

Base map from U.S. Geological Survey 1:100,000-scale Digital Line Graph data mapped from 1965-1981. Planimetry revised from aerial photographs taken 1975-1981 and other source data. Base map revised 1983. Projection Universal Transverse Mercator, zone 17, North American Datum 1983.

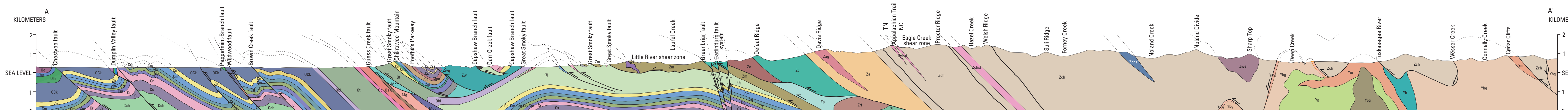
SCALE 1:100,000
CONTour INTERVAL 10 METERS
NATIONAL GEOGRAPHIC VERTICAL DATUM OF 1929

Geology mapped by Scott Southworth and Art Schultz, 1993-2003
Digital compilation and cartography by Danielle Denenny, 2002-2004

VALLEY AND RIDGE PROVINCE
TENNESSEE VALLEY

WESTERN BLUE RIDGE PROVINCE
FOOTHILLS

EASTERN BLUE RIDGE PROVINCE
HIGHLANDS



CORRELATION OF MAP UNITS

LIST OF MAP UNITS

VALLEY AND RIDGE PROVINCE

TENNESSEE VALLEY

FOOTHILLS

WESTERN BLUE RIDGE PROVINCE

HIGHLANDS

EASTERN BLUE RIDGE PROVINCE

UNCONSOLIDATED SURFICIAL MATERIALS

- Qa Alluvium (Holocene)
- Qal Deltaic flows (Holocene)
- Qc Colluvium (Holocene and Pleistocene)
- Qd Debris fans (Pleistocene)
- Qe Debris fans (Pleistocene)
- Qt1 Terraces deposits (Holocene to Tertiary)
- Qt2 Siltshales (Holocene to Tertiary)
- Qt3 Residuals (Holocene to Tertiary)

PALEOZOIC ROCKS

TENNESSEE VALLEY AND TECTONIC WINDOWS

- Mg1 Grassy Cove Formation (Lower Upper Mississippian)
- Mg2 Grassy Cove Formation (Lower Mississippian)
- Mg3 Grassy Cove Formation (Lower Mississippian)
- Md1 Chattanooga Shale (Upper Devonian and Lower Mississippian)
- Ob1 Rays Formation (Middle Ordovician)
- Os1 Sevier Formation (Middle Ordovician)
- Ok1 Onondaga Formation (Middle Ordovician)
- On1 Onondaga Shale (Middle Ordovician)
- Ol1 Tallapoosa Formation (Middle Ordovician)
- Dv1 Chapman Ridge Sandstone (Middle Ordovician)
- Chm1 Chapman Ridge Marble (Middle Ordovician)
- Ob1 Blackhouse Shale (Middle Ordovician)
- Lm1 Lenoir Limestone (Middle Ordovician)
- Jo1 Jonesboro Limestone (Lower Ordovician)
- Kns1 Knox Group (Upper Cambrian and Lower Ordovician)

COUNSANGA GROUP

- Ch1 Nolichucky Shale (Middle and Upper Cambrian)
- Cm1 Maryville Limestone (Middle and Upper Cambrian)
- Cp1 Rogersville Shale (Middle and Upper Cambrian)
- Ch1 Rutherford Limestone (Middle and Upper Cambrian)
- Cp1 Pumpkin Valley Shale and Rome Formation (Middle and Upper Cambrian)

WESTERN BLUE RIDGE PROVINCE

FOOTHILLS

- Cl1 Rome Formation (Middle Cambrian)
- Cs1 Shady dolomite (Lower Cambrian)
- Csa1 Shady dolomite

NEOPROTEROZOIC ROCKS

CHILHOWEE GROUP

- Csa1 Upper part of Chilhowee Group, undiff. (Lower Cambrian)
- Chm1 Helmsdale Formation (Lower Cambrian)
- Ch1 Rose Quartzite (Lower Cambrian)
- Cb1 Murray Shale (Lower Cambrian)
- Cab1 Nobe Shale (Lower Cambrian)
- Cn1 Natchez Shale (Lower Cambrian)
- Cc1 Cockeak Formation (Lower Cambrian)

WALDEN CREEK GROUP

- Zm1 Sandrock Formation (Neoproterozoic)
- Zc1 Conglomerate
- Zw1 White Formation (Neoproterozoic)
- Zq1 Quartzite and conglomerate
- Zsl1 Limestone and shale
- Zcl1 Carbonate and clastic rocks
- Zs1 Shields Formation (Neoproterozoic)
- Zd1 Limestone and allstone
- Za1 Conglomerate
- Zl1 Licking Formation (Neoproterozoic)
- Zb1 Conglomeratic sandstone
- Pp1 Pegmatite (Palaeozoic)

HIGHLANDS

PALEOZOIC AND NEOPROTEROZOIC DIKES AND SILLS

NEOPROTEROZOIC ROCKS

MURPHY BELT

- Zu1 Unalutite Quartzite and Nantahala Formation (Neoproterozoic)

Great Smoky Group

- Zd1 Dean Formation (Neoproterozoic)
- Zam1 Ammons Formation (Neoproterozoic)
- Zgb1 Grassy Branch Formation (Neoproterozoic)
- Zwc1 Welchity Formation (Neoproterozoic)
- Zc1 Copperhill Formation (Neoproterozoic)
- Zbs1 Quartz muscovite schist
- Zbs1 Slaty metabasite

Great Smoky Group

- Za1 Anakeeta Formation (Neoproterozoic)
- Zag1 Metagypsack
- Zab1 Metasediments and siliceous metachert
- Zad1 Metasediments and metachert
- Zae1 Chloritoid slate
- Zaf1 Cades Sandstone (Neoproterozoic)
- Zag1 Boulder conglomerate
- Zah1 Dark metachert
- Zai1 Thunderbolt Sandstone (Neoproterozoic)
- Zaj1 Dark metachert
- Zak1 Boulder conglomerate
- Zal1 Elkton Sandstone (Neoproterozoic)
- Zam1 Coarse sandstone

Snowbird Group

- Zsb1 Snowbird Group, undivided
- Zsc1 Rich Bell Sandstone (Neoproterozoic)
- Zsd1 Metachert
- Zse1 Metataff Phyllite (Neoproterozoic)
- Zsf1 Pigeon Silstone (Neoproterozoic)
- Zsg1 Sandstone
- Zsh1 Roaring Fork Sandstone (Neoproterozoic)
- Zsi1 Sandstone
- Zsj1 Longtan Quartzite (Neoproterozoic)
- Zsk1 Wading Branch Formation (Neoproterozoic)

MESOPROTEROZOIC ROCKS

- Zyg1 Biotite gneiss (Mesoproterozoic)
- Zyp1 Granodiorite (Mesoproterozoic)
- Zyb1 Porphyritic granite (Mesoproterozoic)
- Zyc1 Monzonitic gneiss (Mesoproterozoic)
- Zyd1 Granitic gneiss (Mesoproterozoic)
- Zye1 Spring Creek Granitoid Gneiss (Mesoproterozoic)
- Zyf1 Migmatic biotite gneiss (Mesoproterozoic)
- Zyg1 Hornblende-biotite gneiss (Mesoproterozoic)

Amphibolite (Mesoproterozoic)

- Zy1 Amphibolite (Mesoproterozoic)

Ultramafic rock (Mesoproterozoic)

- Zy1 Ultramafic rock (Mesoproterozoic)

Metamorphosed dikes and porphyries (early Palaeozoic and Neoproterozoic)

- Zam1 Biotite gneiss of the Ashe Metamorphic Suite (Neoproterozoic)
- Zym1 Migmatic biotite gneiss (Mesoproterozoic)

EXPLANATION OF MAP SYMBOLS

CONTACTS

- Contact
- - - Faults - dashed where inferred or approximately located; dotted where concealed
- - - Normal fault - Sawtooth on upper plate
- - - Strike-slip fault - Showing direction of relative movement
- - - Strike-slip and Normal - Showing direction of relative movement
- - - Unclassified - Movement unknown

PLANAR FEATURES

- Strike and dip of bed
- Inclined
- Overturned
- Vertical
- Horizontal

MINOR FOLDS

- Showing bearing and plunge of axis

OTHER FEATURES

- * Ag - Inactive massive sulfide mine or prospect; Au - silver; As - gold; Cu - copper; Pb - lead; Zn - zinc

TENNESSEE VALLEY OF THE VALLEY AND RIDGE

HIGHLANDS OF THE WESTERN BLUE RIDGE

EASTERN BLUE RIDGE

Summary tectonic map showing major faults, folds, and metamorphic isograds. Bt is biotite, Gt is garnet, St is staurolite, and Ky is kyanite. The biotite isograd is coincident with the Gatlinburg fault system. Rocks north of the Gatlinburg fault system are chlorite grade if metamorphosed.

GEOLOGIC MAP OF THE GREAT SMOKY MOUNTAINS NATIONAL PARK REGION, TENNESSEE AND NORTH CAROLINA

By
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