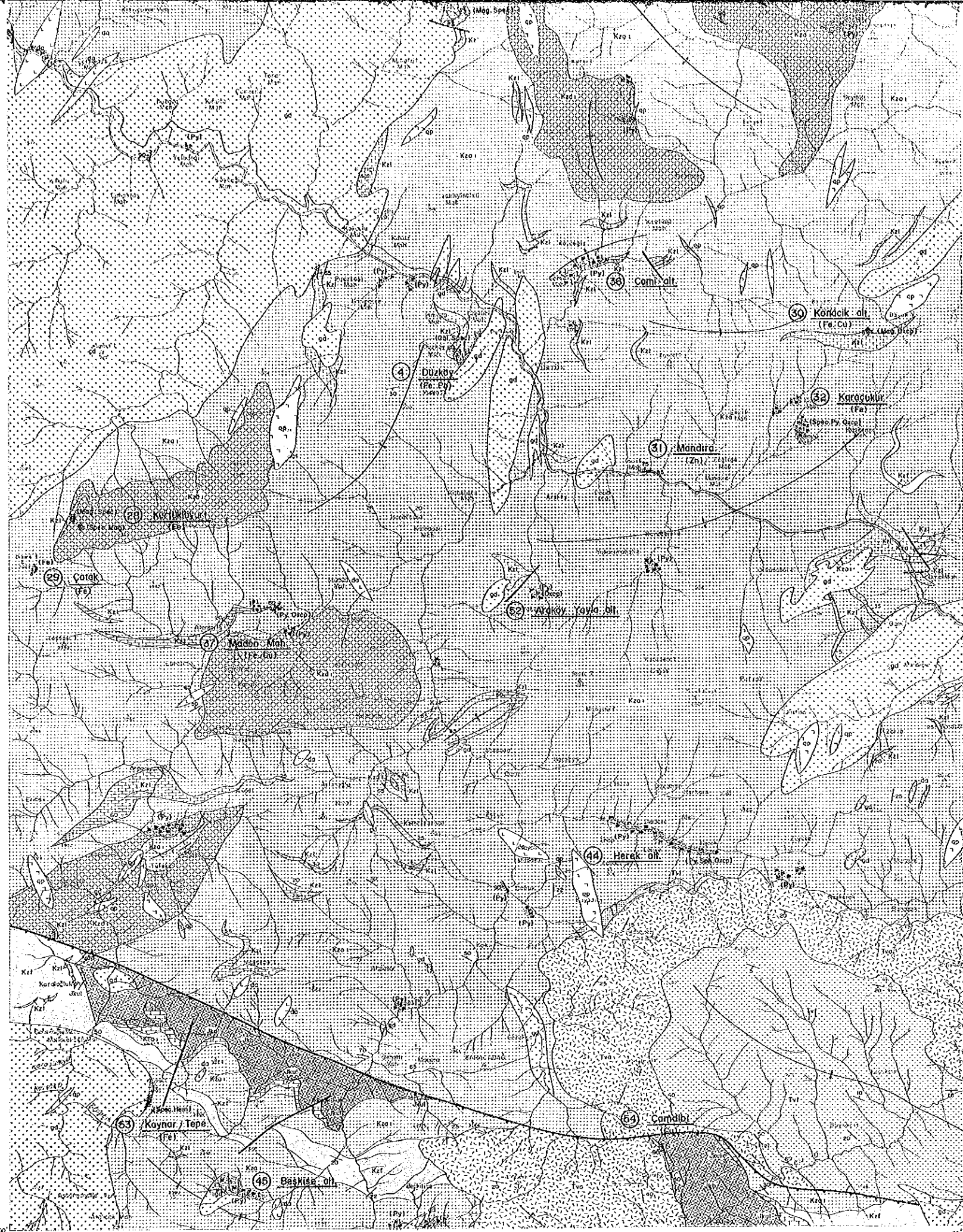


**LEGEND**

Quaternary		Aa	Alluvium
		Qt	Tertiary
Tertiary		Tg	Andesite lava and pyroclastics
		Tvf	Flysch
		Tva	Andesite lava and pyroclastics
		Tvl	Limestone
Upper Cretaceous		Kz1	Limestone and red limestone
		Kz2	Dacite lava and pyroclastics (D2)
		Kz2a	Andesite - lava and pyroclastics (A2)
		Kzd1	Dacite lava and pyroclastics (D1)
		Kza1	Andesite - lava and pyroclastics (A1)
		Kzt	Flysch (Kermit dere)
Jurassic		Jk1	Limestone
		Jkb	Basalt lava and pyroclastics
		Jks	Sandstone, mudstone, chert and coal
		Jkd	Dacitic pyroclastics
Paleozoic		Pg	Paleozoic granite
		Pk	Gneiss and schist
		qd	Granodioritic rocks
		pq2	Porphyritic granite
Intrusive rocks		pq1	Porphyritic granite
		qp	Quartz porphyry
		di	Diorite
		da	Dacite
		dol	Dolerite
		—/—	Strike and dip
	— —	Fault	
	— —/—	Thrust fault	
	—+—	Anticlinal axis	
	—-—	Synclinal axis	



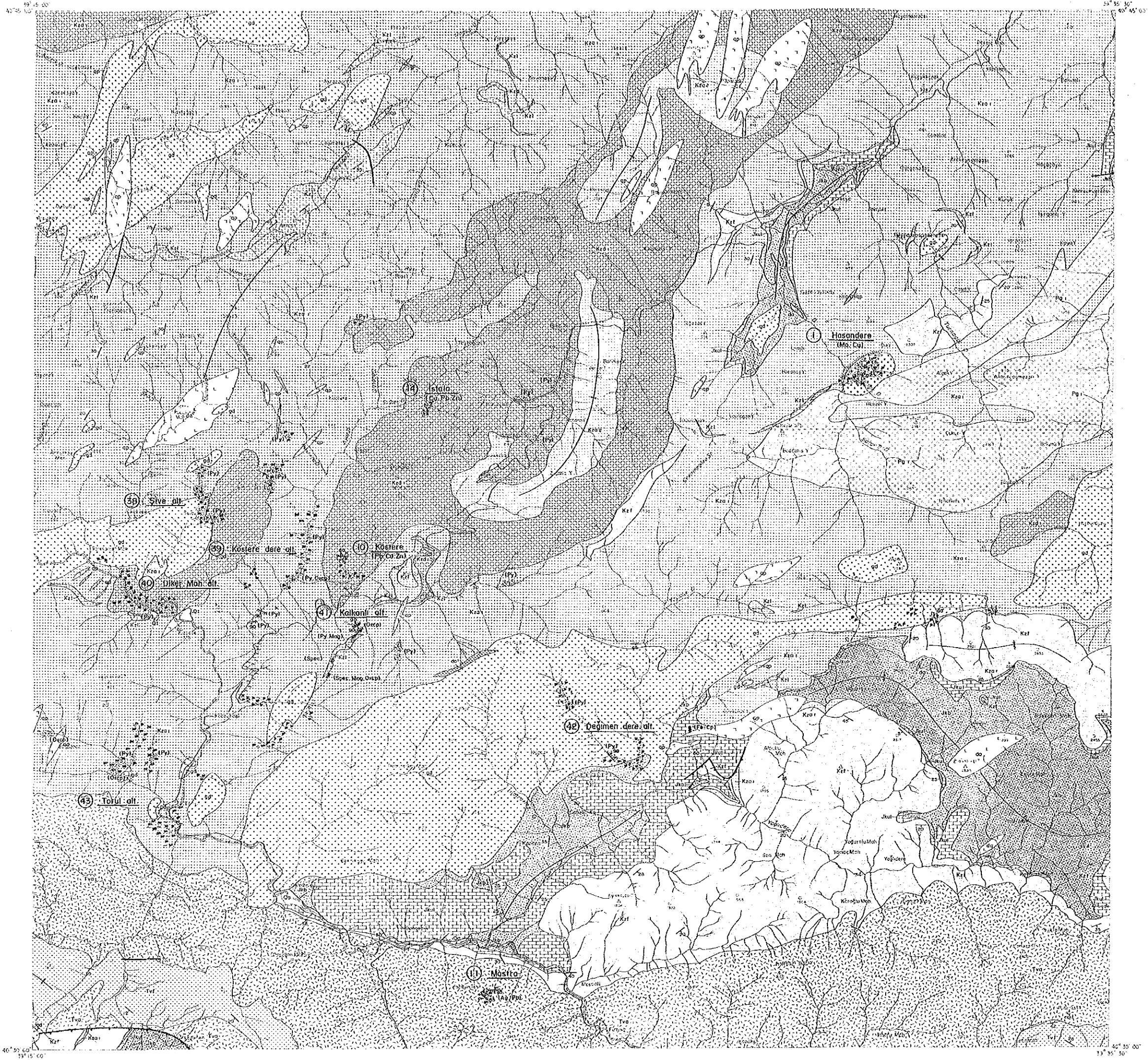
45° 30' 00"  
39° 00' 00"

45° 30' 00"  
39° 15' 00"

Quaternary	Qr	Trovertina
Gövdaglı Volcanics	Tga	Andesite lava and pyroclastics
	Tvl	Flysh
	Tvo	Andesite lava and pyroclastics
Vançayla F.	Tvl	Limestone
	Tvc	Conglomerate
	Kal	Limestone and red limestone
Upper Cretaceous	Kzda	Dacite lava and pyroclastics (Dz)
	Kzoa	Andesite - lava and pyroclastics (Az)
	Kzd1	Dacite lava and pyroclastics (D1)
	Kzo1	Andesite - lava and pyroclastics (A1)
	Kz1	Flysh (Kermut dere)
Kuşakçaya Limestone	Jk1	Limestone
	Jkb	Basalt lava and pyroclastics
Jurassic	Jks	Sandstone, mudstone, chert and coal
	Jkd	Dacitic pyroclastics
	Jkc	Conglomerate
Paleozoic	Pgg	Paleozoic granite
	Pkg	Gneiss and schist
Intrusive rocks	gd	Granodioritic rocks
	Pgz	Porphyritic granite
	Pgt	Porphyritic granite
	qp	Quartz porphyry
	di	Diorite
	do	Dacite
	dal	Dolerite
	30	Strike and dip
	—	Fault
	—	Thrust fault
—	Anticlinal axis	
—	Synclinal axis	
—	Argillization	
—	Silicification	
—	Uronization	
—	Skarnization	
—	Dissemination	
—	Skarn with massive ore	
—	Vein	
—	Gallery	
—	Open - pit	
—	Working mine	

Abbreviation

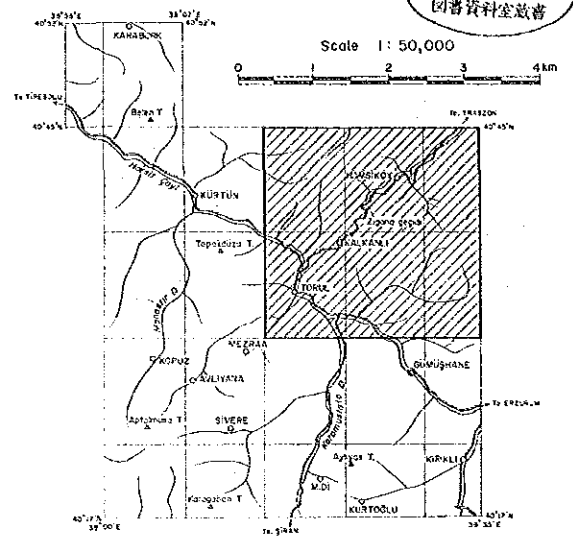
Mag.	Magnetite
Sp.	Spinel
Gst.	Galenite
Sph.	Sphalerite
Cp.	Chalcopyrite
Py.	Pyrite
Oxcp.	Oxide Copper
Stb.	Stibnite
Pa.	Barite
Coal.	Coal



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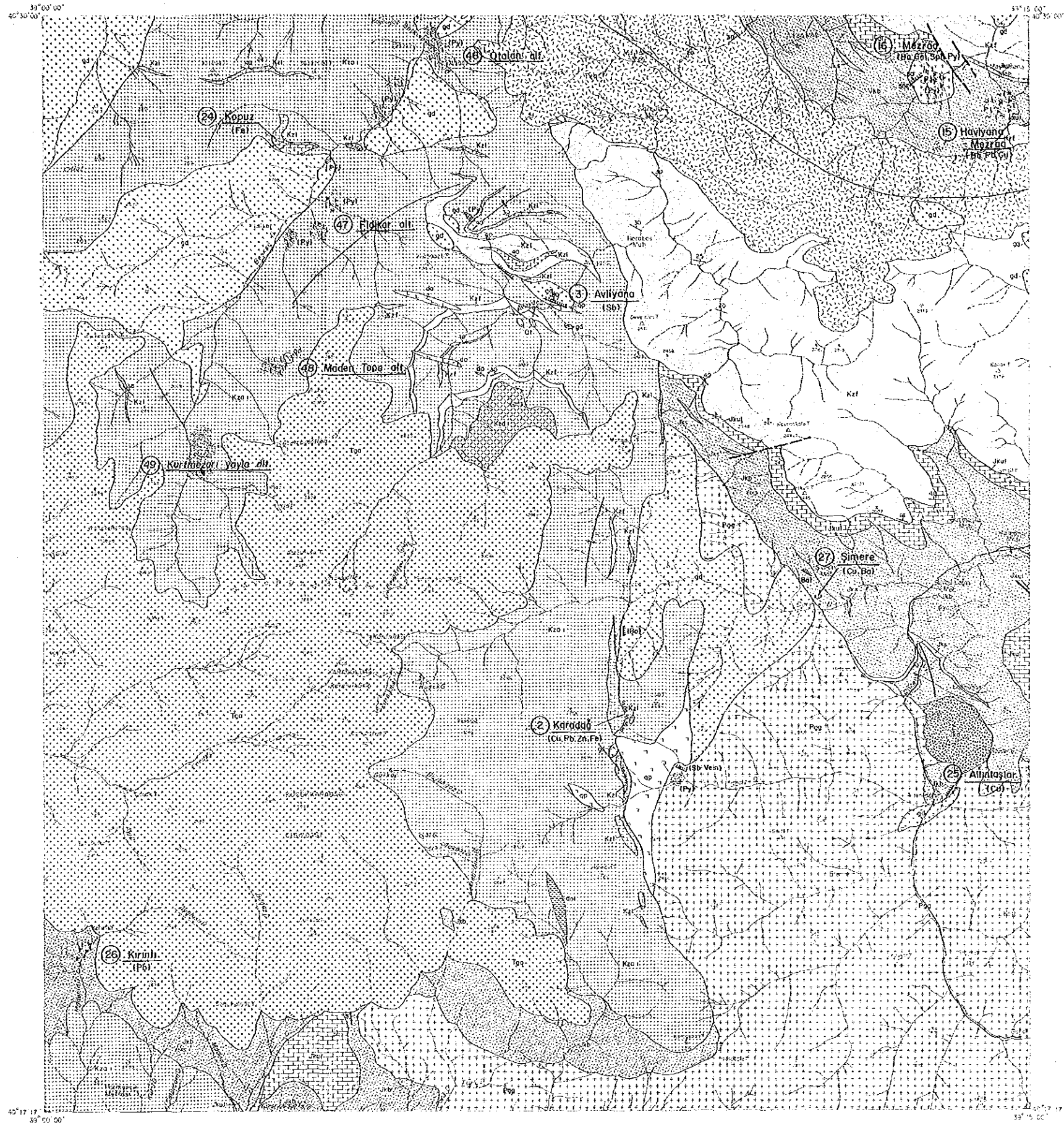
MINERAL OCCURRENCE MAPS OF  
THE SURVEYED AREA

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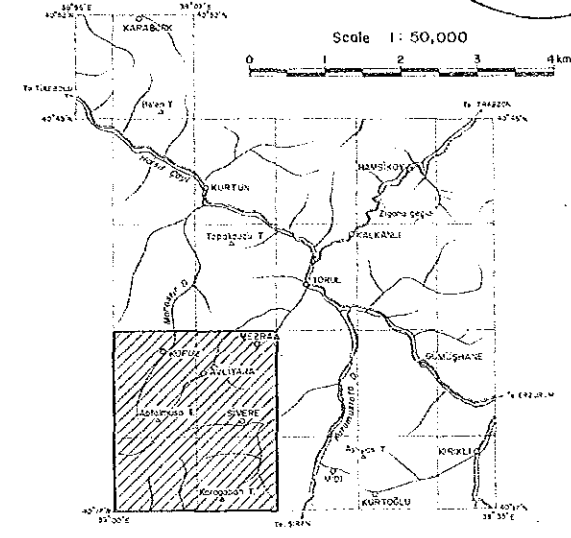
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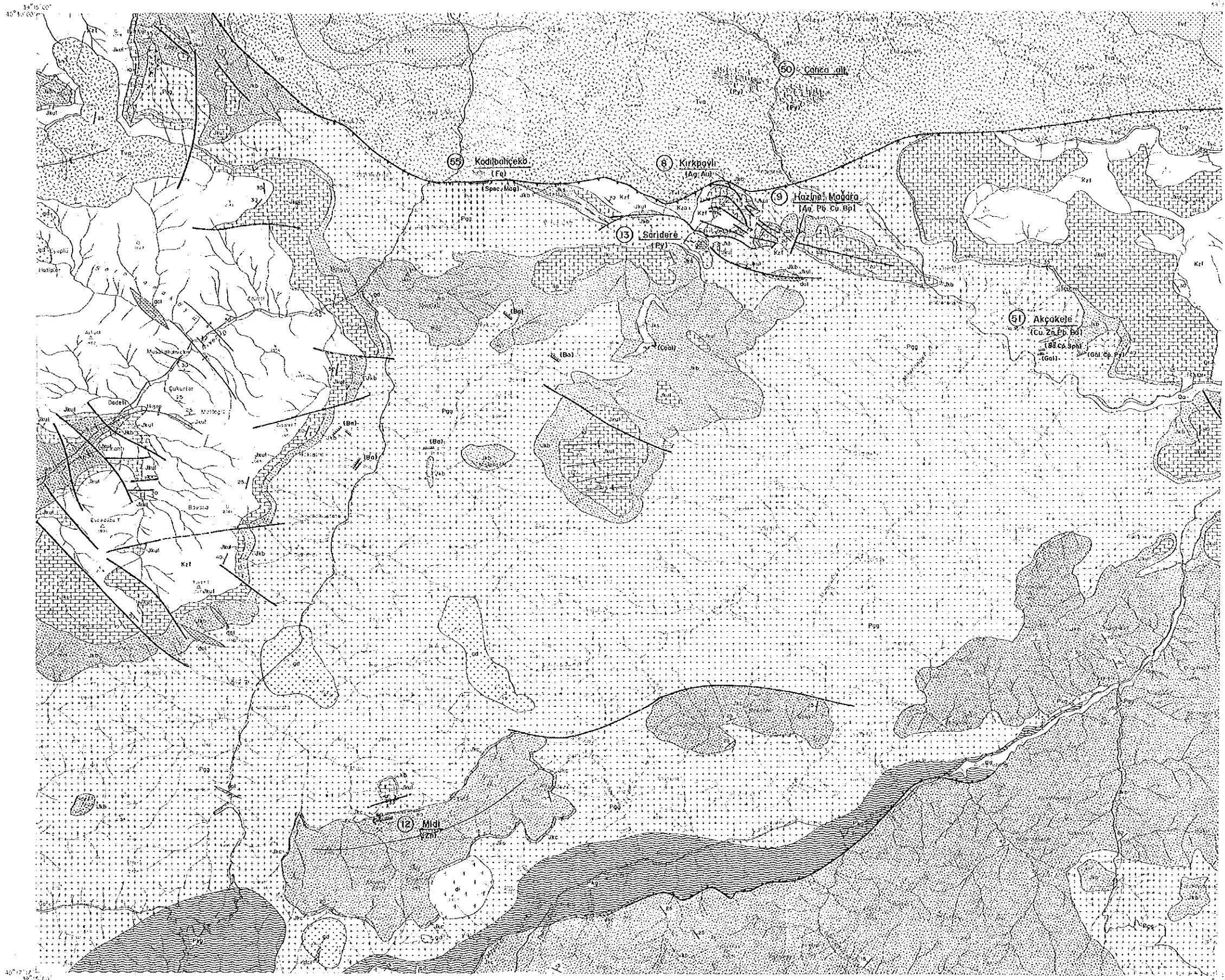
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MINERAL OCCURRENCE MAPS OF  
THE SURVEYED AREA

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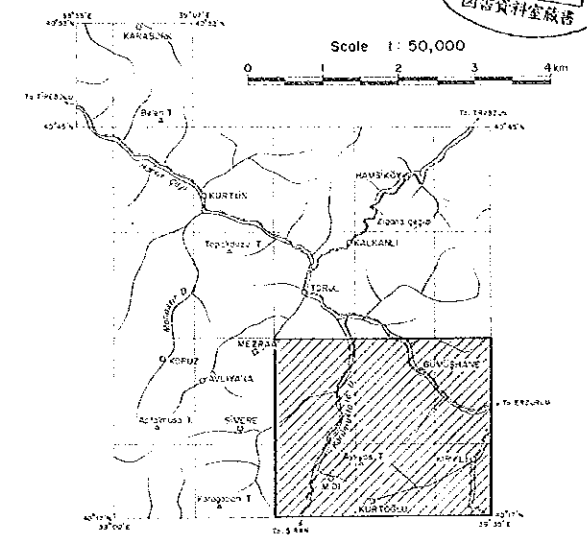
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MINERAL OCCURRENCE MAPS OF  
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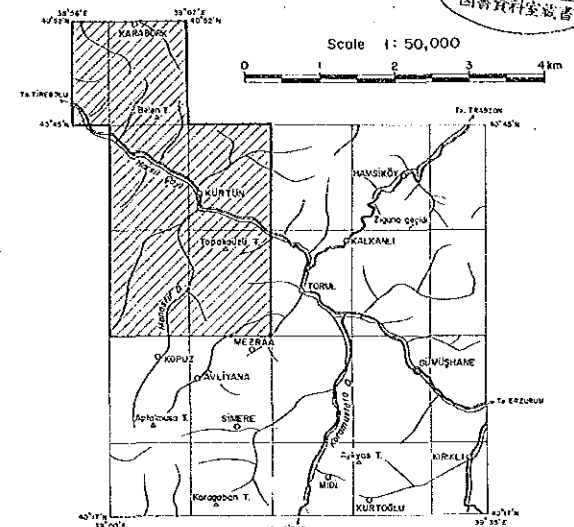
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OF GÜMÜŞHANE AREA, THE REPUBLIC OF TURKEY

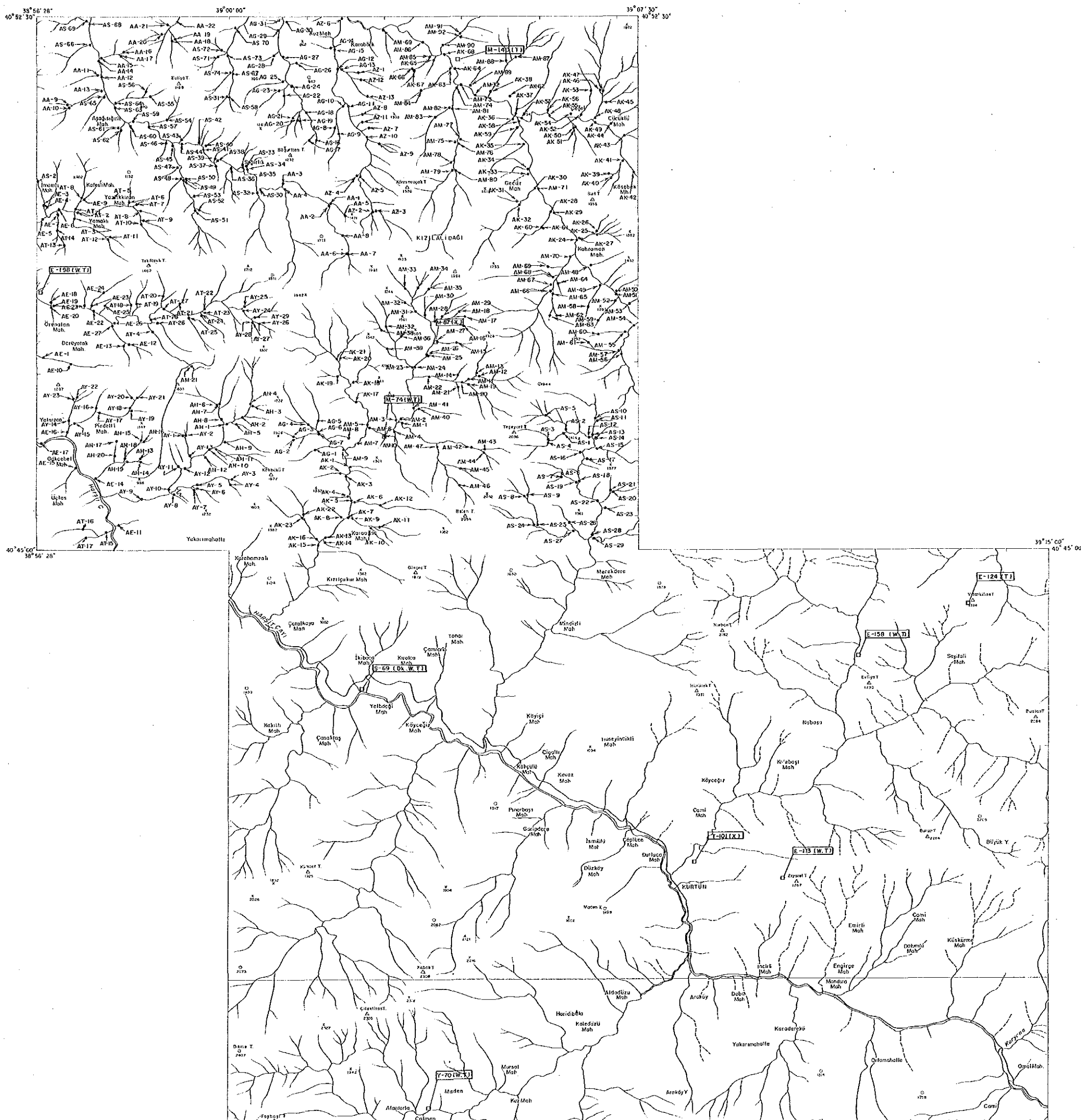
LOCATION MAPS OF THE GEOCHEMICAL AND  
LABORATORY EXAMINATION SAMPLES

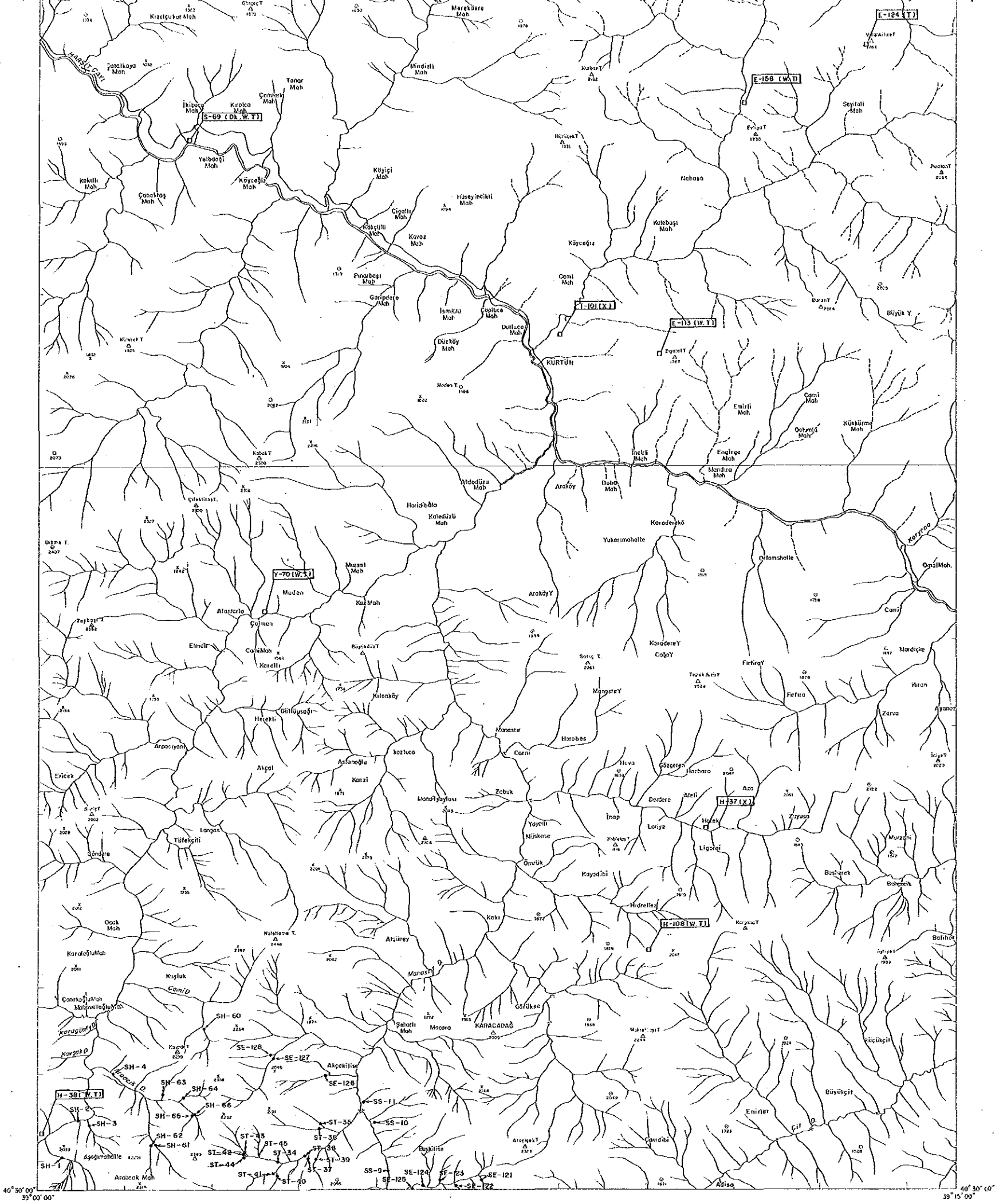
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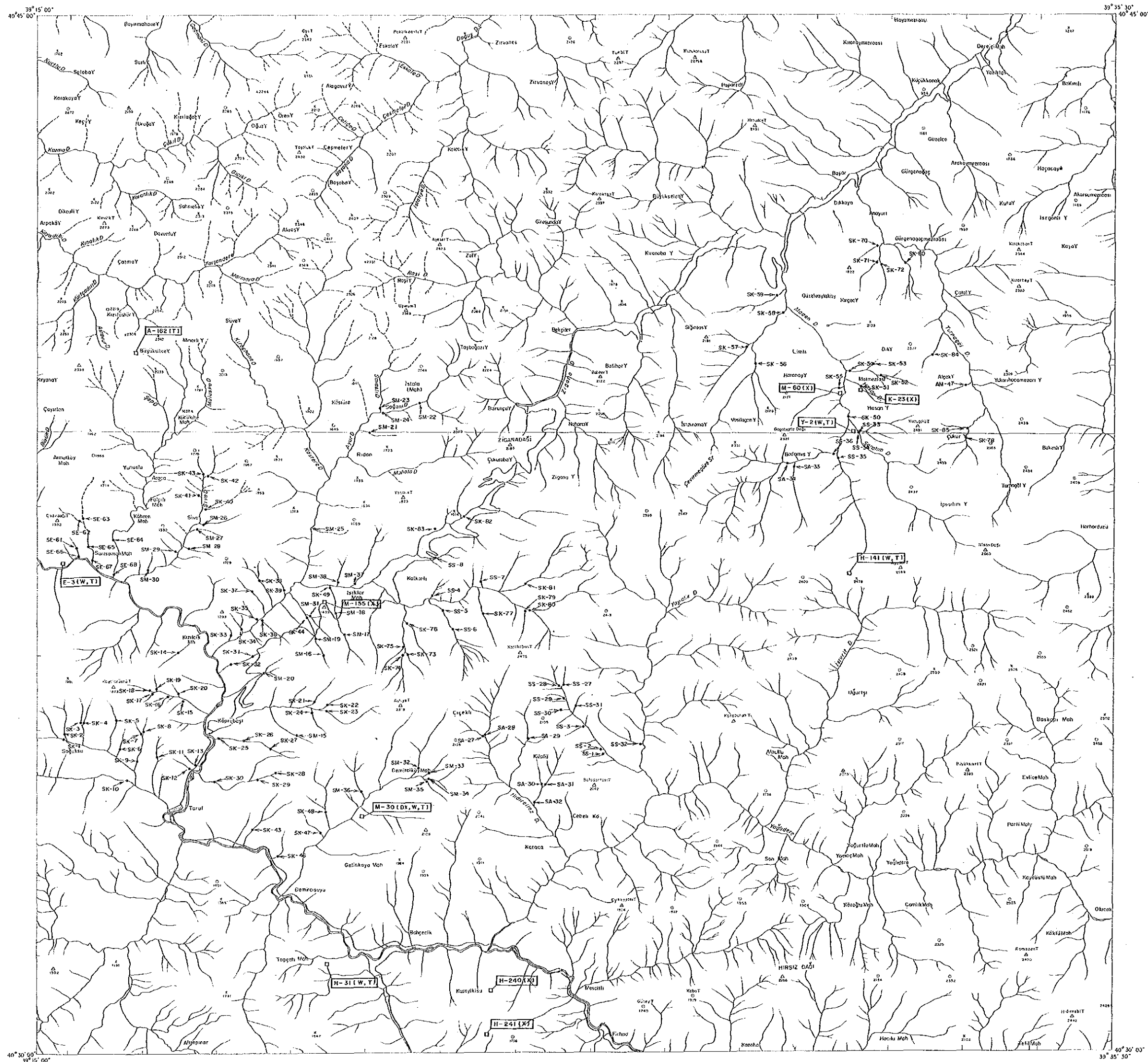
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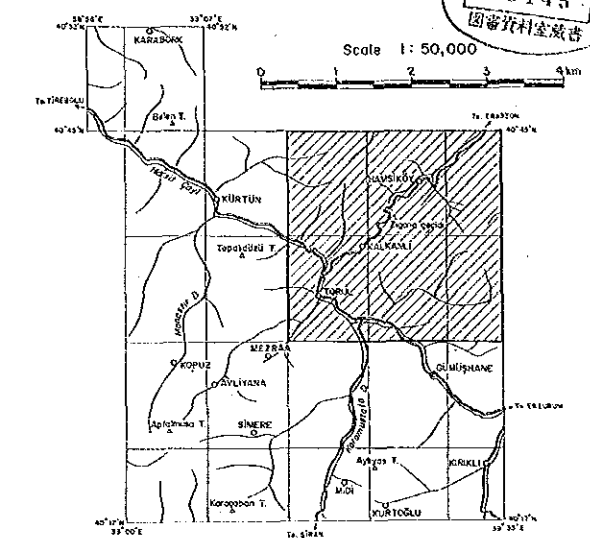
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OF GÜMÜŞHANE AREA, THE REPUBLIC OF TURKEY

LOCATION MAPS OF THE GEOCHEMICAL AND  
LABORATORY EXAMINATION SAMPLES

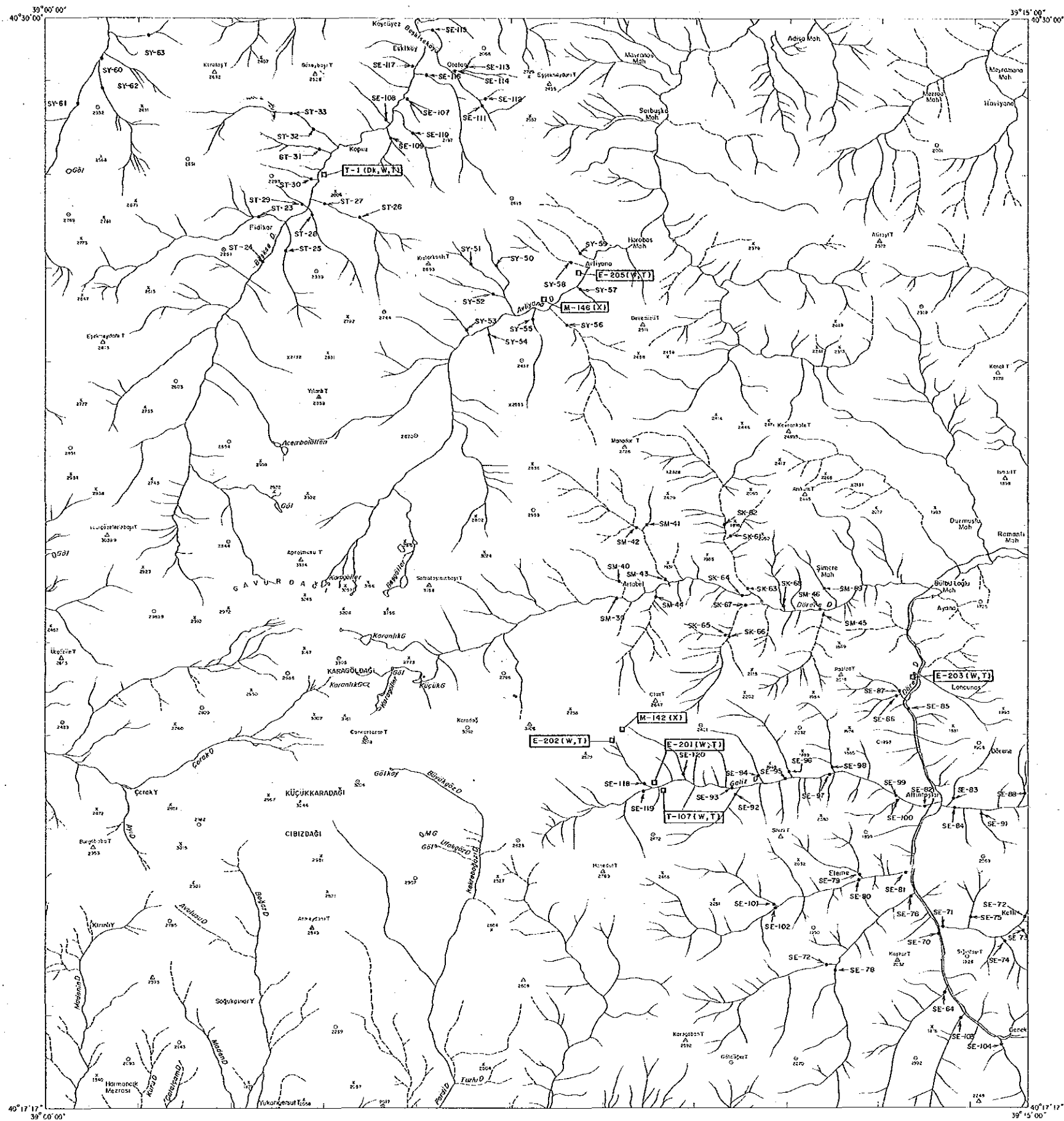
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PL. 4-3

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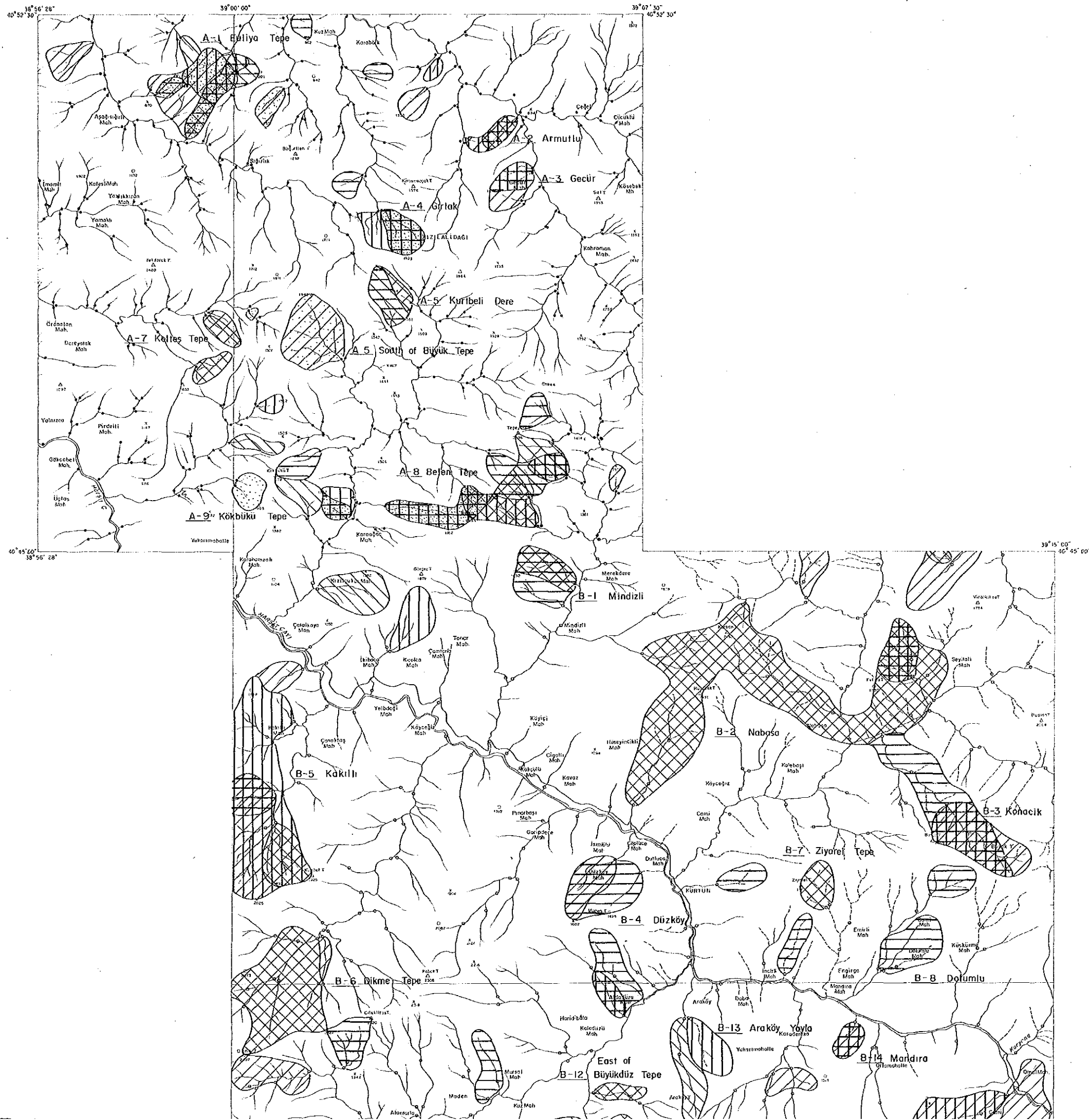
LOCATION MAPS OF THE GEOCHEMICAL AND  
LABORATORY EXAMINATION SAMPLES

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Scale 1: 50,000

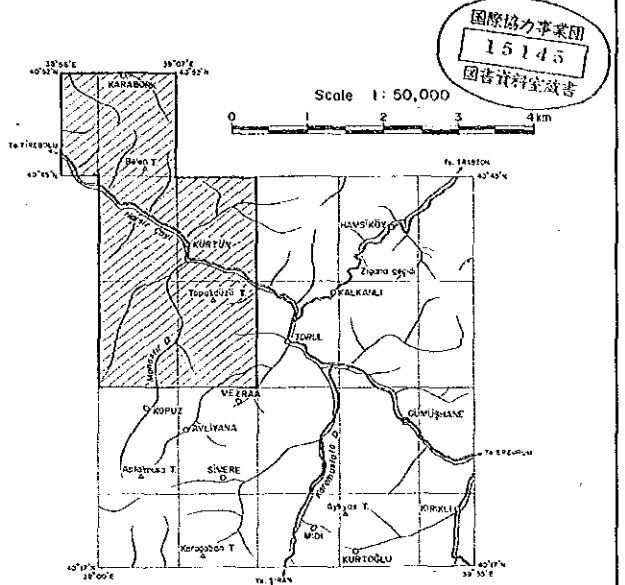
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MAPS OF GEOCHEMICAL ANOMALIES



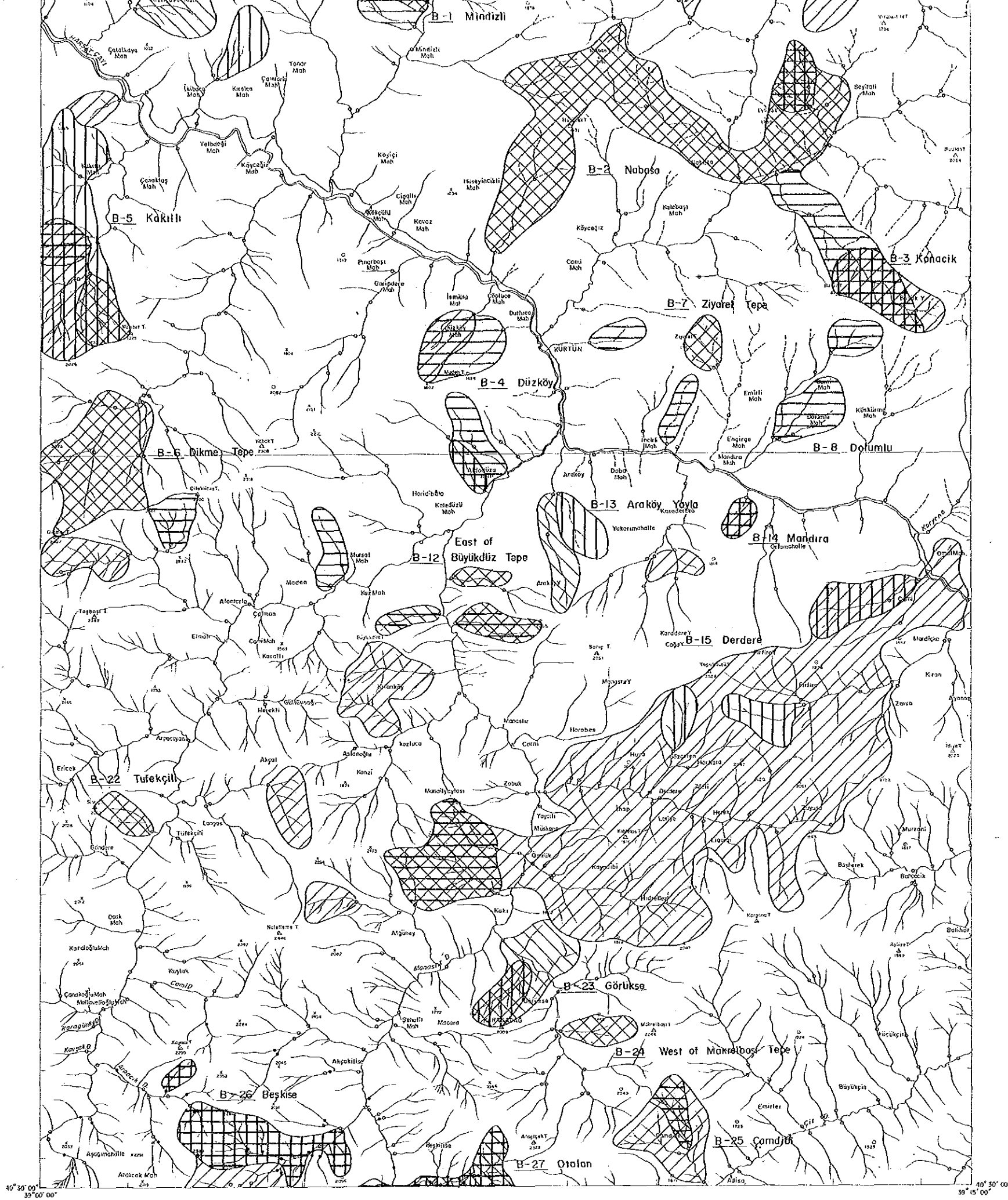
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LEGEND

	B Area	A Area
Cu	≥ 100 ppm	≥ 174 ppm
Mo	≥ 6 ppm	≥ 7 ppm
Pb	≥ 100 ppm	≥ 154 ppm
Zn	≥ 227 ppm	≥ 293 ppm
Ag	≥ 0.6 ppm	≥ 0.5 ppm
As	≥ 105	
W	≥ 5	
Sn	≥ 3	
F	≥ 631	

• Sample point of this study  
○ Sample point of UNDP

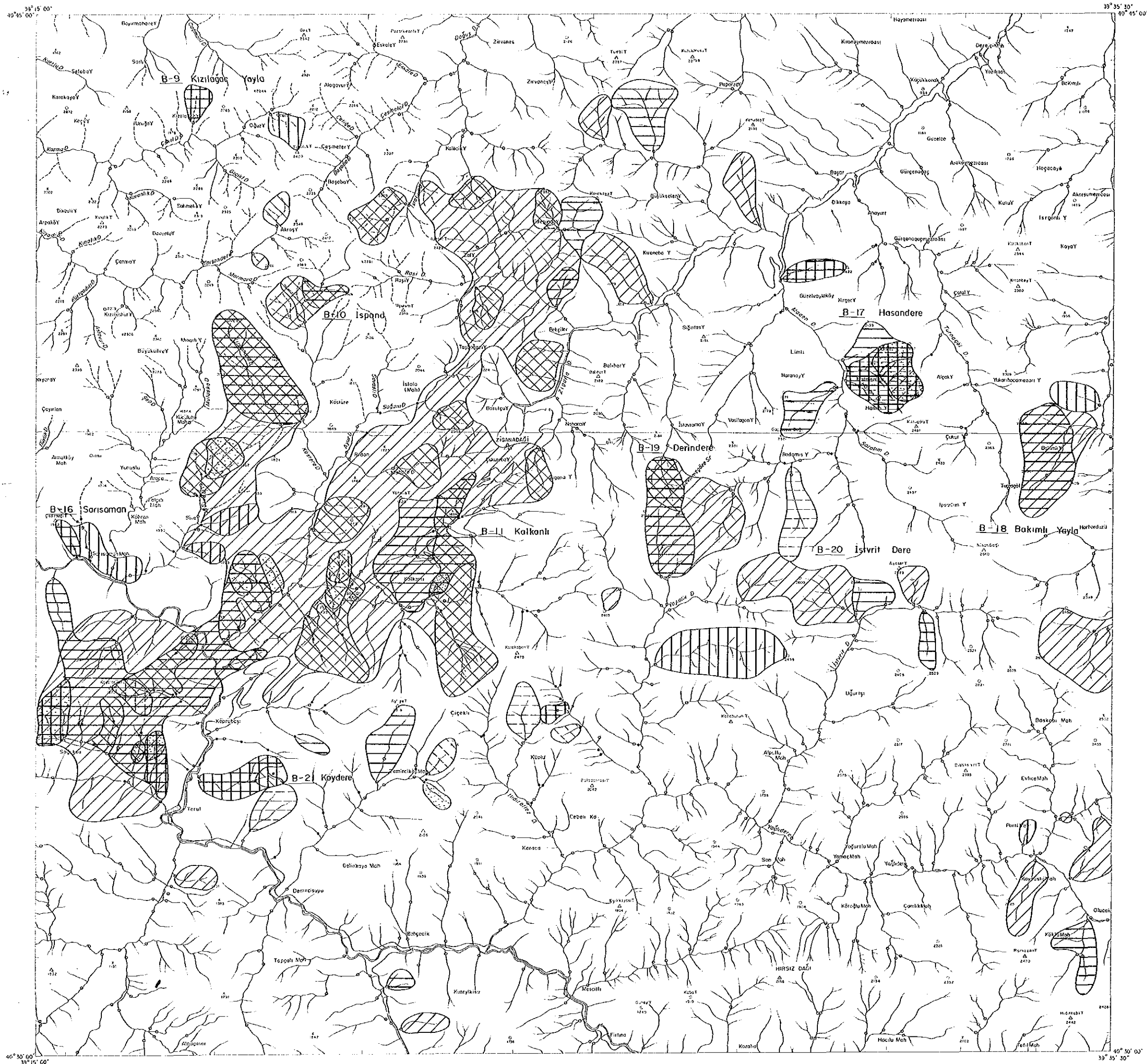
**A-1** Armutlu Name of Anomalous area and No. in A Area  
**B-1** Düzköy Name of Anomalous area and No. in B Area



LEGEND

	B Area	A Area
Cu	≥ 100 ppm	≥ 174 ppm
Mo	≥ 6 ppm	≥ 7 ppm
Pb	≥ 100 ppm	≥ 154 ppm
Zn	≥ 227 ppm	≥ 293 ppm
Ag	≥ 0.6ppm	≥ 0.5ppm
As	≥ 105	
W	≥ 5	
Sn	≥ 3	
F	≥ 631	
•	Sample point of this study	
○	Sample point of UNDP	

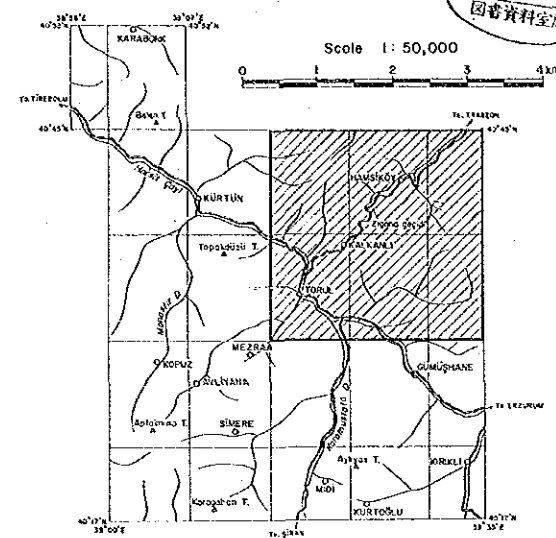
A-1 Armutlu Name of Anomalous area and No. in A Area  
B-1 Düzköy Name of Anomalous area and No. in B Area



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MAPS OF GEOCHEMICAL ANOMALIES

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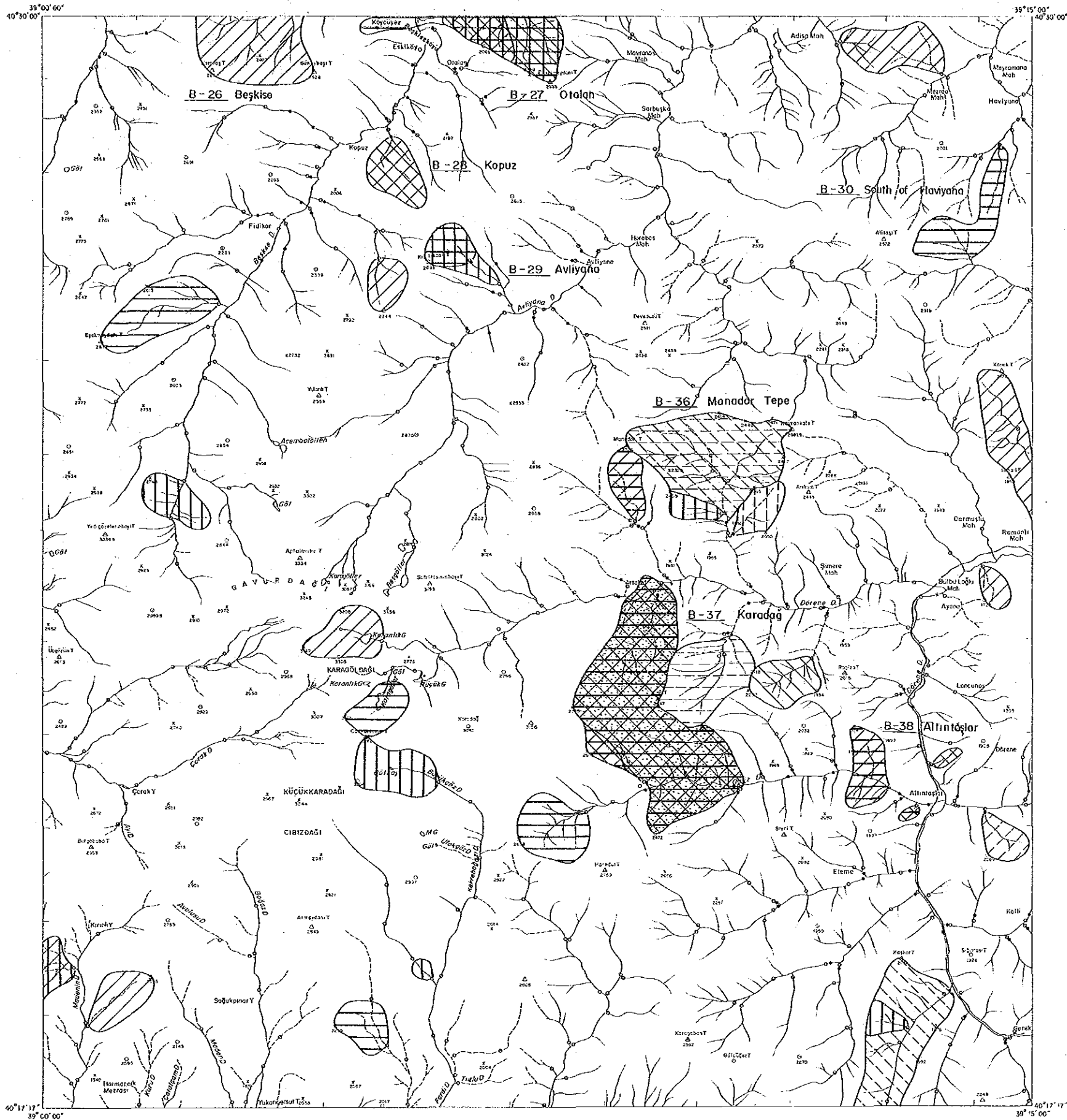
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LEGEND

	B Area	A Area
Cu	≥ 100 ppm	≥ 174 ppm
Mo	≥ 6 ppm	≥ 7 ppm
Pb	≥ 100 ppm	≥ 154 ppm
Zn	≥ 227 ppm	≥ 293 ppm
Ag	≥ 0.6ppm	≥ 0.5ppm
As	≥ 105	
W	≥ 5	
Sn	≥ 3	
F	≥ 631	

- Sample point of this study
- Sample point of UNDP

A-1 Armutlu Name of Anomalous area and No. in A Area  
B-1 Düzlü Name of Anomalous area and No. in B Area



PL. 5-3

REPORT ON THE MINERAL EXPLORATION  
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MAPS OF GEOCHEMICAL ANOMALIES

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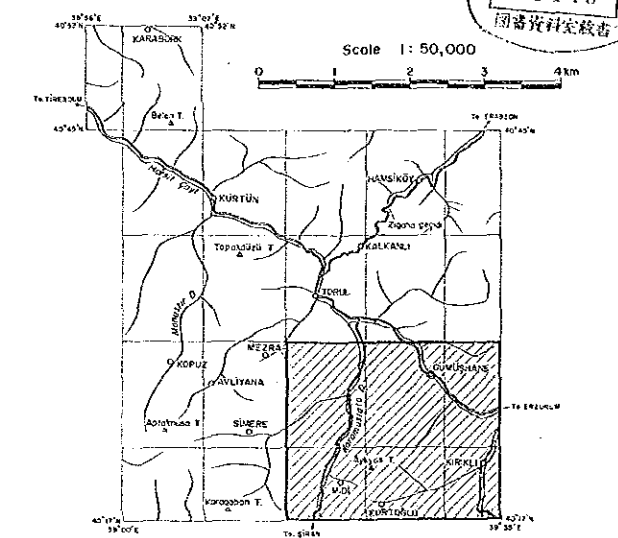
LEGEND

	B Area	A Area
Cu	≥ 100 ppm	≥ 174 ppm
Mo	≥ 6 ppm	≥ 7 ppm
Pb	≥ 100 ppm	≥ 154 ppm
Zn	≥ 227 ppm	≥ 293 ppm
Ag	≥ 0.6 ppm	≥ 0.5 ppm
As	≥ 105	
W	≥ 5	
Sn	≥ 3	
F	≥ 631	
•	Sample point of this study	
○	Sample point of UNDP	
A-1	Armutlu	Name of Anomalous area and No in A Area
B-1	Düzköy	Name of Anomalous area and No in B Area

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MAPS OF GEOCHEMICAL ANOMALIES

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LEGEND

	B Area	A Area
Cu	≧ 100 ppm	≧ 174 ppm
Mo	≧ 6 ppm	≧ 7 ppm
Pb	≧ 100 ppm	≧ 154 ppm
Zn	≧ 227 ppm	≧ 293 ppm
Ag	≧ 0.6ppm	≧ 0.5ppm
As	≧ 105	
W	≧ 5	
Sn	≧ 3	
F	≧ 631	

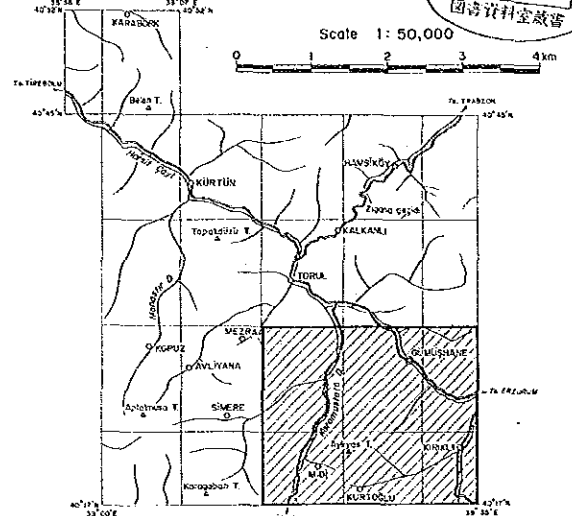
• Sample point of this study  
○ Sample point of UNDP

A-1 Armutlu Name of Anomalous area and No. in A Area  
B-1 Düzköy Name of Anomalous area and No. in B Area

REPORT ON THE MINERAL EXPLORATION  
OF GÜMÜŞHANE AREA, THE REPUBLIC OF TURKEY

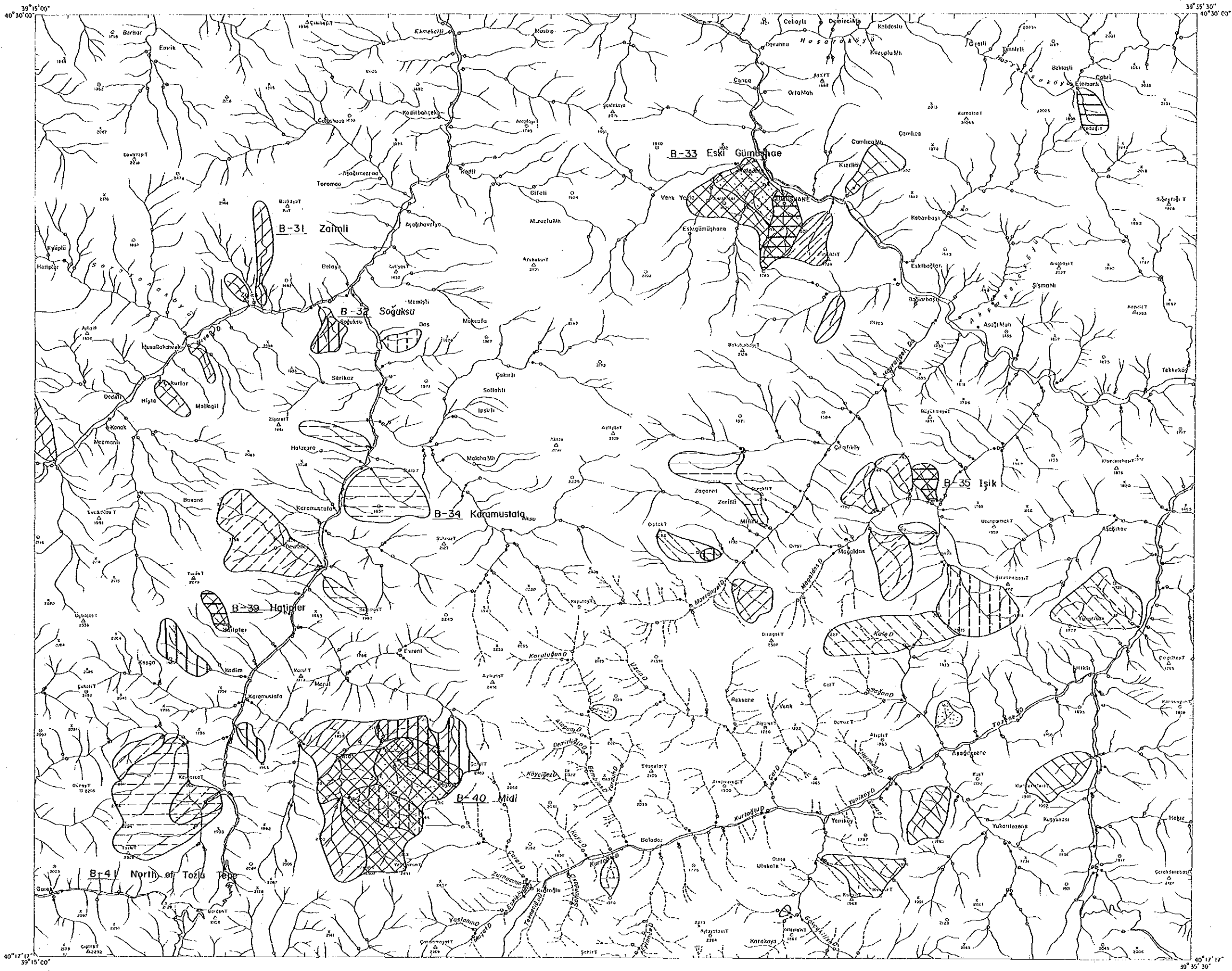
MAPS OF GEOCHEMICAL ANOMALIES

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LEGEND

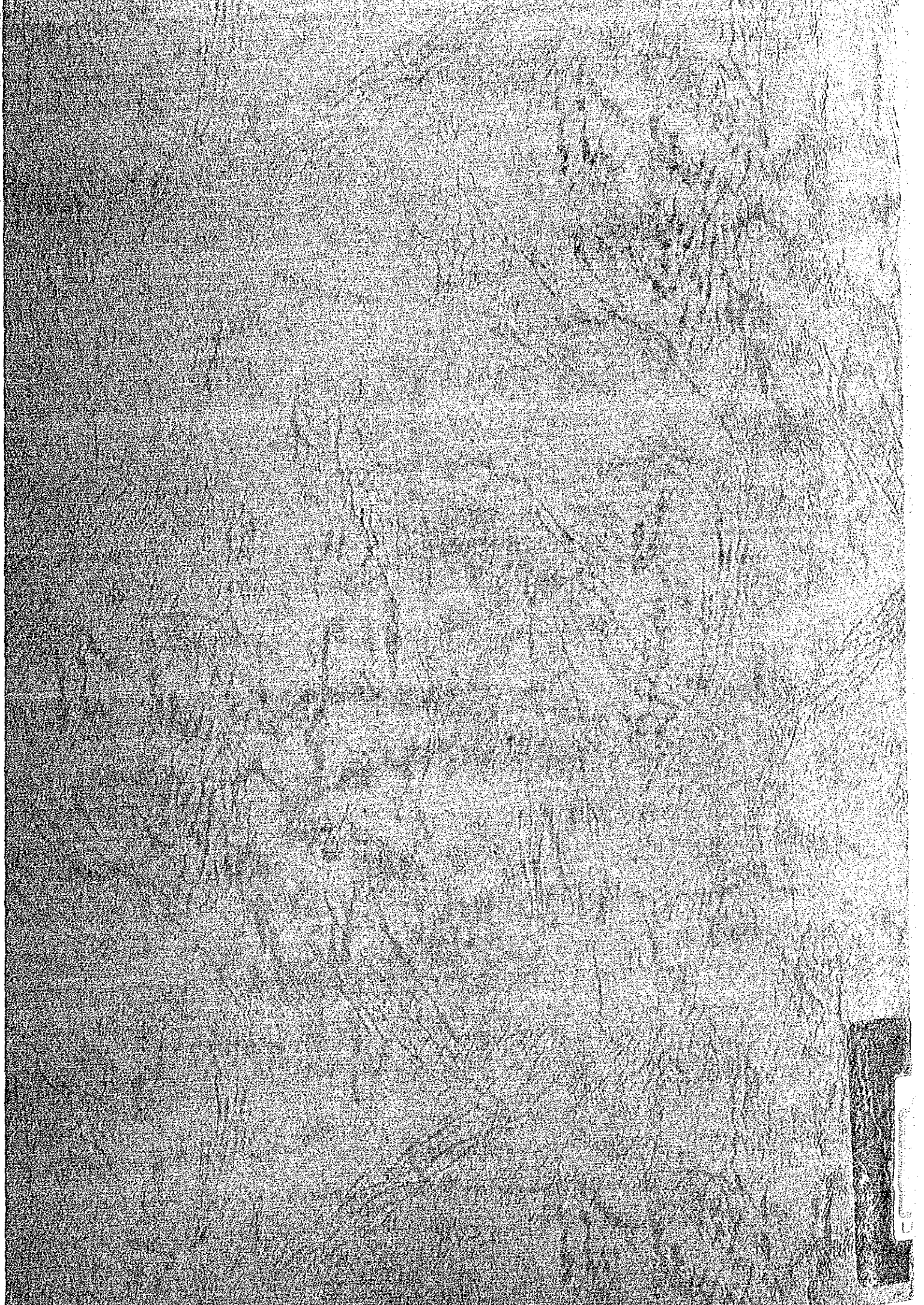
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Cu	≥ 100 ppm	≥ 174 ppm
Mo	≥ 6 ppm	≥ 7 ppm
Pb	≥ 100 ppm	≥ 154 ppm
Zn	≥ 227 ppm	≥ 293 ppm
Ag	≥ 0.6ppm	≥ 0.5ppm
As	≥ 105	
W	≥ 5	
Sn	≥ 3	
F	≥ 631	

- Sample point of this study
- Sample point of UNDP

A-1 Armutlu Name of Anomalous area and No. in A Area  
B-1 Düzköy Name of Anomalous area and No. in B Area







LEGEND



Quaternary			Qa	Alluvium
			Qt	Travertine
Tertiary	Gavurdağı Volcanics		Tga	Andesite lava and pyroclastics
			Tvf	Flysh
	Vanık yayla F.		Tva	Andesite lava and pyroclastics
			Tvl	Limestone
			Tvc	Conglomerate
Upper Cretaceous	Zigana F.		Kz1	Limestone and red limestone
			Kzd2	Dacite lava and pyroclastics (D2)
			Kza2	Andesite lava and pyroclastics (A2)
			Kzd1	Dacite lava and pyroclastics (D1)
			Kza1	Andesite lava and pyroclastics (A1)
			Kzf	Flysh (Kermut dere)
	Kuşakkaya Limestone		Jk1	Limestone
Jurassic	Kırıklı F.		Jkb	Basalt lava and pyroclastics
			Jks	Sandstone, mudstone, chert and coal
			Jkd	Dacitic pyroclastics
			Jkc	Conglomerate
Paleozoic	Gümüşhane Granite		Pg9	Paleozoic granite
	Kurtoğlu Metamorphics		Pkg	Gneiss and schist
Intrusive rocks			gd	Granodioritic rocks
			Pg2	Porphyritic granite
			Pg1	Porphyritic granite
			qp	Quartz porphyry
			di	Diorite
			da	Dacite
			doi	Dolerite
			30	Strike and dip
				Fault
				Thrust fault
				Anticlinal axis
				Synclinal axis
			A — A'	Profile line



