

CRUISE REPORT

SHIP UTILIZATION DATA

UNOLS
Rev. 4, 83

SHIP NAME ROBERT D. CONRAD		OPERATING INST. L-DGO OF COL. UNIV.		PARTICIPATING PERSONNEL			
CRUISE (LEG) NO. 29-03		DATES MAR. 3-14, 1988		CODE	NAME	TITLE	AFFILIATION
AREA OF OPERATIONS: SOUTH ATLANTIC		PORT CALLS:		1.	David G. Hunley	Chief Scientist	L-DGO
		PLACE	DATES	2.	Roger D. Flood	Scientist	L-DGO
		PUNTA ARENAS	MAR. 3, '88	3.	A.J. Williams, III	Scientist	WHOI
		Buenos Aires	MAR. 14, '88	4.	John Rich	Technician	FSU
DAYS AT SEA 11	DAYS IN PORT 2	Use Reverse If Additional Space Required. (See below)					

WAS RESEARCH CONDUCTED IN FOREIGN WATERS? YES

COUNTRY: ARGENTINA

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)
Recovery of Current Meter Moorings George L. Weatherly	ONR	N000-14-87-G-0115	5. Daniel Hindryckx Obser. Argent. 6. Raul Guerrero INIDEP Scientist 7. Joe Stennett LDGO Sci. Off. 8. Rob Blaes LDGO Technician 9. J. DiBernardo LDGO Technician 10. T. Nolan LDGO Technician
DISCIPLINE			11. R. Mawiriwiri LDGO Technician 12. M. Iltzsche LDGO Technician

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 George L. Weatherly
CHIEF SCIENTIST

DATE 10-13-89

TOTAL SCIENTISTS 4 TOTAL TECHNICIANS 7
TOTAL GRAD STUDENTS 10 TOTAL STUDENTS/OBSERVERS 1

ATTACH PAGE SIZE CRUISE TRACK

COST ALLOCATION DATA

DAYS CHARGED	AGENCY OR ACTIVITY CHARGED	GRANT OR CONTRACT NO.
7	ONR	N00014-87-G-0115
1	NSF	OCE-86-16405
5	ONR	N00014-88-C-2084

SIGNATURE

Institution Official

DATE 10/17/89

CRUISE REPORT

R/V Robert D. Conrad Cruise 29, Leg 03

March 3 to March 14, 1988

Punta Arenas, Chile to Buenos Aires, Argentina

Georges L. Weatherly and Roger D. Flood

INTRODUCTION

The primary mission of R/V Conrad Cruise 29, Leg 3 (RC2903) was to recover current meter moorings deployed during R/V Conrad Cruise 28, Leg 4 in April/May, 1987. These moorings were deployed (1) to measure near bottom currents in the vicinity of large mud waves at two sites in the central Argentine Basin (Sites 5 and 6), to measure near bottom currents and transmissivity along a transect extending from the continental margin to the central Argentine Basin (Sites 1-6). Also to be recovered during RC2903 was a bottom-resting tripod containing an array of acoustic current meters, transmissometers, and cameras (known as BASS) set at Site 5 during RC2804.

This current meter recovery cruise was supported by Office of Naval Research Contract N00014-87-G-0115 to Dr. Georges Weatherly at Florida State University. Dr. Weatherly was to be Chief Scientist on this cruise, but he was unable to participate at the last minute.

SCIENTIFIC PARTY

The following individuals participated in the shipboard study.

1	David G. Hunley	FSU	engineer/chief scientist
2	Roger D. Flood	L-DGO	scientist
3	Albert J. Williams III	WHOI	scientist
4	John Rich	FSU	technician
5	Lt. Daniel Hindryckx	Argentine Navy	observer
6	Raul Guerrero	INIDEP	scientist
7	Joe Stennett	L-DGO	science officer
8	Rob Blaes	L-DGO	technician
9	John DiBernado	L-DGO	technician
10	Tim Nolan	L-DGO	technician
11	Ropate Mawiriwiri	L-DGO	technician
12	Martin Iltzsche	L-DGO	technician

FSU = Florida State University

L-DGO = Lamont-Doherty Geological Observatory

WHOI = Woods Hole Oceanographic Institution

INIDEP = Instituto Nacional de Investigacion y Desarrollo Pesquero, Mar del Plata, Argentina

EQUIPMENT

2

Two kinds of bottom instruments were to be recovered, current meter moorings (Florida State University) and BASS (WHOI). The current meter moorings were of two different configurations. Short moorings have a single current meter and transmissometer at 10 m above the bottom and tall moorings have a second current meter 200 m above the bottom. Each mooring is equipped with a flashing light and a radio beacon. The anchors are attached to the moorings by paired acoustic releases. BASS is a 5 m high tripod with a base 3 m long. It is instrumented with four acoustic velocity sensors, two transmissometers, two cameras with strobes, two data loggers, a separate battery pack, a flashing light, and a radio beacon.

Underway geophysical measurements included 3.5 kHz echo-sounding/subbottom profiling and gravity. Navigation data, including GPS, two-axis acoustic doppler speed log, and current velocity determined by acoustic doppler at three depths in the upper 200 m, were logged in the datalogger at one-minute intervals. Transit satellite fixes were also recorded in the data logger. Surface temperature profiles (XBTs) were taken throughout the cruise and radioed to NOAA. A more dense XBT sampling was collected crossing the Malvinas/Brazil Current Confluence.

NARRATIVE

The R/V Conrad departed Punta Arenas, Chile at 0130z, March 4, 1988. Underway watches were initiated at the eastern end of the Straits of Magellen, and we steamed directly to Site 6. At Site 6 we initially had difficulty talking with the acoustic releases. This difficulty was traced to a faulty transducer cable. We had good communications with the releases and with an OIS transponder left the previous year after switching to the spare transducer. As with moorings 1, 2, 3, 5T, the releases were a paired Sonatech and OIS, and communications with the Sonatech were superior. The Sonatech release was used to recover this mooring (as well as for moorings 1,2,3,5T).

At Site 5 we had good communications with the current meter releases and the OIS transponder from the previous year. However, we were not able to communicate with BASS either with the interrogator box or with the ship's 12 kHz echosounder. Since we had experienced no difficulty in communicating with any other transponder in this area and since we had good position information within the transponder net, we reluctantly concluded that BASS had released prematurely and was no longer in the area. Previous to this, the longest BASS deployment had been seven months. After the BASS recovery attempt, both current meter moorings were recovered without incident.

The current meter moorings at Sites 4, 3, 2, and 1 were recovered without incident. The mooring at Site 3 was recovered at night even though the strobe light and radio were not operating.

Preliminary analysis of the current meter records shows that the meters were operating properly with the exception of 6CM (partial record) and the upper meter at 5CMT (partial record).

While we had considered BASS to be lost while at Site 5, our experiences at Site 3 has caused us to reconsider our conclusion. The OIS releases used on BASS receive at 12 kHz, unlike many of the other releases used on the moorings (9.0 to 11.5 kHz). We had expected the 12 kHz releases to be interrogated by the box used

for the other releases. However, this box failed to interrogate the 12 kHz release on 3CM when it was on the bottom (it did interrogate it when it was on the surface). The ship's 12 kHz transducer was also found to be slightly off frequency (12.13 kHz), and the pulse length was too short to cause the OIS releases at Site 3 to respond. In addition, spurious pings were transmitted when keying the ship's 12 kHz transceiver, and such spurious commands can invalidate the command sequence. A test on an acoustic release operating at 12 kHz at Site 2 proved inconclusive since neither the alternate ship 12 kHz echo sounder (on frequency and with a long pulse length) nor the interrogator box were able to command the release, even on the surface. Site 2 is a questionable one for such tests since acoustic communications with the releases was bad there during the both the launch and recovery cruises.

Subsequent to the cruise we have determined that the FSU interrogator box was used to send commands to the BASS system when BASS was deployed in 1987. Further, the same interrogator box was used at 12 kHz to recover an OIS release in deep water three months prior to the RC2903 cruise. Whus we consider it most likely that BASS had released before we visited the site on this cruise.

We arrived at the seabuoy at 0230z, 14 March, and were alongside the pier in Buenos Aires, Argentina at about 1630, 14 March. Port to port, we were steaming for 9.5 days at at average speed of 9 knots (88.5% of the total time) and were on station for 28.5 hours (11.5%) of the time.

Table

Station Positions

Mooring or Instrument	Latitude (S)	Longitude (W)	Site	Type
6CM	45° 43.9'	49° 09.1'	6	short mooring
5CNT	42° 31.9'	45° 07.1'	5	tall mooring
5CMS	42° 30.3'	45° 07.7'	5	short mooring
BASS	42° 29.5'	45° 05.1'	5	tripod
4CM	40° 26.8'	49° 25.0'	4	short mooring
3CM	39° 22.7'	52° 13.6'	3	short mooring
2CM	38° 53.7'	53° 29.8'	2	tall mooring
1CM	38° 36.8'	53° 58.1'	1	tall mooring

Cruise Summary RC 29-03

Depart Punta Arenas, Chile	0130z	4 March 1988
Zero Pitlog south of Pte. Dungerness	1400z	4 March 1988
Arrive Site 6 (858 n mi in 89 hr = 9.64 kts) recover 6CM (8.5 hr)	0700z	8 March 1988
Depart Site 6	1530z	8 March 1988
Arrive Site 5 (260 n mi in 28 hr = 9.28 kts) unsuccessful BASS recovery recover 5CMT recover 5CMS (10 hr)	1930z	9 March 1988
Depart Site 5	0530z	10 March 1988
Arrive Site 4 (228 n mi in 27 hr = 8.44 kts) recover 4CM (2 hr)	0830z	11 March 1988
Depart Site 4	1030z	11 March 1988
Arrive Site 3 (144 n mi in 15 hr = 9.6 kts) recover 3CM (3 hr)	0130z	12 March 1988
Depart Site 3	0430z	12 March 1988
Arrive Site 2 (66 n mi in 9.5 hr = 6.95 kts) recover 2CM (3.5 hr)	1400z	12 March 1988
Depart Site 2	1730z	12 March 1988
Arrive Site 1 (28 n mi in 4.5 hr = 6.22 kts) recover CM1 (1.5 hr)	2200z	12 March 1988
Depart Site 1	2230z	12 March 1988
Arrive seabuoy (233 n mi in 27.3 hr = 8.53 kts)	0250z	14 March 1988
Arrive Buenos Aires, Argentina	1630z	14 March 1988

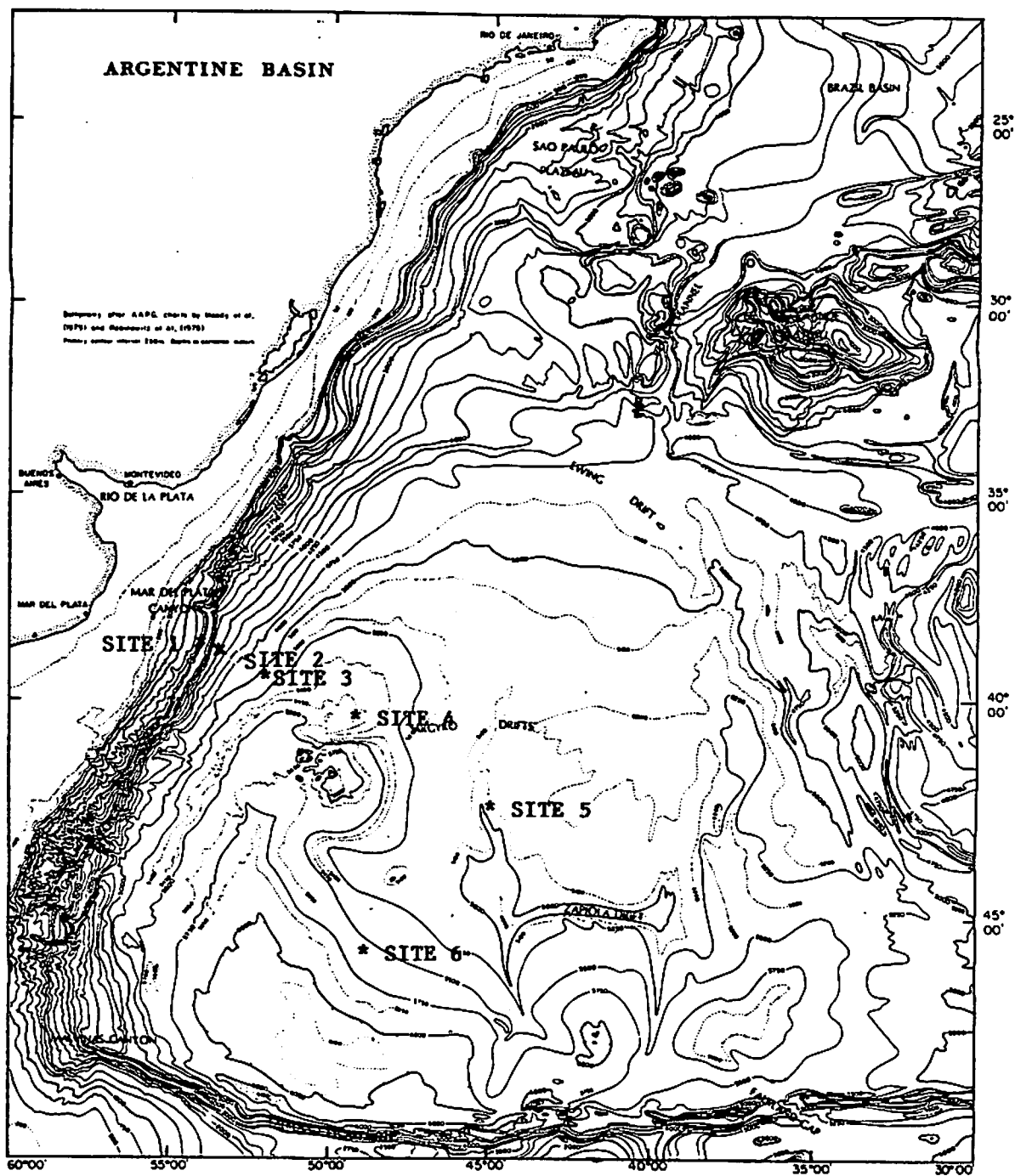


FIGURE Location of sites visited during R/V Robert Conrad cruise 29-03

D. Hayes
Olsen.