



GEOLOGIC MAP OF EASTERN ANTIOQUIA DEPARTMENT, COLOMBIA QUADRANGLE I-9, AND PARTS OF QUADRANGLES H-9, H-10, I-10, J-9, AND J-10

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EXPLANATION

STRATIFIED ROCKS

- ALLUVIUM—Includes colluvium in highland valleys, pattern indicates alluvium mined for gold
- ALLUVIUM—Weathered gravel in the highlands of Anzá and Anser, pattern indicates alluvium mined for gold
- TERTIARY BEDS, UNDIFFERENTIATED—Sandstone, conglomerate, and shale in Magdalena valley. Includes old terrace gravel locally

INTRUSIVE ROCKS

- MILKY QUARTZ
- TRES MUNDOS GRANODIORITE
- AQUITANIA QUARTZ MONZONITE
- DIKE ROCKS
- QUARTZ DIORITE
- DACTITE
- APLITE
- PEGMATITE
- ANTIOQUIAN BATHOLITH
- SOISSON BATHOLITH
- ADAMELITE
- ULTRAMAFIC ROCKS
- IGNEOUS ROCKS, MAINLY EAST OF OTU FAULT
- SAN FRANCISCO BOHLENLENDE GABBRO
- INTRUSIVE GNEISS—Felsitic and gneissic quartz diorite with two micaceous inclusions some metamorphic rocks of the Central Cordillera: *of, a, na, and es*

SEDIMENTARY AND VOLCANIC ROCKS

- MAH, black shale with some gray sandstone and conglomerate
- KG, conglomerate
- KV, volcanic rocks, predominantly intermediate and mafic; areas mapped include up to a third Ksh
- Kca, limestone
- VOLCANIC ROCKS OF FELSIC TO INTERMEDIATE COMPOSITION, EAST OF OTU FAULT
- va, aphanitic or fine grained
- va, aphanitic or fine grained
- MEGACRYSTALLINE GNEISS
- en, quartz-sulfate graphitic schist with layers of chloritic schist
- ba, metamorphic rock of low grade, undifferentiated
- rv, feldspathic and aluminous gneiss, includes migmatite and some intrusive gneiss (ni)
- rv, ni with accessory to conspicuous hornblende, includes some amphibole (ie, a)
- rv, quartzite, dark biotitic quartzite, and quartzite gneiss
- rv, calc-silicate gneiss, includes some marble (m)
- a, amphibole
- rv, granatose
- m, marble
- s, schist
- MEGACRYSTALLINE GNEISS
- O, argillite and fine-grained orthoquartzite
- Ca, marble
- MEGACRYSTALLINE GNEISS EAST OF OTU FAULT
- pr, orthoquartzite gneiss
- prCa, amphibolite
- prCa, marble

Other lines and symbols

- Contact—Long dashes where approximately located, short dashes where gradational, dotted where concealed
- Faults—Dashed where approximately located, quartered where probable or uncertain, dotted where concealed. Arrows show relative direction of movement. L, up; H, down
- Intrusion fault—Broken where approximate
- Photogeologic lineament in the Antioquian batholith
- Fault breccia
- Regional folds
- Anticline
- Syncline
- Strike and dip of beds
- Value given where known
- Inclined
- Vertical
- Horizontal
- Strike and dip of foliation in metamorphic rocks
- Value given where known
- Inclined
- Vertical
- Horizontal
- Strike and dip of dikes
- Inclined
- Vertical
- Horizontal
- Strike and dip of joints
- Value given where known
- Inclined
- Vertical
- Horizontal
- Locations of minerals in metamorphic rocks
- Gently plunging
- Vertical
- Horizontal

Other lines and symbols

- Note: Linear and planar symbols may be combined
- Linear inclusion in igneous rocks, showing direction of plunge and value where known
- Minor fold axis in metamorphic rocks, showing direction of plunge and value where known
- Horizontal linear inclusions in igneous rocks
- Shear zone
- Ingral—Metamorphic facies on each side shown on map
- Fossil locality
- Mine, quarry, or prospect
- Active mine or quarry
- Abandoned mine or quarry
- Prospect or outcrop

Mineral deposits and metamorphic minerals:

- sa, aggregate
- ca, calcite
- li, limestone
- au, gold
- ag, silver
- py, iron (from one)
- a, amphibole
- co, corundum
- ch, chloritoid
- cl, clinopyroxene
- di, diopside
- ph, phlogopite
- g, garnet
- sp, spinel
- si, sillimanite
- st, staurolite
- tr, tremolite
- v, vesuvianite
- vo, wollastonite
- z, zircon

Note: Underlined letters indicate that minerals are replaced by a secondary mineral; for example: C Cordierite replaced by plagioclase; S Sillimanite replaced by sericite

On both sides of Rio Guatapé (h-30), the dotted area represents residual deposits of milky quartz containing surficial sulfide minerals

Public property east of Otu fault

INDEX OF MAPPING RESPONSIBILITY

3-8	5	9-9-4	9-11-4-7	11-10-4	10
8	5	9-7-9	7-9-16	12	10-11-7
12	8	7-8-13-6	8-13-16	12-15-10	
12-13	8-7-2-13	7-8-13	8-13-16	8-13-10	10
		12-5-15	12-15-10		
1-13	12-13-11	12-11-7	12-16-7	15-10	10
		11	12-16-7		
1-14	12-8-13	12-10-7	12-16-7	12-15	10
		11	12-16-7		
15-1-14	8-13	16-7-12	10-16-7	12-15	
		15	12-15		
15	8-13	16-7-12	15	10	

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INDEX OF MAPPING RESPONSIBILITY

EXPLANATION

- Area of this map
- Map published by the Instituto Nacional de Investigaciones Geológico-Mineras
- Map published by the U.S. Geological Survey

INDEX MAP SHOWING PUBLISHED GEOLOGIC QUADRANGLE MAPS