EVOLUTION OF VIRGINIA’S GEOLOGIC MAPS
170 YEARS OF DISCOVERIES

The science of geology has seen dramatic changes over time. The development of new tools, technologies, and literature has spurred and advanced the ability of geologists to observe and interpret how the earth has evolved. Advances have also forced periodic rethinking and modification of many of the details and relationships depicted on geologic maps of the earth’s surface. The Geologic Map of Virginia, from its earliest version in 1841 to its modern equivalent, reflects those advances in the increasing level of detail in each new version. Virginia has realized increasingly greater benefits from the growing level of sophistication of our state’s geologic maps. Benefits include the encouragement of economic development through the wise management of Virginia’s energy, mineral, land, and water resources, and enhanced public safety through the identification of geohazards.

The past holds a lesson for the future. The Geologic Map of Virginia, and the many detailed local maps that support its creation, will continue to evolve and improve. Digital versions of the state’s geologic maps will make future access to them almost instantaneous. The ever-changing requirement for the creation of new geologic maps is the dedicated effort of the geologists who put “boots on the ground” and apply the most current scientific methods and theories to the interpretation and documentation of their field observations. Geologists at Virginia’s Geological Survey, now called the Division of Geology and Mineral Resources within the Department of Mines, Minerals and Energy, continue to lead this effort in Virginia, ensuring that all citizens have the benefit of the most accurate understanding of the state’s geology.

**Geologic Mapping of W. B. Rogers, 1835-1841**
Original map completed by Rogers for inclusion in J. Mitchell’s 1879 “Summary of Virginia,” 1884

**Geologic Map of Virginia, 1916**

In 1877, William Benton Rogers was asked by the Virginia Geological Survey to prepare a geologic map of the state. This task was complex and daunting, but Rogers completed the task in 1883. The completed map was a milestone in Virginia’s geology, providing a comprehensive view of the state’s geology. Rogers’ map was the first state geologic map to be compiled using modern scientific methods and theories. The map included detailed information on the geology of Virginia, including the distribution of rock types, mineral deposits, and geological features.

**Geologic Map of Virginia, 1928**

Satellite data combined with other data in order to locate several deposits, and remote techniques, absorption, and distance measuring equipment are used to produce large state and city-wide distribution maps. The probability of occurrence of specific mineral deposits is increased by computer searches, and the production of these geologic maps is now a major industry.

**Geologic Map of Virginia, 1993**

By the turn of the 20th century, the “modern” map of geology was in place. The Virginia Geological Survey was established in 1883, and it was soon realized that the map Rogers had prepared was outdated. The survey began working on a new map, and by 1928, the Virginia Geological Survey had completed the map. The new map was a major improvement over Rogers’ map, and it provided a much more detailed view of the state’s geology.

**Geologic Map of Virginia, 1993**

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**Geologic Map of Virginia, 1963**

Virginia Division of Geology and Mineral Resources
Analysis of Current Trends in Statewide Geologic Mapping

The Virginia Geological Survey is still producing geologic maps, and the use of modern techniques has improved the accuracy and detail of these maps. The maps provide valuable information for a variety of uses, including land use planning, mineral exploration, and environmental studies.