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Cruise Report
USNS LYNCH (T-AGOR7) 702-84 (83-1)
16 Oct - 5 Nov., 1983

Ronald Circé and Larry Poppe
U.S. Geological Survey
Woods Hole, MA 02543
November 10, 1983

Ship name: USNS LYNCH (T-AGOR7)

Cruise: 702-84 (83-1)

Project: 9470-03046R (Shelf-Edge Reef Study)

Area: Northeastern Gulf of Mexico and West Florida Escarpment

Dates: 16 Oct - 15 Nov., 1983 (21 calendar days)
Ports: FT LAUDERDALE, FLA TAMPA, FLA
Co-Chief Scientist: Ron Circe and Larry Poppe

Scientific Personnel:

E.G. Maier, MASTER	Military Sealift Command
Dann Blackwood	USGS/Woods Hole
Ron Circe	" "
Bob Commeau	" "
Bud Dahl	" "
Jack Hampson	" "
Candy Lane	" "
Wes Lombard	" "
Greg Magnus	Delaware Geological Survey
Heidi Meir	USGS/Woods Hole
Charlie Paull	Scripps Institute
Larry Poppe	USGS/Woods Hole
Juan Triaxs	USGS/San Juan

Purpose: There were 3 areas of study: (1) surveying and sampling shelf edge calcareous prominences along the northeastern Gulf of Mexico to study the structure, geology, and paleoenvironments of these reefs; (2) studying the sedimentation on the rise seaward of the West Florida Escarpment; and (3) the distribution of phosphate and manganese crusts on the West Florida Slope and Escarpment.

Navigation: LORAN C utilizing NORTHSTAR 6000 units and Navidyne ESC-7000 with TI Silent 700 for data recording and EPSCO C-PLOT plotter for ship's station positioning.

Field Equipment: Benthos grab sampler, rockdredge, Benthos camera and strobe unit, piston corer, 30 kj sparker and 3.5 kHz transducer with Raytheon recorders.

450 Km 480 Km

Tabulated Information:

Days at Sea: 16

Continuous Data: Approximately 450 km of 3.5 kHz and 30 kj sparker lines

Number station:

Grab samples:	33
Dredge samples:	3
Photo stations:	11
Piston cores:	5
Pavement (hard-rock) cores:	6

Seismic Survey Data: see attached sheets
lines run: ~450 km

Mississippi Canyon Reef Complex
Seismic Survey Data (3.5 kHz and 30 kj spar per)

LINE #	TIME (Z)	LAT. (N)	LONG. (W)
	25/10/83		
SOL 1	1048	28°25.70′	90°00.60′
EOL 1	1415	28°40.52′	89°49.40′
SOL 2	1425	28°40.28′	89°48.83′
EOL 2	1728	28°24.83′	89°59.00′
SOL 3	1827	28°27.18′	89°54.64′
EOL 3	1930	28°27.04′	90°01.54′
SOL 4	2019	28°32.52′	89°58.05′
EOL 4	2137	28°33.52′	89°51.04′
SOL 5	2218	28°35.76′	89°48.39′
EOL 5	2315	28°37.80′	89°53.42′
SOL 6	2330	28°39.39′	89°53.00′
EOL 6	26/10/83		
	0030	28°39.92′	89°48.12′
SOL 7	0043	28°38.91′	89°48.86′
EOL 7	0125	28°37.46′	89°53.37′
SOL 8	0204	28°40.78′	89°52.21′
EOL 8	0306	28°40.14′	89°47.22′
SOL 9	0412	28°35.80′	89°55.60′
EOL 9	0520	28°29.76′	89°54.76′

Camera Development

Run #1	SOR	28°32.81′	89°55.49	20 shots
	EOR	28°33.05′	89°56.25′	
Run #2	SOR	28°33.08′	89°55.84′	20 shots
	EOR	28°33.47′	89°55.94′	
Run #3	SOR	28°39.75′	89°49.55′	22 shots
	EOR	28°39.65′	89°49.61′	~110 m
Run #4a	SOR	28°39.72′	89°49.48′	9 shots
	EOR	28°39.61′	89°49.49′	
#4b	SOR	28°39.77′	89°49.48′	13 shots
	EOR	28°39.69′	89°49.36′	
Run #5	SOR	28°39.68′	89°49.42′	20 shots
	EOR	28°40.02′	89°49.47′	75-90 m
Run #6	SOR	28°39.68′	89°49.40′	20 shots
	EOR	28°39.94′	89°49.48′	75-90 m

124 total shots

Runs 1 and 2: Mid-Canyon Pinnalce
Runs 3 and 6: Hoffa Reef

Dredge Deployment

Dredge 1	Mid-Canyon Pinnacle:		
	on bottom:	28°32.80′	89°55.60′
	off bottom:	28°32.90′	89°56.00′
Dredge 2	Mid-Canyon Pinnacle		
	on bottom:	28°32.90′	89°55.20′
	off bottom:	28°32.70′	89°55.60′
Dredge 3	Hoffa Reef		
	on bottom:	28°39.80′	89°49.60′
	off bottom:	28°39.80′	89°49.30′

Grab Sample Deployment

Grab #	Location	Lat. (N)	Long. (W)	Depth (M)
3	Mid-Canyon Pinacle	28°36.80′	89°51.20′	190
4	"	28°37.07′	89°51.25′	~200
5	"	28°36.94′	89°51.06′	~200
6	"	28°36.90′	89°51.30′	230
7	Hoffa Reef	28°39.61′	89°49.56′	125
8	"	28°39.72′	89°49.48′	83
9	"	28°39.76′	89°49.42′	82
10	"	28°39.78′	89°49.35′	80
11	"	28°39.49′	89°49.51′	125
12	"	28°39.55′	89°49.42′	125
13	"	28°39.56′	89°49.37′	111
14	"	28°39.58′	89°49.28′	90
16	"	28°39.75′	89°49.05′	88
18	"	28°39.93′	89°49.74′	114
19	"	28°40.03′	89°40.64′	89
20	"	28°40.11′	89°49.53′	89
21	"	28°40.18′	89°49.44′	90
22	"	28°40.26′	89°49.35′	89

DeSoto Canyon Reef Complex (Mobile Pinnacles)
Seismic Survey Data (3.5kHz and 30kj Sparker)

LINE #	TIME (Z)	LAT. (N)	LONG. (W)
	28/10/83		
SOL 1	0628	29°19.66′	87°53.83′
EOL 1	0700	29°19.54′	87°50.38′
SOL 2	0827	29°20.56′	87°41.99′
EOL 2	1000	29°19.65′	87°53.50′
SOL 3	1000	29°19.65′	87°53.50′
EOL 3	1028	29°17.06′	87°53.44′
SOL 4	1058	29°18.26′	87°51.28′
EOL 4	1135	29°31.94′	87°51.24′
SOL 5	1157	29°21.19′	87°49.50′
EOL 5	1237	29°20.12′	87°48.61′
SOL 6	1252	29°17.27′	87°48.63′
EOL 6	1320	29°20.12′	87°48.61′
SOL 7	1320	29°20.12′	87°48.61′
EOL 7	1420	29°21.79′	87°42.65′
SOL 8	1429	29°21.55′	87°43.32′
EOL 8	1457	29°20.61′	87°46.54′
SOL 9	1500	29°20.40′	87°46.73′
EOL 9	1530	29°17.70	87°45.55′
SOL 10	1543	29°18.12′	87°44.35′
EOL 10	1630	29°22.65	87°46.35′

The following four lines were run only with 3.5 kHz for bathymetric survey

	29/10/83		
SOL DB1	0351	29°19.57′	87°46.20′
EOL DB1	0400	29°20.57′	87°46.64′
SOL DB2	0409	29°20.45′	87°46.24′
EOL DB2	0424	29°19.41′	87°45.63′
SOL DB3	0435	29°19.65′	87°44.96′
EOL DB3	0453	29°20.91′	87°45.69′
SOL DB4	0500	29°21.20′	87°45.23′

Camera Deployment

		LAT (N)	LONG (W)	
Run #7a	SOR	29°20.42′	87°44.50′	6 shots
	EOR	29°20.53′	87°44.54′	~100 m
7b	SOR	29°20.12′	87°45.21′	15 shots
	EOR	29°20.31′	87°45.24′	95-117 m
Run #8	SOR	29°20.22′	87°45.89′	10 shots
	EOR	29°20.27′	87°45.91′	111-115 m
Run #9	SOR	29°20.38′	87°44.95′	11 shots
	EOR	29°20.69′	87°45.14′	~100 m
Run #10	SOR	29°20.15′	87°45.32′	21 shots
	EOR	29°20.35′	87°45.39′	104-120 m
Run #11	SOR	29°20.07′	87°45.57′	17 shots
	EOR	29°20.25′	87°45.87′	105-115 m

80 for this area ~~170~~ shots total

Whole cruise 204 total

Grab Sample Deployment

Grab #	LAT (N)	LONG (W)	DEPTH (M)
GS-23	29°20.29	87°45.87′	100
GS-24	29°20.36′	87°45.99′	100
GS-25	29°20.26′	87°45.92′	NR*
GS-26	29°20.30′	87°45.73′	109
GS-27	29°20.24′	87°45.82′	112
GS-28	29°20.26′	87°45.92′	104
GS-29	29°19.84′	87°46.41′	107
GS-30	29°19.79′	87°46.48′	107
GS-31	29°19.70′	87°46.55′	106
GS-32	29°19.54′	87°46.65′	100
GS-33	29°19.75′	87°46.32′	108
GS-34	29°20.07′	87°45.57′	NR
GS-35	29°20.33′	87°45.66′	NR
GS-36	29°20.19′	87°45.13′	NR
GS-37	29°20.64′	87°45.17′	NR

*NR: depth not recorded at time of hit

West Florida Escarpment
Seismic Survey Data (3.5 kHz and 30 kj sparker)

LINE #	TIME	LAT (N)	LONG (W)
	31/10/83		
SOL 1	1145	26°47.93′	84°46.00′
EOL 1	1545	26°28.00′	85°06.00′
SOL 2	1545	26°28.00′	85°06.00′
EOL 2	2125	26°13.50′	84°38.10′
SOL 3	2125	26°13.50′	84°38.10′
EOL 3	2342	26°03.20′	84°49.00′
SOL 4	2342	26°03.20′	84°49.00′
	01/11/83		
EOL 4	0137	26°02.70′	85°01.70′
SOL 5	0606	26°07.40′	84°49.40′
EOL 5	0800	26°07.50′	85°03.10′
SOL 6	0818	26°07.50′	85°03.10′
EOL 6	0940	25°57.30′	85°03.20′
SOL 7	0940	25°57.30′	85°03.20′
EOL 7	1150	25°57.36′	84°48.99′
SOL 8	1150	25°57.36′	84°48.99′
EOL 8	1252	26°03.70′	84°49.05′
	04/11/83		
SOL 9	0438	26°17.60′	84°56.40′
EOL 9	0511	26°13.27′	84°55.86′
SOL 10	0511	26°13.27′	84°55.86′
EOL 10	0625	26°12.60′	85°03.90′
SOL 11	0625	26°12.60′	85°03.90′
EOL 11	0721	26°21.70′	84°56.70′
SOL 12	0830	26°22.10′	84°56.90′
EOL 12	0915	26°17.50′	85°00.30′
SOL 13	0915	26°17.50′	85°00.30′
EOL 13	1015	26°15.40′	85°07.10′
SOL 14	1015	26°15.40′	85°07.10′
EOL 14	1220	26°19.90′	84°57.40′

Piston Core Deployment

Core #	LAT (N)	LONG (W)	DEPTH (M)
1	26°02.40′	85°02.6′	3330
2	26°01.64′	84°58.30′	3300
3	26°01.90′	84°55.80′	3296
5	26°06.23′	84°56.18′	3296
6	26°05.92′	84°58.20′	3360

Pavement (Hard-Rock) Corer

7	26°03.38′	84°53.13′	1690
8	26°02.45′	84°53.75′	1830
9	26°02.90′	84°54.50′	3190
10	26°03.00′	84°54.60′	3190
13	26°18.01′	84°58.20′	2200
14	26°16.80′	85°00.20′	1875