



GEOLOGICAL HIGHWAY MAP
MID-ATLANTIC REGION
 KENTUCKY WEST VIRGINIA MARYLAND
 TENNESSEE VIRGINIA DELAWARE
 NORTH CAROLINA SOUTH CAROLINA

Compiled by
 Geological Highway Map Committee
 of
 THE AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS

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Published by
 The American Association of Petroleum Geologists
 P. O. Box 979, Tulsa, Oklahoma 74101

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TECTONIC MAP
 This map shows the location of the major uplifts, downwarping, and tectonic belts in the Mid-Atlantic Region. Major tectonic belts are shown in green, yellow, orange, red, purple, brown, pink, light blue, dark blue, grey, and white. Major uplifts are shown in light green and areas of maximum downwarping in dark green. Two intermediate shades of green represent regions of less intense differential uplift and downwarping. Areas covered by volcanic rocks are colored red. This map was modified from the Tectonic Map of the United States published by the United States Geological Survey and The American Association of Petroleum Geologists (1962). However, the representation and interpretation herein are solely those of the compilers.

PHYSIOGRAPHIC MAP
 This map shows the configuration and distribution of the major landforms in the Mid-Atlantic Region. Geological processes and rock characteristics combine to produce rolling hills and mountains, plateaus and plains, hogbacks and cuestas, and basins and valleys. Landforms of this region are related fundamentally to uplifts and depressions of the earth's crust. Water and wind are the principal erosional agents that produce the present surface irregularities. The type, composition, and texture of the rocks, and the local structure and sequence of the rock layers, are important controlling factors. The earth's surface is changing continuously. New landforms evolve by erosion and gradual destruction of existing forms, by subsidence and uplift, and by the accumulation of freshly eroded rock materials. The Physiographic Map supplements the other illustrations by showing the nature of many surface features, by delineating areas of differential erosion, and by showing regional elevations. The other illustrations supply important information which helps to explain the geological origin of the present landforms. The relation of landforms in this area to landforms in adjacent states can be obtained from "Landforms of the United States" by Erwin Baize (1937).

Sources of Geological Information of the MID-ATLANTIC REGION

Primary Sources:
 United States Geological Survey, Washington, D. C. 20240
 Virginia State Geological Survey, Charlottesville, Virginia 22902
 The American Association of Petroleum Geologists, P. O. Box 979, Tulsa, Oklahoma 74101
 The Geological Society of America, P. O. Box 1718, Boulder, Colorado 80502
 The Delaware Geological Survey, University of Delaware, Newark, Delaware 19711
 The Kentucky Geological Survey, University of Kentucky, Lexington, Kentucky 40506
 The Maryland Geological Survey, Landon Hall, The Johns Hopkins University, Baltimore, Maryland 21218
 The North Carolina Division of Mineral Resources, P. O. Box 2710, Raleigh, North Carolina 27611
 The South Carolina Division of Geology, P. O. Box 987, Columbia, South Carolina 29205

Other Sources:
 Geology departments of colleges and universities
 Geological Society of America, P. O. Box 2905, Charleston, West Virginia 25309
 Geological Society of Kentucky, Lexington, Kentucky
 Eastern Section, A.R.P., P. O. Box 979, Tulsa, Oklahoma 74101

GEOLOGICAL HISTORY
 The geological history of this area is shown in summary form. As viewed from left to right, the sequence of small maps pictures the changes as they took place, from ancient to recent times. For each historically important epoch (the time equivalent of a rock series) there is shown by individual outline maps (1) the areas of uplift and subsidence, (2) the areas of erosion and deposition, and (3) the areas of igneous activity, and the kinds of igneous rocks. It has been necessary because of space limitation to combine all of the epochs of the Devonian, Triassic, and Jurassic periods and to group epochs within the Silurian, Mississippian, Pennsylvanian, Permian, and Tertiary periods.

The relative magnitudes of subsidence, uplift, and deposition are indicated by the size of the symbol; the larger the symbol, the greater the magnitude of the event portrayed. The meaning of each symbol and an explanation of the color scheme are in the legend.

The uppermost sequence of maps shows the areas of subsidence and uplift from the Cambrian on the left to the Pleistocene on the right. The larger blue and red dots indicate areas of greater subsidence and uplift, respectively. The red crosses represent areas of mountain-building activity. A series of related mountain-building events in a particular area, or during a particular interval of time, is called an orogeny. These involve substantial folding and faulting of the rock layers, such as are found in the Appalachian Mountains. In other areas subsidence may consist only of a gentle downwarping with moderate tilting of the strata. An example of this is the Coastal Plain.

The middle sequence of maps shows areas undergoing erosion, and areas where deposition was taking place. Areas of erosion are outlined by black crosses. The kind of sedimentary material deposited is shown by color: blue for carbonates, green for sand, red for mud, and black for evaporites (salt, gypsum, and anhydrite).

The bottom sequence of maps shows the age and kind of igneous activity (intrusive or extrusive). Maps are included only for those intervals of time during which igneous activity occurred.

GEOLOGICAL HISTORY
 This section contains a series of small maps showing geological changes over time. The maps are arranged in a grid by geological period (Cambrian, Ordovician, Silurian, Devonian, Mississippian, Permian, Triassic, Jurassic, Cretaceous, Tertiary, Pleistocene) and by geographic area (Subsidence, Uplift, Mt. Building, Deposition, Line, Sand, Mud, Evaporites, Erosion, Igneous Activity). A legend explains the symbols used for subsidence, uplift, mountain building, deposition, erosion, and igneous activity. The maps show the progression of geological events across the Mid-Atlantic region over time.

CROSS SECTIONS
 The four cross sections illustrate the subsurface geology of the Mid-Atlantic Region. The locations of the four lines of section are shown by lines B-B', C-C', X-X', and Y-Y' on the Tectonic Map. These are regional segments of a nationwide cross-section network prepared for the map series.

The cross sections show (1) the surface configuration, (2) the relation of the underlying rocks to the surface profile, (3) the age, nature, attitude, thickness, distribution, and sequence of the rock layers, and (4) the location, nature, and magnitude of the structural elements. The names, colors, and lithologic symbols are the same as those used in the Geological Highway Map and the Generalized Chart of Time and Rock Units.

The surface profile was constructed from 1:250,000-scale topographic maps (United States Geological Survey). The basement profile was constructed from the Basement Map of North America (The American Association of Petroleum Geologists and the United States Geological Survey, 1967), the Basement Rock Map of the United States (United States Geological Survey, 1968) and private sources.

The cross sections were compiled from publications of state agencies and universities of the Mid-Atlantic States, as well as federal agencies, national and local geological societies, individual geologists, and other published sources.

