GEOLOGIC MAP OF THE FRISCO QUADRANGLE, SUMMIT COUNTY, COLORADO

By

Karl S. Kellogg, Paul J. Bartos, and Cindy L. Williams

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MISCELLANEOUS FIELD STUDIES MAP MF-2340
Version 1.0
Pamphlet accompanies map

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

Base from U.S. Geological Survey, 1970
Photorevised 1987
Polyconic projection; longitude of central meridian 105.5°
North American Datum of 1927; 10,000-foot grid based on
Colorado coordinate system, central zone; 1,000-meter grid ticks, zone 13

Geology mapped 1997-98; assisted in the field by A.M. Licamelli.
Sharon Smith, R.G. Kuehn, and K.S. Morgan assisted with preparation of the digital files

Digital map layout by Bill Sowers
Preparation of GIS files for map layout by Nancy Shock

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For sale by U.S. Geological Survey Information Services
Box 25286, Federal Center, Denver, CO 80225

This map was produced on request, directly from
digital files, on an electronic plotter. It is also
available as a PDF file at http://geology.cr.usgs.gov

CONTOUR INTERVAL 40 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

LIST OF MAP UNITS

af Artificial fill (recent)

dt Dredge tailings (recent)

Qal Alluvium (Holocene)

Qw Wetland deposits (Holocene)

Qav Avalanche deposits (Holocene)

Qry Active rock-glacier deposits (Holocene)

Qr Inactive rock-glacier deposits (Holocene and upper Pleistocene)

Qtr Travertine (Holocene)

Qf Fan deposits (Holocene and upper Pleistocene)

Qt Talus (Holocene and upper Pleistocene)

Qc Colluvium (Holocene and upper Pleistocene)

Qac Alluvium and colluvium, undivided (Holocene and upper Pleistocene)

Qls Younger landslide deposits (Holocene and upper Pleistocene)

Qls(Kb) Large landslide deposit composed entirely of Benton Shale

Qg Terrace gravel (Holocene to middle Pleistocene)

Qop Pinedale outwash deposits (upper Pleistocene)

Qtp Till of Pinedale glaciation (upper Pleistocene)

Qtb Till of Bull Lake glaciation (middle Pleistocene)

Qgo Older outwash gravel (middle or lower Pleistocene)

QTd Diamicton (middle Pleistocene to Pliocene?)

QTgm Bouldery gravel of Mesa Cortina (“Buffalo placers”) (middle Pleistocene to Pliocene?)

QTgg Bouldery gravel of Gold Run (middle or lower Pleistocene to Pliocene)

QTls Older landslide deposits (middle Pleistocene to Pliocene)

Tqp Quartz monzonite porphyry (Eocene)

Tmp Hornblende-biotite monzonite porphyry (Eocene)

Pierre Shale (Upper Cretaceous)

Kpm *Shale and sandstone member*

Kps *Kremmling Sandstone Member*

Kpl *Lower shale member*

Kn Niobrara Formation (Upper Cretaceous)

Kb Benton Shale (Upper Cretaceous)

Kd Dakota Sandstone (Lower Cretaceous)

Jm Morrison Formation (Upper Jurassic)

Je Entrada Sandstone (Middle Jurassic)

dhcm Chinle (Upper Triassic) and Maroon Formations (Lower Permian to Middle Pennsylvanian), undivided

Proterozoic rocks

YXu Early Proterozoic rocks, undivided—Shown on cross sections only

YXdi Diorite (Middle and Lower Proterozoic)

YXp Pegmatite (Middle and Lower Proterozoic)

Lower Proterozoic rocks

Routt Plutonic Suite

Xgg *Granitic gneiss*

Xgd Granodiorite

Xmg Migmatite

Xhpg Amphibolite and hornblende-plagioclase gneiss

Xbg Biotite gneiss

Xum Ultramafic rock

MAP SYMBOLS

Contact—Dashed on map where approximately located; dotted where concealed

Normal fault—Showing dip. Dashed where approximately located; dotted where concealed Bar and ball on down thrown side

Thrust fault—Dashed where approximately located; dotted where concealed. Teeth on upper plate

Strike-slip fault—Showing relative movement; dashed where approximately located

Anticline or antiform—Showing trace of axial plane

Syncline or synform—Showing trace of axial plane

Strike and dip of beds

Inclined

Strike and dip of jointing

Inclined

Strike and dip of foliation

Inclined

Vertical

Strike and dip of foliation and bearing and plunge of lineation—Lineation defined by aligned mineral grains, mullion structures, and small fold axes. In most cases, lineation interpreted to be stretching direction during ductile deformation

Quartz vein—Commonly vuggy, showing multiple growth stages; as wide as about 5 m; locally mineralized by sulfide minerals