Conseil International Des Unions Scientifiques - International Council of Scientific Unions
Special Committee on Oceanic Research
(SCOR)

INTERNATIONAL INDIAN OCEAN EXPEDITION
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M E T E O R O L O G Y

Running Notes and Comments on Facilities and Personnel Arising from R. G. Snider's Trip 13 November to 16 December 1960 to The U.K., Pakistan, India and the East Coast of Africa Including Outlying Islands.

LONDON

The U.K. will be developing a meteorological program as part of their Indian Ocean Expedition plan. They have not as yet set up a separate Working Group but have combined this with Physical and Chemical Oceanography.

KARACHI (Pan Indian Ocean Science Association Meeting)

Professor J. Van Duijnen Montijn of De Bilt, Netherlands who is also Chairman of the Commission on Maritime Meteorology of WMO reported on the long-range program of the CMM to develop an international climatic atlas of the oceans. This is a thirty year program running from 1950 through 1979. For the Indian Ocean The Netherlands is to receive and process all data north of 50° S. Below 50° S South Africa is responsible. The Royal Netherlands Meteorological Institute is the agency involved. There is certainly a connection between the IIOE met. program and this work but since The Netherlands will not process any data until they have all reports from all areas including ship observations, it appears more likely that our data will be of use to them than their data will be of use to us. Two 1960 pamphlets published by the Royal Netherlands Meteorological Institute describe the program.

The Pakistan Meteorological Service (Director - Mr. S. D. Naqvi, Pakistan Meteorological Observatory) is very interested in participating in the Expedition. They will work in and around the Arabian Sea and the Bay of Bengal from 16° N northward which is the area for which they are responsible for weather reporting. Mr. Naqvi wants a permanent station set up on St. Martins Island south of Chittagong for meteorological observations, biological studies, etc.

DELHI

India has a Working Group on Meteorology and Physical Oceanography as well as three other Working Groups. They are to report to their National Committee in January. On a previous trip to New Delhi in February 1960, I had met Mr. Krishna Rao, Director of the Central Government Meteorological Service located at New Delhi. I believe that one of the seven members of the National Committee with whom I met in November was a representative of the Meteorological Service. I found out in Nairobi that the New Delhi meteorological radio transmission facilities will be able by July '61 to transmit facsimiles of weather charts. Nairobi (q.v.) will be able to do this by 1962. These two stations will be the only ones actually able to telefax forecasts and are, therefore, presumably the major meteorological centers for the Indian Ocean.

NAIROBI, Kenya

In a meeting at the East African Territories (q.v.) High Commission on 29 November I met among others, Mr. B. W. Thompson who is the Acting Director of the East African Meteorological Service (East African Meteorological Department, Private Bag, Nairobi, KENYA). Mr. Thompson gave me a description, based on his experience, of the meteorological observations conducted at various stations on the western side of the Indian Ocean.

At Lamu - 12 hours a day upper wind observations by pilot balloons.
At Mombasa - 24 hours a day upper winds by pilot balloons.
At Tanga - 12 hours a day, no upper atmosphere observations.
At Zanzibar - 12 hours a day, no upper atmosphere observations.
At Dar es Salaam - 24 hours a day upper air temperatures and pressures, radio sonde, weather radar, etc. - a first class station.
At Mtwara - 12 hours a day upper winds by pilot balloons.
At Mahé - in the Seychelles, 12 hours a day upper winds by pilot balloons.

In Somalia observations are rather haphazard. At Mogadishu 12 hours a day with a maximum of pilot balloons on an irregular basis.

On the Arabian coast including Aden, services come under the U.K. Air Ministry Meteorological Office. Aden is a first class station with complete facilities and there are three or four others including an R.A.F. station, I believe in Masirah in Oman.

In Mozambique Mr. Thompson reported observations rather thin although there was a first class station at Lourenco Marquès.

Arrangements are being made between Mr. D. N. F. Hall, Director of the East African Marine Research Organization and Mr. Thompson to have Thompson put two meteorologists on the R/V MANIHINE for several of her cruises during early 1961 to train the Fisheries Research Organization personnel in the use of newly installed radar and meteorological instruments.

Thompson also rated the station in Madagascar and those in islands under its jurisdiction as good and also the islands under Mauritius' jurisdiction.

Thompson pointed out that Nairobi could not add further facilities or staff without funds from outside East Africa since East African funds are very limited and the prospective change in governmental organization which will come after the election in January '61 makes everything rather uncertain. They would, however, be glad to handle and analyse meteorological data to their present capacity in their offices. It might be pointed out that they have billets for eight professional meteorologists but at the present time have only three on board because of the difficulty in recruitment during the period of uncertainty prior to the governmental change. As a consequence they are almost below the lower limit required to meet international standards as an international airport at Nairobi.

At the present time weather forecasts are broadcast. Nairobi is responsible for the region from 12° N to 15° S and to 60° E. By 1962 they will have facsimile broadcasting facilities installed with a high power station which will cover the whole western part of the Indian Ocean with telefax broadcasts. With the right frequency they would be able to reach the whole of the Indian Ocean. They will have two 10 KW transmitters and will be able to work CW or telefax or radio teletype. In this region east-west radio propagation is better than north-south. When New Delhi gets its facsimile in July '61 it will be the only other such station in the Indian Ocean area. Thompson indicated his willingness to use Nairobi after mid '62 as the weather central for all Indian Ocean weather if this could be worked out with WMO.

He also pointed out that the ship exchange of weather information is very poor now. This is due in part he believes, in some weakening of services in Ceylon particularly since Mrs. Bandanarieke's government has come into power. Nairobi gets a few ship reports. Pretoria gets some more and Mauritius does fairly well but the basic information is poor. As a general comment he pointed out that a period of maximum meteorological interest is in the non-monsoon months. He also wanted to obtain a list of the meteorological equipment which the various ships will carry and the observations they will make and was very interested in getting a copy of the U.S. Meteorological Working Group plan.

TANANARIVE, Malagasy Republic (Madagascar)

On 1 December I talked with Mr. M. J. Scheidecker, Director of the Meteorological Service of the Malagasy Republic and four or five of his professional associates. He said that Madagascar is responsible for an area from 10° N to 40° S or 50° S and from the African coast to 70° E. At present radio sonde observations are taken at Tananarive daily at 12:00 Noon GMT and the station is a class one station. By 1962 there will probably be radio sonde observations at Ile de Tromelin (also called Ile de Sable) which is east of Madagascar and north of Reunion. At the present time there is an 18 hour station there. Ile Europa with 18 hours coverage in the Mozambique Channel has a permanent meteorological station but there are no plans for radio sonde there. Tromelin is under the administrative control of Reunion but receives its logistic support from Tamatave, the major port on the east coast of Madagascar. Europa has two runways, one of 800 meters and one of 1200 meters which handle planes up to the size of a DC-3. There is also a permanent meteorological station on the Iles Glorieuses northwest of Diégo Suarez (this information not from Scheidecker). These islands are not part of the Comoros and are probably under the jurisdiction of Reunion.

There are 18 hour stations at Fort Dauphin (port on the southeast corner of Madagascar) and Diego Suarez (major French naval station and excellent harbor at the northern tip of Madagascar) and there will possibly be a station on Crozet in two years. There are no meteorological observations taken at Nosy Bé.

Mr. Scheidecker went on to make some general comments noting that at Mauritius the meteorological station takes only one radio sonde sounding a week. Kerguelen and Amsterdam meteorological stations are operated by the French government but they report their observations to Tananarive. In turn Tananarive in addition to giving territorial broadcasts repeats all the information coming to them to Pretoria who in turn relay it to Nairobi. Incidently, either at Tananarive or Nairobi I gathered that Pretoria was to have been a major regional weather forecasting center similar to Nairobi but that they have not been able to budget for increased transmission facilities. At Kerguelen there are radar wind observations and at Amsterdam radio sonde is used. They make daily reports and both are 18 hour stations. France is planning to obtain one of the Flower Class Frigates (this is the JASMIN based at Bordeaux) as a weather ship for Madagascar.

PORT LOUIS, Mauritius

I met Mr. A. D. Swan, Acting Director of Meteorological Services. There is a small meteorological station on Agalega which is north of Mauritius at about 10° S (Mauritius is about 20° S) and also at Diego Garcia which is in the Chagos Islands some 1200 miles to the NE of Mauritius at approximately 7° S and 73° E. These remote islands under the administrative control of Mauritius are at the present time serviced by the coconut oil companies who maintain coconut plantations. There was unconfirmed rumor that the companies were going to close down operations because they were not profitable. If this happens there is the possibility that the meteorological stations will have to be closed down because personnel could not be serviced unless new arrangements were made. Rodrigues has a permanent installation (about 200 miles east of Mauritius).

Mr. Swan stated that they actually take two radio sonde observations a week and take radar wind observations five times a week. In order to take daily soundings at Mauritius and at all their dependencies, they would require an additional £3,500 per year plus cost of additional staff. The cost of increasing their pilot balloon program to achieve a satisfactory minimum standard would cost about £1,000 per year. The Acting Director of Meteorological Services was reluctant to expand the staff through procurement and training unless such expansion was part of a permanent program.

PRETORIA, South Africa

I talked with Mr. M. P. Van Rooy, Director of the Weather Bureau and with several of his assistants including Mr. Engelbrecht and Dr. Hofmeyer who is in charge of the design of instruments. They make radar wind and radio sonde observations at Durban, Port Elizabeth, Cape Town and Marion Island.

They will also be in charge of the new South African research vessel now being strengthened for work in the Antarctic. This vessel will be converted as a first class research vessel which will also provide logistic support for the South African Antarctic program in Queen Maud Land. Except during the time of supply and relief of Antarctic parties she will be available for both meteorological and oceanographic work and she will take these observations enroute to and from the Antarctic.

The South African meteorologists expressed considerable interest in the Expedition's meteorological program and indicated they would cooperate fully with the South African ships and also with other countries. They were particularly interested in reducing lead time in equipment procurement and especially in getting new and advanced sensing equipment on short notice. The Pretoria Observatory repeats with the necessary time corrections due to its different location, and WWV time signal. They may be able to provide full Indian Ocean coverage on this. Later discussions in Cape Town revealed that radio sonde observations could be conducted from the Fisheries Research Vessel AFRICANA II and the Naval Frigate NATAL.

LOURENCO MARQUES, Mozambique

The new Director of the Meteorological Service (name not obtained) reported that radio sonde observations are taken at Lourenco Marqués and that the budget has just been approved for a radar wind installation which will be in operation in 1962. They take one sounding aday at Lourenco Marqués. Radio sonde observations were started at Lumbo which is in northern Mozambique near the Mozambique Island on the day I was in Lourenco Marqués which was December 9th. They also take one sounding a day. Other meteorological stations operate as described in Volume IV (?) of the WMO Directory.

GENERAL

Each of the countries, territories and colonies which I visited welcomed the opportunity of participating in the meteorological and other phases of the Expedition. In many of them, however, it will be necessary to "beef up" the local programs in order to achieve the type of frequent observations to the upper atmosphere which are desired by the Expedition. This will mean budgeting by someone for even such types of expendables as radio sonde (see for example the one or two radio sonde measurements per week by Mauritius due to budgetary limitations). This money will have to come from outside many of these territories. The reaction of the Acting Director of Meteorology in Mauritius about an expanded program without long-range prospects of continuity is significant.

All representatives of meteorological services were most interested in the imaginative breadth of concept of the proposed meteorological program as evinced by the 27 October 1960 memorandum of the Chairman of the U.S. Meteorology Working Group which was the latest document available during my visits.

There is every reason to believe that each territory, country and colony will mount a meteorological program as part of its "national" program and that each geographic area will have the equivalent of a National Committee to direct its activities in the Expedition.

The office of the Coordinator of the International Indian Ocean Expedition has a file of the names and posts of individuals responsible for setting up local arrangements for the meteorological and other aspects of the Expedition. In communicating with any of these agencies it would be most helpful if information copies of letters or other transmission of documents is made available to the office of the Coordinator.

New York
6 January 1961

RGS: Jas