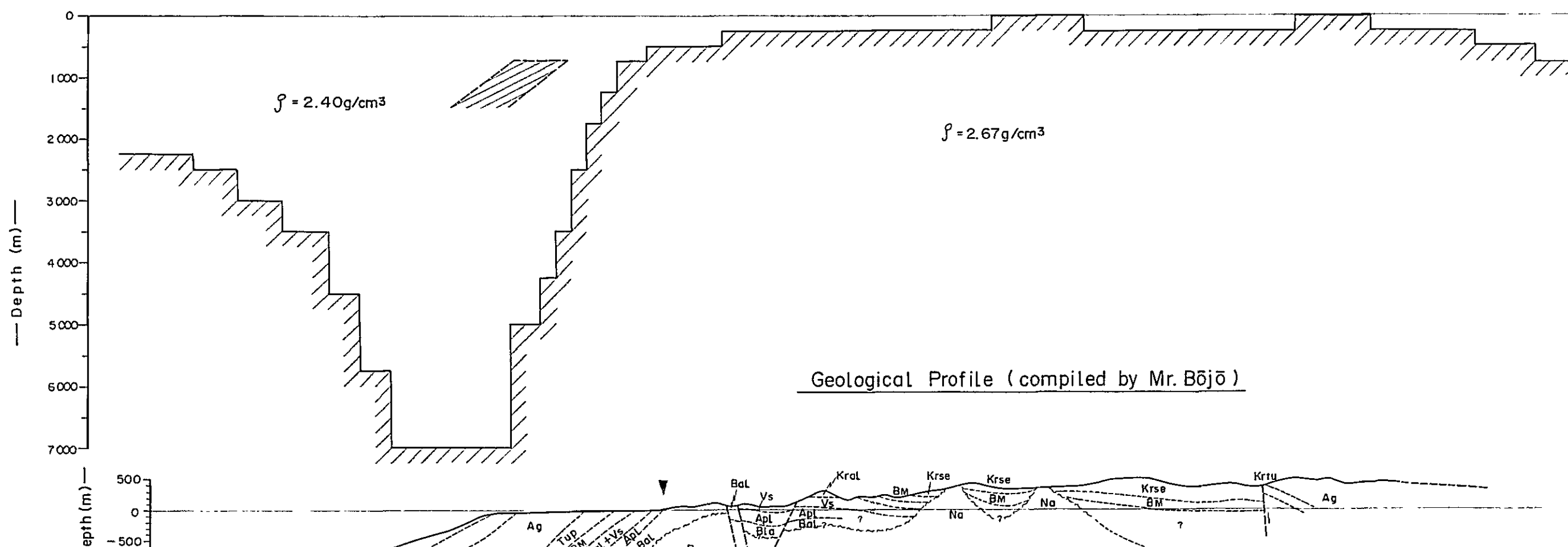
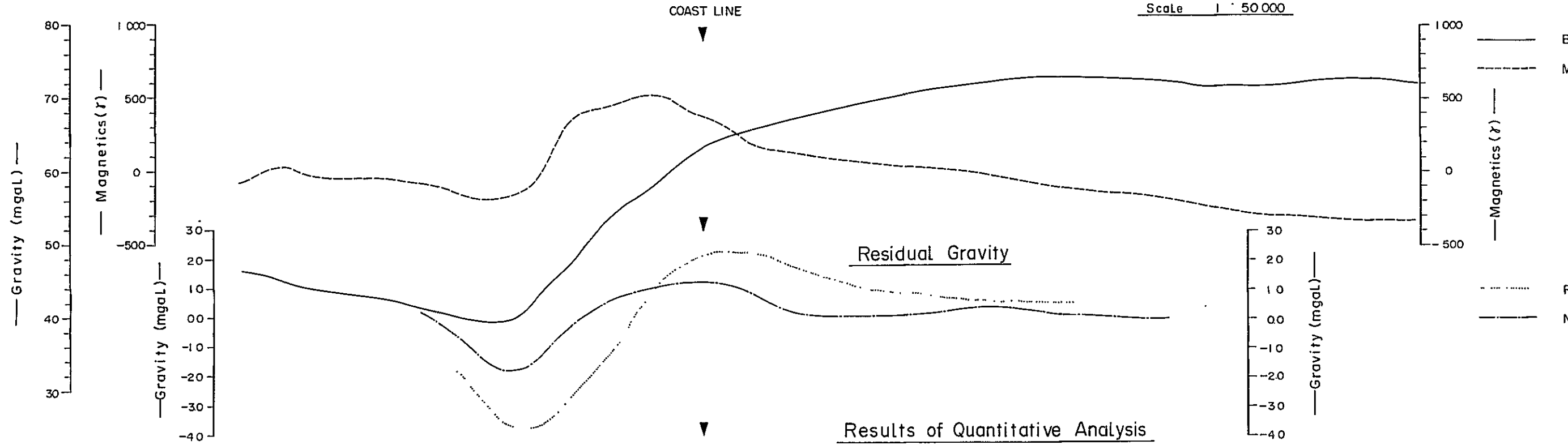


COAL DEVELOPMENT PROJECT AT OFFSHORE AREA OF ZONGULDAK COAL FIELD	
Quantitative Interpretation Profile (C-C' Profile)	
Japan International Cooperation Agency (JICA)	
Date. Aug., 1982	Fig. 53



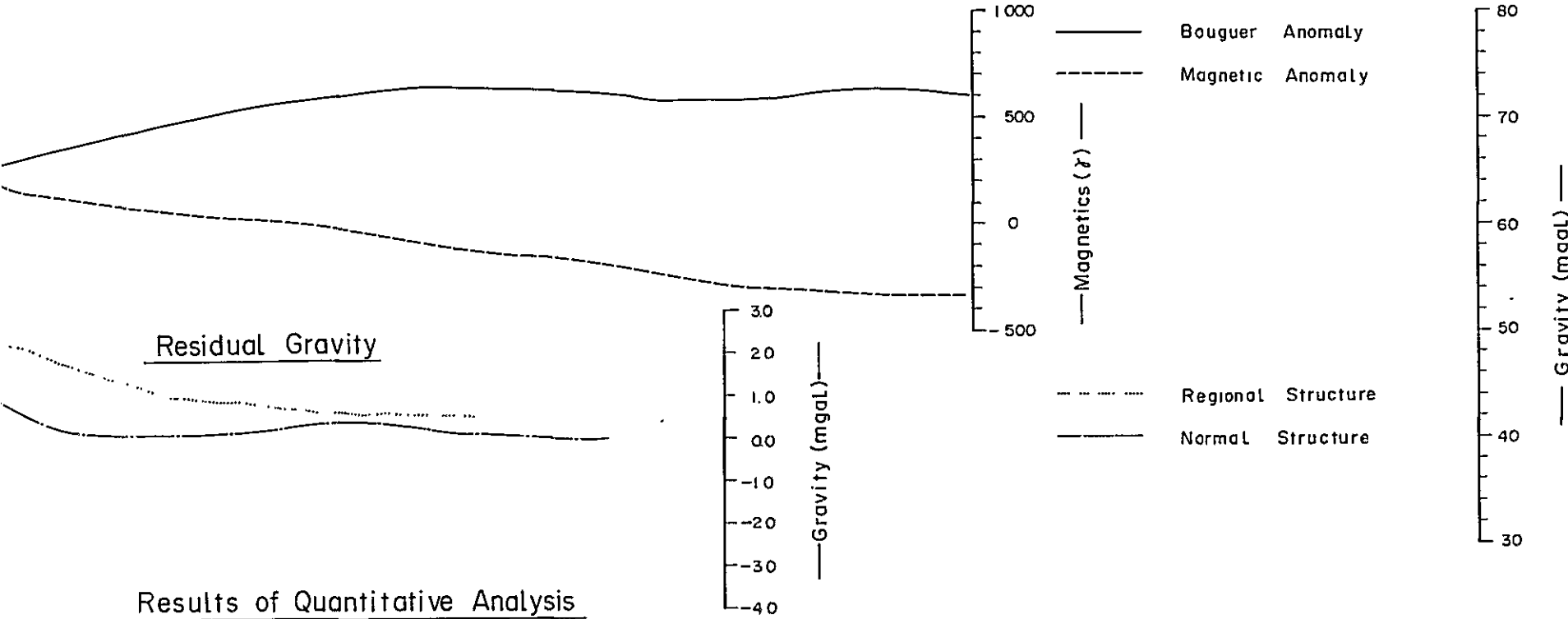
D-D' PROFILE

Scale 1 : 50 000



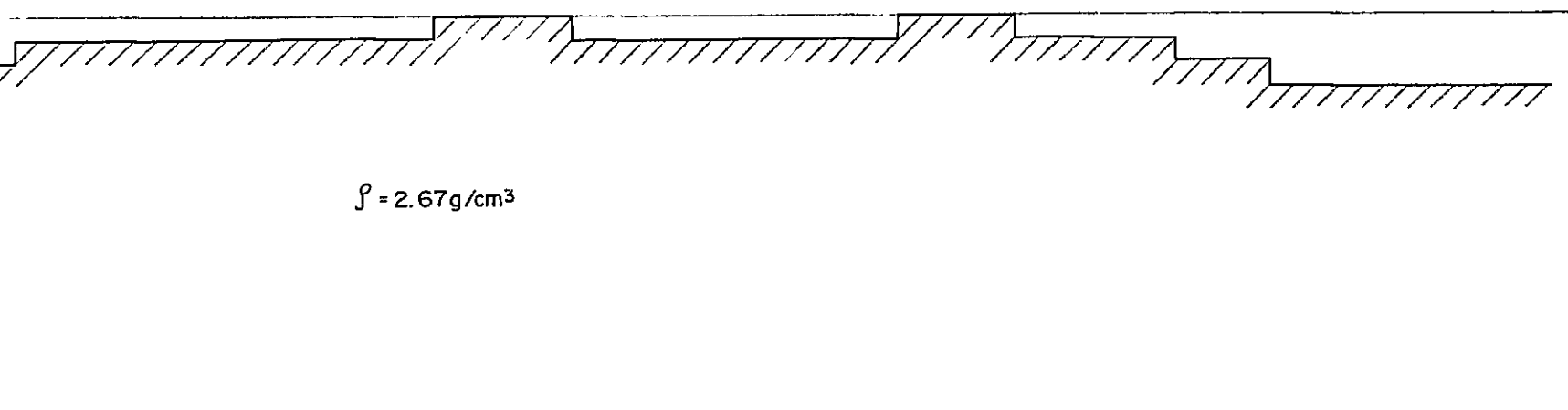
D-D' PROFILE

Scale 1 : 50 000

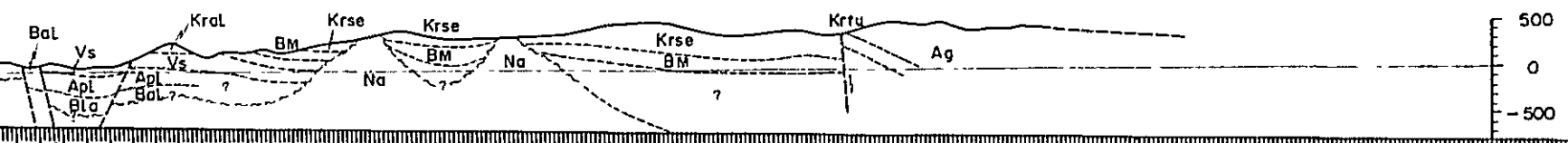


Residual Gravity

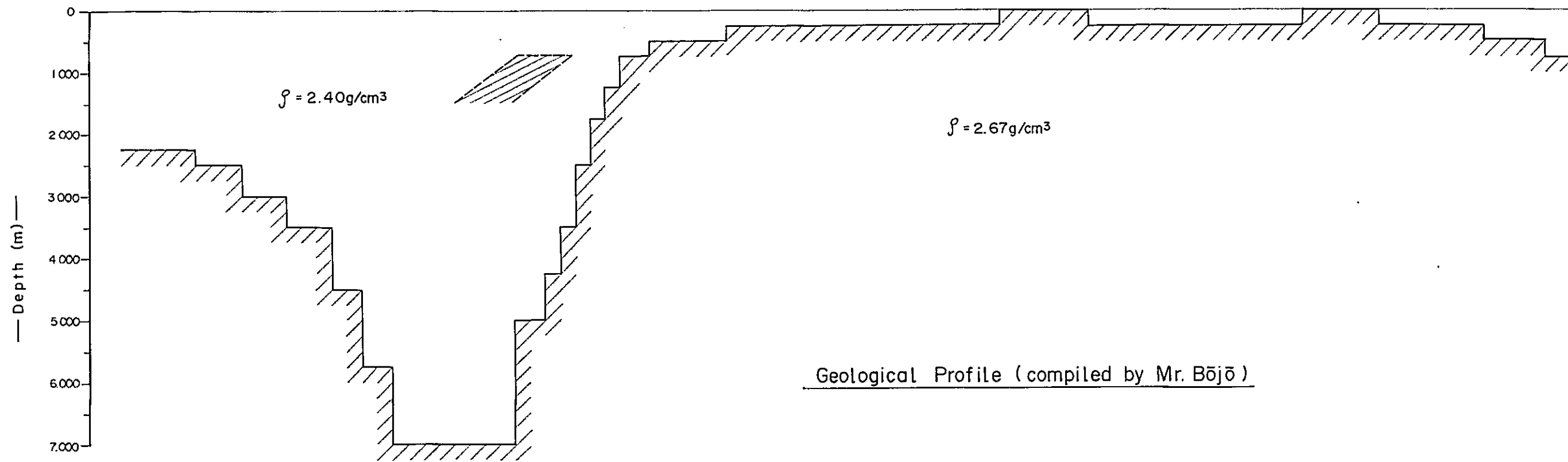
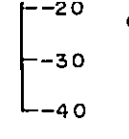
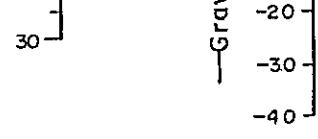
Results of Quantitative Analysis



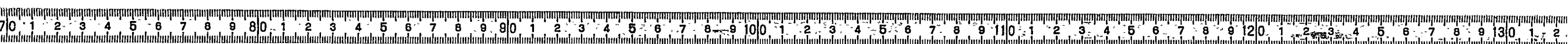
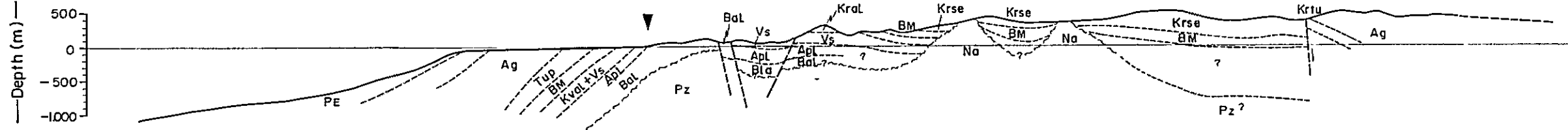
Geological Profile (compiled by Mr. Bōjō)

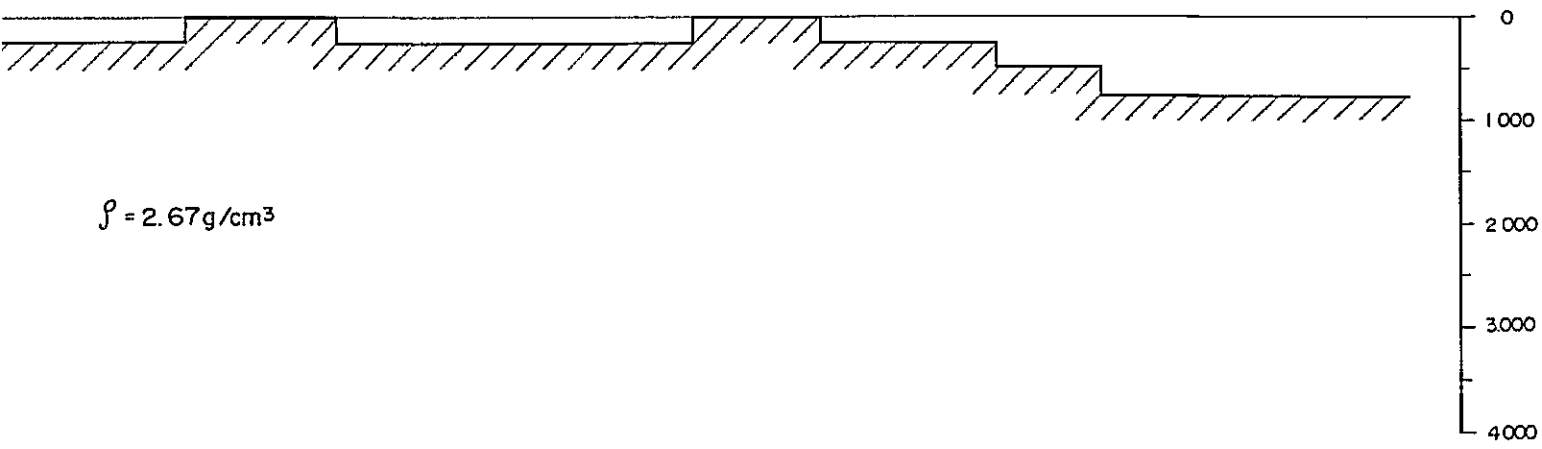
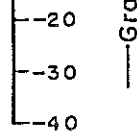


Results of Quantitative Analysis

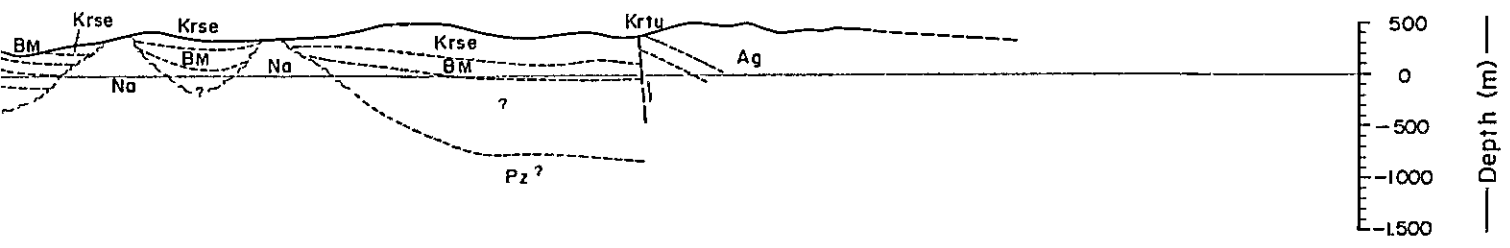


Geological Profile (compiled by Mr. Bōjō)

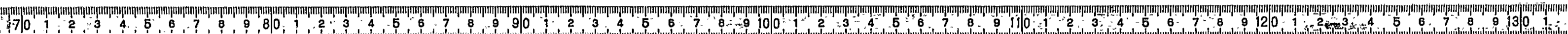




cal Profile (compiled by Mr. Bōjō)

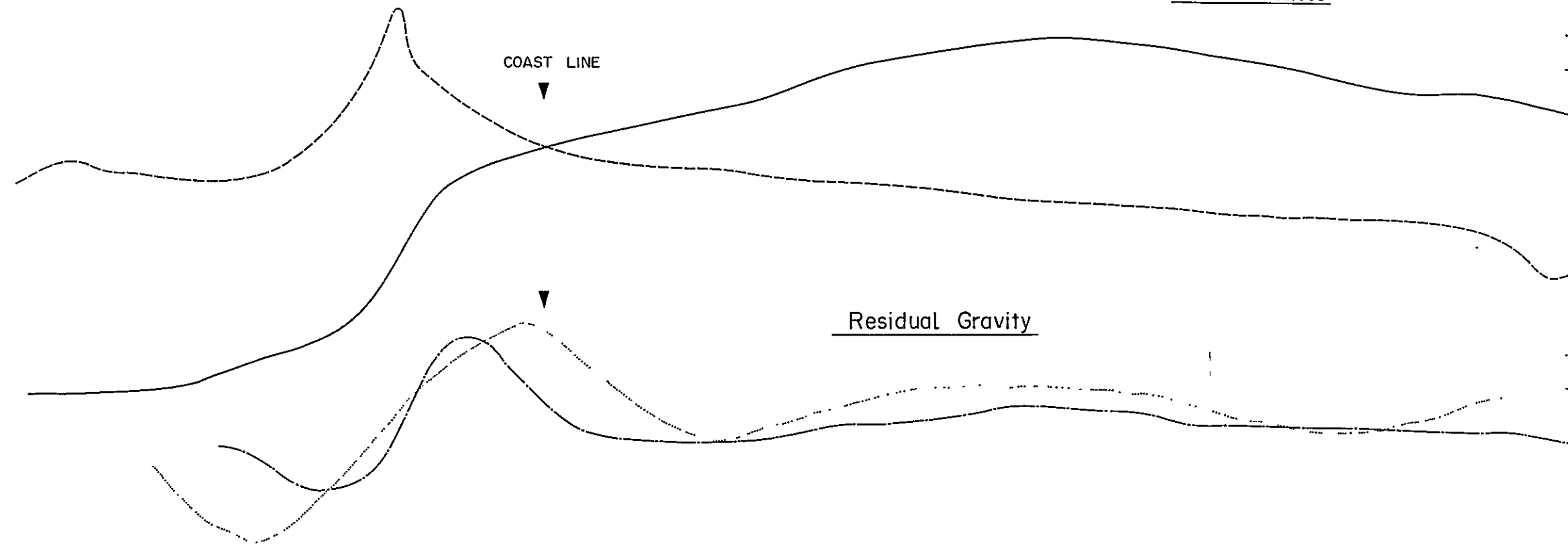
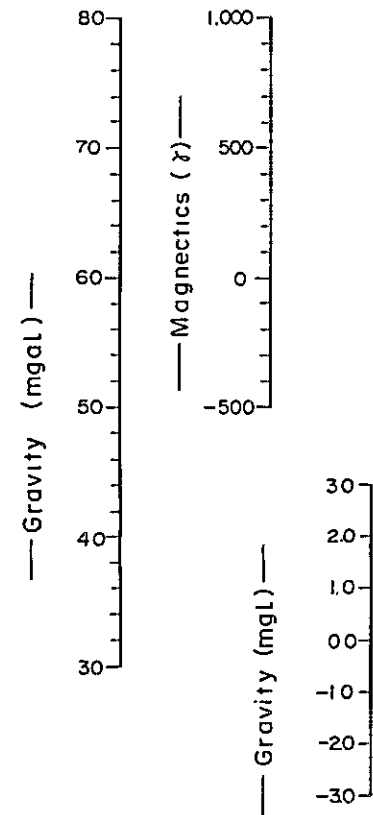


COAL DEVELOPMENT PROJECT AT OFFSHORE AREA OF ZONGULDAK COAL FIELD	
Quantitative Interpretation Profile (D - D' Profile)	
Japan International Cooperation Agency (JICA)	
Date. Aug , 1982	Fig. 54

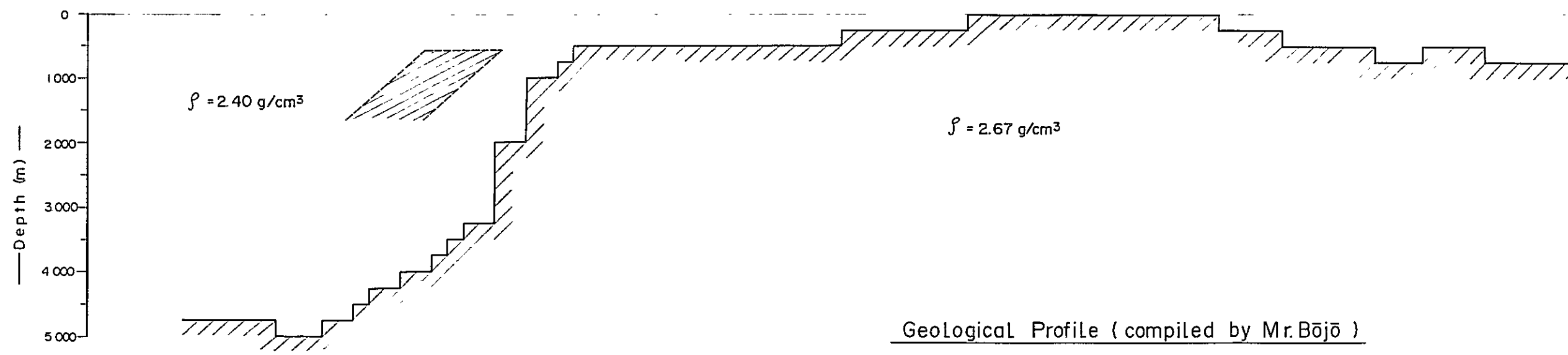


E-6 PROFILE

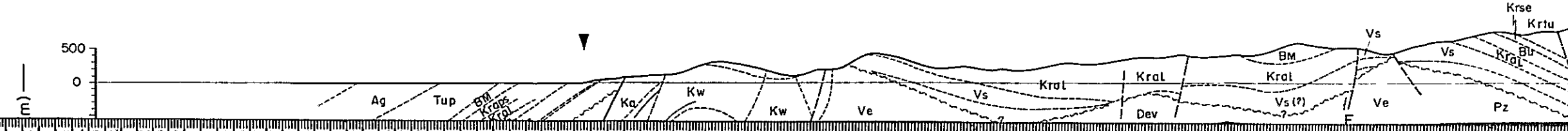
Scale 1 : 50,000



Results of Quantitative Analysis

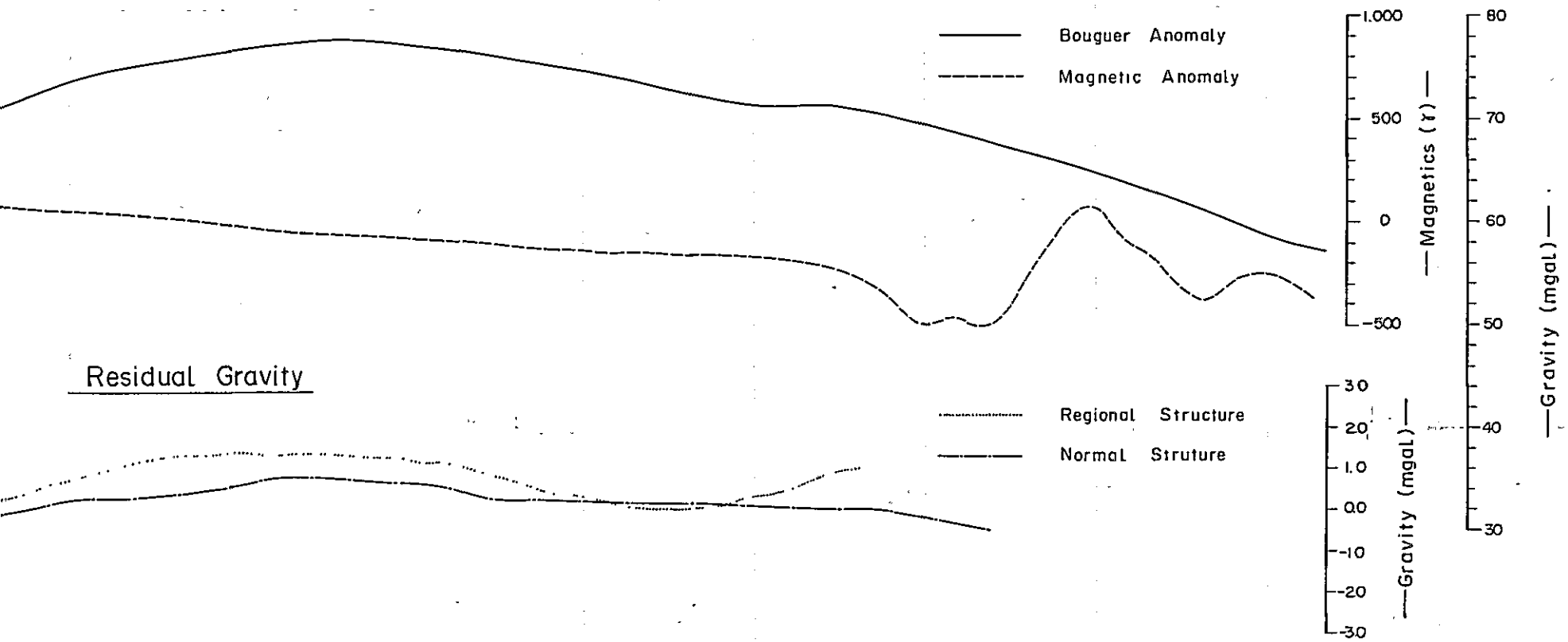


Geological Profile (compiled by Mr. Bōjō)

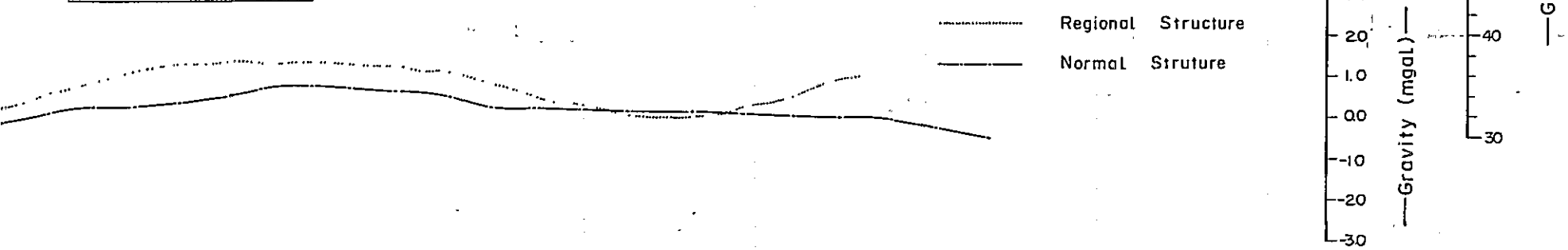


E-6 PROFILE

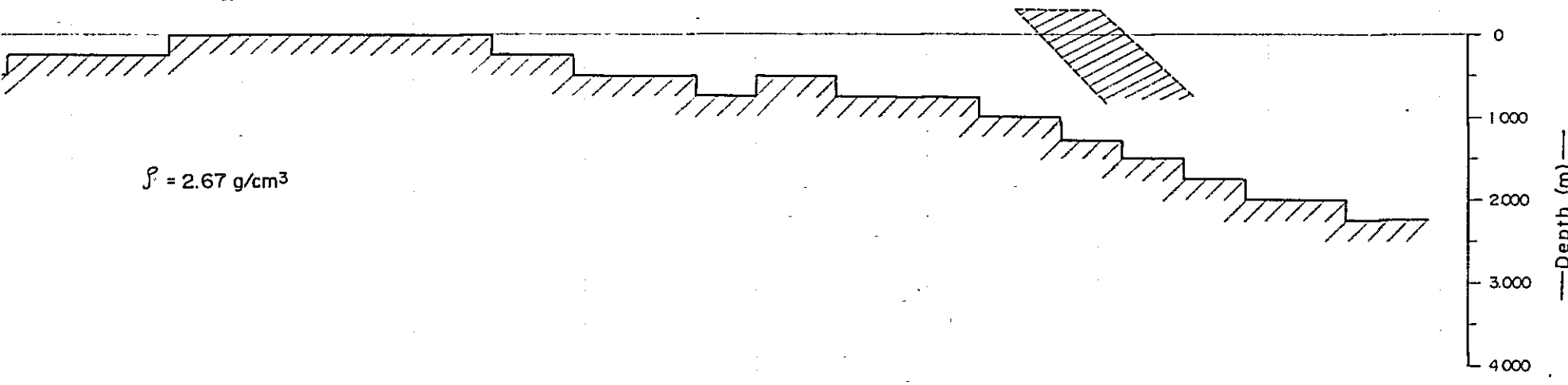
Scale 1 : 50,000



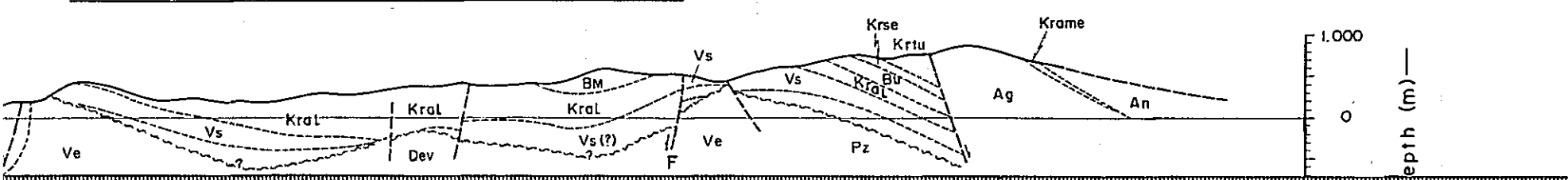
Residual Gravity

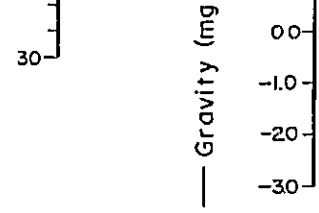


Results of Quantitative Analysis

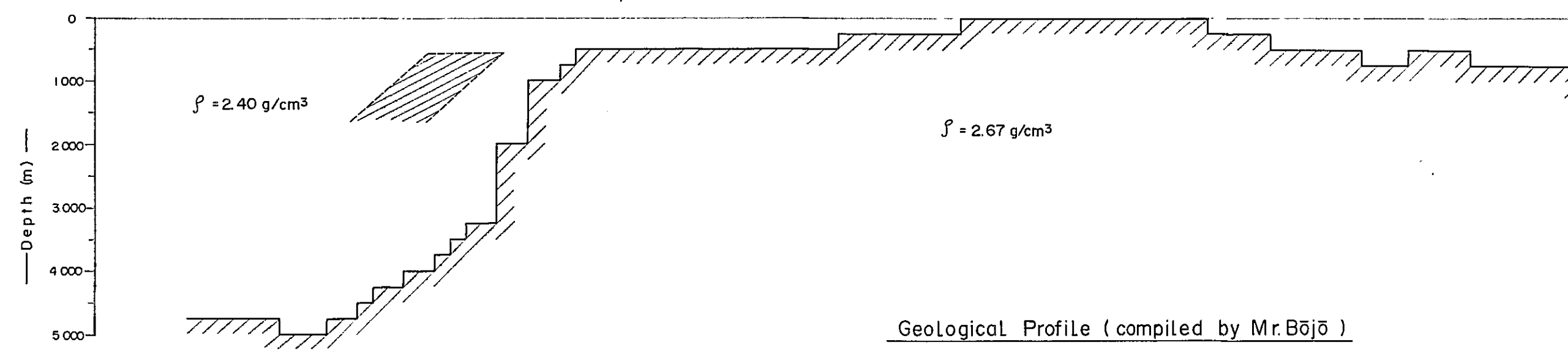


Geological Profile (compiled by Mr. Bōjō)

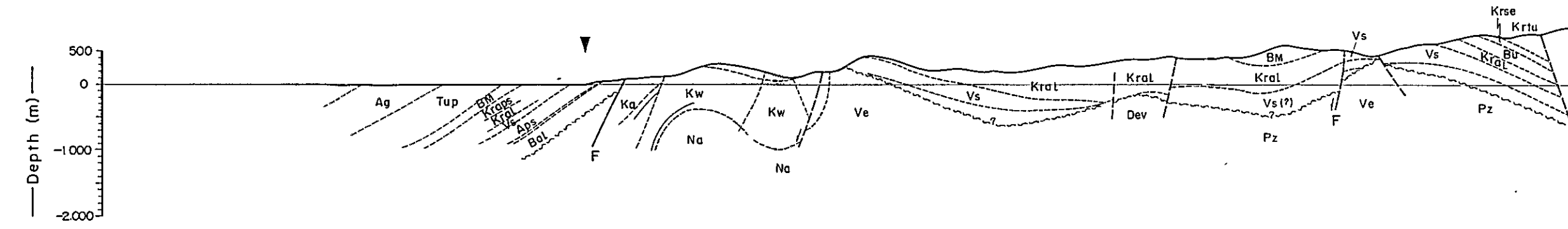




Results of Quantitative Analysis



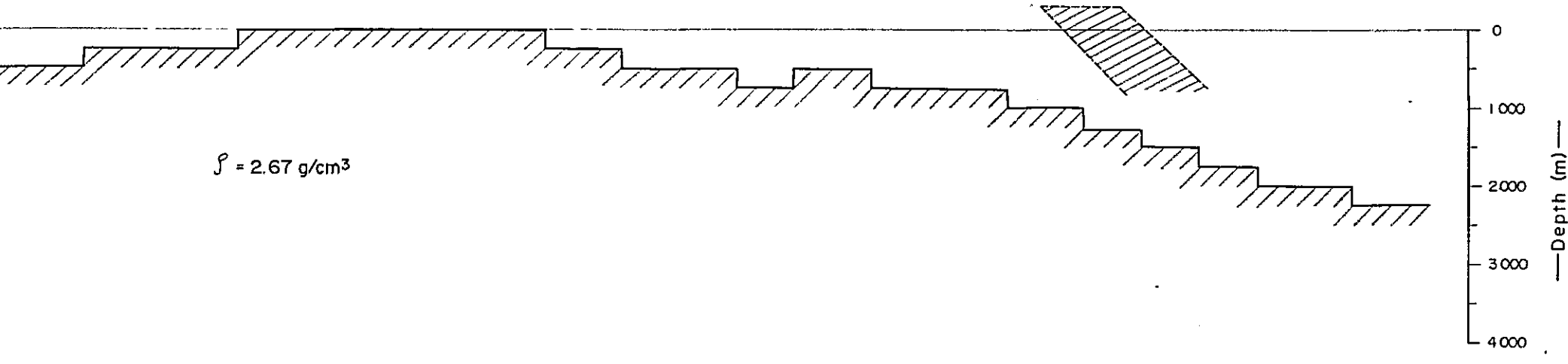
Geological Profile (compiled by Mr. Bōjō)



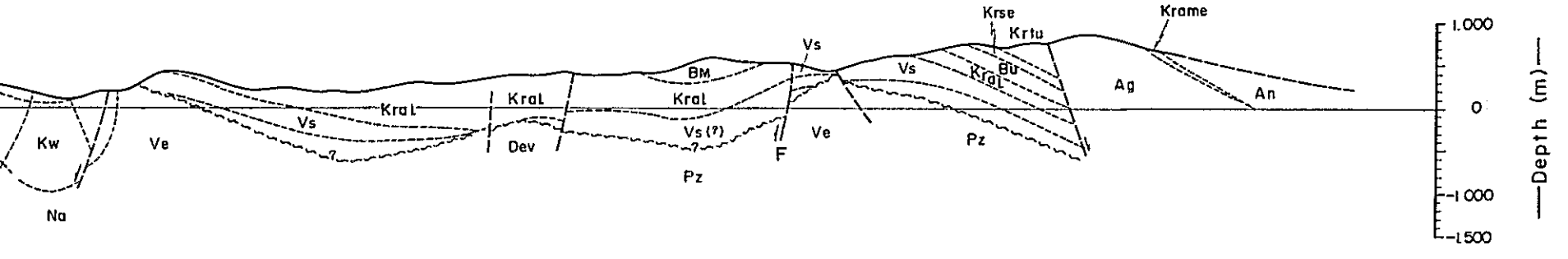
—Gravity (g)
 0.0
 -10
 -20
 -30

Results of Quantitative Analysis

$\rho = 2.67 \text{ g/cm}^3$



Geological Profile (compiled by Mr. Bōjō)

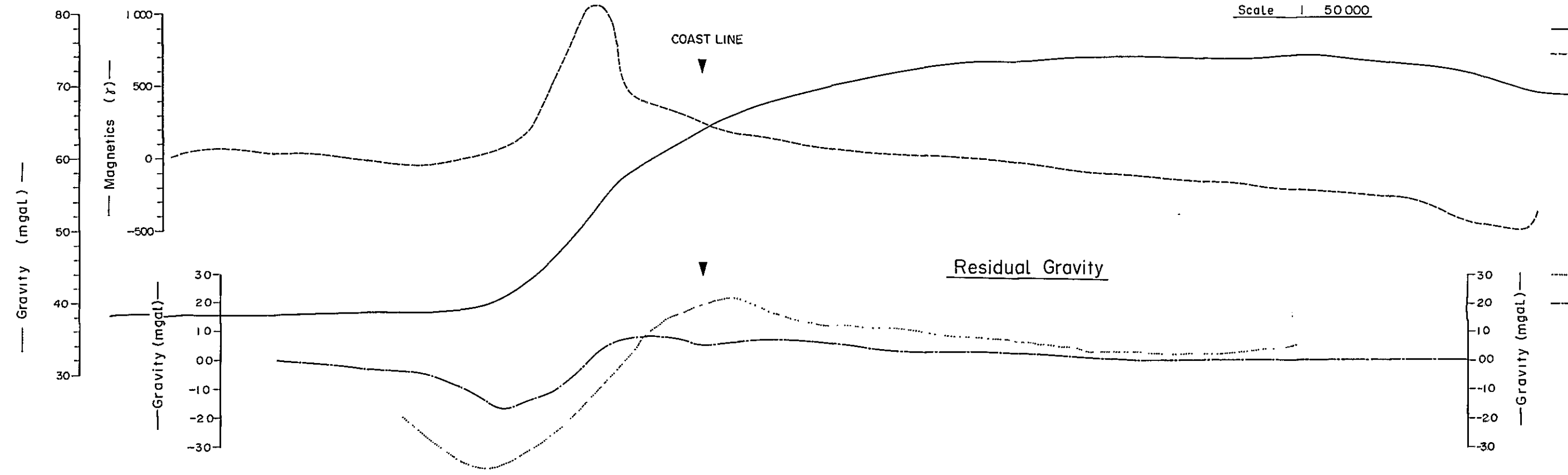


COAL DEVELOPMENT PROJECT AT OFFSHORE AREA OF ZONGULDAK COAL FIELD	
Quantitative Interpretation Profile (E-6 Profile)	
Japan International Cooperation Agency (JICA)	
Date: Aug., 1982	Fig. 55

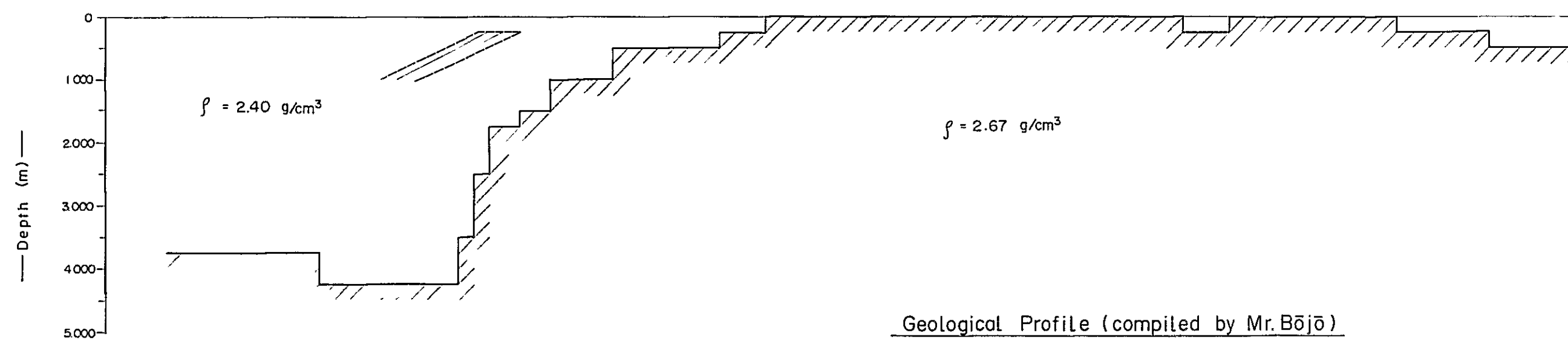


E-8 PROFILE

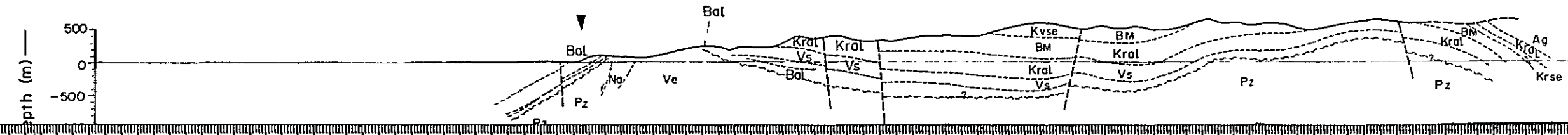
Scale 1 50 000



Results of Quantitative Analysis



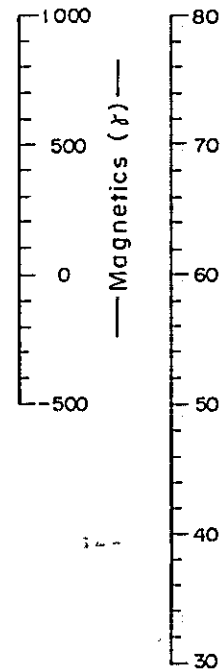
Geological Profile (compiled by Mr. Bōjō)



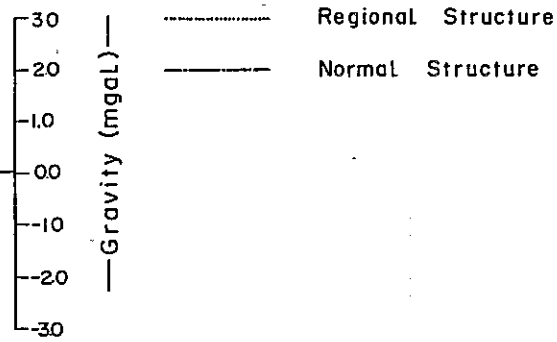
E-8 PROFILE

Scale 1 : 50000

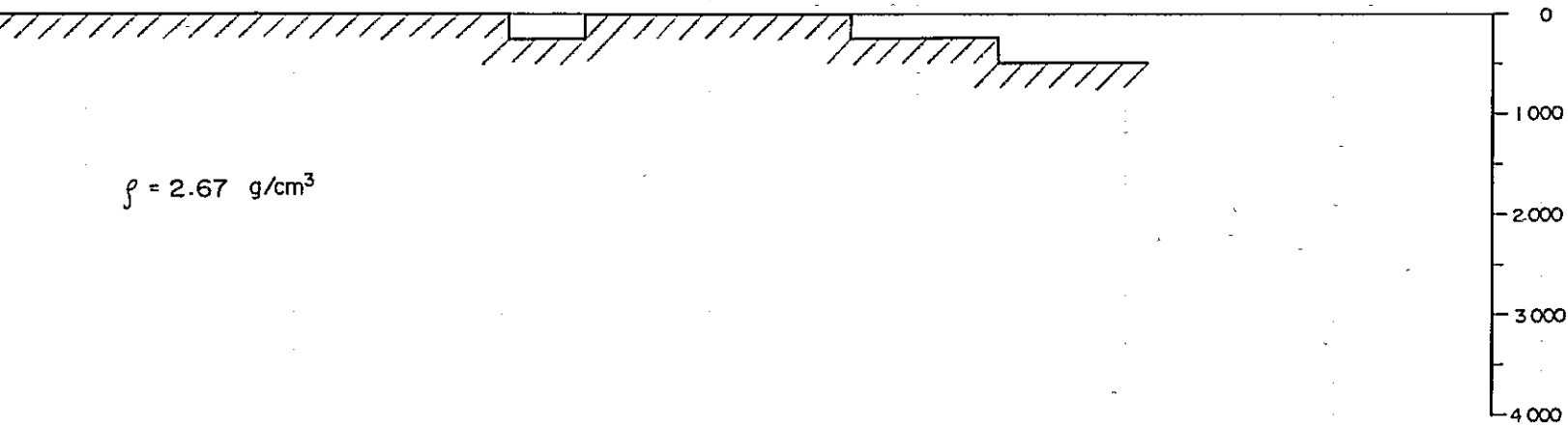
— Bouguer Anomaly
 - - - Magnetic Anomaly



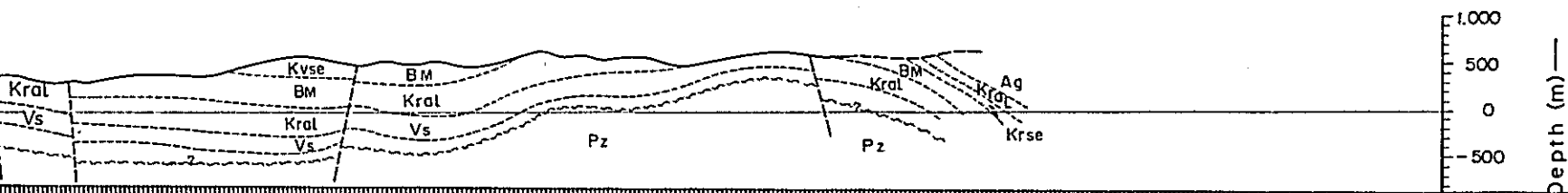
Residual Gravity



Results of Quantitative Analysis

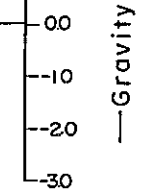
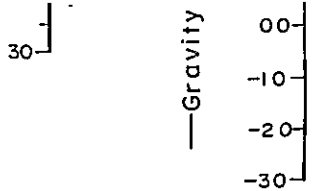


Geological Profile (compiled by Mr. Bōjō)

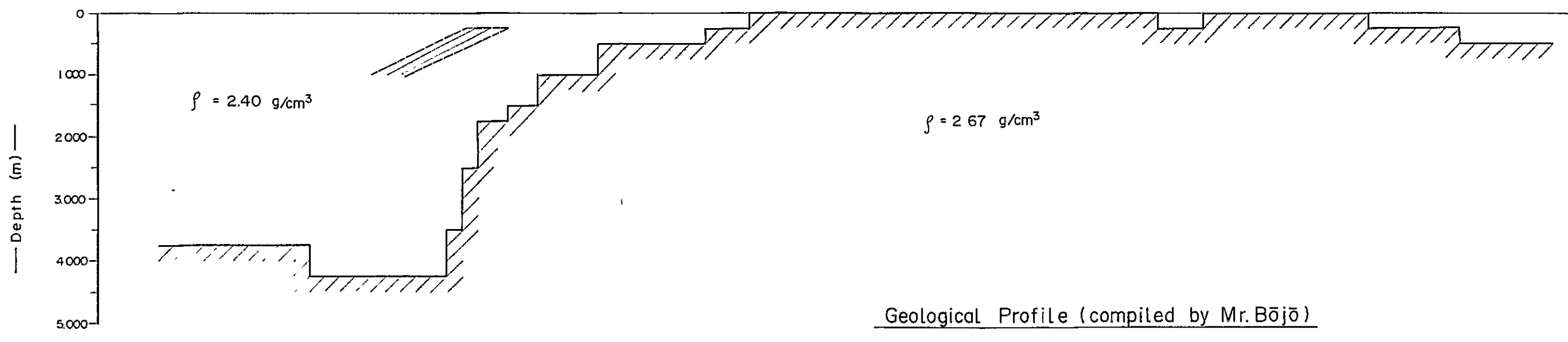


COAL DEVELOPMENT PROJECT AT OFFSHORE
 AREA OF TONGKAY COAL FIELD

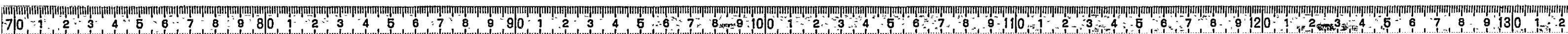
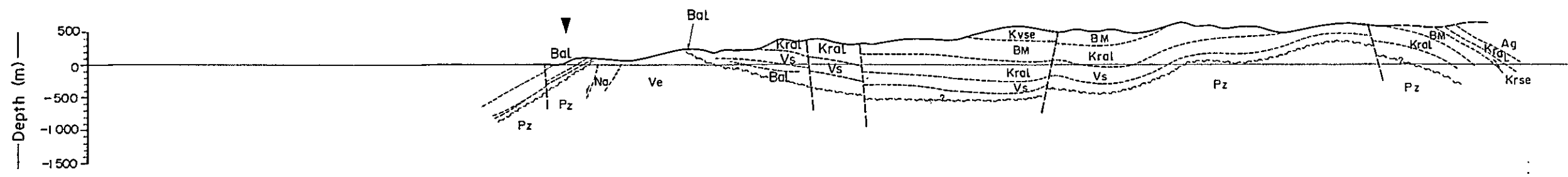




Results of Quantitative Analysis



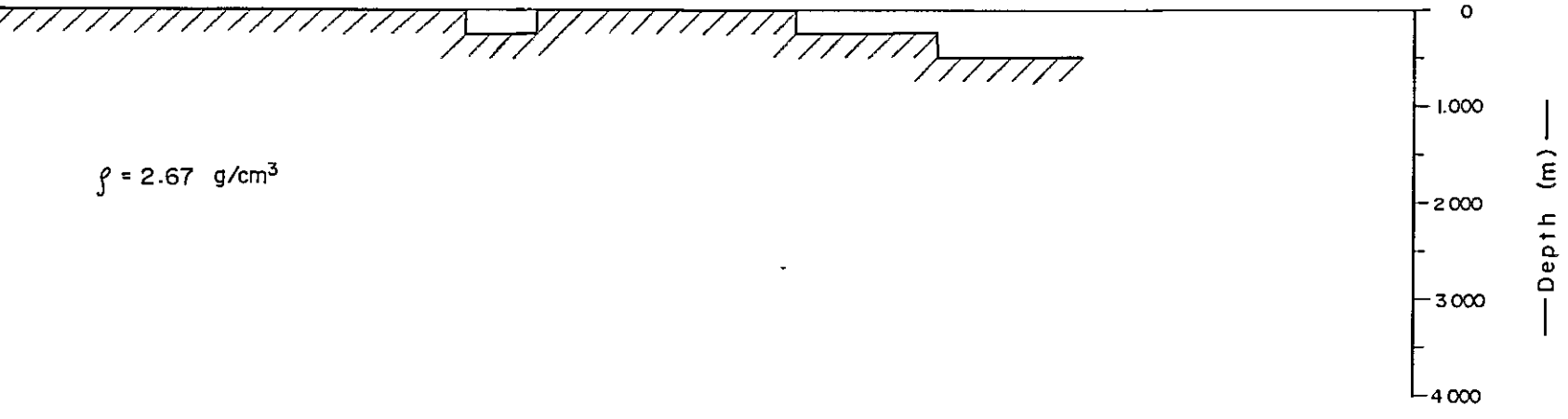
Geological Profile (compiled by Mr. Bōjō)



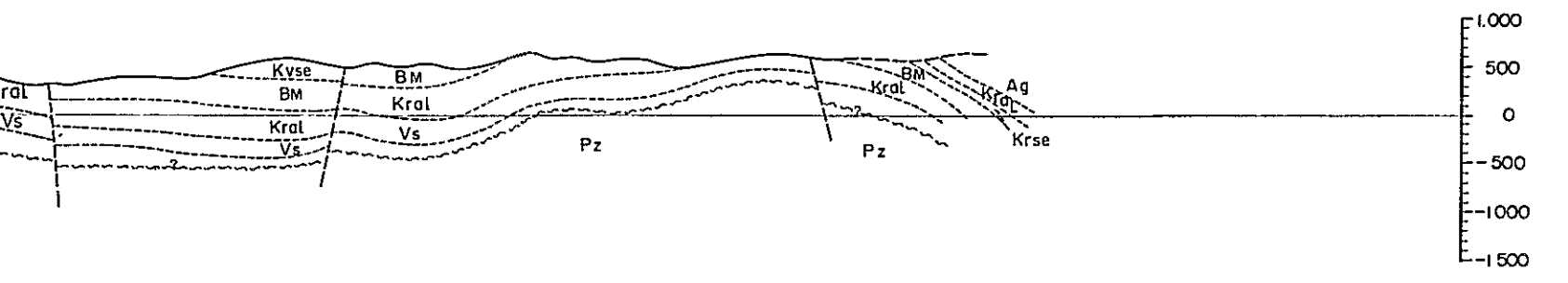
— Gravity —
 0.0
 -1.0
 -2.0
 -3.0

30

Results of Quantitative Analysis



Geological Profile (compiled by Mr. Bōjō)

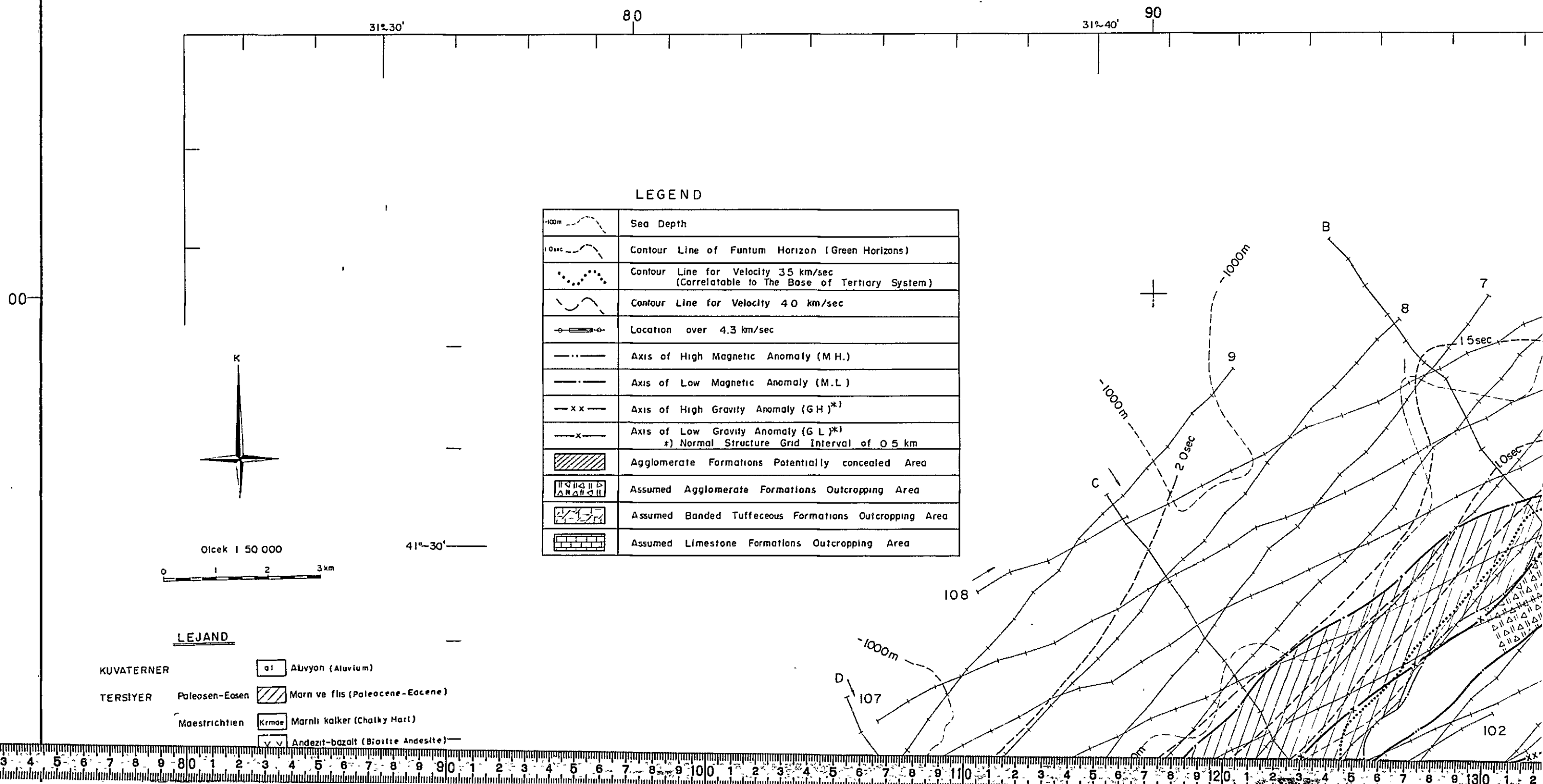


COAL DEVELOPMENT PROJECT AT OFFSHORE AREA OF ZONGULDAK COAL FIELD	
Quantitative Interpretation Profile (E - 8 Profile)	
Japan International Cooperation Agency (JICA)	
Date: Aug., 1982	Fig. 56



Figure 58

Synthetic Interpretation M



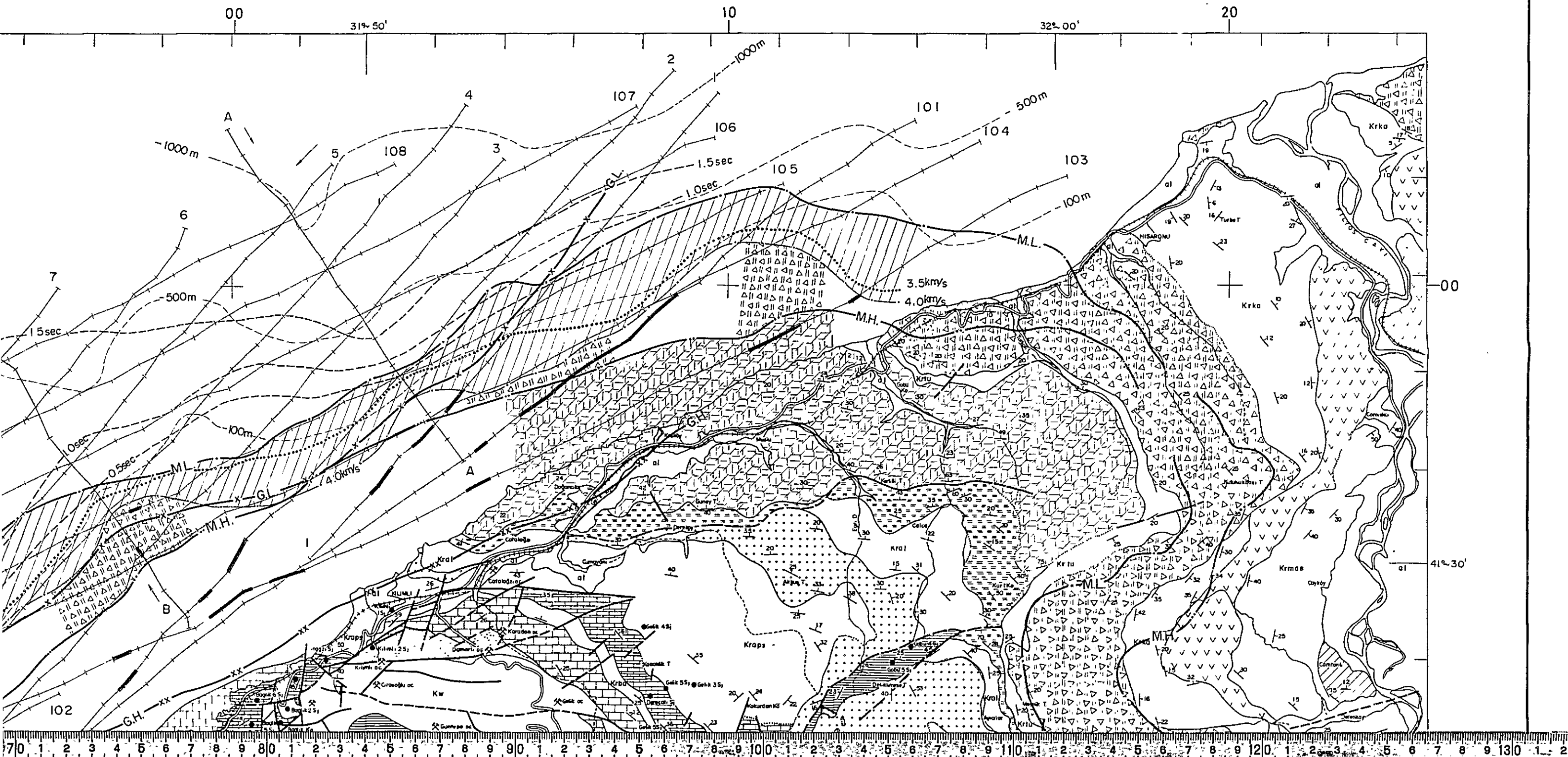
LEGEND

	Sea Depth
	Contour Line of Funtum Horizon (Green Horizons)
	Contour Line for Velocity 35 km/sec (Correlatable to The Base of Tertiary System)
	Contour Line for Velocity 40 km/sec
	Location over 4.3 km/sec
	Axis of High Magnetic Anomaly (M.H.)
	Axis of Low Magnetic Anomaly (M.L.)
	Axis of High Gravity Anomaly (G.H.)*
	Axis of Low Gravity Anomaly (G.L.)* *) Normal Structure Grid Interval of 0.5 km
	Agglomerate Formations Potentially concealed Area
	Assumed Agglomerate Formations Outcropping Area
	Assumed Banded Tuffaceous Formations Outcropping Area
	Assumed Limestone Formations Outcropping Area

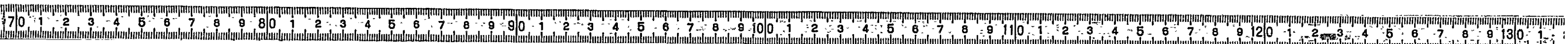
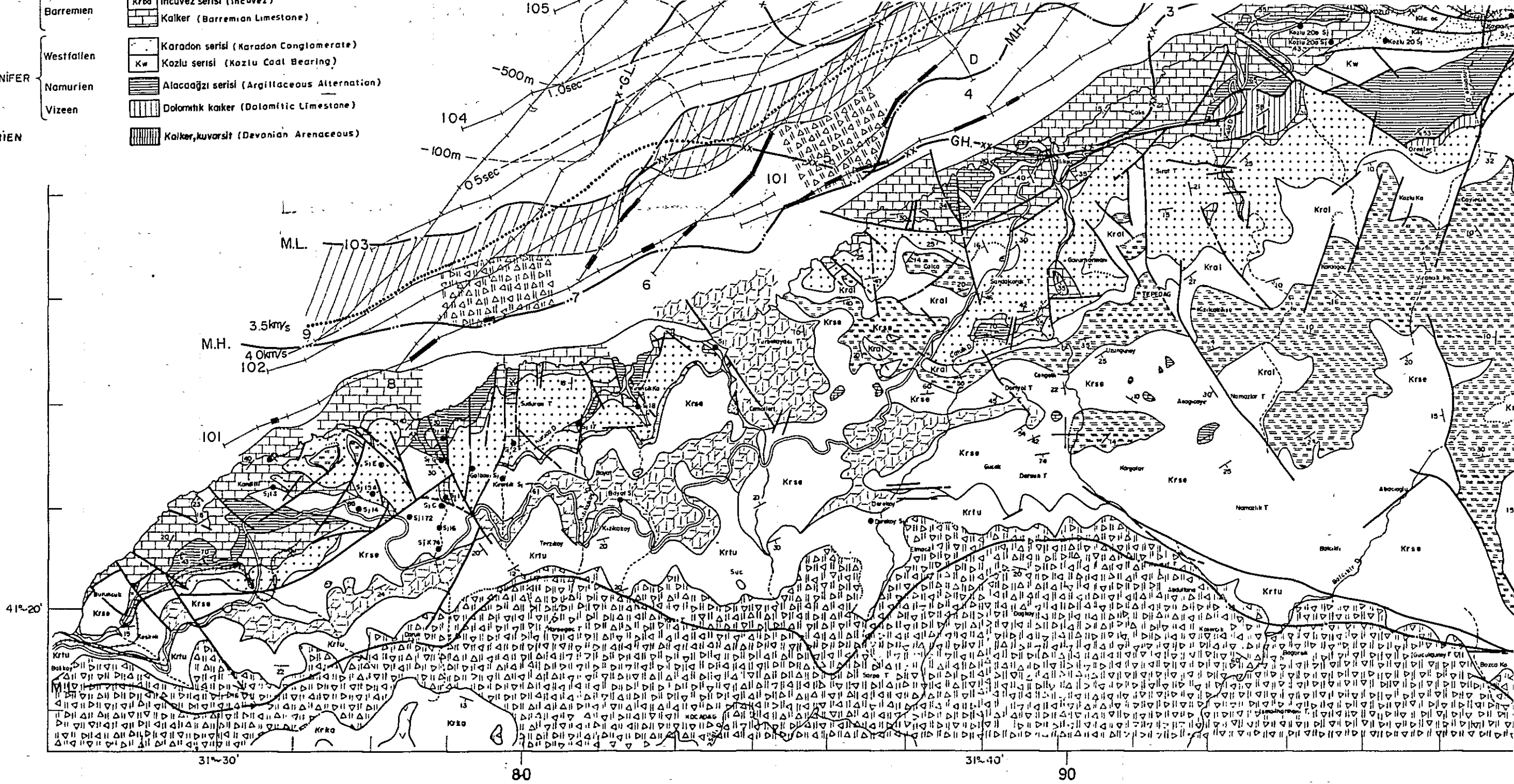
LEJAND

KUVATERNER	a1	Aluvyon (Aluvium)
TERSİYER	Paleosen-Eosen	Marn ve flis (Paleocene-Eocene)
	Maestrichtien	Kirmae Marnli kalker (Chalky Mart)
		Andezit-bazalt (Biotite Andesite)

ion Map.



- Barremien
 - Westfallen
 - Namurien
 - Vizeen
 - DEVONİEN
- Kalkar (Barremian Limestone)
 - Karadon serisi (Karadon Conglomerate)
 - Kw Kozlu serisi (Kozlu Coal Bearing)
 - Alacağzi serisi (Argillaceous Alternation)
 - Dolomitik kalker (Dolomitic Limestone)
 - Kalkar, kuvarslı (Devonian Arenaceous)



JICA

