アルゼンティン共和国

ネウケン州北部地熱開発計画調査

（第３年次）

最終報告書

（付図集）

1984年11月

国際協力事業団

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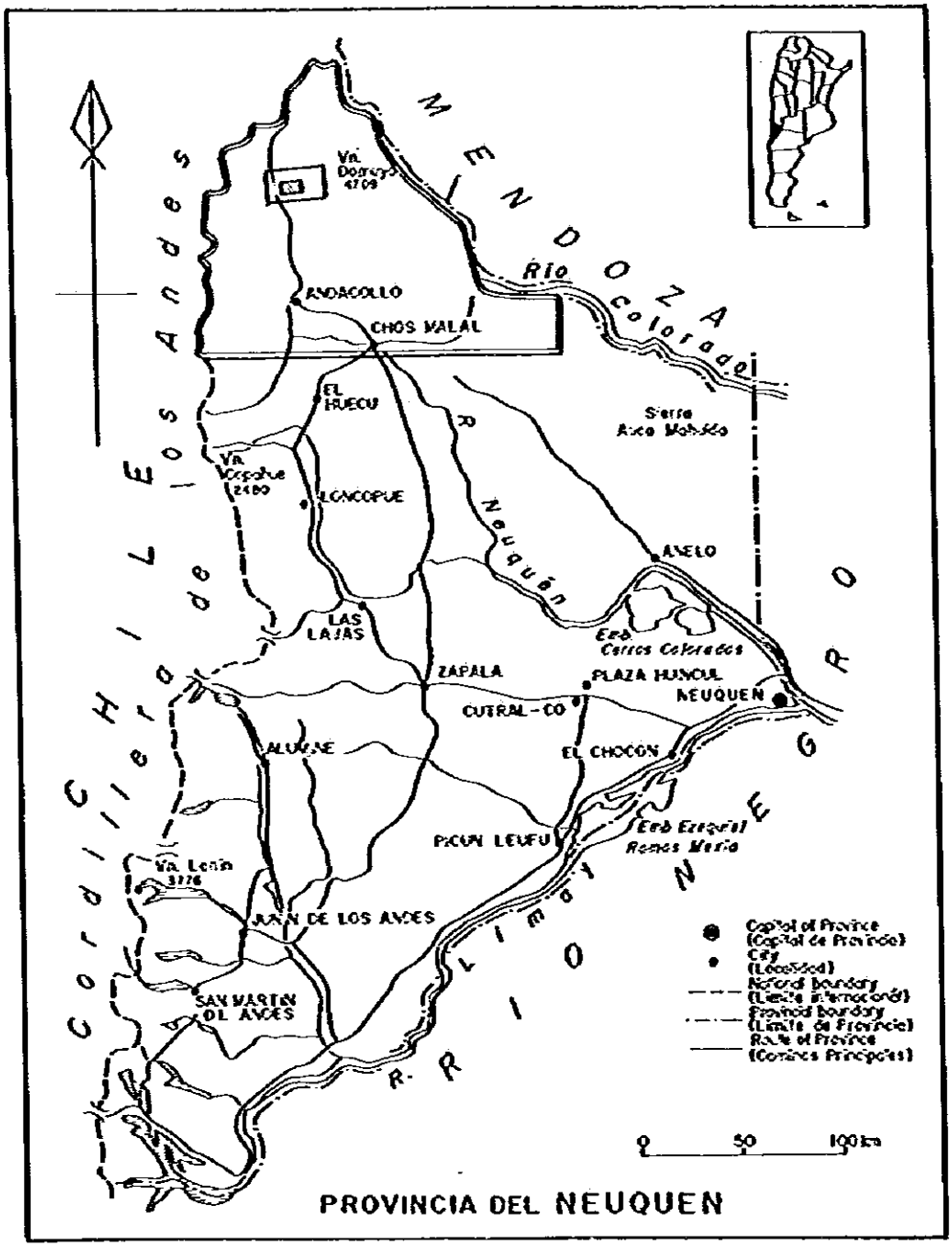
The isotopic ratio of carbon ($^{13}C/^{12}C$)

付帯資料

1. 総　　説



	15,000 km^2	First phase survey area (Area estudiada en la primera etapa)
	200 km^2	Second phase survey area (Area en estudio segunda etapa)
	40 km^2	Third phase survey area (Area en estudio tercera etapa)

Fig. 1-1 Location map of the survey areas

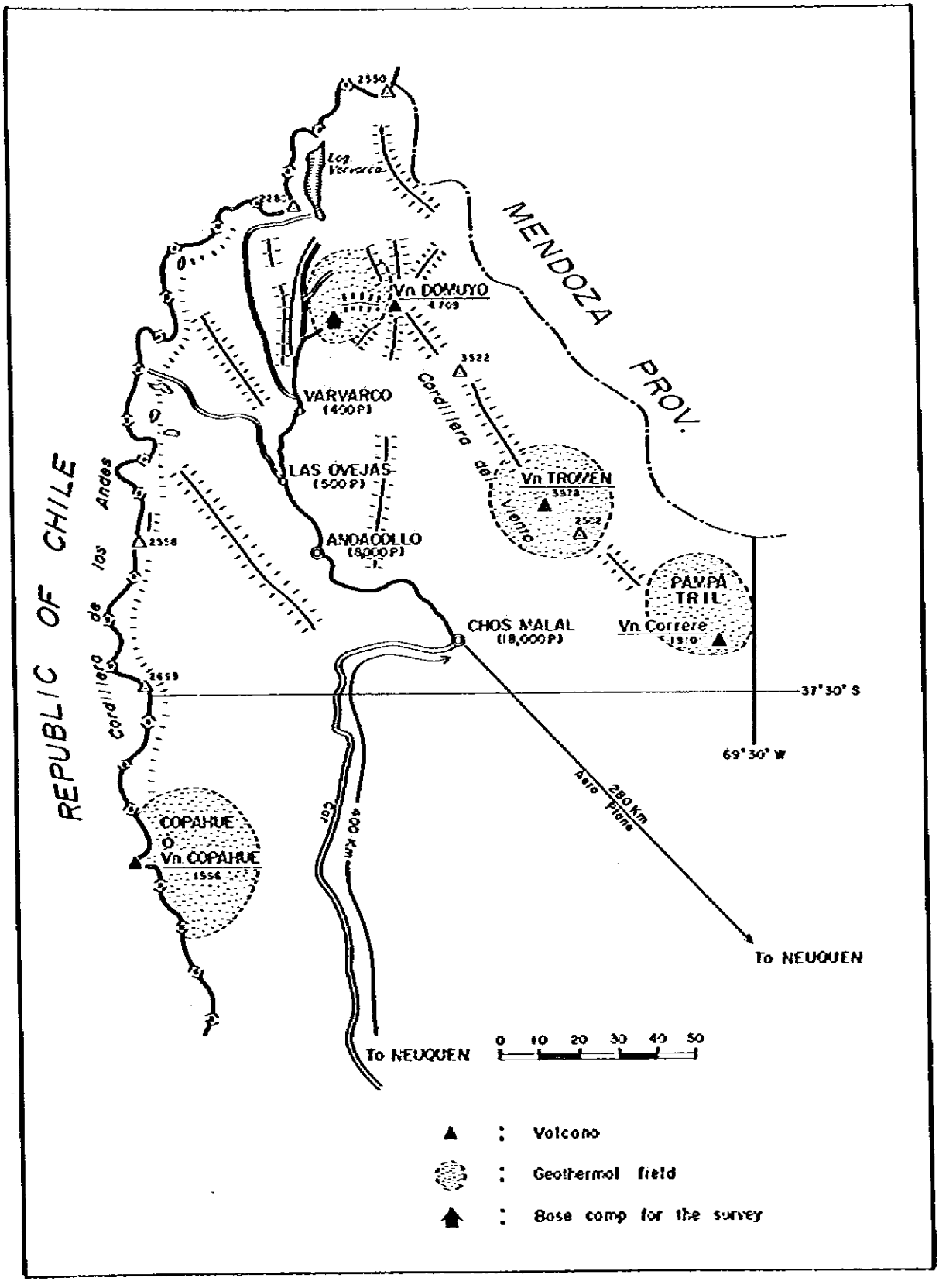
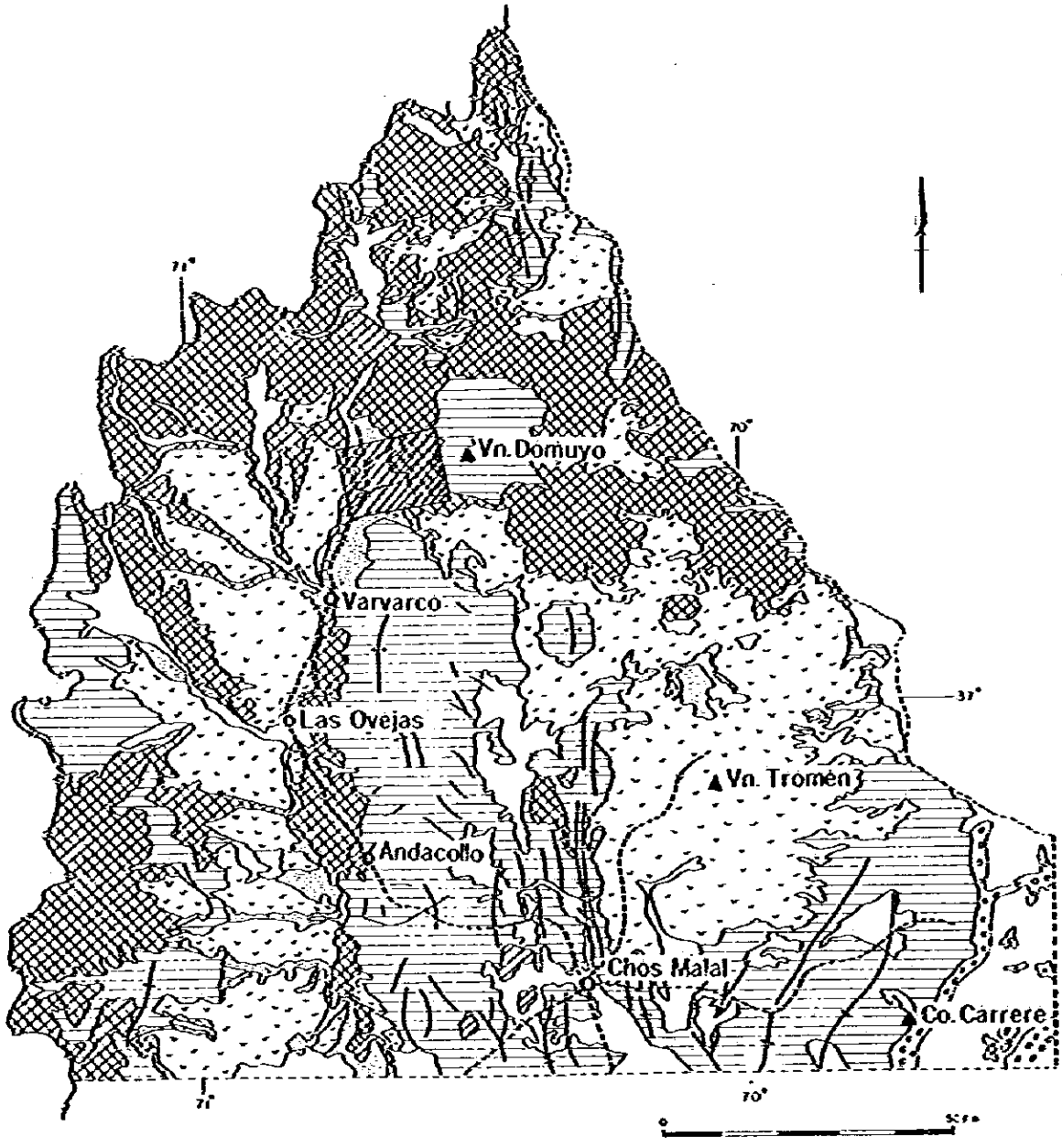


Fig. 1-2 Explanatory map of northern parts of the Province of Neuquén

2. 第１次調査(広域調査)の概要



REGEND

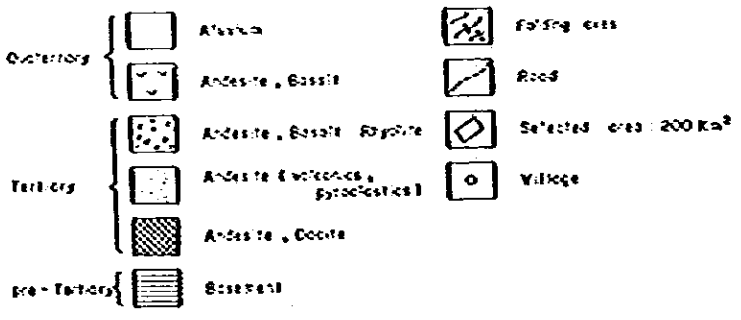


Fig. 2-1 Geological interpretation map of Landsat image

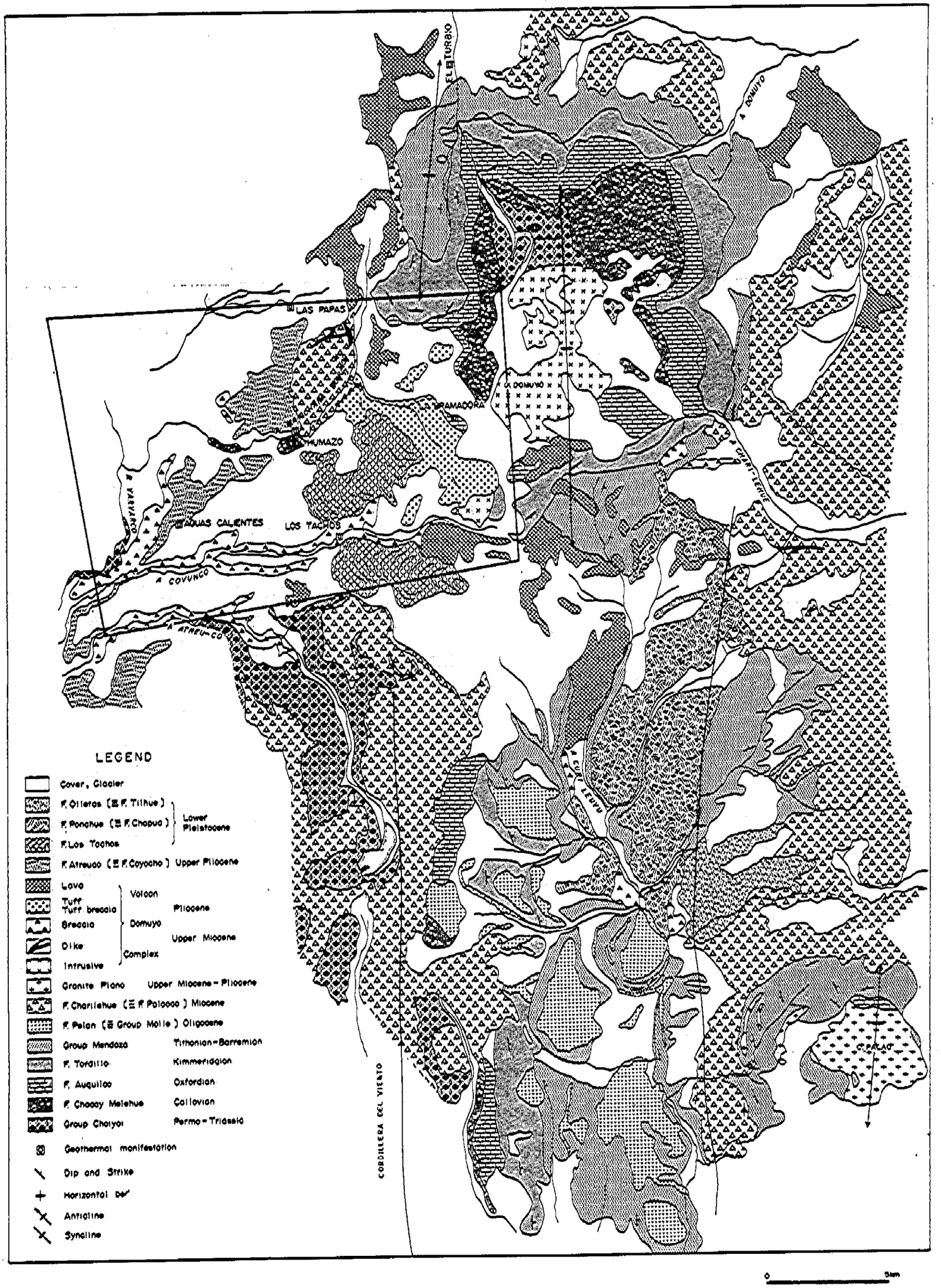


Fig. 2-2 Regional geological map

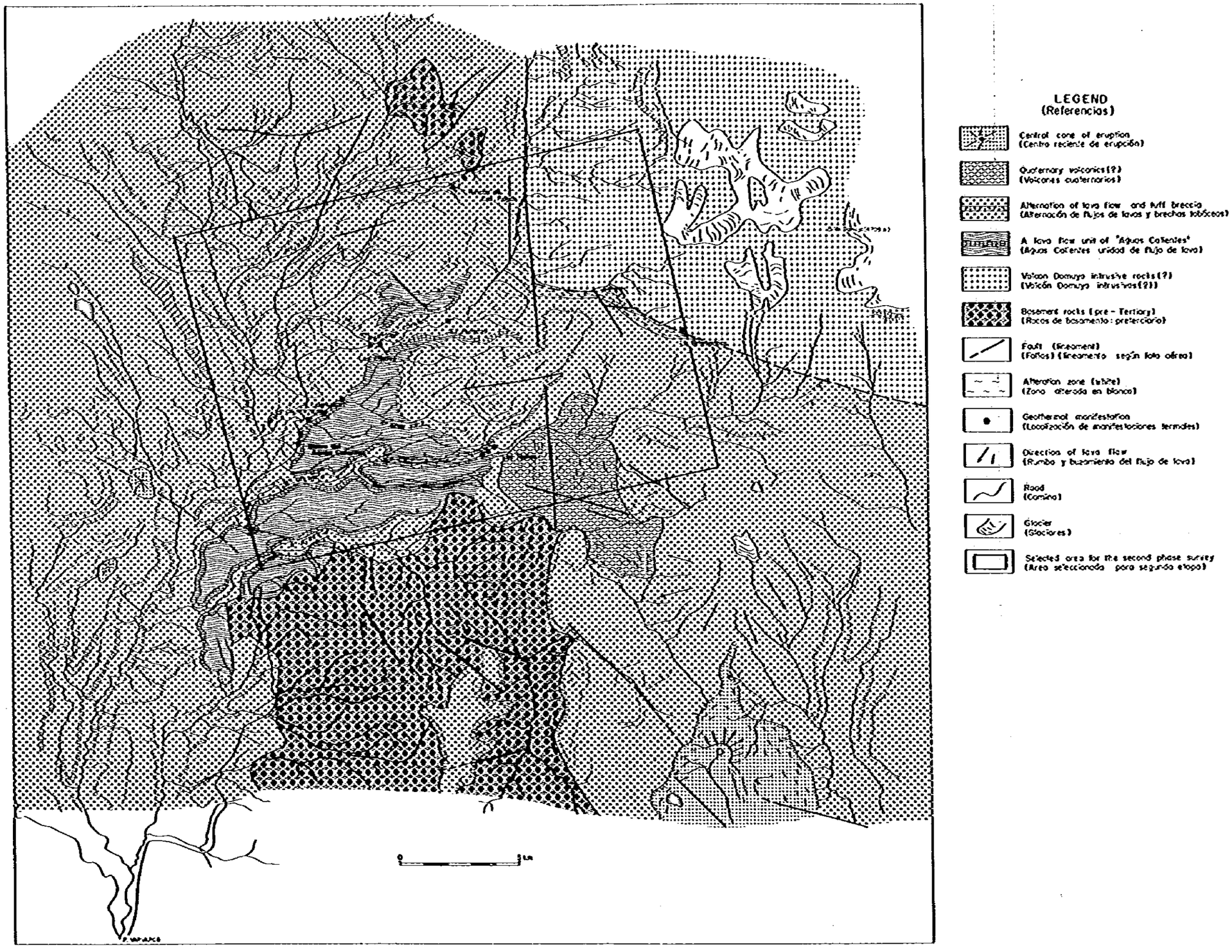
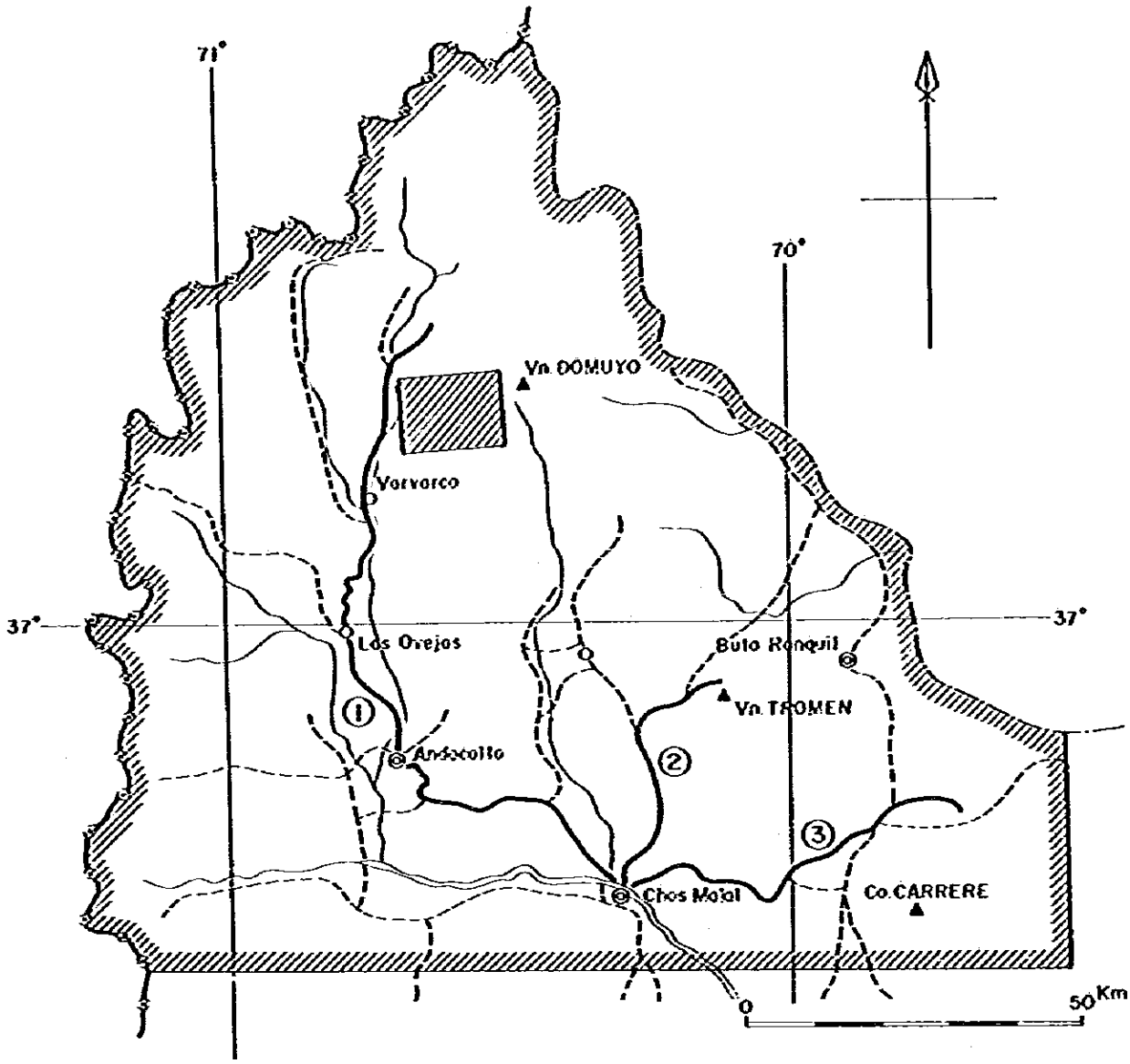


Fig. 2-3 Geological interpretation map of aerial photographs



First phase survey area : 15,000Km²
(Limite del area de 15,000Km²)

Second phase survey area : 200Km²
(Area seleccionada de 200Km²)

① Routes of reconnaisance geological survey
(Rutas de reconocimiento efectuadas)

Roads
(Rutas y accesos a la zona)

Rivers
(Detalle de drenaje)

Fig. 2-4 Map of the survey areas and routes of reconnaissance geological survey

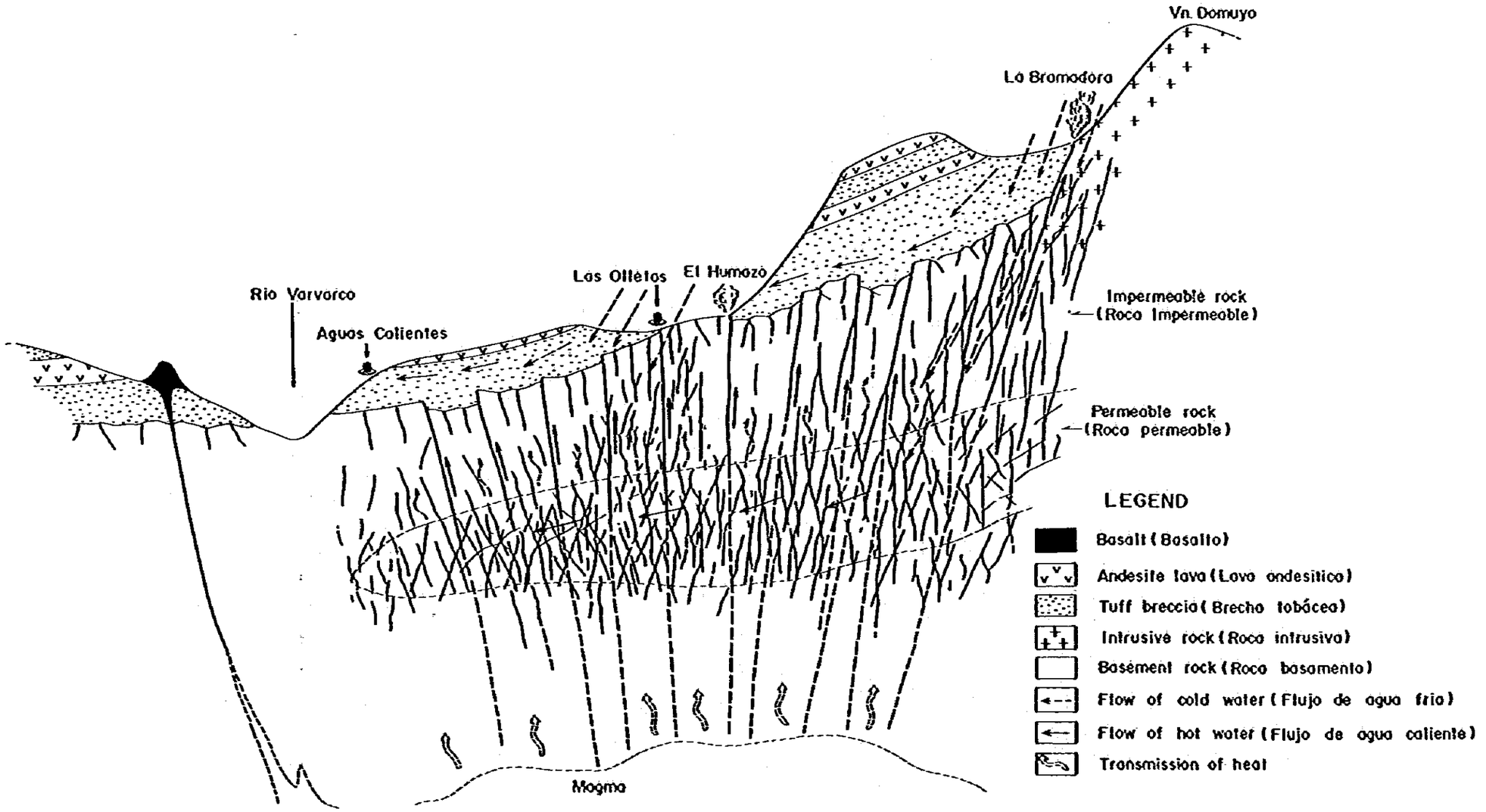


Fig. 2-5 Schematic profile of geology and geothermal system

3. 第２次調査の概要

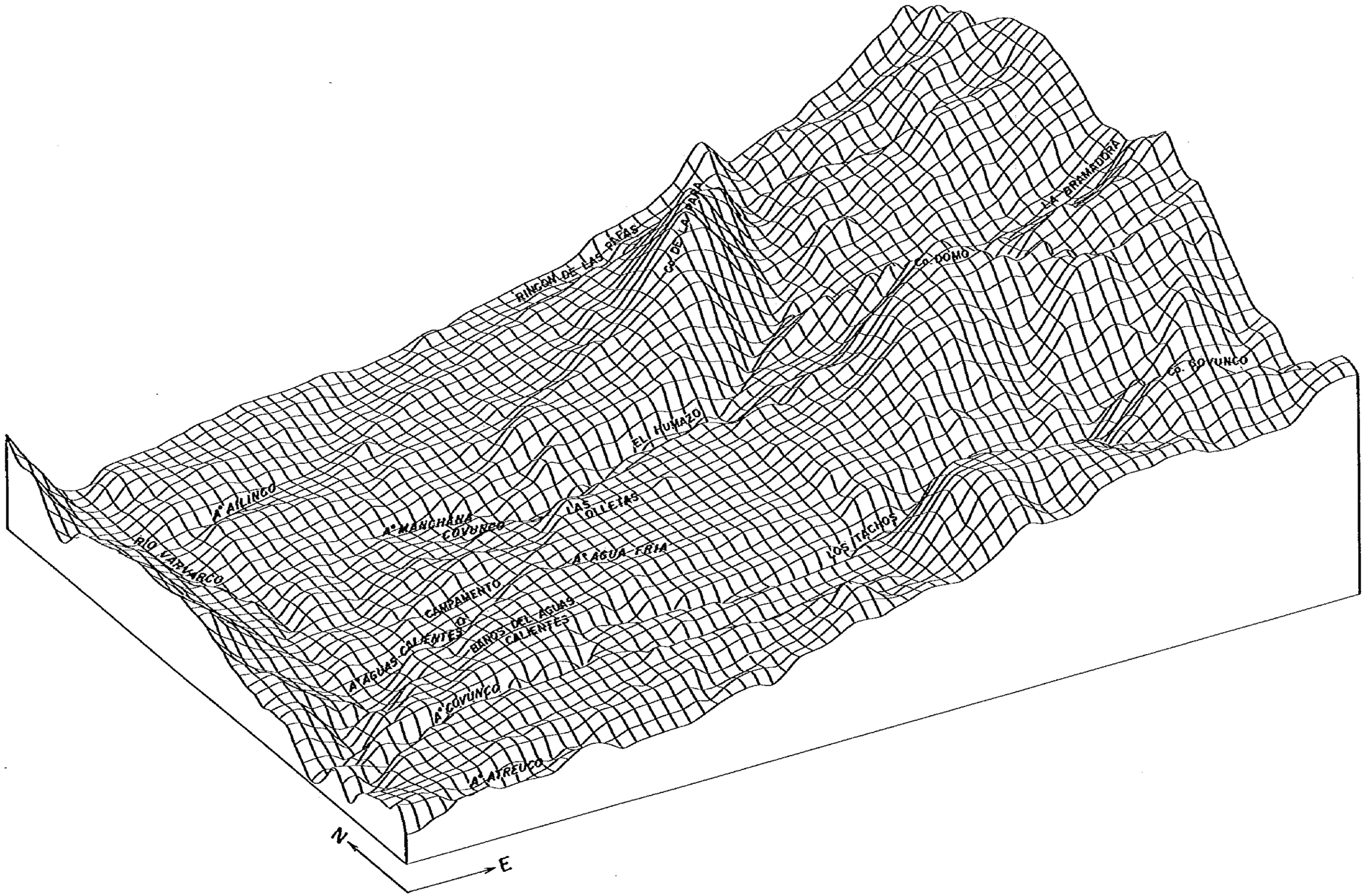


Fig.3-1-1 Bird's-eye view map of the survey area

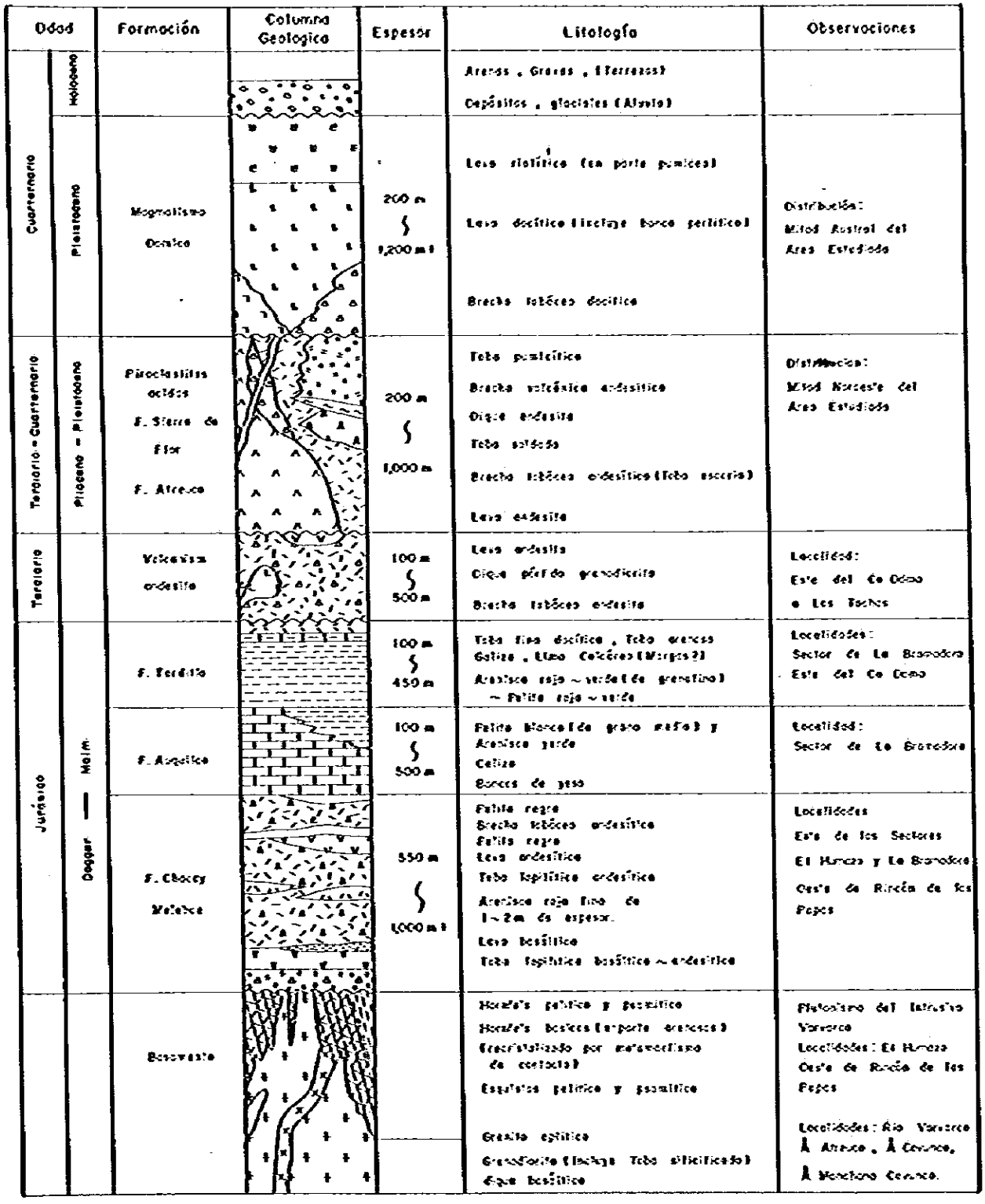
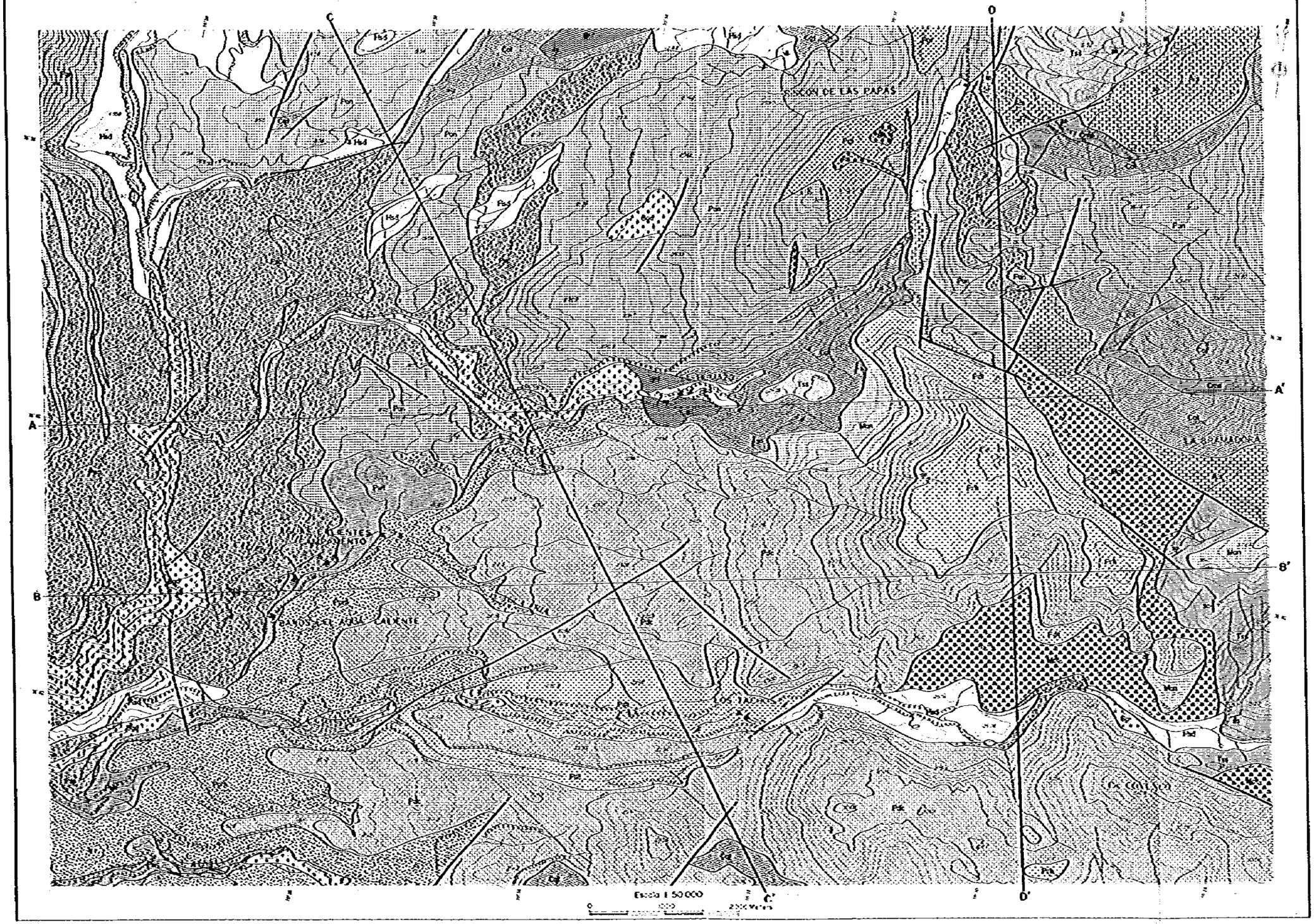


Fig. 3-2-1 Geological columnar section of the survey area



LEGEND

- Holocene
  - Hsd — Sand, gravel
- Pleistocene
  - Pra — Rhyolite lava
  - Pdc — Dacite lava
  - Pdt — Dacitic tuff breccia
- Quaternary-Tertiary
- Pleistocene & Pliocene
  - Pab — Andesitic volcanic breccia
  - Pan — Andesite
  - Ppt — Pumiceous tuff
  - Pwt — Welded tuff
  - Pst — Scoria tuff
- Pliocene & Miocene
  - Man — Andesite lava
  - Mab — Andesitic tuff breccia
- Jurassic
  - F. Tordillo — Tst — Red sandstone, Dacitic tuff, Limestone
  - F. Auquilla — Jls — Limestone, sandstone, mudstone, Gypsum
  - F. Chocoy Member — Jsm — Black mudstone
  - Jab — Andesitic tuff breccia, Sandstone
- Basement
  - Hornfels schist
  - Granodiorite
- Intrusive rocks
  - Andesite
  - Granodiorite porphyry
- Bedding plane
- Fault
- A—A' Section line

Fig.3-2-2 Geological map of the survey area

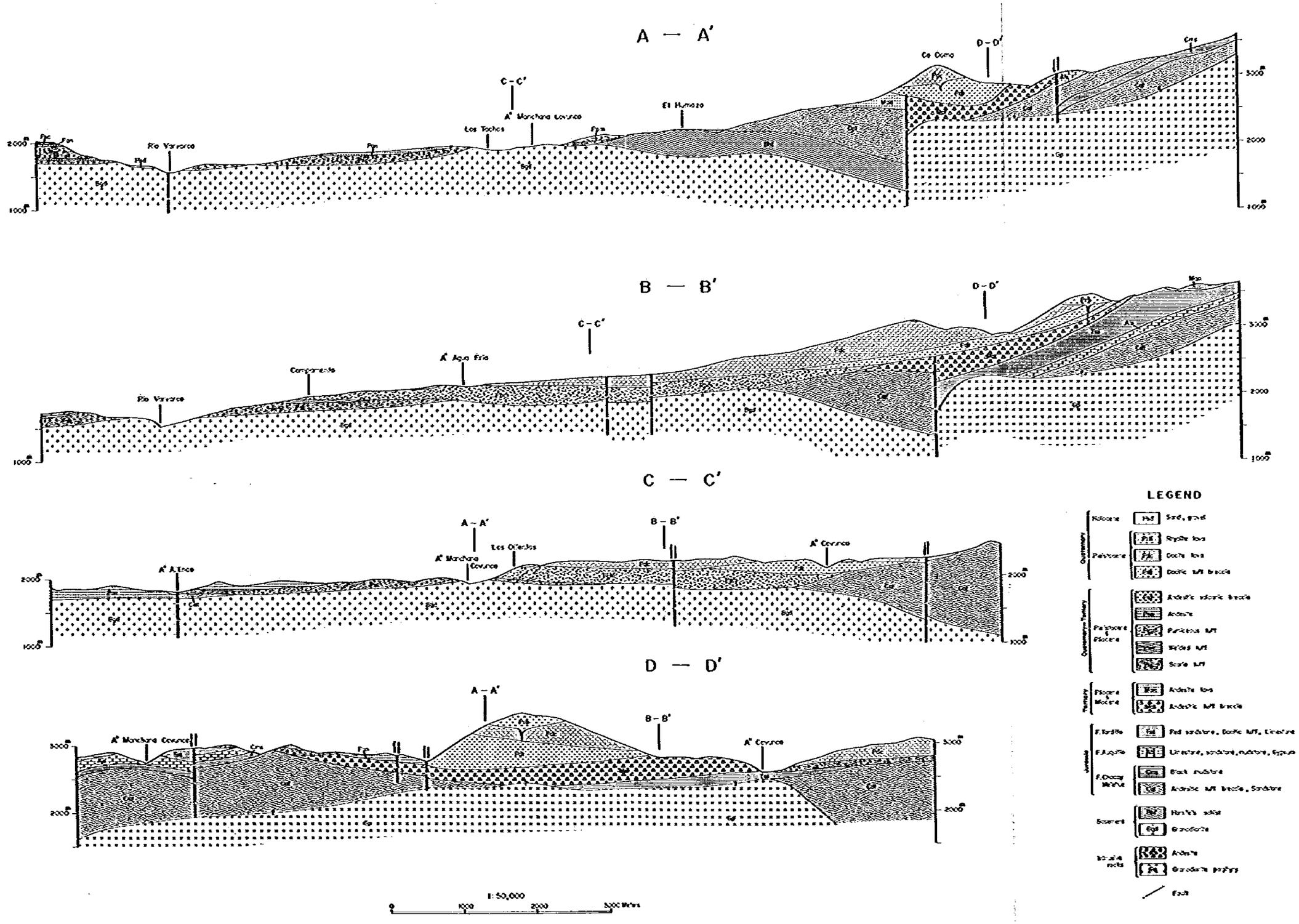
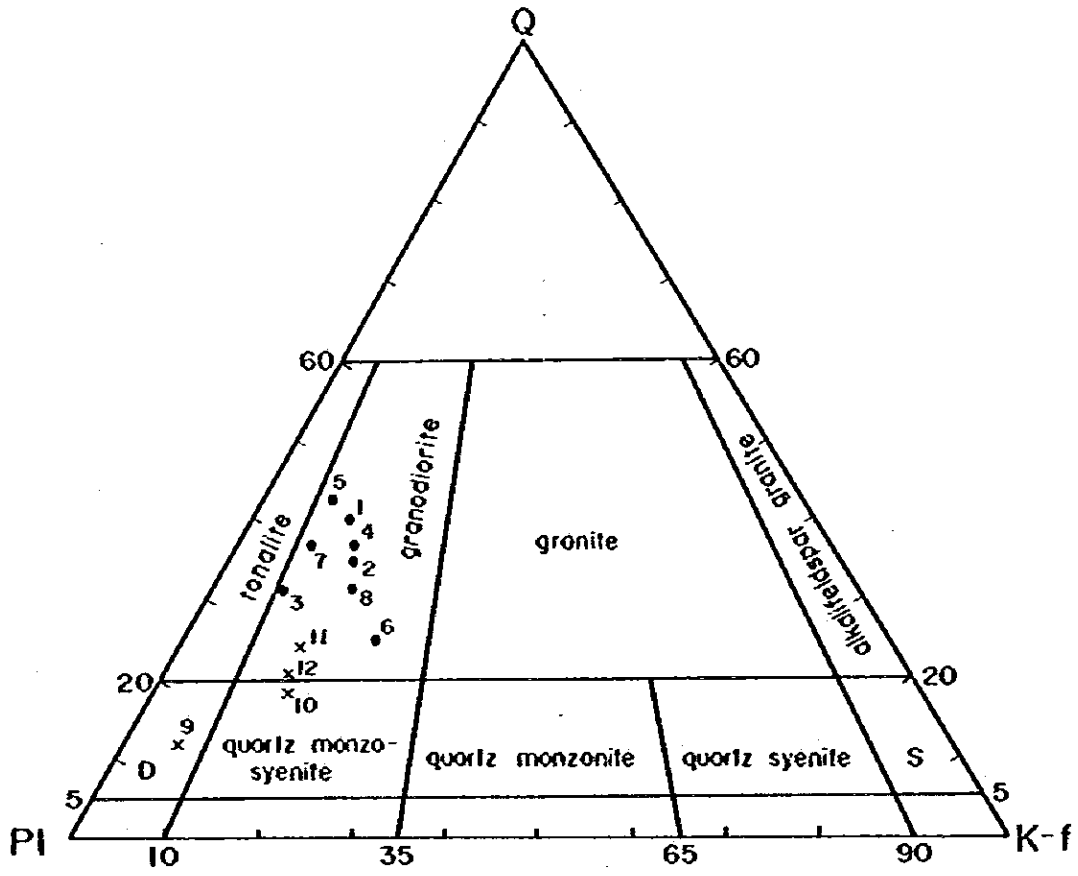


Fig.3-2-3 Geological cross-sections



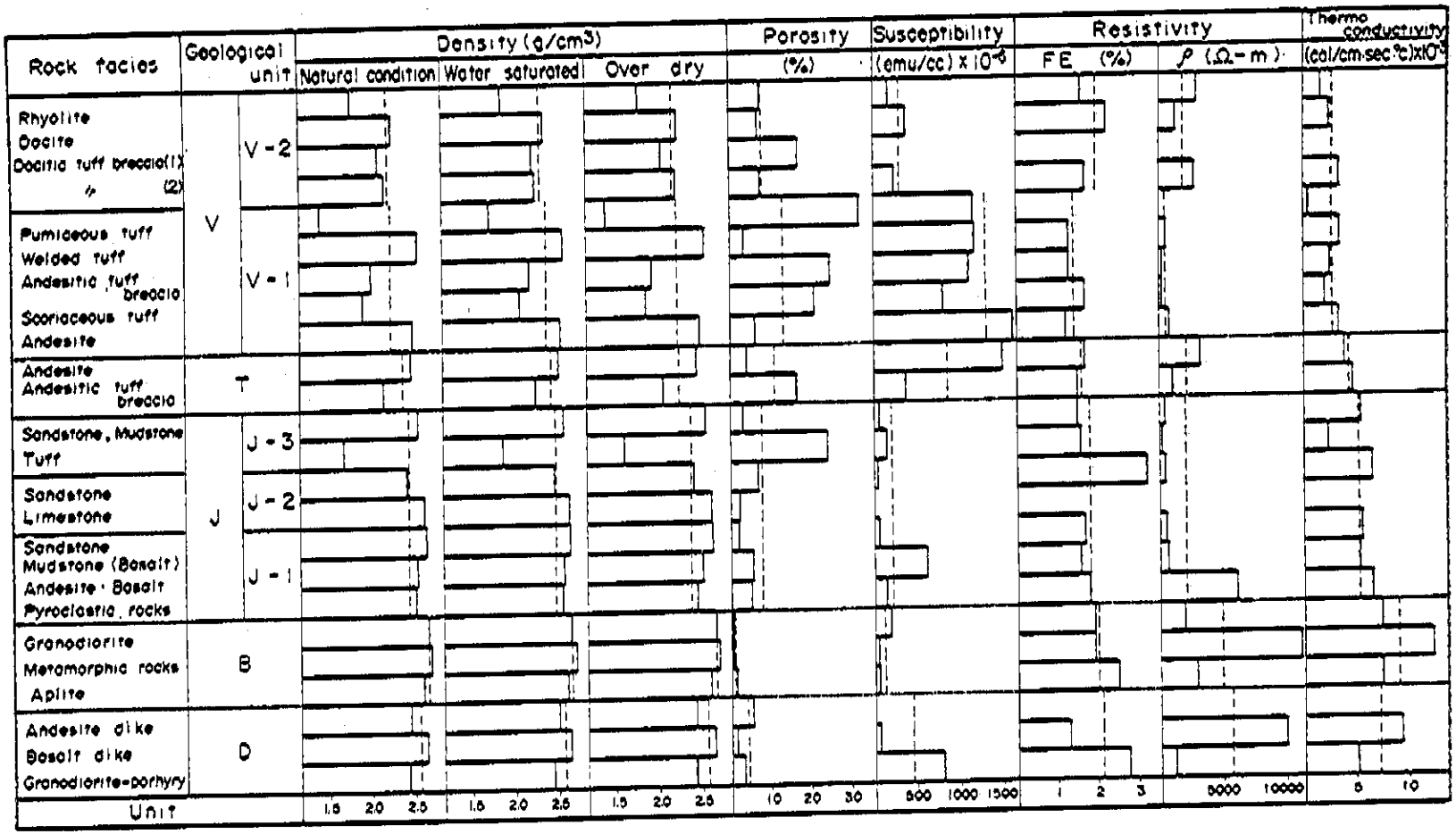
Vorvorco intrusive
- 1 : F-1
- 2 : F-26
- 3 : F-42-2
- 4 : TM-8
- 5 : TM-11
- 6 : TM-16
- 7 : TM-27
- 8 : 83-2-12-5

Domuyo complex
- 9 : F-14
- 10 : TM-12
- 11 : TM-48
- 12 : TM-201

D : quartz diorite etc

S : alkalifeldspar-quartz syenite

Fig. 3-2-4 Modal diagram of quartz - potash feldspar - plagioclase



V : Quaternary – Tertiary
- V-2 : Pleistocene, Volcanics of Co. Domo
- V-1 : Pleistocene – Pliocene, Acidic Pyroclastics, Sierra de Flores Formation, Atreuco Formation

T : Tertiary, Pliocene – Miocene, Andesite

J : Jurassic, Dogger – Malm,
- J-3 : Tordillo Formation
- J-2 : Auquilco Formation
- J-1 : Chocoy Melehue Formation

B : Basement

D : Dike rock etc.

Fig. 3-2-5 Physical properties of rocks

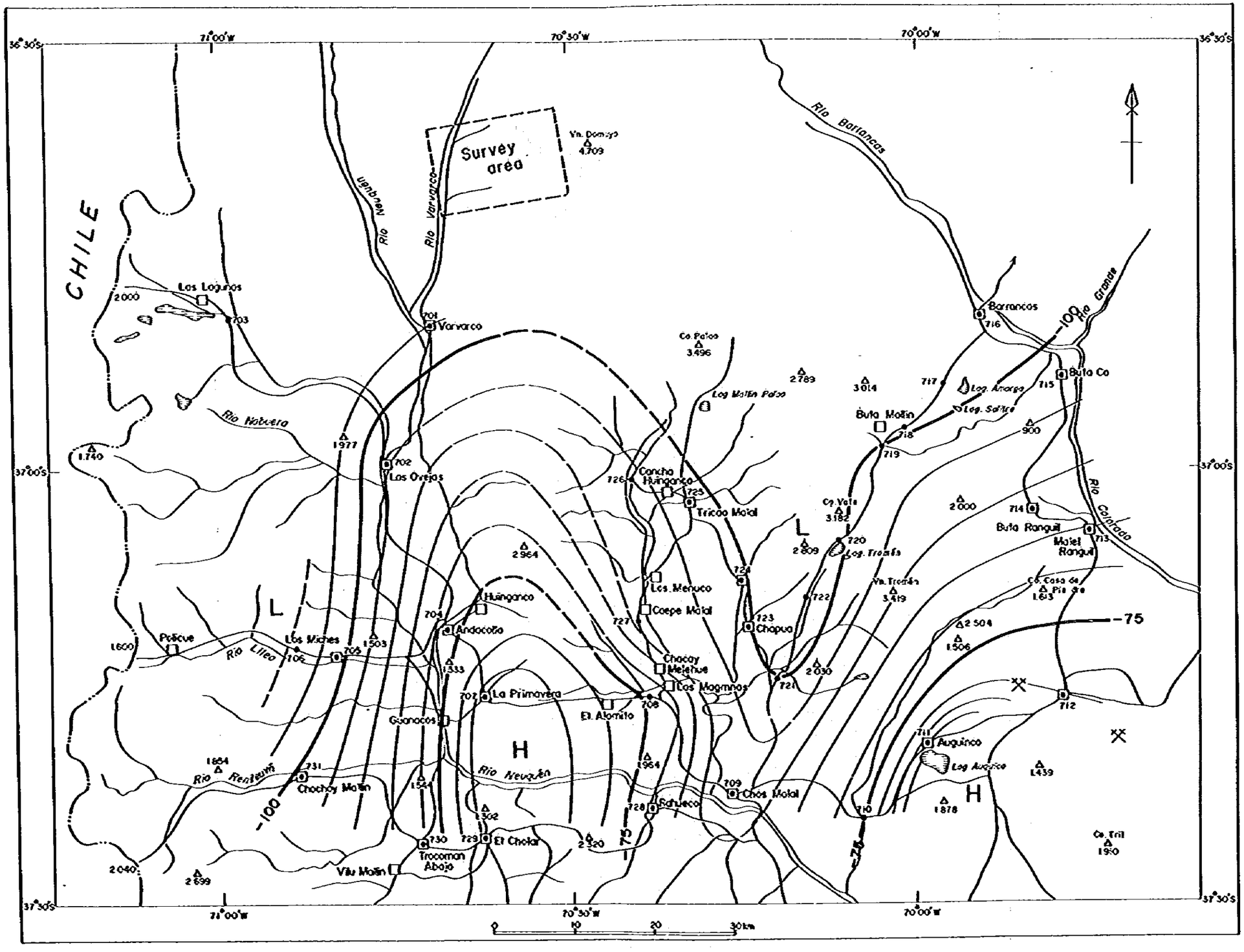


Fig. 3-3-1 Regional Bouguer anomaly map (ρ= 2.30 g/cm^3)

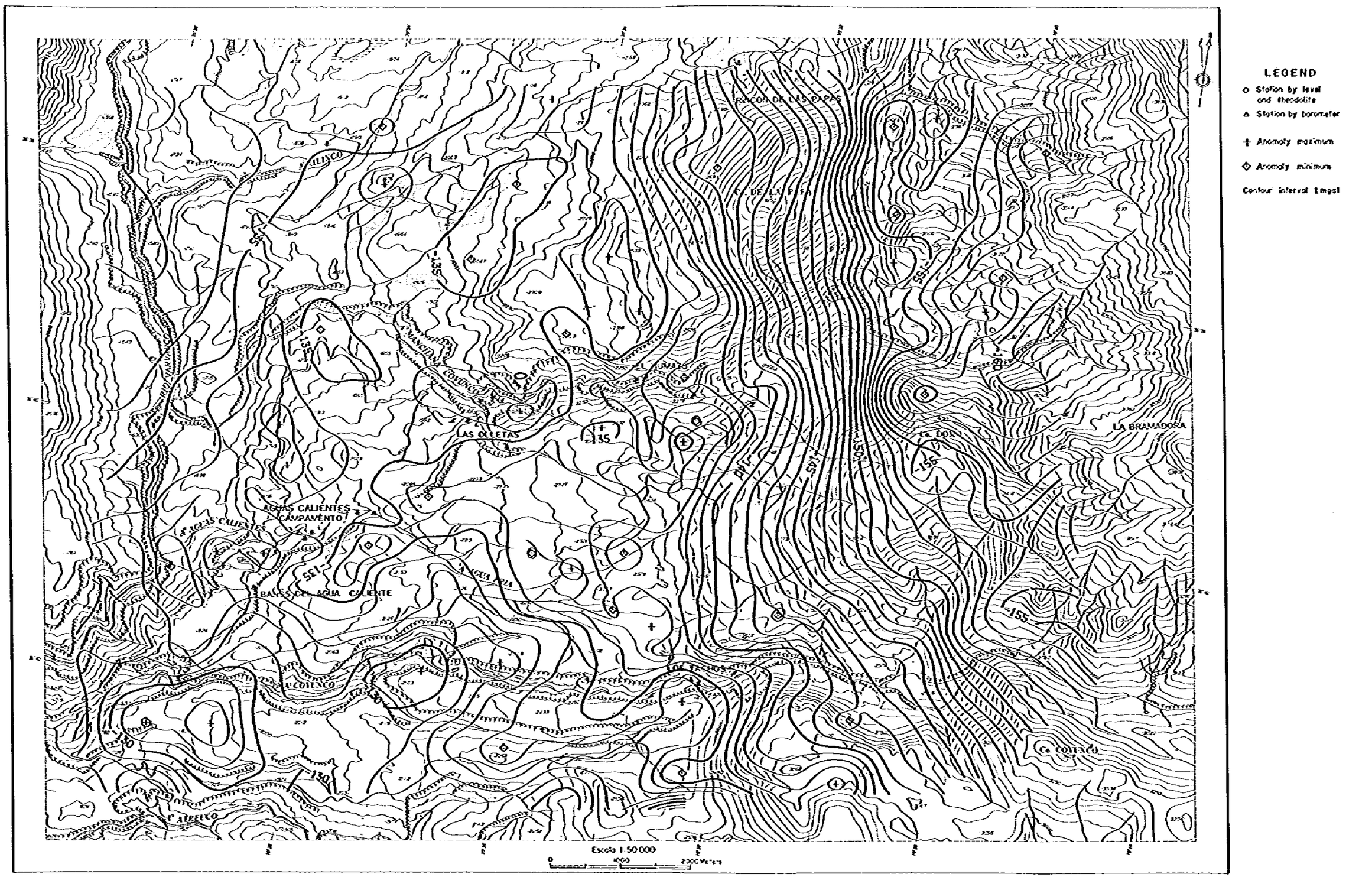


Fig. 3-3-2 Bouguer anomaly map (ρ = 2.30 g/cm^3)

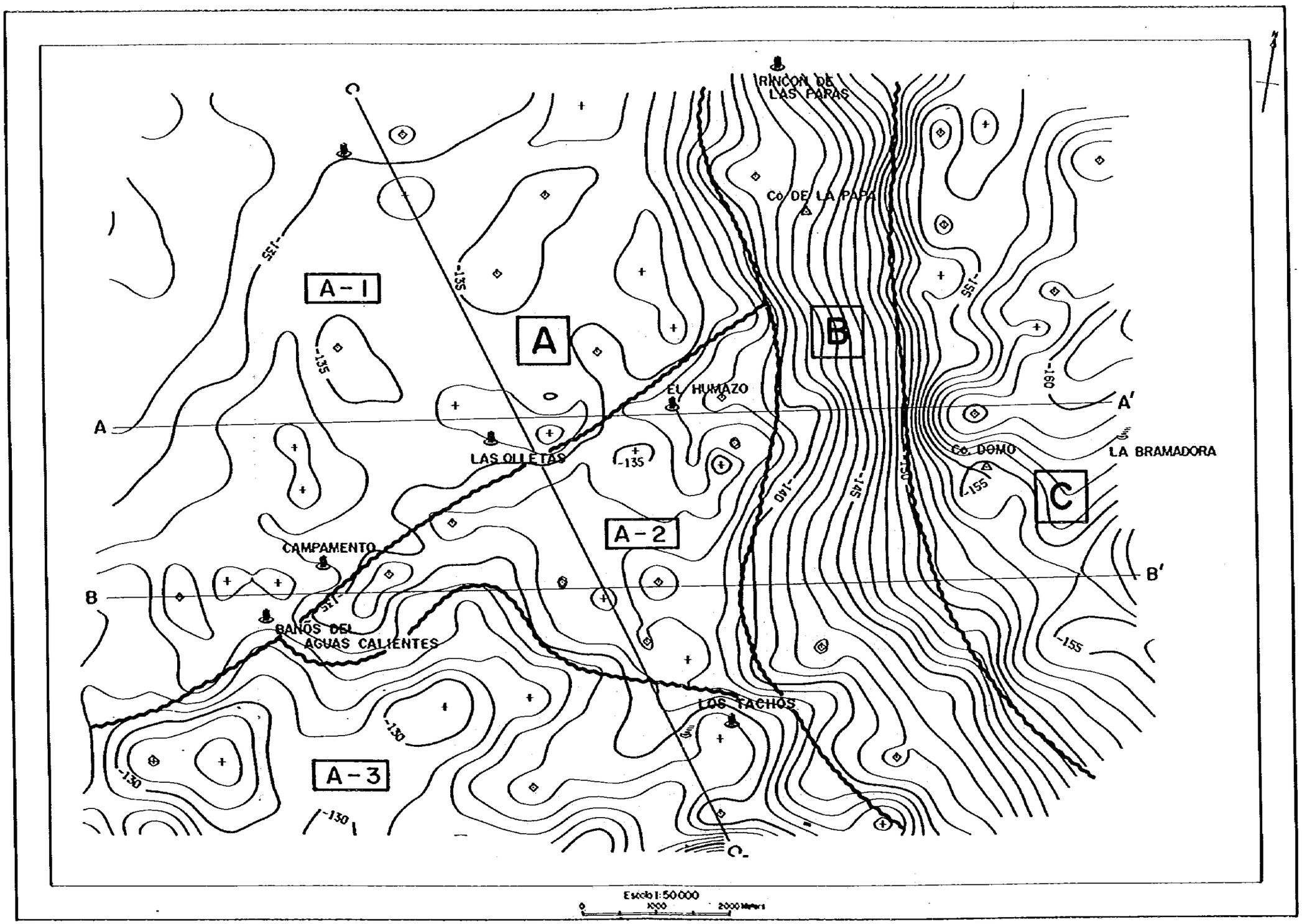


Fig. 3-3-3 Zoning of Bouguer anomaly map

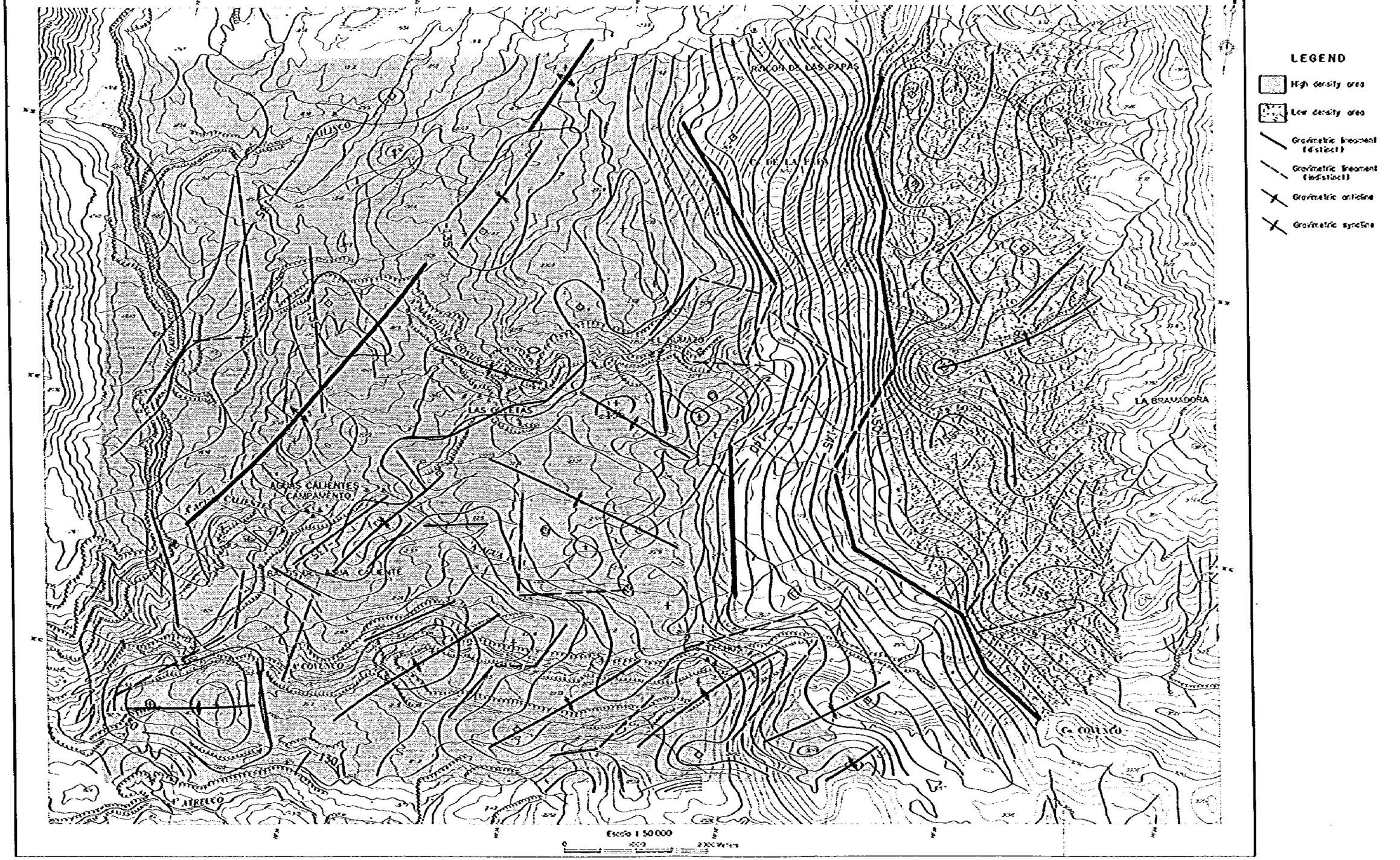


Fig.3-3-4 Gravimetric interpretation map

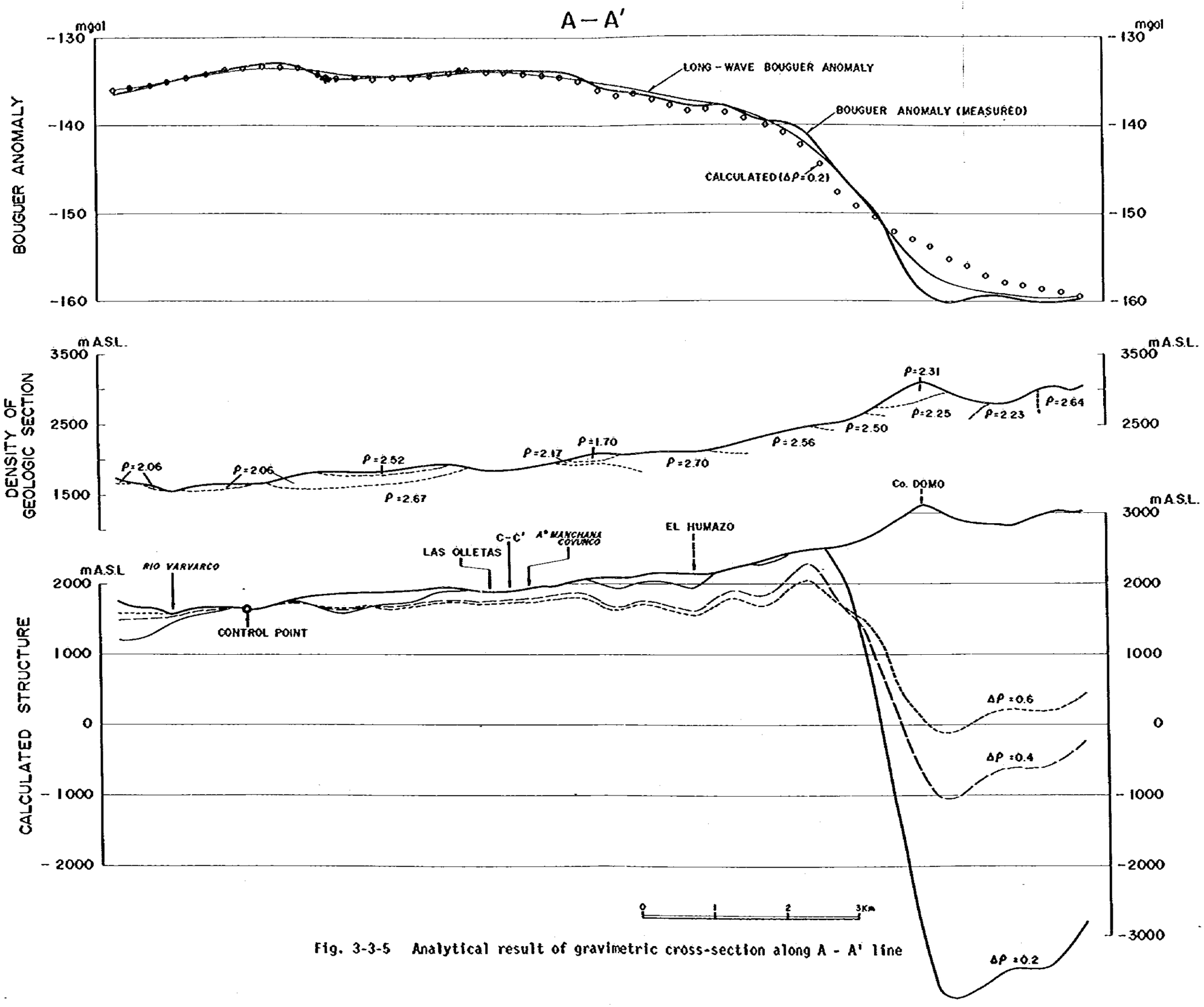


Fig. 3-3-5 Analytical result of gravimetric cross-section along A - A' line

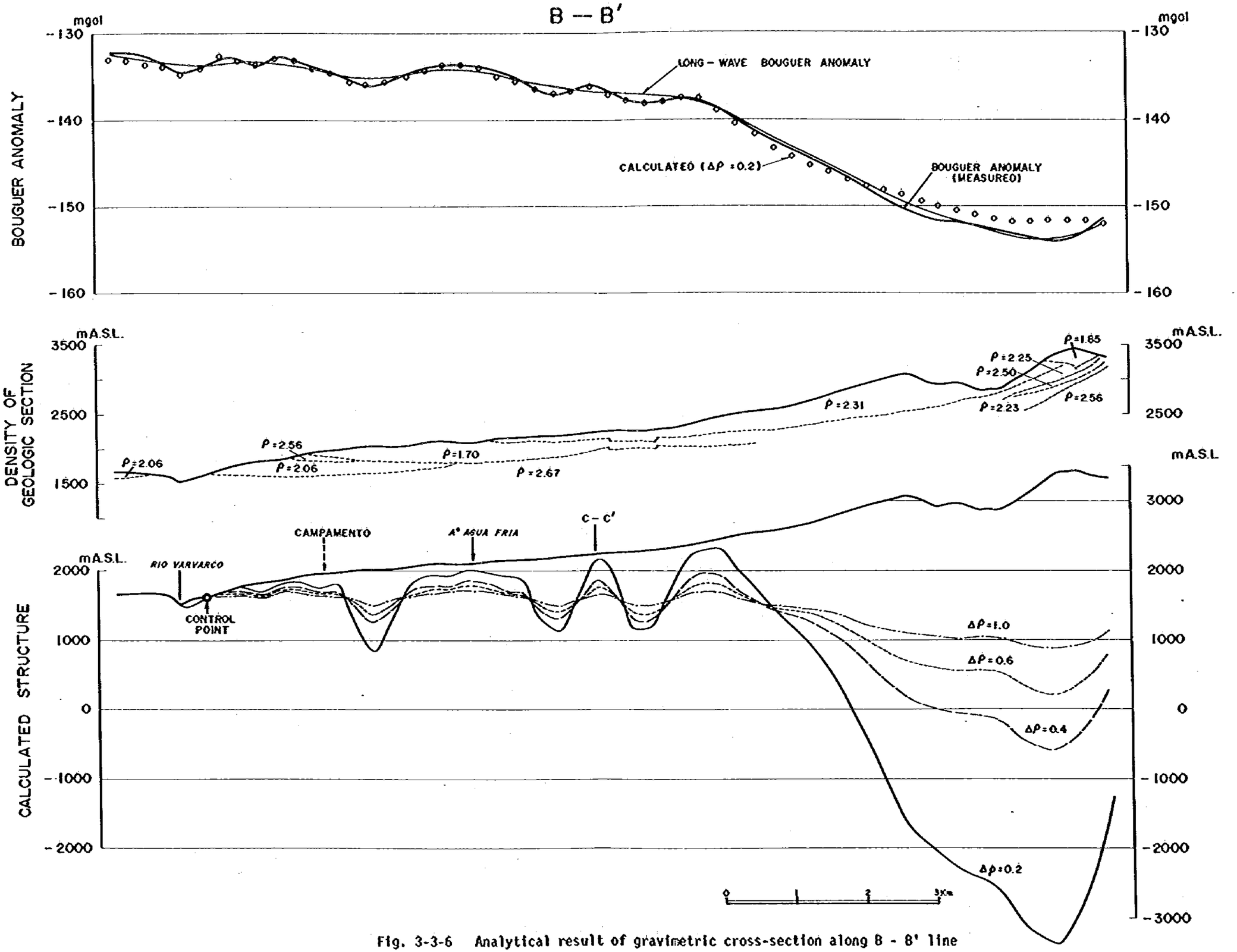


Fig. 3-3-6 Analytical result of gravimetric cross-section along B - B' line

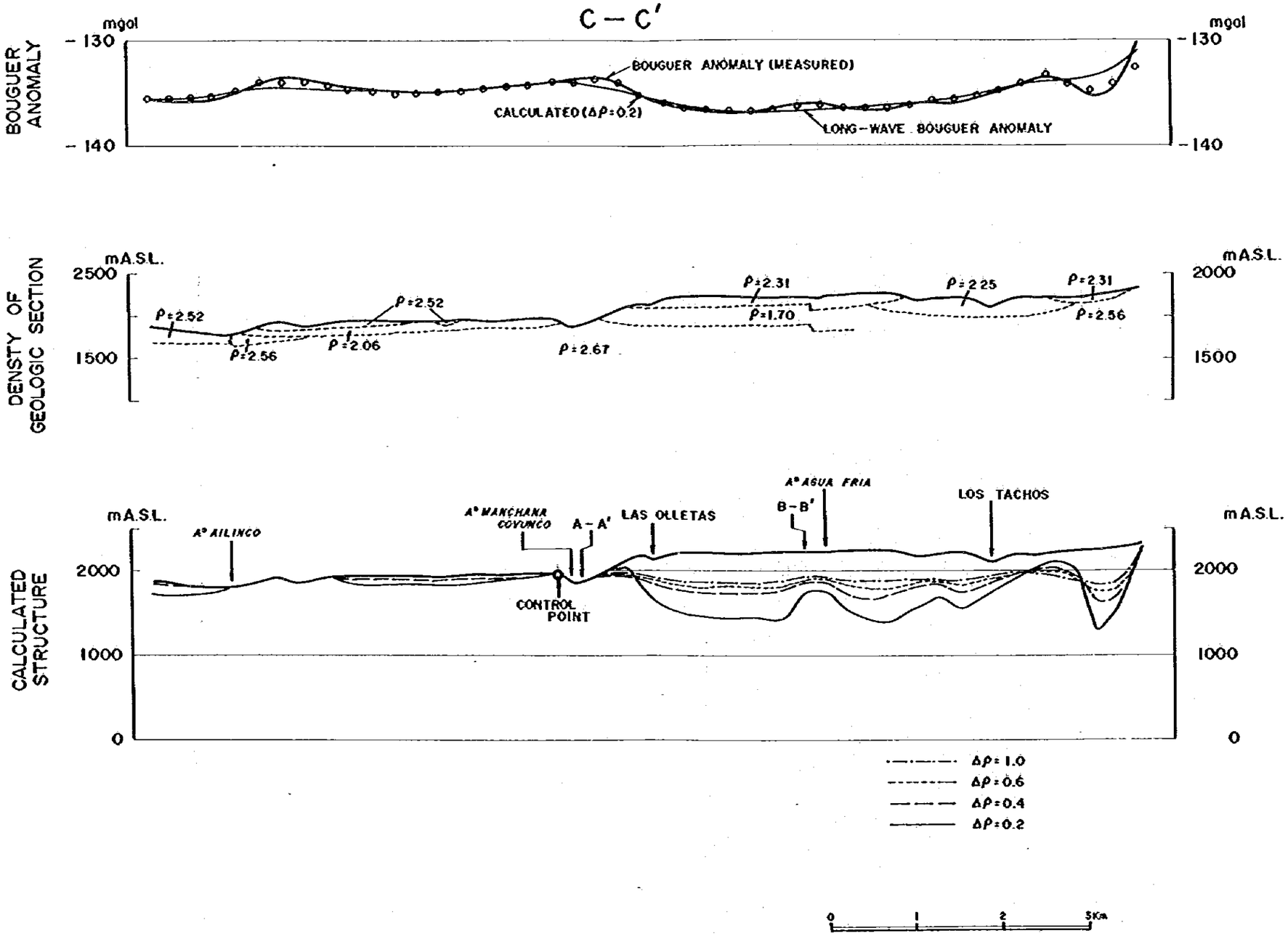


Fig. 3-3-7 Analytical result of gravimetric cross-section along C - C' line

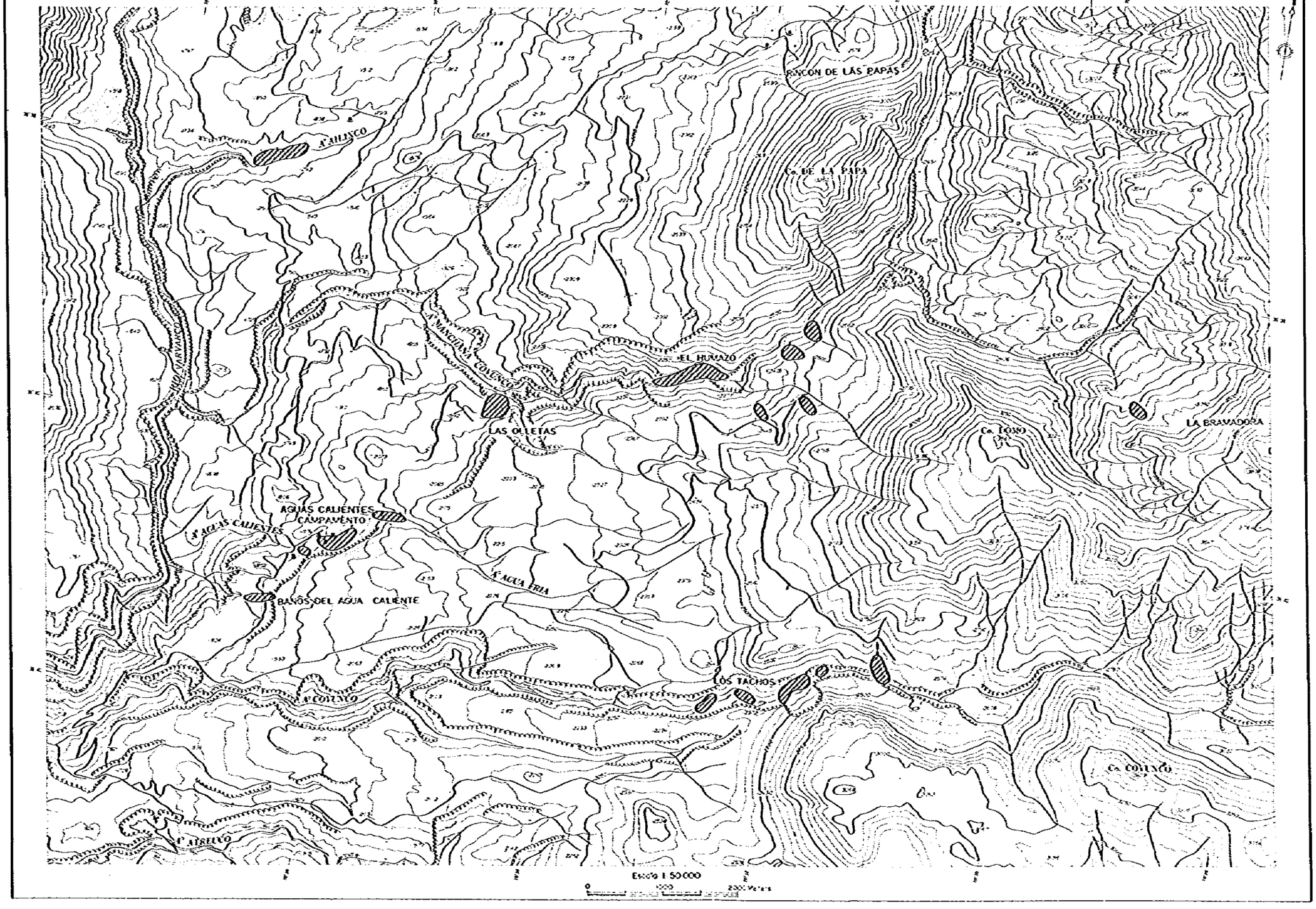


Fig.3-4-1 Location map of alteration zones

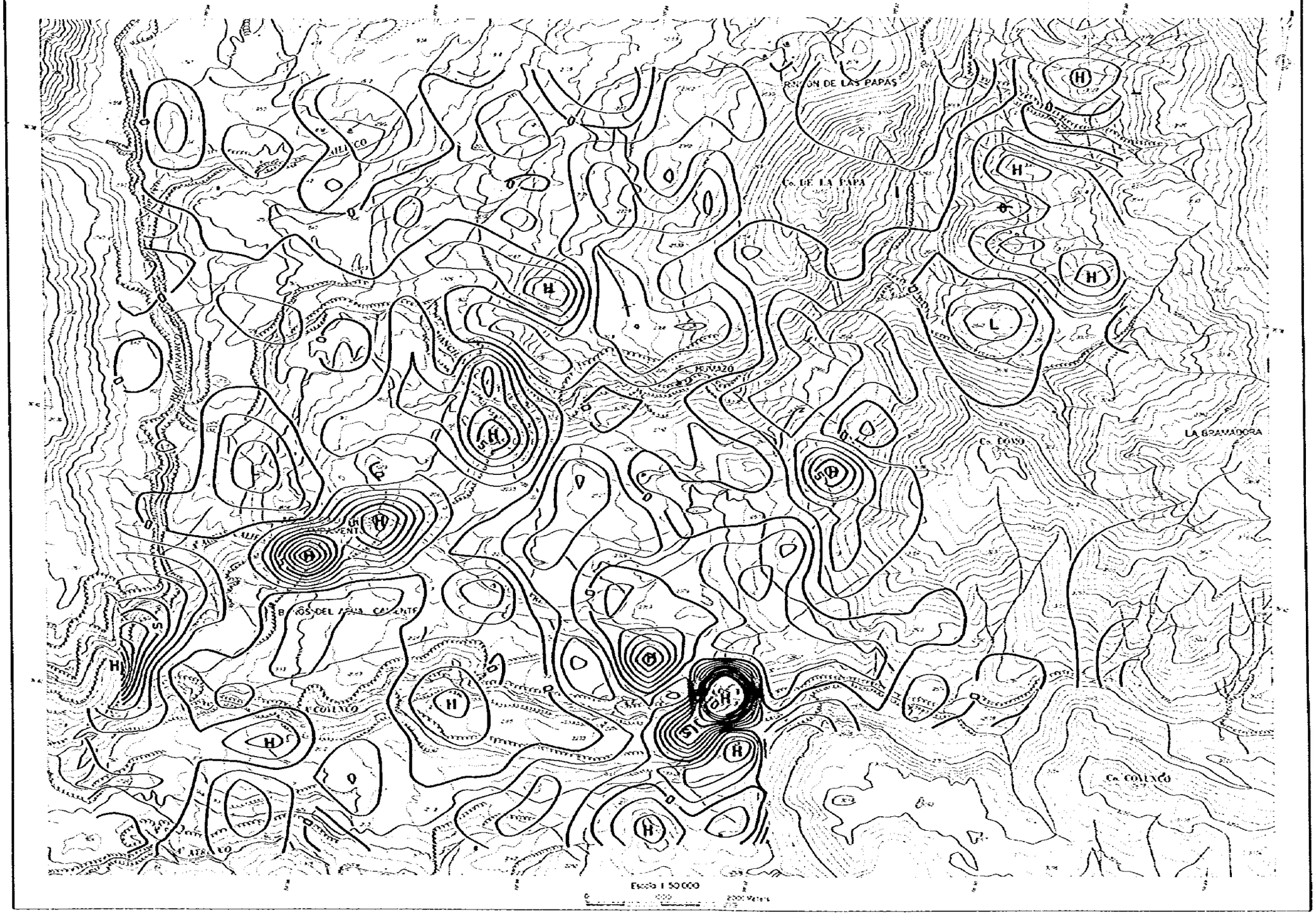


Fig.3-4-2 Distribution map of residual ground temperature at 1 meter depth (calculated by linear equation)

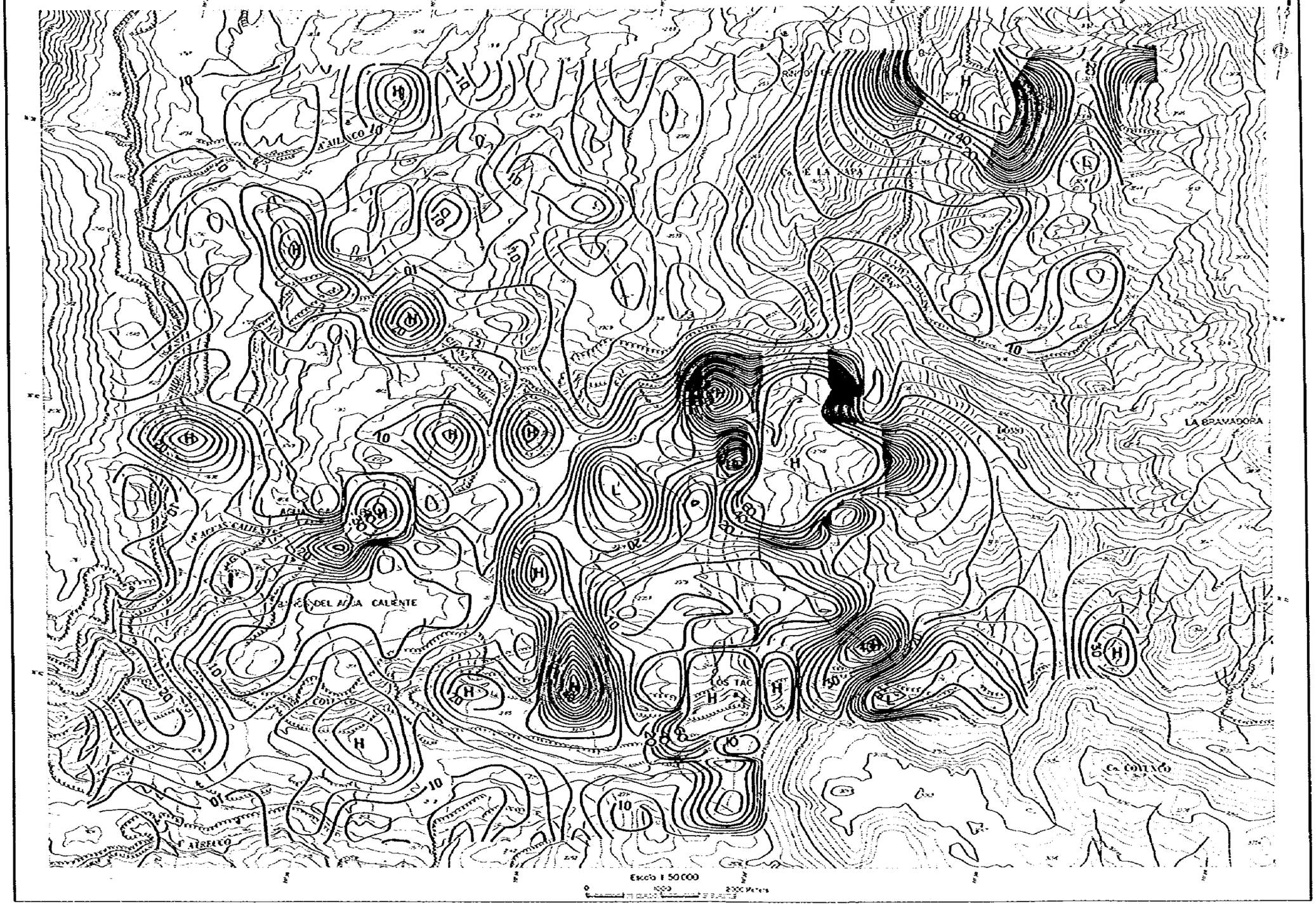


Fig.3-4-3 Distribution map of Hg - concentration in soil

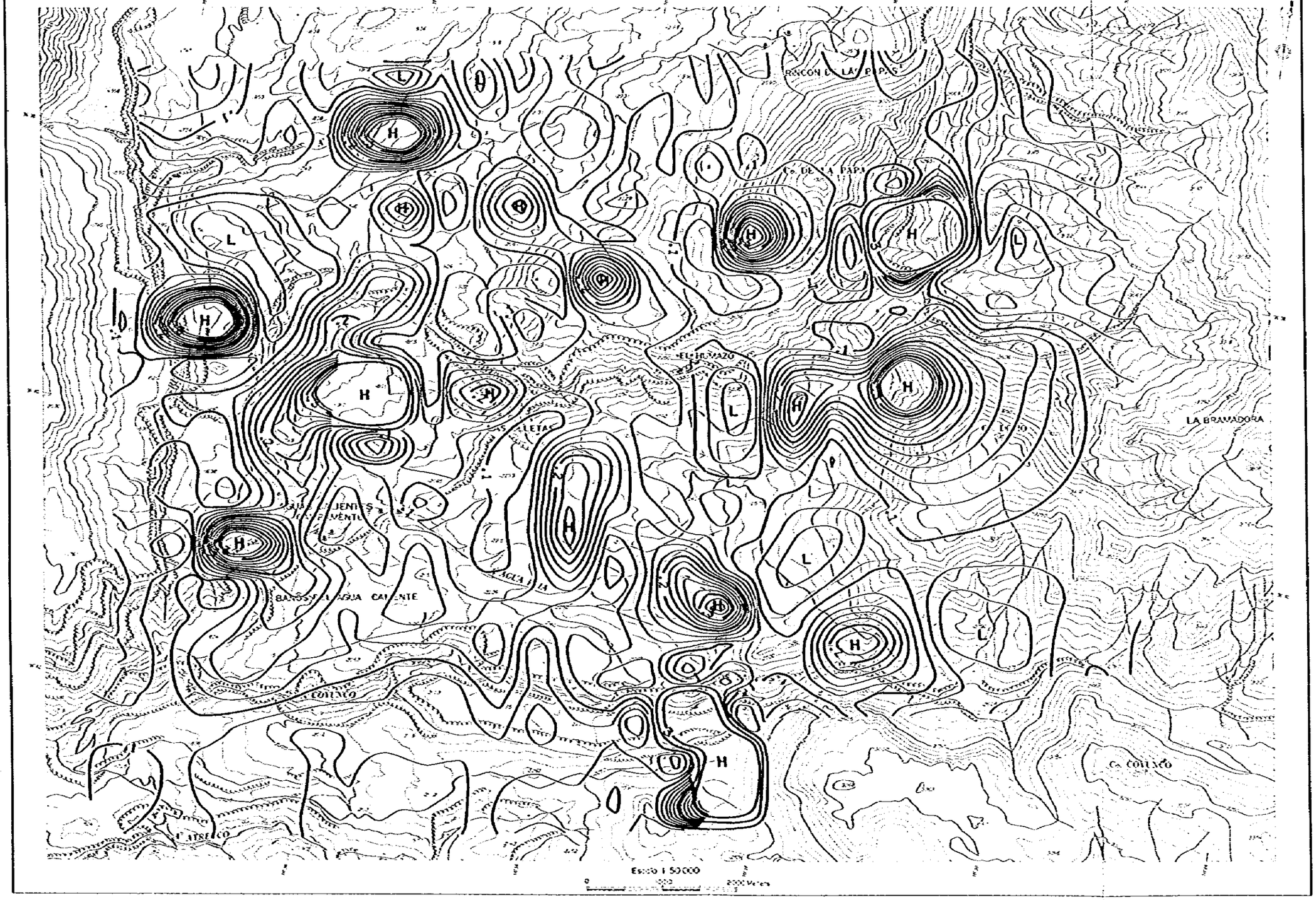
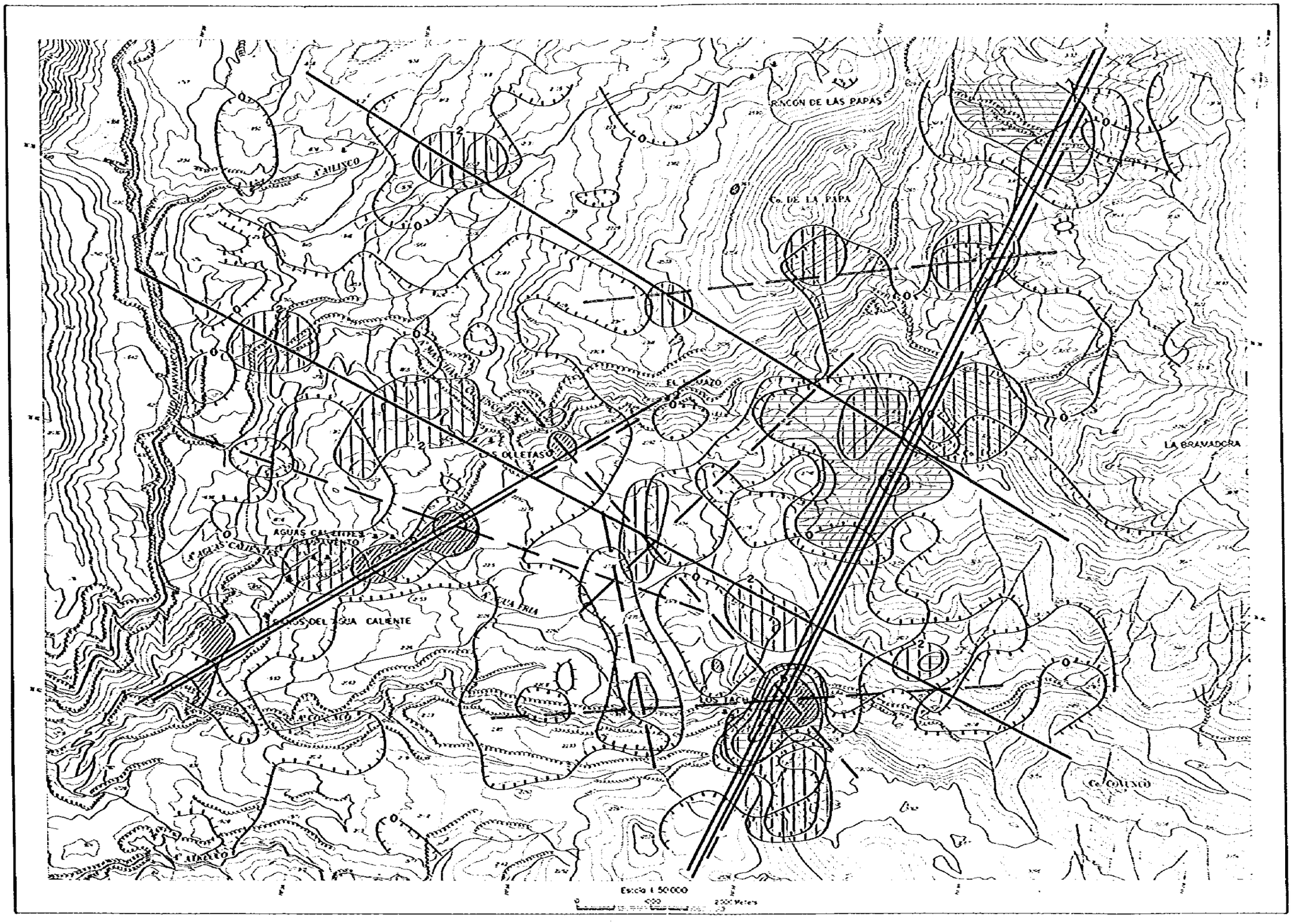


Fig.3-4-4 Distribution map of CO_2 - concentration in soil-air



LEGEND

{Residual ground temperature}

> 0°C

> 5°C

trend of anomalous areas

{Hg - concentration}

> 20 ppb

> 40 ppb

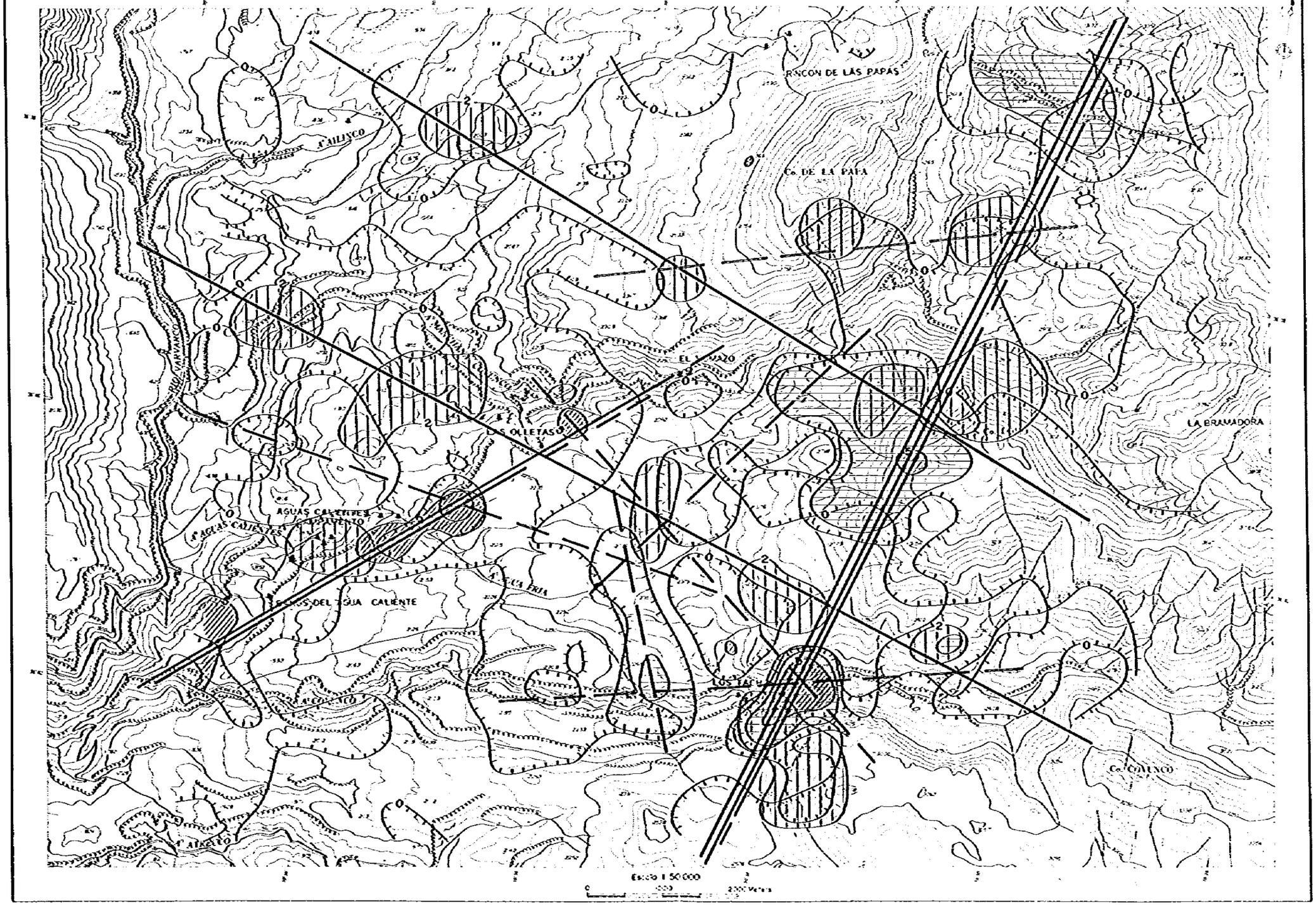
trend of anomalous areas

{CO_2 - concentration}

> 2 %

trend of anomalous areas

Fig.3-4-5 Composite map of anomalous areas of ground temperature and Hg - CO_2 geochemistry



LEGEND

(Residual ground temperature)

- > 0°C
- > 5°C
- trend of anomalous areas

(Hg - concentration)

- > 20 ppb
- > 40 ppb
- trend of anomalous areas

(CO_2 - concentration)

- > 2 %
- trend of anomalous areas

Fig.3-4-5 Composite map of anomalous areas of ground temperature and Hg - CO_2 geochemistry

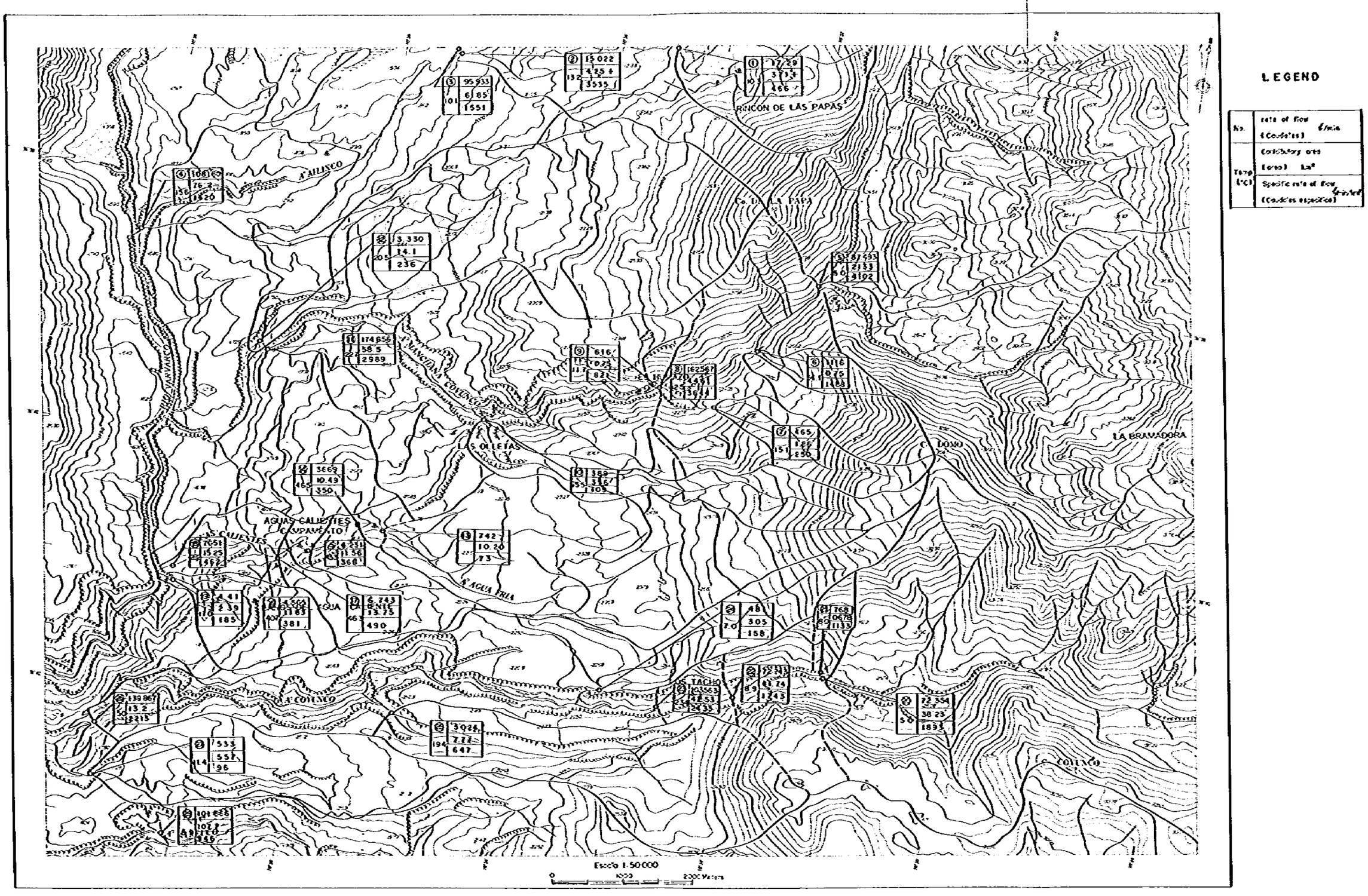


Fig.3-5-1 Location map of measurements of water discharge and calculations of specific rate of flow