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PRELIMINARY CRUISE REPORT -- LIBERIA

87035rpt

TO: GOVERNMENT OF LIBERIA  
MINISTRY OF LANDS, MINES AND ENERGY  
MONROVIA LIBERIA

ATTENTION: MR. W. A. FREEMAN  
MR. S. RUSS

FM: UNITED STATES GEOLOGICAL SURVEY  
BRANCH OF ATLANTIC MARINE GEOLOGY  
QUISSETT CAMPUS  
WOODS HOLE MASS. 02543 U.S.A.

AUG 26 - SEP 20  
S6-87-AFR

ATTENTION: DR. R. W. ROWLAND  
MR. J. E. DODD

SUBJECT: USGS MARINE GRAVITY SURVEY LIBERIAN WATERS  
26 AUGUST 87 TO 2 SEPTEMBER 87

6250 km data  
3434 nmi

This survey was conducted using the Research Vessel Starella, the vessel is British registry, 57 m long and 1161 gross tons. The Starella's homeport is Hull, England, the owner is J. Marr [Shipping] Ltd., and the ship is leased to the U. S. Geological Survey for offshore surveys. The present Master is Captain John Nichols and the ship's permanent crew number 12, all of British citizenship.

Clearance for the marine gravity survey was initiated through the United States Department of State and permission was granted by the government of Liberia on 18 August, 1987 via diplomatic no 7657/2-6. Mr. Samuel Russ, a Liberian geophysicist with the Ministry of Lands, Mines and Energy, joined the ship in the port of Freetown, Sierra Leone, as an observer and watch-stander.

Scientific Staff:

Name	Title	Affiliation
Robert W. Rowland	Geologist (Chief Scientist)	U. S. Geol. Survey
Samuel Russ	Geophysicist (Observer representing Liberia)	Min. of Land, Mines, and Energy (Liberia)
Bakary Coulibaly	Oceanographic Eng. (Observer representing Cote d'Ivoire)	Ministere de la Marine (Cote d'Ivoire)
Mr. James E. Dodd	Electronics Engineer (Co-Chief Scientist)	U. S. Geol. Survey
Ms. Sarah B. Griscom	Physical Science Tech.	U. S. Geol. Survey

Sam Amedofou

Ghana

Ms. Linda L. Sheetz Geologist

U. S. Geol. Survey

Dr. V. E. Zadnik Geologist

U. S. Geol. Survey

The shipboard scientific equipment consists of 2 Lacoste and Romberg marine gravimeters and a Geometrics magnetometer. A Magnavox 5000 navigation system integrates data from 2 gyrocompasses, a General Electric correlation sonar and GPS and TRANSIT satellite receivers. The gravity data is combined with the navigation data and processed on USGS developed systems. The processed data is then crosschecked at sea to standards provided by the US Defense Mapping Agency for inclusion in the world geodetic data base.

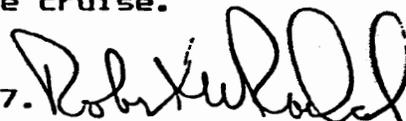
The Starella left Freetown on 24 August and transited to Liberian waters and began surveying on 26 August. The purpose of the survey was to collect gravity and bathymetric data on the continental shelf of Liberia. The survey resulted in 973 nmi of gravity data, a total of 1247 nmi were steamed in Liberian waters. The survey was completed on 2 September and we transited to waters within the jurisdiction of the Cote d'Ivoire and began working there later the same day.

A full data tape will be provided to the Government of Liberia when land gravity ties have been conducted and post processing is completed. In the interim 2 sets of charts covering the surveyed areas have been compiled and drafted at sea. Each chart set contains trackline data plus bathymetry and relative gravity plots.

In closing I would like to thank the Government of Liberia for including Mr. Samuel Russ in the scientific staff. Sam quickly learned the procedures and of the gravity and navigation systems and served as a full-time scientific watchstander throughout the cruise.

Submitted:

Robert W. Rowland, 9 September 1987.



Distribution:

USGS: D. Folger, R. Halley, G. Hill, Sci. Staff - Starella  
US DOS: T. Cocke; H. Ross, III  
J. Marr: J. Nichols (Capt.)

PRELIMINARY CRUISE REPORT -- COTE D'IVOIRE

TO: REPUBLIQUE DE COTE D'IVOIRE  
MINISTERE des AFFAIRES ETRANGERES  
ABIDJAN, COTE d IVOIRE

ATTENTION: MR. L. FADIKA  
MR. J. TINE

FM: UNITED STATES GEOLOGICAL SURVEY  
BRANCH OF ATLANTIC MARINE GEOLOGY  
QUISSETT CAMPUS  
WOODS HOLE, MASS. 02543 U.S.A.

ATTENTION: DR. R. W. ROWLAND  
MR. J. E. DODD

SUBJECT: USGS MARINE GRAVITY SURVEY OF COTE d IVOIRE

2 SEPTEMBER TO 9 SEPTEMBER 1987

This survey was conducted using the Research Vessel Starella; the vessel is British registry, 57 m long and 1161 gross tons. The Starella's homeport is Hull, England; the owner is J. Marr [Shipping] Ltd., and the ship is leased to the U. S. Geological Survey for offshore surveys. The present Master is Captain John Nichols and the ship's permanent crew number 12, all of British citizenship.

Clearance for the marine gravity survey was initiated through the United States Department of State and permission was granted by the government of Cote D'Ivoire on 16 July 1987 via diplomatic note number 7934.

Mr. Bakary Coulibaly, an oceanographic engineer with the Laboratoire de L'Environnement Marin et Lagunaire in Abidjan, joined the ship in the port of Freetown, Sierra Leone, as an observer and watchstander.

Scientific Staff:

<u>Name</u>	<u>Title</u>	<u>Affiliation</u>
Mr. Bakary Coulibaly	Oceanographic Eng. (Observer representing Cote D'Ivoire)	Ministere de la Marine, Cote D'Ivoire
Mr. James E. Dodd	Electronics Engineer (Co-Chief Scientist)	U. S. Geol. Survey
Ms. Sarah B. Griscom	Geologist	U. S. Geol. Survey
Dr. Robert W. Rowland	Geologist (Co-Chief Scientist)	U. S. Geol. Survey
Mr. Samuel Russ	Geophysicist (Observer)	Ministry of Land,

Mines, and Energy,  
Liberia

Ms. Linda L. Sheetz Geologist

U. S. Geol. Survey

Dr. V. E. Zadnik Geologist

U. S. Geol. Survey

The shipboard scientific equipment consists of 2 Lacoste and Romberg marine gravimeters and a Geometrics magnetometer. A Magnavox 5000 navigation system integrates data from 2 gyrocompasses, a General Electric correlation sonar and GPS and TRANSIT satellite receivers. The gravity data is combined with the navigation data and processed on USGS developed systems. The processed data is then crosschecked at sea to standards provided by the US Defense Mapping Agency for inclusion in the world geodetic data base.

The Starella left Freetown on 24 August and transited to Liberian waters and began surveying on 26 August. The Liberian survey was completed on 2 September and we transited to waters within the jurisdiction of Cote D'Ivoire and began surveying there later the same day. The purpose of the survey was to collect gravity and bathymetric data on the continental shelf of Cote D'Ivoire. The survey resulted in 1030 nmi of gravity data, a total of 1299 nmi were steamed in Cote D'Ivoire waters. On 9 September the Starella docked in Abidjan and the offshore portion of the survey was completed.

A full data tape will be provided to the Republique de Cote D'Ivoire when land gravity ties have been conducted and post processing is completed. In the interim 2 sets of charts covering the surveyed areas have been compiled and drafted at sea. Each chart set contains trackline data plus bathymetry and relative gravity plots.

In closing, in behalf of the U. S. Geological Survey, I would like to thank the Government of Cote D'Ivoire for including Mr. Bakary Coulibaly in the scientific staff onboard the Research Vessel Starella. Bakary learned the gravity and navigation systems during the first few days of the survey then served as a full time watchstander throughout the month long cruise, which covered Liberia and Ghana as well as the Cote D'Ivoire. His diligent professional attitude toward the job and his cheerful outlook combined to make him a very pleasant shipmate.

Submitted:

Robert W. Rowland, 12 September 1987.

Distribution:

USGS: D. Folger, R. Halley, G. Hill, Sci. Staff - Starella  
US DOS: T. Cocke, M. Rooney  
J. Marr: J. Nichols (Capt.)

PRELIMINARY CRUISE REPORT -- GHANA

TO: GOVERNMENT OF GHANA  
MINISTRY OF LANDS AND NATURAL RESOURCES  
ACCRA, GHANA

ATTENTION: SECT., MINISTRY OF LANDS AND NAT. RESOURCES  
MR. C. BAETA  
MR. G. O. KESSE

FM: UNITED STATES GEOLOGICAL SURVEY  
BRANCH OF ATLANTIC MARINE GEOLOGY  
QUISSETT CAMPUS  
WOODS HOLE MASS.02543 U.S.A.

ATTENTION: DR. R. W. ROWLAND  
MR. J. E. DODD

SUBJECT: USGS MARINE GRAVITY SURVEY GHANA WATERS  
10 SEPTEMBER 87 TO 20 SEPTEMBER 87

This survey was conducted using the Research Vessel Starella; the vessel is British registry, 57 m long and 1161 gross tons. The Starella's homeport is Hull, England, the owner is J. Marr [Shipping] Ltd., and the ship is leased to the U. S. Geological Survey for offshore surveys. The present Master is Captain John Nichols and the ship's permanent crew number 12, all of British citizenship.

Clearance for the marine gravity survey was initiated through the United States Department of State and permission was granted by the government of Ghana in September 1987. Mr. S. K. Amedofu and Mr. J. T. Odametey joined the ship in Abidjan on 10 September as representatives of the Government of Ghana.

Scientific Staff:

<u>Name</u>	<u>Title</u>	<u>Affiliation</u>
Mr. Samuel K. Amedofu	Geophysicist (Observer)	Geol. Survey Dept. Ghana
Mr. Bakary Coulibaly	Oceanographic Eng. (Observer representing Cote D'Ivoire)	Ministere de la Marine (Cote D'Ivoire)
Mr. James E. Dodd	Electronics Engineer (Co-Chief Scientist)	U. S. Geol. Survey
Ms. Sarah B. Griscom	Geologist	U. S. Geol. Survey
Mr. Joseph T. Odemetey	Surveyor (Observer)	Survey Dept., Ghana

Dr. Robert W. Rowland	Geologist (Chief Scient.)	U. S. Geol. Survey
Ms. Linda L. Sheetz	Geologist	U. S. Geol. Survey
Dr. V. E. Zadnik	Geologist	U. S. Geol. Survey

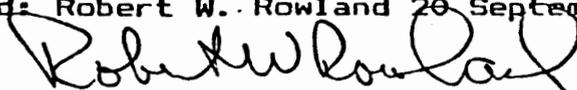
The shipboard scientific equipment consists of 2 Lacoste and Romberg marine gravimeters and a Geometrics magnetometer. A Magnavox 5000 navigation system integrates data from 2 gyrocompasses, a General Electric correlation sonar and GPS and TRANSIT satellite receivers. The gravity data is combined with the navigation data and processed on USGS developed systems. The processed data is then crosschecked at sea to standards provided by the US Defense Mapping Agency for inclusion in the world geodetic data base.

The Starella left Abidjan on 10 September and transited to waters under the jurisdiction of Ghana. Surveying was initiated later the same day. The purpose of the survey was to collect gravity and bathymetric data on the continental shelf of Ghana. The survey resulted in 1430.8 nautical miles of gravity data and a total of 1813.6 nautical miles were steamed in Ghanaian waters. On 20 September the Starella docked in Abidjan and the offshore portion of the survey was completed, with the exception of "line B" which is to be surveyed during the next leg.

A full data tape will be provided to the government of Ghana when land gravity ties have been conducted and post processing is completed. In the interim, 2 sets of charts covering the surveyed areas have been compiled and drafted at sea. Each chart set contains trackline data plus bathymetry and relative gravity plots.

After getting their sea-legs Mr. Amedofu and Mr. Odametey were instructed in the gravity and bathymetry watchstanding process and assisted throughout the survey. Several times in the course of the survey Mr. Amedofu asked about the possibility of additional cooperation with the USGS using the recently collected gravity data and other geophysical data available to the Ghana Geological Survey Department. The purpose of the cooperation would be to use the geophysical and geological data already in hand to map the regional structure on the coastal and continental shelf areas of Ghana. The primary goal of the survey would be to identify regional basins and large structures which should be studied in detail for their oil and gas potential. This type of international marine geologic project is possible; the USGS has ongoing projects in Indonesia and with several South Pacific island nations. However there is always the problem of funding; USGS regular congressional funding is specifically allocated to studies within the US exclusive economic zone. Our foreign surveys are funded by other sources: International Banks, the host nation, USAID, or a combination of these three. In closing, these were informal discussions that could be followed up if the project is of mutual interest to both the Ghana and U.S. Geological Surveys.

Submitted: Robert W. Rowland 20 September 1987.



**Distrubution:**

USGS: D. Folger, R. Halley, G. Hill, Sci. Staff - Starella  
US DOS: T. Cocke, L. Graham  
J. Marr: J. Nichols (Capt.)