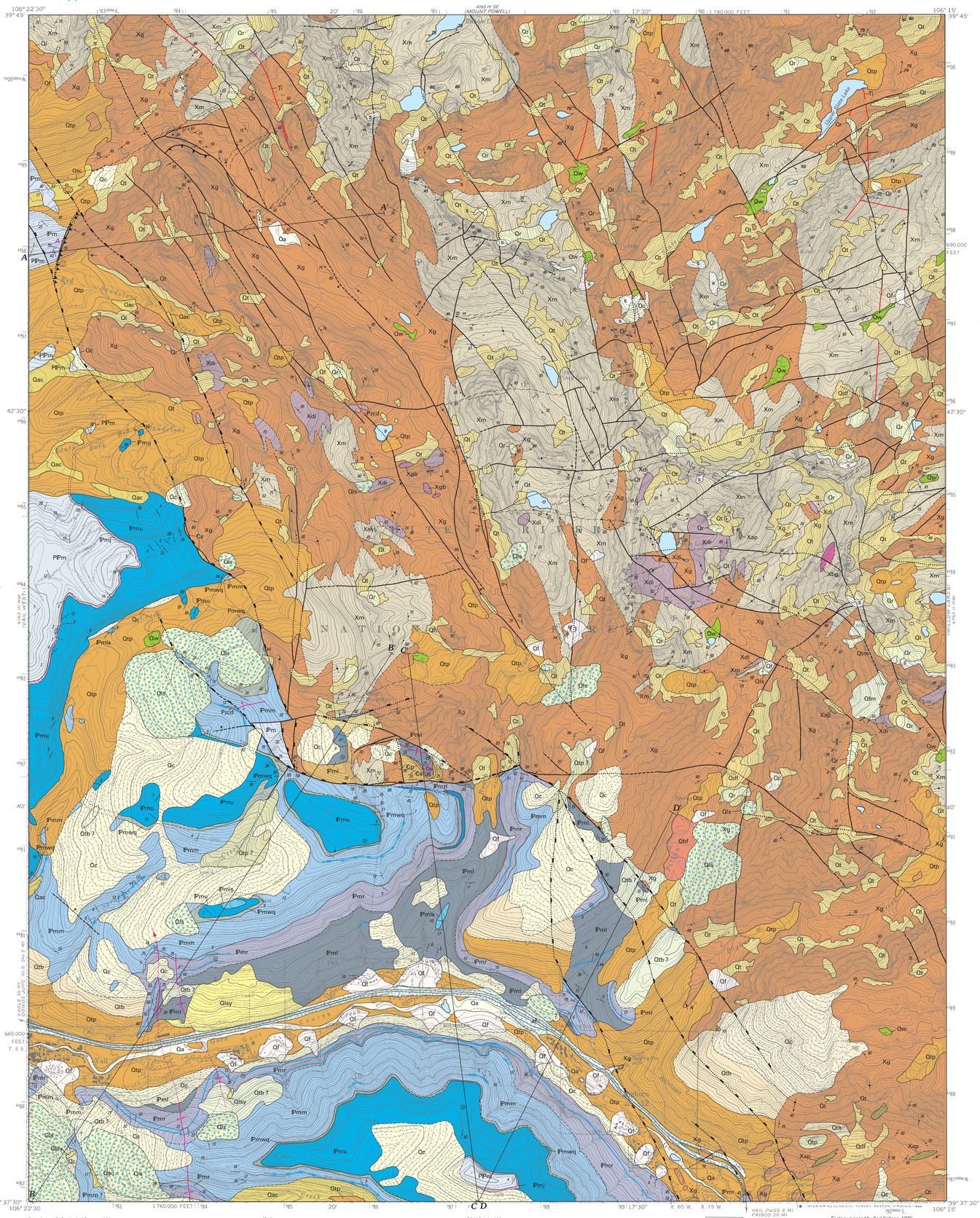
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

MISCELLANEOUS FIELD STUDIES MAP MF–2375
Version 1.0
Pamphlet accompanies map



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

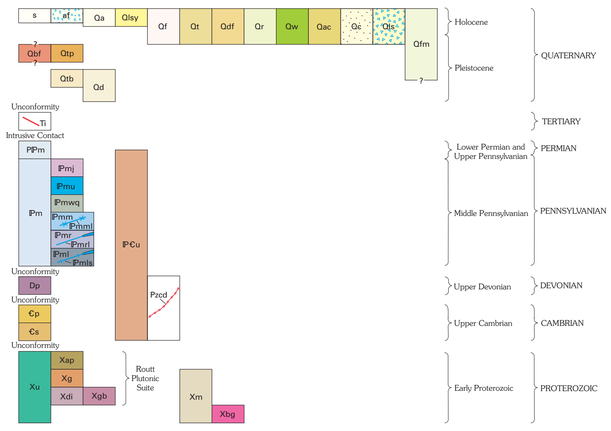
APPROXIMATE MEAN DECLINATION, 2002

SCALE 1:24 000
1 MILE
1 KILOMETER
CONTOUR INTERVAL 40 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

COLORADO
QUADRANGLE LOCATION

Geology mapped by Karl Kellogg, 1999; assisted in the field by G. Murray
Digital map layout by Bill Sowers
Preparation of GIS Files for map layout by Nancy Shock
Edited by F. Craig Brunstein
Manuscript approved for publication October 15, 2002

CORRELATION OF MAP UNITS



LIST OF MAP UNITS

- s — **Snowfield (latest Holocene)**
- af — **Artificial fill (latest Holocene)**
- Qa — **Alluvium (Holocene)**
- Qlsy — **Recent landslide deposits (Holocene)**
- Qf — **Fan deposits (Holocene and upper Pleistocene)**
- Qt — **Talus (Holocene and upper Pleistocene)**
- Qdf — **Debris-flow deposits (Holocene and upper Pleistocene)**
- Qr — **Rock-glacier deposits (Holocene and upper Pleistocene)**
- Qw — **Wetland deposits (Holocene and upper Pleistocene)**
- Qac — **Alluvium and colluvium, undivided (Holocene and upper Pleistocene)**
- Qc — **Colluvium (Holocene and upper Pleistocene)**
- Qls — **Landslide deposits (Holocene and upper Pleistocene)**
- Qfm — **Felsenmeer (Holocene and Pleistocene)**
- Qbf — **Boulder field (upper? Pleistocene)**
- Qtp — **Pinedale Till (upper Pleistocene)**
- Qtb — **Bull Lake Till (middle Pleistocene)**
- Qd — **Diamicton (middle to lower Pleistocene)**
- Ti — **Dike rocks of intermediate to felsic composition (Tertiary)**
- PPm — **Maroon Formation (Lower Permian to Middle Pennsylvanian)**
- IPm — **Minturn Formation, undifferentiated (Middle Pennsylvanian)**
- IPmj — **Jacque Mountain Limestone Member**
- IPmu — **Upper sandstone and conglomerate member**
- IPmwq — **White Quail Limestone Member**
- IPmm — **Middle member**
- IPmml — **Individual limestone bed**
- IPmr — **Robinson Limestone Member**
- IPmrl — **Individual limestone bed**
- IPml — **Lower member**
- IPmls — **Individual limestone bed**
- IPCu — **Pennsylvanian to Cambrian units, undifferentiated**—Shown on cross section B-B' only
- Pzcd — **Clastic dike (lower Paleozoic?)**
- Dp — **Parting Formation (Upper Devonian)**
- Cp — **Peerless Formation (Upper Cambrian)**
- Cs — **Sawatch Quartzite (Upper Cambrian)**

EARLY PROTEROZOIC ROCKS

- Xu — **Early Proterozoic rocks, undifferentiated**—Shown only in cross sections

Rocks of the Cross Creek batholith (Early Proterozoic)

- Xap — **Aplitic granite**
- Xg — **Cross Creek Granite**
- Xdi — **Diorite**
- Xgb — **Gabbro**
- Xm — **Migmatitic biotite gneiss (Early Proterozoic)**
- Xbg — **Biotite gneiss (Early Proterozoic)**

- **Contact**—Dashed where approximately located; dotted where concealed; showing dip where known
- **Fault or prominent fracture**—Dashed where approximately located; dotted where concealed. Showing dip where known. For some faults, no apparent offset interpreted from air photographs
- **Normal fault**—Dashed where approximately located; dotted where concealed. Ball and bar on downthrown side. Dip of fault plane shown where known
- **Reverse fault**—Dashed where approximately located; dotted where concealed; rectangles on upper plate
- **Thrust fault**—Dotted where concealed. Teeth on upper plate. Dip of fault plane shown where known
- **Strike-slip fault**—Dashed where approximately located; dotted where concealed; arrows show relative slip direction
- **Mylonitic shear**—Generally parallel to Proterozoic Homestake shear zone (Tweto and Sims, 1963)
- **Anticline**—Showing trace of axial plane. Dotted where concealed
- **Syncline**—Showing trace of axial plane. Dotted where concealed

Strike and dip of beds
- **Inclined**
- **Vertical**
- **Overturned**
- **Horizontal**

Approximate strike and dip of beds
- **Inclined**

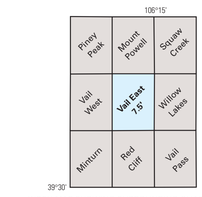
Strike and dip of foliation
- **Inclined**
- **Vertical**
- **Bearing and plunge of lineation**
- **Strike and dip of foliation and bearing and plunge of associated lineation**

Strike and dip of small fault or fracture
- **Inclined**
- **Vertical**
- A — **Letter indicates locality referred to in text**

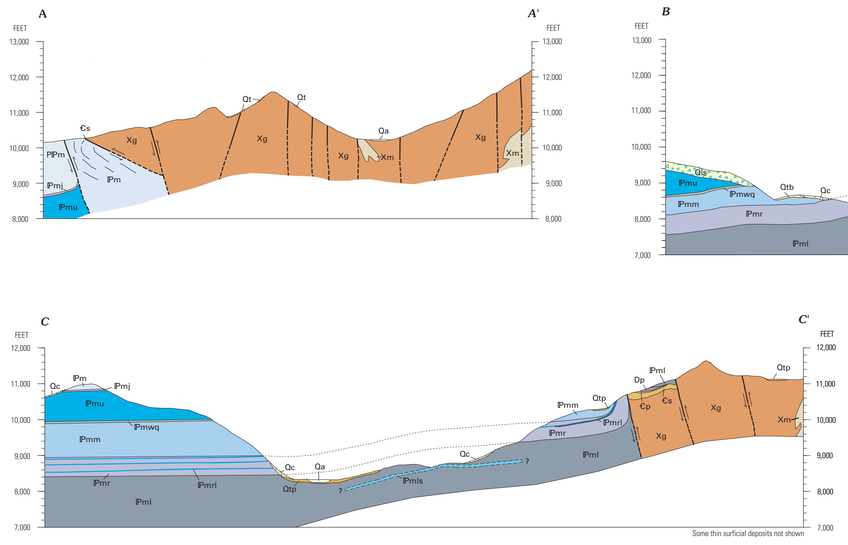
CONVERSION FACTORS

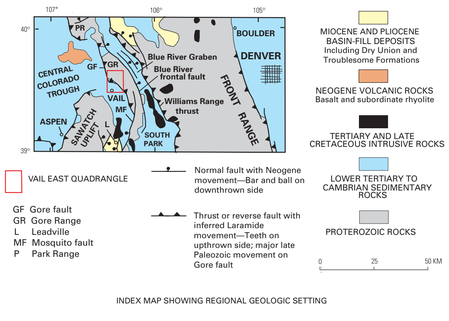
Multiply	By	To obtain
centimeters (cm)	0.3937	inches (in.)
meters (m)	3.281	feet (ft)
kilometers (km)	0.6214	miles (mi)

Multiply	By	To obtain
inches (in.)	2.54	centimeters (cm)
feet (ft)	0.3048	meters (m)
miles (mi)	1.609	kilometers (km)



INDEX MAP SHOWING SURROUNDING QUADRANGLES





INDEX MAP SHOWING REGIONAL GEOLOGIC SETTING

GEOLOGIC MAP OF THE VAIL EAST QUADRANGLE, EAGLE COUNTY, COLORADO

By
Karl S. Kellogg, Bruce Bryant, and Margaret H. Redsteer

2003

Any use of trade names in this publication is for descriptive purposes only and does not imply endorsement by the U.S. Geological Survey

For sale by U.S. Geological Survey Information Services
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