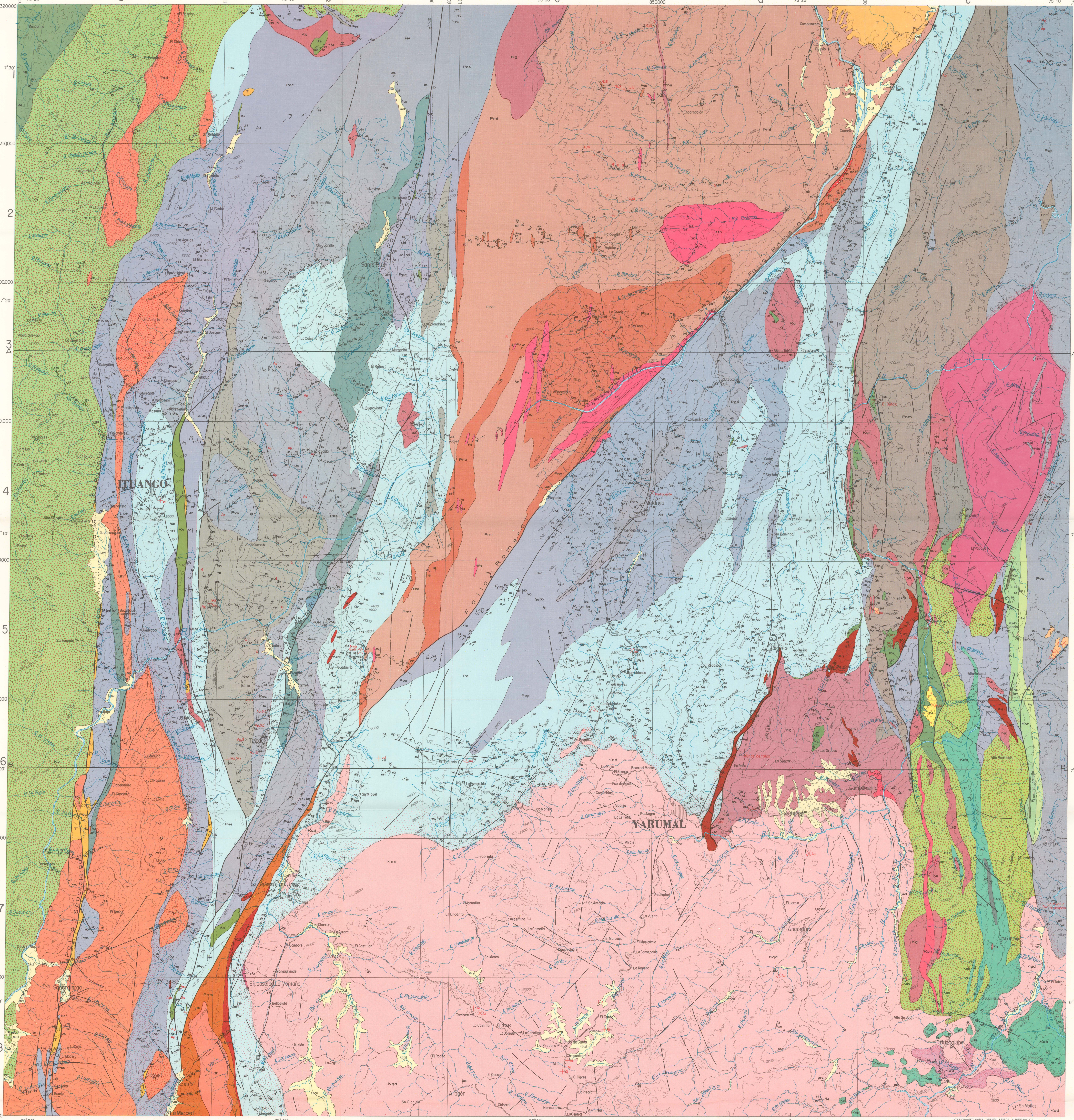
DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

PREPARED IN COOPERATION WITH THE
INSTITUTO NACIONAL DE INVESTIGACIONES GEOLOGICO–MINERAS
MINISTERIO DE MINAS Y PETROLEOS, COLOMBIA

MISCELLANEOUS INVESTIGATIONS SERIES
MAP I–842



Topographic base partly constructed by the Geográfico Agustín Codazzi Institute and partly field surveyed. Gauss conformal projection. Points of origin: Abcissas refer to Bogota where X=1,000,000 metres N. Ordinates of eastern two thirds of map to Y=835,000 metres E. refer to point of origin in Bogota, where Y=1,000,000. Cali is point of origin to Y=167,000 metres W.

SCALE 1:100 000

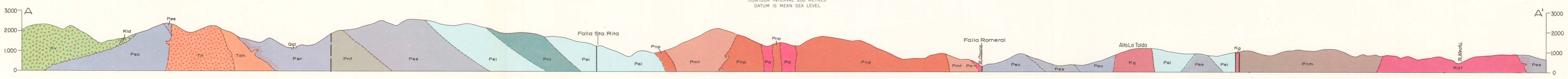
5 0 5 10 15 KILOMETRES

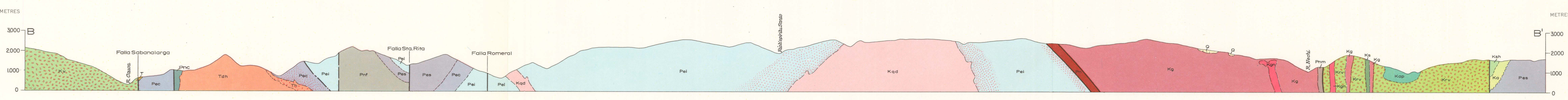
5 0 5 MILES

CONTOUR INTERVAL 200 METRES
DATUM IS MEAN SEA LEVEL

INTERIOR—GEOLOGICAL SURVEY, RESTON, VIRGINIA—1975

Prepared on behalf of the
GOVERNMENT OF COLOMBIA
under the auspices of the
AGENCY FOR INTERNATIONAL DEVELOPMENT,
U.S. DEPARTMENT OF STATE





EXPLANATION

STRATIFIED ROCKS

QUATERNARY

Qal — ALLUVIUM – Stream-valley deposits, mostly unconsolidated poorly sorted polymict gravel; locally gold-bearing

Q — TALUS – Subangular boulders and cobbles in lithosol matrix derived from underlying and upslope bedrock; accumulates on moderate slopes and creeps downslope by solifluction

TERTIARY

Tsl — LATERITE – Ferruginous capping on serpentinite, formed by deep secular weathering during the late Tertiary (Pliocene?)

Tal — ALLUVIUM – Remnants of stream-channel deposits, poorly to moderately well consolidated, preserved on upland terraces; locally gold-bearing

T — UNDIFFERENTIATED CLASTIC SEDIMENTS – Moderately well consolidated but friable sandstone, conglomerate, mudstone, and shale; local lignite beds

IGNEOUS ROCKS

Tap — ANDESITE PORPHYRY – Andesine phenocrysts in felty groundmass; single hypabyssal intrusive lens along Romeral Fault

Tdh, Tqd, Th — SABANALARGA PLUTON
Tdh, Hornblende diorite. Gray equigranular medium-grained rock composed of calcic plagioclase and hornblende
Tqd, Tonalite. Quartz- and biotite-rich facies of Tdh
Th, Hornblendite. Hornblende-rich facies of Tdh; may be a hybrid by assimilation of greenschist which it intrudes

CRETACEOUS — Upper Cretaceous

Kqd, Kda, Kqdg — ANTIOQUIAN BATHOLITH
Kqd, Hornblende-biotite tonalite. Main batholith facies; gray, medium-grained tonalite. K-Ar age 79±3 m.y. to 73± m.y.
Kda, Hybrid dacite porphyry. Dark greenish-gray medium- to fine-grained, border facies of Kqd. Formed by palingenesis and assimilation of San Pablo Formation
Kqdg, Hornblende gabbro. Mafic border facies of Kqd

Kat — FELSIC TONALITE – Light-gray medium-grained biotite tonalite

Ktp — PESCADO TONALITE – Gray fine- to medium-grained biotite tonalite. One K-Ar determination indicates Cenomanian Age (95.6±3.3 m.y.)

Kld, Kv — GREENSTONE
Kv, Metabasalt and associated pyroclastic rocks. Heterogeneous assemblage of submarine basalt flows; palagonitic and devitrified glassy flow breccia; hypabyssal intrusive tholeiitic basalt; mafic agglomerate and tuff; local intrusive quartz diorite.
Kld, Interbedded chert and fine-grained clastic rocks. Lenses of dark radiolarian chert, siltstone, and fine-grained graywacke within Kv

Kgn — CATACLASTIC GRANITE – Leucocratic granite dike with cataclastic texture; minor satellitic bodies

K — UNDIFFERENTIATED SEDIMENTARY ROCKS – Flysch assemblage of quartzose argillite, graywacke, and polymict conglomerate; local chert beds

Ksh, Ka, Kc — LA SOLEDAD FORMATION
Ksh, Argillite-shale facies. Dark-gray very fine grained finely laminated quartzose shale and argillite; local breccia layers may be turbidites
Ka, Arenite facies. Basal unit of gray arkosic sandstone with silty chlorite-sericite matrix carbonaceous pigment, local cherty layers
Kc, Conglomerate facies. Lenses of oligomictic quartz-pebble and quartz-cobble conglomerate in the argillite-shale facies

Lower Cretaceous

Ks — SERPENTINITE – Ultramafic bodies, mostly serpentinized, believed probably contemporaneous with Lower Cretaceous metagabbro; locally contains asbestos

Kg, Kgh — MAFIC INTRUSIVE ROCKS
Kg, Metagabbro. Medium- to fine-grained greenstone, locally foliated; composed of strongly saussuritized calcic plagioclase and uralitized pyroxene
Kgh, Hornblendic metagabbro. Hornblende commonly predominates over actinolite

Krv — METABASALT – Massive submarine basalt flows altered to greenstone; sodic feldspar common (spilitic?)

Kap, Kac — SAN PABLO FORMATION
Kap, Sandstone-argillite-phyllite facies. Predominantly dark-gray medium- to fine-grained quartzitic sandstone interbedded with very fine grained pelitic sedimentary rocks, now slightly metamorphosed to argillite and satiny-lustered phyllite
Kac, Sandstone-conglomerate facies. Predominantly coarse-grained gray quartzitic sandstone, pebble and cobble conglomerate with local phyllite or argillite intercalations

PALEOZOIC

Pmt, Pnm, Pntc, Pn — PALEOZOIC INTRUSIVE ROCKS
Pmt, Puqui Metatonalite. Medium- to dark-gray rock with composition and texture of tonalite, but locally containing accessory garnet, hypersthene, sillimanite, and cordierite; associated with micaceous paragneiss. K-Ar age 239±7 m.y.
Pnm, Porphyroblastic adamellite gneiss. Syntectonic intrusive dark-gray quartz-feldspar gneiss with large porphyroblasts of orthoclase. Age uncertain, but possibly contemporaneous with Puqui Metatonalite
Pntc, Tonalitic cataclastic gneiss. Syntectonic intrusive gray gneiss, variable in composition, but generally tonalitic; cataclastic texture common. Age uncertain, but possibly contemporaneous with Puqui Metatonalite
Pn, Porphyroblastic gneiss. Gray to brown orthogneiss(?), typically with 1- to 4-cm porphyroblasts of albite and quartz in fine-grained gnarly foliated matrix of quartz, feldspar, and mica; locally is host for steatitized ultramafic lenses. Age uncertain, but possibly penecontemporaneous with Puqui Metatonalite

Pei, Pes, Pec, Pnc, Pnl, Pnf — VALDIVIA GROUP
Pes, Quartz-sericite schist. Dark-gray to black fine-grained quartzose schist with very thin laminae of sericite, biotite, and chlorite; graphite dust pigment
Pec, Chlorite-actinolite schist. Medium- to dark-grayish green fine-grained schist composed mainly of chlorite, actinolite, albite, and epidote; sphene and magnetite accessory minerals; manganese oxide stain common on weathered surfaces
Pei, Intercalated schists. Subequally intercalated quartz-sericite and chlorite-actinolite schist. Neither type is clearly dominant
Pnc, Cataclastic gneiss. Mylonitic-textured quartzose paragneiss with plagioclase, epidote, muscovite, sericite, and chlorite
Pnl, Augen gneiss. Quartzose paragneiss with 1- to 4-cm "augen" of quartz and sodic feldspar separated by gnarly laminae of fine-grained feldspar, quartz, sericite, and chlorite; minor accessory minerals of chloritoid, epidote, sphene, garnet, calcite, magnetite, and pyrite; rare sillimanite; cataclastic texture generally pervasive
Pnf, Feldspathic gneiss. Light- to dark-gray medium- to coarse-grained layered sodic feldspar-quartz paragneiss with biotite and chlorite in darker bands; garnet and graphite common accessory minerals; local minor accessory cordierite and sillimanite

Pa — AMPHIBOLITE – Elongate bodies of uncertain origin. May include para-amphibolite as well as orthoamphibolite

Pnp — MICACEOUS GNEISS – Gray quartz-feldspar-mica paragneiss, locally with graphite flakes and garnet. The oldest unit on the map, probably early Paleozoic (Cambrian(?)-Silurian(?)), but a Precambrian age is possible

EXPLANATION OF SYMBOLS

Contact – Long dashed where approximately located, short dashed where gradational, dotted where concealed

Fault – Long dashed where approximately located; dotted where concealed. L, up; H, down

Fault breccia

Photogeologic lineament – May be fault, major joint, or fracture zone

Folds – Showing trace of axial plane
Anticline
Syncline

Strike and dip of beds
Inclined
Vertical

Strike and direction of dip of beds

Strike and dip of foliation in metamorphic rocks
Inclined
Vertical
Horizontal

Strike and direction of dip of foliation in metamorphic rocks

Strike and dip of joints
Inclined
Vertical
Horizontal

Strike and direction of dip of joints

Bearing and plunge of flow lineation

Contact–metamorphic aureole

Fossil locality

Mines and quarries
Active mine or quarry
Abandoned mine or quarry
Mine or pit in alluvium, abandoned

Prospect

Outcrop

Location of samples dated radiometrically

Mineral localities:
pir, Pyrite
peg, Pegmatite
t, Talc
Au, Gold
asb, Asbestos
Al, Gibbsitiferous clay
bal, Aggregate
Cu, Copper
cal, Limestone
Fe, Iron
fels, Feldspar
Ni, Nickel

Metamorphic minerals:
Ap, Andalusite porphyroblasts
A, Andalusite, microscopic
G, Garnet
C, Cordierite
Si, Sillimanite

5–11–15 17	18–20	5–15	20	4–9–12 16
10–16–21	18–20	5–15–17	7	4–7–9–12
16	11	5–15–16	2–20	2–9
17	16	6–16–19	16	2
17	16–17	1–6–16	14–20	8
17	6–13–17	13	1–16–20	3
6	1	13	2	2
6	3	20	1	13

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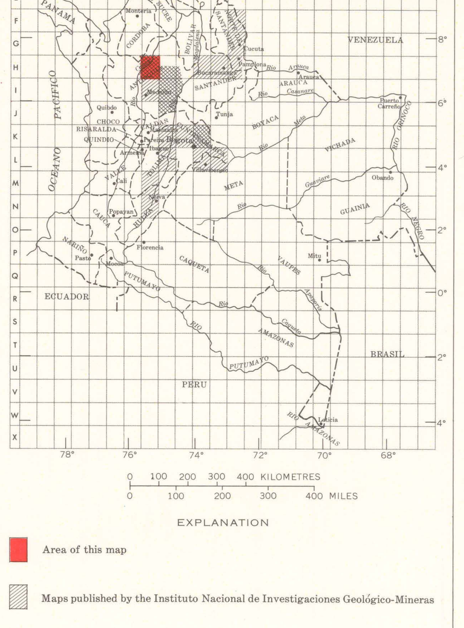
Photogeologic interpretation by Taissir Kassem



0 100 200 300 400 KILOMETRES
0 100 200 300 400 MILES

EXPLANATION

Area of this map

Maps published by the Instituto Nacional de Investigaciones Geológico-Mineras

Maps published by the U.S. Geological Survey

INDEX MAP SHOWING PUBLISHED GEOLOGIC QUADRANGLE MAPS

GEOLOGIC MAP OF THE YARUMAL QUADRANGLE (H–8) AND PART OF THE ITUANGO QUADRANGLE (H–7), COLOMBIA

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in collaboration with Robert B. Hall and Lawrence V. Blade, U.S. Geological Survey

1975

For sale by U.S. Geological Survey, Reston, Virginia 22092, price $1.25