

### EXPLANATION

#### STRATIFIED ROCKS

**Qol** Alluvium  
**Qd** Colluvium, talus, landslide deposits  
**Qif** Terraces and alluvial fan deposits

**NOMENCLATURE FOR THE MIDDLE MAGDALENA VALLEY**

**NOMENCLATURE FOR THE MARACAIBO BASIN**

**Unconformity**

**U** UMIR FORMATION—Soft, dark-gray to greenish-gray shale, with thin limestone beds; layers of coal in upper part

**U** LA LUNA FORMATION  
Galebo Member: Black, hard, calcareous shale with thin chert beds and ammonite-bearing limestone concretions; phosphatic beds in lower part  
Pujama Member: Gray to black, calcareous shale  
Salada Member: Black, hard, calcareous shale, with a few thin beds of black limestone and pyritic lenses and concretions

**U** SIMITI FORMATION—Dark-gray, calcareous shale

**U** TABLAZO FORMATION—Gray limestone, sandy to clayey, fossiliferous, fine-grained sandstone and gray shale

**U** PAJA FORMATION—Black, soft, thin-bedded shale

**U** ROSA BLANCA FORMATION—Dark-gray, massive, fossiliferous and dark-gray shale

**U** TAMBOR FORMATION  
Upper part: Light-colored quartz sandstone, with conglomeratic beds  
Lower part: Reddish-brown siltstone and shale

**U** GIRON FORMATION—Yellowish-brown to reddish-brown, massive and lenticular conglomeratic sandstone and conglomerate; reddish-brown siltstone

**U** JORDAN FORMATION—Reddish-brown siltstone and fine-grained sandstone; somewhat calcareous in the more indurated beds

**U** FLORESTA FORMATION—Yellowish-gray siltstone, shale, and argillite, locally phyllitic, and fine-grained sandstone; black phyllite, and black and gray limestone

**U** SILGARA FORMATION—Phyllite, schist, and quartzite of low to medium metamorphic grade

**U** BUCARAMANGA GNEISS—Layered paragneiss and migmatite of high metamorphic grade, locally with small masses of orthogneiss

**U** CARBONERA FORMATION—Gray to brown shale, sandstone, and siltstone; thin beds of coal in lower part

**U** MIRADOR FORMATION—Light-colored, hard, fine- to medium-grained sandstone, in massive beds; some siltstone beds

**U** LOS CUERVOS FORMATION—Carbonaceous siltstone and dark-gray shale, with beds of light-colored, fine-grained to argillaceous sandstone; beds of coal in lower part

**U** BARCO FORMATION—Yellowish- to grayish-brown, hard, fine-grained sandstone, sandy to shaly siltstone

**U** COLON AND MITO JUAN FORMATIONS  
Mito Juan: Gray to greenish-gray shale, some silty to sandy beds, limonite nodules; dark gray in the upper part with thin beds of coal  
Colon: Gray to dark-gray, somewhat calcareous, foraminiferal shale; nodules and lenses of limonite

**U** LA LUNA FORMATION  
Upper part: Dark-gray to black, foraminiferal, limestone, thin-bedded siliceous shale and chert, phosphatic beds in upper part  
Lower part: Black calcareous shale with concretions; thin-bedded gray limestone

**U** CAPACHO FORMATION—Dark-gray to black shale, and massive and fossiliferous gray limestone in upper and lower parts

**U** AGUARDIENTE FORMATION—Light-colored, hard, fine- to coarse-grained sandstone, with some siltstone and carbonaceous shale

**U** TIBU AND MERCEDES FORMATIONS  
Mercedes: Gray, fossiliferous, sandy limestone; dark-gray shale and sandstone  
Tibu: Gray, fossiliferous limestone, and dark-gray shale; light-colored coarse-grained to conglomeric quartzitic sandstone at the base

#### IGNEOUS ROCKS

**g** Pascadero Granite; orange-pink, fine- to medium-grained granite and alkalis  
**g** Santa Barbara Quartz Monzonite; orange-pink, coarse-grained, biotite quartz monzonite  
**g** Light-gray to orange-pink, medium-grained, alaskitic quartz monzonite  
**g** Gray, porphyritic, medium-grained, equigranular granodiorite  
**g** La Corcova Quartz Monzonite; light-gray, fine-grained, biotite quartz monzonite

**g** Tonalite  
**g** Diorite

**g** ORTHOGNEISS—Quartz monzonite and granodiorite gneiss

#### EXPLANATION OF SYMBOLS

--- Contact—Long dash where approximate, short dash where inferred or gradational

--- Fault—Dashed where inferred, dotted where concealed. Arrows indicate relative movement. L, upthrown; H, downthrown

--- Folds—Showing trace of axial plane and direction of plunge

--- Anticline  
--- Syncline

--- Strike and dip of beds—Measured in field. Values given where known

--- Inclined  
--- Overturned  
--- Vertical  
--- Horizontal

--- Strike and dip of beds—Measured on aerial photographs. Dip range indicated

--- Less than 3°  
--- 3° to 10°  
--- 10° to 25°  
--- 25° to 45°  
--- More than 45°

--- Strike and dip of foliation of metamorphic rocks—Dip values given where known

--- Inclined  
--- Vertical

--- Strike and dip of cleavage  
--- Inclined

--- Strike and plunge of lineation  
--- Mineral lineation

--- Metamorphic isograd

--- Quartz vein

--- Dike—s, apite; po, porphyry (rhynolite to delonite); an, andesite; r, rhyolite

--- Fossil locality

--- Mines

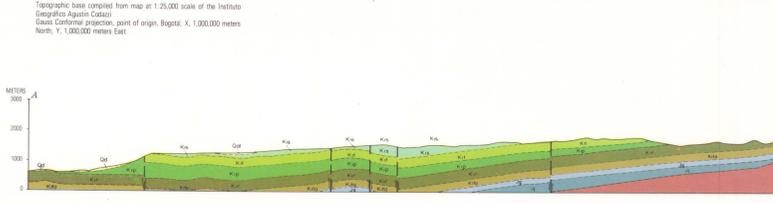
--- Prospect

--- Barite

--- Coal

--- Iron

--- Gypsum



## GEOLOGIC MAP OF PARTS OF THE SAN GIL AND MALAGA QUADRANGLES (I-12 AND I-13), COLOMBIA

By  
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3-7-9	1-4-5-7 -9-10	5-10	1-9-10
7-9	7-9-10	8-10	6-9-10
	3-9	5-10	1-9-10
	2-9	2-10	6-10

GEOLOGISTS: Number showing principal contribution underlined

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