

# Project Mohole

## 1958-1966

Project Mohole was an attempt to retrieve a sample of material from the earth's mantle by drilling a hole through the earth's crust to the Mohorovicic Discontinuity, or Moho. The project was suggested in March 1957 by [Walter Munk](#), NAS member (1956) and member of the National Science Foundation (NSF) Earth Science Panel.

Project Mohole represented, as one historian has described it, the earth sciences' answer to the space program. If successful, this highly ambitious exploration of the intra-terrestrial frontier would provide invaluable information on the earth's age, makeup, and internal processes. In addition, evidence drawn from the Moho could be brought to bear on the question of continental drift, which at the time was still controversial.

The Mohorovicic Discontinuity marks the boundary between the earth's crust and mantle. (The Moho was named for Andrija Mohorovicic, a Croatian geologist who first proposed the existence of such a discontinuity.) The plan was to drill to the Moho through the seafloor, at those points where the earth's crust is thinnest. Attempting such an effort on land would have been impractical since the drilling equipment would not have withstood the depths and temperatures involved. Ocean drilling offered a further advantage in that undersea samples, undistorted by atmospheric and surface actions, would provide better evidence of long-term geological activity than would samples drawn from land.

The American Miscellaneous Society (AMSOC), an informal group of scientists of which Munk was a member, endorsed Munk's idea. The group was formed in 1952 when Office of Naval Research geophysicists Gordon Lill and Carl Alexis found themselves handling research proposals that fit into no existing scientific categories. Out of that "precarious miscellany" AMSOC emerged, as a forum for scientific speculation. When funds for Project Mohole had been obtained from NSF, AMSOC in 1958 took charge of the effort as an official study unit of the National Research Council's Division of Earth Sciences.

Project Mohole was to include three phases, the first consisting of an experimental drilling program, the second consisting of an intermediate vessel program, and the third consisting of the final drilling to the Mohorovicic Discontinuity. After ocean-going trials off La Jolla, California, Phase I began in earnest with a set of drillings off Guadalupe, Mexico, in March and April 1961. Five holes, one of which extended 601 feet beneath the seafloor, were drilled under 11,700 feet of water. Cores obtained from the holes showed that the first layer of crust extended 557 feet and consisted of sediment Miocene in age. The second layer of crust was sampled for the first time, and this was found to consist of basalt. After the unprecedented success of Phase I, it was decided to shift operational control to NSF while maintaining the AMSOC Committee as project adviser. This relationship proved to be unsatisfactory, and after a series of negotiations and redefined agreements with NSF, the AMSOC Committee in 1964 dissolved itself. Following the AMSOC Committee's dissolution, two new National Academies committees continued to advise the NSF Mohole activity until Congress, objecting to increasing costs, discontinued the project toward the end of 1966, before Phase II could be implemented.

Although Project Mohole failed in its intended purpose, it did show that deep ocean drilling was a viable means of obtaining geological samples. Since Mohole's demise a number of related programs have been undertaken, the most recent one being the NSF's Ocean Drilling Program.

\*Note – this collection is partially organized.

## [Project Mohole Images](#)

### ADMINISTRATION

#### GOVERNING BOARD

- Authorization to Accept Funds: 1961-1966
- Minutes
  - Excerpts re Project Mohole: 1960-1966

#### INSTITUTIONS – ASSOCIATIONS & INDIVIDUALS

- American Association for the Advancement of Science (AAAS)
  - Mohole Symposium - Dec 1960
    - 1960-1962
  - General: 1959-1961
- American Association of Petroleum Geologists: 1960-1963
- CBS-TV
  - Conquest: 1959-1960
- CORE (Consortium for Oceanic Research & Exploration Inc): 1962-1964
- OSE (Ocean Science & Engineering Inc)
  - Patent Infringement Opinion: 1977
  - Proposals: 1962
  - Reports to NSF: 1962-1963
  - Review of Brown & Root Inc's Engineering Plan Report for Project Mohole: 1963
  - Technical Reports
    - No 1 - Stability & Steadiness of Ships: 1962
    - No 2 - On the Determination of Positioning Power Requirements for the Mohole Drilling Vessel: 1962
    - No 3 - Transient Lateral Motions of Long Flexible Strings Hanging Vertically in Water: 1963
    - No 4 - Testing & Development of Mohole Drill Pipe: 1963
    - No 5 - Review of Brown & Root Technical Report "Project Mohole, Phase II Drilling Vessel Recommendation": 1963
    - No 6 - Study of Neutrally Buoyant, Air-Supported Riser Pipe: 1963
    - No 7 - Outline for Design of Floating Drilling Platform for Minimum Heaving Motion: 1963
    - No 8 - Effect of Combined Coulomb & Quadratic Damping on Longitudinal Vibrations of Drill String: 1963
    - No 9 - Study of Compensated Crown Block: 1963
  - General
    - 1961-1963
    - 1967-1968

- Society of Naval Architects & Marine Engineers
  - Chesapeake Section: 1961
- Scripps Institution of Oceanography
  - Mohole Project
    - Reports
      - Interim Report on Mohole Site Selection North of Maui: 1963
- U of Miami
  - Institute of Marine Sciences
    - Project Loco (Long Cores): 1962-1966
- General: 1959-1963

## INTERNATIONAL RELATIONS

- Institutions Associations Abroad
  - Mohorovicic S: 1959-1967
- General: 1957

## PUBLIC RELATIONS

- Exhibits
  - Design: 1961-1962
  - International Congress on Diamonds in Industry: 1961-1962
- NAS Annual Meeting: 1961
- Proposed
  - Smithsonian Institution: 1962
- General: 1961-1963
- Inaugurations Ceremonies Speeches: 1959-1963
  - Bascom W
    - Industrial Research Institute: 1961
    - Misc. Speeches: 1959-1960
- Photographs
  - Phase I
    - Cuss I: 1961
- Press Releases: 1959-1963
- Radio TV & Film
  - Films
    - Blueprint for Discovery: 1960-1965
    - Planet Earth Series: 1959-1961
    - General: 1961
- Song: 1960
- General: 1961-1964

## PUBLICATIONS

- 1961-1966
- Science
  - Greenberg D

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- " Mohole: The Project that Went Awry": 1964

## EARTH SCIENCES

- AMSOC (American Miscellaneous Society) Committee
  - Mohole Project
    - American Natl Exhibition Moscow: 1958-1959
    - Annual Reports to Division: 1959-1966
    - Beginning of Program: 1957-1959
    - Chairman
      - Hedberg H: 1963
    - Chronology: 1957-1963
    - Clippings: 1967-1981
    - Committee Operating Procedure: 1960-1962
    - End of Program: 1964
    - Executive Committee
      - Meetings
        - Minutes
          - 1959 - Jun
          - 1960 - Jan, Nov
          - 1962 - Jan, May, Oct
          - 1963 - Jan, Apr, May, Nov
        - Transcripts
          - 1963 - Jan, Nov
    - Lutz Affair: 1968-1969
      - Meetings
        - Minutes
          - 1957 - Dec
          - 1958 - Jul, Oct
          - 1959 - May, Oct
          - 1960 - May, Oct
          - 1961 - Mar, May, Jun, Oct
          - 1962 - Mar, Nov
          - 1963 - Feb, May, Sep
          - 1964 - Jan
        - Transcripts
          - 1961 - Mar, May, Jun
          - 1962 - Mar, Nov
          - 1963 - Feb, May, Sep
          - 1964 - Jan
    - Members
      - Appointments & Resignations: 1958-1964
      - Biographies: 1963
        - B-H
        - L-W
    - Operations
      - Accolades: 1961

- Background Data
- Guadalupe: 1959-1960
- Coring: 1960-1961
- Drilling
  - Dockside Drilling Procedure: 1961
  - Program Development: 1960
  - General: 1961
- Drilling & Coring Equipment Test: 1961
- Geophysical
  - Logging Equipment Test: 1960-1961
  - General: 1960-1961
- Logs: 1961
- Meetings: 1961
- Participation Certificates: 1961
- Personnel: 1960-1961
- Positioning
  - Buoys: 1960-1961
  - General: 1961
- Shipboard Reports: 1961
- Vessels
  - Auxiliary Vessels: 1960-1961
  - CUSS I
    - Condition of Vessel Survey: 1961
    - Roll & Heave Measurement Program: 1961
    - General: 1960-1961
- General: 1960-1961
- Panels
  - Drilling Techniques
    - Meetings
      - Minutes
        - 1959 - Oct, Nov
        - 1960 - Jan, Apr
        - 1961 - Jun, Jul, Oct
        - 1962 - Dec
        - 1963 - Apr
        - 1964 - Jan
      - Transcripts
        - 1961 - Jul
    - Members: 1963
    - General: 1959-1964
  - Drilling Techniques & Naval Architecture
    - Joint Meeting
      - Minutes
        - 1963 - Feb
        - General: 1961-1963
  - End of Panels – Apr 1964
  - Naval Architecture

- Meetings
    - Minutes
      - 1961 - Oct
      - 1962 - Jan, Dec
      - 1963 - Feb
  - Members: 1963
  - General: 1959-1964
- Proposed
  - Industry Advisory: 1959
  - Oceanic Sediments Drilling: 1962-1963
- Scientific Objectives & Measurements
  - Meetings
    - Canceled
      - 1961 - Jul
    - Minutes
      - 1959 - May
      - 1960 - Jun, Nov
      - 1961 - Oct
      - 1962 - Jan, Jun
      - 1963 - Feb, May
  - Members: 1963
  - General: 1959-1964
- Scientific Objectives & Measurements & Site Selection
  - Joint Meetings: 1961-1962
- Site Selection
  - Meetings
    - Informal
      - 1964 - Feb
    - Minutes
      - 1960 - Dec
      - 1961 - Oct
      - 1962 - Jun
      - 1963 - Sep
  - General: 1959-1964
- Prime Contractor Selection
  - Phase 2: 1961-1962
- Public Inquiries: 1967-1980
- Reports
  - Comments
    - General: 1959-1961
  - Cores
    - Guadalupe: 1961-1966
      - A-Z
  - Design of a Deep Ocean Drilling Ship: 1962
  - Drilling Platform Report: 1959
  - Drilling Thru Earth's Crust: 1959
  - Experimental Drilling in Deep Water: 1959-1960

- Experimental Drilling in Deep Water at La Jolla & Guadalupe Sites: 1961
- In-Hole Measurements for Mohole: 1959
- Precise Station-Keeping in Deep Water: 1959
- Soundrill: 1959
- Study of Serpentine, AMSOC core hole near Mayaguez Puerto Rico: 1964
  - Comments
  - Text
- Supplemental Engineering Data Related to Drill String Design: 1960
- Trip Reports
  - Geophysical Equipment: 1959
- Turbodriller & Soundriller: 1959
- Turbodrilling: 1959
- Visit to St Peter & St Paul's Rocks: 1963
- Soviet Competition: 1961-1963
- Status
  - 1963-1964
  - 1962
    - Jul-Dec
    - Jan-May
  - 1958-1961
  - Poll of Committee Membership: 1962-1963
    - Studies
  - Phase 1
    - Cores: 1960-1963
    - Current Measurement: 1959-1960
    - Drilling: 1960-1961
    - Site: 1958-1960
    - Stresses Related to Deep Water Drilling: 1959-1961
    - Vessels
      - Stability of CUSS I: 1959-1960
    - General: 1960-1961
  - Phase 2
    - Cores - Proposed: 1961-1963
    - Electrical Properties - Proposal: 1963
    - Geological
      - Mayaguez Puerto Rico: 1961-1964
      - Puerto Rico Trench: 1962-1966
    - Geophysical
      - Bahamas
        - Western Geophysical: 1961
      - Puerto Rico Outer Ridge: 1962-1963
      - Rattlesnake Well: 1957-1964
      - St Paul's Rocks
        - Alpine Geophysical
          - Proposal: 1962
        - Western Geophysical

- Proposal: 1962
  - General: 1960-1964
- General: 1961-1964
- Projects: 1962-1963
- Sites
  - Barracuda Fault Survey: 1962-1964
  - Hawaii
    - Maui: 1963
    - General: 1961-1962
- Proposed: 1961-1963
- Stresses Related to Deep Water Drilling: 1961
- Vessel: 1961-1963
- General: 1961-1963

#### PERSONNEL RELATIONS - EMPLOYMENT

- Mohole Project
  - Appointments: 1959-1964
  - General: 1960

#### AGENCIES & DEPARTMENTS

- Air Force
  - Participation in Mohole Project
    - Proposed: 1959-1960
- National Science Foundation
  - Mohole Project
    - "Administration of Mohole Project by the National Science Foundation": 1968
    - Agreement between NSF & NAS-NRC on Role of AMSOC Committee: 1962-1963
    - Contracts
      - Phase I
        - Global Marine: 1960-1962
        - Positioning: 1960
    - Prime Contractor: 1961-1963
      - AMSOC Recommendations: 1962-1963
      - Brown & Root Inc
        - Contract: 1962
        - Correspondence: 1962-1964
        - Drilling Vessel Recommendations (Phase II): 1963
        - Engineering Plan Report: 1963
          - Volume III
          - Volume II
          - Volume I
        - Preliminary Report: 1962
        - Presentation: 1963
        - Progress Reports: 1963
        - Supplement to Reports: 1963



- Technical Report on Drill Pipe & Riser Design, Support & Stabilization: 1962
    - Weekly Progress Reports: 1962-1963
  - Search
    - Batelle Memorial Institute
      - Proposal: 1961
    - Systems Development Corporation: 1961
  - Public Relations
    - Press Conference: 1964
    - Press Releases: 1960-1964
  - Reports: 1963
  - General: 1957-1964
- Navy
  - Office of Naval Research
    - Mohole Project
      - Global Marine Exploration Co
        - Deep Water Drilling Methods
          - Report: 1959
    - General: 1958-1963

## CONGRESS

- Committees
  - Appropriations
    - Subcommittee on Independent Offices
      - Testimony: 1963-1966
  - Merchant Marine & Fisheries
    - Subcommittee on Oceanography: 1959-1963
- Congressional Record
  - House & Senate: 1962-1966
- General: 1958-1966

## INTERNATIONAL RELATIONS

- Mexico
  - Guadeloupe Cooperation: 1960-1963

## STATE

- California Resolution: 1961

## MACHINERY & EQUIPMENT

- Mohole Project
  - Phase I
    - Coring
      - Bits: 1959-1961

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- Core Barrel: 1960
- Core Orientation: 1959
- Diamonds for Bits: 1959-1961
- Punch Core: 1960-1961
- Turbocorer
  - Neyrpic Inc: 1959-1961
- General: 1960
- Drilling
  - Drill Pipe: 1960-1961
  - J-Slot: 1960-1961
  - Kelly: 1960-1961
  - Lab Tests
  - Hughes Tool Co: 1959-1960
  - Tally Sheets: 1961
  - Tapered Casing: 1959-1961
  - General: 1960-1961
- Geophysical Studies
  - Seismic
    - Alpine Geophysical Associates Inc
      - RASS System: 1960-1961
      - Eastman Oil Well Survey Co
        - Multiple Shot Survey Equipment: 1960
  - General: 1960-1961
- Inventories: 1961-1962
- Positioning
  - Buoys
    - Design & Construction
      - Deep Moored Buoys: 1960
      - Surface Buoys: 1960
    - Wire: 1961
    - General: 1960-1961
  - Engines
    - Donation
      - General Motors Corp: 1959-1962
    - Murray & Tregurtha Harbormaster
      - Instruction Manual: 1960
      - General: 1959-1961
  - Inclinator: 1959-1960
  - Integrated Propulsion Control System
    - Robert Taggart Inc: 1959-1961
  - Sonar: 1960-1964
  - General: 1960
- Vessels
  - ARD Conversion - Proposed: 1960
  - Auxiliary Vessels: 1958-1961
  - CUSS I: 1959-1961
- General: 1960

- Phase 2
  - Coring: 1961-1963
  - Drilling
    - Drill String: 1960-1963
    - General: 1961-1962
  - Geophysical Studies
    - Seismic
      - Alpine Geophysical - Proposal: 1961-1962
    - General: 1961-1962
  - Maps: 1961-1963
  - Positioning
    - Design & Construction
      - Proposal - Robert Taggart Inc: 1962
    - General: 1961-1962
  - Vessels
    - C1MAV1 Conversion - Proposed: 1961-1962
    - General: 1961-1962
  - General: 1962

**\*The following list of records below are miscellaneous unorganized files\***

- Advisory Panel on Site Selection
  - 4/64 - end
  - Meetings
    - Sep 1965
    - Sep 1964
- Advisory Panel on Scientific Objectives
  - 4/64 - end
  - Meetings
    - Jan 1966: Joint with Advisory Panel on Site Selection
    - Sep 1964
- Articles on Mohole Drilling Site
  - Jan 27-29, 1965
- Articles - Phase II: 1964-1965
- B&R-NSF Briefing: July 31, 1964
- Books
  - Rules for Building and Classing Offshore Mobile Drilling Units by American Bureau of Shipping New York: 1968
  - Why the Mohole: Adventures in Inner Space by William J. Cromie: 1964
- Clippings
  - Volume I: 1957-Jul 1959
  - Volume II: Aug 1959 - Dec 31, 1960
  - Volume III: Jan-Mar 1961
  - Volume IV: Master File
  - Volume V: Master File
  - Volume VI: Jul 1961 to Dec 1961
  - Volume VII: Jan to Jun 1962

- Volume VIII: Master File
  - Volume IX: Oct-Dec 1962
  - Volume X: Jan-Mar 1963
  - Volume XI: Apr-Jun 1963
  - Volume XII: Jul-Sep 1963
  - Volume XIII: Oct-Dec 1963
  - Volume XIV: Jan-Mar 1964
  - Volume XV: Apr-Jun 1964
  - Apr-Dec: 1964
  - Jan-Dec: 1965
  - Jan-Apr: 1966
  - May: 1966
    - (I)
    - (II)
  - Jun-Dec: 1966
  - 1967
- Dist. Book (were the only volumes found)
  - Volume VIII
  - Volume IX
- List of Publications
  - Rev. April 1, 1964
- Mohole - "From MOHOLE to No Hole"
- Mohole Project
  - 1958-1970
  - American National Exhibition – Moscow: 1958-1959
  - Annual Reports: 1963-1966
- Mohole Storage and Transfers: 1966
- NAS - Howard Lewis, Office of Administration
- NSF - Dan Taylor, Richard Payne: 1960-1976
- Photographs
  - AMSOC: ES Photograph(s)
  - Core Sections
  - CUSS I
    - CUSS I - old
    - CUSS I - C1-M-AV1 - B&R Platform Comparison - Drawing (& photograph)
  - Drilling
  - Integrated Propulsion Control System - Complete Set
  - Miscellaneous
  - Negatives
  - Positives (Mostly of Committee & Staff)
  - Sea Bottom & Cores
- Publications (Master Files)
  - Volume I
  - Volume II
  - Volume III
  - Volume IV
  - Volume V

- Volume VI
  - Volume VII
- Upper Mantle Committee
- Uvalde Test Site Results
- Uvalde, Texas Distribution of Core Samples (SOP)
- General
  - 1960-1971 (this file contains undated material)