

TR-163

KENNETT

UNIVERSITY OF RHODE ISLAND

Graduate School of Oceanography

Kingston, R. I. 02881

Cruise Report

R/V TRIDENT CRUISE TR-163

SCHEDULE

| | | |
|----------|--------------------|------------------|
| Departed | Balboa, Panama | 11 February 1975 |
| Arrived | Guayaquil, Ecuador | 3 March 1975 |

REGION INVESTIGATED

A series of piston cores were obtained west of Costa Rica on the Cocos Ridge to the west of the Galapagos Islands and the Carnegie Ridge region (Fig. 1).

DURATION OF CRUISE

Twenty-one days

SCIENTIFIC PARTY

- J. P. Kennett, Chief Scientist U. R. I.
- T. Aspinwall, Graduate Student, U. R. I.
- C. Brunner, Graduate Student, U. R. I.
- J. Keany, Graduate Student, U. R. I.
- L. Keigwin, Graduate Student, U. R. I.
- K. Freed, Graduate Student, U. R. I.
- L. Steere, Technician U. R. I.
- D. Muerdter, Graduate Student, U. R. I.
- P. Hendershot, Marine Technician, U. R. I.
- K. Erkstrom, Marine Technician, U. R. I.

PURPOSE

The objective of Cruise TR-163 was to obtain a large number of piston cores of good length in the areas of investigation and to obtain continuous 3.5 KHz records for study in association with the piston cores. Major objectives of the studies include:

- a. To examine Late Quaternary paleoexplosivity of the Costa Rican region based on the study of volcanic ash in the traverse of piston cores collected to the west of Costa Rica.
- b. To examine the history of volcanism of the Galapagos Islands during the Late Quaternary based on the traverse of cores obtained to the west of the Galapagos Islands.
- c. Likewise to obtain information on volcanic history of Ecuador preserved in cores on the Carnegie Ridge.

KENNETT / WATRINS / HUANG

TR-163

d. To study the paleoclimatic and oxygen isotope records of cores from the region.

e. To examine the sedimentological results of extensive bottom current winnowing in cores from the Cocos and Carnegie Ridges.

f. To study the Late Quaternary history of bottom water activity close to sill depths at the northern part of the Peru-Chile Trench.

g. To examine shallow water benthonic foraminiferal faunas adjacent to the Galapagos Islands.

RESULTS

A total of 38 piston cores of good length (up to 16 meters) were obtained from the region (Figure 1; Table 1) at the desired locations. Each piston core has a trigger core for core top studies. In addition a 10 ft. Kasten core was obtained from the southwest Carnegie Ridge at the same site as a core which previously has supplied one of the finest Quaternary oxygen isotope records anywhere in the oceans. The Kasten core will provide large volumes of sediments for highly detailed carbon 14 dating. In addition excellent 3.5 KHz records were obtained along the cruise track. It is anticipated that the material obtained will enable all planned studies to be carried out successfully.

Five and one-half days at sea were assigned to National Science Foundation Grant No. DES 74-22347 (N. D. Watkins, Principal Investigator). All other days were assigned to DES 72-01667 A02 (J. P. Kennett, Principal Investigator).

TABLE I

TRIDENT CRUISE 163

| SHIP STATION | LONGITUDE | LATITUDE | WATER DEPTH | CORE LENGTH |
|----------------------|-----------|----------|-------------|-------------|
| Piston Cores | | | | |
| WATKINS HUANG 1 ✓ | 83°05.4'W | 7°43.1'N | 1700 m | 12'4" |
| 2 | 84°21.2'W | 8°14.5'N | 1620 m | 19'1" |
| 3 | 85°14.3'W | 8°53.4'N | 2950 m | 27'8" |
| 4 | 85°10.7'W | 8°53.3'N | 3150 m | 30' |
| 5 | 85°48.8'W | 8°46.7'N | 3195 m | 23'10" |
| 6 | 86°32.8'W | 8°44.4'N | 3210 m | 33'2" |
| 7 | 88°02.0'W | 8°22.3'N | 3435 m | 36'4" |
| 8 | 88°02.9'W | 8°22.9'N | 3413 m | 32'10" |
| 9 | 89°38.5'W | 8°05.4'N | 3420 m | 35'3" |
| 10 | 90°44.8'W | 7°55.5'N | 3500 m | 36' |
| 11 | 85°49.3'W | 6°27.0'N | 1950 m | 29'7" |
| 12 | 87°22.0'W | 6°01.4'N | 1765 m | 10'8" |
| 13 | 87°21.7'W | 6°01.7'N | 2450 m | 31'6" |
| 14 | 87°14.2'W | 5°54.1'N | 2365 m | 34' |
| 15 | 87°53.5'W | 4°16.2'N | 1770 m | 31'9" |
| 16 | 88°09.9'W | 3°54.8'N | 1340 m | 33' |
| 17 | 89°22.4'W | 3°04.0'N | 1680 m | 29'10" |
| 18 | 89°51.1'W | 2°48.6'N | 2030 m | 34' |
| 19 | 90°57.1'W | 2°15.5'N | 2348 m | 38'5" |
| 20 | 93°50.6'W | 0°47.1'N | 3200 m | 6'5" |
| 20-B | 93°50.5'W | 0°47.3'N | 3200 m | 32' |
| 21 | 93°16.3'W | 0°36.4'N | 2760 m | 34'2" |
| 22 | 92°23.0'W | 0°30.9'N | 2330 m | 29' |
| 23 | 92°09.2'W | 0°24.4'N | 2730 m | 30'8" |
| 24 | 89°08.3'W | 1°23.2'S | 1150 m | 3'2" |
| 25 | 88°27.2'W | 1°38.9'S | 2650 m | 35' |
| 26 | 87°46.9'W | 1°53.8'S | 3000 m | 30' |
| 27 | 86°35.1'W | 2°14.2'S | 3180 m | 40' |
| 28 | 86°14.2'W | 2°19.2'S | 3200 m | 35' |
| 29 | 85°45.4'W | 2°26.3'S | 3160 m | 34'6" |
| 30 | 84°52.6'W | 3°04.0'S | 3240 m | 40' |
| 31 | 83°57.2'W | 3°35.8'S | 3209 m | 48' |
| 32 | 82°59.3'W | 2°08.7'S | 2890 m | 5' |
| 33 | 82°34.1'W | 1°54.8'S | 2230 m | 15'11" |
| 34 | 81°57.0'W | 1°18.8'S | 1360 m | 5'5" |
| 35 | 81°56.0'W | 1°21.0'S | 1415 m | 9'5" |
| 36 | 81°47.0'W | 1°21.5'S | 1780 m | 12' |
| 37 | 81°40.8'W | 1°21.0'S | 2005 m | 9'5" |
| 38 | 81°35.0'W | 1°20.2'S | 2200 m | 16' |
| Kasten Core | | | | |
| 31-B | 83°58.4'W | 3°37.2'S | 3210 m | 10' |

P=314m

TW=12m

K=3.1m

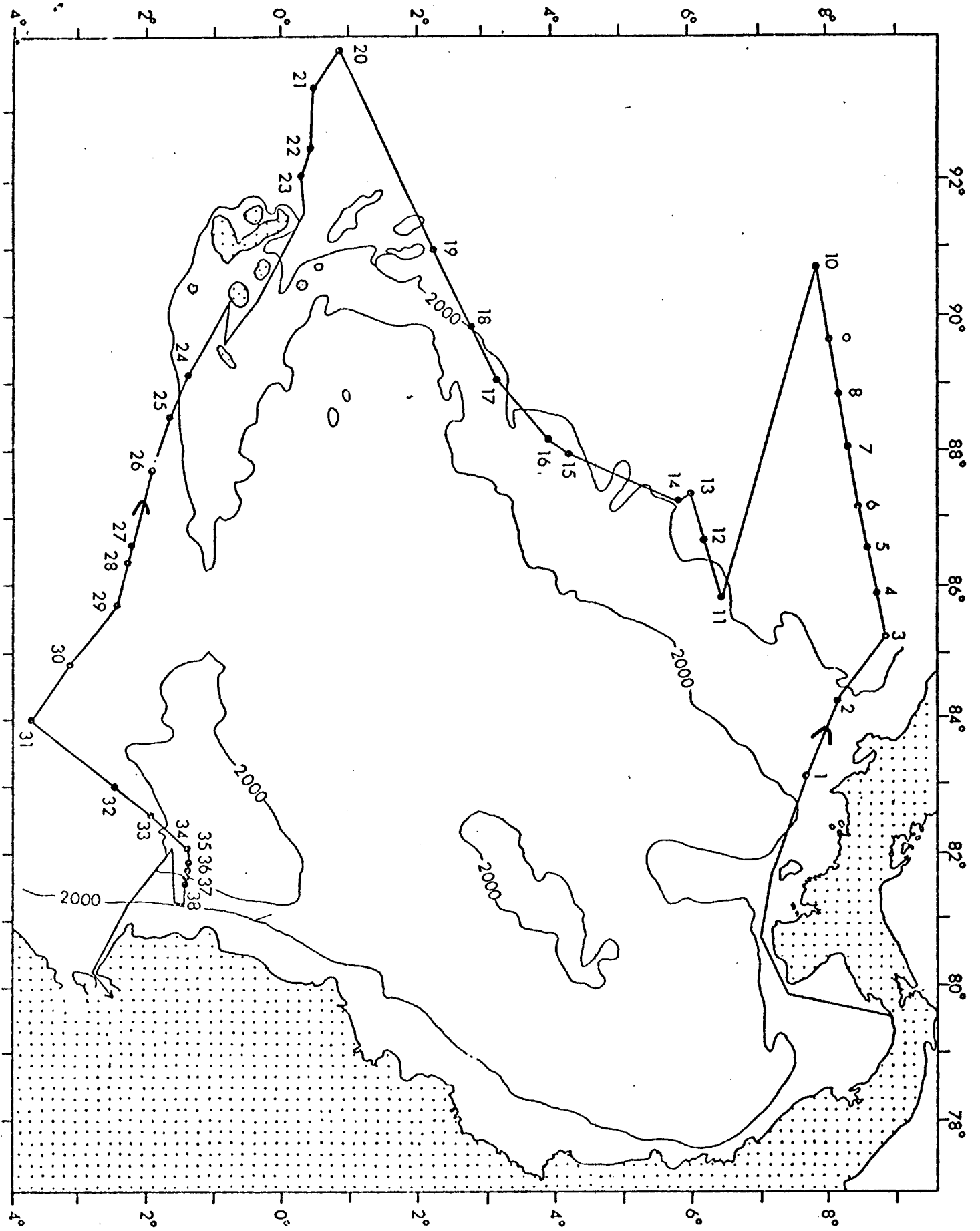


Figure I

TR-163, 11 Feb - 3 March 1975
 Balboa (Panama) — Guayaquil (Ecuador)