

INTRODUCTION

The information in this report was collected between 1974 and 1982 as part of the Reactor Hazards Program of the U.S. Geological Survey (USGS). This program was initiated to delineate and assess geologic hazards that could be particularly detrimental to nuclear constructions, especially nuclear reactors. Facilities of principal interest to the program are those that could be damaged by seismic activity or by other geologic hazards that could be particularly detrimental to nuclear constructions, especially nuclear reactors. Facilities of principal interest to the program are those that could be damaged by seismic activity or by other geologic hazards that could be particularly detrimental to nuclear constructions, especially nuclear reactors.

Prior to 1970, very little was known about Cenozoic faulting in the eastern United States. The most abundant data were available in the western Gulf Coastal Plain where oil exploration had generated a considerable amount of subsurface stratigraphic information. The Atlantic Coastal Plain was considered to be generally devoid of faults, although geologists such as McGee (1881) and Dutton (1881, 1883) had proposed major faulting or uplift along the Fall Line. The Piedmont and Blue Ridge Provinces of the eastern United States contained numerous mapped faults, but the recovery of fault movement was unknown because of the absence of Cenozoic strata.

One of the initial efforts of the Reactor Hazards Program was a compilation and evaluation of Cretaceous and younger faults in the East. Topical studies were initiated in areas of particular interest, and these studies in turn generated a broader scientific interest in the problem of Cenozoic deformation. The preliminary literature investigation of Cretaceous and younger faulting was published by York and Oliver (1978), and was followed by an interpretive map of young faults by Howard and others (1978).

The data in this report represent the presently available knowledge of fault characteristics and distribution. Clearly, as current investigations progress and as geologists become more aware of the evidence for Cenozoic faulting, the number of known Cenozoic faults will increase substantially. Until such time, the data that are shown here must be viewed conservatively because they are not necessarily representative of the entire region. The data are useful in characterizing basic fault patterns in the region, but they do not limit the usefulness of the map. Limitations of this information are discussed in the following text, and the reader should give them major consideration when using the map and fault table.

DATA LIMITATIONS

Geologic Conditions

The identification of Cretaceous and younger faults in the eastern United States is probably most greatly affected by the distribution of geologic units of that age. Cretaceous and younger rocks and strata are predominantly restricted to the Coastal Plain, extending to the outer margin of the continent. The geologic province characterized by crystalline rocks (i.e., the Piedmont and Blue Ridge) contain minor amounts of upper Tertiary strata in the form of fluvial terrace deposits and thin surficial veneers derived from weathering of older rocks. In general, such deposits cannot be dated accurately although most are probably Miocene or younger. The identification of Cretaceous and younger faulting is based generally on a recognized displacement of paleontologically or radiometrically dated sediment. It is readily apparent that areas lacking the appropriate stratigraphy will be relatively devoid of observed Cretaceous and younger faults; however, they may not be entirely devoid of them. Therefore, one must consider known fault localities as positive data points, and similarly must realize that the lack of data in certain areas does not denote the absence of Cenozoic deformation, but rather reflects the lack of critical information.

Fault Distribution

The distribution of faults is directly related to tectonic framework and opportunity for geologic investigation. The Fall Line along the Atlantic Coast is an excellent example of the latter situation. Along this line, the boundary, the Coastal Plain strata are so thin that faults commonly juxtapose the sediments with crystalline rocks of the basement complex. A contact of this sort is readily recognized and is generally assigned a high degree of significance by most geologists. In the absence of such a contact in crystalline rocks, it would typically be attributed to minor Paleocene deformation. If, on the other hand, it was exposed entirely in the sedimentary section, it could be difficult to see and might be attributed to a non-tectonic origin (for example, slump faulting).

The linearity of the Fall Line along the Atlantic Coast has been suggested as evidence of Cretaceous and younger faulting. The support for this interpretation is based on the fact that the Fall Line is a linear feature, and that the Fall Line (White, 1952), and significantly east of the Fall Line (Jacobson, 1972). These observations are consistent with the late Mesozoic and Cenozoic tectonic activity, or simply an area where conditions for geologic investigation are unusually favorable. This interpretation is critical to the assessment of the distribution of Cretaceous and younger faults across the eastern United States.

Data Collection

The preliminary report on young faulting by Howard and others (1978), in which I compiled the fault data for the eastern United States, emphasized recovery of existing and showed regions having similar fault style. The publication incorporated geophysical data on the location and recovery of faulting. Because of problems with scale and map clarity, faults with minor offsets were commonly omitted.

This report, unlike that of Howard and others (1978), emphasizes the geologic criteria proving the existence of Cretaceous and younger faulting. The fault table gives geologic evidence for the presence and recovery of movement of reported faults. Geophysical surveys were used to delineate the extent of faults in the region, but in these instances, drill-hole data were used to substantiate the findings.

The entries in the fault table are largely from published sources, although there are considerable data from active research projects. In most cases, I made an attempt to personally investigate the fault localities to verify the existence of the structures and to determine the nature of their origin. In some cases, I also attempted to date the youngest displaced materials using modern methods (for example, paleontology) to revise conclusions of previous workers. In the case of Conley and Drummond (1963) (entries 83 and 85), Conley and Towse (1968) (entries 39 and 40), and York and Oliver (1978) (entry 64), I question the authors' assertion that they have isolated faults having tectonic significance. Although by general definition slump surfaces are faults, it is important to distinguish such features from true tectonic structures. I included these references in this study because they are reported in the literature as Cenozoic faults; nevertheless, they must be differentiated from true tectonic faults.

The faults shown in southern Georgia and in Florida are known largely as a result of subsurface water and petroleum exploration. Some of the structures have not yet been recognized at the surface, probably because of poor exposure and inadequate surface mapping. They are postulated primarily upon drill-hole data and upon structure contouring of known subsurface horizons. This sort of fault identification yields excellent age control and displacement information, although it reveals little about fault geometry. Faults are shown vertically in cross section by most authors, but they could dip steeply in either direction. Such structures are included in the table because they do reflect geologic evidence of Cenozoic tectonism. To maintain the reliability of this index, I included only those faults that are defined on a substantial amount of drill-hole data or that have some surface outcrop expression. It is important to note that variations in paleontologic interpretation from place to place may alter the age and correlation of lithologic units, thereby seriously affecting the continuity of structure-contoured surfaces that delineate postulated faults (for example, see Moore, 1955, p. v and vi).

Numerous faults and folds have been recognized in the eastern Gulf region, and have been particularly well catalogued in Alabama (Self and Neethery, 1978). Unfortunately, the fault zones are so extensive and so complex that their detailed geometries are still largely uninvestigated. Hence, most reports of faults in the eastern Gulf region lack accurate description of the observed fault planes. Many of the faults shown in Alabama are defined on the same basis as those in the preceding paragraph, except that subsurface work has been supplemented by outcrop information. However, the outcrop data generally do not yield direct evidence of faulting (such as shearing), but rather delineate anomalous variations in the position of stratigraphic units.

For the eastern Gulf region, I compiled only the most important regional data and pertinent local information. In the fault table I had to approximate the orientations of curvilinear structures and their locations; however, the assigned references might offer significant additional descriptions of specific localities.

Folds, arches, and other warps are omitted from this compilation because (1) their limits cannot be precisely defined by present stratigraphic mapping, and (2) the age range of deformation is uncertain because of sedimentological and paleontological variations. Postulated warps such as the Ocala Arch, the Cape Fear Arch, and the Salisbury Embayment have been discussed in the literature for many years, but little has been done to further outline their geologic significance.

Extent of Structures

Generally, the faults shown in the table have a known minimum extent, but in most cases do not have a known maximum extent. A standard bar and ball symbol is used to denote faults less than 16 km (10 mi) in length, whereas longer faults are shown by lines whose lengths are approximately equal to known extent. Most of the faults shown with the standard symbol are largely uninvestigated, and their total lengths are probably significantly greater than presently known.

REFERENCES

Brett, C. E., and Jones, D. E., 1967, Discussion of Step 6 just below the Demopolis Roster Bridge on U.S. Hwy. 80, Sumter County, in Jones, D. E., ed., *Geology of the Coastal Plain of Alabama*, Geological Society of America Guidebook for Field Trips, 80th Annual Meeting, New Orleans, p. 65-68.

Brown, P. M., Brown, D. L., Shuffelberger, T. E., Jr., and Sampair, J. L., 1977, Wrench style deformation in rocks of Cretaceous and Paleocene age, North Carolina Coastal Plain, North Carolina Department of Natural and Economic Resources, Special Publication 5, 47 p.

Brown, P. M., Shuffelberger, T. E., Jr., and Smith, S. R., 1983, Structural-stratigraphic framework and geosynclinal signature of the Granger's wrench zone, North Carolina Coastal Plain, Atlantic Coastal Plain Geological Association, 1983 Field Trip Guidebook, Stop 5, p. A1-23.

Carr, W. S., 1959, The Diastrophism of the rocks and their geologic history, U.S. Geological Survey Bulletin, 897, 59 p.

Causey, L. V., and Newton, J. G., 1971, *Geologic map of Clarke County, Alabama*, Alabama Geological Survey Map 55, 20 p., scale approx. 1:125,000.

Cederstrom, D. J., 1938, *Geology and artesian-water resources of a part of the southern Virginia Coastal Plain*, Virginia Geological Survey Bulletin 51-2, p. 115-136.

1945a, *Geology and ground-water resources of the Coastal Plain in southeastern Virginia*, Virginia Geological Survey Bulletin 53, 384 p.

1945b, *Structural geology of southeastern Virginia*, American Association of Petroleum Geologists Bulletin, v. 29, no. 1, p. 71-85.

Christopher, R. A., Powell, D. C., Reinhardt, Juergen, and Markewich, H. W., 1980, The stratigraphic and structural significance of Paleocene pollen from Warm Springs, Georgia, *Paleontology*, v. 1, p. 105-124.

Cofor, H. J., and Fredericks, N. O., 1979, Paleoenvironment and age of kolin deposits in the Andersonville, Ga., district (abs.): Symposium on the geology of the southeastern Coastal Plain, 26, American Geological Society, 1979, Program and Abstracts, p. 6-7.

Conley, J. P., and Drummond, K. M., 1965, Faulted alluvial and colluvial deposits along the Blue Ridge, North Carolina, *Geological Society of America Bulletin*, v. 76, p. 35-39.

Conley, J. P., and Towse, E. C., 1968, *Geology of the Martinville West quadrangle, Virginia*, Virginia Division of Mineral Resources, Report of Investigations 16, 44 p.

Copeland, C. W., Newton, J. G., and Self, D. M., eds., 1976, *Cretaceous and Tertiary faults in southwestern Alabama*, Alabama Geological Society, 44th Annual Meeting, 114 p.

Daniels, R. B., Gamble, E. E., Wheeler, W. H., and Holzman, C. S., 1972, Some details of the surficial stratigraphy and geomorphology of the Coastal Plain between New Bern and Cape Fear, North Carolina, in: N.C., *Carolina Geological Society Field Trip Guidebook*, (188 p.). (See especially p. 58-60.)

Darton, N. H., 1891, Mesozoic and Cenozoic formations of eastern Virginia and Maryland, Geological Society of America Bulletin, v. 2, p. 431-450.

1935, *Gravel and sand deposits of eastern Maryland adjacent to the Washington, D.C., area*, U.S. Geological Survey Bulletin 895-A, 42 p.

1951, Configuration of the bedrock surface of the District of Columbia and vicinity, U.S. Geological Survey Professional Paper 217, 42 p.

1953, Structural relations of Cretaceous and Tertiary formations in part of Maryland and Virginia, Geological Society of America Bulletin, v. 64, p. 171-177.

Dischinger, J. B., Jr., 1975, Stratigraphy and structure of the faulted Coastal Plain near Hopewell, Virginia (abs.): Geological Society of America Abstracts with Programs, v. 11, no. 4, p. 177.

Dryden, A. L., Jr., 1932, Faults and joints in the Coastal Plain of Virginia, Washington Academy of Sciences Journal, v. 22, no. 16, p. 463-472.

Hitecock, C. H., 1965, *The geology of Littleton, New Hampshire*, Cambridge, Mass., University Press, 32 p.

Howard, K. A., Aaron, J. M., Brabb, E. E., Brock, M. R., Cowan, H. D., Hunt, S. L., Hilton, D. J., Shuffelberger, W. R., Natta, J. E., Barlow, J. G., George, Powell, D. C., Wallace, R. E., and Witkold, I. J., 1978, Preliminary map of the United States showing Cenozoic faults, U.S. Geological Survey Miscellaneous Field Studies Map MF-1269.

Howell, D. E., and Zupan, A. W., 1974, Evidence for post-Cretaceous tectonic activity in the Westfield Creek area north of Cherow, South Carolina, South Carolina State Development Board, Division of Geology, *Geologic Notes*, v. 18, no. 4, p. 98-105.

Inden, R. E., and Zupan, A. W., 1974, Evidence for post-Cretaceous tectonic activity in the Westfield Creek area north of Cherow, South Carolina, South Carolina State Development Board, Division of Geology, *Geologic Notes*, v. 18, no. 4, p. 106-108.

Jacobson, F. H., Jr., 1972, Seismic evidence for high-angle reverse faulting in the Coastal Plain of Prince George's and Charles Counties, Maryland, Maryland Geological Survey Information Circular 13, 21 p.

Joire, T. J., and Moore, D. B., 1978, Structural features in south Alabama, in: Copeland, C. W., ed., *Facies changes in the Alabama Tertiary*, Alabama Geological Society, 44th Annual Meeting Field Trip Guidebook, p. 11-15.

LaMoreaux, P. E., and Toulmin, L. D., 1959, Geology and ground-water resources of Wilcox County, Alabama, Alabama Geological Survey County Report 4, 260 p.

1960, *Geologic map of Wilcox County, Alabama*, Alabama Geological Survey County Report 4, 260 p.

1961, *Geologic map of Wilcox County, Alabama*, Alabama Geological Survey County Report 4, 260 p.

Leve, G. W., 1966, *Groundwater in Dural and Nassau Counties, Florida*, Florida Geological Survey Report of Investigations 10, 40 p.

MacNeil, E. S., 1946, *Geologic map of the Tertiary formations of Alabama*, U.S. Geological Survey Open-File Report 75-80, 16 p.

Marsh, O. T., 1967, Evidence for deep salt deposits in western Florida parishes, American Association of Petroleum Geologists Bulletin, v. 51, no. 2, p. 212-222.

Mathew, W. M., 1843, *Geology of the first geological district*, New York (State) Geological Survey, Natural History of New York, Geology of New York, pt. 1, 374 p.

McGee, J. A., and others, 1881, *The geology of Washington and vicinity*, in: Guide to Washington and its scientific institutions: prepared by the local committee for the International Congress of Geologists, 18th session, Washington, D.C.

Mixon, R. B., and Moore, D. B., 1976, Preliminary investigation of faults in the Coastal Plain of Prince George's and Charles Counties, Virginia, U.S. Geological Survey Open-File Report 76-330, 18 p.

1977, *Stafford fault system: Structures documenting Cretaceous and Tertiary deformation along the Fall Line in northeastern Virginia*, U.S. Geological Survey Map 55, 20 p., scale approx. 1:125,000.

1978, *The faulted Coastal Plain margin at Fredericksburg, Virginia*—Tenth Annual Virginia Geological Field Conference, October 13-14, 1978; Reston, Va., p. 15-26.

Monroe, W. H., 1941, *Notes on deposits of Selma and Ripley age in Alabama*, Alabama Geological Survey Bulletin 48, 180 p.

Moore, W. H., and Hunt, J. L., 1958, *Geology of the Apes quadrangle, Alabama*, Alabama Geological Survey Bulletin 58, 100 p.

Moore, W. H., 1955, *Geology of Jackson County, Florida*, Florida Geological Survey Bulletin 37, 101 p.

Murray, C. E., 1961, *Geology of the Atlantic and Gulf coastal province of North America*, New York, Harper and Brothers, 692 p.

Neethery, T. L., Self, D. M., Copeland, C. W., Dreikow, J. A., and Desinger, R. W., 1975, *Studies on recent faulting criteria in Alabama*, Alabama Geological Survey, 403 p.

Nelson, W. A., 1962, *Geology and mineral resources of Alameda County, Virginia*, Virginia Division of Mineral Resources Bulletin 7, p. 48-61.

New Jersey Geological Survey, 1917, *Quaternary formations of New Jersey*, Final report of the State Geologist, v. 8, 218 p.

Newell, W. L., Powell, D. C., and Mixon, R. B., 1978, Detailed investigation of a Coastal Plain-Piedmont fault contact in northeastern Virginia, U.S. Geological Survey Open-File Report 78-329, 19 p.

Newell, W. L., Powell, D. C., and Mixon, R. B., 1978, A Piedmont-Coastal Plain fault contact, Stafford Fault System, northeastern Virginia, in: Mixon, R. B., and Newell, W. L., eds., *The faulted Coastal Plain margin at Fredericksburg, Virginia*—Tenth Annual Virginia Geological Field Conference, October 13-14, 1978; Reston, Va., p. 14-16.

Newton, J. G., 1965, *Geologic map of Barbour County, Alabama*, Alabama Geological Survey Map 55, 20 p., scale 1:125,000.

Newton, J. G., and LaMoreaux, P. E., 1960, *Geologic map of Marengo County, Alabama*, Alabama Geological Survey Map 14, scale 1:125,000. (Also see pt. 2 of Alabama Geological Survey County Report 4, 260 p.)

Newton, J. G., Sutcliffe, Horace, Jr., and LaMoreaux, P. L., 1961, *Geology and ground-water resources of Marengo County, Alabama*, Alabama Geological Survey County Report 5, 143 p.

O'Connor, B. J., and Prowell, D. C., 1976, *The geology of the Belair fault zone and basement rocks of the Augusta, Georgia, area*, Georgia Geological Society Field Trip Guidebook 16, p. 21-32.

Oliver, Jack, Johnson, Tracy, and Dorman, James, 1970, *Postglacial faulting and seismicity in New York and Quebec*, in: Symposium on recent crustal movements, Ottawa, Canada, 1969, Papers, Canadian Journal of Earth Sciences, v. 7, no. 2, pt. 2, p. 579-590.

Potomac Electric Power Company, 1973, *Seismicity safety analysis report*, Douglas Point Nuclear Generating Station, Units 1 and 2; Washington, D.C., Potomac Electric Power Company, v. 7, various appendices. (Available from National Technical Information Service (NTIS), U.S. Department of Commerce, Springfield, Va., 22161, as Document 8044-2.)

1976, *Geologic investigation of the Stafford fault zone*, Washington, D.C., Potomac Electric Power Company, 53 p.

Prowell, D. C., 1974, *Distribution of crystalline rocks around Augusta, Georgia, and their relationship to the Belair fault zone*, Carolina Geological Society Field Trip Guidebook, p. 55-60.

Prowell, D. C., and O'Connor, B. J., 1978, *Belair fault zone—Evidence of Tertiary fault displacement in eastern Georgia*, *Geology*, v. 6, p. 681-684.

Prowell, D. C., O'Connor, B. J., and Rubin, Meyer, 1976, *Preliminary evidence for Holocene movement along the Belair fault zone near Augusta, Georgia*, U.S. Geological Survey Open-File Report 75-80, 16 p.

Reed, P. C., Newton, J. G., and Scott, J. C., 1967, *Geologic map of Butler County, Alabama*, Alabama Geological Survey Map 56, scale 1:125,000.

Reinhardt, Juergen, Prowell, D. C., Christopher, R. A., and Markewich, H. W., 1979, *Cenozoic tectonics in the Southeast—Evidence from sediments near Warm Springs, Georgia* (abs.): Geological Society of America Abstracts with Programs, v. 11, no. 4, p. 209.

Ries, Heinrich, and Kummel, H. B., 1964, *The clay and clay industry of New Jersey*, New Jersey Geological Survey, Final Report of the State Geologist, v. 4, 241 p.

Schneeflock, R. D., Jr., 1972, *Possible origin of the Livingston fault zone: Unpublished master thesis*, Virginia Polytechnic Institute, 49 p.

Smith, E. C., 1962, *Geologic map of Russell County, Alabama*, Alabama Geological Survey Map 101, 12 p., scale approx. 1:125,000.

Selders, W. M., and Mixon, R. B., 1981, *Geologic map of the Oceanian quadrangle and part of the Fort Belvoir quadrangle, Prince William County, Virginia*, U.S. Geological Survey Miscellaneous Investigations Map I-175, scale 1:24,000.

Self, D. M., and Kouturey, T. L., 1975, *Lesson of structural features in Alabama*, Alabama Geological Survey, Division of Mineral Resources, 486 p.

Sennett, D. R., 1928, *Oil and gas in Alabama*, Alabama Geological Survey Special Report 15, 408 p.

Sever, C. W., 1960, *Miocene structural movements in Thomas County, Georgia*, in: Geological Survey Research 1960: U.S. Geological Survey Professional Paper 550-C, p. C12-C16.

Shuffelberger, T. E., 1980, *Geologic map of Pike County, Alabama*, Alabama Geological Survey Map 72, scale approx. 1:125,000.

Smith, E. A., 1910, *Cretaceous-Tertiary contact, Tombigbee River, Alabama*, *Journal of Geology*, v. 18, no. 2, p. 430-457.

Smith, E. A., and Johnson, L. C., 1881, *Tertiary and Cretaceous strata of the Tuscaloosa, Tombigbee, and Alabama Rivers*, U.S. Geological Survey Bulletin 43, 189 p.

Smith, E. A., Johnson, L. C., and Langdon, D. W., Jr., 1894, *Report on the geology of the Coastal Plain of Alabama*, Alabama Geological Survey Special Report 5, 753 p.

Toulmin, L. D., 1940, *The Salt Mountain Limestone of Alabama*, Alabama Geological Survey Bulletin 48, 180 p.

Toulmin, L. D., and others, 1962, *Guide book, Little Slave Creek-Salt Mountain Limestone, Jackson, Alabama, November 3, 1962—Gulf Coast Association of Geologic Societies, Twelfth Annual Meeting, New Orleans, Louisiana*, 52 p. (See especially p. 15-27, 34-41.)

Toulmin, L. D., and LaMoreaux, P. E., 1953, *Profile showing geology along State Highway 15, Choctaw County, Alabama*, Alabama Geological Survey Map 8, scale 1:14,400.

Toulmin, L. D., and Zupan, A. W., 1974, *Geology of Choctaw County, Alabama*, Alabama Geological Survey County Report 2 and Special Report 2, 197 p.

Toulmin, L. D., and Newton, J. G., 1963, *Profile showing geology along State Highway 69 and County Highway 15, Clarke County, Alabama*, Alabama Geological Survey Map 27, scale 1:12,000.

Tourtelot, H. A., and Morris, J. H., 1944, *Reconnaissance geologic map of the Quilman fault zone, Clarke and Wayne Counties, Miss. and Choctaw County, Ala.*, U.S. Geological Survey Oil and Gas Investigations Preliminary Map 8.

Turner, J. D., and Newton, J. G., 1971, *Geology of Choctaw County, Alabama*, Alabama Geological Survey Map 107, 15 p., scale 1:125,000.

U.S. Geological Survey, 1977, *Preliminary report on Belair exploratory trench no. 10-76 near Augusta, Georgia*, U.S. Geological Survey Open-File Report 77-111, 28 p.

Vernon, R. O., 1951, *Geology of Citrus and Levy Counties, Florida*, Florida Geological Survey Bulletin no. 33, 256 p.

White, W. S., 1952, *Post-Cretaceous faults in Virginia and North Carolina*, Geological Society of America Bulletin, v. 63, no. 7, p. 745-748.

White, W. S., 1965, *Basaltic deposits of the northern Spring District, Meriwether County, Georgia*, U.S. Geological Survey Bulletin 1199-1, 15 p.

Winter, C. V., Jr., 1954, *Pollard fault, Escambia County, Alabama*, Transactions of the Gulf Coast Association of Geologic Societies, v. 4, p. 121-122.

Woodworth, J. B., 1907, *Postglacial faults of eastern New York*, New York State Museum Bulletin 107, Geology of New York, v. 5, p. 2-28.

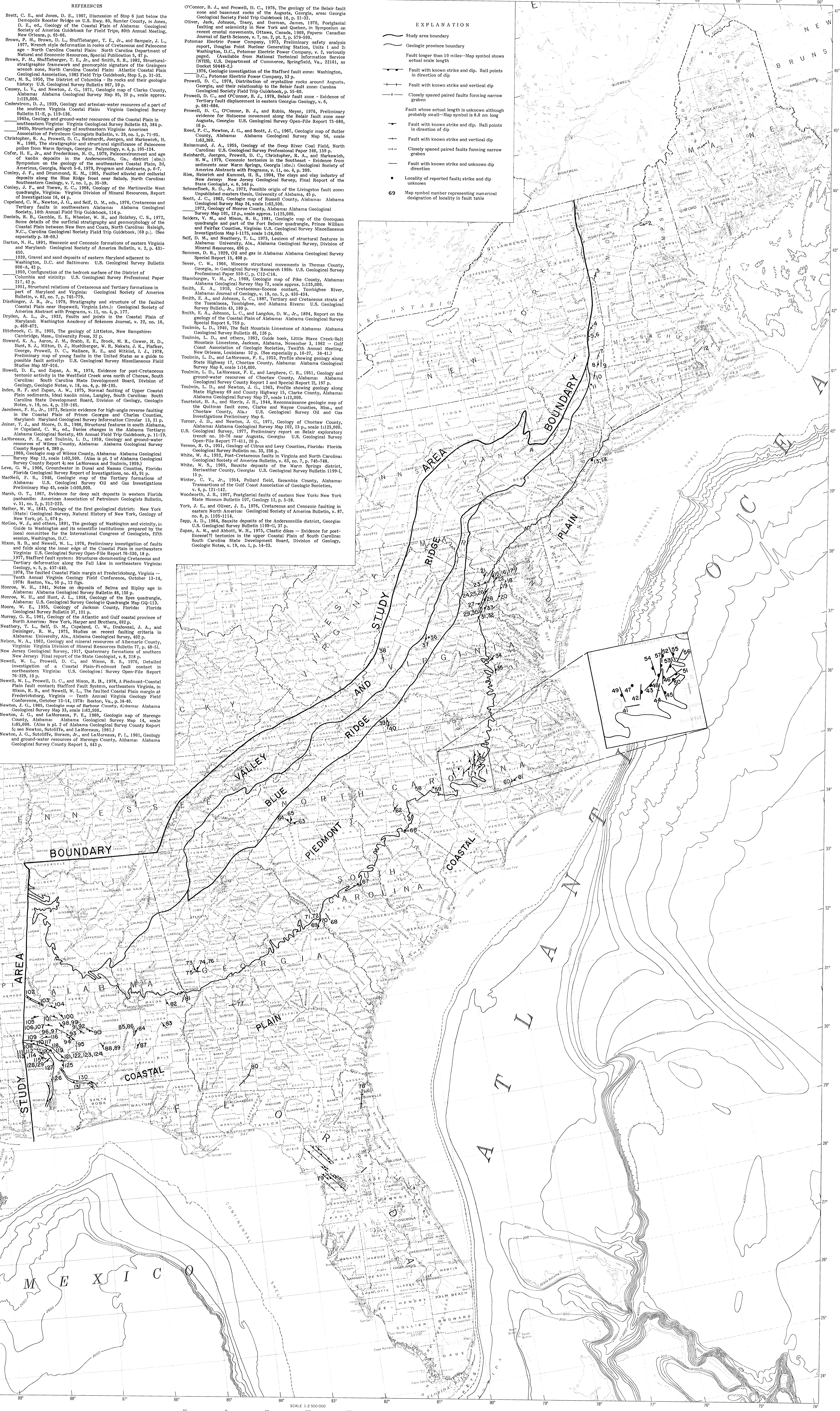
York, J. E., and Oliver, J. E., 1976, *Cretaceous and Cenozoic faulting in eastern North America*, Geological Society of America Bulletin, v. 87, no. 8, p. 1105-1114.

Zapp, A. D., 1964, *Basaltic deposits of the Andersonville district, Georgia*, U.S. Geological Survey Bulletin 1199-2, 15 p.

Zupan, A. W., and Abbott, W. H., 1975, *Clastic dikes—Evidence for post-Paleocene(?) tectonics in the upper Coastal Plain of South Carolina*, South Carolina State Development Board, Division of Geology, *Geologic Notes*, v. 19, no. 1, p. 14-23.

EXPLANATION

- Study area boundary
- Geologic province boundary
- Fault longer than 10 miles—Map symbol shows actual scale length
- Fault with known strike and dip. Ball points in direction of dip
- Fault with known strike and vertical dip
- Closely spaced paired faults forming narrow graben
- Fault whose actual length is unknown although probably small—Map symbol is 0.6 cm long
- Fault with known strike and dip. Ball points in direction of dip
- Fault with known strike and vertical dip
- Closely spaced paired faults forming narrow graben
- Fault with known strike and unknown dip
- Locality of reported faults strike and dip unknown
- Map symbol number representing numerical designation of locality in fault table



INDEX OF FAULTS OF CRETACEOUS AND CENOZOIC AGE IN THE EASTERN UNITED STATES

By
David C. Prowell
1983

U.S. GEOLOGICAL SURVEY, RESTON, VA. 20192
1:250,000 Scale Series, Map MF-1269, Sheet 1 of 2

Quadrangles are published by the U.S. Geological Survey; are 7.5-minute series (1:24,000 scale) unless otherwise indicated. 15-minute quadrangles are 1:62,500 scale $2^{\circ} \times 2^{\circ}$ sheets are 1:250,000 scale and cover one degree of latitude and two degrees of longitude.