Lamont-Doherty Geological Observatory | *Palisades, N.Y. 10964*
of Columbia University

Cable: LAMONT, Palisades, New York State

Telephone: Code 914, Elmwood 9-2900
Twx: 710-576-2653

CRUISE REPORT

Ship Name: VEMA Cruise No: 35-06

Departure: July 6, 1978 (Date) from Guam (Port)

Arrival: July 24, 1978 (Date) at Suva, Fiji (Port)

Days at Sea: 18 Days Foreign Port: Start of 4 month lay-up
No. of days in arrival port

Area of Operation: Mariana Basin, Ontong-Java Plateau

Program Description: (1) Survey of low-amplitude marine magnetic anomalies in the Mariana Basin, (2) piston coring on the Ontong-Java Plateau.

Participants: (All L-DGO unless otherwise specified)

Steven C. Cande	Chief Scientist
Brian Ostrowski	E.T.
Dwight Mossman	E.T.
Jeff Schwartz	Core Describer
Hector Smith	Air gun
Malaki Banuve	Core Basun
Cary Mrozowski	G.R.A.
Steve Lewis	G.R.A.

All inquiries regarding cruise should be made to the chief scientist.

CRUISE REPORT V35-06

Scientific Report

V35-06 left Guam on July 6, 1978 and arrived in Suva, Fiji on July 24, 1978. The first portion of the cruise consisted of a survey of low amplitude magnetic anomalies in the Mariana Basin. A pattern of linear magnetic anomalies, striking at 40°, was found on the "old" side of anomalies M24 to M28 recently identified in the Mariana Basin. It is believed that the anomalies found on this cruise are due to either polarity reversals or intensity variations of the magnetic field in the mid-Jurassic. Although additional data are needed, i.e., from another area, to definitely establish the pattern of field behavior, the data collected on this cruise will provide a basis for extending the polarity time scale from 155 to about 165 m.y.B.P.

Three cores, average length of 15 m, were taken on the Ontong-Java Plateau. These cores were taken in the vicinity of V28-237 and should be useful in paleomagnetic studies.

The track crossed the Vitiaz Trench and the Fiji Plateau on the way to Suva.

Equipment

All of the underway geophysical systems worked well during the cruise. The following is a run down of particular points of interest.

3.5 kHz PDR: During the previous leg (35-05) the 3.5 kHz PDR worked poorly. In port in Guam we checked out the transducer.

array using a test suggested by Bill Robinson. A standard eel transducer was placed on the harbour floor beneath the 3.5 kHz transducer array. A 3.5 kHz signal was transmitted through the eel transducer and monitored at the output from each bottle, using one bottle as a standard. The relative phase and strength of the signals were compared, with the hopes that some bottles were ~~be~~ either 180^{o} out of phase or dead. The results of the test were ambiguous. The signal at the various bottles varied by anywhere from 0^{o}, 45^{o}, 90^{o}, 135^{o} to 180^{o} indicating that the test set-up was incapable of detecting reversed bottle polarity. Although the test was repeated three times at different conditions, (e.g., high tide and low tide) the results were the same. Some bottles appeared weaker than others. Nothing was found that was obviously wrong and the system was hooked back up in its original configuration. During the cruise the 3.5 kHz PDR system worked very well - apparently much better than on the previous leg. The reason for the improvement is unknown since nothing was changed and no bad connections were found in port.

A second problem with the 3.5 kHz PDR system is an unknown source of 60 cycle (?) noise that interferes with the signal. This problem had come up on the previous leg and was circumvented by re-routing the cable from the junction box to the upper lab. The noise was still present when a new cable was strung over the old route indicating the problem is not solely in the cable. Although the system works well with the re-routed cable, it is strung along a temporary route and a new permanent route will have to be found for the cable in the future.

Magnetometer:

At one point we tried using Kerosene in the bottle instead of distilled water. Although the signal was passable, it was much weaker than the signal when distilled water was used.

Preparations for Layup:

The gravity table was disassembled and, along with the control electronics, shipped back to Lamont for overhaul at the request of Robinson and LaBrecque. The 3.5 kHz PDR transceiver and one profiler system were also shipped back for overhaul. One gravity meter was left with the ship's agent to await notification from Lamont as to where to ship it.

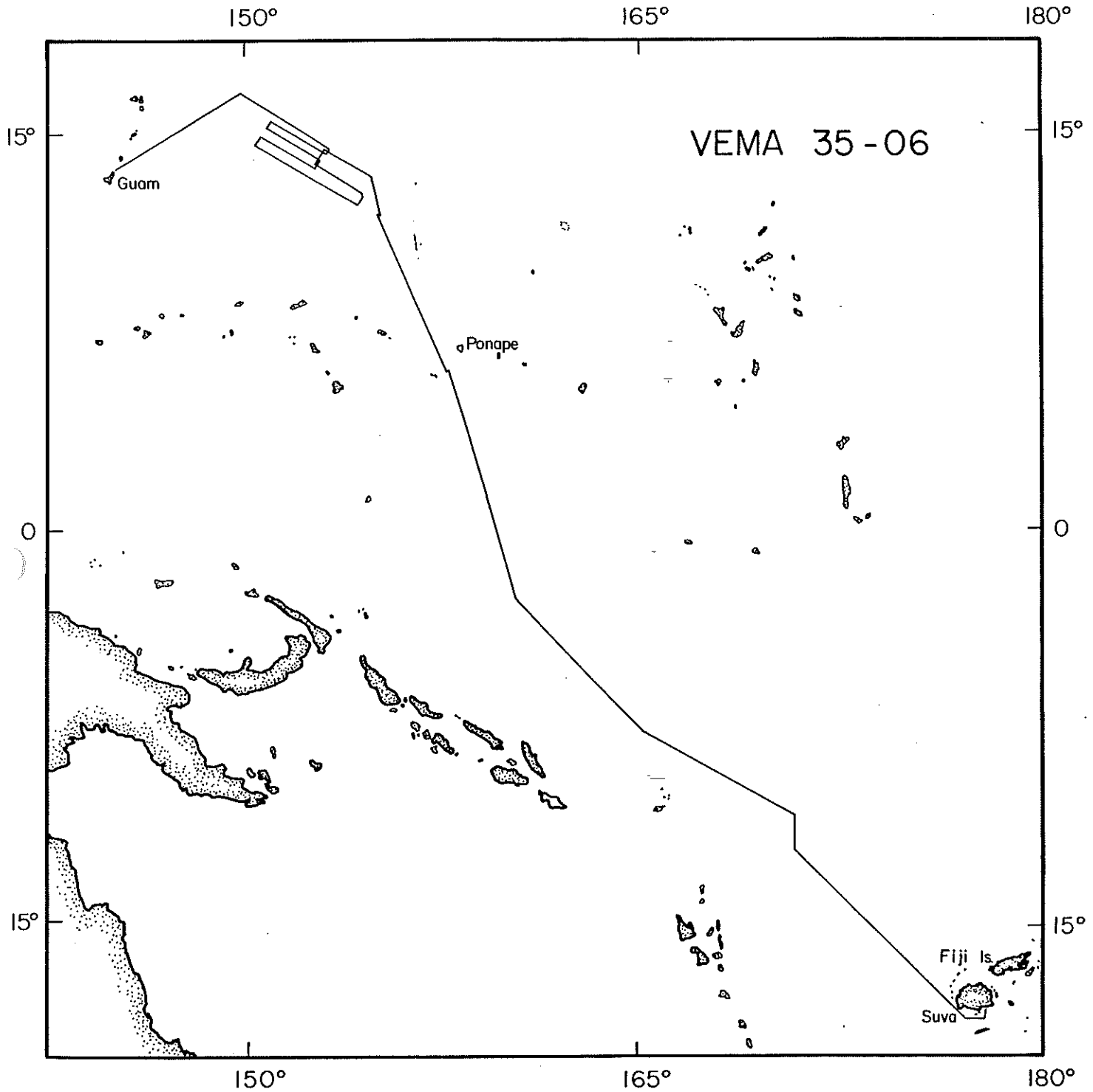
Scientific Personnel:

The scientific personnel were, in general, excellent. Dwight Mossman was very good and an effort should be made to keep him at Lamont.

Other Matters:

I could find no reference on the ship to Lamont's policy towards insuring air freight and sea shipments. Are shipments to be insured, and, if so, for how much?

Stan C. Cook


150°
165°
180°
15°
0
VEMA 35-06
Guam
Ponape
Fiji Is.
Suva