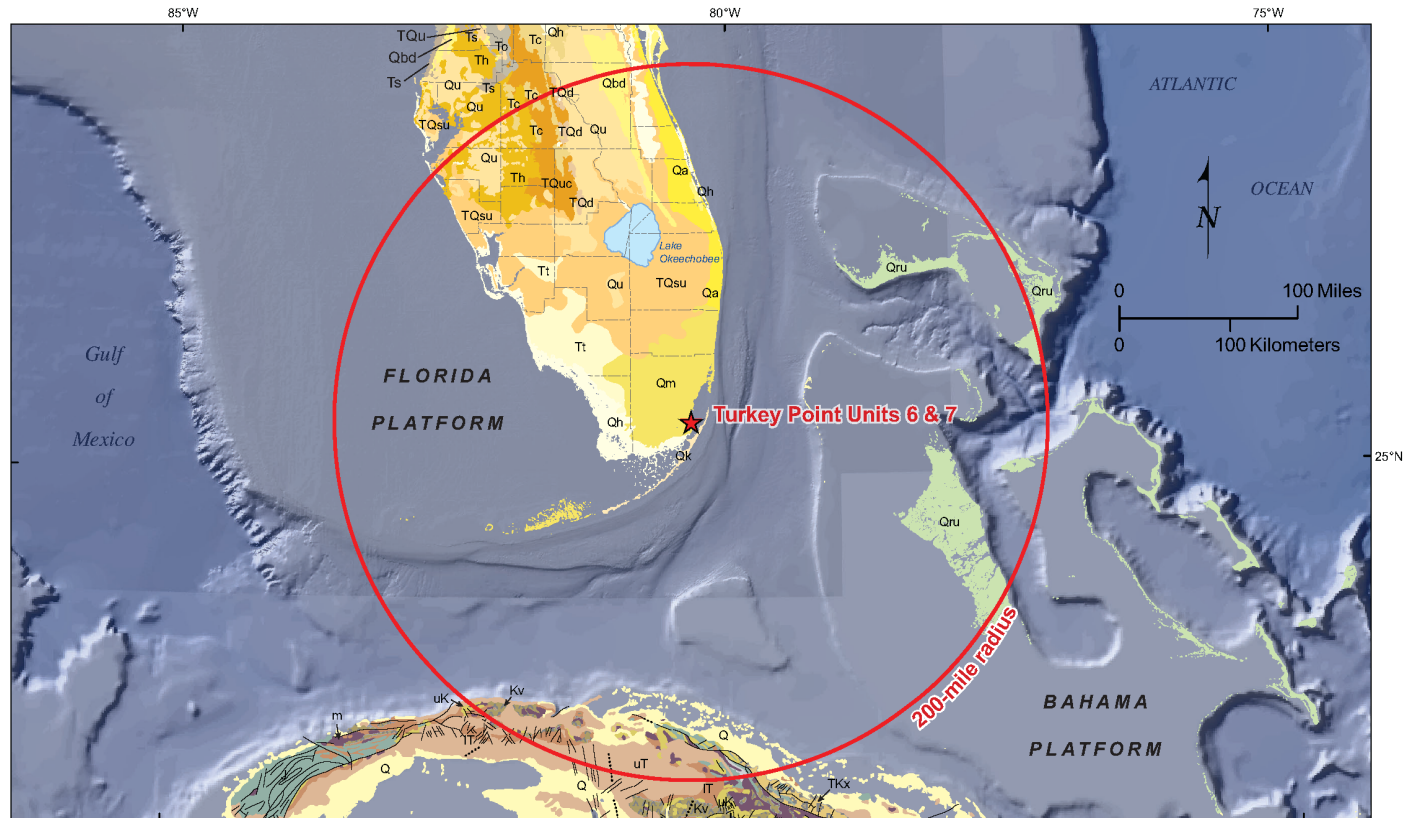


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**Figure 2.5.1-201 Site Region Geologic Map (Sheet 1 of 2)**



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**Figure 2.5.1-201 Site Region Geologic Map (Sheet 2 of 2)**

**Explanation**

— ..... Fault; dotted where uncertain

*Florida Geologic Units*

QUATERNARY	Qh	Holocene sediments		
	Qa	Anastasia Formation	Qk	Key Largo Limestone
	Qdb	Beach Ridge and Dune deposits	Qm	Miami Limestone
	Qu	Undifferentiated sediments		
LATE TERTIARY/ EARLY QUATERNARY	TQsu	Shelly sediments (includes Fort Thompson, Bermont, and Caloostahatchee Formations)		
	TQuc	Reworked Cypresshead sediments		
	TQd	Dune deposits		
	TQu	Undifferentiated sediments		
TERTIARY	Tc	Cypresshead Formation		
	Tt	Tamiami Formation		
	Th	Hawthorn Group, undivided		
	Ts	Suwannee Limestone		
	To	Ocala Limestone		

*Other Geologic Units*

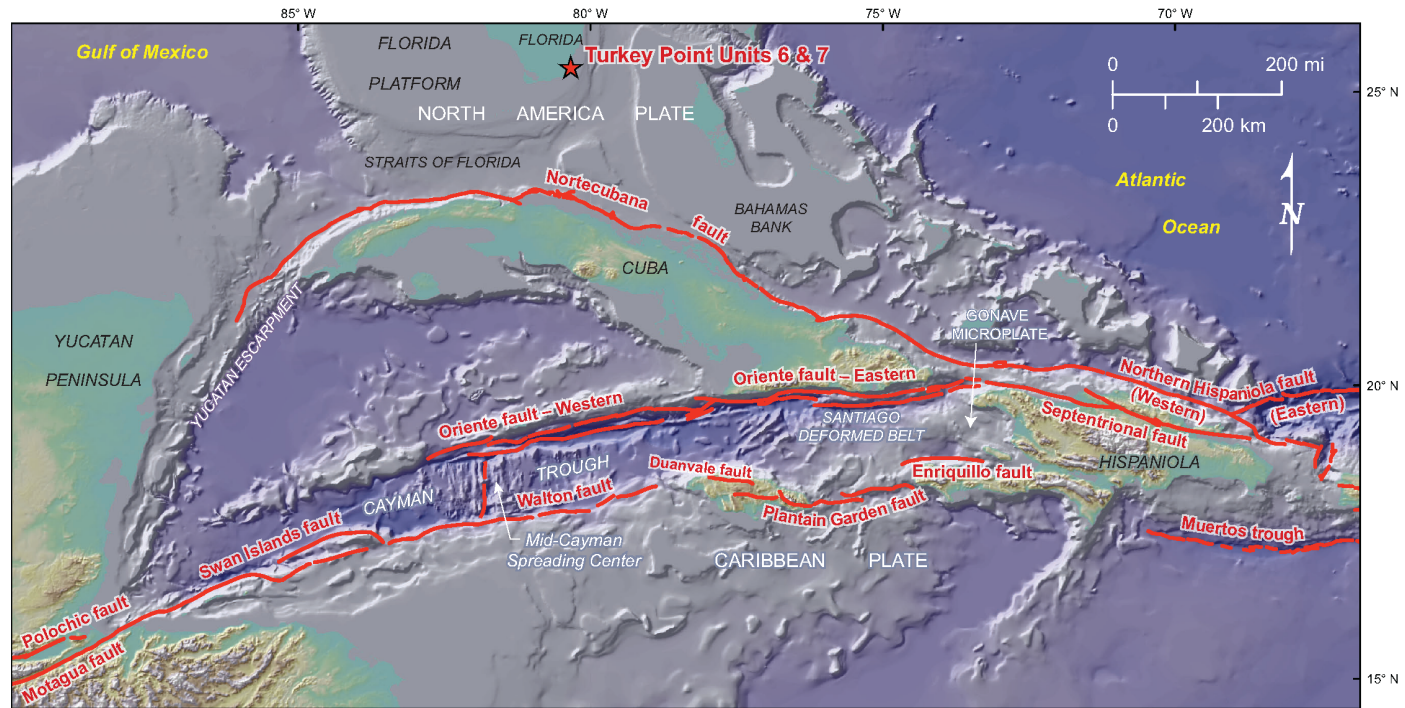
Q	Quaternary alluvium
Qru	Quaternary reef deposits, undivided
uT	Post-Eocene marine strata
IT	Eocene and/or Paleocene marine strata
TKx	Tertiary and Cretaceous complex of deformed sedimentary rocks
uK	Upper Cretaceous marine strata
Kv	Cretaceous volcanic rocks
Ki	Cretaceous plutons, mostly intermediate to silicic
J	Jurassic marine and continental strata
Mm	Mesozoic metamorphic rocks
m	Mafic and ultramafic rocks

Note: Geologic information from [References 827](#), [492](#), and [397](#)



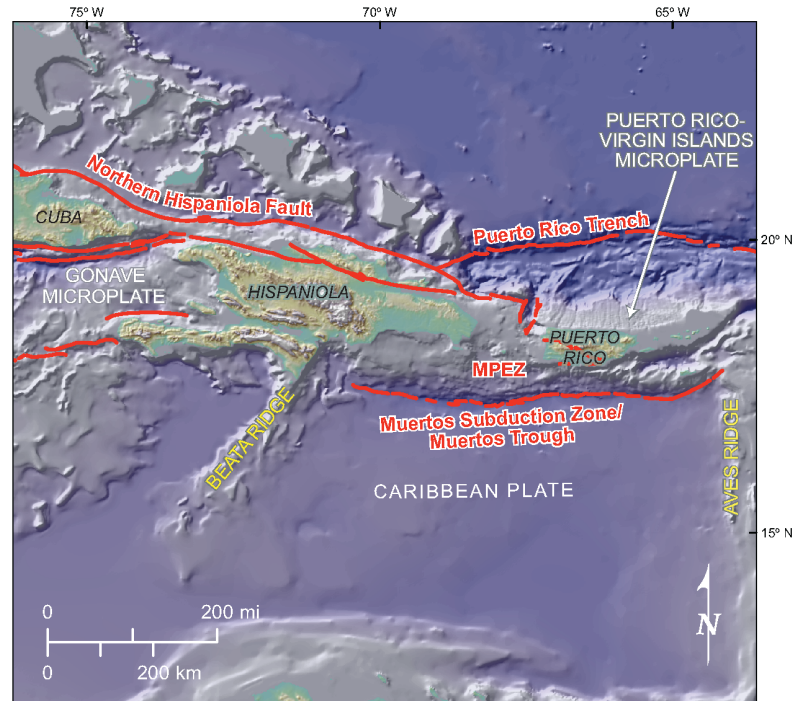
Turkey Point Units 6 & 7  
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Figure 2.5.1-202 Tectonic Map of the Northern Caribbean-North America Plate Boundary (Sheet 1 of 2)

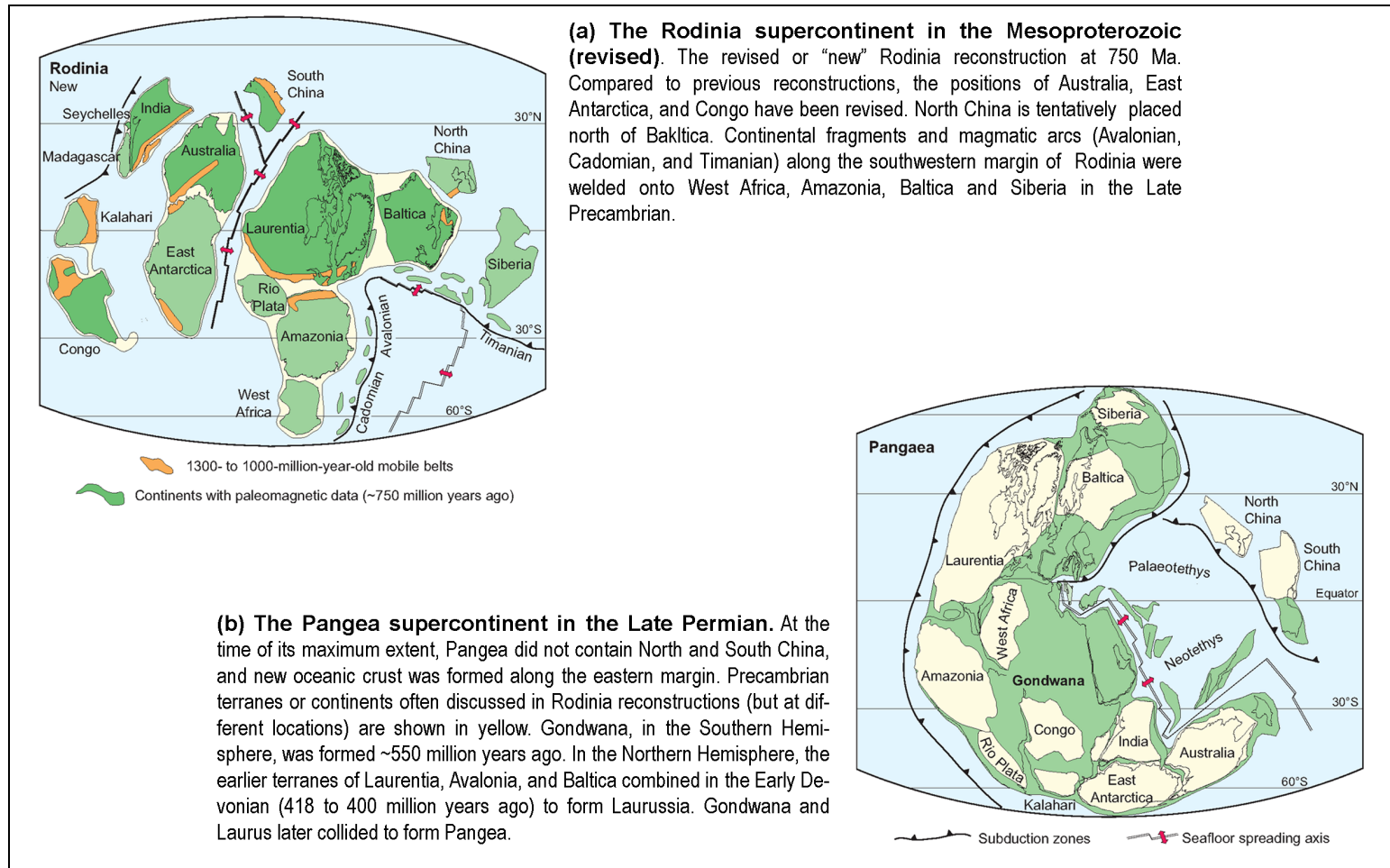


Turkey Point Units 6 & 7  
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**Figure 2.5.1-202 Tectonic Map of the Northern Caribbean-North America Plate Boundary (Sheet 2 of 2)**



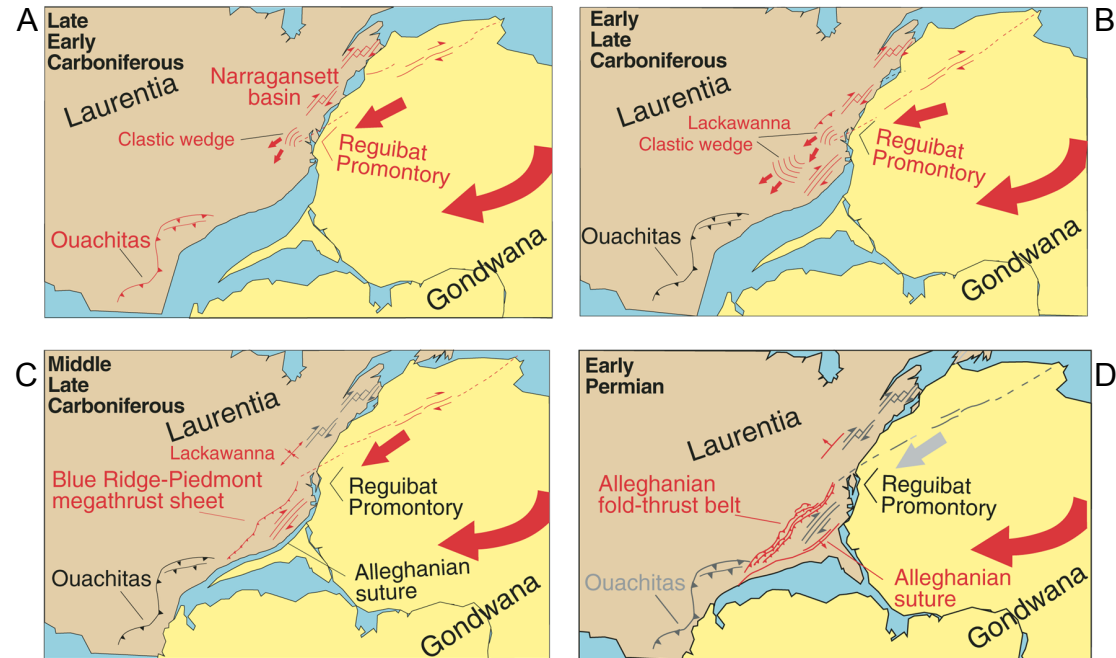
**Figure 2.5.1-203 Supercontinents Rodinia and Pangea**



Modified from [Reference 759](#)

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**Figure 2.5.1-204 Alleghanian Oblique Rotational Collision between Laurentia and Gondwana**



**Notes:**

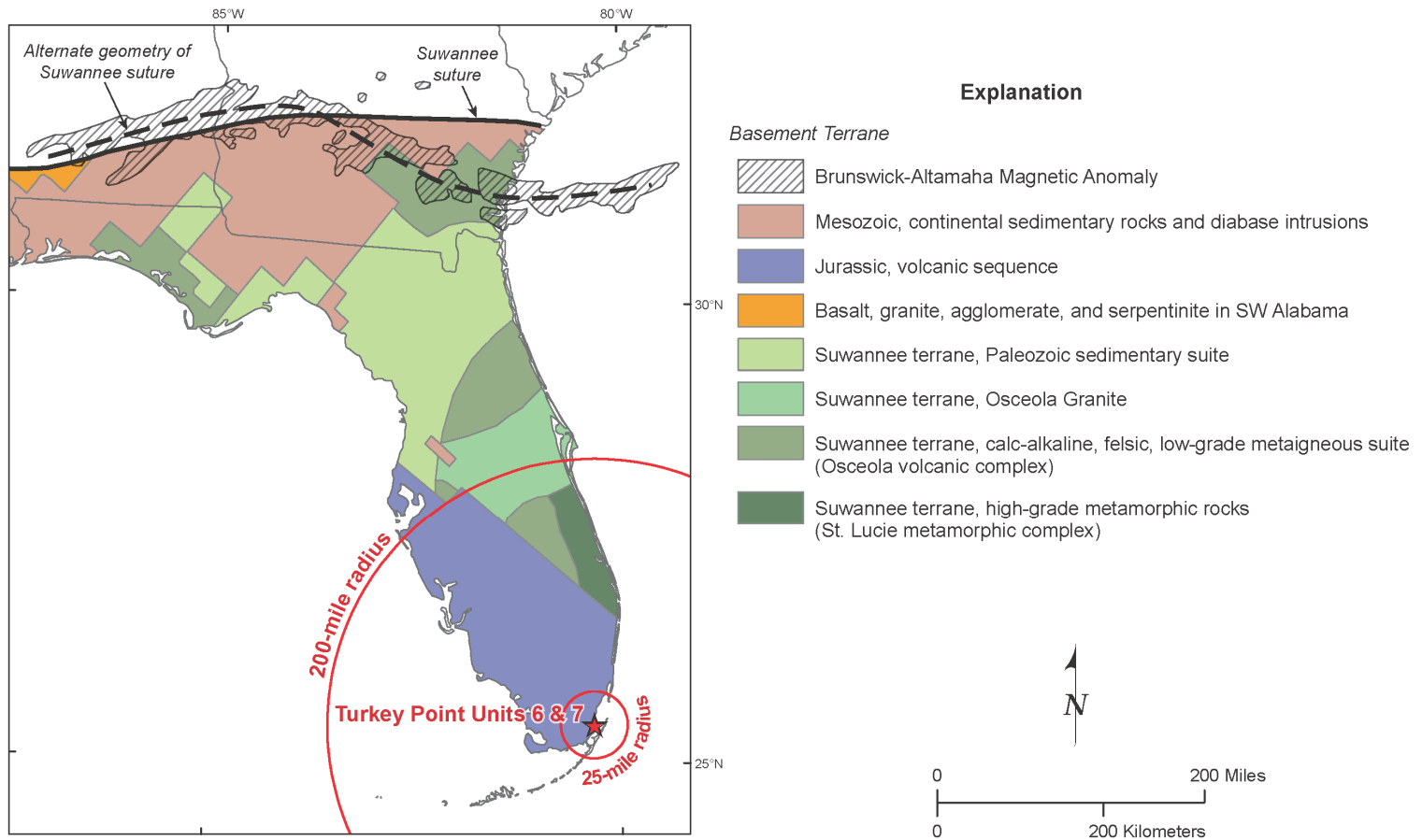
Red lines and symbols indicate feature is active in the time interval shown.

- (A) Initial contact between Gondwana and Laurentia occurred in late Early Carboniferous (late Mississippian), producing initially sinistral faulting in New England followed immediately by dextral motion and pull-apart basins, then shedding of clastic sediments onto the continent, and Lackawanna-phase deformation.
- (B) Southward movement and rotation of Gondwana with respect to Laurentia in early Late Carboniferous (early Pennsylvanian) produced dextral motion throughout orogen, waning of Lackawanna phase deformation, and greater dispersal of sediments onto the Laurentian foreland.
- (C) Continued clockwise rotation of Gondwana with respect to Laurentia during the Late Carboniferous closed the Theic ocean southward, bringing Gondwana into head-on collision with Laurentia, and producing the first movement on the Blue Ridge–Piedmont mega-thrust sheet.
- (D) Early Permian head-on collision of Gondwana with Laurentia produced major transport on Blue Ridge–Piedmont mega-thrust sheet that drove foreland fold-thrust belt deformation (Valley and Ridge and Plateau) ahead of it.

Source: [Reference 795](#)

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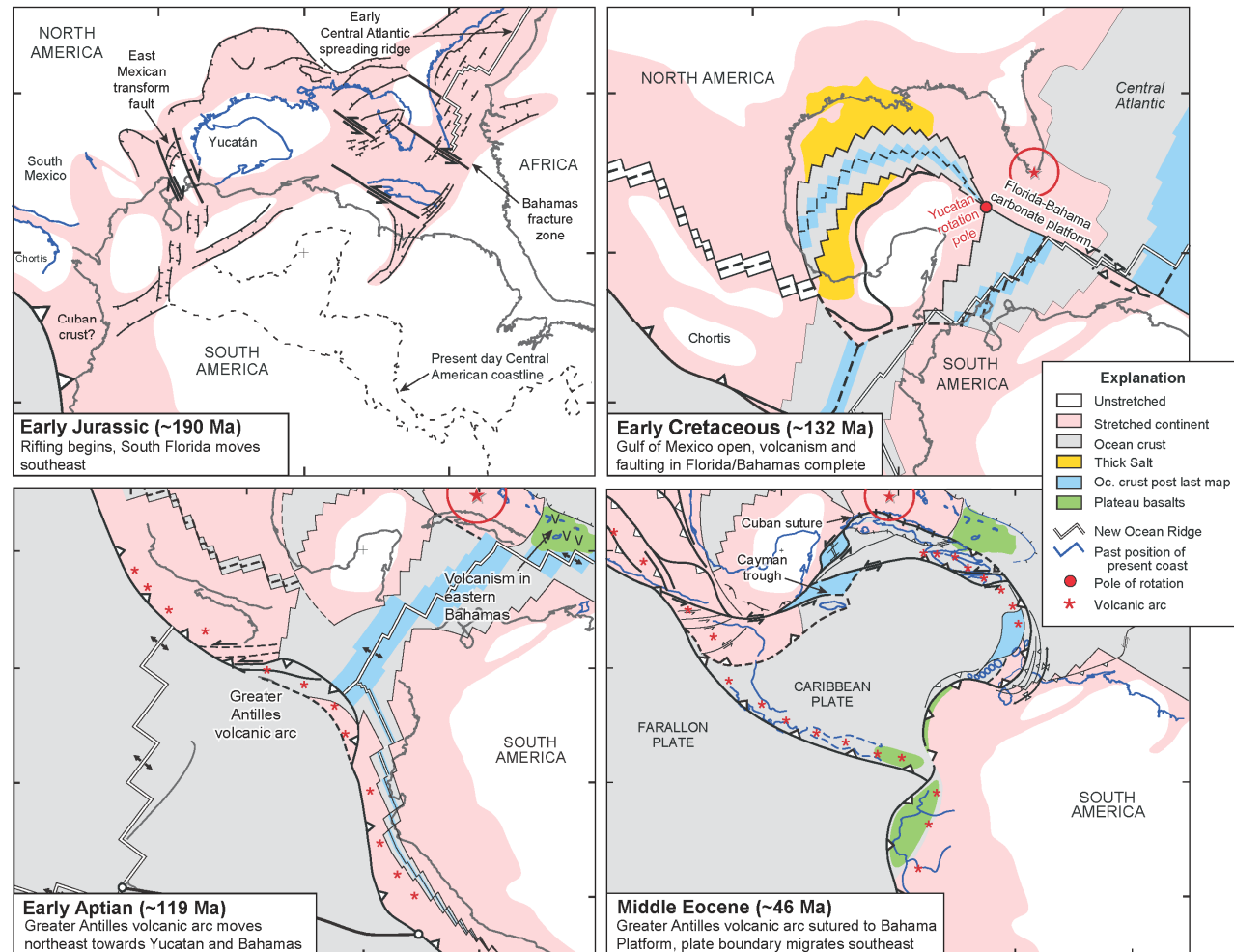
**Figure 2.5.1-205 Interpreted Basement Map of Florida**



Modified from: [References 206, 337, and 338.](#)

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**Figure 2.5.1-206 Tectonic Plate Reconstructions of Gulf of Mexico and Caribbean Region**

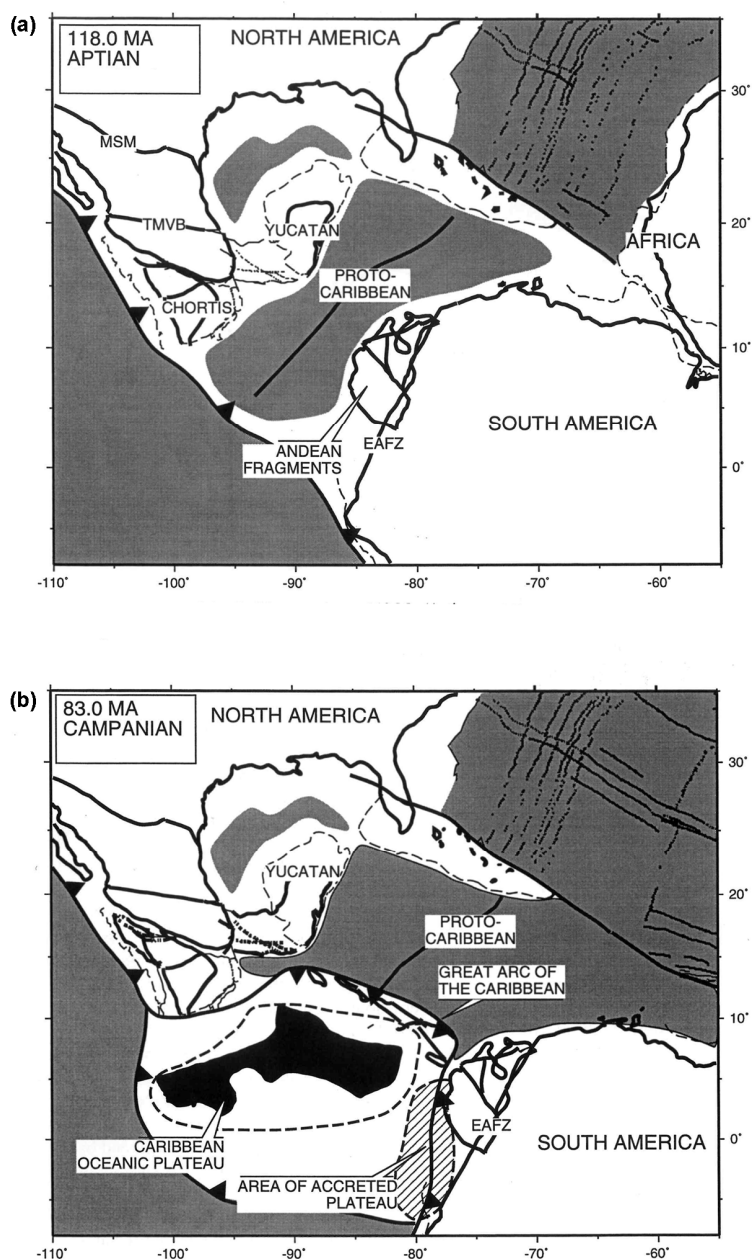


Note: Red circle is the approximate location of the 200-mile radius site region  
Modified from [Reference 696](#)



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**Figure 2.5.1-207 Reconstruction of the Caribbean**



Notes:

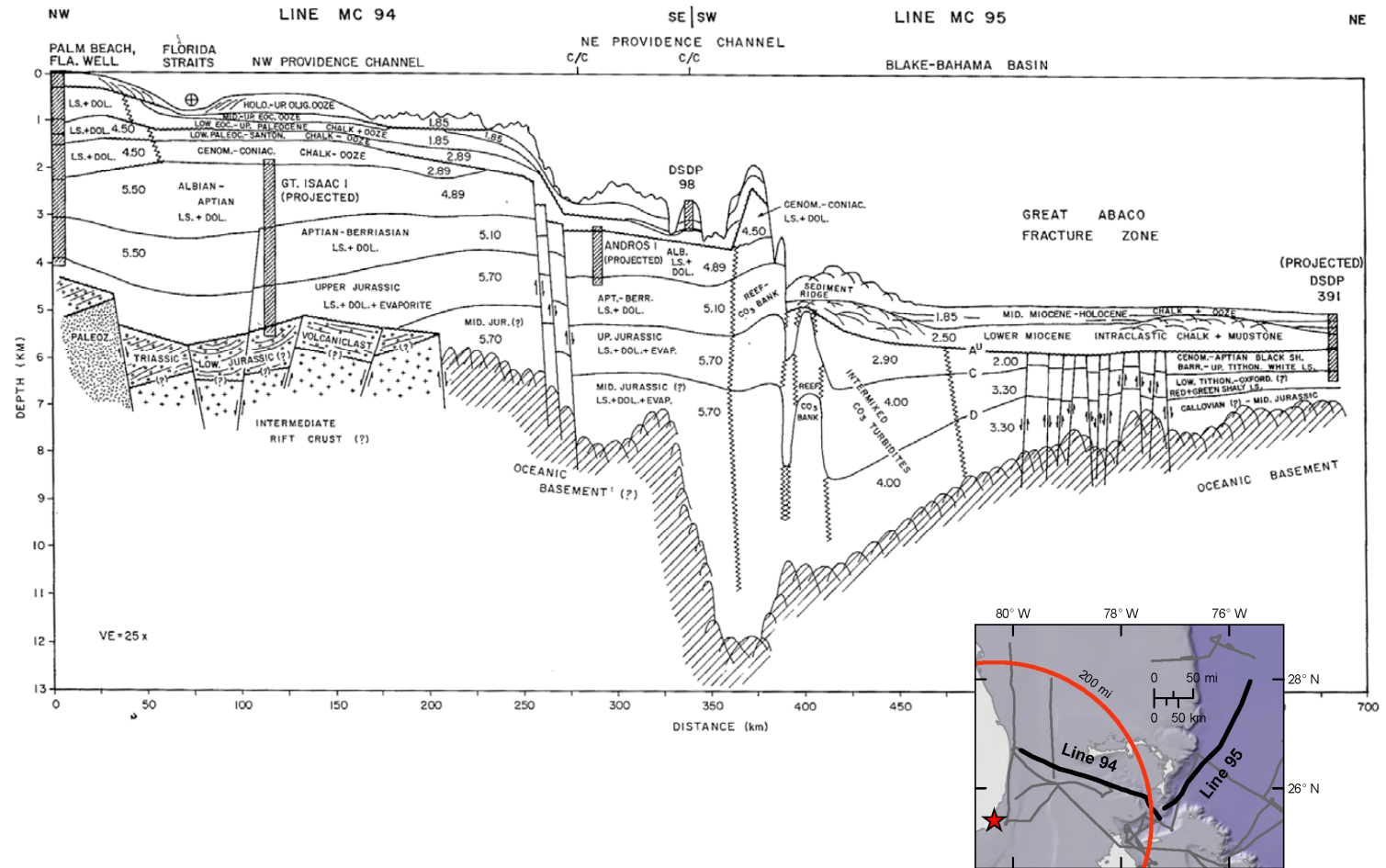
- (a) Reconstruction of the Caribbean region at 118 Ma
- (b) Reconstruction of the Caribbean region at 83 Ma

MSM = Mohave-Sonora megashear, TMVB = Trans-Mexican volcanic belt, EAFZ = eastern Andean fault zone

Modified from: [Reference 782](#)

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Figure 2.5.1-208 Interpretation of Seismic Line across Bahama Platform and Blake-Bahamas Basin

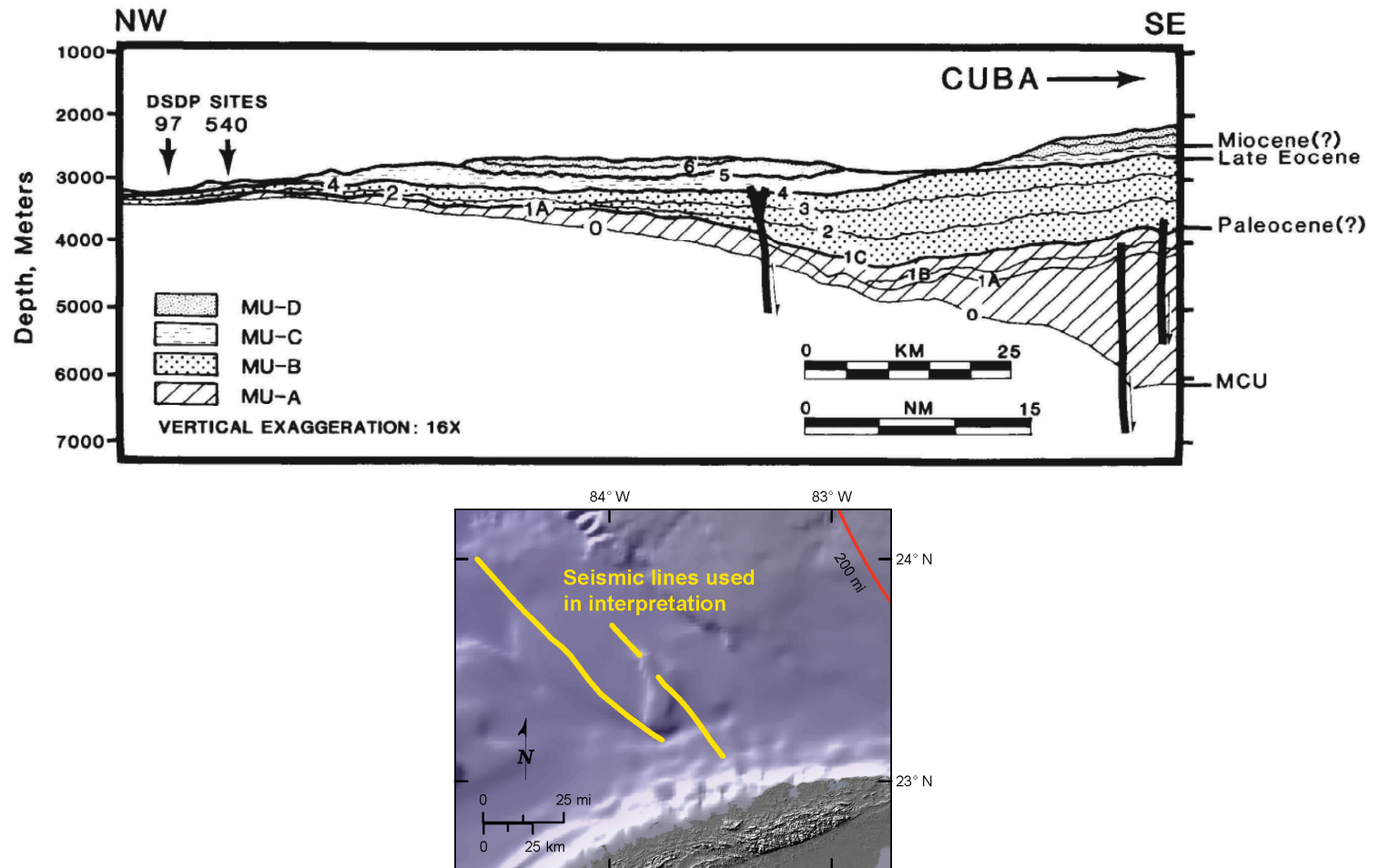


Note: See Figure 2.5.1-243 for the location and log of the Great Isaac Well 1.

Modified from: Reference 307

Turkey Point Units 6 & 7  
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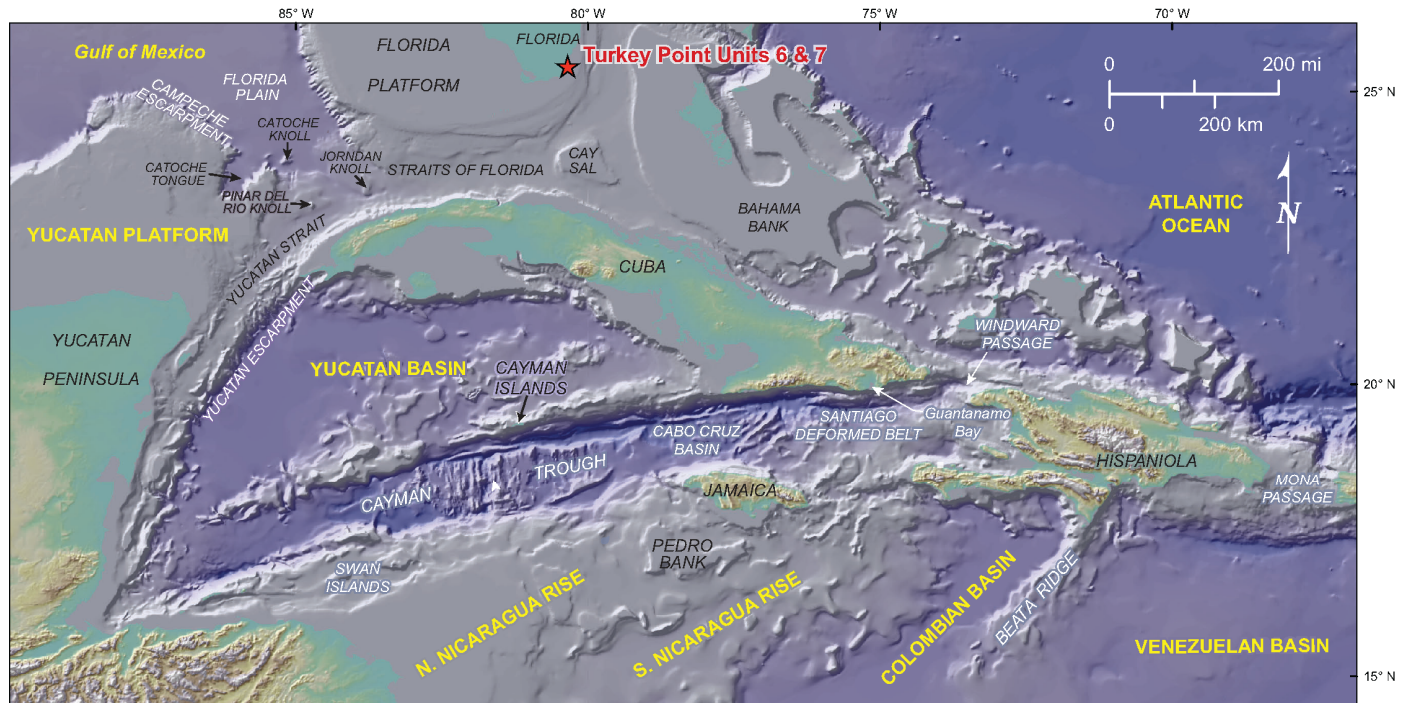
Figure 2.5.1-209 Seismic Line Interpretation of Cuba Foreland Basin, offshore west Cuba



Modified from: [Reference 482](#)

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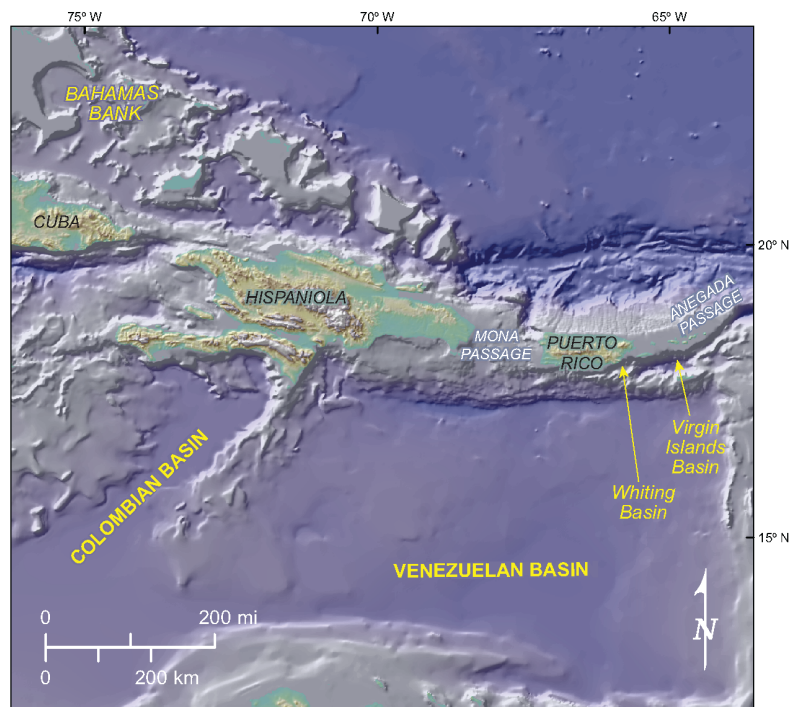
Figure 2.5.1-210 Physiographic Features of Northern Caribbean-North America Plate Boundary (Sheet 1 of 2)





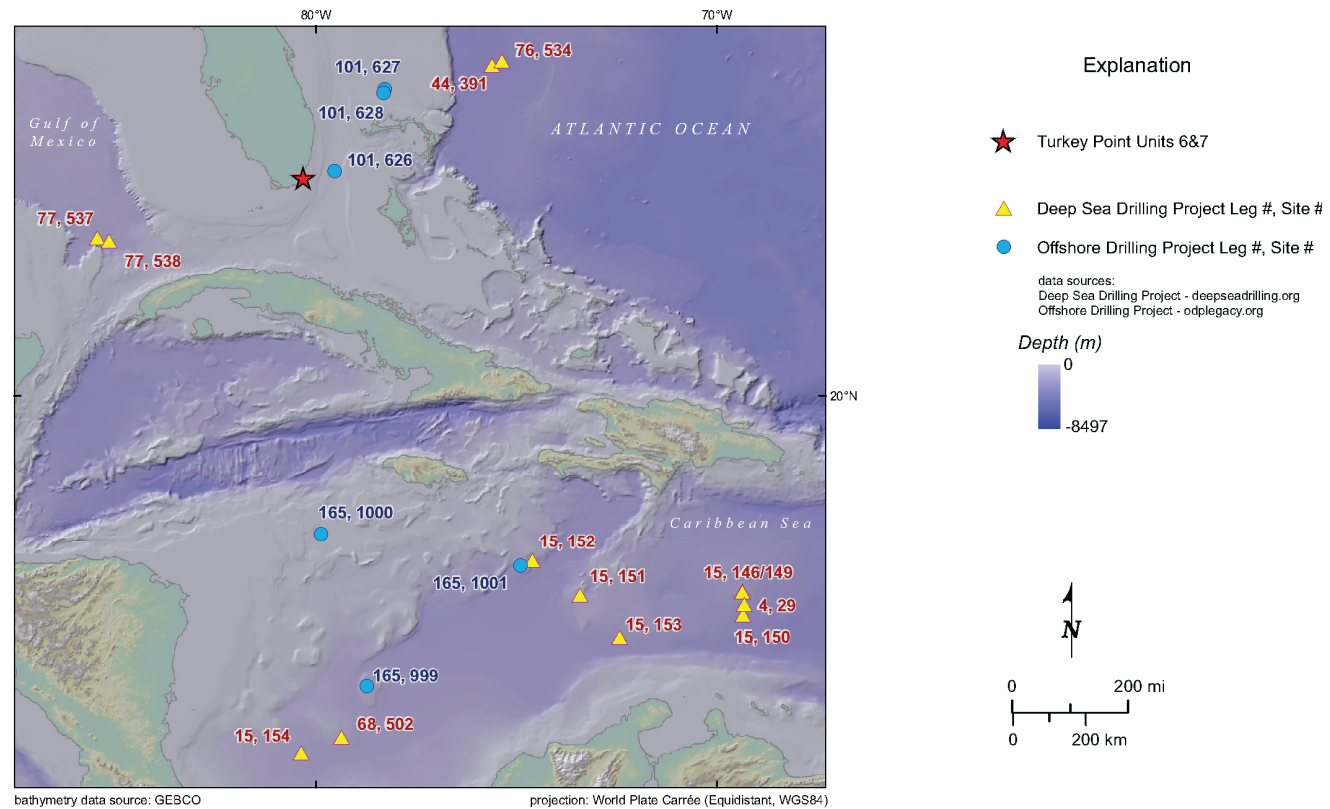
Turkey Point Units 6 & 7  
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**Figure 2.5.1-210 Physiographic Features of Northern Caribbean-North America Plate Boundary (Sheet 2 of 2)**



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**Figure 2.5.1-211 Deep Sea Drilling Locations**

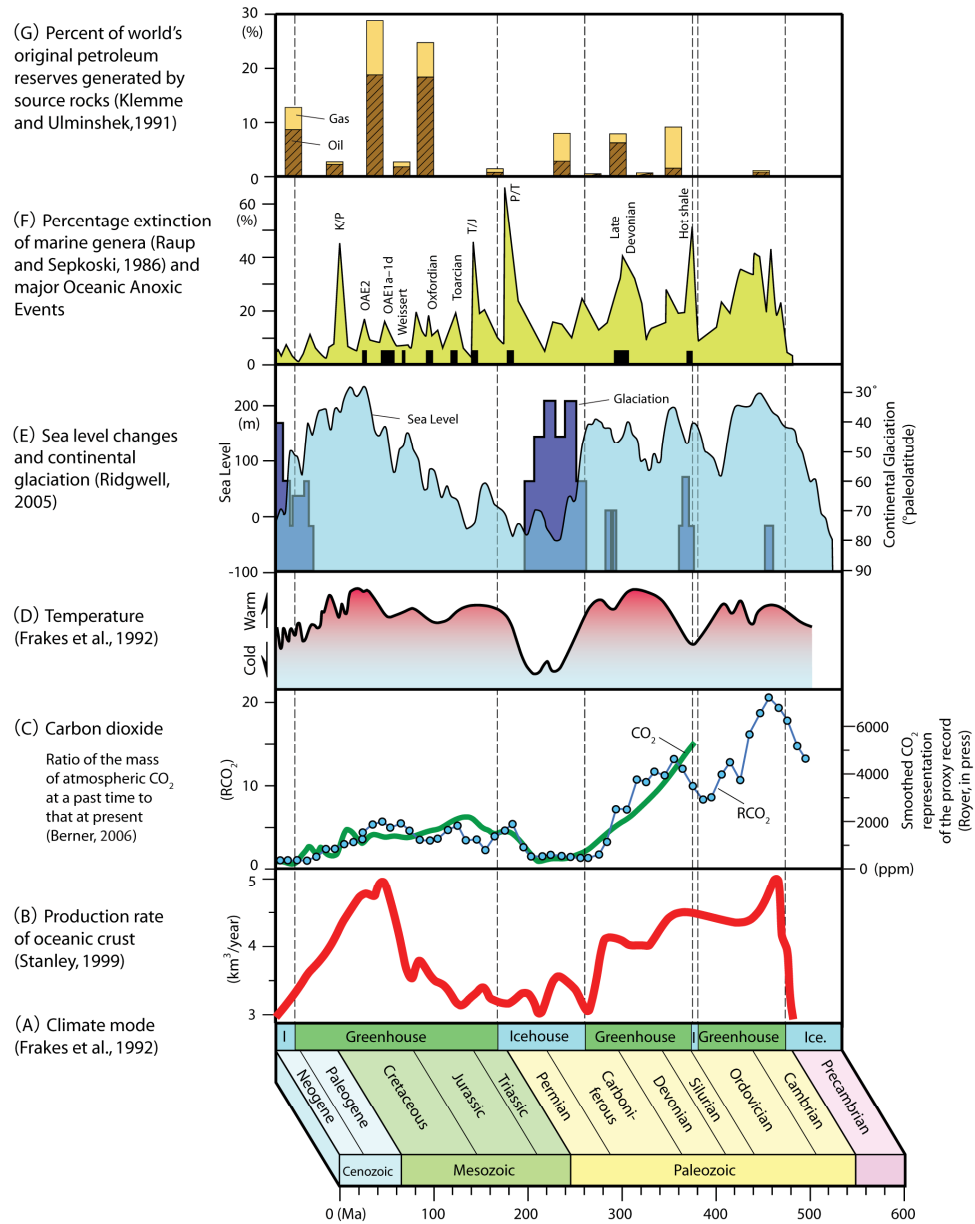


Source of DSDP location coordinates: [Reference 802](#)  
Source of ODP location coordinates: [Reference 803](#)



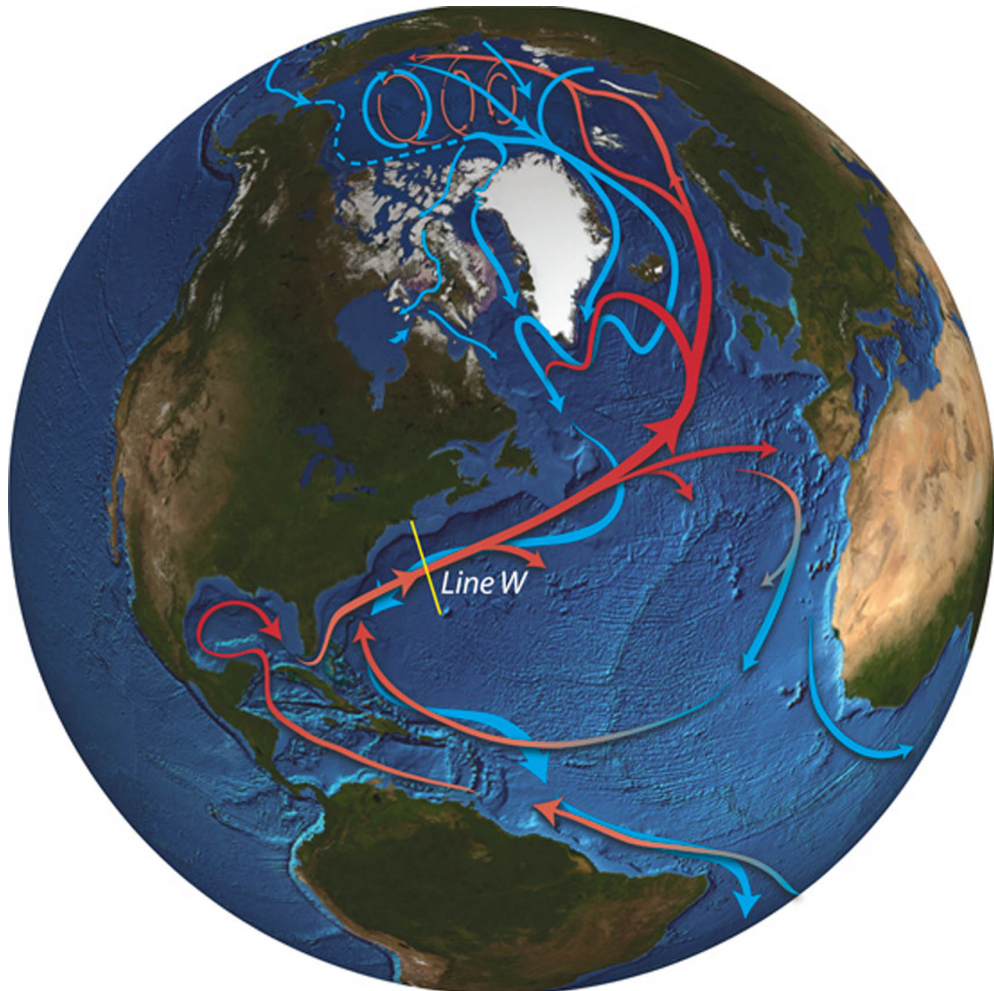
Turkey Point Units 6 & 7  
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**Figure 2.5.1-212 Climate Change Parameters - Past 600 My**



Modified from: [Reference 761](#)

**Figure 2.5.1-213 Caribbean Currents Driven by the  
Great Ocean Conveyor Belt**

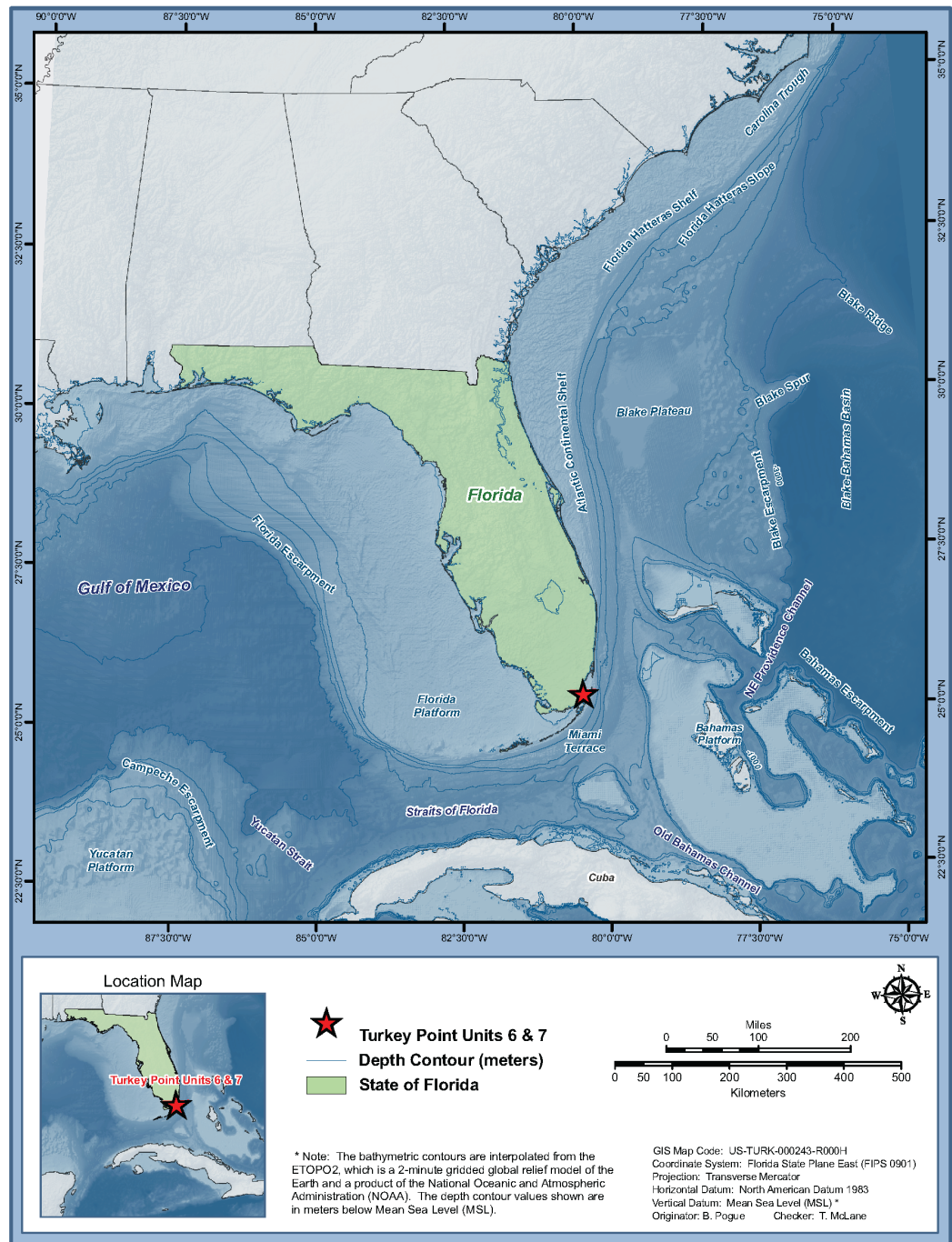


Note: The Antilles Current flows northeast around the Bahama Bank. The Caribbean Current enters the Caribbean through a series of narrow passages and continues into the Gulf of Mexico as the Loop Current, finally exiting through the Florida Straits as the Florida Current. The Florida Current rejoins the Antilles Current and together form the Gulf Stream. The Gulf Stream then moves warm, salty water north along the U.S. East Coast and then toward Europe, before it transitions into the North Atlantic Current and heads north. As this water reaches higher latitudes, it releases heat to the atmosphere, tempering winters in the North Atlantic region and leaving behind saltier, cooler, and denser waters. These transformed waters sink to the depths and form the Deep Western Boundary Current, which flows southward along the East Coast—beneath the northward-flowing Gulf Stream—and into the South Atlantic.

Source: [Reference 821](#)

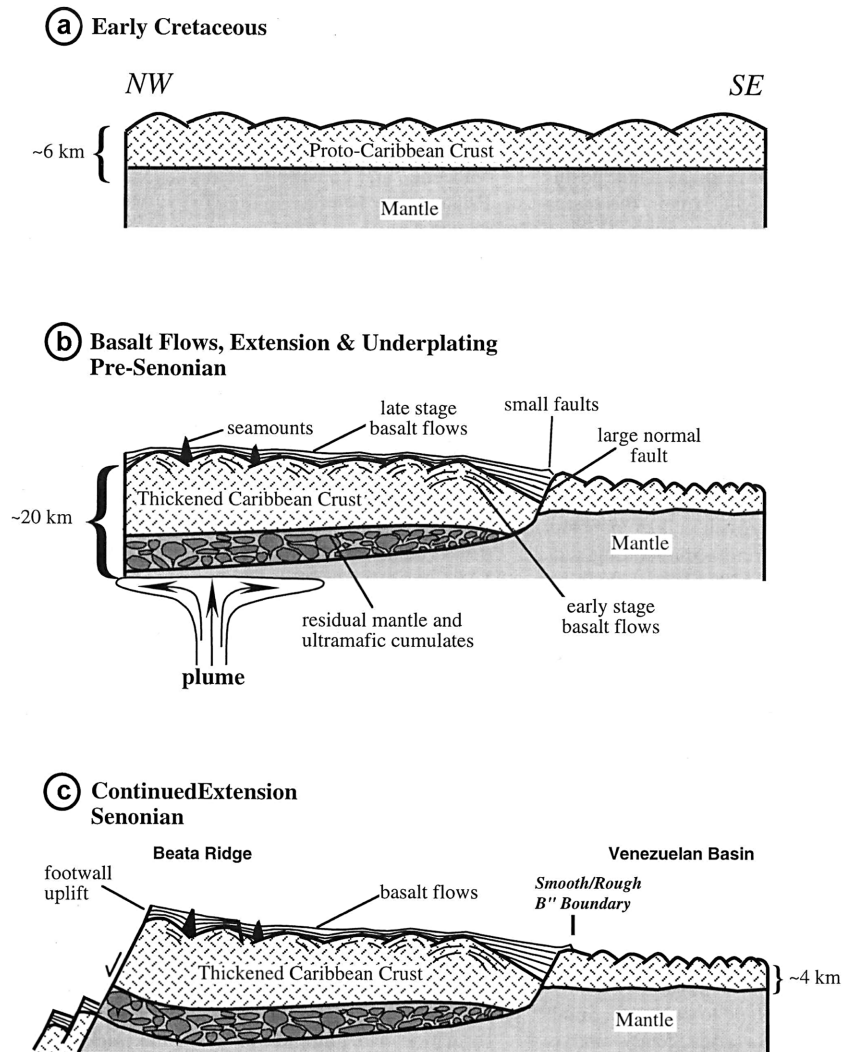
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**Figure 2.5.1-214 Bathymetry of the Florida Coast**



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**Figure 2.5.1-215 Schematic Illustrating the Geologic Development of the Caribbean Crust**



Notes:

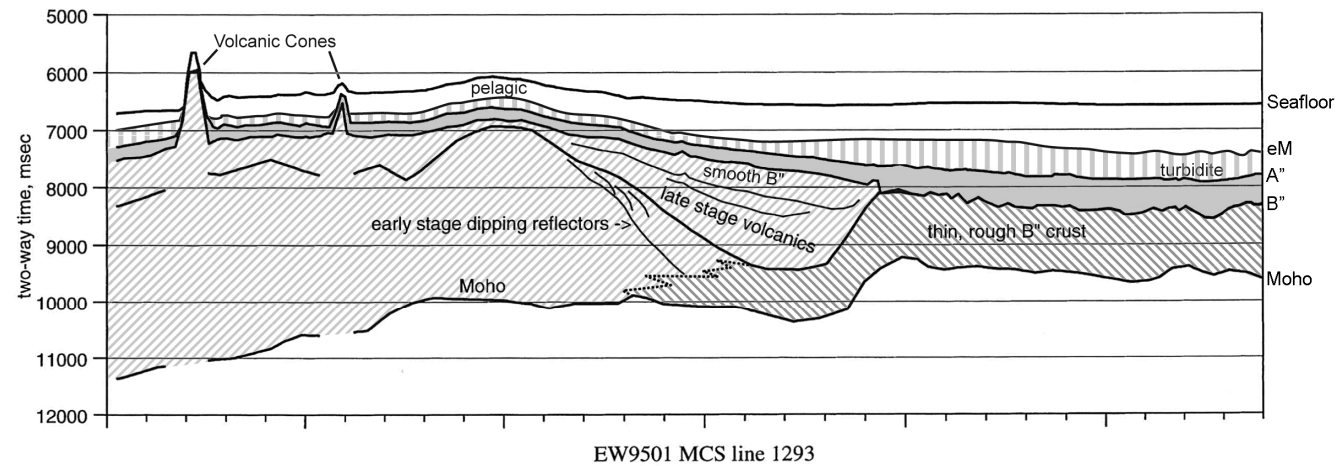
- Proto-Caribbean oceanic crust formed by seafloor spreading in Late Jurassic-Early Cretaceous time in the eastern Pacific.
- Widespread and rapid eruption of basaltic flows in concert with extension and thinning of the 'old' plate. The plate was thickened by at least two stages of basalt flows. The large divergent volcanic wedge observed along the rough-smooth B'' boundary, is coincident with the abrupt shoaling of Moho, and appear to be bounded by a large northwest-dipping fault system.
- Minor extensional deformation across the Venezuelan Basin continued after magmatic thickening of crust as indicated by faulted and rotated basalt flows. The location of major extensional deformation migrated through time from the Venezuelan Basin to the western flank of the Beata Ridge. The extensional unloading of the footwall caused uplift and rotation of the Beata Ridge and collapse of the hanging wall (i.e., Hess Escarpment).

Modified from: [Reference 253](#)



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**Figure 2.5.1-216 Interpreted Transition from Normal Oceanic Crust to Oceanic Plateau in the Venezuelan Basin**

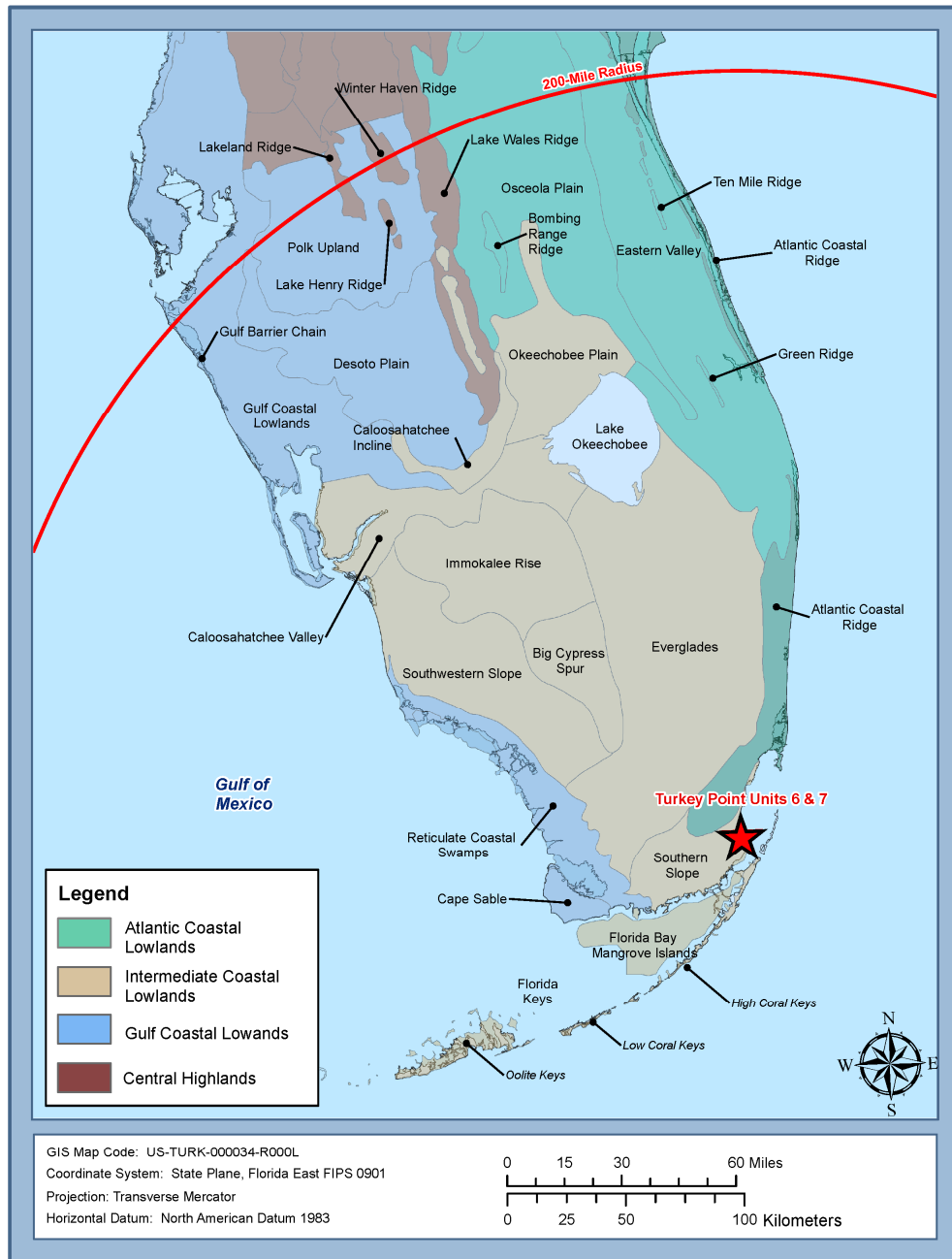


Note: Shows interpretation of major horizons of the Venezuelan Basin in multichannel seismic line 1293 in two-way time (top) and converted thicknesses (bottom) using averaged sonobuoy velocities.

Source: [Reference 255](#)

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COL Application  
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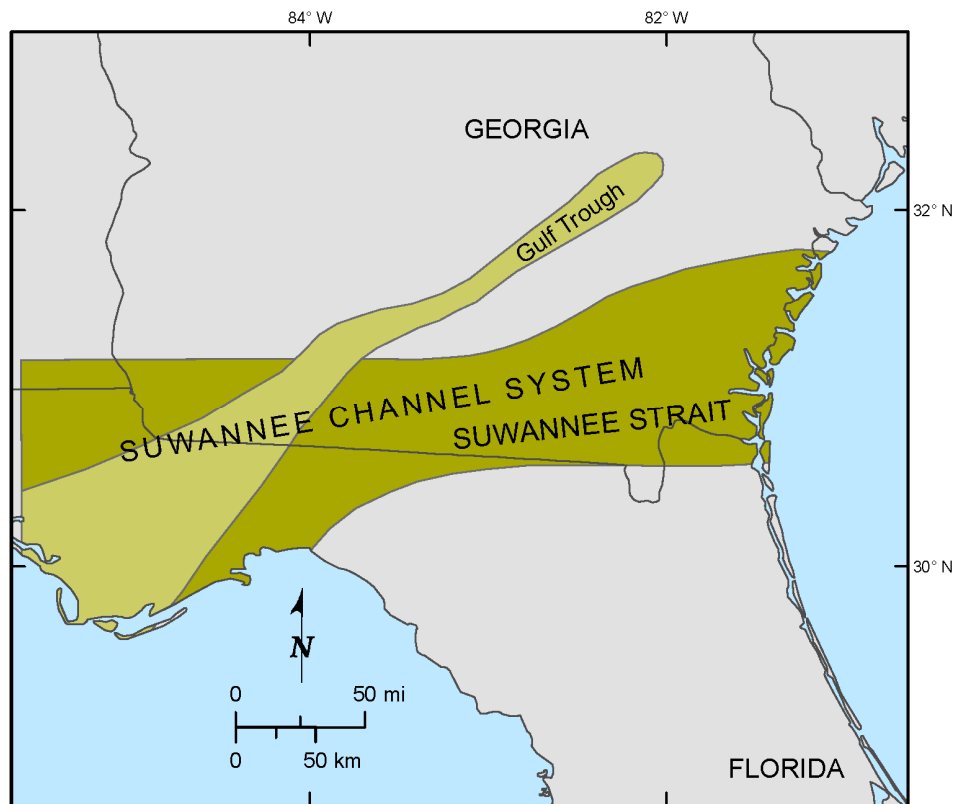
Figure 2.5.1-217 Physiography of Florida



Modified from [References 265 and 266](#)

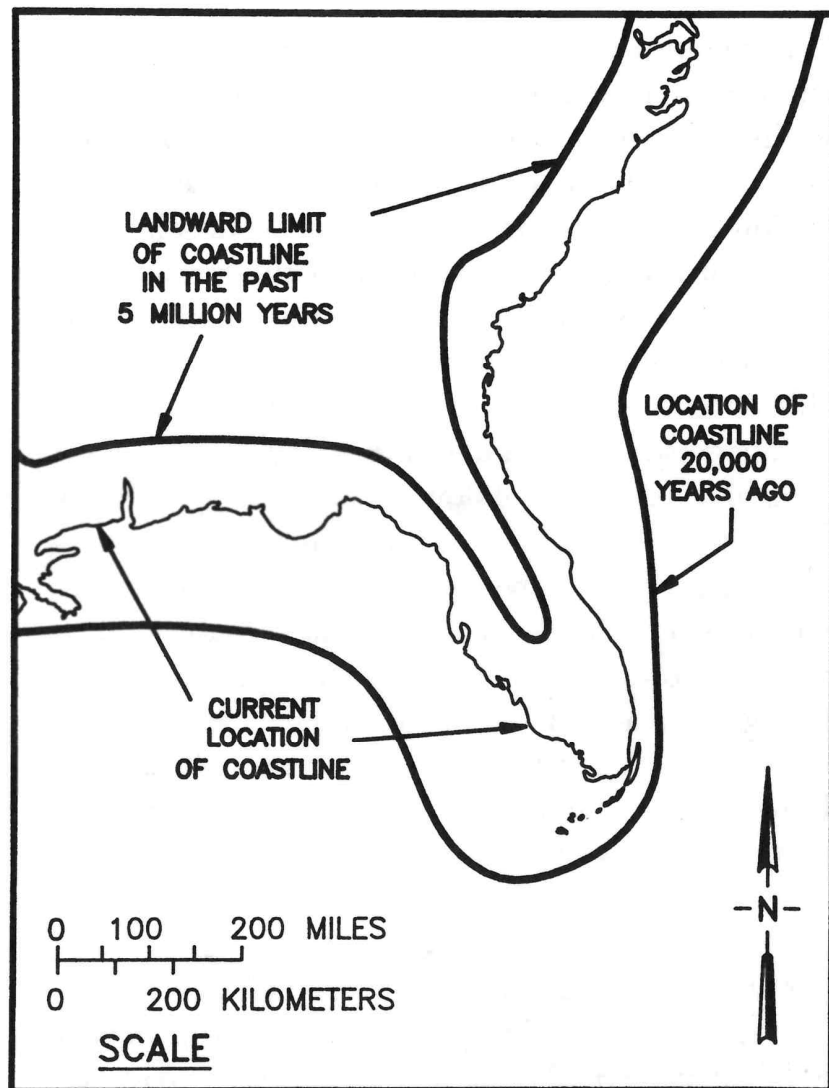


**Figure 2.5.1-218 Suwannee Channel System**



Modified from: [Reference 388](#)

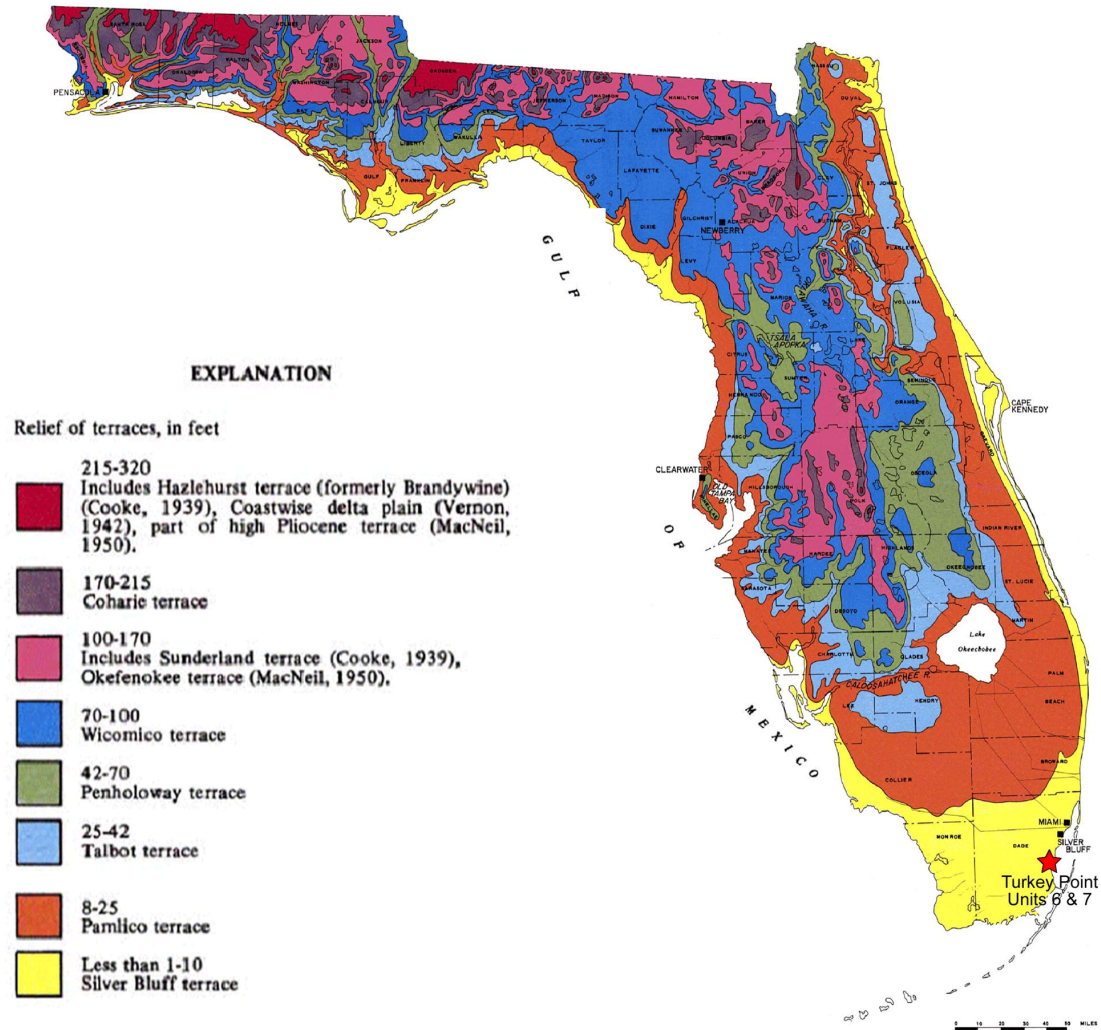
Figure 2.5.1-219 Ancient Florida Coastlines



Source: [Reference 266](#)

Turkey Point Units 6 & 7  
COL Application  
Part 2 — FSAR

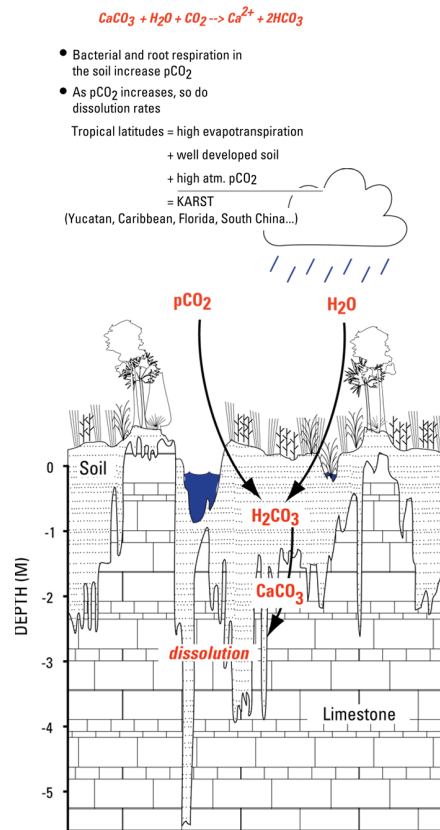
Figure 2.5.1-220 Terraces and Shorelines of Florida



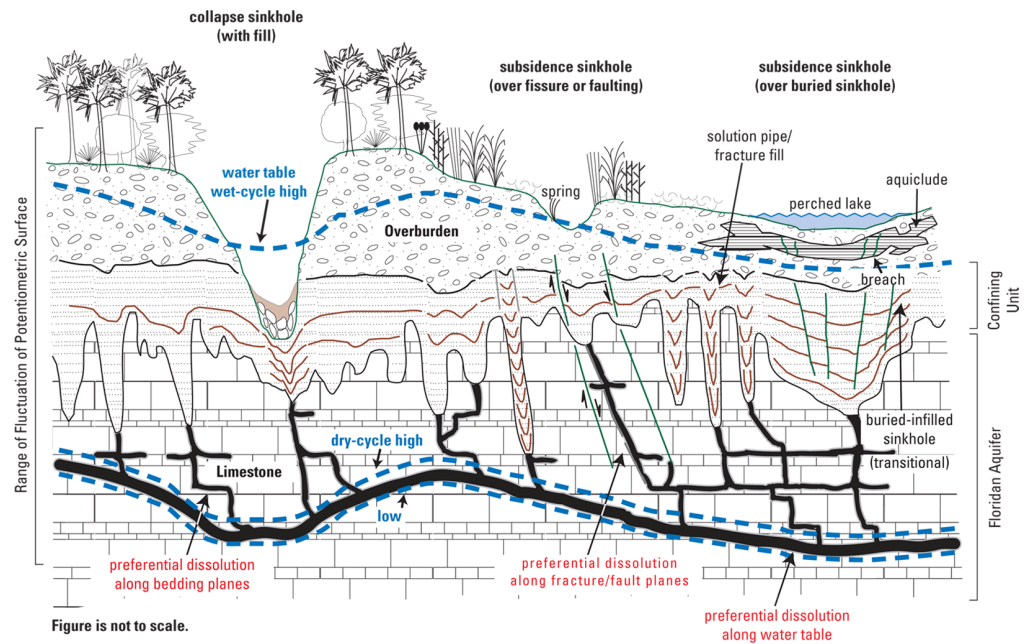
Modified from: [Reference 261](#)

Turkey Point Units 6 & 7  
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Figure 2.5.1-221 Karstification Process



(a) Carbonate dissolution process and karst formation

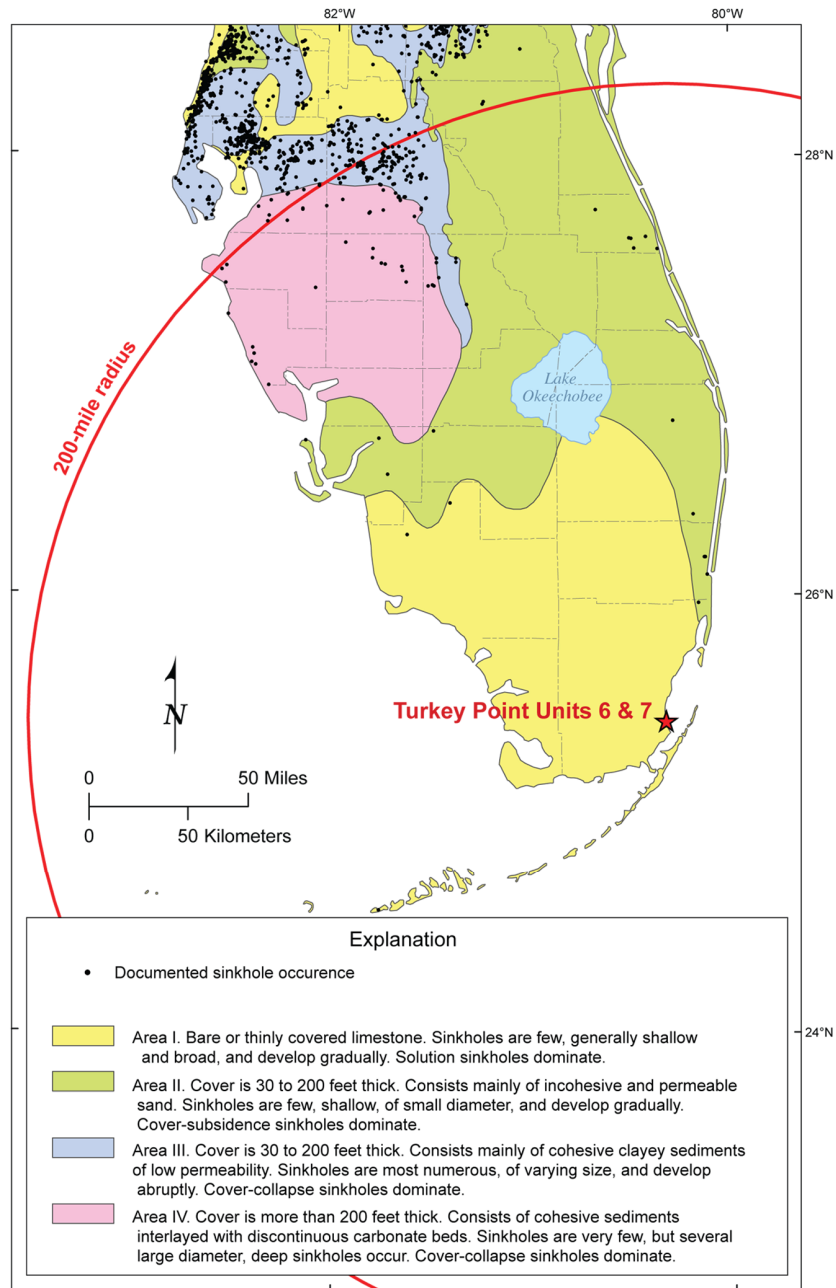


(b) Solution and collapse features of karst and karren topography

Modified from: Reference 760

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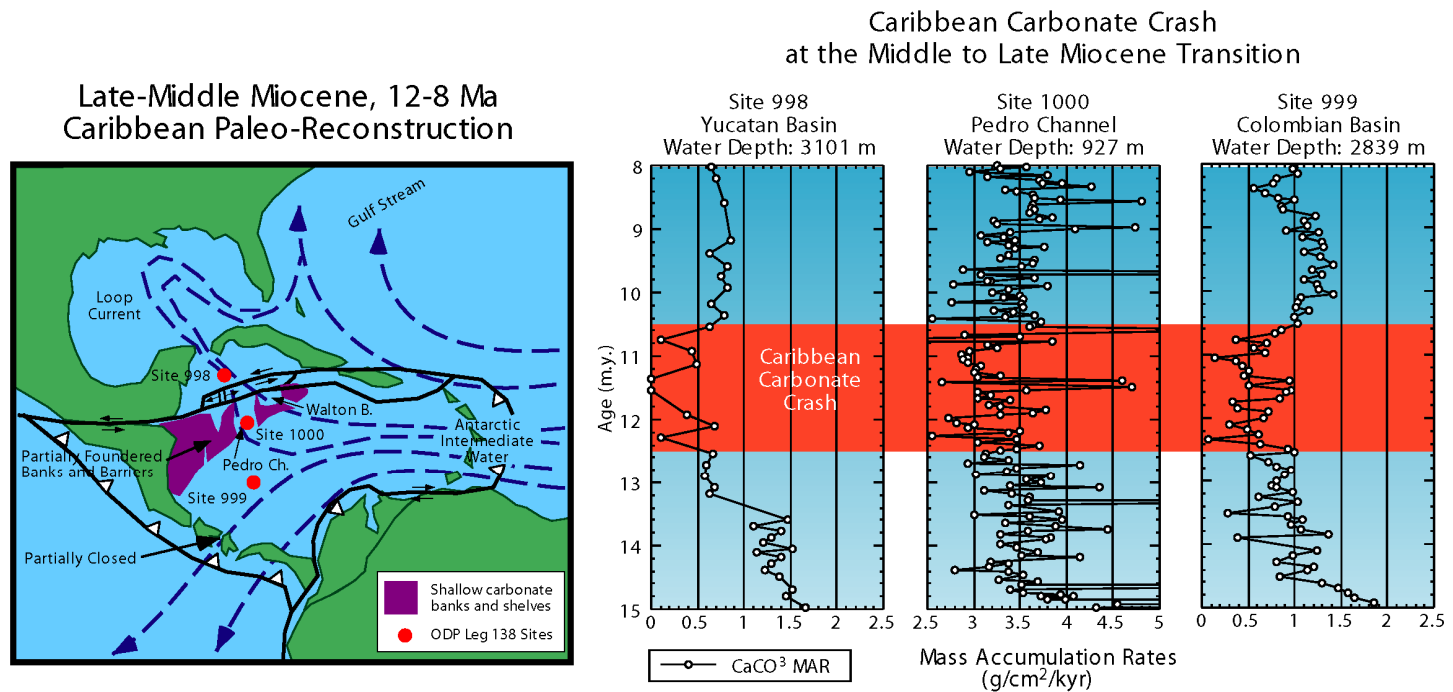
**Figure 2.5.1-222 Sinkhole Type, Development, and Distribution**



Data source: [Reference 264](#)

Turkey Point Units 6 & 7  
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**Figure 2.5.1-223 The Caribbean Carbonate Crash and Initiation of the Modern Global Thermohaline Ocean Circulation**

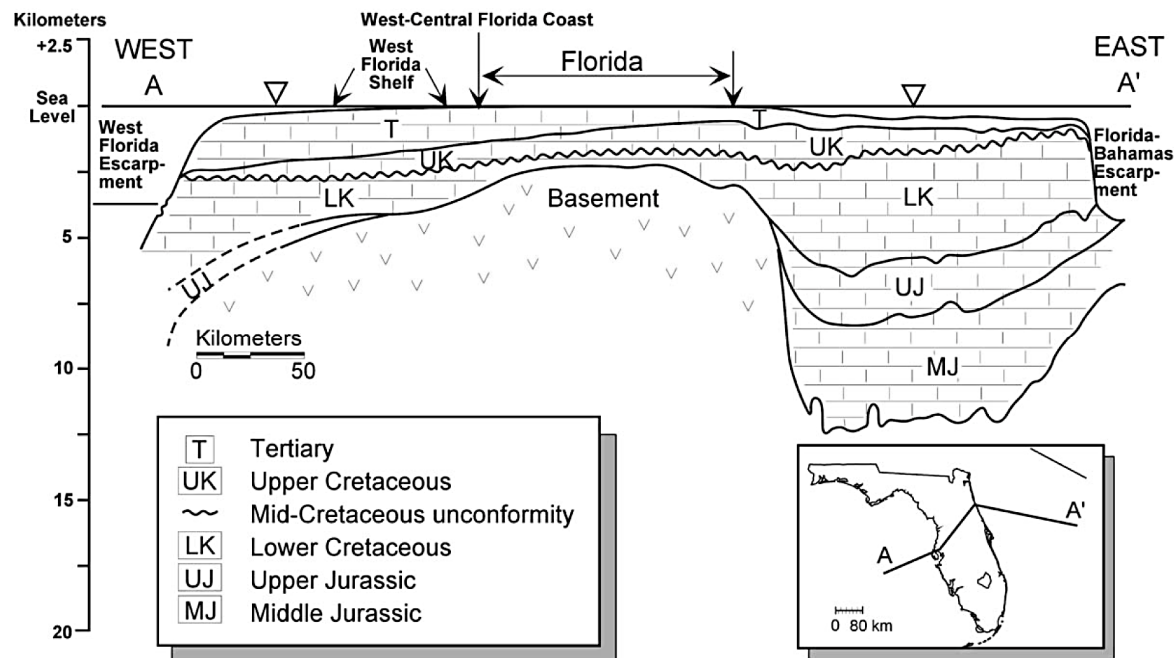


Modified from: [Reference 879](#)



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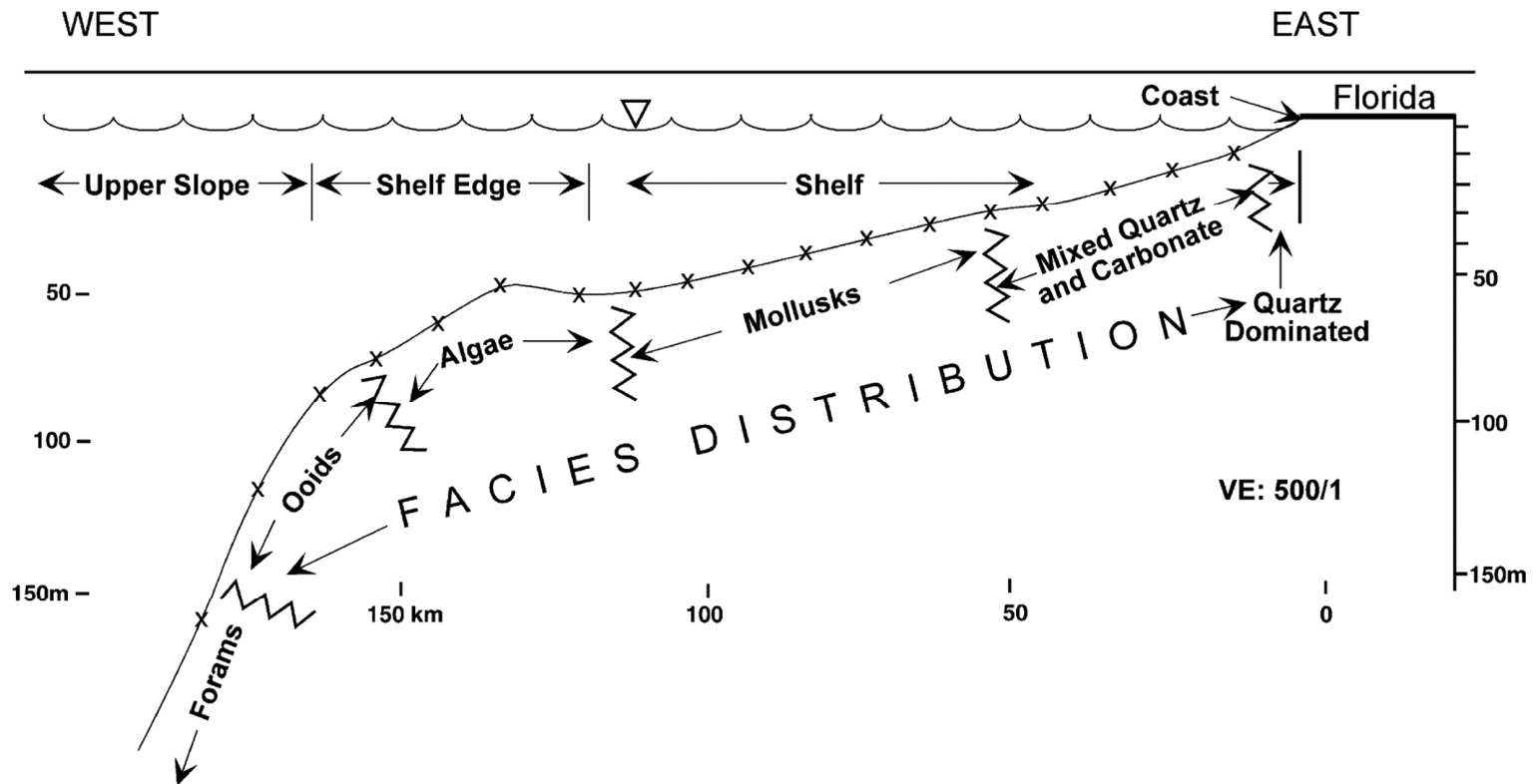
**Figure 2.5.1-224 Cross Section of the Florida/Bahama Platform Showing Range of Thickness of Carbonate Rocks Covering Basement Rocks**



Note: Peninsular Arch forms the backbone of peninsular Florida. About 4 kilometers (2.5 miles) of shallow water carbonates underlie portions of the site area. This figure shows that the west Florida shelf is a low-gradient carbonate ramp.

Source: [Reference 764](#)

Figure 2.5.1-225 Facies Distribution across the West-Central Florida Inner Shelf

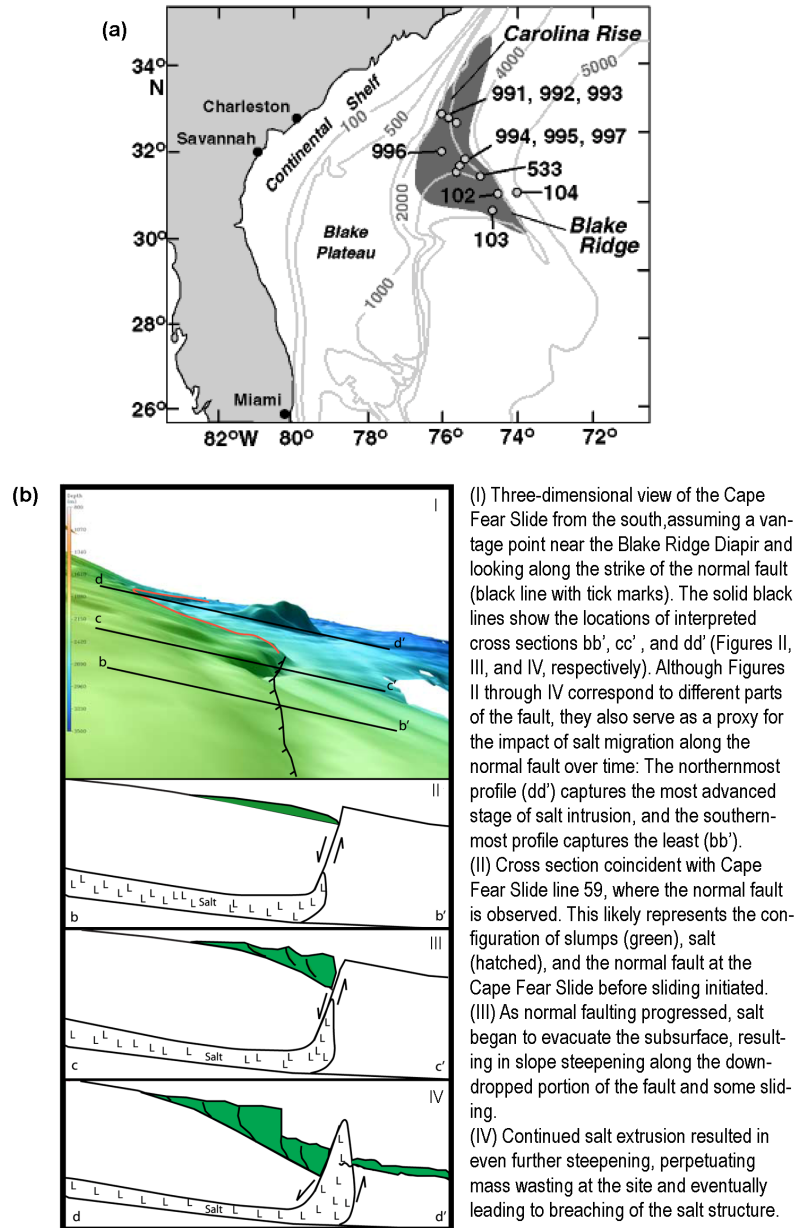


Note: Deposits along the coast are predominantly comprise quartz-rich sediments but contain a skeletal carbonate component. Just offshore, the skeletal components increase so that the inner shelf lies within the mixed quartz and carbonate zone. Further to the west out onto the shelf and upper slope, the carbonate content increases and belts of different carbonate constituents, including mollusks, algae, ooids and foraminifera, appear with broad transitions between the belts.

Source: [Reference 764](#)

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**Figure 2.5.1-226 Cape Fear Landslide and the Blake Ridge Salt Diapir Structure and Gas Hydrate Deposit**

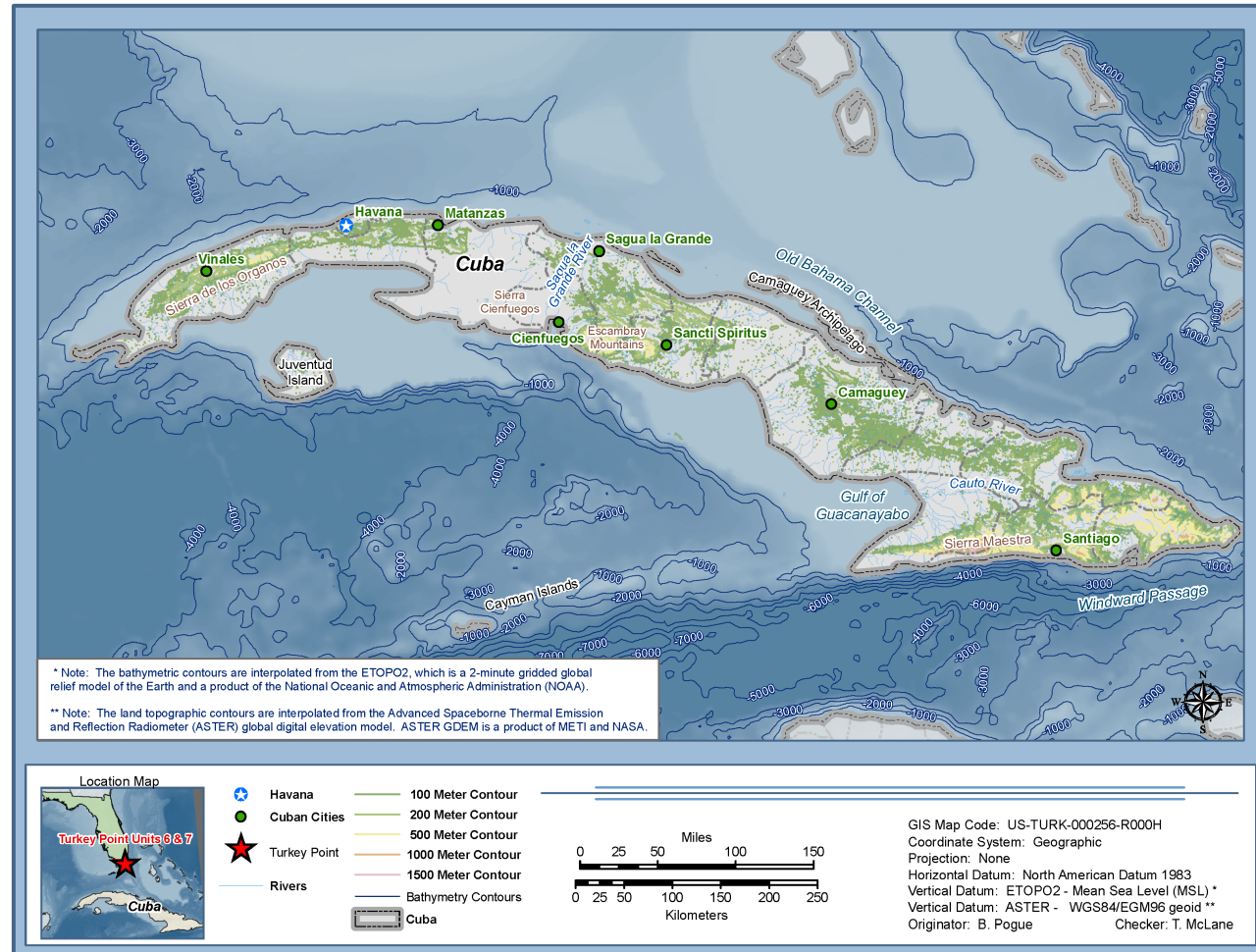


Notes:

- (a) Source: [Reference 302](#)  
(b) Modified from: [Reference 323](#)

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Figure 2.5.1-227 Physiography of Cuba



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**Figure 2.5.1-228 Paleozoic to Mesozoic Stratigraphy of Florida**

ERA	SYSTEM	SERIES	STRATIGRAPHIC UNIT		LITHOLOGY	APPROXIMATE THICKNESS (ft)
MESOZOIC	CRETACEOUS	UPPER	Pine Key Formation		chalk, ls, dol	3000
		LOWER	Naples Bay Group	Corkscrew Swamp Fm	ls with anhyd & dol	450
				Rookery Bay Fm		500
				Panther Camp Fm		350
			Big Cypress Group	Dollar Bay Fm	ls w. dol & anhyd	450-620
				Gordon Pass Fm	anhyd w. ls & dol	475
				Marco Junction Fm	ls w. dol & anhyd	350
			Ocean Reef Group	Rattlesnake Hammock Fm	anhyd w. ls & dol	600
				Lake Trafford Fm	ls with anhyd, dol	150
				Sunniland Fm	ls with dol & anhyd	200-300
			Glades Group	Punta Gorda Anhydrite	salt with anhyd & dol	800
				Lehigh Acres Formation	anhyd, ls, dol	210
					ls, dol, brown dol zone	300
					sh	200
			Pumpkin Bay Formation		anhyd with ls	1200
			Bone Island Formation		ls with anhyd & dol	1300-2000
	JURASSIC	UPPER	Wood River Formation		dol, anhyd, salt, ss	1700-2100
		MIDDLE	basement volcanic province		felsic rocks: rhyolite porphyry	
		mafic volcanics: basalt & diabase				
	PALEOZOIC			Suwannee Terrane	Paleozoic sedimentary Suite	quartzitic sandstone & black shale
St. Lucie Metamorphic Complex					pan-African metamorphics	
Osceola Granite					granite	
Osceola volcanic complex					felsic meta-igneous	
TOTAL THICKNESS					12,750-14,300	

Abbreviations:

ls = limestone  
dol = dolomite

ss = sandstone  
anhyd = anhydrite

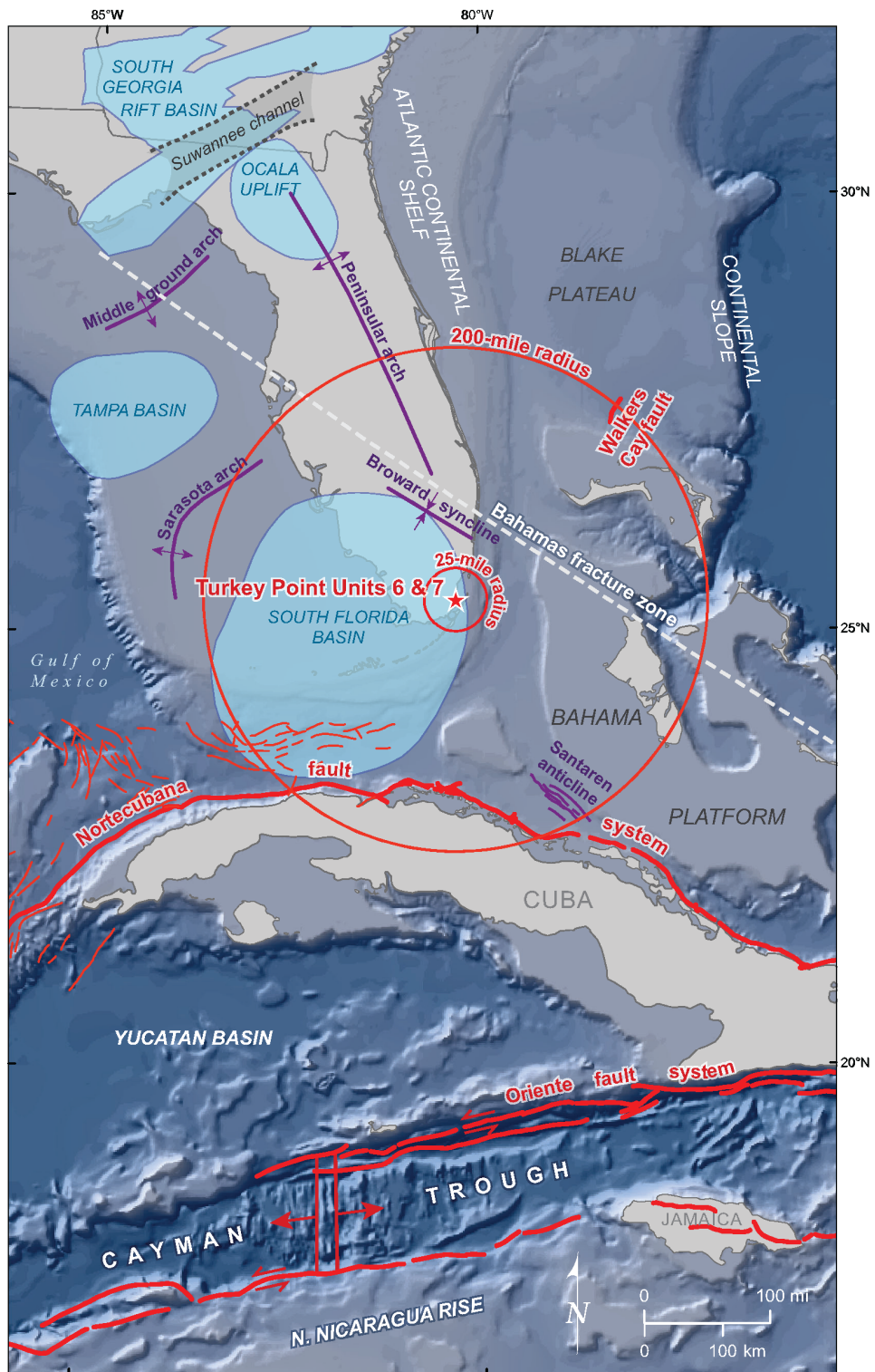
sh = shale  
Fm = formation

Sources: [References 352, 339, 338, 354, 366, 467, and 470](#)



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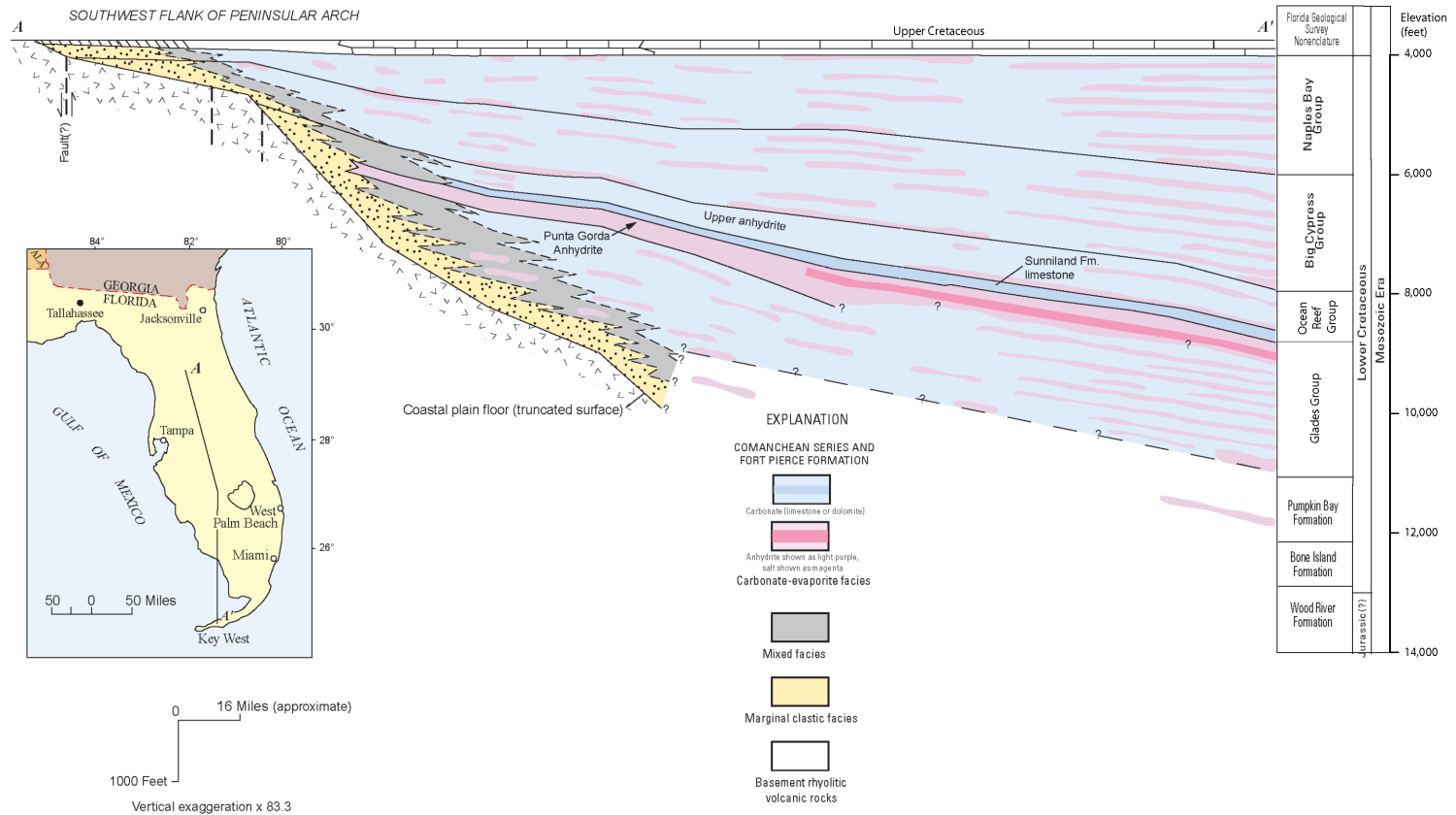
**Figure 2.5.1-229 Regional Tectonic Features**



Sources: References 822, 482, 823, 457, 212, and 421

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**Figure 2.5.1-230 Simplified North-South Profile of Mesozoic-Age Rocks in Florida**



Modified from: [Reference 366](#)

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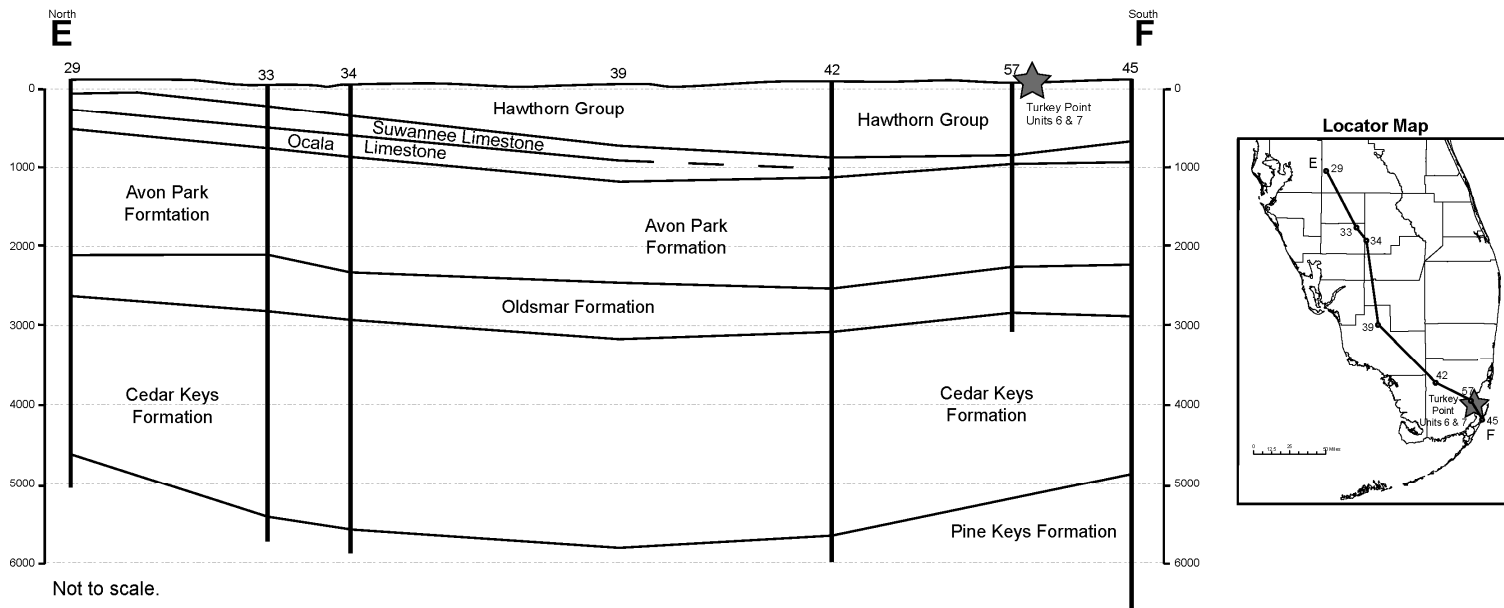
**Figure 2.5.1-231 Cenozoic Stratigraphy of Southern Florida**

ERA	SYSTEM	SERIES	STRATIGRAPHIC UNIT		LITHOLOGY	APPROXIMATE THICKNESS (ft)	
CENOZOIC	QUATERNARY	PLEISTOCENE	Miami Limestone / Key Largo Limestone/ Anastasia Formation		sandy, oolitic, coralline, shelly limestone	10-180	
			Caloosahatchee Formation/ Fort Thompson Formation		poor/well indurated sandy, fossiliferous limestone	50-100	
	TERTIARY	NEOGENE	PLIOCENE	Tamiami Formation/ Cypresshead Formation (Long Key Formation)		fossiliferous sand & silt with limestone	25-220
			MIOCENE	Hawthorn Group	Peace River Formation	sands, clays, & phosphatic carbonates	100-650
		Arcadia Formation			fine crystalline limestone with sand/clay, phosphatic fossiliferous limestone, & dolomite	100-700	
		PALEOGENE	OLIGOCENE	Suwannee Limestone		poor/well indurated fossiliferous vuggy to moldic limestone	200-600
			EOCENE	Ocala Limestone		poor/well indurated fossiliferous limestone	200-400
				Avon Park Formation		poor/well indurated fossiliferous limestone & vuggy dolostone	400-1200
	Oldsmar Formation			vuggy limestone & dolomite	500-1500		
	PALEOCENE	Cedar Keys Formation		dolomite, gypsum, & anhydrite	500-2000		
TOTAL THICKNESS						5000-6000	

Sources: [References 357, 373, 375, 376, 394, 397, 398, 399, 403, and 406](#)

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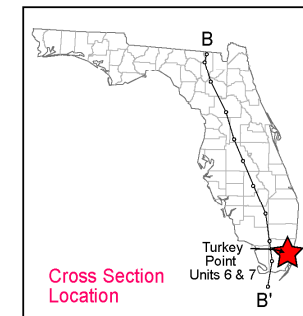
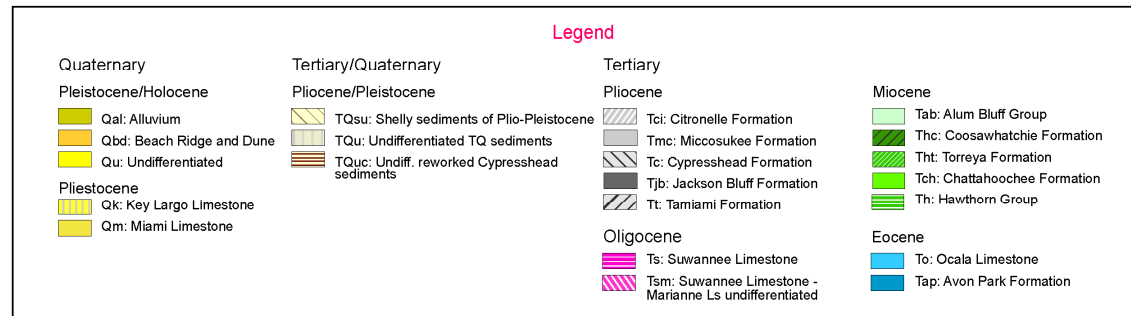
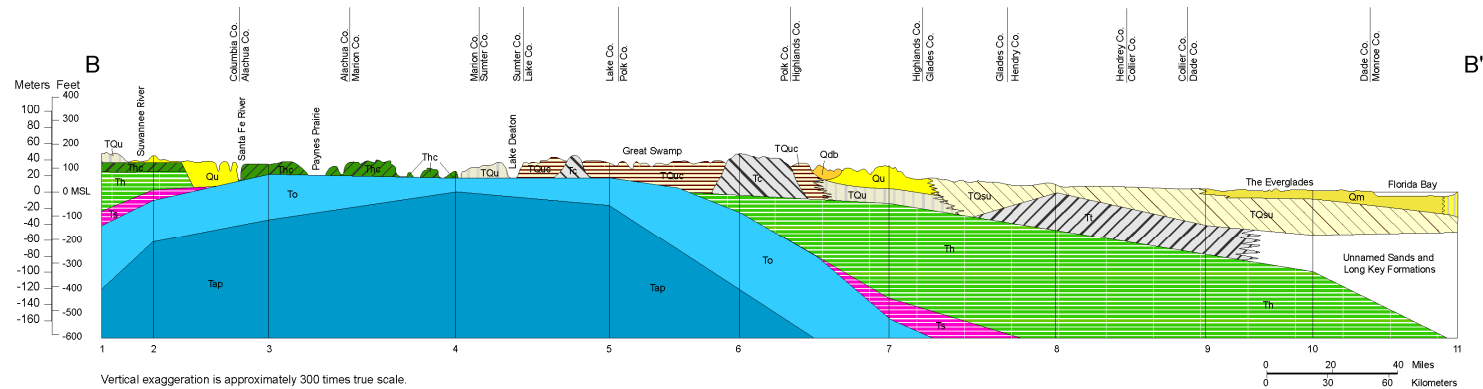
**Figure 2.5.1-232 North-South Geologic Cross Section of Upper Mesozoic and Lower Cenozoic Rocks in Southern Florida**



Modified from: [Reference 379](#)

# Turkey Point Units 6 & 7 COL Application Part 2 — FSAR

**Figure 2.5.1-233 Cenozoic North-South Cross Section of Florida**

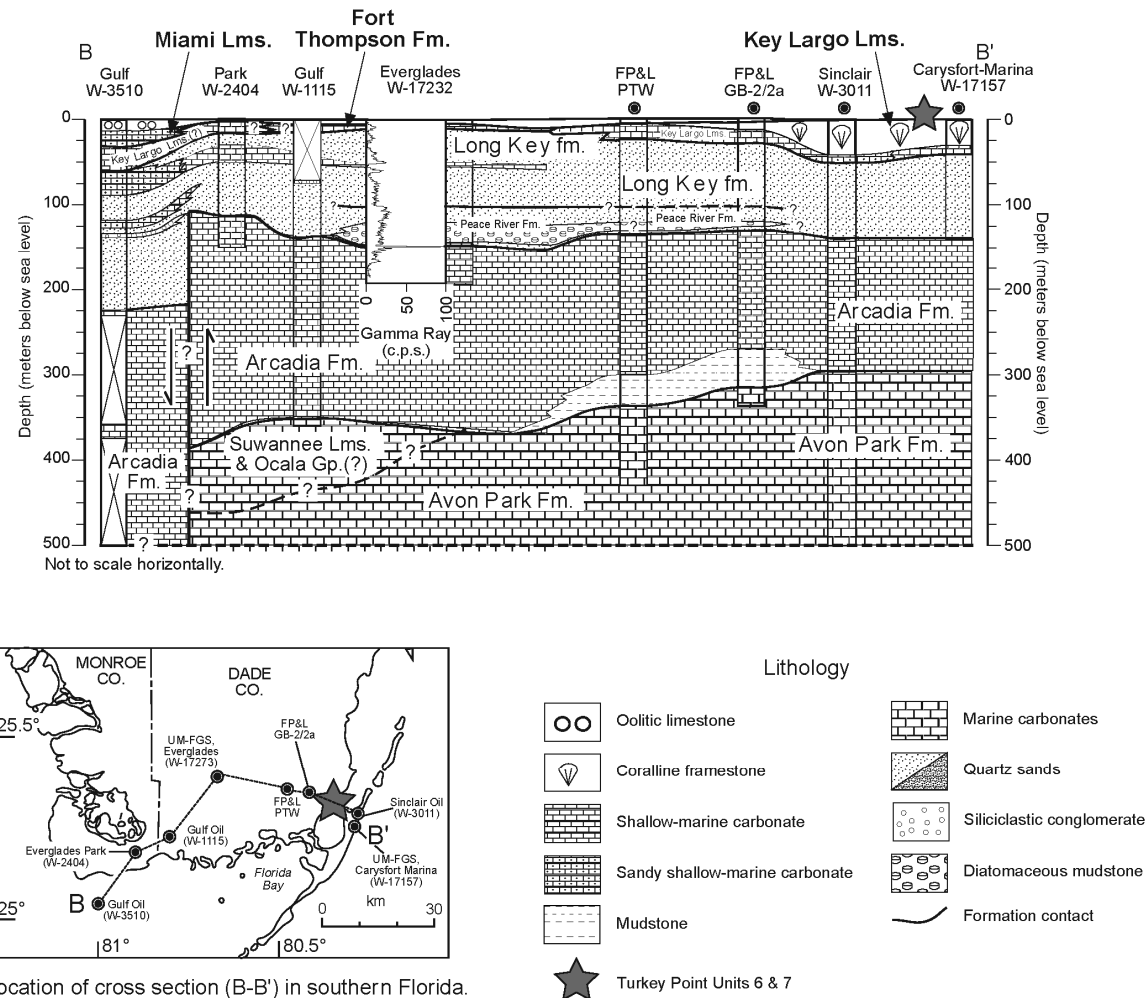


Modified from: [Reference 377](#)



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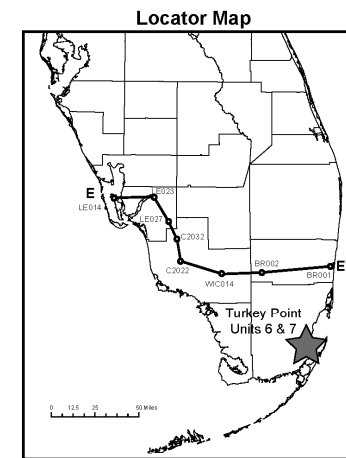
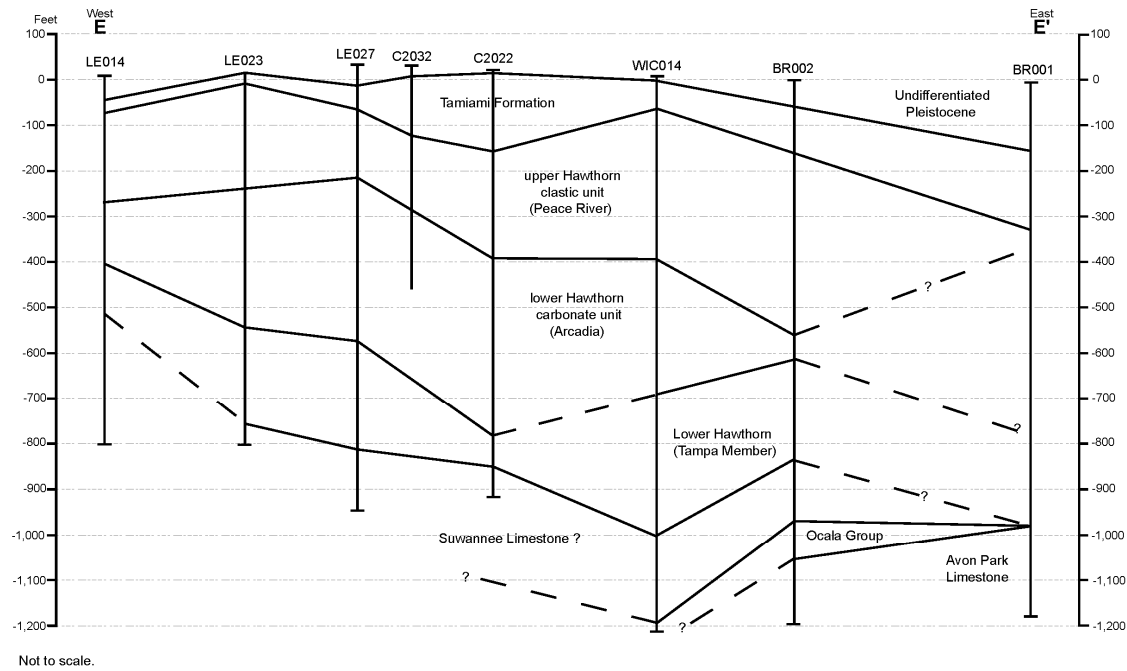
**Figure 2.5.1-234 East-West Geologic Cross Section of Upper Cenozoic Age Rocks in Southern Florida**



Modified from: [Reference 373](#)  
Note: Primary siliciclastic source – Appalachians

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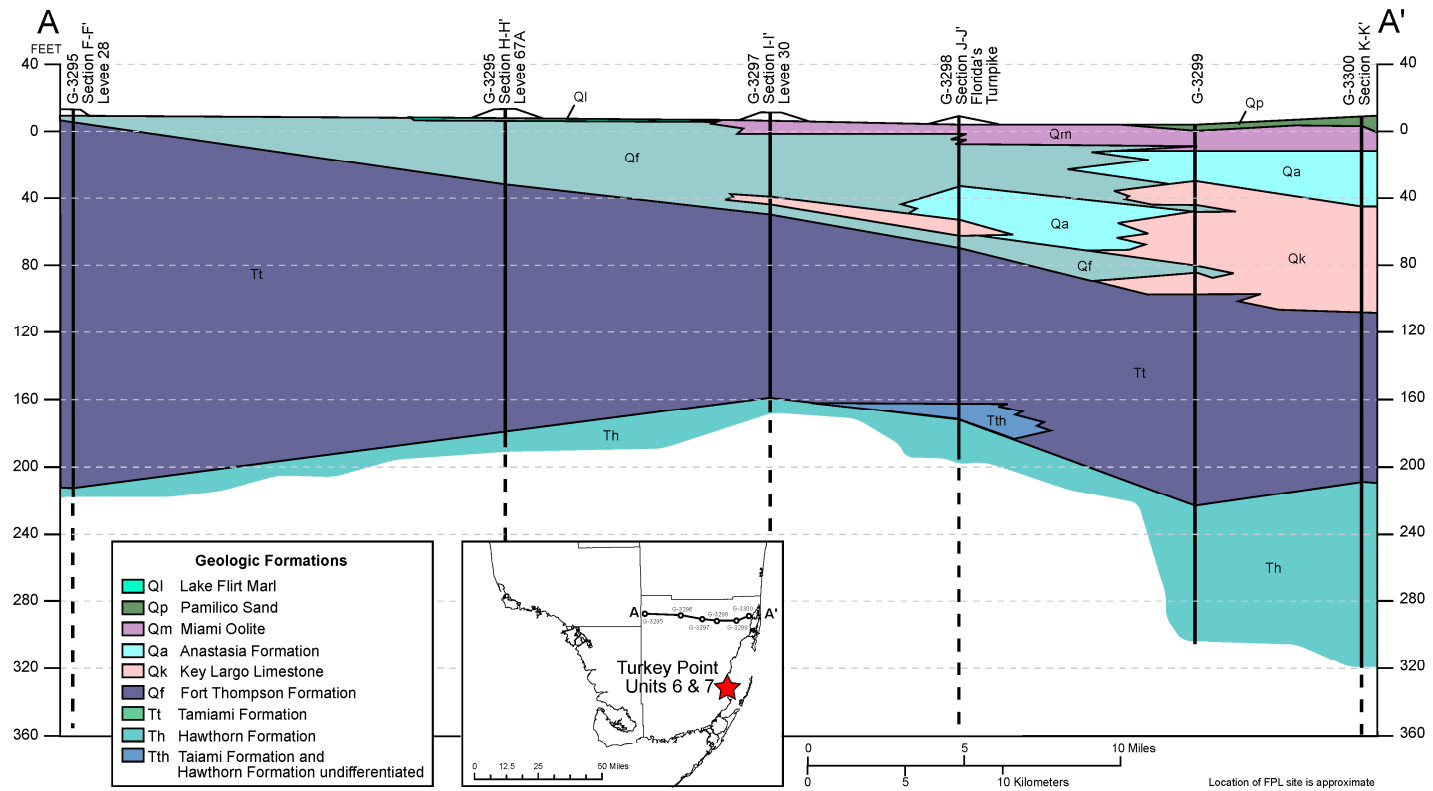
**Figure 2.5.1-235 East-West Geologic Cross Section of Eocene through Pliocene-age Rocks in Southern Florida**



Modified from: [Reference 378](#)

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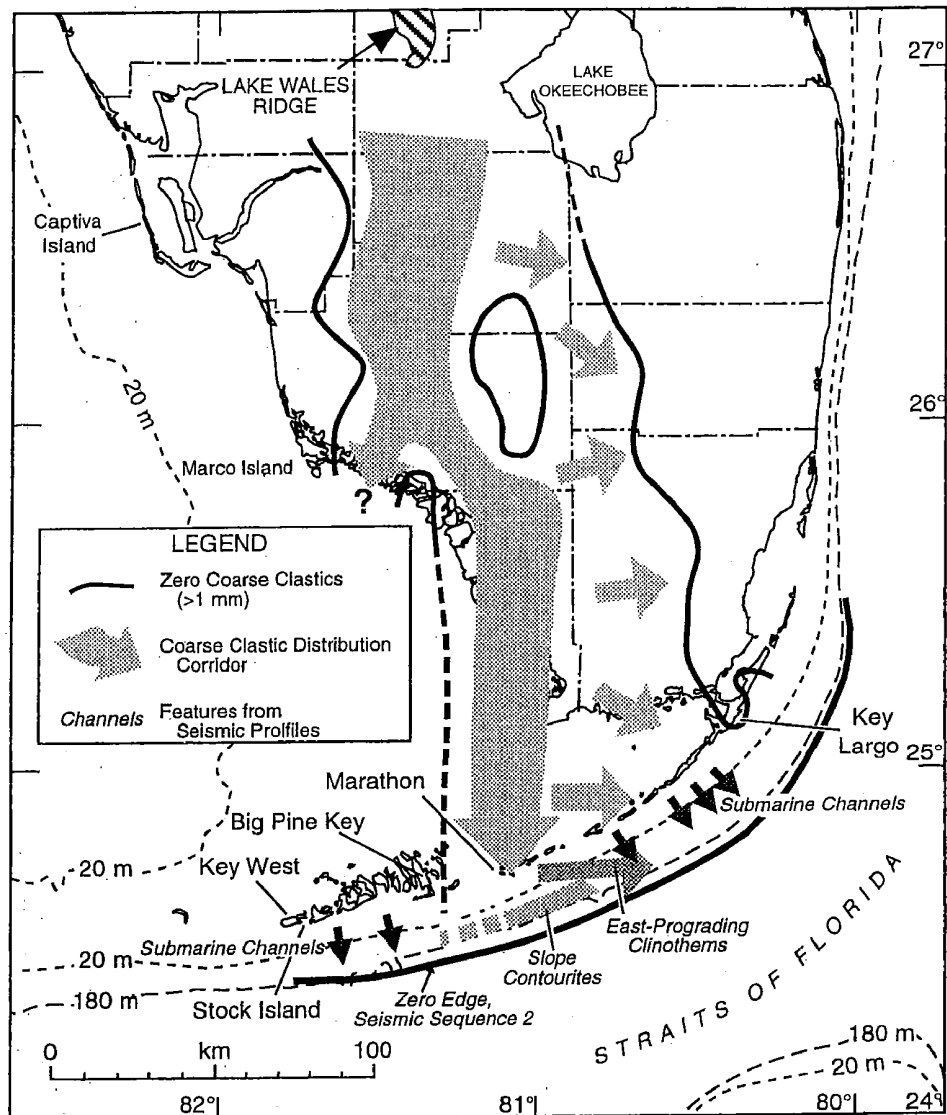
**Figure 2.5.1-236 East-West Geologic Cross Section of Miocene through Pleistocene-age Rocks in Dade County, Florida**



Modified from: [Reference 374](#)

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**Figure 2.5.1-237 Miocene-Pliocene Siliciclastic Transport Pathways in Southern Florida**

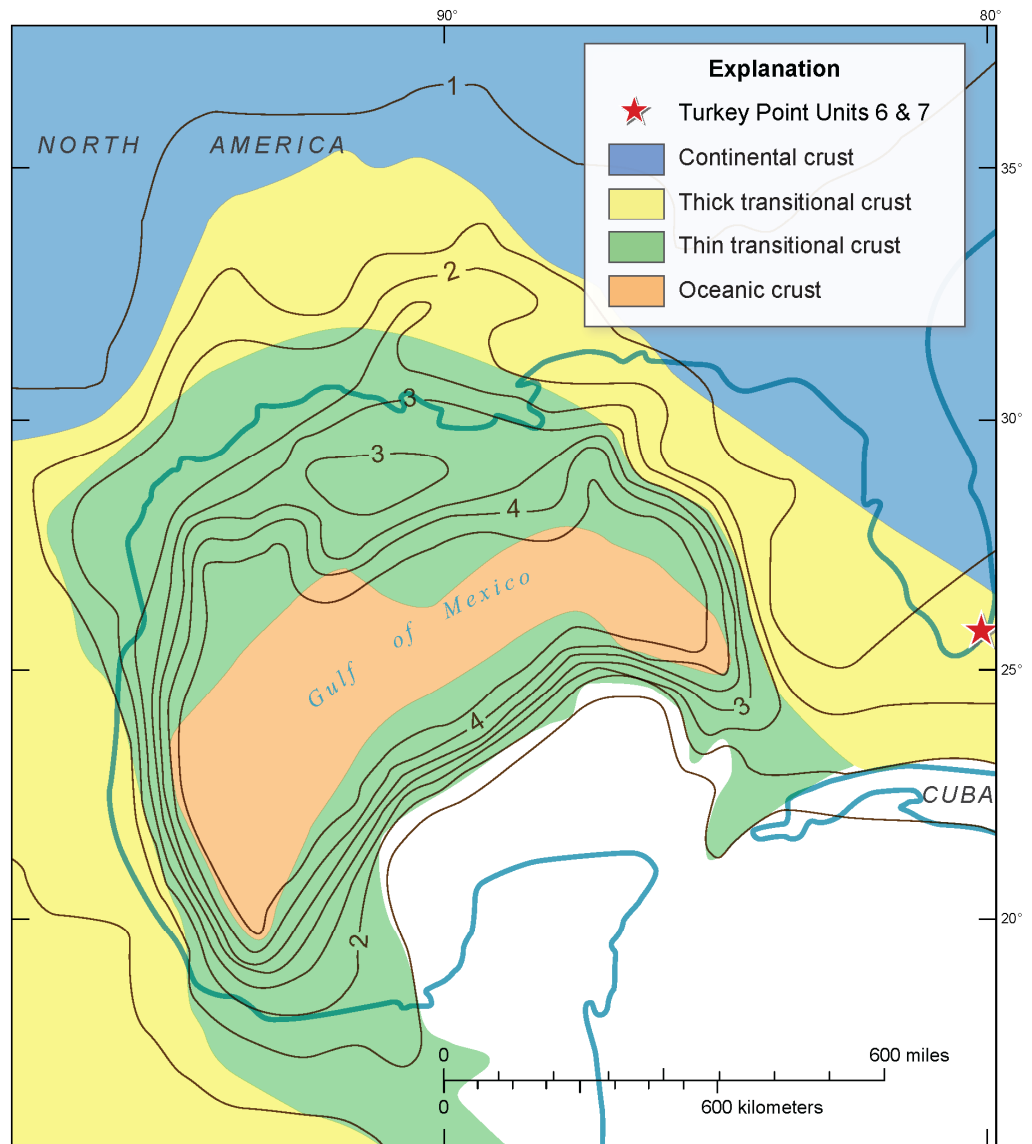


Source: [Reference 393](#)

Note: primary siliciclastics source — Appalachians

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**Figure 2.5.1-238 Map of Crust Types in Gulf of Mexico Region**

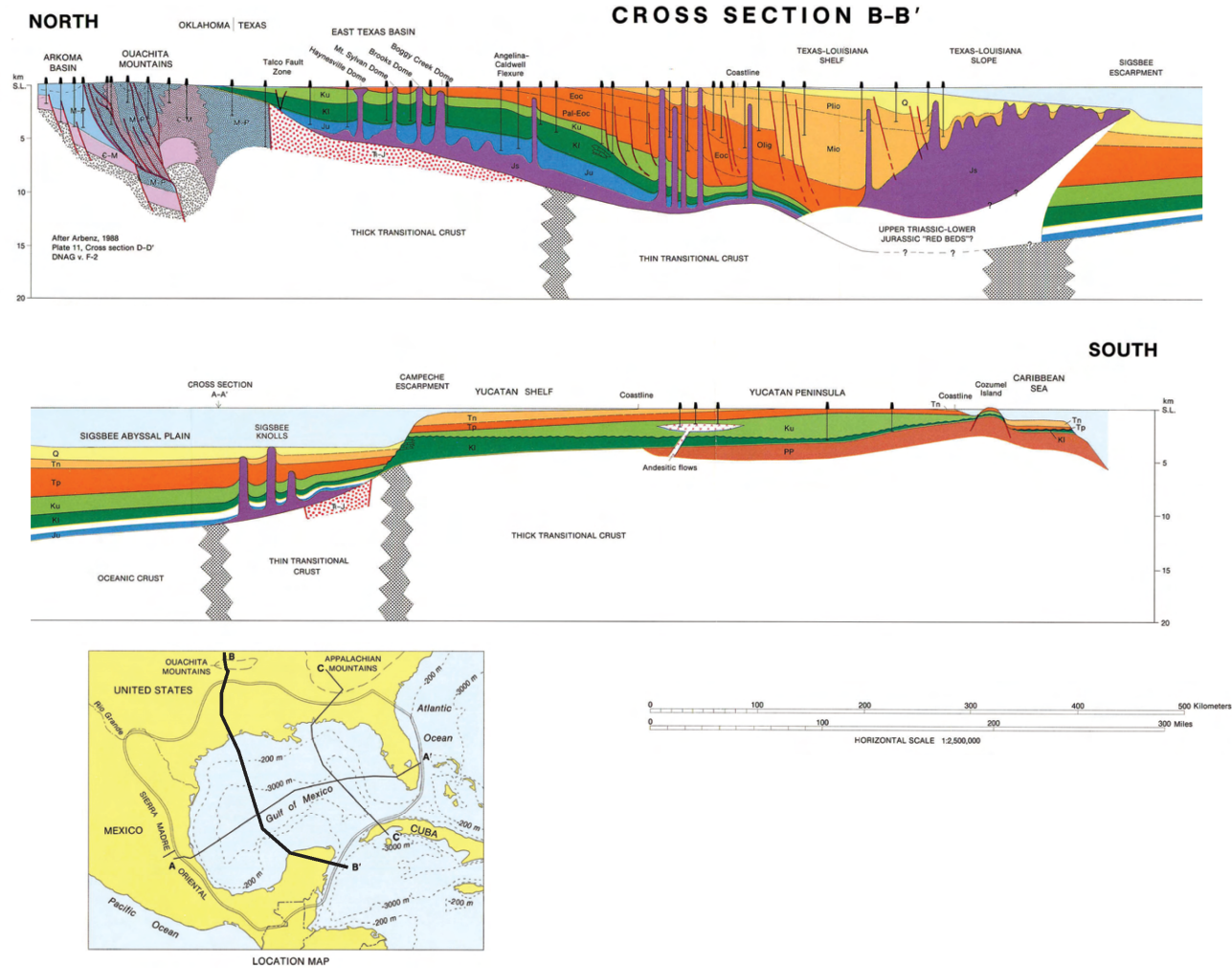


Modified from: [Reference 410](#)



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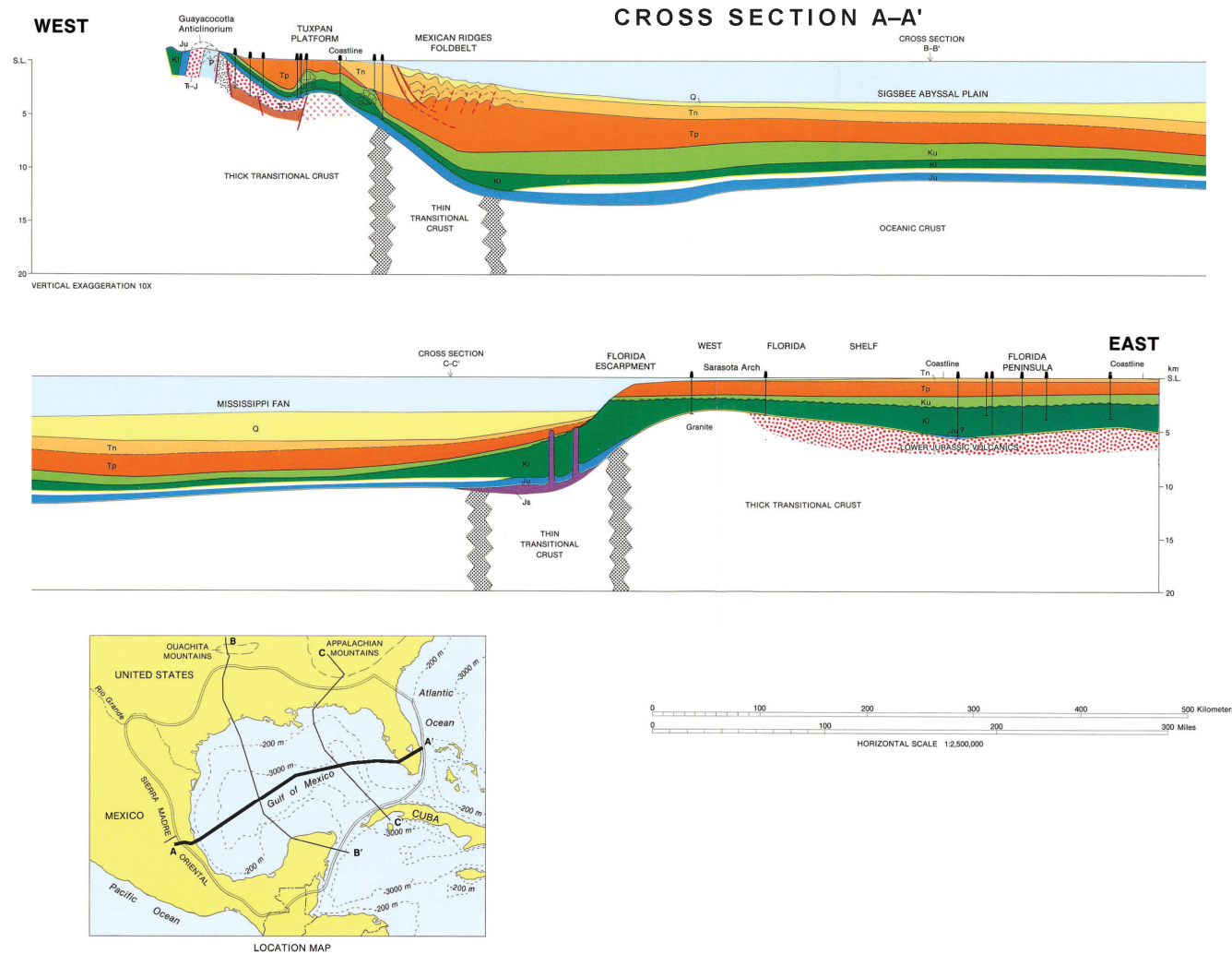
Figure 2.5.1-239 Gulf of Mexico Cross Section B-B'



Note: Explanation in [Figure 2.5.1-242](#)  
Source: [Reference 839](#)

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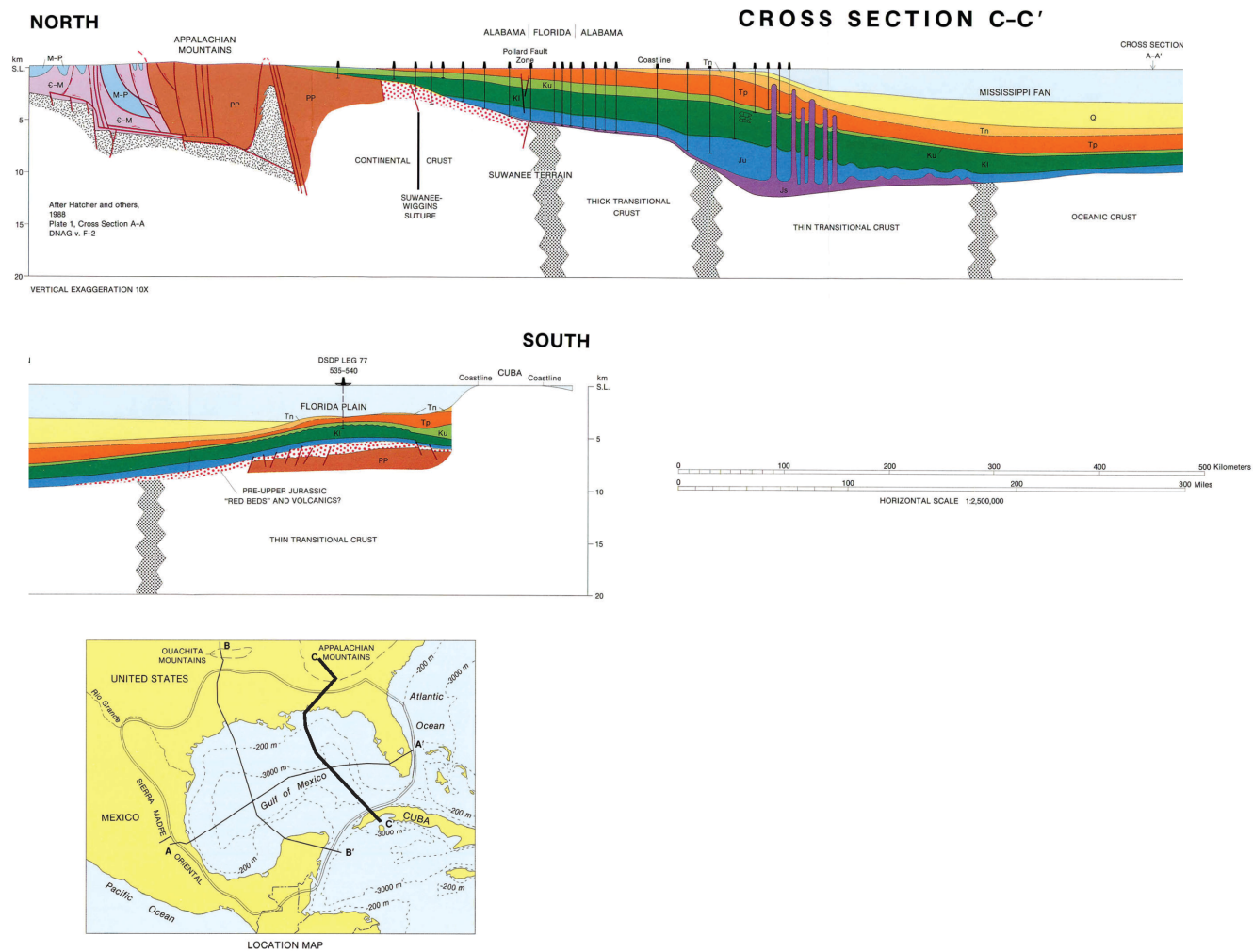
Figure 2.5.1-240 Gulf of Mexico Cross Section A-A'



Note: Explanation in Figure 2.5.1-242  
Source: Reference 839

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















**Figure 2.5.1-241 Gulf of Mexico Cross Section C-C'**



Note: Explanation in [Figure 2.5.1-242](#)  
Source: [Reference 839](#)

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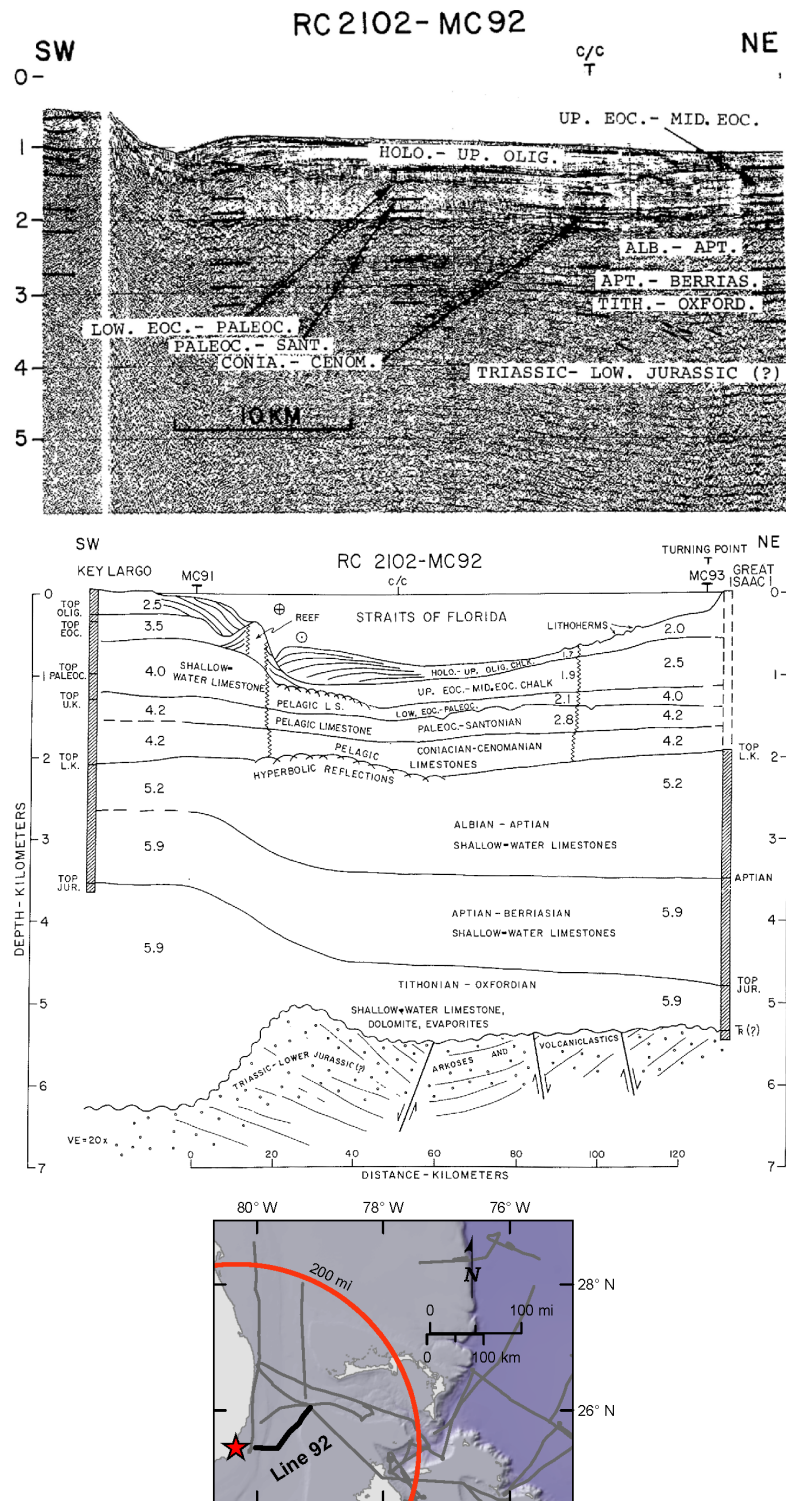
**Figure 2.5.1-242 Explanation for Gulf of Mexico Cross Sections  
A-A', B-B', and C-C'**

	Quaternary
	Tertiary-Neogene (Mio = Miocene; Plio = Pliocene)
	Tertiary-Paleogene (Pal = Paleocene; Eoc = Eocene; Olig = Oligocene)
	Upper Cretaceous
	Lower Cretaceous
	Upper Jurassic
	Middle Jurassic salt
	Upper Triassic-Lower Jurassic "red beds" and volcanics (includes Lower Jurassic marine rocks and Middle Jurassic "red beds" and marine rocks in Mexico.)
	Permian-Triassic intrusive granitic rocks
	Permian
	Upper Mississippian-Pennsylvanian (Platform)
	Upper Mississippian-Pennsylvanian (Flysch)
	Cambrian-Lower Mississippian (Platform)
	Cambrian-Lower Mississippian (Off-shelf)
	Upper Proterozoic-Lower Paleozoic metamorphic rocks
	Precambrian crystalline rocks

Source: [Reference 839](#)

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**Figure 2.5.1-243 Seismic Line and Well Correlation,  
Florida, and Bahama Platform**

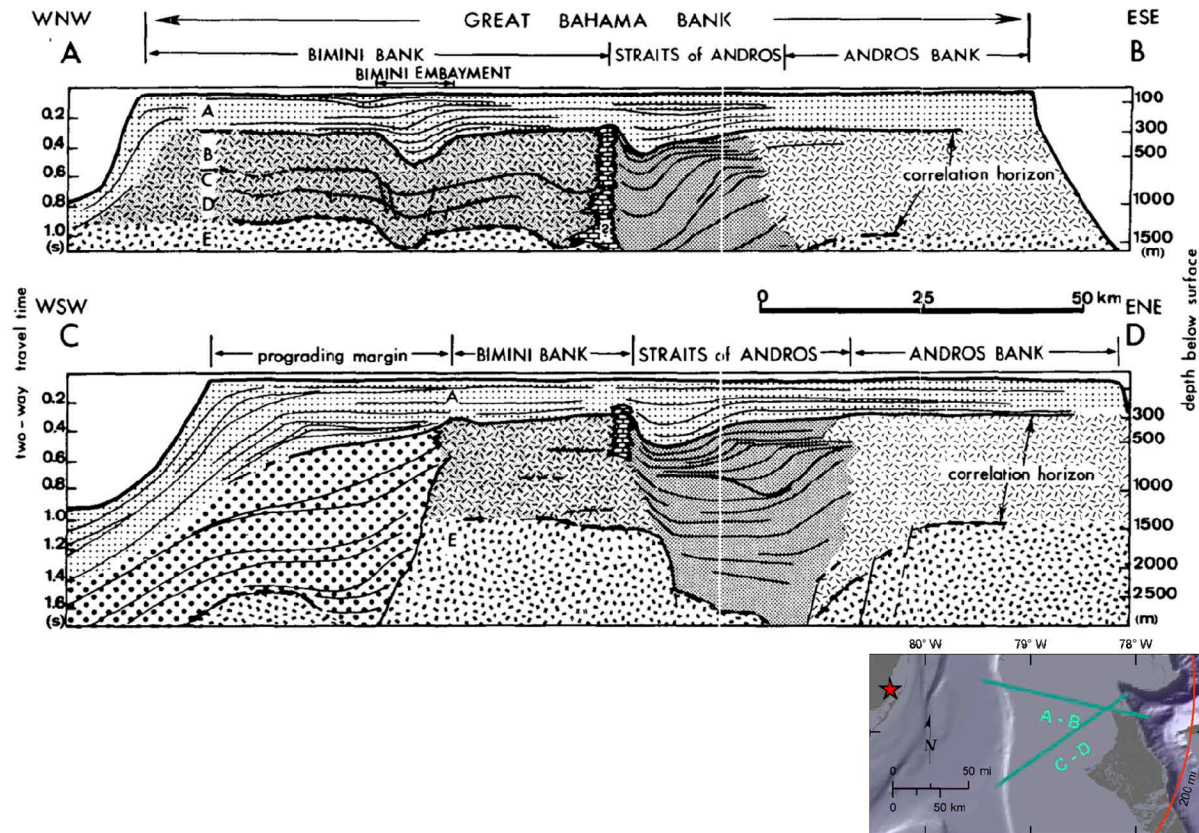


Modified from: Reference 307



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Figure 2.5.1-244 Seismic Line Interpretation across Bahama Plateau



Notes:

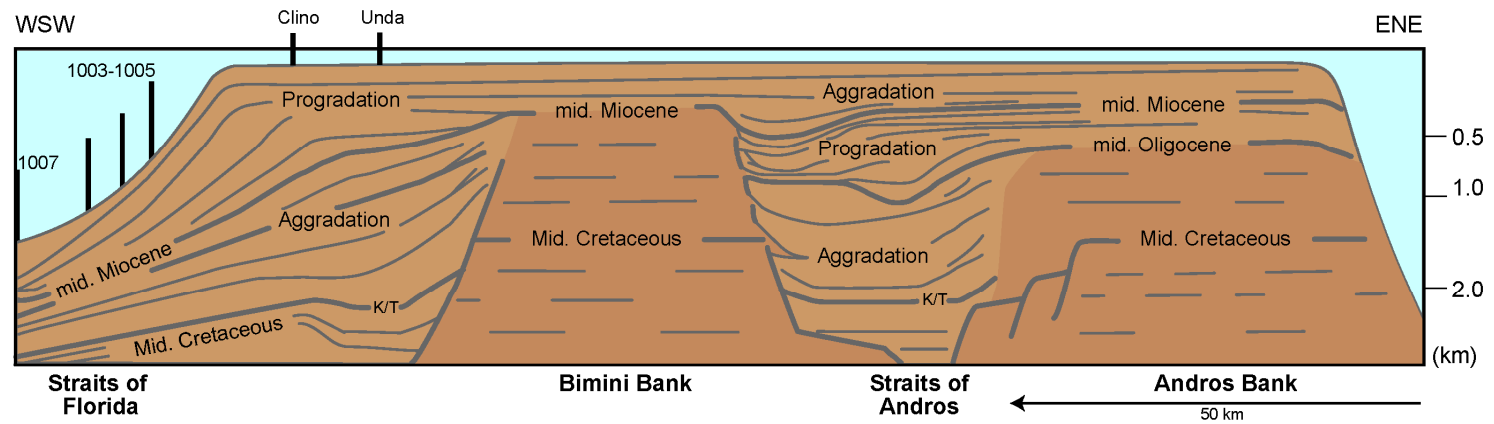
Top: Cross section displaying two buried banks (Andros, Bimini) and two completely infilled troughs (Straits of Andros, Bimini embayment). A-E = depositional megasequences. Correlation is given by two horizons (E, B). Note difference in size and age of two troughs.

Bottom: Cross section along WESTERN documenting lateral progradation of Bimini western margin and complex filling of Straits of Andros. Compare volume of prograded part with oroducina platform.

Modified from: [Reference 475](#)

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**Figure 2.5.1-245 Great Bahama Bank Geologic Environment**



Modified from: [Reference 768](#)

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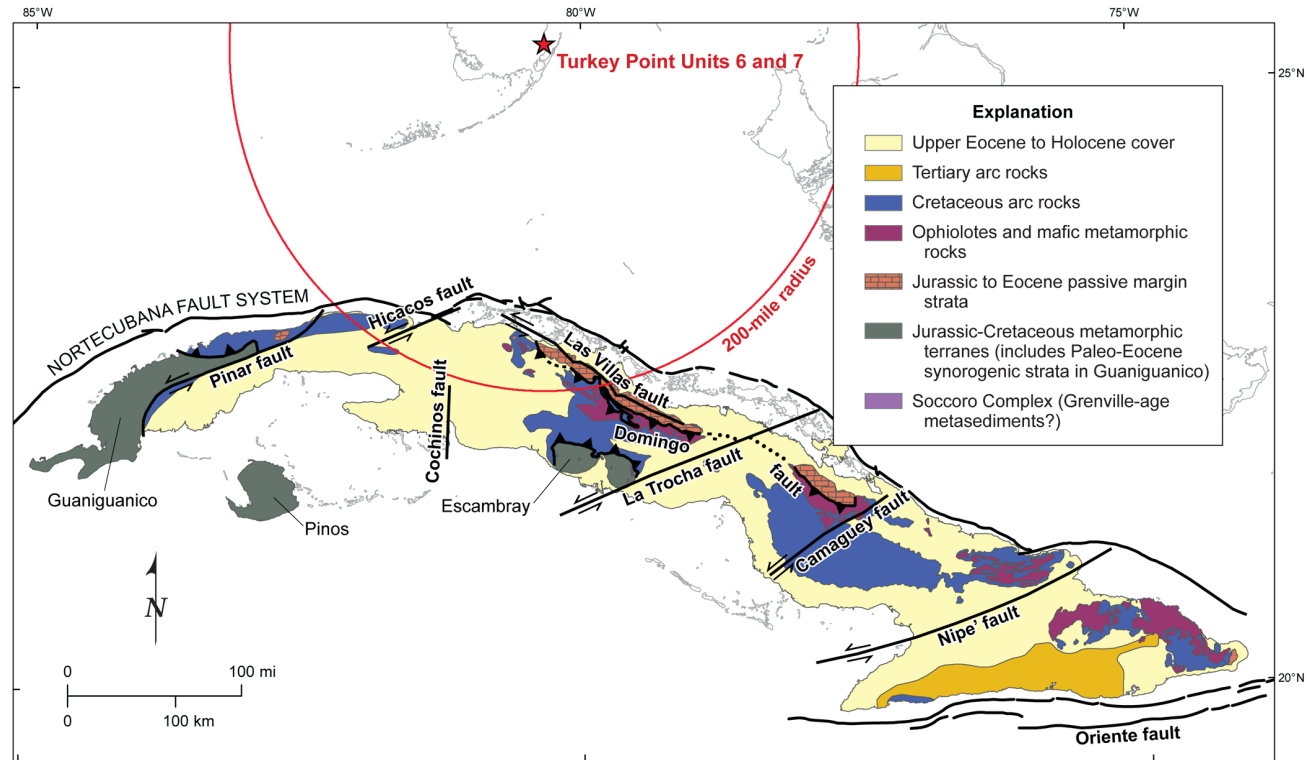
**Figure 2.5.1-246 Lithostratigraphic Column for the Bahama Islands**

ERA	SYSTEM	SERIES	FORMATION	
CENOZOIC	QUATERNARY	HOLOCENE	Rice Bay Formation	Hana Bay Member
				North Point Member
		PLEISTOCENE	Grotto Beach Formation	Cockburn Town Member
				French Bay Member
			Owl's Hole Formation	

Not drawn to scale  
Modified from: [Reference 438](#)

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**Figure 2.5.1-247 Tectonic Map of Cuba**



Multiple sources were used to compile this map, including [References 443, 448, 770, and 492](#)