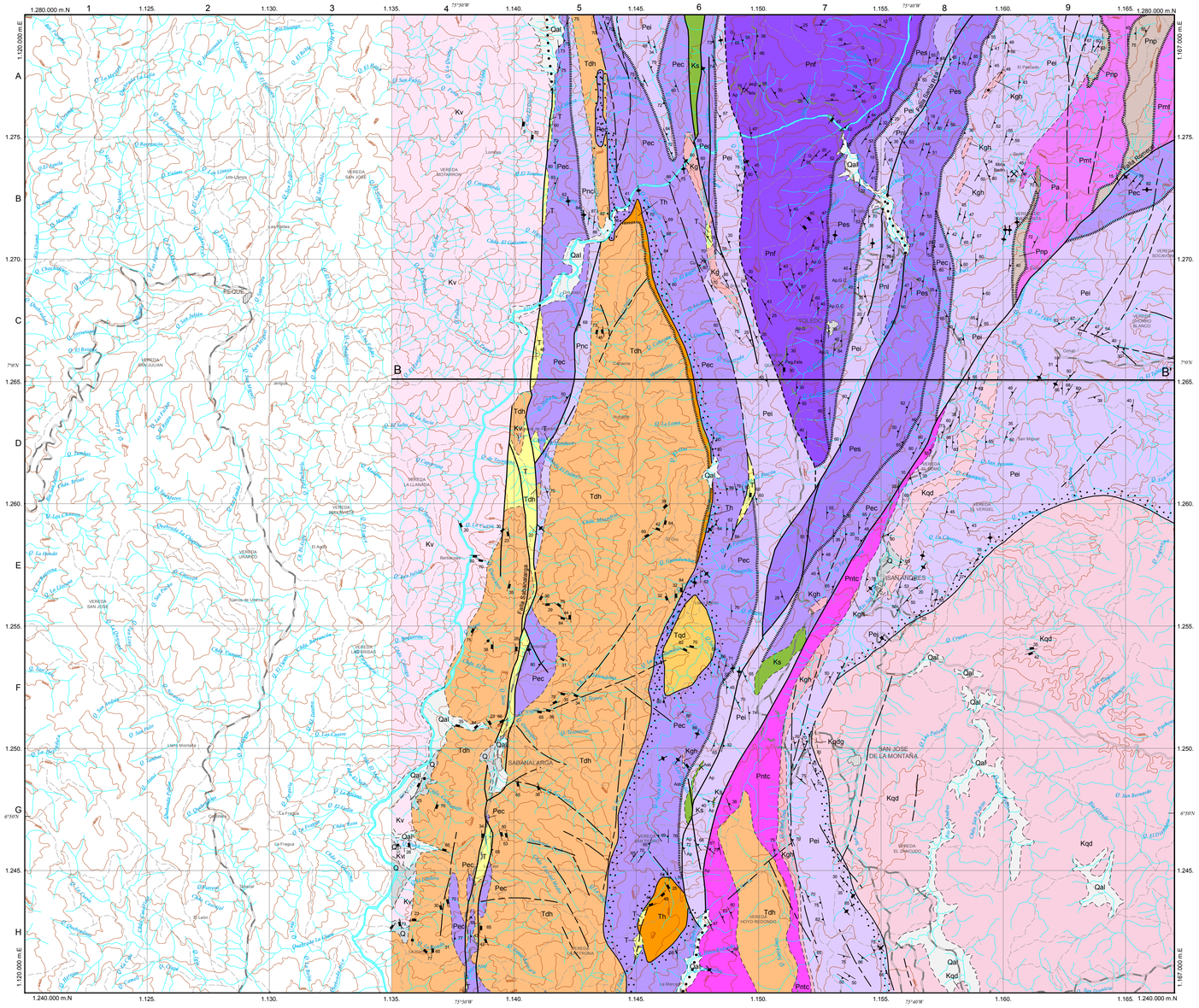



## LEYENDA GEOLÓGICA

### CENOZOIC

#### QUATERNARY

**DEPOSITS AND SEDIMENTARY ROCKS**

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 soil-fluction.

T

UNDIFFERENTIATED CLASTIC SEDIMENTS

Moderately well consolidated but friable sandstone, conglomerate, mudstone, and shale; local lignite beds.

#### TERTIARY

**IGNEOUS ROCKS**

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.

Kqd
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.

Kqdg: Hornblende gabbro.Mafic border facies of Kqd.

### CRETACEOUS

#### Upper / Late

Kv

GREENSTONE

Kv: Metabasalt and associated pyroclastic rocks. Heterogeneous assemblage of submarine basalt flows; palagonitic and devitrified glassy flow breccia; hyalopsal intrusive tholeiitic basalt; mafic agglomerate and tuff; local intrusive quartz diorite.

Kgn

CATACLASTIC GRANITE

Leucocratic granite dike with cataclastic texture; minor satellitic bodies.

Kg
Kgh

MAFIC INTRUSIVE ROCKS

Kg: Metagabbro. Medium-to fine-grined greenstone, locally foliated; composed of strongly saussuritized calcic plagioclase and uralitized pyroxene.

Kgh: Hornblendic metagabbro. Hornblende commonly predominates ovér actinolite.

#### Lower / Early

**METAMORPHIC ROCKS**

Ks

SERPENTINITE

Ultramafic bodies, mostly serpentinized, believed probably contemporaneous with Lower Cretaceous metagabbro; locally contains asbestos.

Pmt
Pntc

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.

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.

### PALEOZOIC

Pei
Pec
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.

Pnf: 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.

### PRECAMBRIAN

Pa

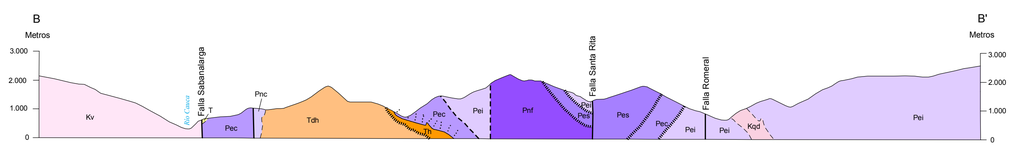
AMPHIBOLITE

Elongate bodies of uncertain origin. May include para-amphibolite as well as orthoamphibolite.

Pnp

MICACEOUS GNEISS

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




### CONTACTOS Y FALLAS

- Falla definida
- Falla inferida
- Falla cubierta
- Lineamiento fotogeológico
- Contacto inferido
- Contacto gradacional apróximado
- Aureola de contacto

### DATOS MEDIDOS EN ROCAS SEDIMENTARIAS

- 15 Capa inclinada

### EN ROCAS METAMÓRFICAS

- Foliación inclinada
- Foliación vertical

### DIACLASAS

- Diaclasa inclinada
- Diaclasa vertical

### MINAS Y MANIFESTACIONES MINERALES

- Mina activa
- Manifestación mineral

Mineral Localities
peg: Pegmatite
Asb: Asbestos
Cu: Copper
cal: Limestone
fels: Fesdspar

Metamorphic minerals:
Ap: Andalusite porphyroblasts
C: Cordierite
G: Garnet

### BASE CARTOGRÁFICA

- Área construida
- Drenaje doble, laguna, cuerpo de agua
- Límite departamental
- Curva de nivel
- Drenaje sencillo, canal
- Carretera transitable en tiempo seco
- Carretera transitable todo el año
- Camino, sendero
- Construcción

### ÍNDICE DE PARTICIPACIÓN

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| 6 | 3, 4, 6 | 4 |
| 3 | 1 | 4 |
| 3 | 2 | 7 |

1. Eduardo Álvarez G.
2. Rodrigo Álvarez A.
3. Jaime Durán G.
4. Jairo Londoño A.
5. Francisco Mosquera M.
6. Jorge E. Muñoz C.
7. Darío Velásquez H.

Interpretación fotogeológica por Taissir Kassem

### ÍNDICE DE LOCALIZACIÓN

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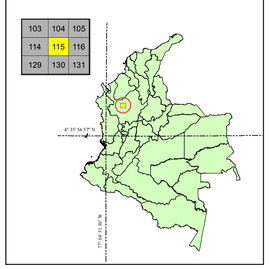


Libertad y Orden

REPÚBLICA DE COLOMBIA
MINISTERIO DE MINAS Y ENERGÍA
**Instituto Colombiano de Geología y Minería**
**INGEOMINAS**

# Geología de la Plancha 115 Toledo

Por:

Jairo Álvarez A., Héctor Rico H., Hernán Vásquez, Ingeominas,
en colaboración con Robert B. Hall y Lawrence V. Blade,
U.S. Geological Survey

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Versión digital 2010

Escala 1: 100.000

0 1 2 3 4 5 6 7 8 9 10 Km

Tomado de los Cuadrángulos (H-8) Yarumal y Parte del (H-7) Ituango.

Base cartográfica tomada de las planchas a escala 1:100.000 del IGAC - 2008
Proyección Bogotá
DATUM BOGOTÁ
ORIGEN EN LA ZONA OESTE
Coordenadas Geográficas: 4°35'56.57" N, 77°04'51.30" W
Coordenadas Planas: N = 1'000.000, E = 1'000.000