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MEMORANDUM

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Date: August 12, 1987
To: B. Halley, H. Kneble, G. Hill, T. Aldrich, S. Barton,
J. Newell, T. O'Brien, G. Sexton, N. Soderberg,
B. Henry (DMA), T. Cocke (State Department)

From: J. Dodd

Subject: Cruise Report M/V Starella

Cruise No.: S2-87-CV

Parent Project: Defense Mapping Agency Gravity

Funding Agency: Defense Mapping Agency

Funding Amount:

Contract No.:

Contract Start/End Dates: October 1, 1986 - open

Area of Operation: Cape Verde Islands

Cruise Start/End Dates, Ports: 26 Mar 1987 - Mindelo, C.V.
25 Apr 1987 - Praia, C.V.

Chief Scientist: Jim Dodd

Cruise Data Curator: Jim Dodd

Scientific Party, Affiliation: Jim Dodd USGS-AMG
George Driscoll USGS-AMG
Cathy Delorey USGS-AMG
Carol Parmenter USGS-AMG
Rick Rendigs USGS-AMG
Dave Mason USGS-AMG
John Ryland Racial Survey
Dave McCracken Racial Survey
Dave Ellison Racial Survey
Brian Franklin J. Marr

Ships Captain: John Nichols

Purpose: The purpose of this cruise was to collect gravity and bathymetry data around the Cape Verde Islands on a 3.3 nmi grid with an internal consistency of +/- 3 milligals.

Navigation Techniques: Global Positioning System (satellite), Racial Hyperfix (radio, shore-based) and Racial Microfix (radio, shore-based).

Equipment: USGS Gravity Data Logging System
USGS Data Processing System

LaCoste and Romberg Air/Sea Gravimeters S-26 and S-41
Raytheon PTR 12KHz Bathymetry System
Racal Hyperfix and Microfix Navigation Systems
General Electric 810 Correlation Sonar
Magnavox System 5000 Integrated Navigation System

Tabulated Information:

Days at sea: 28
Kilometers surveyed: 6314.2
Kilometers steamed: 7888.0

Narrative:

The ship left Mindelo (on Sao Vicente Island, of the Cape Verde Islands) on March 26, 1987. Two lines from Leg 1 were re-run using Global Positioning System navigation because all Racal shore-based navigation had been moved to the eastern and southern Cape Verde Islands. On March 27th, operations moved to Sal Island where Racal Survey had their radio navigation net set up. After a one hour calibration, the survey was continued.

Racal had only a limited number of navigation stations. Besides this, each station had limited range (15 - 20 nmi for Microfix, 150 nmi for Hyper-fix). Therefore, we had to coordinate the survey at sea with the resources on land. While data is normally processed every few days, here the schedule was increased so that as soon as an area was surveyed, the data from that area was processed so we could be sure we wouldn't have to return there. Then Racal could move the navigation stations to the next area. This 'leap-frogging' system was made possible through the hard work of the Racal shore team and the help of many of the local Cape Verdeans who helped in keeping the equipment moving, in set-up and break-down of stations and in transporting the equipment from island to island.

We moved south, surveying around the islands of Sal, Boa Vista, Maio, and Sao Tiago. There was a two day port stop in Praia to exchange some of the crew from April 9 - 11. After some equipment problems slowed progress, the cruise finished up the area around Sao Tiago and then moved on to survey around the islands of Fogo and Brava. After completing the survey, the ship docked in Praia (Sao Tiago) on April 25 to tie the gravity data to the gravity station there.