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CRUISE REPORT  
R/V COLUMBUS ISELIN  
CI 7-78-3  
29 Sept.-19 Oct. 78

3570 km  
3290 km  
2950 km  
850 km  

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10,670 km

CRUISE REPORT R/V COLUMBUS ISELIN [CI 7-78-3] 29 Sept -19 Oct 78

1. Ship Name: R/V COLUMBUS ISELIN
2. Cruise number: CI 7-78-3 (Cruise 7-78, leg 3)
3. Project: South Atlantic OCS Environmental Assessment (BLM)
4. Area of Operations: Northern Blake Plateau (32° 30'N to 29° 47'N)
5. Dates and Ports: Left Woods Hole, MA at 1750 EDT 29 Sept 78

Arrived at Miami, FLA 0808 EDT 19 Oct. 78

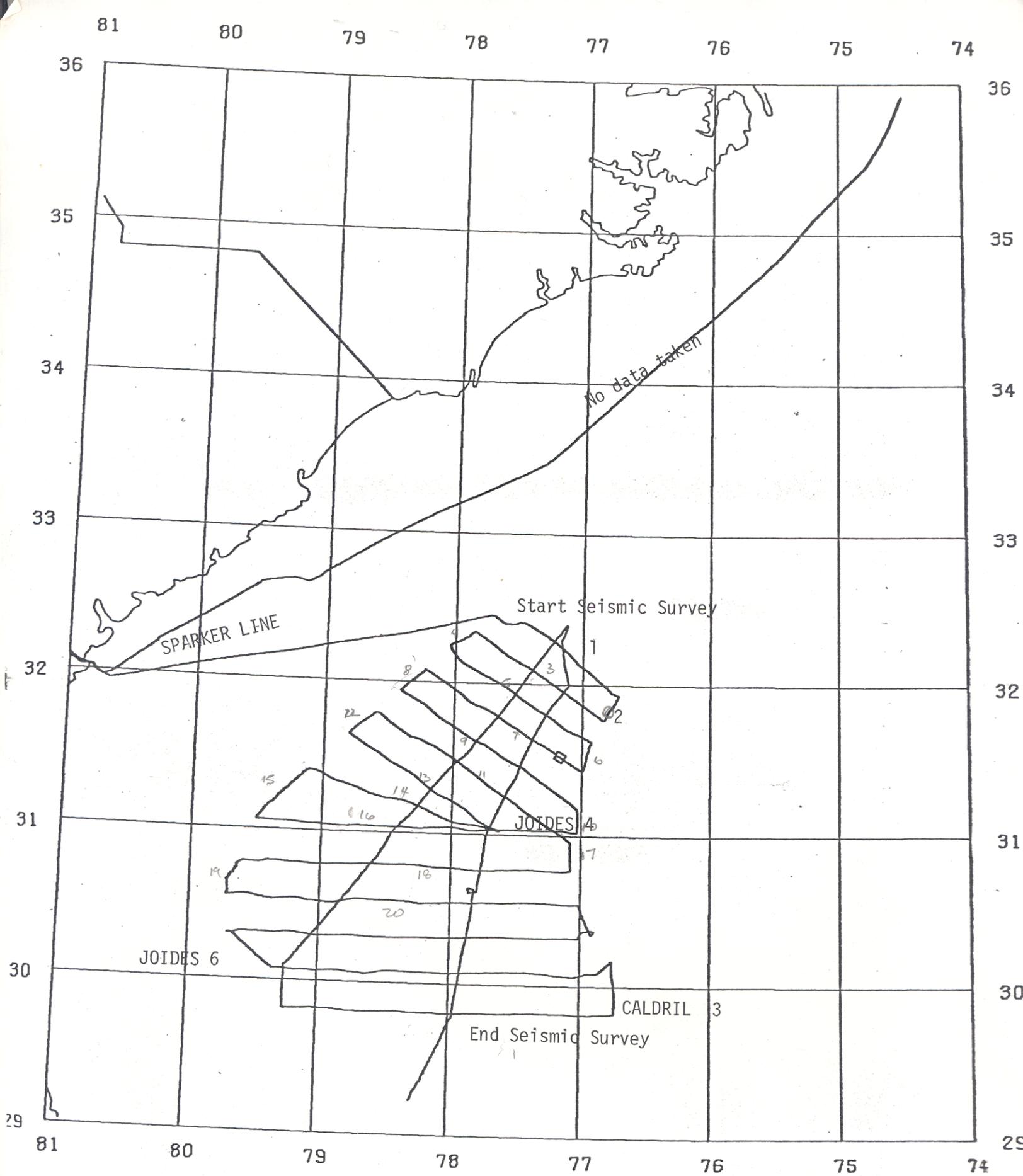
Emergency port call at Savannah, GA 2156 EDT

2 Oct 78 - 1445 EDT 3 Oct. 78.

6. Scientific Party:

Peter Popenoe	Chief Scientist, U.S.G.S.
Alan Goodman	U.S.G.S.
Charles Paull	U.S.G.S.
Barry Irwin	U.S.G.S.
Timothy Bishop	U.S.G.S.
David Egelson	U.S.G.S.
Charles McCreery	U.S.G.S.
James Dodd	U.S.G.S.
Janet Burke	U.S.G.S.
Elizabeth Coward	U.S.G.S.
Tom O'Brien	Woods Hole Oceanographic Institution
David Mason	Woods Hole Oceanographic Institution
Robert Morgan	Master, R/V COLUMBUS ISELIN

7. Purpose of cruise: To assess the types and frequencies of environmental hazards that may be encountered on the northern Blake Plateau. To study the shallow geologic section in order to define these geologic hazards using high-resolution geophysical profiling gear on a 28 km grid. To test the shipborn gravity system in order to obtain gravity coverage of the northern Blake Plateau.
8. Navigation Techniques: Loran C fixes were automatically recorded at 5 minute intervals from a Northstar 6000 receiver using the 9930 northeast U.S. chain and manually plotted at 15 minute intervals. An integrated navigation system was also on board. These data are available but were not used for postcruises plotted track charts.
9. Scientific Equipment:
- A. 2-40 cubic inch airguns.
  - B. Teledyne 600 joule minisparker.
  - C. ORE 3.5 kHz tuned transducer in overside fish.
  - D. EPC recorders with various amplifiers and hydrophones.
  - E. Integrated navigation system.
  - F. Northstar 6000 Loran reciever.
  - G. 5050 microprocessor time base.
  - H. Texas Instrument silent 700 terminal with cassette and paper recorder.
  - I. 7-channel analog tape recorder (seismic)
10. Tabulated Information:
- |                     |             |        |
|---------------------|-------------|--------|
| A. Days at sea:     | 20          |        |
| B. Amounts of data: | airgun      | 3570km |
|                     | minisparker | 3487km |
|                     | 3.5 kHz     | 3565km |



R V ISELIN - 3 1:3600000 UTM CM=75 NOV 30 1978  
 Cruise track map. R/V COLUMBUS ISELIN [ CI-7-78-3] Sept. 29 - Oct. 18, 1978.

## 11. Narrative:

The R/V COLUMBUS ISELIN departed Woods Hole, MA at 1750 EDT on Friday 29 Sept 1978 and attempted to steam directly to the survey area at an average speed of 10 knots. At 2145 (Z) 30 Sept 78, Captain Morgan informed us of generator problems. By 1330 (Z) the following day, we had been advised through radio contact with Miami to pull into port in Savannah, Ga. for repair. Enroute to Savannah, we deployed the minisparker at 1620 (Z) 1 Oct 78 off the Continental Slope southeast of Cape Hatteras. Due to rough sea conditions and the 10 knot transit speed the data were of poor quality, so we pulled the sparker and resumed our survey when the seas were calmer at 1230 (Z) 2 Oct 78 off Cape Romaine; records improved although the 10 knot speed was maintained. At 1620 (Z) we changed course toward Charleston, S.C. in order to fire an airgun over our Ocean Bottom seismometer(OBS) site ( $32^{\circ} 38' 03.6 \text{ N} - 79^{\circ} 30' 40.7 \text{ W}$ ) for testing purposes which ended at 1730 (Z), where we pulled the airgun but continued sparking toward Savannah. Upon arrival at the Savannah Buoy [2330 (Z)] we pulled the minisparker, shut down equipment, and steamed down the Savannah River to port for the evening, arriving at 2156 EDT 2 Oct 78. By 1000 (Z) the following day the generator was repaired; the problem being an overloaded breaker box. We departed Savannah, GA. at 1445 EDT and steamed directly to the survey area, arriving at 1040 (Z) 4 Oct. 78. The minisparker, 3.5kHz and airgun were deployed and all systems were receiving good records by 1300 (Z). During this time we were correcting  $59^{\circ}$  due to the strong Gulf Stream current with an average ship speed of 6 knots. At 2145 (Z) we crossed a diapir (salt?) structure. We later performed a small survey at 0400 (Z) 6 Oct 78 for more detail on a suspected fault (slump) structure which ended at 0635 (Z). During the last hour of this survey we had problems with the airgun which was replaced. We decreased ship speed at 1200 (Z) 7 Oct. 78 as seas were building and wind had increased to approximately 15-20 knots. By 0220 (Z)

11. Narrative continued:

8 Oct 78 seas had calmed and records improved. We noted some bottom roughness which looked like sea state on line 41 at 0100 (Z) 9 Oct 78 however seas were calm at this time (sand waves?). At 1200 (Z) 10 Oct 78 the weather report indicated that hurricane Juliet was heading our way. Because of this the seas were 8 feet and rising, the wind speed had increased to 25 knots, we were experiencing some precipitation, and our records were poor. By 1200 (Z) 11 Oct 78 we had lost 5 hours in steaming against the Gulf Stream as our average speed had been 1.5 knots. During this time our Northstar receiver and the Integrated navigation system were producing different positions. As of 1600 (Z) the sea state and weather had improved; Juliet had passed us to the east. At 0012 (Z) 12 Oct the ship experienced temporary power surges. We broke off line to survey a new diapir structure, possibly a salt dome, at 1445 (Z). We then attempted, as planned, a closed box survey to test the gravity system only to be discontinued at 1900 (Z) due to unpleasant sea conditions which caused considerable noise in the gravity system. During this time the 3.5 kHz minisparker, and the airgun were all deployed and working. By 0430 (Z) 18 Oct 78 the planned survey was complete, all gear was pulled and secured, and we headed directly to Miami, FLA. arriving at Dodge Island by 0808 EDT.

APPENDIX

R/V COLUMBUS ISELIN

Leg 3

CHIEF SCIENTISTS NOTES

STANDARDIZED WEATHER OBSERVATIONS

BRIDGE NOTES

NOON POSITION REPORT

## CHIEF SCIENTIST'S NOTES

All times recorded here are eastern daylight time

The planned 0900 departure was delayed to repair the starboard generator. Generator was disassembled and a broken wire was found. Reassembled about 1500, tested 2 hours before departure. Final departure was at 1750 with large crowd at dock including Dave Folger, Bill Green, Sue Purdy, Elizabeth Winget, Dianne Eskenasy. Beautiful weather but getting chilly.

### 29 Sept.

1750 Depart Woods Hole dock; beautiful weather but getting chilly.

### 30 Sept.

0645 Beautiful morning. Seas 3 to 4 feet. Some clouds but clearing.

0700 Position  $39^{\circ}20'W$   $71^{\circ}34'N$ . Loran unit was tracking wrong signal crossing. Was switched at about 0655.

1000 Gave orientation to Jim Dodd and Janet Burke on survey, schedule, etc. Also short orientation on equipment. Thorough orientation to be given by C. Paull and Al Goodman on seismic equipment, J. McCreery and Tim Bishop on navigational equipment.

Weather is going to deteriorate; a cold front appears to be coming.

Weather is now beautiful; seas 4 to 5 feet and clear sky. We passed through two beautiful plankton blooms several hundred meters wide and stretching to East and West as far as the eye could see. Took picture #9 on roll.

1200 Beautiful clear sky, 5 foot seas, very pleasant.

1230 Fire drill.

1250 Generator went out, reset Loran and clocks.

1300 Position  $38^{\circ}29'N$ ,  $78^{\circ}28'W$

1500 Goodman and Mason checked all airguns; all were firing. Paull, Bishop, and Dodd rebuilt sparker eel.

1745 Generator went out again. Second generator has (reported) bad vibration. Engineer working on problem.

1830 Captain confirms problem with generator. It is being worked on but may require a stop in Savannah Georgia to fix.

1 Oct.

0730 Overcast, seas 3 to 4 feet.

0930 Captain radioed Miami about generator problem. Miami advised him to head for Savannah, Georgia where they would have people standing by to fix it. ETA project area 0330 tomorrow, ETA Savannah 1730 tomorrow.

1000 Off Diamond Shoals light.

1220 Deployed sparker on continental slope off Hatteras.

1230 Getting good record, speed 11 knots.

1445 Sea state at 6 to 7 feet; raining, weather not bad.

2125 Sparker pulled. We were not getting good record because of  $\pm 6$  foot seas and 11 knot speed.

2 Oct.

0720 Overcast, seas 3 to 4 feet.

0830 Rebuilt eel S of Cape Romaine. Eel in water 0830, began sparker line.

0910 Radio contact with Folger in Woods Hole. Asked for 2 day extension of ISELIN contract, location of OBS units off Charleston. O'Brien talked with Tom Aldrich on software for gravity system. Aldrich to call Bell Labs to try to get representative in Savannah to look over program. No answer on anything. Next radio contact 1400. We are getting excellent sparker records!

1230 Firing airgun toward OBS array.

1252 Sparker off, airgun only firing.

1311 Directly over OBS units  $32^{\circ}38' 03.6$  N,  $79^{\circ}30' 40.7$  W.

1345 Airgun off, sparker only operating. We were getting excellent records on the airgun.

1939 Pull sparker at Savannah Buoy.

2156 Docked in Savannah, Georgia for repair of generator.

3 Oct.

1000 Generator problem in overloaded breaker box. Box is fixed and crew is testing generator. Called office to alert that we probably won't need extra days. Bell representative not able to come to Savannah to reprogram gravity software.

1445 Leave Savannah, Georgia to steam directly to survey area. 15 minutes late because of Barry Irwin's gravity tie to North American Gravity Network.

4 Oct.

0640 Arrive at start of line 1, deploy equipment and start survey. Mini-sparker in seas 2 to 3 feet, beautiful.

0725 3.5 kHz tuned transducer in, repairing pulley on compressor.

0900 Airgun in, compressor repaired. Strong Gulf Stream currents. We are correcting  $59^{\circ}$  for current. Fantastic records.

1657 Finish line 1, start line 2. Change sparker to aft compartment to try to stop interference with gravity system.

1730 Gravity system shut down. Interference still present and software problems. Weather beautiful, seas 2 to 3 feet.

5 Oct.

0745 Weather beautiful, seas 3 to 4 feet, some clouds; thunderstorm in distance.

2315 A good day was had by all (except gravity). Weather picked up slightly in afternoon but all in all, was beautiful.

6 Oct.

Another beautiful day, seas 3 to 4 feet, sky clear, water a beautiful blue.

1500 Seas 3 to 4 feet, beautiful weather.

7 Oct.

0800 Slightly cloudy, seas building 4 to 5 feet.

1000 Clearing, sky only slightly overcast, seas 5 to 6 feet, wind 15-20. A beautiful day but slightly rougher than usual.

1200 Had to slow vessel because of rough seas 5 to 7 feet.

1700 Seas starting to calm, 5 to 6 feet.

2200 Seas calmed down to 3 to 4 feet.

8 Oct.

0300 Seas picked up to 4 to 6 feet.

0800 Seas 3 to 4 feet, beautiful day, 30% cloud cover. Calculated our time ETA to end of project = 9.5 days or 2130 17 Oct. Miami the night of 18 Oct.

9 Oct.

0800 A beautiful day, seas 3 to 4 feet, partly overcast. Alls well with the world.

1030 Seas 3 to 4 feet, 50% cloud cover.

1600 Seas 4 to 6 feet.

10 Oct.

0800 The seas have built to 5 to 7 feet, sky completely overcast, some rain. Weather report indicates that hurricane Juliet is headed our way. We are running west with the seas on line 17 so the motion isn't too bad.

1100 Seas 5 to 8 feet, wind 25 knots, motion not bad but records suffering.

2130 Seas 5 to 8 feet or more. We are in the Gulf Stream and seas are more confused than before.

11 Oct.

Lost 5 hours in steaming against Gulf Stream in heavy seas. Average speed about 1.5 knots against current line #18. Heavy seas all night.

Seas diminishing somewhat. They are now 4 to 6 feet and still confused.

The weather has cleared with only some cloud cover, mostly sunny. Wind has diminished to 10-15 knots. Temperature in the 70's.

The Northstar Loan and Integrated Navigation System are giving different positions. We will need to intercompare cruise tracks when we return.

1200 Seas down to 3 to 5 feet, weather is looking good. Juliet will pass to the East of us.

12 Oct.

Seas all day down to 3 to 5 feet. Beautiful day for the beach.

13 Oct.

Overcast, seas 3 to 5 feet.

14 Oct.

Seas 3 to 5 feet, beautiful day.

15 Oct.

Seas 4 to 7 feet, bouncy.

1000 Wind 20-25 knots, seas building to 5 to 7 feet.

1400 Seas calming, wind 10-15 knots, seas 3 to 5 feet.

16 Oct.

Beautiful, seas 3 to 5 feet.

1000 Almost a millpond, seas 2 to 3 feet in broad gentle swells.

17 Oct.

0800 Seas 3 to 4 feet, beautiful.

1130 Beautiful day, winds 15-20 knots from the N. Seas 3 to 5 feet. We are running S with waves.

1500 Waves 5 to 7 feet.

18 Oct.

0005 Heavy sea, waves 8-10 feet. End survey, start pulling all gear.

0030 All gear pulled and secured.

1000 Headed in, seas 5 to 7 feet. Some washing on deck.

1200 Started rebuilding sparker, airguns, coiling and inspecting hose, etc.

19 Oct.

0807 In dock, Dodge Island, Miami, Florida.

Ships Company (ISELIN)

Captain	Bob Morgan
Chief Officer	Frank Wiggins
2nd Officer	George Beale
Seamen	Carl Taraska, Tom Abell, and Jim (Buck) Buckley
Boatswain	Tom Ince
Chief Engineer	Gary Pellerin
1st Asst. Engineer	"Zip" Lazinski
2nd Asst. Engineer	John Young
Steward	Frank Smith
Cook	Sidney (MAC) McGoodman