

CRUISE REPORT

SHIP UTILIZATION DATA

UNOL
Rev. 7/83

SHIP NAME ROBERT D. CONRAD		OPERATING INST. LDGO OF COL. UNIV.		PARTICIPATING PERSONNEL			
CRUISE (LEG) NO. 30-03		DATES Feb. 10-Mar. 12, 1989		CODE	NAME	TITLE	AFFILIATION
AREA OF OPERATIONS: SOUTH ATLANTIC		PORT CALLS:		1. N. Cherkis		Ch. Scientist	NRL
		PLACE	DATES	2. S. Vermace		Scientist	NRL
		Fortaleza	2-10-89	3. H. Webb		Scientist	NRL
		Recife	3-12-89	4. R. Blaes		Technician	LDGO
DAYS AT SEA 30	DAYS IN PORT 3	Use Reverse If Additional Space Required. (see over)					

WAS RESEARCH CONDUCTED IN FOREIGN WATERS? YES COUNTRY: BRAZIL
PRIMARY PROJECTS (those which govern the principal operations, area and movements of the ship)

PROJECT TITLE AND PRINCIPAL INVESTIGATOR	SPONSORING ACTIVITY	GRANT OR CONTRACT NUMBER	PARTICIPATING PERSONNEL (AS CODED ABOVE)
CENTRATLAN 1989 H. Fleming	NRL	N00014-89-C-2079	
DISCIPLINE SCS			

ANCILLARY PROJECTS (which are accomplished on a not-to-interfere basis and contribute to the overall effectiveness of the cruise)

PROJECT TITLE AND PRINCIPAL INVESTIGATOR	SPONSORING ACTIVITY	GRANT OR CONTRACT NUMBER	PARTICIPATING PERSONNEL (AS CODED ABOVE)

SIGNATURE H. Fleming DATE 10-16-89
CHIEF SCIENTIST

TOTAL SCIENTISTS 3 TOTAL TECHNICIANS 10
TOTAL GRAD STUDENTS 1 TOTAL STUDENTS/OBSERVERS 3

ATTACH PAGE SIZE CRUISE TRACK

COST ALLOCATION DATA

DAYS CHARGED	AGENCY OR ACTIVITY CHARGED	GRANT OR CONTRACT NO.
33	ONR	N00014-89-J-1768 N00014-89-C-2079

SIGNATURE [Signature]
Institution Official

DATE 10/12/89

5.	R. Blaes	Technician	LDGO
6.	S. Budhypramono	Technician	LDGO
7.	R. Edwards	Technician	URI
8.	M. Iltzsche	Technician	LDGO
9.	Maiwiriwiri, R.	Technician	LDGO
10.	J. Miller	Technician	URI
11.	T. Nolan	Technician	LDGO
12.	F. Robinson	Technician	LDGO
13.	J. Stennett	Technician	LDGO
14.	Lucas de Campos, Costa	Observer	Brazil
15.	Antonio F.G., Faria	Observer	Brazil
16.	Paulo A. da Trindade	Observer	Brazil

PRELIMINARY CRUISE REPORT: 88-94

SHIP NAME: R/V/ CONRAD

Operating Institution:
Naval Research Laboratory
Code 5110
Washington, DC 20375-5000

DATES: 10 FEB-12 MAR 1989

Project Title:
Brazil Basin 89-Pernambuco
and Bahia Seamounts StudyPort Calls: Embark: Fortaleza, Brazil
Debark: Recife, Brazil

Foreign Participants:

Capitão de Corveta Lucas de Campos Costa
Capitão-Tenente Paulo Agosto de Trindade
Tenente Antonio Fernando Garcez Faria

Description of Scientific Program:

The purpose of the program was to collect swath-mapped bathymetry, geomagnetics, single-channel seismic profiles, gravity and dredge samples in the Brazil Basin over two distinct seamount provinces: Pernambuco and Bahia Seamounts (see attached Cruise Report).

Information Address:

Norman Z. Cherkis
Naval Research Laboratory
Code 5110-CH
Washington, DC 20375-5000
(202) 767-2024/6956/3013

SCHEDULE OF DELIVERY FOR ALL DATA RESULTS AND REPORTS:

SeaBeam bathymetry (charts and tapes):	delivered 12 Mar 89
Gravity and Magnetism (tapes):	delivered 12 Mar 89
XBT data (diskette)	delivered 12 Mar 89

single-channel seismics:	to be processed at NRL 3 April/30 Jun 89
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Post-Processed SeaBeam data:	to be processed at NRL 3 April/30 Jun 89
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PRELIMINARY CRUISE REPORT
R/V CONRAD-10 FEBRUARY/12 MARCH 1989

REF: CRUISE # 88-94

Participants:

NRL: Norman Z. Cherkis, Oceanographer, Chief Scientist
Sandra E. Vermace, Computer Programmer
Helen E. Webb, Computer Programmer

DHN: Capitão de Corveta Lucas de Campos Costa
Capitão-Teneinte Paolo de Trindade
Teneinte Antonio Fernando Garcez-Faria

Port of Embarkation: Fortaleza, Ceara, Brazil, 10 Feb 1989

Port of Debarkation: Recife, Pernambuco, Brazil, 12 Mar 1989

Area worked: South Atlantic Ocean, Brazil Basin, specifically areas of Pernambuco Seamounts and Bahia Seamounts

Results:

A. Bathymetry: SeaBeam bathymetry covered 6401nm of track. Swath coverage is 80% of depth. Prior to this study, Pernambuco Seamounts was known to have six seamounts in the group. Our investigation found those six, and found peaks shallower than those reported in every case. In addition, ten new peaks were found in the area, thereby more than doubling the known topographic features in the seamount group. One feature is an elongated, undulating ridge that apparently is not associated with normal seafloor spreading activity. That feature alone has five major peaks, the shallowest at 2205 meters below the surface, and a base depth of 5100 meters. A seamount to the east of the Pernambuco Seamounts, first located by the Brazilian vessel, R/V Almirante Camara in 1983 by narrow-beam echosounder on a single track, was investigated and found to be a peak with a minimum depth of 1975 meters. A closely spaced investigation of the peak revealed its true characteristics, and was named "Almirante Camara Seamount". The name was presented to the US Board on Geographic Names/Advisory Committee on Undersea Features on 21 March 1989, and was accepted for entry in the file and in the forthcoming Underseas Features Gazetteer (fourth edition).

The second topographic province studied was Bahia Seamounts, a large seamount group that has been under investigation by NRL (Code 5110) for several years. Prior to 1978, only nine seamounts were known in the area. Since that time, NRL (Code 5110) has redeveloped the existing single-beam bathymetry available in the area, resulting in the discovery of 22 additional seamounts. The 1989 study, Cruise 88-89, covered only a small portion of the area. This study confirmed previous results and, in addition, located seven more peaks.

Several other seamounts in the Brazil Basin were investigated during transits, and three new peaks were also located.

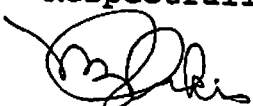
Pernambuco Seachannel, an undersea "river" bed carrying Antarctic Bottom Water northward through the Brazil Basin was located again, and extended another 80 km in length.

B. Geophysics: Gravity measurements were obtained for the entire cruise. Geomagnetism and single channel seismic profiles were obtained for 6401 nm of the cruise. These geophysical measurements supported the bathymetric results.

C. Ocean-floor sampling: Five dredges were attempted. Four attempts were successful, yielding a mixed suite of oceanic basalts, hydrothermally altered basalts, breccias, manganese pavements and partially dessicated, friable, lithified foraminiferal sediment. The latter is cannot be classified as a true limestone at this time. Much of the material recovered contains manganese coating.

Future Plans: At least three papers are planned to report the combined results of this and last year's cruise to the area. The first will be presented at the Spring Meeting of the American Geophysical Union in May. No dates are available for publication of the other papers.

Respectfully submitted, .



Norman Z. Cherkis
Chief Scientist

R/V Conrad Cruise RC 3003

US State Department Reference No. 88-94.

D. Hayes
Ocean.