

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: R/V ROBERT D. CONRAD Cruise No: 20-06

Departure: October 25, 1976 from Yokohama, Japan  
Date Port

Arrival: November 30, 1976 at Keelung, Taiwan  
Date Port

Days at Sea: 36 Days Foreign Port: 4 3  
No. of days in arrival port

Area of Operation: Philippine Sea

Program Description: Geophysical and multi-channel seismic studies of the Philippine Sea transect and South China Sea for the IDOE/CCOP SEATAR project and multi-channel seismic survey of IPOD candidate sites of Mariana arc and Philippine Sea.

Participants: (All L-DGO unless otherwise specified)

|                    |                    |
|--------------------|--------------------|
| Dennis E. Hayes    | Chief Scientist    |
| Roger N. Anderson  | Co-Chief Scientist |
| Tse-Kong Kan       | MCS observer       |
| Paul Casagrande    | Gravity            |
| Robert Crimmins    | Core Bosun         |
| Bruce Crowell      | E. T.              |
| Daniel Grob        | E. T.              |
| Carlos Gutierrez   | E. T. (MCS)        |
| David Hill         | E. T.              |
| Martin Iltzsche    | Mech. Tech.        |
| William Robinson   | Elect. Eng. (MCS)  |
| Harry Van Santford | Elect. Eng (MCS)   |
| Greg Walz          | E. T.              |

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

RC 20-06

The CONRAD cruise 20-06 was intended to provide multi-channel seismic information to help determine appropriate IPOD drill site locations around the Mariana arc system, the Parece Vela and W. Philippine Basins. Additionally, under IDOE sponsorship, multi-channel seismic data was collected across the eastern margin of Luzon and across the N. Luzon Ridge in order to investigate contrasts in the style of deformation along this convergent plate boundary.

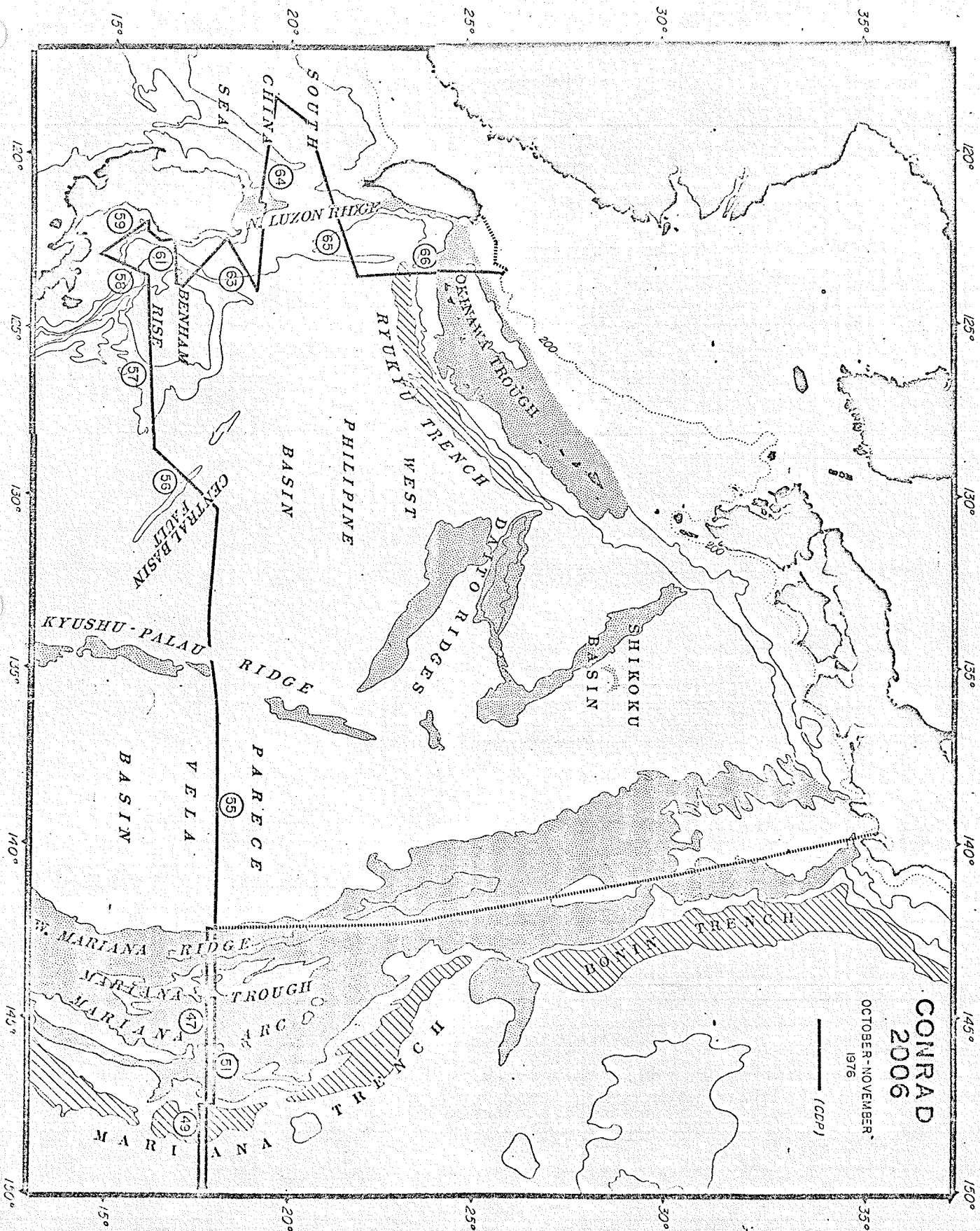
Approximately 3500 n.m. of 24 fold CDP data was collected, ~2500 n.m. using two 500 cu in Bolt airguns firing at 2000 psi and 20 sec intervals, ~500 n.m. using 4 such guns and ~500 n.m. using two 120 cu in guns. About 50 sonobuoys were deployed at strategic locations along the track and at least 35 will yield important structure/velocity information on the crust and in many instances the uppermost mantle.

Deep (>2 sec) normal incidence reflections were recorded on the monitor records of a single seismic channel at many key locales, e.g., the Mariana trough, western margin of the W. Mariana Ridge, W. Philippine Basin, Benham Rise, Luzon margin, S. China Sea Basin, and Okinawa Trough.

Continuous 12 kHz and 3.5 kHz echograms, magnetics, and gravity data were recorded along the track. All data were collected at a nominal cruising speed of 5 knots. A schematic track chart is attached.

Dennis E. Hayes

Chief Scientist, RC 20-06



CONRAD  
2006

OCTOBER-NOVEMBER  
1976

— (CCP)

CRUISE REPORT  
SHIP UTILIZATION DATA

|                                       |  |            |
|---------------------------------------|--|------------|
| SHIP NAME: ROBERT D. CONRAD           | Lamont-Doherty Geological<br>OPERATING INST. Observatory |            |
| CRUISE (LEG) NO. 20-06                | DATES 10/25/76 - 12/2/76                                 |            |
| AREA OF OPERATIONS:<br>Philippine Sea | PORT CALLS:  | DATES      |
|                                       | PLACE  | DATES      |
|                                       | Keelung, Taiwan  | 12/1/76 -- |
|                                       |  | 12/2/76    |
| DAYS AT SEA 37                        | DAYS IN PORT 2   |            |

| PARTICIPATING PERSONNEL |                   | TITLE              | AFFILIATION    |
|-------------------------|-------------------|--------------------|----------------|
| CODE                    | NAME              |                    |                |
| 1                       | Dennis E. Hayces  | Chief Scientist    | Lamont-Doherty |
| 2                       | Roger N. Anderson | Co-Chief Scientist | "              |
| 3                       | Tse-Kong Kan      | MCS Observer       | "              |
| 4                       | Paul Casagrande   | Gravity            | "              |
| 5                       | Robert Grimmins   | Core Bosun         | "              |
| 6                       | Bruce Crowell     | E. T.              | "              |

(continue on reverse side)

## PRIMARY PROJECTS (those which govern the principal operations, area and movements of the ship)

| PROJECT TITLE AND<br>PRINCIPAL INVESTIGATOR                | SPONSORING<br>ACTIVITY | GRANT OR CONTRACT<br>NUMBER | AMOUNT | STARTING<br>DATE | DURATION<br>(MOS) | PARTICIPATING PERSONNEL<br>(AS CODED ABOVE) |
|--|------------------------|-----------------------------|--------|------------------|-------------------|---|
| MCS Survey-Philippine Sea 40%<br>IDOE/CCOP SEATAR project  | NSF                    | OCE 76-23382                |        |                  |                   |   |
| IPOD Philippine Sea 60%<br>Transect Survey<br>D. E. Hayces | NSF                    | UC/NSF C482-2,<br>Scope G   |        |                  |                   | All   |

## ANCILLARY PROJECTS (which are accomplished on a not-to-interfere basis and contribute to the overall effectiveness of the cruise)

| PROJECT TITLE AND<br>PRINCIPAL INVESTIGATOR | SPONSORING<br>ACTIVITY | GRANT OR CONTRACT<br>NUMBER | AMOUNT | STARTING<br>DATE | DURATION<br>(MOS) | PARTICIPATING PERSONNEL<br>(AS CODED ABOVE) |
|---|------------------------|-----------------------------|--------|------------------|-------------------|---|
|   |                        |                             |        |                  |                   |   |

## COST ALLOCATION DATA

| DAYS CHARGED | AGENCY OR ACTIVITY CHARGED | GRANT OR CONTRACT NO. |
|--------------|----------------------------|-----------------------|
| 39           | NSF                        | OCE 76-00060          |

SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_  
Senior Scientist(Continue personnel and project listings on reverse  
if additional space needed)  
ATTACH PAGE SIZE CRUISE TRACK

SIGNATURE

DATE

DE Hayces

22 Dec 76

# PARTICIPATING PERSONNEL (cont.)

|     |                    |                   |                |
|-----|--------------------|-------------------|----------------|
| 7.  | Daniel Grob        | E. T.             | Lamont-Doherty |
| 8.  | Carlos Gutierrez   | E. T. (MCS)       | "              |
| 9.  | David Hill         | E. T.             | "              |
| 10. | Martin Iltzsche    | Mech. Tech.       | "              |
| 11. | William Robinson   | Elect. Eng. (MCS) | "              |
| 12. | Harry Van Santford | Elect. Eng. (MCS) | "              |
| 13. | Greg Walz          | E. T.             | "              |