

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

Cable: LAMONTGEO

Telephone: Code 914, Elmwood 9-2900

Palisades New York State

TWX-710-576-2653

CRUISE REPORT

Ship Name: R/V VEMA

Cruise No: 36-14

Departure: August 2, 1980
Date

from Manila
Port

Arrival: August 24, 1980
Date

at Hong Kong
Port

Days at Sea: 23
(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: South China Sea

Program Description: Multi-channel (12) seismic, gravity, magnetics and bathymetry survey of the northern margin of South China Sea.

Program supported by what contract: 439-5097-5973

Participants: (All L-DGO unless otherwise specified)

<u>Name</u>	<u>Title</u>	
R. Leyden	Chief Scientist	L-DGO
H. Van Santford	Engineer	L-DGO
W. Robinson	Comp. Technician	L-DGO
R. Rossler	Technician	L-DGO
A. Ferguson	Elect. Technician	L-DGO
E. Christian	Elect. Technician	L-DGO
H. Smith	Mech. Technician	L-DGO
A. Hazelman	Mech. Technician	L-DGO
Quian Yi Peng	Observer	Ministry of Geol.
Li Zhongxing	Observer	Ministry of Geol.
P. Williams	Visiting Technician	

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

Discussion

VEMA Cruise 36 leg 14 was the final multi-channel seismic leg of a cooperative survey of the northern margin of the South China Sea. The survey was conducted in cooperation with the Peoples Republic of China. The track of V-36-14 is shown in Figure 1. Combined tracks of V-36-07, 08 and 14 (Figure 2) outline the completed multi-channel survey.

Digital tapes of the multi-channel seismic data have just arrived at the lab. While it is premature to evaluate the final results of the cruise, prior to processing, the seismic monitor records provided assurance that good data were recorded. Fifty-one sonobuoys were recorded with fair to poor results. The magnetic records were noisy on the long North-South lines, as noted on previous legs, but the data were readable. Thanks to very cooperative weather the gravity data and navigation should require few corrections in final reduction. Tracks which deviate slightly from the original planned survey are due to heavy concentrations of fishing boats. The northeast portion of the planned survey in the Formosa Banks Region was necessarily modified. Fishing boats and coastal shipping traffic is extremely heavy in the summer months especially when seas are calm.

The compressor and air gun system ran without problems due both to excellent installation which provides adequate ventilation and good maintenance by an experienced crew. The DFS IV recording system worked well except for a minor problem with tape drive #2. The problem was intermittent, occurred occasionally at tape change and never persisted long enough to either cause serious trouble or warrant shut down to find the cause of the problem. The scientific crew provided data on time from the upper lab for the computer operator to provide plots of lines soon after their completion. Navigation fixes from the bridge satellite receiver came regularly and were combined with shot times provided from the MCS watch to provide almost running shot point navigation. Computer plots of combined topography, magnetics, gravity and shot point navigation plots were given to the Chinese scientists upon completion of the cruise. Similar plots were also made for the previous cruise as the computer had crashed just before V-36-13 cruise ended. The computer repairs made in Manila before sailing on leg 14 were very satisfactory.

The streamer was checked for noise frequently with the SIE recorder. Channel #8 had some low frequency noise during the entire cruise but signal over noise was adequate. Channel #6 developed a noise problem 3/4 of the way through the cruise. At the far southwest end of the survey 36 hours were spent on general streamer repairs. One earlier stop for a period of about five hours was used to clear fishing lines from the streamer and repair the light in the tail buoy. This work was done using the zodiac, leaving the streamer in the water. During the longer stop we brought the streamer on board to clear fishing lines, check the two noisy channels and work on the depth transducers. Little was gained except fishing line at either stop. A better guard is needed at the head of the birds to prevent them from collecting long lines. I am sure a simple flexible band could be constructed similar to a weed guard on a fishing plug to correct this problem. The cause of the trouble with channel #6 was that a bird had collected several lines and one had sawed into the streamer. A patch was applied and the section was topped with oil. Section eight seemed to be adequately filled but oil was added there also. The depth transducer work took most of the 36 hours. H. Van Santford and the ET staff kept notes on their efforts and after checking with the manufacturer should be able to advise for future repairs. The results of our unsuccessful attempt were that only one depth transducer (#2) worked after station and channel #6 was so noisy that we took it off line. Channel #6 may be salt contaminated or over filled with oil. Channel #8 did seem to improve slightly.

The end of the survey was used to reinforce single-channel data (line 14) along the coast. The last line of leg 14 numbered 78 completed that task. However, just after a course change which for all practical purposes ended the line, and only ten minutes before we were to reach a predetermined place to haul the streamer, a fishing trawler crossed our stern and we lost the last two active sections of the streamer. A complete report of this unfortunate and unnecessary accident has been written.

Overall V-36-14 was a very easy leg. The almost continuous calm seas, in contrast to the winter legs, helped to make it easy. The scientific staff, and the ship's officers and crew, were professionally efficient.

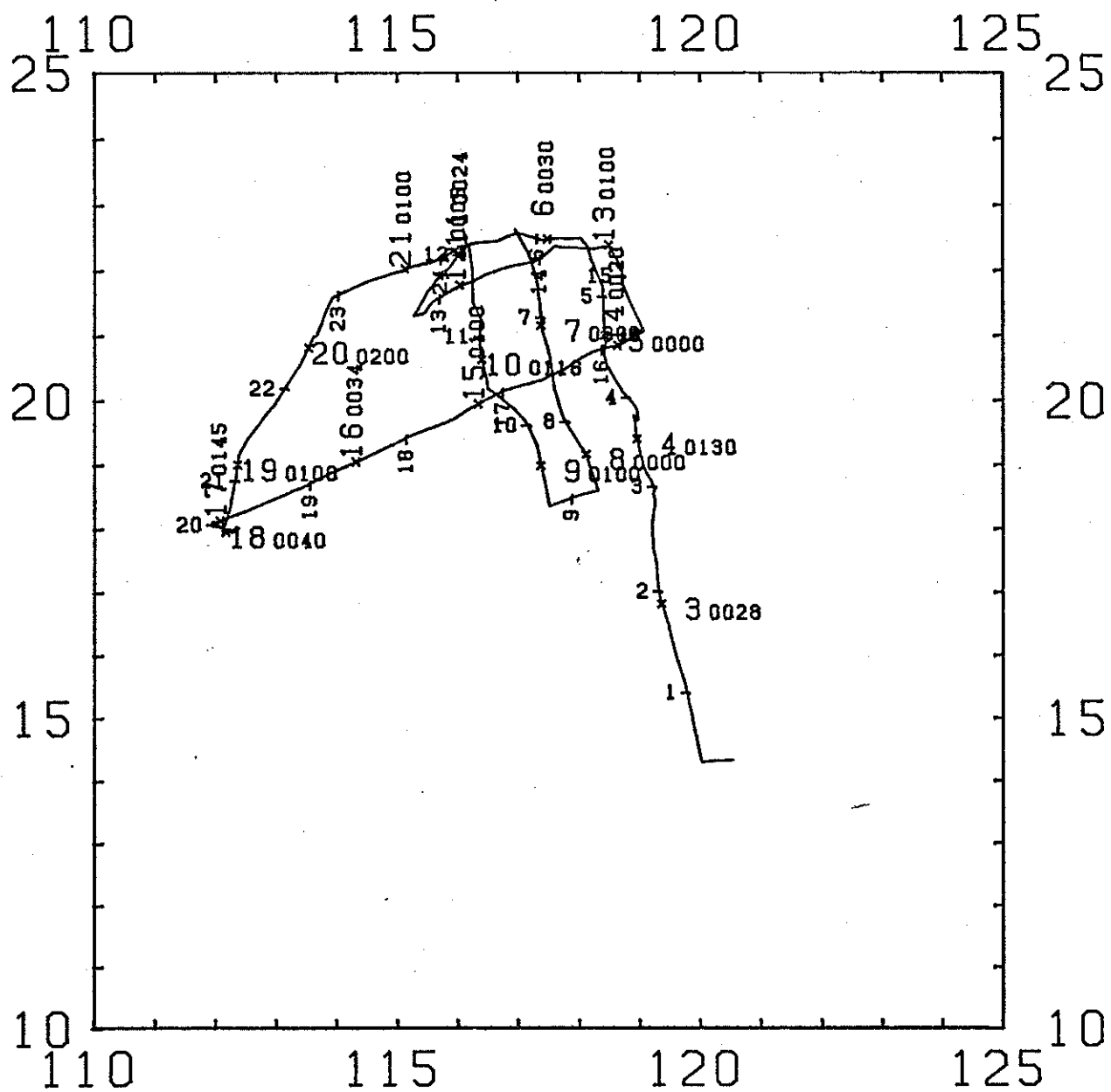
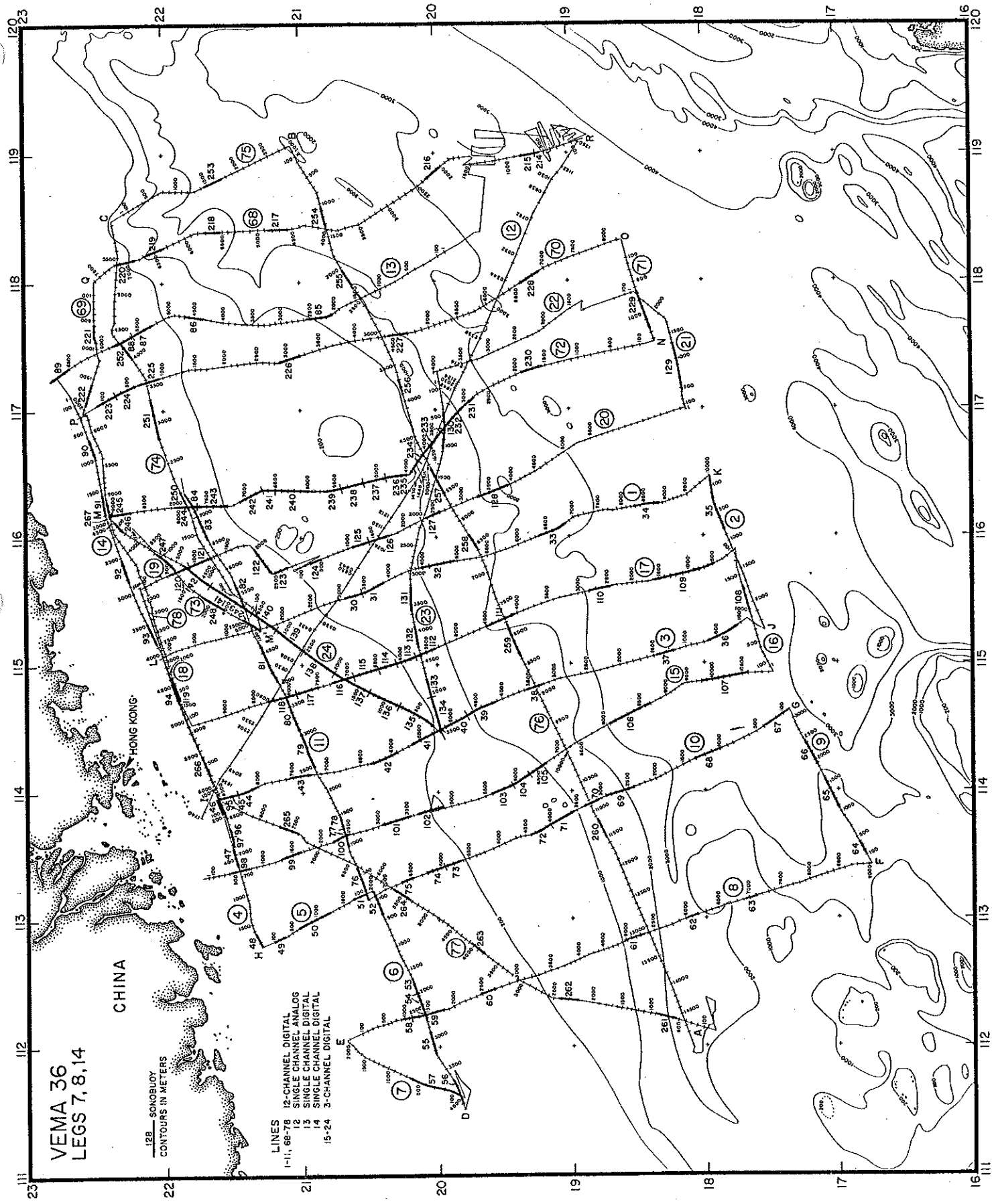


Fig. V 3614



VEMA 36
LEGS 7, 8, 14

CHINA

HONG KONG

128 SONBUOY
CONTOURS IN METERS

LINES
1-11, 68-78 12-CHANNEL DIGITAL
12 SINGLE CHANNEL ANALOG
13 SINGLE CHANNEL DIGITAL
14 SINGLE CHANNEL DIGITAL
15-24 3-CHANNEL DIGITAL