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CRUISE REPORT

Ship Name: VEMA Cruise No: V36-15

Departure: 8/27/80 (Date) from Hong Kong (Port)

Arrival: 9/6/80 (Date) at Singapore (Port)

Days at Sea: 10
(Count day of departure but not day of arrival in port)

Days Foreign Port: 5(?)
(number of days in arrival port before next leg)

Area of Operation:

Sunda Shelf

Program Description:
Tape record sonobuoys to measure p-wave propagation loss and estimate effective attenuation

Program supported by what contract: TO-98 Scope CR

Participants: (All L-DGO unless otherwise specified)

Name	Title
R. Houtz	Chief Scientist
W. Robinson	Computer Operator
P. Williams	Data Tech.
R. Roessler	Sr. E.T.
K. Little	E.T.
E. Christian	E.T.

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

CRUISE REPORT V36-15

Robert E. Houtz

This cruise was planned to measure low-frequency p-wave propagation losses on the Sunda Shelf. This shelf was chosen because it is typical of those with rapidly accumulating silts and clay. Such shelves are relatively free of major velocity discontinuities, so that propagation losses (after corrections) more nearly represent attenuation losses. By using multiple events in terranes with minimum geological complexity, we expect to measure the most reliable in situ propagation losses obtained so far.

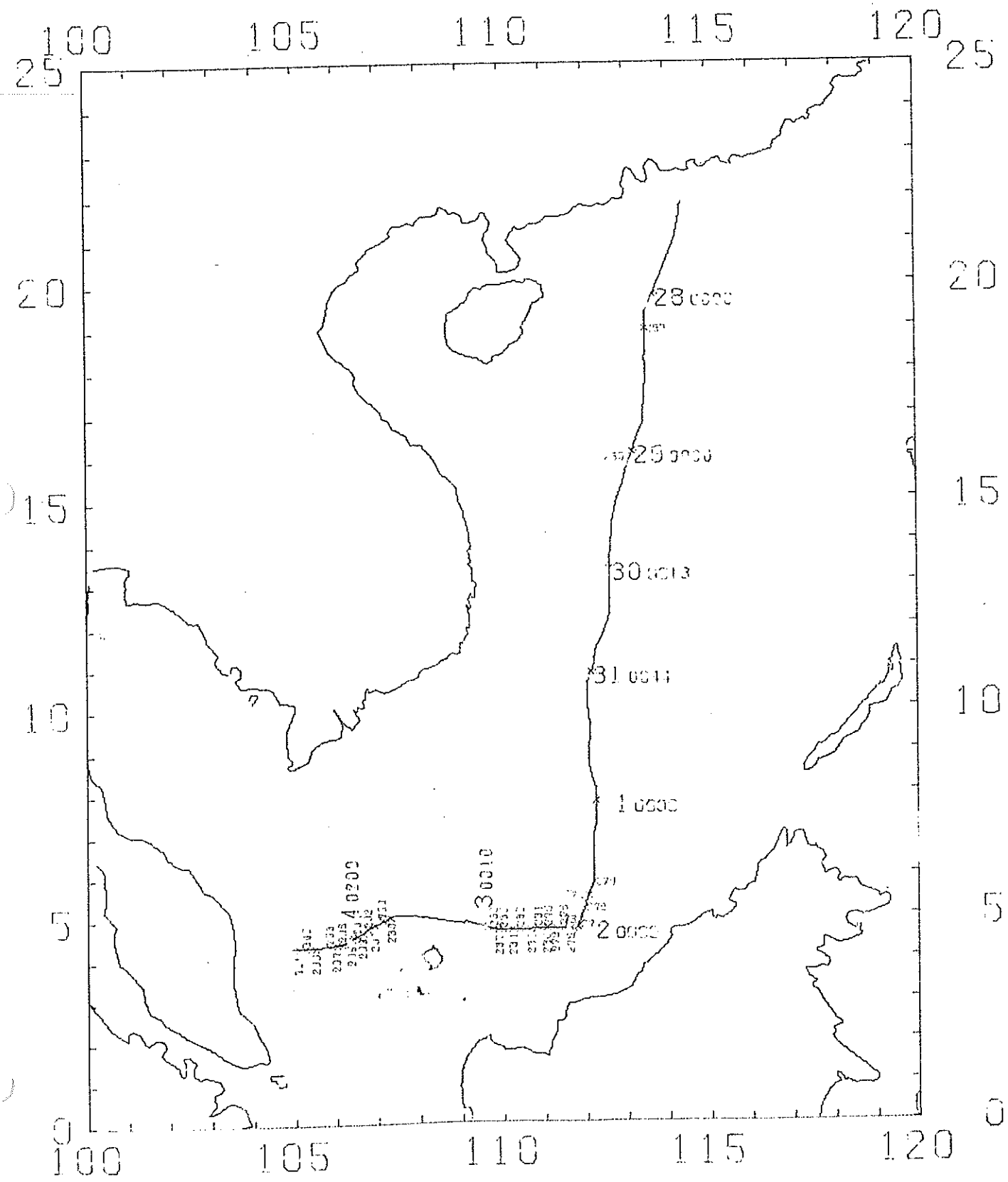
The northern edge of the Sarawak basin and the West Natuna basin were chosen as primary targets after very careful consideration. The line was extended westwards down the axis of the Sarawak basin, so that the stations were obtained in the thickest sediment sections. Earlier sonobuoys from CONRAD Cruise 12 were used to define the major areas of interest. These sonobuoy records had been inverted to provide velocity-depth solutions with considerable accuracy. Well-determined velocity-depth information enables the accurate determination of path length and spreading loss, both of which are required for the estimation of attenuation.

After several trial sonobuoy deployments in the South China Basin, we were set up to record 3 channels of sonobuoy data with peak-to-peak voltages of 1, 5 and 10V respectively. The reproduced signal was extremely noisy during these trials until we set up one of the channels for flutter compensation. The trip signal, and the towed hydrophone array were recorded on the two remaining FM data channels. The voice channel was used to read in the time at approximately 5 minute intervals. It is probable that the diesel engine for the compressor causes excessive vibration in the upper lab, requiring flutter compensation.

33 sonobuoys were launched, and 25 were tape-recorded. Outputs were monitored and looked to be of good quality. The analog drum recordings are of excellent quality. The poor quality of the analog data from the previous MCS legs indicates that the MCS is not properly matched to the sonobuoy receiver output, resulting in a very weak signal. There is, however, a good chance that the digitized sonobuoy data will be of high quality from the MCS legs if the airgun rep rate is constant.

Our track was altered in the Natuna basin, where we proceeded west toward the Penyu Basin. This was done because 4 consecutive sonobuoy recordings were degraded by shipping in the lane north of Singapore. Once we were out of the shipping lanes we recorded good data again. I judged that more than half the taped sonobuoys will provide reliable estimates of effective attenuation. A variety of sub-bottom conditions, two types of non-AGC sonobuoys, and three airgun configurations were used during the experiment. Recordings were made during separate runs respectively with two large guns, one large gun, and one small gun. The sonobuoy receiver was run at about half the video gain, but in all cases the D-wave signal was clipped near the source. With two large guns the D-wave is clipped out to ranges of about 5 sec. For this reason, one string of sonobuoys was recorded with the small gun. Radio range never exceeded two profiler sheets (about 17 n.m.). I don't know if this is a result of lowered video gain or, as I suspect, the 2-stack Yagi configuration. Since we have always worked with 4-stack antennas, I was appalled to come aboard for a sonobuoy experiment and find that the RF inputs are automatically down 6 to 8 db. If I had been told I could have arranged something, or at least be prepared.

No complaints with scientific staff. Roessler was the biggest help and the most interested.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