

INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS  
SPECIAL COMMITTEE ON OCEANIC RESEARCH  
(SCOR)

Helsinki, 23 July 1960

Report of the Coordinator, International Indian Ocean Expedition

Organization

The Office of the Coordinator, with headquarters at 30 East 40th St., New York 16, N.Y., was established on 1 December 1959 with the financial support of the U.S. National Academy of Sciences. The Coordinator's first efforts were the initiation of correspondence with SCOR National Committee members and other scientists throughout the world in preparation for a trip to discuss Indian Ocean Expedition plans with them.

Contact with National Committees

From late January to late March 1960 the Coordinator visited fourteen nations to discuss the extent and nature of their participation in the Expedition as well as the possible assistance of various international organizations. Nations visited were Japan, Singapore, Indonesia, Ceylon, India, Pakistan, USSR, Federal Republic of Germany, Great Britain, Netherlands, Switzerland, Portugal, France and U.S.A. During this period individual discussions were held with almost 200 senior scientists, national policy shapers, administrators, international organizations officials, potential Fund sources and other scientists and officials.

The immediate purpose was to stimulate national action in planning and organizing the various countries' efforts in the Expedition. Prior to 1 February virtually no nation visited had yet held a meeting of its National Committee to deal with the Expedition and in some countries no National Committees had been formed.

In the discussions, the desirability of having national plans developed prior to 1 July 1960 was emphasized. The following items were suggested for consideration and inclusion in national reports:

1. Formation of National Committee (where necessary)
2. Statement (at least in principle) of national participation.
3. Detailed statement of extent and nature of participation (if possible).
  - a. Development of national research program.
  - b. Designation and description of participating ships and time schedules.
  - c. Detailed equipment requirements list.

- d. Tide gauge installation and operation (by Indian Ocean nations).
  - e. Nomination of qualified professional and technician trainees (by Indian Ocean nations).
- 4. Estimate of cost of national effort in Expedition.
  - 5. Indication of extent of official hospitality, port facilities and waiver of formalities for Expedition vessels.
  - 6. Extent of logistic assistance and laboratory facilities available (from Indian Ocean nations).

Discussions also dealt with participation of scientists in the Indian Ocean Working Group, navigational systems available, intercalibration of ships and procedures, publication plans, special financing methods, integration of meteorological research and service into the expedition program, and related items.

In addition to national representatives the Coordinator discussed the Expedition with the President and the Administrative Secretary of ICSU, the Director General of WMO, representatives of UNESCO and FAO, the Director of the UN Special Fund, the Director of the Colombo Plan Bureau, national and regional representatives of U.S.I.C.A., and the administrators of the Tata Foundation, the Nuffield Foundation, the Wolfson Foundation, the Gulbenkian Foundation, Rockefeller Foundation, Ford Foundation and others. The Coordinator also represented SCOR at the UNESCO Preparatory Meeting for the Intergovernmental Meeting on Oceanography in Paris.

Additional contact has been maintained with the National Committees of Australia, South Africa, Israel, China (Taiwan), Netherlands and Denmark.

As an immediate result of the trip it is possible to estimate the extent of training facilities available in various nations for post-doctoral or advanced post-masters degree candidates. Qualified advanced students from other countries could be trained for six months to one year, primarily on ship board, in the following quantities: Japan, one in each of seven fields of Oceanography at any one time, in English; United Kingdom, approximately nine at any one time; United States, at least fifty in various fields at any one time. In each instance tuition cost is borne by the training institution, but travel and subsistence must be provided. USSR can and has trained Indian Ocean nationals at sea.

#### Program Planning

Following the nomination by SCOR's Executive Committee of a reconstituted Indian Ocean Working Group to develop an overall scientific plan for the expedition, invitations were forwarded to nominees. Dr. G.E.R. Deacon of the U.K. agreed to serve as Chairman, Dr. V.G. Kort of USSR as Vice-Chairman; and the following individuals agreed to initiate sub-committee planning in their respective fields: Marine Geology, Geophysics and Bathymetry: Dr. R. L. Fisher of U.S.A. and Dr. P. L. Bezrukov of USSR - Co-chairmen; Marine Biology:

Mr. R. L. Currie of U.K. - Chairman; Physical and Chemical oceanography (and Meteorology): Dr. G.E.R. Deacon - Chairman. The full Working Group membership will be found in Appendix A of this report.

Each nation or institution likely to participate in the expedition with vessels was asked to submit replies to a questionnaire describing ships' characteristics, facilities, equipment, performance, and equipment needs. Full data on 22 vessels has been received and tabulated.

Extended discussions were held with U.S. Government agency representatives and staffs of oceanographic laboratories to assist in determining the extent, nature and timing of the U.S. effort in the expedition. After approval of participation was obtained from the Federal Council on Science and Technology with endorsement from President Eisenhower, the National Science Foundation and the Navy Department have agreed to provide Financial support for U.S. participation.

Reports from various nations indicate the following ship facilities will be available at a minimum:

Australia. Two vessels during period 1960-64 covering North, South and West (to 100° E) of Australia plus one cruise to Africa and return near 32°S.

British East African Territories. Possibly one vessel conducting research off east coast of Africa between Aden and Zanzibar beginning 1962.

Federal Republic of Germany. Possibly one vessel in 1963 or 1964 in north-west Indian Ocean.

France. One vessel during summer 1960 and 1961, 4°N to 32°S. Two cruises 1962-3 in western Indian Ocean, one in each monsoon.

Japan. Five vessels commencing 1962 making cruises on five tracks from the Bay of Bengal to 32°S during one monsoon. Possible cruises by other vessels during second monsoon.

Pakistan. Probably two vessels after 1961 operating north of 16°N in Arabian Sea and Bay of Bengal.

South Africa. Three vessels operating within 500 miles of South African Coast during period of Expedition.

U.S.S.R. Two extended cruises in northern and middle Indian Ocean by VITJAS in 1960-62. Three other vessels in northwest, central west and southwest Indian Ocean respectively in 1960-61.

United Kingdom. At least two cruises totaling approximately 7500 miles in each monsoon from 0° to 20°N in western Indian Ocean, 1962-3 by N.I.O. vessel. Two cruises 15°N to 10°S, East Africa to 75° East by U.K. Hydrographic Survey vessel, 1961-3.

U.S.A. Five cruises by three vessels totaling 34 months 1960-63. Western Indian Ocean, equatorial regions and primarily geological and geophysical cruises southern and western halves of Ocean. Possible additional cruise 1963-4.

The following countries plan to put scientific parties on board other nation's vessels: Denmark, Netherlands, Israel, Nationalist China. Israel has prepared a national program for scientific research.

Ceylon, India, Indonesia and possibly Portugal will participate. Their National Committees have not yet determined the extent of their effort.

Most vessels will have room for guest scientists. Such capacity varies from 2 to 16. In general, arrangements for carrying visiting scientists and exchanging scientific teams are worked out by individual laboratories or National Committees.

It is probable that additional cruises will be scheduled as the details of the scientific program and the research opportunities become more widely known.

In most instances nations have made specific cruise plans only through 1962. General coverage of the Indian Ocean above  $32^{\circ}\text{N}$  seems reasonably complete. Regions off the coasts of South Africa and Australia southward are covered and reconnaissance cruises in the mid ocean below  $32^{\circ}\text{S}$  will be made. Further coverage may be developed as the Expedition progresses. A schematic diagram of recent and impending cruise tracks is found in Appendix B.

Most nations will finance their own efforts. Those requiring assistance should turn initially to existing international fund sources of an inter-governmental or bi-lateral type for equipment procurement and other funds.

There has been insufficient time for many countries to provide a complete picture of the extent of their efforts. It is hoped that early action by National Committees may supply this necessary information. This is particularly important in the nomination of trainees because of the time required for arrangements.

Robert G. Snider  
Coordinator

## APPENDIX A

### SCOR

#### INDIAN OCEAN WORKING GROUP

Dr. George E.R. Deacon (UK) - Chairman  
Prof. V.G. Kort (USSR) - Vice Chairman  
Mr. Robert G. Snider (USA) - ex-officio

#### Sub-Committee on Geology-Geophysics and Bathymetry

Dr. Robert L. Fisher (USA)	)Co-Chairmen	Dr. John Nafe (USA)
Dr. P.L. Bezrukov (USSR)		Dr. J.N. Nanda (India).
Dr. Bruce C. Heezen (USA)		Dr. Hiroshi Niino (Japan)
Dr. A.S. Laughton (UK)		Dr. Eugen Seibold (Germany)
Dr. A. Zhivago (USSR)		

#### Sub-Committee on Marine Biology

Mr. Ronald I. Currie (UK) - chairman	Dr. Johannes Krey (Germany)
Prof. B.G. Bogorov (USSR)	Dr. Shigeru Motoda (Japan)
Dr. David H. Davies (South Africa)	Dr. N.K. Panikkar (India)
Dr. George F. Humphrey (Australia)	Dr. John Ryther (USA)
Dr. John Steele (UK)	

#### Sub-Committee on Physical and Chemical Oceanography (with liaison to Meteorology)

Dr. G.E.R. Deacon (UK) Chairman	Dr. Bostwick H. Ketchum (USA)
(pro tempore)	Dr. John Knauss (USA)
Dr. S.V. Brujewicz (USSR)	Dr. John Swallow (UK)
Dr. Günther Dietrich (Germany)	Dr. Paul Tchernia (France)
Mr. Fritz Fuglister (USA)	Dr. Michitaka Uda (Japan)

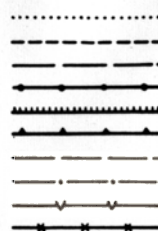


# INTERNATIONAL INDIAN OCEAN EXPEDITION

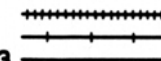
## CRUISES COMPLETED AND PLANNED 1959-1963

### TRACKS

AUSTRALIA - VIII-IX '62  
 FRANCE - VII-IX '60  
 JAPAN - '61-'63  
 USSR - X '59-IV '60  
 USSR - IX '60-III '61  
 USSR - VII '61-II '62  
 UK - N.I.O. '62-'63  
 UK - E.A.F.R.O. '62-'63  
 USA - LAMONT '59  
 USA - LAMONT '59-'60

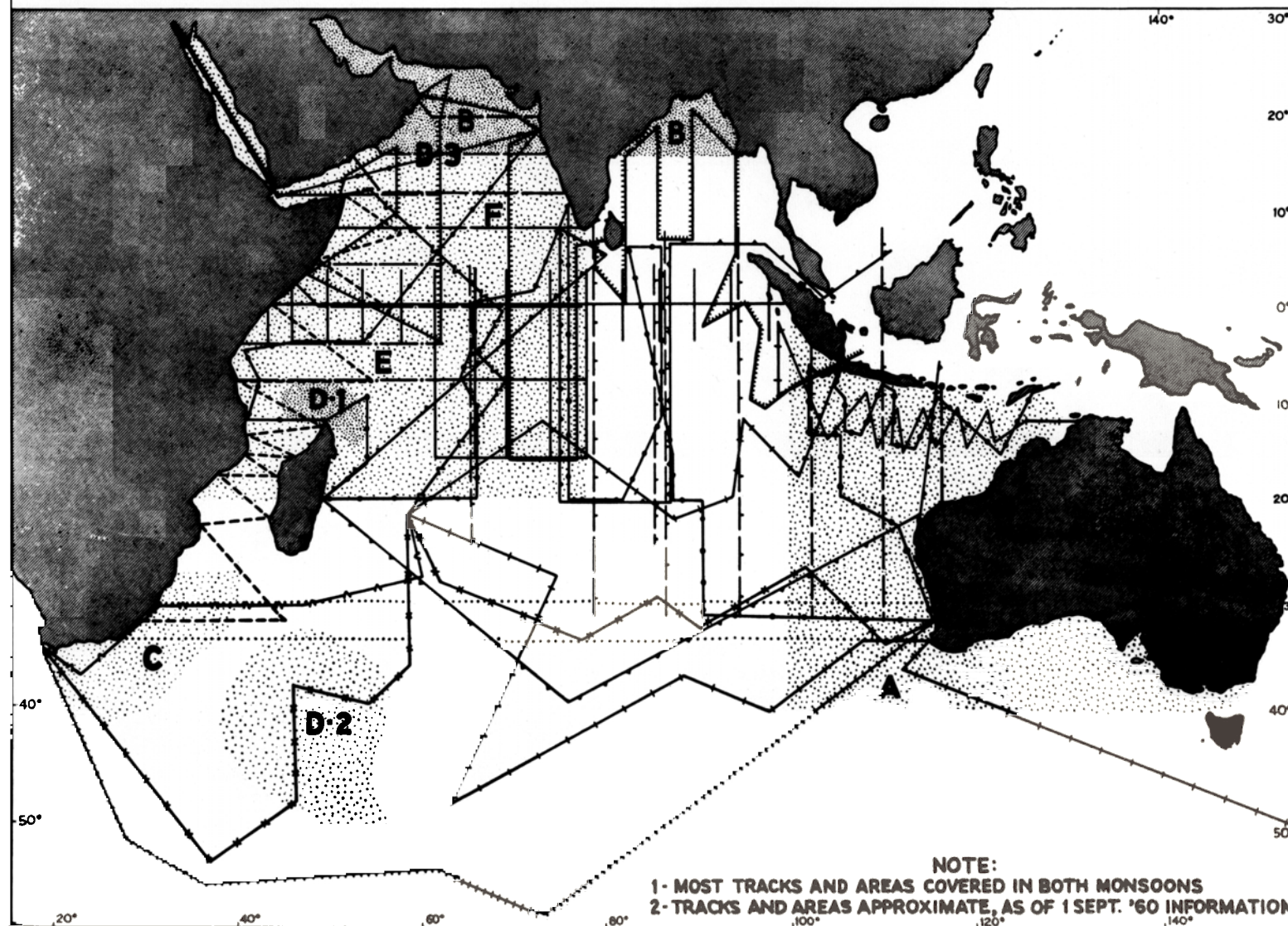


USA - LAMONT '62  
 USA - SCRIPPS X-XI '60  
 USA - SCRIPPS VII '62-IV '63, VI '63-X '63



### AREAS

A - AUSTRALIA  
 B - PAKISTAN  
 C - SOUTH AFRICA '62  
 D - USSR 1: VI '60, 2: I-III '61, 3: IX-XII '61  
 E - UK - HYDRO (15°N-10°S, E.AFRICA-75°E) X '61-IV '62, '62-'63  
 F - USA-W.H.O.I. (N.W. QUADRANT, INDIAN OCEAN) I-VI '62, VI-XII '63



### NOTE:

1- MOST TRACKS AND AREAS COVERED IN BOTH MONSOONS  
 2- TRACKS AND AREAS APPROXIMATE, AS OF 1 SEPT. '60 INFORMATION