Hydrogeologic Framework of the Floridan Aquifer System in Florida and in Parts of Georgia, Alabama, and South Carolina

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REGIONAL AQUIFER-SYSTEM ANALYSIS

U.S. GEOLOGICAL SURVEY PROFESSIONAL PAPER 1403–B

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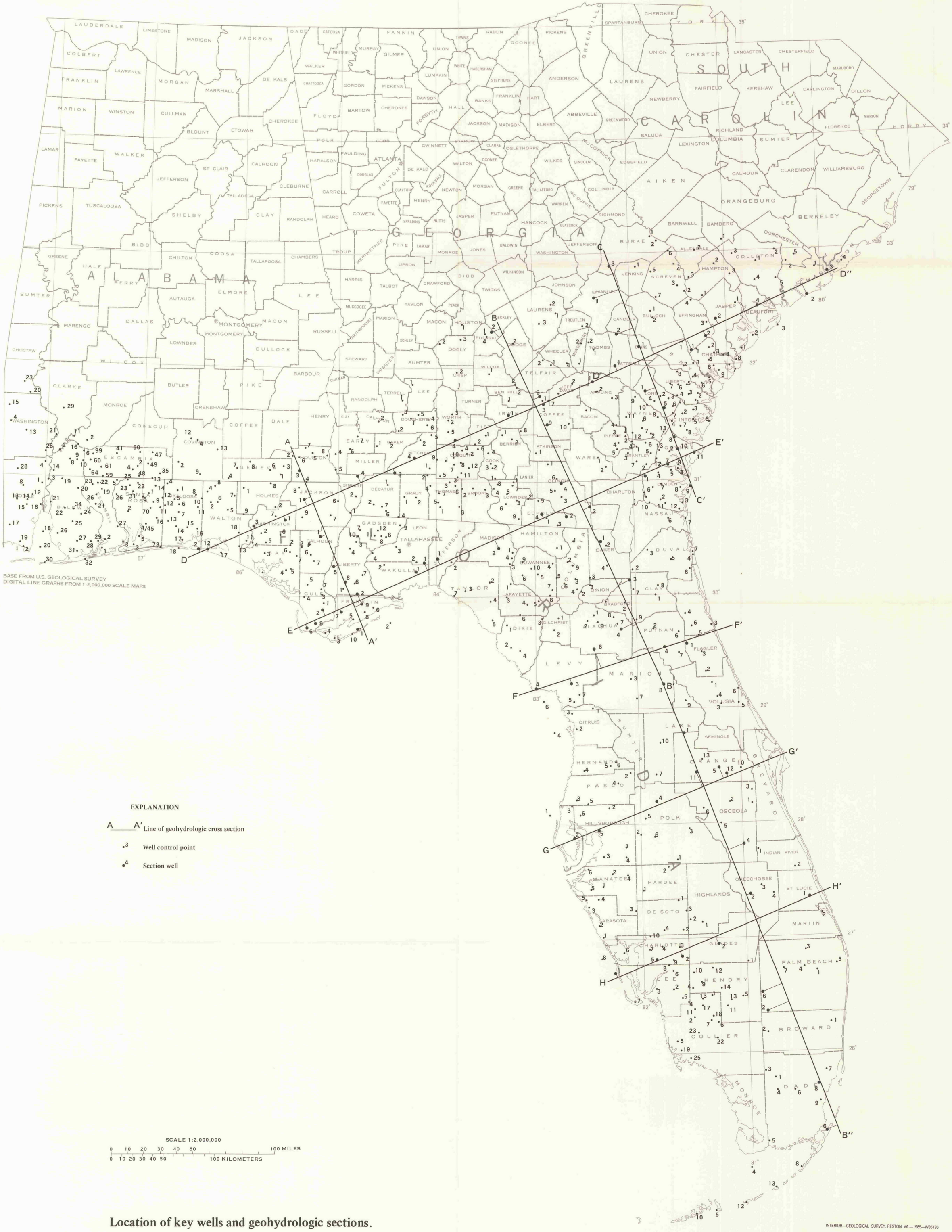

BASE FROM U.S. GEOLOGICAL SURVEY
DIGITAL LINE GRAPHS FROM 1:2,000,000 SCALE MAPS

EXPLANATION

A——A′ Line of geohydrologic cross section

•3 Well control point

•4 Section well

SCALE 1:2,000,000

0 10 20 30 40 50 100 MILES

0 10 20 30 40 50 100 KILOMETERS

Location of key wells and geohydrologic sections.

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SYSTEM	SERIES	UNIT MAPPED IN THIS REPORT	GULF COAST STAGE	ALABAMA (West)	ALABAMA (East)	FLORIDA (Panhandle)	FLORIDA (Peninsula)	GEORGIA	SOUTH CAROLINA
QUATERNARY	HOLOCENE	Post-Miocene rocks	Post - Glacial	Undifferentiated Deposits		Undifferentiated Deposits		Undifferentiated Deposits	Undifferentiated Deposits
	PLEISTOCENE		Wisconsin to Nebraskan	Terrace deposits		Terrace deposits	Undifferentiated terrace and shallow marine deposits	Terrace deposits	Terrace deposits
							Caloosahatchee Formation and equivalents		Waccamaw Formation
	PLIOCENE		Foleyan	Citronelle Formation		Citronelle Formation	Bone Valley Formation / Tamiami Formation	Charlton Formation / Raysor Formation	Raysor Formation / Goose Creek Limestone
TERTIARY	MIOCENE	Rocks of Miocene age	Clovellian Ducklakian Napoleonvillian	Undifferentiated deposits		Alum Bluff Group	Undifferentiated upper Miocene deposits / Hawthorn Formation	Hawthorn Formation	Hawthorn Formation
			Anahuacian	Catahoula Sandstone (restricted)		Tampa Limestone [2]			Edisto Formation
	OLIGOCENE	Rocks of Oligocene age	Chickasawhayan (restricted)	Paynes Hammock Formation / Chickasawhay Formation (restricted)		Chickasawhay Formation	Suwannee Limestone	Suwannee Limestone / Cooper Formation (part)	Chandler Bridge Formation / Ashley Member / Cooper Formation (part)
			Vicksburgian	Buckatunna Formation / Byram Formation / Glendon Formation / Mint Spring Formation / Marianna Formation / Forest Hill Formation / Red Bluff Formation / Bumpnose Formation (Vicksburg Group)		Buckatunna Formation / Marianna Formation / Bumpnose Formation			
	EOCENE	Rocks of late Eocene age	Jacksonian	Shubuta Member / Puchuta Marl Member / Cocoa Sand Member / North Twistwood Creek Clay Member (Yazoo Clay) / Ocala Limestone		Ocala Limestone		Ocala Limestone	Cooper Fm (part) / Tobacco Road Sand / Parkers Ferry Member / Harleyville Member / Cooper Formation (part)
				Moodys Branch Formation		Moodys Branch Formation [3]		Irwinton Sand Member / Twiggs Clay Member / Clinchfield Sand (Barnwell Formation)	Barnwell Formation
		Rocks of middle Eocene age	Claibornian	Gosport Formation / Lisbon Formation / Tallahatta Formation		Lisbon Formation [3] / Tallahatta Formation	Avon Park Formation / Lake City Limestone †	Lisbon Formation / Tallahatta Formation / Avon Park Formation / Lake City Limestone †	McBean Formation / Santee Limestone / Cross Member / Moultrie Member / Warley Hill Marl / Congaree Formation
								McBean Formation / Santee Lime-stone / Huber (?) Formation	
		Rocks of early Eocene age	Sabinian	Hatchetigbee Formation / Bashi Formation		Undifferentiated lower Eocene rocks	Oldsmar Formation	Hatchetigbee Formation / Oldsmar Formation	Fishburne Formation
	PALEOCENE	Rocks of Paleocene age		Bells Landing Marl Member / Greggs Landing Marl Member / Tuscahoma Formation / Grampian Hills Member / "Ostrea thirsae" beds / Gravel Creek Sand Member / Baker Hill Fm / Nanfalia Formation		Undifferentiated Paleocene rocks		Tuscahoma Formation / Nanfalia Formation	Black Mingo Formation
				Salt Mountain Limestone [1]		Salt Mountain Limestone [1] [3]	Cedar Keys Formation	Cedar Keys Formation	
			Midwayan	Coal Bluff Marl Member / Oak Hill Member (Naheola Formation)					
				Matthews Landing Marl Member / Porters Creek Formation / McBryde Limestone Member / Pine Barren Member / Clayton Formation		Undifferentiated Paleocene rocks		Porters Creek Formation / Clayton Formation	Ellenton Formation / Beaufort (?) Formation
CRETACEOUS	GULFIAN	Rocks of Navarro age	Navarroan	Prairie Bluff Chalk / Demopolis Chalk	Providence Sand / Ripley Formation / Cusseta Sand Member	Rocks of Navarro age	Lawson Limestone	Providence Sand / Ripley Formation / Cusseta Sand Member / Lawson Limestone [4]	Peedee Formation
		Rocks of Taylor age	Tayloran	Arcola Limestone Member of Mooreville Chalk (part)	Rocks of Taylor age	Rocks of Taylor age		Blufftown Formation (part) / Rocks of Taylor age	Black Creek Formation (part)

FOOTNOTES:

1 Local, mostly subsurface

2 Includes St. Marks Formation in west Florida

3 Geographically extended on basis of this study

4 Unit is very locally part of the Floridan aquifer system

† Abandoned

Units in blue are part of the Floridan aquifer system

Generalized correlation chart for stratigraphic units showing the position of Floridan aquifer system.

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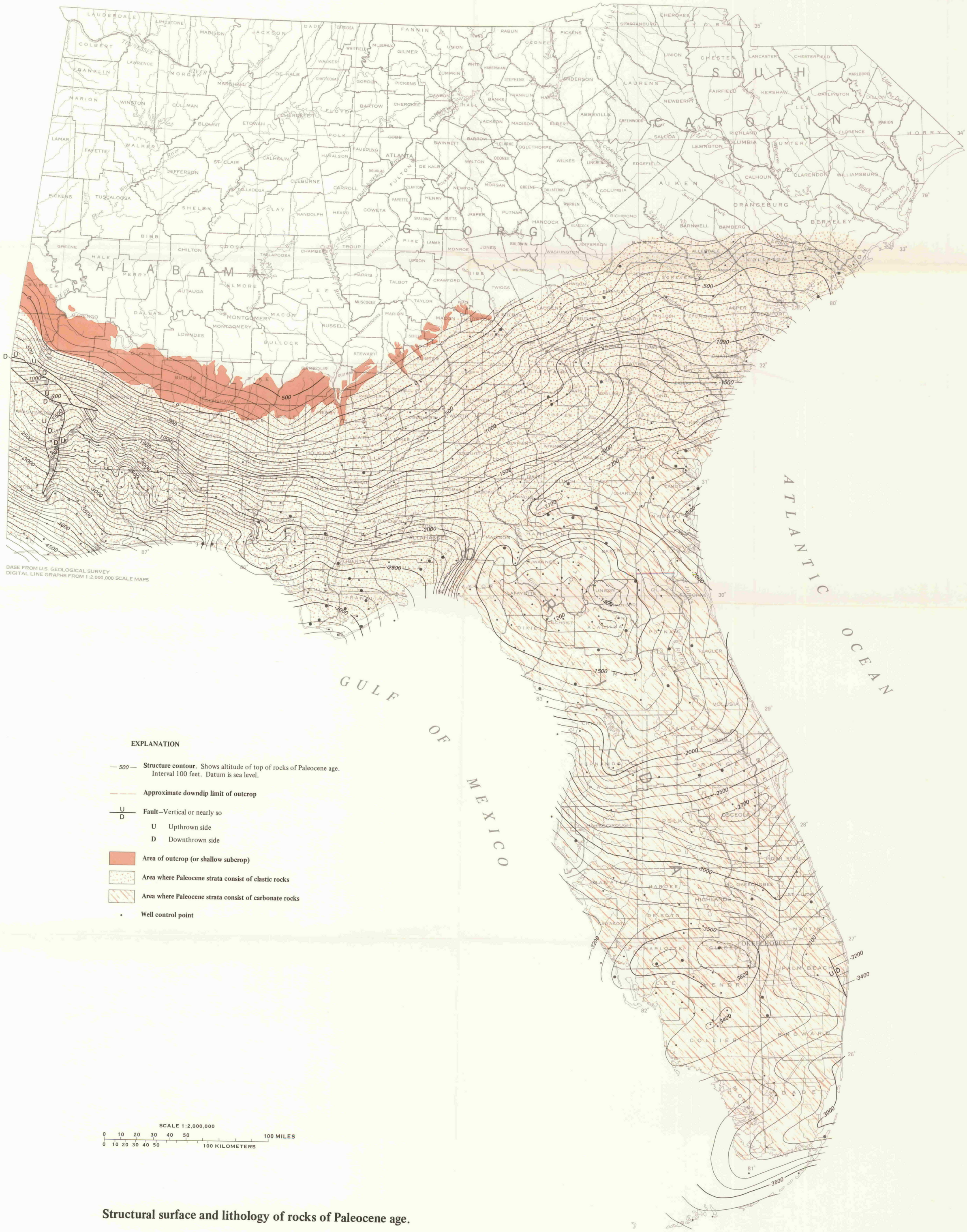
PLATE 3



BASE FROM U.S. GEOLOGICAL SURVEY
DIGITAL LINE GRAPHS FROM 1:2,000,000 SCALE MAPS

EXPLANATION

— 500 — **Structure contour.** Shows altitude of top of rocks of Paleocene age. Interval 100 feet. Datum is sea level.

Approximate downdip limit of outcrop

U/D **Fault**—Vertical or nearly so

U Upthrown side

D Downthrown side

Area of outcrop (or shallow subcrop)

Area where Paleocene strata consist of clastic rocks

Area where Paleocene strata consist of carbonate rocks

Well control point

SCALE 1:2,000,000

0 10 20 30 40 50 100 MILES

0 10 20 30 40 50 100 KILOMETERS

Structural surface and lithology of rocks of Paleocene age.

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PLATE 4

BASE FROM U.S. GEOLOGICAL SURVEY
DIGITAL LINE GRAPHS FROM 1:2,000,000 SCALE MAPS

EXPLANATION

—400— **Structure contour.** Shows altitude of top of rocks of early Eocene age. Dashed where approximate. Interval 100 feet. Datum is sea level.

— — — **Approximate updip limit of outcrop**

U / D **Fault**—Vertical or nearly so

U Upthrown side

D Downthrown side

Area of outcrop (or shallow subcrop)

Well control point

SCALE 1:2,000,000

0 10 20 30 40 50 100 MILES

0 10 20 30 40 50 100 KILOMETERS

Structural surface of rocks of early Eocene age.

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PLATE 5

EXPLANATION

—500— **Line of equal thickness of rocks of early Eocene age.** Interval 100 feet.

Approximate updip limit of outcrop

U / D **Fault**—Vertical or nearly so

U Upthrown side

D Downthrown side

Area of outcrop (or shallow subcrop)

Area where strata of early Eocene age consist of clastic rocks

Area where strata of early Eocene age consist of carbonate rocks

Well control point

SCALE 1:2,000,000

0 10 20 30 40 50 100 MILES

0 10 20 30 40 50 100 KILOMETERS

Thickness and lithology of rocks of early Eocene age.

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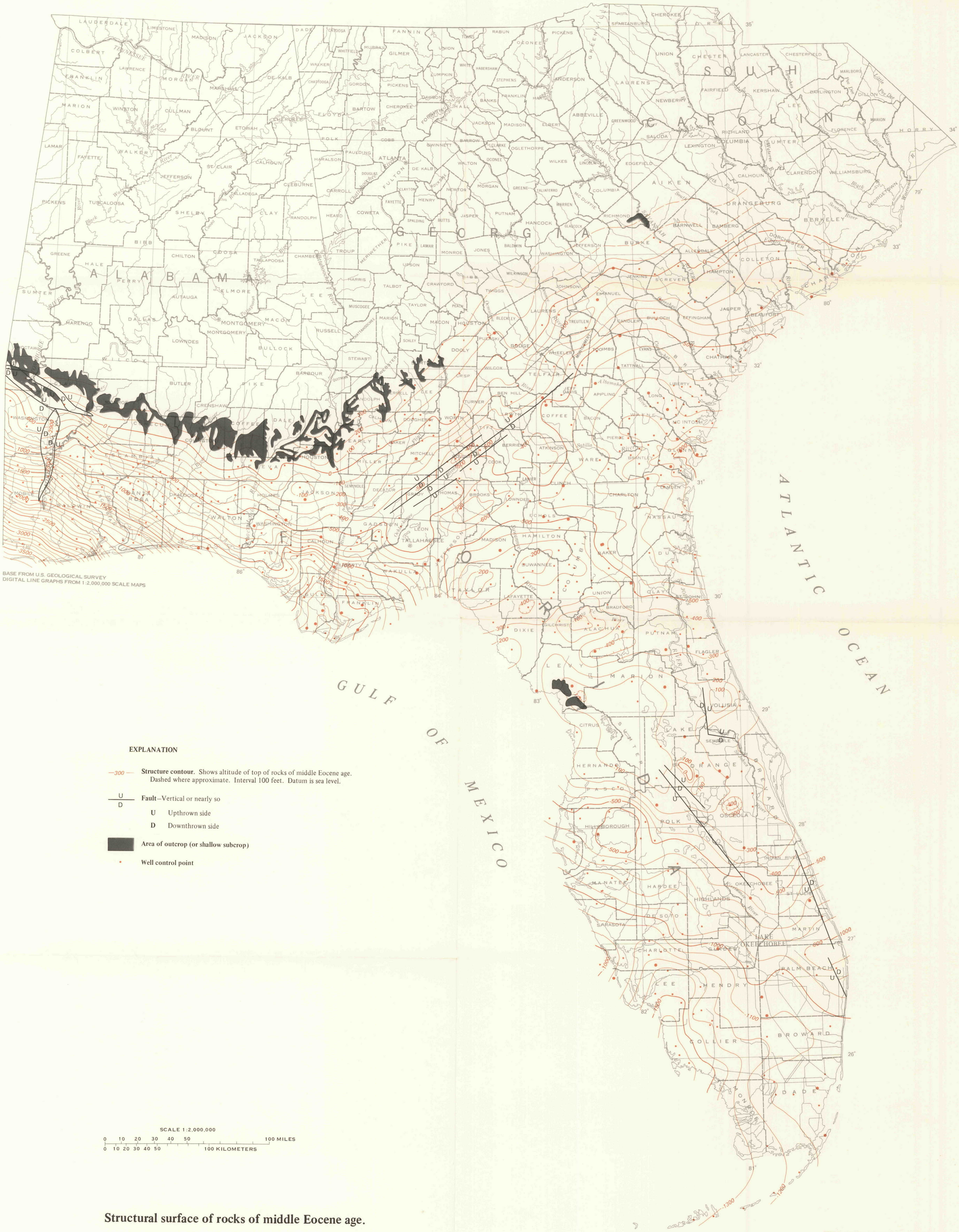
PLATE 6



Structural surface of rocks of middle Eocene age.

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PLATE 7

BASE FROM U.S. GEOLOGICAL SURVEY
DIGITAL LINE GRAPHS FROM 1:2,000,000 SCALE MAPS

EXPLANATION

—500— **Line of equal thickness of rocks of middle Eocene age.** Dashed where approximate. Interval 100 feet.

U/D **Fault**—Vertical or nearly so

U Upthrown side

D Downthrown side

Area of outcrop (or shallow subcrop)

Area where strata of middle Eocene age consist mostly of clastic rocks

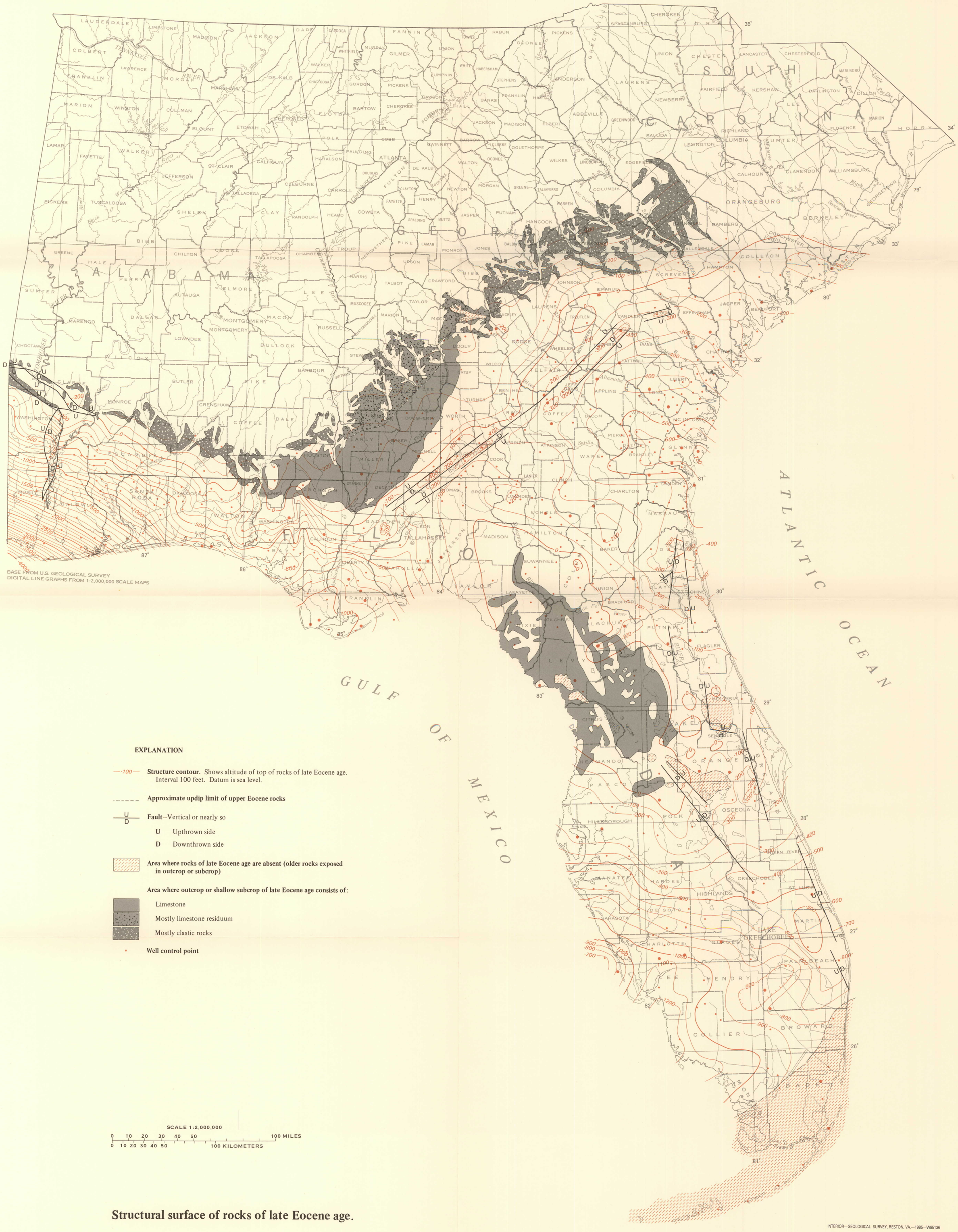
Area where strata of middle Eocene age consist of carbonate rocks

Well control point

SCALE 1:2,000,000
0 10 20 30 40 50 100 MILES
0 10 20 30 40 50 100 KILOMETERS

Thickness and lithology of rocks of middle Eocene age.

INTERIOR—GEOLOGICAL SURVEY, RESTON, VA.—1985—W85136



BASE FROM U.S. GEOLOGICAL SURVEY
DIGITAL LINE GRAPHS FROM 1:2,000,000 SCALE MAPS

EXPLANATION

—100— **Structure contour.** Shows altitude of top of rocks of late Eocene age. Interval 100 feet. Datum is sea level.

Approximate updip limit of upper Eocene rocks

U/D **Fault**—Vertical or nearly so

U Upthrown side

D Downthrown side

Area where rocks of late Eocene age are absent (older rocks exposed in outcrop or subcrop)

Area where outcrop or shallow subcrop of late Eocene age consists of:

Limestone

Mostly limestone residuum

Mostly clastic rocks

Well control point

SCALE 1:2,000,000

0 10 20 30 40 50 100 MILES

0 10 20 30 40 50 100 KILOMETERS

Structural surface of rocks of late Eocene age.

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PLATE 9

BASE FROM U.S. GEOLOGICAL SURVEY
DIGITAL LINE GRAPHS FROM 1:2,000,000 SCALE MAPS

EXPLANATION

—300— **Line of equal thickness of rocks of late Eocene age.** Interval 100 feet.

------ **Approximate updip limit of upper Eocene rocks**

U/D **Fault**—Vertical or nearly so

U Upthrown side

D Downthrown side

Area where rocks of late Eocene age are absent (older rocks exposed in outcrop or subcrop)

Area where outcrop or shallow subcrop of late Eocene age consists of:

Limestone

Mostly limestone residuum

Mostly clastic rocks

• **Well control point**

SCALE 1:2,000,000

0 10 20 30 40 50 100 MILES

0 10 20 30 40 50 100 KILOMETERS

Thickness and lithology of rocks of late Eocene age.

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BASE FROM U.S. GEOLOGICAL SURVEY
DIGITAL LINE GRAPHS FROM 1:2,000,000 SCALE MAPS

EXPLANATION

— 500 — **Structure contour.** Shows altitude of top of rocks of Oligocene age. Interval 100 feet. Datum is sea level.

Approximate updip limit of Oligocene rocks

U / D **Fault**—Vertical or nearly so

- **U** Upthrown side
- **D** Downthrown side

Area of outcrop (or shallow subcrop)

Subsurface outlier

Older rocks exposed through unit

Well control point

SCALE 1:2,000,000
0 10 20 30 40 50 100 MILES
0 10 20 30 40 50 100 KILOMETERS

Structural surface of rocks of Oligocene age.

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PLATE 11

BASE FROM U.S. GEOLOGICAL SURVEY
DIGITAL LINE GRAPHS FROM 1:2,000,000 SCALE MAPS

EXPLANATION

—500— **Line of equal thickness of rocks of Oligocene age.** Interval 100 feet.

Approximate updip limit of Oligocene rocks

U/D **Fault**—Vertical or nearly so

U Upthrown side

D Downthrown side

Area of outcrop (or shallow subcrop)

Area where Oligocene strata consist largely of clastic rocks

Area where Oligocene strata consist of carbonate rocks

Subsurface outlier

Older rocks exposed through unit

Well control point

SCALE 1:2,000,000
0 10 20 30 40 50 100 MILES
0 10 20 30 40 50 100 KILOMETERS

Thickness and lithology of rocks of Oligocene age.

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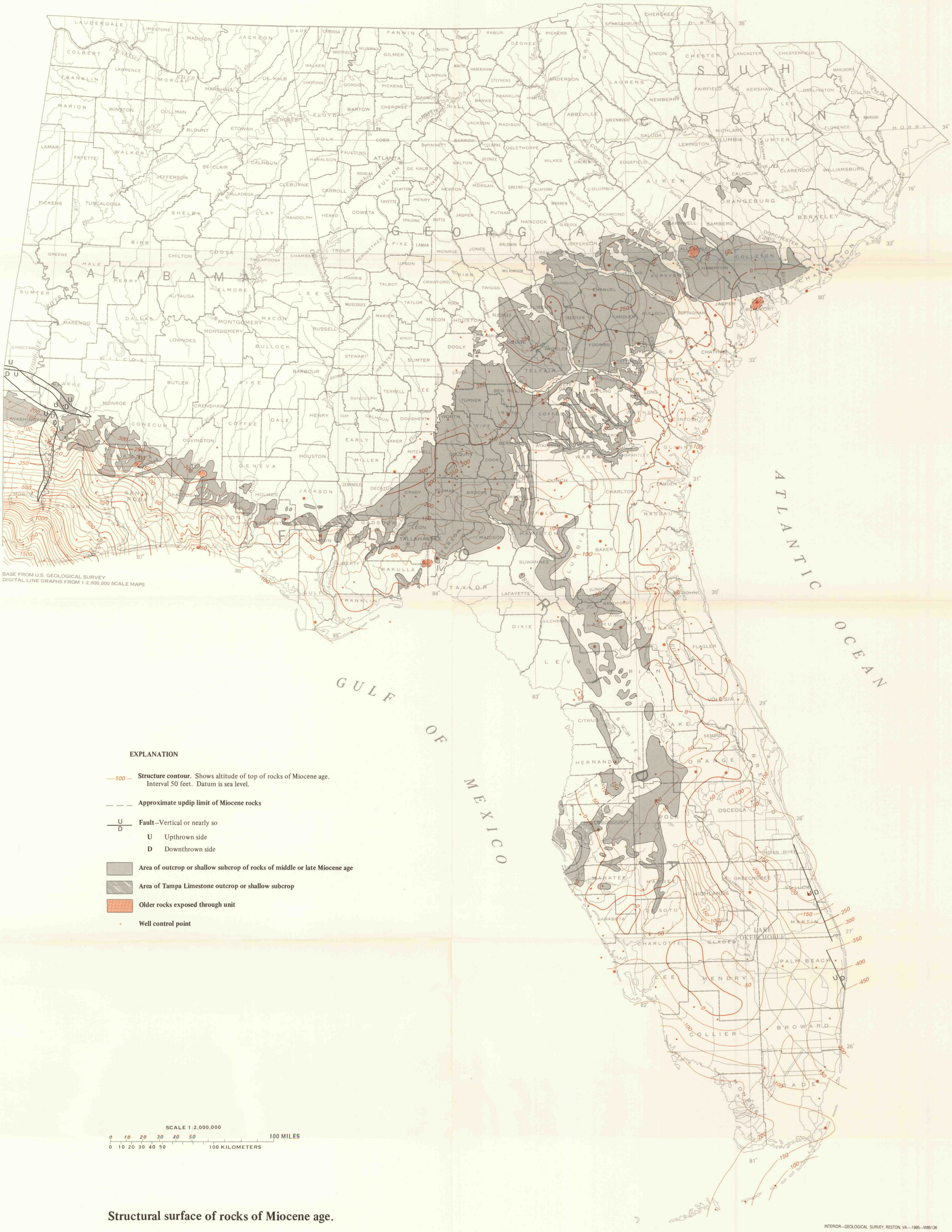

Structural surface of rocks of Miocene age.

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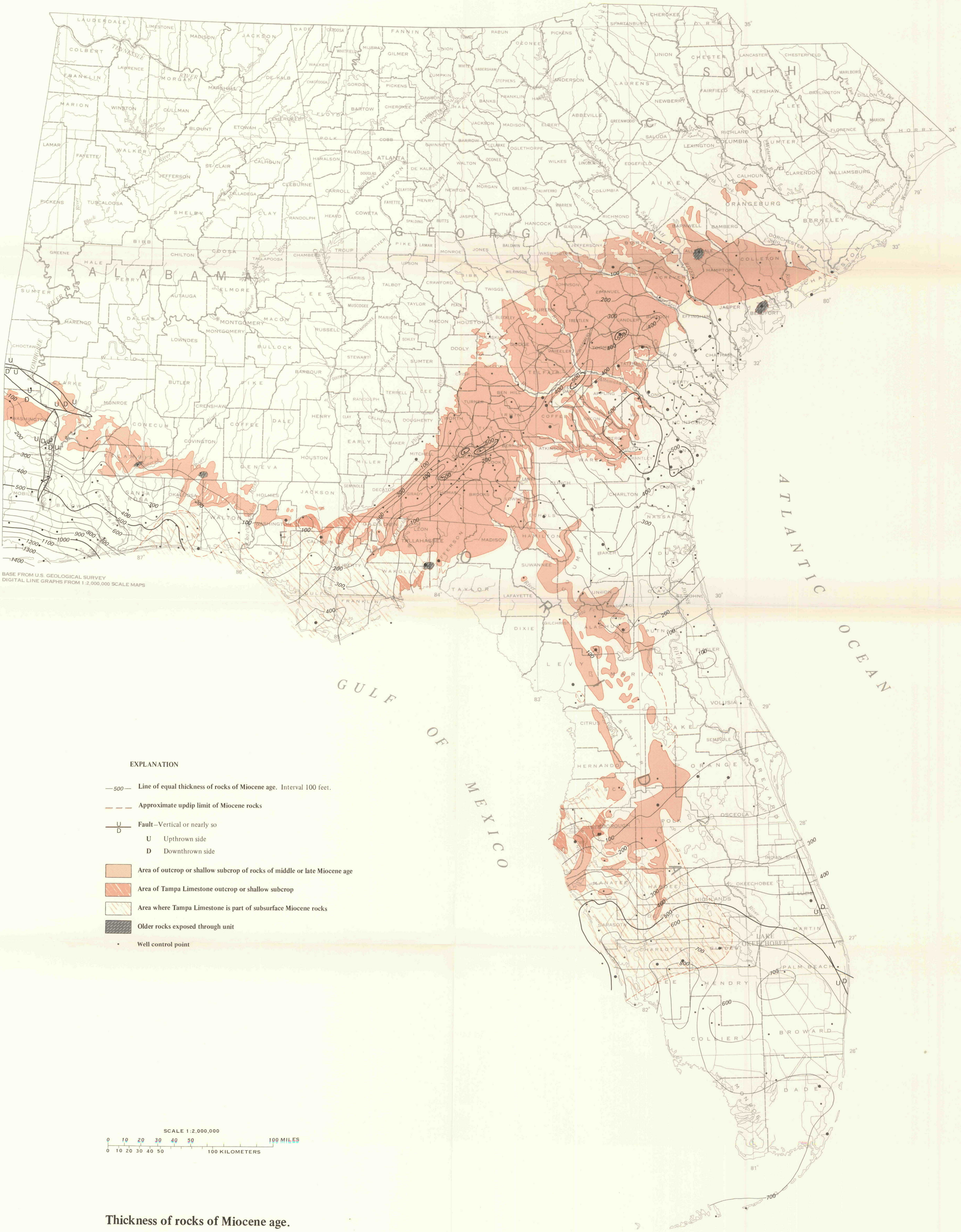
PLATE 13



BASE FROM U.S. GEOLOGICAL SURVEY
DIGITAL LINE GRAPHS FROM 1:2,000,000 SCALE MAPS

EXPLANATION

—500— **Line of equal thickness of rocks of Miocene age.** Interval 100 feet.

Approximate updip limit of Miocene rocks

U / D **Fault**–Vertical or nearly so

U Upthrown side

D Downthrown side

Area of outcrop or shallow subcrop of rocks of middle or late Miocene age

Area of Tampa Limestone outcrop or shallow subcrop

Area where Tampa Limestone is part of subsurface Miocene rocks

Older rocks exposed through unit

• **Well control point**

SCALE 1:2,000,000

0 10 20 30 40 50 100 MILES

0 10 20 30 40 50 100 KILOMETERS

Thickness of rocks of Miocene age.

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BASE FROM U.S. GEOLOGICAL SURVEY
DIGITAL LINE GRAPHS FROM 1:2,000,000 SCALE MAPS

EXPLANATION

—500— **Line of equal thickness of post–Miocene rocks.** Interval 50 feet.

U/D **Fault**–Vertical or nearly so

U Upthrown side

D Downthrown side

Older rocks exposed through unit

Well control point

SCALE 1:2,000,000

0 10 20 30 40 50 100 MILES

0 10 20 30 40 50 100 KILOMETERS

Thickness of rocks of post-Miocene age.

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