

TR-121

UNIVERSITY OF RHODE ISLAND

Graduate School of Oceanography

Kingston, R. I. 02881

CRUISE REPORT

R/V TRIDENT CRUISE TR-121

Schedule

Departed Hortas, Fayal, Azores 1715 hrs.; Monday 7th August, 1972
Arrived Ponta del Garda, San Miguel, Azores, 0900 hrs.; Friday 18th August, 1972.

Region Investigated

Piston coring traverses were made east from the Azores to longitude 18° West; a parallel traverse south of this; and as a circumnavigation of the island of San Miguel.

Duration of Cruise

Twelve days.

Scientific Party

- Dr. N. D. Watkins, URI, Chief Scientist
- Dr. T. C. Huang, URI, senior investigator (coring crew deck boss)
- Dr. D. M. Shaw, URI and NOAA investigator
- Mr. C. Amerigian, URI, Graduate Student (coring crew deck boss)
- Mr. B. Corliss, URI, Graduate Student
- Mr. B. Ellwood, URI, Graduate Student
- Mr. W. Mook, Wesleyan University, Graduate Student
- Mr. S. Self, Imperial College (London), Graduate Student
- Mr. D. Williams, URI, Graduate Student
- Mr. A. Buddington, URI, Marine Technician
- Mr. E. Houde, URI, Marine Technician
- Mr. E. Weitzner, URI, Marine Technician

Purpose

To collect traverses of deep sea sedimentary piston cores in order to identify Azores tephra (volcanic ash) horizons in the deep sea sediments downwind from the eruptions. These tephra, which will be dated, can yield data relevant to the ancient eruptive intensities; atmospheric volcanic particulate transport; and the detailed volcanic stratigraphy of the Azores. Several subsidiary topics, such as fluctuations of ice-rafted debris, are envisaged.

Summary of Activities

This cruise is the first Trident cruise devoted to deep-sea piston coring. It was preceded by construction of new equipment: ship modification; and a short testing cruise. The only subsidiary equipment used were the PESR and PAR profiling units.

WATKINS/HUANG

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Figure 1 shows the cruise tracks, and table 1 is a list of the cores recovered. It will not be possible to evaluate the scientific return until the cores are split and examined, but at this time it is certain that many tephra are contained in the cores recovered. The number of stations occupied and the number of cores obtained are very satisfactory, although the lengths of core recovered are inadequate. The reasons for this failure have been diagnosed, and future cruises will feature long core recoveries.

Subsidiary studies include collection of tephra samples from the Azores by Dr. D. M. Shaw, under the guidance of Dr. Walker and Mr. Self (of Imperial College, London), specifically for incorporation into our research on the same tephra in the deep sea sediments.

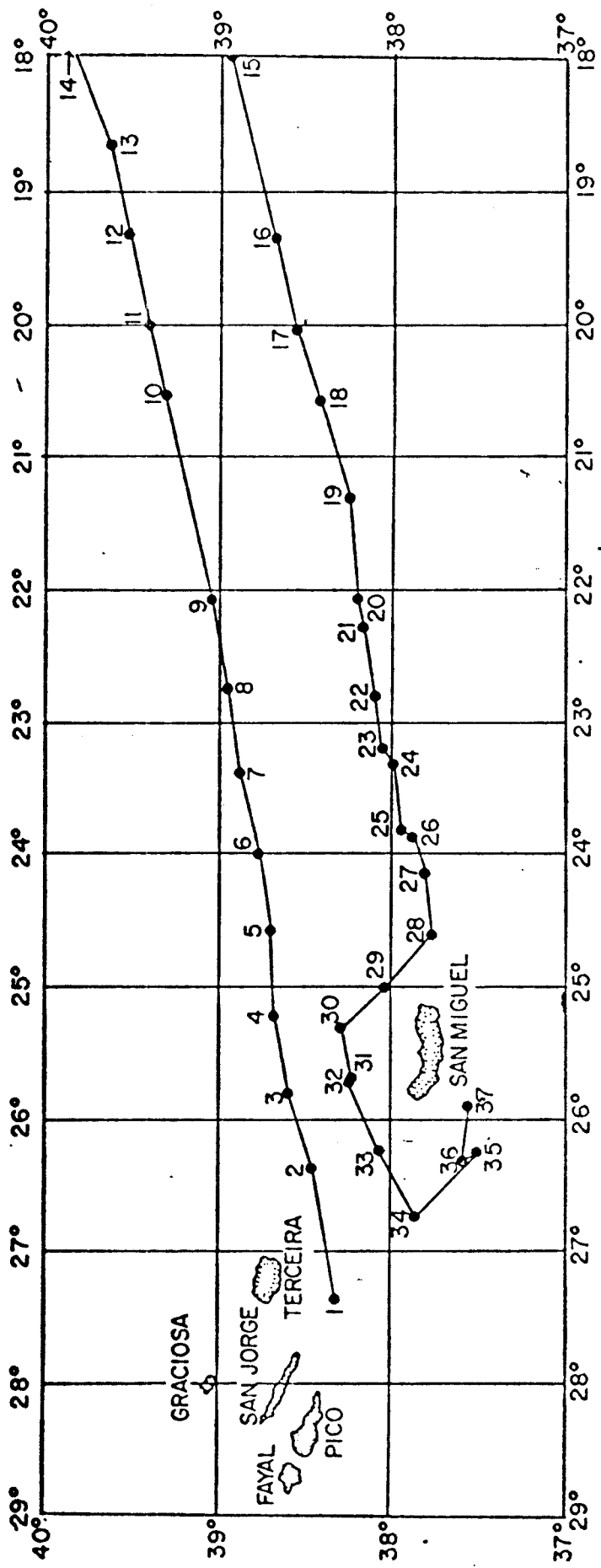
All the days at sea are assigned to Watkins and Huang as co-principal investigators (National Science Foundation Grant Number GA 28853A).

Table 1

TRIDENT CRUISE 121
PISTON CORE INVENTORY

Station and Core Number	Date (in Aug.) and contact time (G.T)	Latitude °N	Longitude °W	Water Depth (meters)	Core length (cms)
1	8: 0240	38°21.2'	27°21.5'	1600	510
2	8: 1055	38°28.0'	26°23.0'	1700	360
3	8: 1625	38°33.3'	25°48.3'	2650	240
4	8: 2225	38°39.8'	25°12.4'	2975	430
5	9: 0415	38°43.7'	24°33.7'	3150	rock
6	9: 1055	38°47.6'	23°59.9'	3770	390
7	9: 1722	38°53.7'	23°20.3'	3580	262
8	10: 0035	38°58.0'	22°44.0'	3650	462
9	10: 0930	39°04.0'	22°04.5'	4350	350
10	10: 2115	39°18.3'	20°34.4'	5090	315
11	11: 0522	39°25.0'	19°57.3'	5075	0
12	11: 1330	39°33.0'	19°20.0'	5250	645
13	11: 2129	39°38.9'	18°42.4'	4820	295
14	12: 0540	39°53.0'	17°53.1'	3980	396
15	12: 1727	38°57.0'	17°59.0'	5225	400
16	13: 0900	38°41.5'	19°20.4'	5090	0
17	13: 1820	38°24.0'	20°02.0'	4775	550
18	14: 0300	38°24.1'	20°35.0'	4900	592
19	14: 1045	38°15.9'	21°18.2'	4700	518
20	14: 1715	38°12.7'	21°56.6'	4325	503
21	14: 2211	38°10.3'	22°16.5'	4500	350
22	15: 0345	38°06.9'	22°48.6'	3550	305

23	15: 0842	38°03.0'	23°11.2'	4430	0
24	15: 1315	38°01.0'	23°19.0'	3800	427
25	15: 1825	37°55.5'	23°48.8'	3560	0
26	15: 2233	37°53.4'	23°51.2'	3500	350
27	16: 0314	37°49.0'	24°12.0'	2850	198
28	16: 0775	37°46.5'	24°36.5'	2360	pumice⁷
29	16: 1242	38°04.0'	25°00.0'	2480	390
30	16: 1720	38°20.0'	25°18.8'	2875	375
31	16: 2112	38°14.6'	25°42.1'	2480	550
32	17: 0005	38°14.1'	25°44.2'	2380	240
33	17: 0555	38°04.2'	26°14.9'	3180	310
34	17: 1140	37°47.4'	26°55.9'	1820	gravel
35	17: 1600	37°30.3'	26°14.5'	2365	600
36	17: 1856	37°33.9'	26°20.6'	2350	500
37	18: 0102	37°24.7'	25°54.1'	2310	550



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