

コアの変質帯から採取した31試料の化学分析結果は、変質帯の規模に比べて低品位なものであった。このうち、わずかながら鉍微がみられる所は、石英細脈、強珪化岩、酸化鉄の濃集部及び黄鉄鉍の鉍染部などである。これらを示すと次表のとおりである。

試 錐 No	試 料 No	深 度 (m)~(m)	変 質 及 び 鉍 化	Au g/t	Ag g/t	As %	Cu %	Pb %	Zn %
MJP-3	P3M-1	84.50~85.65	黄鉄鉍の鉍染を伴う粘土化安山岩	<0.07	0.5	0.025	0.04	<0.01	<0.01
MJP-4	P4M-2	55.80~56.10	石英-針鉄鉍脈	<0.07	1.9	0.028	0.05	<0.01	<0.01
MJP-8	P8M-1	1.90~2.55	強珪化岩	0.17	<0.3	0.008	<0.01	<0.01	<0.01
	P8M-3	7.55~8.75	塊状赤褐色酸化鉄	<0.07	1.7	0.021	0.01	<0.01	<0.01
	P8M-5	46.85~46.95	石英脈	<0.07	1.0	0.012	<0.01	<0.01	<0.01
MJP-9	P9M-4	74.65~76.00	強珪化岩	<0.07	1.0	0.006	0.01	0.01	0.06
	P9M-5	76.70~77.00	灰色石英脈	<0.07	2.8	0.006	0.02	0.01	0.07
	P9M-6	88.80~89.00	石英細脈を伴う流紋岩質凝灰岩	<0.07	1.0	0.008	<0.01	0.01	0.08

以上、Pirca 地区における変質帯と鉍化の状況、地化学異常帯及びボーリング調査による鉍化の状況などを総合して考察すると、本地区内では有望な鉍化帯の潜在する可能性は薄いと考えられる。

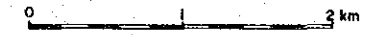
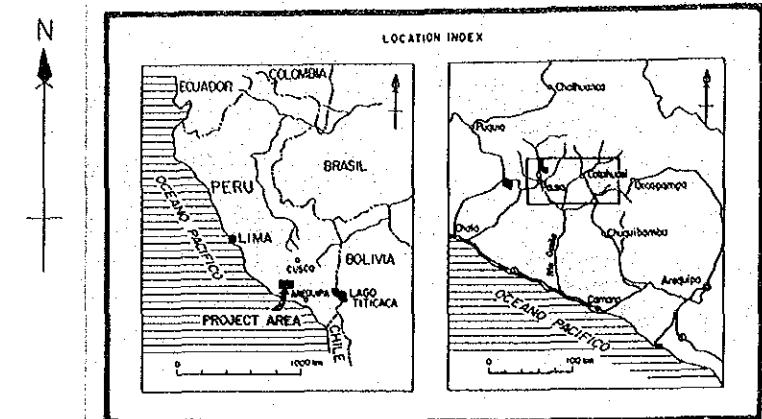
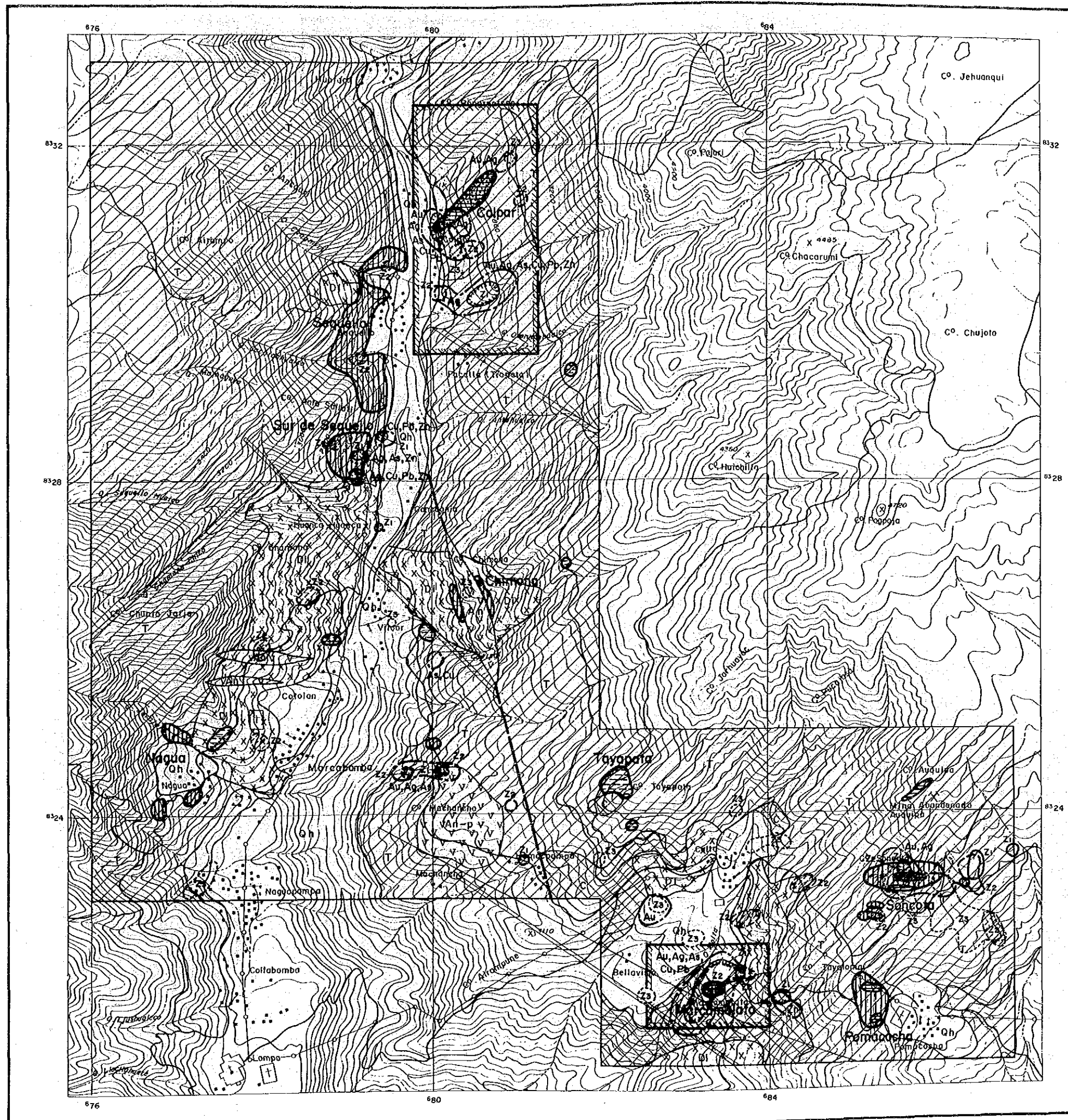
## 5-2 提 言

第2年次の調査結果に基づいて、Marcabamba 地区の北東部に当る Colpar 地区及び南東部に当る Marcamalata 地区を有望地区として抽出した。なお、Pirca 地区では顕著な鉍化作用が認められず、有望な鉍化帯が潜在する可能性は薄いと考えられる。

Marcabamba 地区及び Colpar 地区に対する第3年次以降の調査方法は次表のとおりである。

調 査 方 法	調 査 内 容
地質調査	精密な地質踏査を実施して、鉍化変質帯の状況を明らかにする。
トレンチ調査	鉍化露頭の追跡を行って、その規模、産状、鉍化の状況等を明らかにする。
ボーリング調査	鉍化帯下部の鉍況を明らかにする。





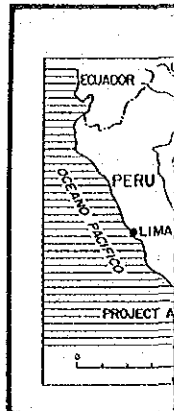
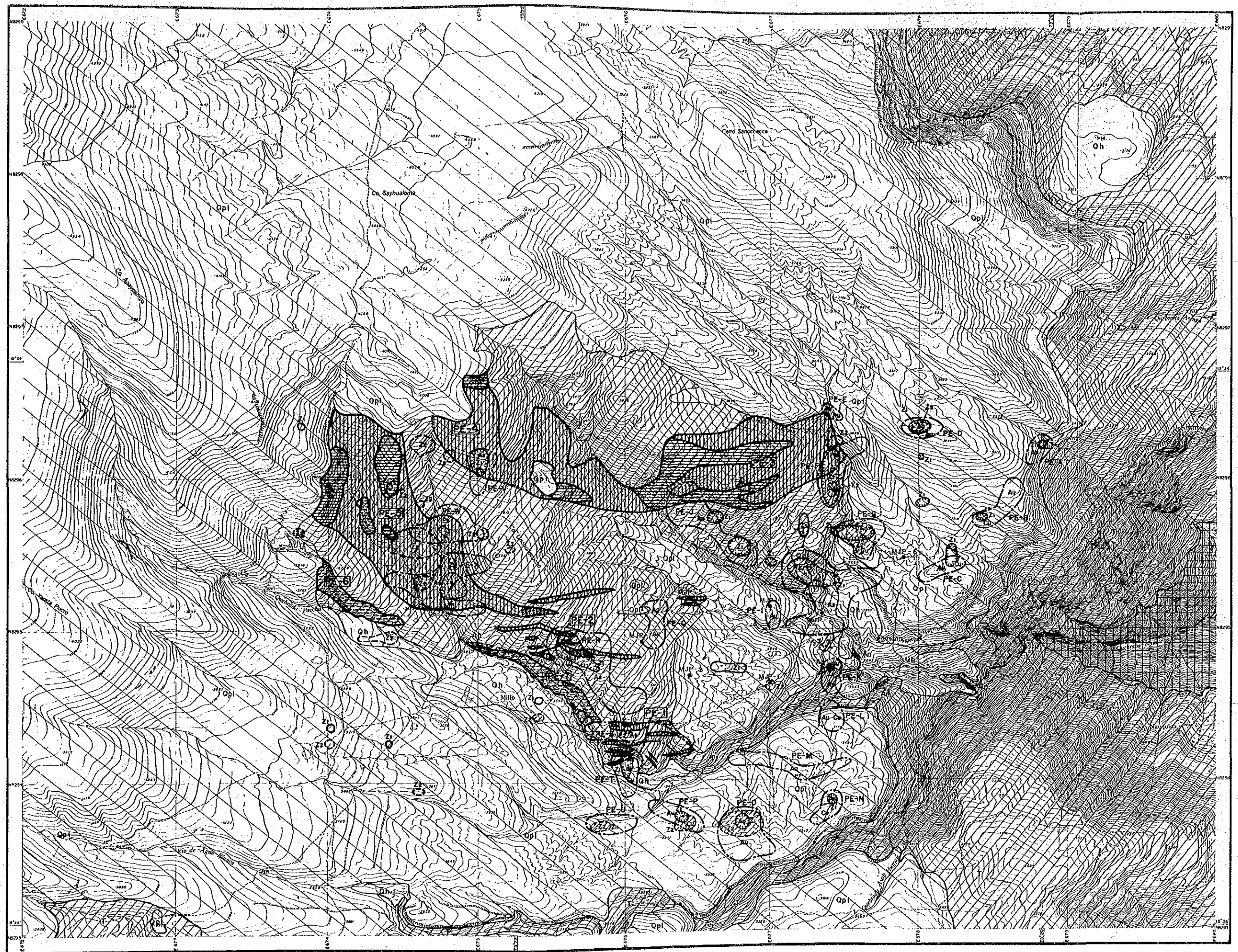
**LEGEND**

<b>Geological System</b>		<b>Geochemical Anomaly (Univariate Analysis)</b>	
	Quaternary (Holocene) System		Anomaly zone and anomalous element
	Tertiary System	<b>(Principal Components Analysis)</b>	
	Cretaceous System	<b>*1st Principal Component</b>	
<b>Intrusive Rocks</b>			+ Anomaly
	Andesite		- Anomaly
	Porphyritic andesite	<b>*2nd Principal Component</b>	
	Diorite-quartz diorite		+ Anomaly
	Fault		- Anomaly
	Lineament (Landsat)	<b>*3rd Principal Component</b>	
	Lineament (Aerial photograph)		+ Anomaly
<b>Alteration and Mineralization Zones</b>			
	Mainly silicification	Recommended Area	
	Silicification and argillization		
	Mainly argillization		
	Mineralization		

Fig. 5-1 Interpretation Map of the Marcabamba Area



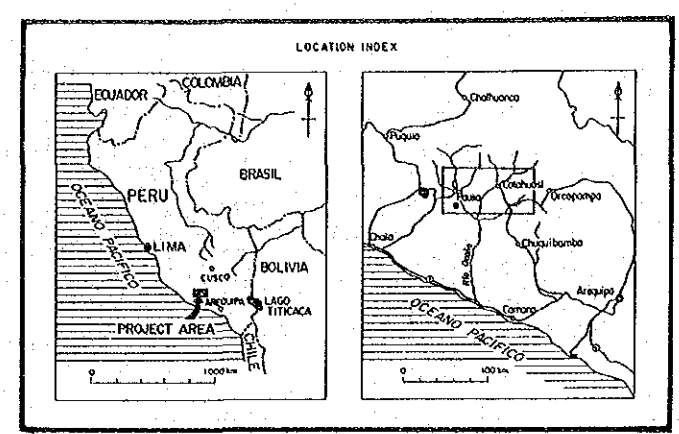
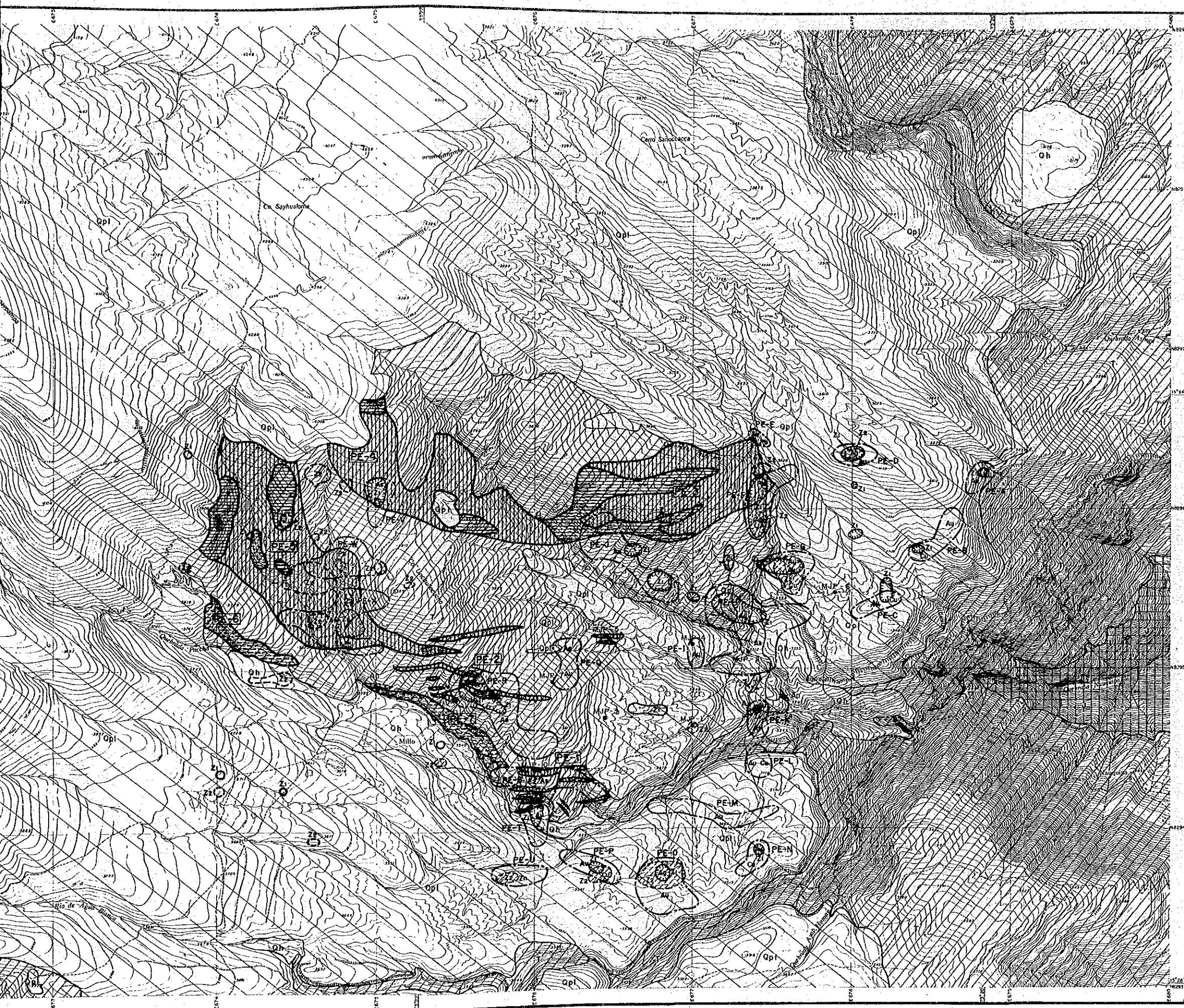




- Geological Symbols
- Op1 Quaternary
  - Op2 Quaternary
  - Op3 Tertiary
  - Op4 Jurassic
  - Intrusive Rocks
  - Hornblende
  - Fault
  - Alteration and Mineralization
  - Mainly Silicification
  - Mainly Sulfidation
  - Mainly Oxidation
  - Mineralization

Fig. 5-2

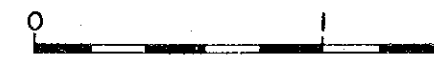
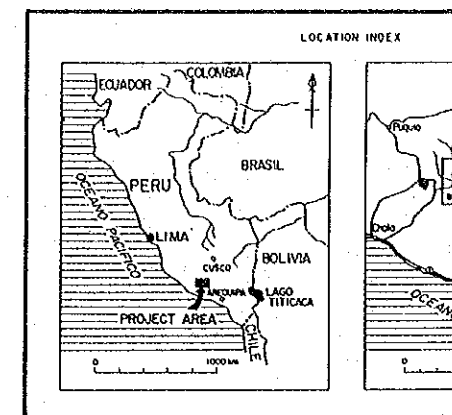
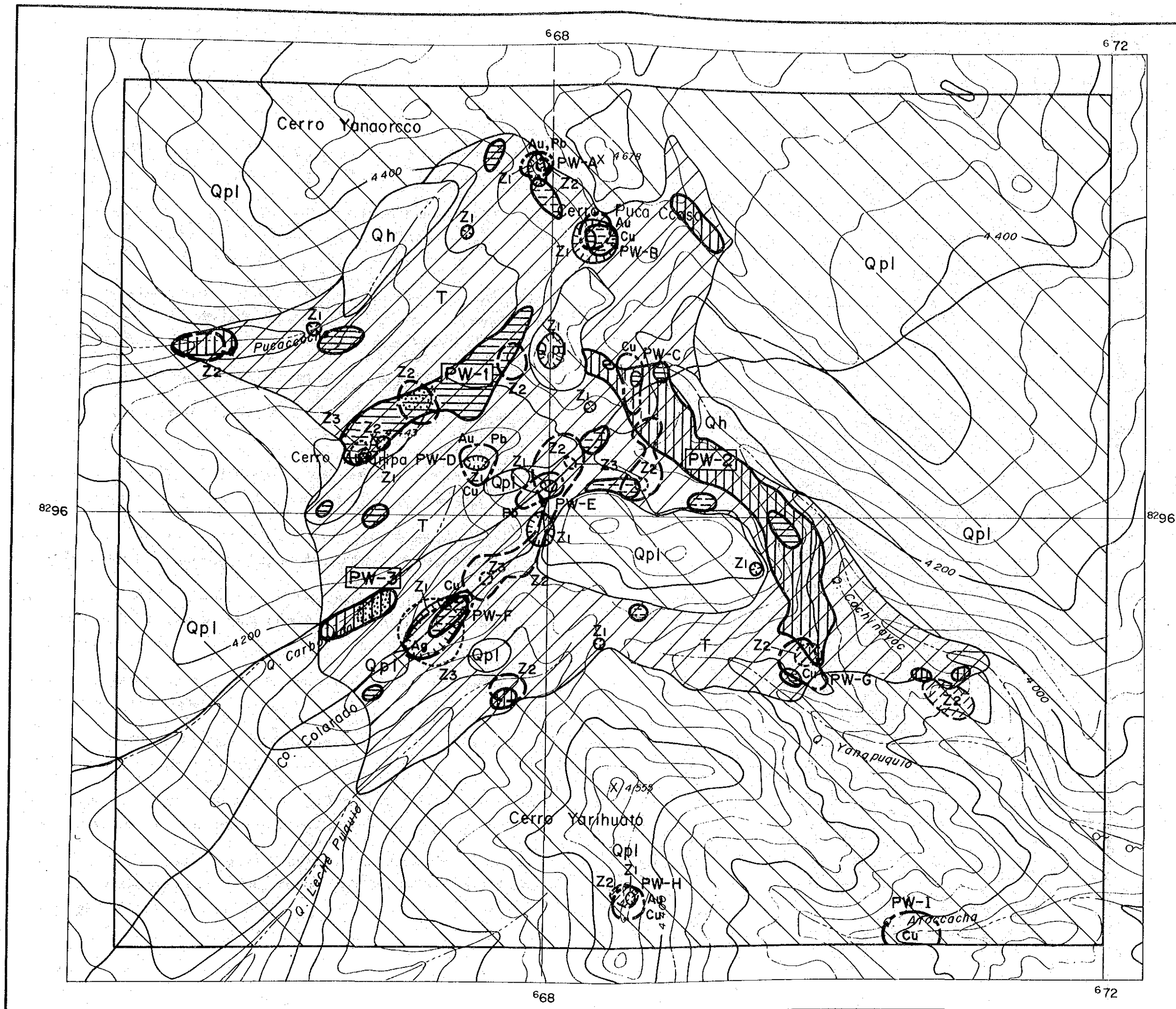




**LEGEND**

<b>Geological System</b>	<b>Geochemical Anomaly</b> (Univariate Analysis)
Quaternary (Holocene) System	Anomaly zone and anomalous elements
Quaternary (Pleistocene) System	<b>(Principal Components Analysis)</b>
Tertiary System	<b>* 1st Principal Component</b>
Jurassic System	+ Anomaly
<b>Intrusive Rock</b>	- Anomaly
Hornblende andesite	<b>* 2nd Principal Component</b>
Fault	+ Anomaly
<b>Alteration and Mineralization Zones</b>	- Anomaly
Mainly silicification	
Silicification and argillization	
Mainly argillization	
Mineralization	

**Fig. 5-2 Interpretation Map of the Pirca Eastern Area**

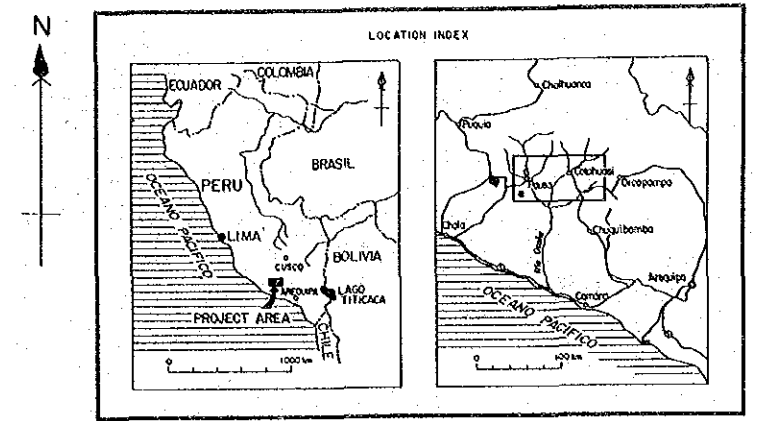
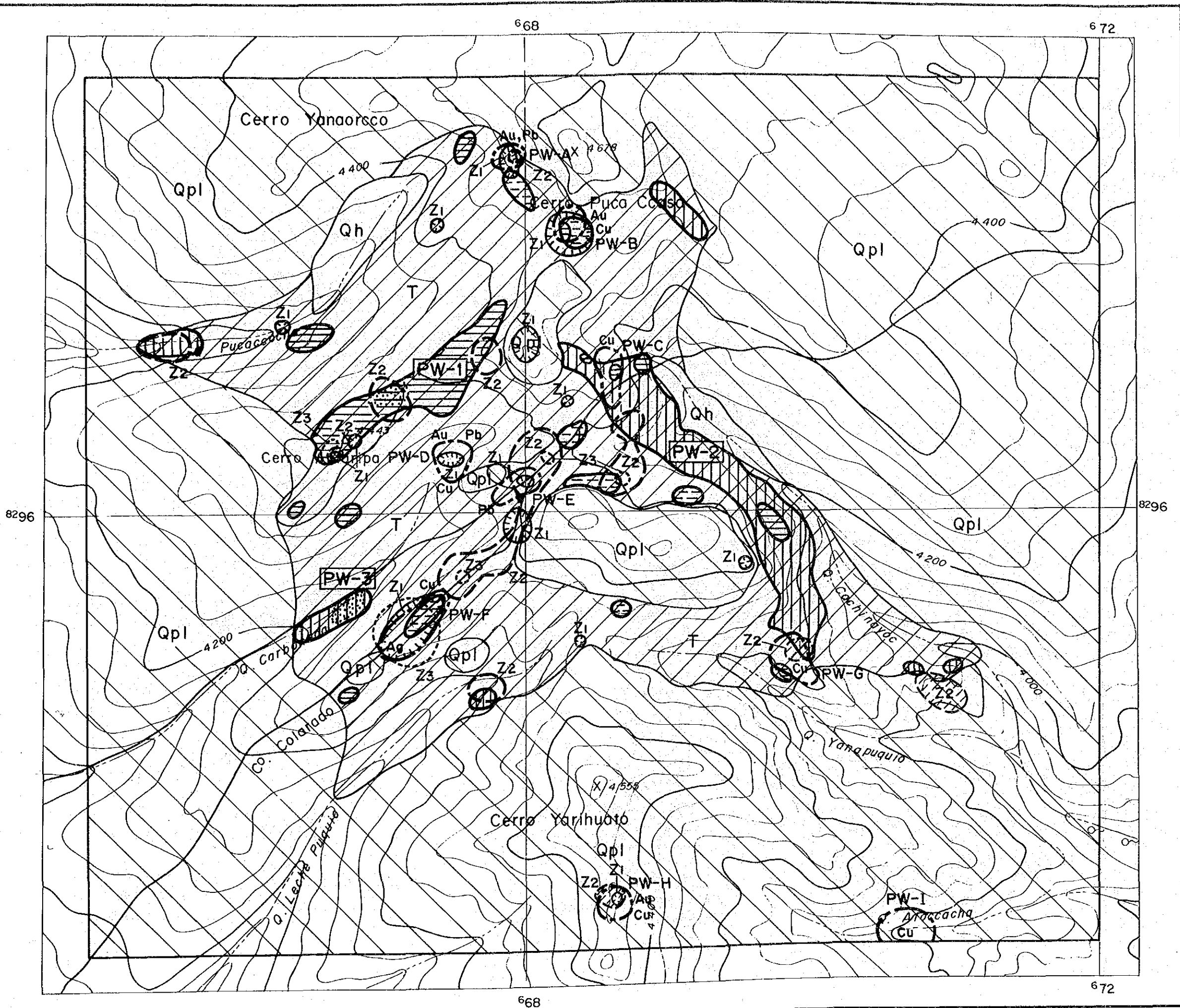


**LEGEND**

- Geological System**
- Qh Quaternary (Holocene) Syst
  - Qpl Quaternary (Pleistocene) Syst
  - T Tertiary System
- Alteration and Mineralization Zones**
- Mainly silicification
  - Silicification and argillization
  - Mainly argillization
  - Mineralization
- Geochemical Anomaly**
- < Univariate Analysis >
- Anomaly zone and anomalous elements Au, Ag, As, Cu, Pb, Zn
- < Principal Components Analysis >
- 1st Principal Component
  - + Anomaly
  - 2nd Principal Component
  - + Anomaly
  - - Anomaly
  - 3rd Principal Component
  - + Anomaly

Fig. 5-3 Interpretation Map  
Pirca We





**LEGEND**

- Geological System**
- Quaternary (Holocene) System
  - Quaternary (Pleistocene) System
  - Tertiary System
- Alteration and Mineralization Zones**
- Mainly silicification
  - Silicification and argillization
  - Mainly argillization
  - Mineralization
- Geochemical Anomaly**
- < Univariate Analysis >
- Anomaly zone and anomalous elements  
Au, Ag, As, Cu, Pb, Zn
- < Principal Components Analysis >
- 1st Principal Component  
+ Anomaly
  - 2nd Principal Component  
+ Anomaly
  - 2nd Principal Component  
- Anomaly
  - 3rd Principal Component  
+ Anomaly

Fig. 5-3 Interpretation Map of the Pirca Western Area





## REFERENCES

- (1) Bernd, L., (1980): Distribucion de Plata en Rocas Volcanicas del Sur del Peru, Bol. Sociedad Geologica del Peru No.66
- (2) Carlos, G.R., David D.M., (1983): Estratigrafia y Tectonica Terciaria del Area Coracora Pacapausa, INGEMMET Bol. Sociedad Geologica del Peru No.71, 1983
- (3) Donald, C.N., Edwin H.M., (1982): Nevado Portuguesa Volcanic Center, Central Peru: A Pliocene Central Volcanic-Collapse Caldera Complex with Associated Silver Mineralization, Economic Geology Vol.77
- (4) Edgardo, P.S., (1980): Metalogenia del Peru, INGEMMET
- (5) Eleodoro, B.B., (1969): Sinopsis de la Geologia del Peru, INGEMMET Bol. No.22
- (6) Fletcher, W.K., (1981): Handbook of Exploration Geochemistry Volume 1, Elsevier Science Publishers B.V., Amsterdam-Oxford-New York
- (7) Howarth, R.J., (1983): Handbook of Exploration Geochemistry Volume 2, Elsevier Science Publishing Company Amsterdam-Oxford-New York
- (8) Julio, C.V., (1975): Geologia de los Cuadrangulos de Huambo y Orcopampa, Ministerio de Energia y Minas Direccion General de Mineria Servicio de Geologia y Mineria
- (9) Kushiro, I., Aramaki, S., (1978): Iwanami-Koza "Earth Science" 3, (in Japanese) Iwanami-Shoten
- (10) Luis, V.V., (1970): Geologia del Cuadrangulo de Arequipa, Editado por el Servicio de Geologia y Mineria Bol. No.24
- (11) Mario, J.A.F., (1975): Geologia de la Mina Orcopampa y Alrededores, Arequipa, Boletin de la Sociedad Geologica del Peru Tomo 46 P9-24
- (12) Michel, F., Cesar V.N., (1979): Mineralization Argentifera Asociada al Volcanismo Cenozoico en la Faja Puquio-Cailloma, Boletin de la Sociedad Geologica del Peru Tomo 60 Lima

- (13) Miyashiro, A. and Kushiro I., (1977): Petrology I, II, and III (in Japanese), Kyoritsu Press
- (14) Onuma, N., (1985): Collected Paper on Geochemical Investigation of the Central Andes Volcanic Zone, Southern Peru, 1980-1981, Overseas Scientific Research (Nos.504112 and 56043012)
- (15) Petersen, G., Vidal C., (1983): Tres Epocas Metalogeneticas Evidenciadas en el Cenozoico del Peru, Bol. Sociedad Geologia del Peru No.71
- (16) Richard, M.T. Edward F. and Alan H.C., (1981): K-Ar Geochronology of the Late Cenozoic Volcanic Rocks of the Cordillera Occidental, Southernmost Peru, Journal Volcanology and Geothermal Research, Elsevier Scientific Publishing Company, Amsterdam-Printed in Belgium
- (17) Victor, P.G., (1983): Geologia de Los Cuadrangulos de Pausa y Caraveli, INGEMMET Bol. No.37 Serie A., Lima