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CRUISE REPORT

Ship Name: VEMA Cruise No. 3618

Departure: November 17th, 1980 (Date) from Mombasa, Kenya (Port)

Arrival: December 15th, 1980 at: Dar es Salaam, Tanzania

Days at Sea: 28 (Count day of departure but not day of arrival in port)

Days Foreign Port: 3 (Number of days in arrival port before next leg)

Area of Operation: Continental margin of Eastern Africa: Somalia, Kenya and Tanzania

Program Description: Multichannel seismic (12 channel) and standard underway geophysics (gravity, magnetics and bathymetry).

Program supported by what contract: OCE 79 - 19389 (National Science Foundation)

Participants: (All L-DGO unless otherwise specified)

Name	Title
Philip D. Rabinowitz	Chief Scientist
Millard P. Coffin	Assistant Chief Scientist
William C. Robinson	Electrical Engineer
Ralph Roessler	Electrical Technician
Kevin Little	Electrical Technician
Patrick Williams	Data Technician
William J. Robinson	Computer Technician
Hector Smith	Mechanical Technician
Abram Hazelman	Mechanical Technician
Andrew Killango	Tanzanian Visitor
William Okoth	Kenyan Visitor
M. Bole	Mechanical Technician

CRUISE REPORT V 3618 - MOMBASA, KENYA TO DAR ES SALAAM, TANZANIA

(NOVEMBER 17th TO DECEMBER 15th, 1980)

Vema cruise 3618 commenced in Mombasa, Kenya November 17th, 1980 and ended in Dar es Salaam December l5th, 1980.

The primary purpose of the cruise was to utilize the L-DGO 12 channel reflection system (MCS) and the sonobuoy reflection/refraction system to determine the evolution of what we believe to be both the sheared (southern Kenya and Tanzania) and rifted (northern Kenya and Somalia) continental margins of eastern Africa. These margins are believed to be a manifestation of the separation of Madagascar from the African continent.

We completed all of the work and met all of the objectives we originally set out to do (plus an additional few hundred nautical miles). In particular, we have discovered a major zone of salt (?) diapirs offshore Somalia and northern Kenya. The diapir structures here are observed on the rifted margin segment of the survey and extend approximately 150 n. miles seaward of the coastline on the continental slope/rise. Similar structures may be observed on the continental shelf (in much shallower water) offshore southern Kenya and Tanzania. In addition, the seismic stratigraphy was very exciting. We have seismically tied a DSDP hole in the western Somali Basin to a continental margin drill hole offshore Kenya. Other deeper reflections are persistent throughout the basin. We observed basement in most areas where it was not obscured by a multiple (up to approximately 4 sec. penetration). Also we have a good sonobuoy grid for velocity analysis.

During the cruise we had only minor malfunctions with the equipment. The technicians aboard were able to easily handle these problems. Many of the malfunctions were mechanical and associated with the drum-seismic reflection recorder. These problems, though minor, were persistent as a result of a lack of workable spare parts. A general paucity of spare parts is also evident for the gravity and magnetic equipment.

One near "disaster" occurred which may manifest itself at a later date. A break in a salt water pipe occurred adjacent to the gravity room which covered the entire gravity meter, stable platform and associated electronics with salt water. One of the connectors (to gyro) was profusely smoking; other pieces of electronics (e.g. accelerometers on top of gravimeter) were also "bubbling". Fortunately, the damage was not very large. One accelerometer was ruined. However, the gyro and gravimeter do not appear to be damaged. I would strongly recommend cleaning and/or replacing all of the connectors that go into the gravity meter and stable platform when the ship returns to New York.

In summary, we shot and recorded (tape and single channel monitors) about 3300 n. miles of eleven channel seismic data. (One section of the eel was not working upon departure from Mombasa.) He also continuously recorded gravity, magnetic and bathymetry and shot about 90 successful sonobuoys.

Cruise Report V 3618 – Mombasa, Kenya to Dar Es Salaam, Tanzania
(November 17th to December 15th, 1980)

The shipboard party were competent, easy to get along with and helped provide for a highly successful voyage.

A track chart is enclosed.

Philip D. Rabinowitz
Chief Scientist, Vema Cruise 3618
December 15th, 1980