

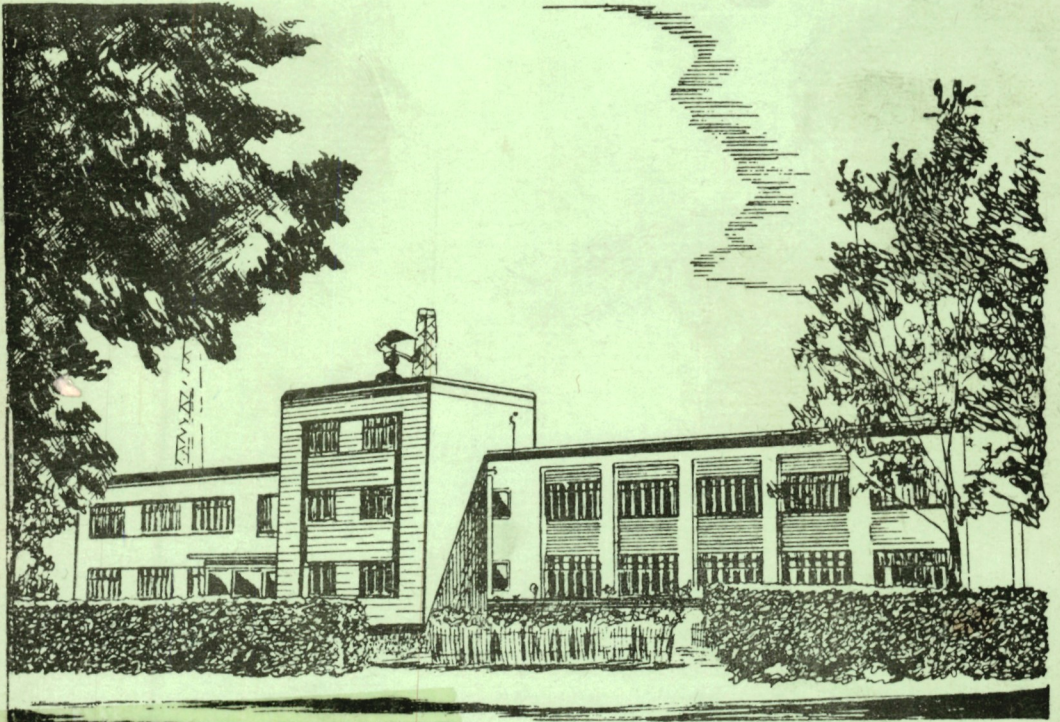
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METEOROLOGICAL DEPARTMENT
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**ANNUAL REPORT
ON THE
KENYA METEOROLOGICAL DEPARTMENT
FOR THE PERIOD
1ST JULY 1979 TO 30TH JUNE 1980**

**Presented by the Director
to the
Minister for Transport and Communications**

**KENYA NATIONAL ASSEMBLY
Accession: 10012919**

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**Issued by
Kenya Meteorological Department
Dagoretti Corner, Ngong Road
P.O. Box 30259, Nairobi, Kenya**

Foreward by the Director:

During the period of this report the Kenya Meteorological Department continued to make full impact in the national and international affairs.

Several officers of the Department represented the country at various international meetings. The most important meeting was the Executive Committee of the World Meteorological Organization which was attended by the Director accompanied by two assistants.

The Department continued participating in the Global Atmospheric Research Programme. Summer Monsoon Data was exchanged with the International Monex Management Centre and the United Kingdom Meteorological Office, Bracknell. In cases of other International Research and Experimental Programmes, the Department participated fully in the collection and dissemination of the required weather and climate data from its areas of responsibility. Our scientific and technical staff received 12 fellowships from the World Meteorological Organization. These fellowships went along way in increasing the scientific and technical capability of the Department and are gratefully acknowledged.

The demand of weather forecasts and climate data continued to increase both locally and internationally. Plans to expand meteorological services in the field of Agriculture were under way. Negotiations were concluded during the period for the modernization of the telecommunication system using equipment provided through the French Credit.

The Institute for Meteorological Training and Research, Nairobi continued to play its role of training meteorological personnel for Kenya and for the rest of Africa and carrying out research on meteorological and environmental problems of interest to the country. The Institute conducted 11 courses during the period, training 147 students from Kenya and 83 students from 11 countries in Africa and Asia. 9 research reports on various meteorological topics were published during the period. During the period, negotiations were started with the United Nations Development Programme and the World Meteorological Organization for the financing of the Institute for Meteorological Training and Research, Nairobi as a Regional Project of the UNDP with the World Meteorological Organization as the Executing Agency. Initial indications were

that the Institute would receive the necessary support from the countries in Eastern, Central and Southern Africa.

Remarkable improvement was recorded in implementation of development projects of the Department. The projects at Headquarters and Lodwar, Garissa, Moyale and Narok made very encouraging improvements. The Department spent shillings 10.225 million out of the allocated sum of shillings 23.200 million.

The shortage of scientific and technical staff continued to be a major problem which was aggravated by the large number of resignations among this cadre of personnel to take up better paid jobs elsewhere. During the period a total number of 51 officers resigned or deserted the office. On supply matters, shortages of essential materials such as paper arose after tenders were awarded to people who were unable to supply the items as agreed.

In conclusion, it is my pleasure to acknowledge the willing and loyal co-operation of members of staff and the co-operation of the Departments of Agriculture, Civil Aviation, Defence, Environment and Water Development.

J.K. Murithi
DIRECTOR

1.2 CONTENTS

	<i>Page</i>
1.1 Foreward by the Director	(i)
1.2 Contents	(iii)
1.3 Functions of the Kenya Meteorological Department	1
1.4 Principal Officers of the Meteorological Department	2
1.5 Organization of the Meteorological Department	4
2. Technical Co-operation and General International Affairs ..	5
2.1 General	5
2.2 Overseas Training	5
2.3 Equipment	5
2.4 International Conferences and meetings	6
2.5 Institute for Meteorological Training and Research (IMTR)	7
2.6 Important Visitors to the Department	7
3. Operational Services Division	8
3.1 General	8
3.2 Weather Reports and Forecasts	9
3.3 Regional Meteorological Centre (RMC)/ Area Forecast Centre (AFC)	10
3.4 Meteorological Services to Civil Aviation	11
3.5 Meteorological Services to Military Aviation	12
3.6 Meteorological Services to Shipping in West Indian Ocean	12
3.7 Meteorological Services to the General public	13
3.8 Regional Telecommunications Hub (RTH).....	13
3.9 Engineering.....	14
4. General Services Division.....	15
4.1 General	15
4.2 Weather in Kenya	15
4.3 Agrometeorology and Agromet Observatories	20
4.4 Hydrometeorology.....	20
4.5 Climatology and Data Processing.....	20
4.6 Training Activities	21
4.7 Observatories	22

4.8	Services to public including enquiries, shows, e.t.c.....	25
4.9	Instruments.....	25
4.10	Printing Section.....	25
5.	Institute for Meteorological Training and Research	25
5.1	Administrative and support services.....	25
5.2	General Services.....	26
5.3	Training Activities	28
5.4	Research Activities	31
5.5	Mt. Kenya Baseline Station.....	32
6.	Administrative, Finance, Planning and Supplies Division .	33
6.1	Staff Administration	33
6.2	Accounting Services	34
6.3	Planning and Development	35
6.4	Supply Services	36
6.5	Transport	37
6.6	Security	37

Functions of the Kenya Meteorological Department

The Kenya Meteorological Department is the State Meteorological Service. It forms part of the Ministry of Transport and Communications. The Director is responsible to the Minister for Transport and Communications through the Permanent Secretary, Ministry of Transport and Communications.

The general functions of the Meteorological Department are:

- (i) The provision of meteorological and climatological service to agriculture, plantation farming, forestry development and for the better exploitation and utilization of natural resources for national development.
- (ii) The provision of meteorological and climatological service to water resources development and other government departments, public corporations, local authorities, the mass media and the general public.
- (iii) The provision of meteorological service to civil aviation for the safety and economy of civil aircraft operations.
- (iv) The provision of meteorological service to shipping in the western Indian Ocean including the issue of cyclone warning for the safety of merchant and other ships in the western Indian Ocean.
- (v) The provision of meteorological service to military aviation for the safety of Kenya Air Force aircrafts for national defence.
- (vi) The provision of meteorological and climatological advice to the private sector including industry, commerce and public utilities.
- (vii) The provision of meteorological and climatological advice for the improvement and preservation of national environment for a better human life.
- (viii) The organization and administration of surface and upper air meteorological observations within its area of responsibility and the publication of climatological data.

- (ix) The maintenance of an efficient telecommunication system for rapid collection and dissemination of meteorological information required for national and international use in accordance with World Meteorological Organization and ICAO procedures.
- (x) Research in meteorology and climatology including co-operation with other authorities in all aspects of applied meteorological research.
- (xi) The maintenance of National Meteorological Library.
- (xii) Evolving suitable training programmes in all fields of meteorology relevant to national development.

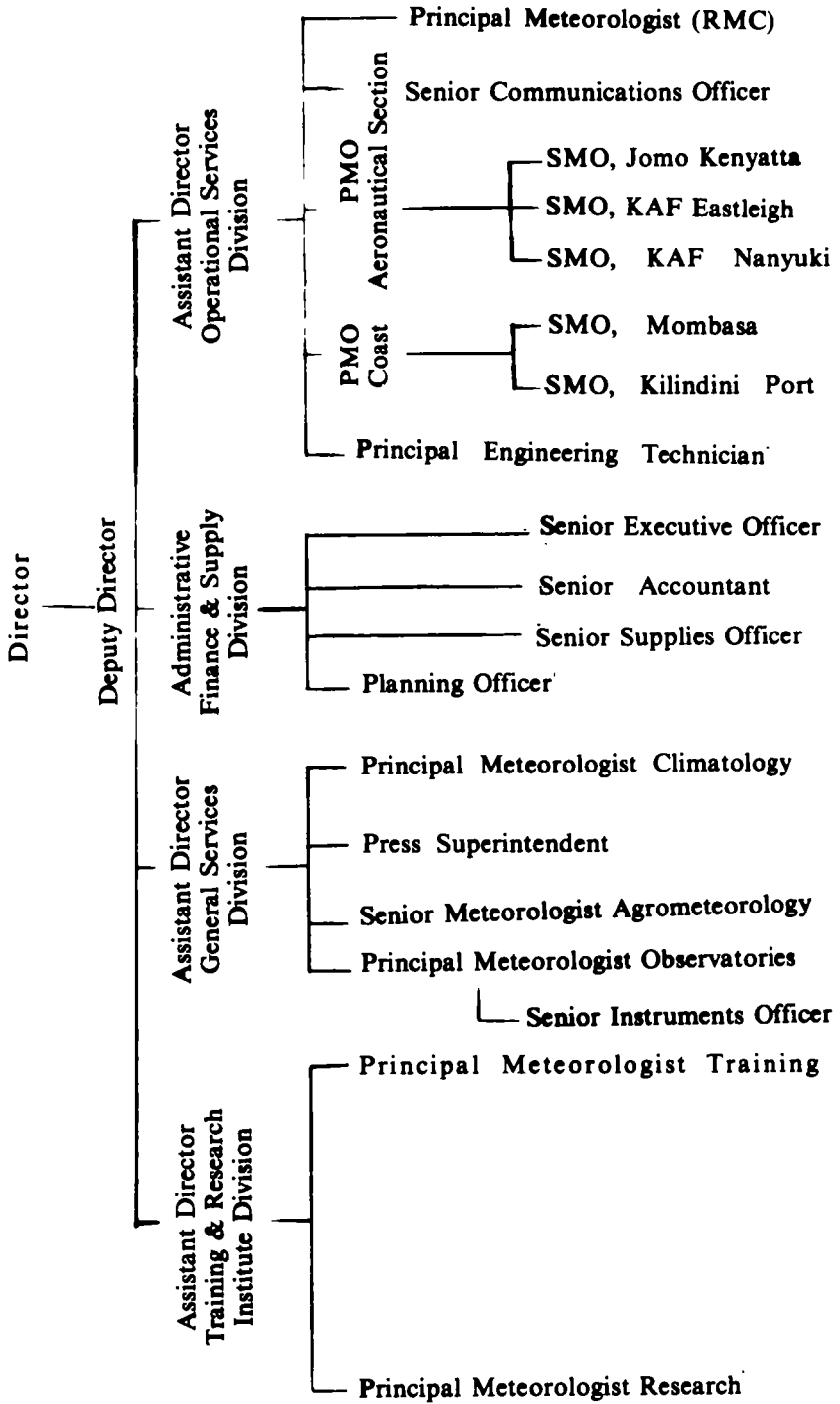
The Meteorological Department also takes a leading part in International co-operation in meteorology. The Director is the Permanent Representative of Kenya to the World Meteorological Organization and acts in concert with the other Directors of the Meteorological Services in the general development of meteorology in Africa. He is also an elected member of the Executive Committee of the World Meteorological Organization.

1.4 Principal Officers of the Meteorological Department

Director	J.K. Murithi B.Sc. (London) Dip. Met. (Nairobi)
Deputy Director	A.L. Alusa B.Sc. (Oregon State) M.Sc. (Sunya)
<i>Operational Services Division</i>	
Assistant Director (Acting)	P.C. Okot B.Sc. (London) Dip. Met. (Nairobi)
<i>Regional Meteorological Centre</i>	
Principal Meteorologist	E.A.A. Mukolwe B.Sc. Dip. Met. (Nairobi)
<i>Aeronautical Section</i>	
Principal Met. Officer	E.G. Njoroge
Principal Met. Officer, Coast	L.K. Kariungi
<i>Senior Meteorological Officer (incharge of Forecast Offices)</i>	
Jomo Kenyatta International Airport	A.C. Warratho
Mombasa International Airport	S. Magalasia
KAF Eastleigh Airport	L.K. Njoroge
KAF Nanyuki Airport	S. Wanderi
Port Met. Office, Kilindini	S. Ochieng (Acting)

<i>Engineering Section</i>	
Principal Engineering Technician	P.S. Mwasi
<i>Communication Section</i>	
Senior Communication Officer	J.M. Oluoch
<i>General Services Division</i>	
Assistant Director	Vacant
<i>Climatological Section</i>	
Principal Meteorologist	S.J.M. Njoroge B.Sc. Dip. Met. (Nairobi)
<i>Observatories Section</i>	
Principal Meteorologist (Acting)	J.H. Kinuthia B.Sc. (Nairobi)
<i>Agrometeorology Section</i>	
Senior Meteorologist	G.W. Mugenyi B.Sc. (Makerere)
<i>Instrument Section</i>	
Senior Instruments Officer	G.M. Muchemi
<i>Printing Section</i>	
Press Superintendent	W. Ogada
<i>Institute for Meteorological Training and Research (IMTR)</i>	
Assistant Director (Acting)	J.K. Njihia B.Sc. M.Sc. Dip. Met. (Nairobi)
<i>Training Section</i>	
Principal Meteorologist	G.W. Mwebesa (Mrs.) B.Sc. (Nairobi)
<i>Research Section</i>	
Principal Meteorologist	P. Mwingira B.Sc. Dip. Met. (Nairobi)
<i>National Meteorological Library</i>	
Librarian	V. Saropa
<i>Administrative, Finance and Supply Division</i>	
<i>Administrative Section</i>	
Senior Executive Officer	M. Owino
<i>Accounts Section</i>	
Senior Accountant	J.E. Kamau
<i>Supplies Section</i>	
Senior Supplies Officer (Acting)	F.G.M. Ngindi
<i>Planning and Development Section</i>	
Planning Officer	J. Agin
<i>Transport Section</i>	
Transport Officer	J.C. Ndungu

1.5 ORGANIZATION OF THE METEOROLOGICAL DEPARTMENT



2. Technical Co-operation and General International affairs

2.1 General

During the period under review, the Department was involved in various international activities. Bilateral programmes aimed at the continued maintenance and modernization of the Regional Telecommunications Hub (RTH) and the Regional Meteorological Centre (RMC) were being implemented. Several officers represented the country at international meetings. Following is a summary of the Departments involvement in international matters.

2.2 Overseas Training

Financial support on specialized training was received from the Voluntary Co-operation Programme (VCP) of the World Meteorological Organization (WMO) as follows:-

2.2.1 A course on radar meteorology was attended by Mr. S Magalasia in the West Indies.

2.2.2 In the United States of America, Messrs M. Gitau and J. Omware attended a course on the maintenance of Telecommunication equipments while Mr. J. Wairoto attended a course in Meteorological Satellites.

2.2.3 In the United Kingdom Mr. P. Kimotho attended a course on Meteorological Electronic Equipments while Mr. S. Mwandoto started his M.Sc. degree course in Agrometeorology.

2.2.4 Mr. L. Njau attended a course on climate variability in Italy and Mr. P. Muna attended a course on Hydrometeorology in Hungary. Messrs P. Waruhiu and J. Mulwa attended a WMO Training Seminar/Workshop for Network Inspectors in Africa, held in Cairo, Egypt.

2.2.5 Under the French Credit facility, the following officers: C. Gathu, G. Kibiru, P. Kimotho, S. Kamau, C. Waweru, F. Kiriani and P. Mwasi, took training in France on the telecommunications equipment being supplied to the Department through the French Credit.

2.3 Equipment

Under the WMO VCP project TE/5/1, the Department continued to receive telecommunication equipments from the United Kingdom and the United States of America for the improvement of the RTH at Nairobi. The French government provided the Department with Credit facility which enabled the purchase of more teleco-

mmunication equipment and spare parts. By the end of the period under review two VCP Projects for the provision of APT/WEFAX reception stations by the French and the Federal Republic of Germany Governments were waiting the consent of the Kenya Government.

2.4 *International Conferences and Meetings:*

Several officials of the Department represented the Government in various meetings and conferences as shown below:-

2.4.1 Messrs A.L. Alusa, Deputy Director and J.K. Kinuthia attended the 17th General Assembly of the International Union of Geodesy and Geophysics (IUGG) which took place in Canberra, Australia. Mr. Alusa also represented the Government on the EC Panel of Experts on Weather Modification and he was the leader of the Kenyan delegation to the meeting of Government Experts on legal Aspects of Weather Modification. Both meetings were held in Geneva, Switzerland.

2.4.2 Messrs A.L. Alusa and E.A.A. Mukolwe represented the Department at the RTH consultations meeting held in Lusaka, Zambia.

2.4.3 Mr. W. Chebukaka represented the Department at a meeting by the Commission for Hydrology held in Madrid, Spain; while Mr. G. Mugenyi represented the Department at a meeting by the Commission for Agricultural Meteorology held in Varna, Bulgaria.

2.4.4 The Director, Mr. J.K. Murithi and Mr. P. Mwasi visited India on an expert recruitment tour. On his return, the Director accompanied by Messrs E.G. Njoroge and A.C. Warratho attended the 6th Session of AFI/RAN in Arusha, Tanzania. During the reporting period, the Director and Mr. Mukolwe attended a meeting of the International Civil Aviation Organization Area Forecast Panel in Montreal, Canada. After that, the Director who is a member of the Executive Committee (EC) of the World Meteorological Organization (WMO), attended the 32nd Session in Geneva, accompanied by Messrs E.A.A. Mukolwe and S.J.M. Njoroge. Mr. S.J.M. Njoroge also participated in the WMO Working Group on Applications of Meteorology to Building Engineering.

2.4.5 Messrs R.E. Okoola and B. Nyenzi were among other World Scientists who participated in the Monsoon Experiment (MONEX) in India.

2.5 *Institute for Meteorological Training & Research (IMTR)*

By the end of the period under review, six non-national instructors left at the expiry of their three year contract with the Kenya Government. The post of Professor of Meteorology at the University of Nairobi, continued to be funded by the WMO, out of its regular budget. Despite the shortage of experienced personnel, the Institute continued to receive students from many African countries and continued to enjoy international recognition.

Negotiations were underway to make the Institute a Regional Project of the UNDP with an Inter-governmental Council; made up of Permanent Representatives to WMO of the countries supporting the Project; to advise the management on policy to be followed by the Institute over an agreed period. Under the project the Institute would get assistance from UNDP's Regional fund, to establish several more courses.

A co-operative research effort between scientists from the Kenya Agricultural Research Institute and scientists from the Meteorological Department was continued on Meteorological aspects of Army Worms infestation.

2.6 *Important visitors to the Department*

It is important for other people to visit the Meteorological Department so that they can see and learn about the essential services that are offered by the Department. During the reporting period many important people visited the Department as it can be seen here under.

2.6.1 Towards the end of February the Department was honoured by a visit by the Minister for Transport and Communications, Hon. H.K. Kosgey accompanied by his Assistant Minister Hon. A. Ng'ang'a, Permanent Secretary, Mr. S.J. Mbugua and several officials from the Ministry.

2.6.2 In April the Department was again honoured by a visit by an Assistant Minister for Transport and Communications Hon. P.L. Lotitiyo.

2.6.3 In July, Mr. Peter Snelson from the Commonwealth Secretariat, London, paid a visit to the Department in the company of R.M. Mbato from the Directorate of Personnel Management, Nairobi.

2.6.4 During the first week of September, Mr. J.M. Githaiga, the Headmaster of Alliance High School, Kikuyu visited the Department and issued certificates to qualified candidates of WMO Course B39.

2.6.5 In October Messrs J.A. Gethenji, Director of Personnel Management, M.J. Njenga, Director of National Environment Secretariat (NES), Office of the President and P.G. Mwathi, Chairman, Kenya Library Association visited the Department.

2.6.6 Visitors from WMO and UNDP included Messrs Vaughn Rorhny, G.S. Shak, A.M. Elamly, C.L.H. Meijer and C.P.C. Metcalf

2.6.7 During the year, the Department has been visited by several French Officials in connection with the French Credit Facility. These visitors included M/s R. Tranchessec in April and a French Delegation made of M/s Jacques Joury, Brigitte Lambert, Heuri Gordier, A. Sorremejeans, B. Dussourt and M.W. Nyaga in May.

2.6.8 Towards the end of April, Mr. Samuel Mbele-Mbong, acting President of WMO RA(I), paid a visit to the Department.

2.6.9 Visitors from several African countries came to the Department as follows:- in April, Mr. U.B. Lifiga, Director-General, Met. Tanzania; in the middle of May Messrs C.K. Mutalemwe and P. Ngaiza from Ministries of Industries and Foreign Affairs, Tanzania, Dia Ibrahima from Cameroon, Ikamba Wut'iyela from Zaire, Munyembari Paul from Burundi and D. Chissau from Mozambique.

2.6.10 The Department was visited by officials from various organizations such as Educational Institutions, Scientific organizations and Government Ministries. Some of these officials included M/s P.P. Kurujan of Centre for Water Resources Development and Management, Calcut, India; Officer cadets from Kenya Airforce and officers from the Treasury, Ministry of Finance, Nairobi.

3. Operational Services Division

3.1 General

The real-time functions of the Kenya Meteorological Department are carried out by the Operational Services Division.

These functions include:-

3.1.1 The maintenance and operation of both international and national meteorological telecommunication circuits for data collection and dissemination.

3.1.2 Data processing and forecasting services to the public, national and international Civil Aviation and Shipping concerns.

The Regional Meteorological Centre, Area Forecast Centre and Regional Telecommunications Hub are all co-located at the Department Headquarters, Dagoretti Corner, Nairobi. During the period in question, the National Meteorological Centre was moved from Jomo Kenyatta Airport to be also co-located at the Headquarters. Aerodrome Meteorological offices are located at Jomo Kenyatta International Airport, Nairobi and Moi International Airport, Mombasa. Also located at Mombasa is a Port Meteorological Office.

The Headquarters, therefore, serves as the main collecting centre for meteorological observational data from out-stations throughout Kenya, processes the information and disseminates it to other stations as required. Surface and upper air reports and weather reports relating to the state of the sea in the Western Indian Ocean Area are collected and analysed on a routine basis. The analysed and processed information is then issued as public forecasts to radio and press or, in some other suitable forms, to the Airports for the safety of air navigation and to the ports for shipping. For this purpose, the centre is linked to the outstations by means of telephone, radio-telephones, radioteletypes and facsimile broadcasts as appropriate.

In addition, the Centre serves as one of the Regional Meteorological Centres within the African Region for data collection and dissemination within its zone of responsibility in the context of the World Meteorological Organization Weather Watch Plan and the International Civil Aviation Plan. To be able to fulfil its International Obligations, the Centre maintains point-to-point meteorological telecommunications circuits with Offenbach, Kano, Cairo, Re-Union, Addis-Ababa and Pretoria. The Centre also maintains international facsimile broadcasts with selected outside centres.

During this period, plans for the establishment of a point-to-point satellite meteorological telecommunications circuit with Lusaka (Zambia) were finalised.

3.2 *Weather Reports and Forecasts*

Weather terminologies used when issuing forecasts to the public were reviewed during the last reporting period. The use of the revised terminologies was implemented. Upper air winds from cloud

movement detected by means of satellite were included in our charts during the first half of this period. These were however not available in the latter half because the satellite went off. The other data regarding surface temperature, cloud humidity and radiation that was being detected by means of satellite was not available during the latter half of the reporting period. Surface pressure by drifting buoys was also included in our surface charts with very encouraging results.

Although we had a major breakdown in telecommunications with Pretoria in May, the data reception from Pretoria and Offenbach continued to be good. During the period we experienced the breakdown, the Kenya External Telecommunications Company assisted in monitoring the data for us. Reception from Addis-Ababa and Khartoum was fairly good. There was an improvement in reception from Kano in the later part of this period. Data reception from Tanzania and Cairo was poor, and nothing was received from Uganda and Brazzaville. Satellite photographs from Washington received through Offenbach were very irregular.

Following an ICAO meeting which was held in Canada, it was agreed that the geopotential heights and numerical indication of wind direction on the prognostic charts was not necessary. These, therefore no longer appear on the prognostic charts.

3.3 The Regional Meteorological Centre (RMC)/Area Forecast Centre (AFC)

During this reporting period the National Meteorological Centre(NMC) was moved from Jomo Kenyatta Airport to the RMC. This was an extra burden to the analysts because there had been no revision on the establishment regarding staffing of RMC with analysts. In the initial stages a meteorological officer and a meteorological assistant were attached to RMC to make the transfer of the NMC smooth. The members of RMC participated in the Nairobi International Show where they explained the forecast methods to the public. In conjunction with the Regional Telecommunications Hub (RTH) the RMC collected surface and Upper air data for the International Monex Management Centre. One of the analysts, Mr. Nyenzi, participated in the GARP Summer Monex Experiment that was conducted in New Delhi (India).

Another analyst, Mr. Wairoto, attended a satellite course in the USA. Seven meteorologist trainees joined the section and by the

end of this period they had all completed the on-the-job training offered in the RMC. Five of them are now working in the section. At the same time three assistant analysts were also trained on the duties of assistant analysts. One of these is still undergoing the training. By the end of the report period, the Assistant Director, four Meteorologists and two meteorological officers completed their contracts and left the service.

To limit the loss of charts from RMC, a record system has been introduced. Charts going outside the RMC, either borrowed for research, or being taken to the University or for micro-filming, are being recorded and it is hoped that the losses experienced in the past will be reduced.

The section lost one analyst, Mr. Charles Mudodo, who died in a road accident.

3.4 *Meteorological Services to Civil Aviation*

Despite the large number of flights supplied with routine meteorological information in form of prognostic and significant weather charts, the feed-back in form of aireps was very low. To help in getting these aireps the Jomo Kenyatta International Airport forecast office introduced a system whereby the pilots are required to place the aireps in a collection box immediately they land. Some pilots still do forget to do this. This will be raised in ICAO forums so that the pilots are asked to do it as a matter of duty if they expect good work from the meteorologists. As has been pointed out above, the geopotential heights and wind direction on the prognostic charts are no longer indicated in numeral form. Due to lack of data over Congo, Zaire, Angola, Gabon, Cameroon and Central African Republic, the charts produced for aviation were of low confidence in these areas and flights towards those areas are likely to give a biased judgement of the work produced from RMC. The Senior Meteorological Officer at Jomo Kenyatta Airport attended the Informal Planning meeting of the PROMET working group of the commission for Aeronautical Meteorology.

Following is the summary of the forecast information issued by Jomo Kenyatta and Moi Airports:

Forecast Folders Ex-JKA	13113
Forecast Folders Ex-Wilson	2269
Routine Rofors	2203

Miscellaneous Rofors	1188
Trend Type Landing Forecast	18238
Tafs - Jomo Kenyatta Airport	4380
Miscellaneous Enquiries	149
Tafs Kisumu	664
Routine QFA	561
Sgments	23
Aireps	1875
Forecasts Folders Ex-Moi Airport	694
Tafs - Moi Airport	4392
Tafs - Malindi	732
Sgments	4
Trend Forecasts	15968

3.5 Meteorological Services to Military Aviation

The usual products from RMC were issued through the Meteorological offices attached to the respective military bases. The Senior Meteorological Officer Eastleigh continued to give lectures in Meteorology to cadets in the flying Training School. Communication equipments and Meteorological Instruments were most of the time serviceable throughout the period.

3.6 Meteorological Services to Shipping in West Indian Ocean

Since the establishment of Port Office, our recruitment of voluntary weather Observing Ships of the selected category had come from the Eastern Africa National Shipping Line Limited fleet. Following the winding up of this company early in 1980, our number of recruited ships in the WMO Voluntary Weather Observing Scheme has been considerably reduced, leaving us with only supplementary and auxilliary ships. Most of the ships remaining in our list do not call at Mombasa Port regularly due to commercial activities in other ports of the world. Due to limited number of ships recruited locally, visits were made to ships recruited by other member states, with the main objective of increasing ships weather reports from the Indian Ocean. It was noticeable that whenever such opportunities occurred, the number of observations varied favourably with the number of visits. The number of ships weather reports for March to June, 1980 showed a significant increase in weather observations over the previous period.

The storm warnings during the middle of the report period were in all cases originated by either Tananarive or Re-Union and

were re-issued as they approached our area of responsibility. However no tropical cyclone developed in our area of responsibility.

Familiarization Voyages

Familiarization voyages as standard requirement by WMO has in the past been undertaken on very limited occasions, due to lack of opportunities. However, during the period from September, 1979 to January, 1980, Mr. S. Ochieng' sailed to Europe and visited several European Ports. The voyages are a very useful form of training and are arranged and undertaken on regular basis.

3.7 Meteorological Services to the General Public

In addition to the normal daily forecasts which are issued to the public through the newspapers and the Voice of Kenya, Radio and Television the RMC continued answering queries from the public. Geosurvey International was provided with weather reports for Garissa, Lamu, Malindi, and Mombasa. The section also helped in preparing a long range forecast for the short rains and the long rains.

When it became apparent that the long rains were coming later than expected, the Department was taken to task by farmers, some of whom called in person and were explained the general prevailing synoptic situation. Many were pleased with the work being done for them by the Department. The Department also made forecasts for several rallies and the organizers expressed in writing their satisfaction with the given forecast.

To expand the services to the farmers and the general public, the Department started issuing monthly weather reviews during the report period. This includes a survey of the current month and a broad outline of what may occur the following month.

3.8 Regional Telecommunications Hub (RTH)

International circuits linked to RTH Nairobi operated well with Nairobi-Cairo link, which had been faulty, resuming normal operation on 31st October, 1979. The reception of data from Pretoria improved greatly due to the changing of the Nairobi-Pretoria RTT link to Satellite link. Nairobi-Offenbach link was upgraded from 50 baud to 75 baud speed on 18th February, 1980.

On the national level, a facsimile circuit between RTH Nairobi and Nanyuki was installed on 8th May, 1980 and, at last, the Nairobi-Mombasa circuit was separated from the sharing system with Dar-es-Salaam on 28th June, 1980.

During the period covered, RTH Nairobi participated, quite effectively in WMO International Coordinated Monitoring of the Operation of Global Telecommunication system which was carried out between 1st and 15th December, 1979, and 1st and 15th June, 1980. On WMO's request, RTH Nairobi carried out the monitoring of the flow of RTH Kano data into RTH Nairobi between 15th January and 15th February, 1980. The flow of Seychelles data was also monitored for 15 days between 1st and 15th April, 1980.

3.9 Engineering

Throughout the period under review, the engineering section experienced an acute shortage of trained personnel. This was due to the fact that several posts remained vacant and quite a number of engineers continued to attend short-term courses in France in connection with the supply of French equipment to the Department. The section had 25 vacant posts in Job Groups 'H' and 'J', and two Assistant Teleprinter Mechanics and one Engineering Assistant vacated office.

Maintenance work in engineering was greatly hampered by non-availability of spare parts but, the staff tried their best to keep the services going. 1290 V.F.T. supplied by USA under VCP was installed and work to install a Plessey Radar at Moi International Airport, Mombasa was started. Single Side Band (SSB) installation was carried out at Lodwar. Radiotheodolite aerial was also installed at Garissa.

Poor supply of valves rendered the operating power and most of our transmitters low. Kano circuit transmitter was put back to service and R.F. communication transmitter meant for Pretoria circuit was commissioned by an engineer from USA. The Mogadicio circuit aerial was burnt and temporarily repaired by contractors - a new one was bought but, tenders for its installation were still in progress towards the end of the period. The aerial installed for Brazzaville had its feed stollen and tenders for its repair were also still in progress. Also installed was a frequency synthesizer for Nairobi-Cairo which was supplied by U.K. under WMO Voluntary Co-operation Programme.

3.10 Radio Sonde (Dagoretti Corner)

The two wind receivers, i.e. Vaisala Radiotheodolite Wind Finding System and WF 3 Radar, worked satisfactorily during the reporting period. On two occasions, the O-Main Aerial Cable for the Radiotheodolite was damaged by groundsmen working on the Meteorological compound and this affected wind reports on those occasions.

4. General Services Division

4.1 General

The Division is responsible for natural resources activities of the Department which include Climatology, Data Processing, Agrometeorology and Hydrology. In addition, Instruments, Printing and Observatories fall under the Division. The Division maintains liaison with the Ministries of Agriculture, Natural Resources and Environment, Water Development, Livestock Development and other relevant Government Ministries in matters related to Climatological Data. Further, it works closely with UNEP and WMO on environmental, climatological and desertification issues.

4.2 Weather in Kenya

The twelve month period has been characterised, in most areas, by rainfall totals that were below the long term averages. Between July and December 1979, most areas with the exceptions of west and the coast were at least 20% below the average. During the first six months of 1980, with the exceptions of the Coast Province, North Eastern Province and the lower lying areas of Eastern Province rainfall totals were at or fairly near average although most of the rain was recorded in the month of May, with deficits in April.

Western Province

Only in the higher lands of Kakamega District were the rainfall totals for the July to December 1979 period about normal. Deficits of the order of 20-40% of the average were reported in most other areas of the Province. The period January to June 1980 was characterised by nearer average totals although, at most stations, most of the rain fell in May.

Nyanza Province

Total rainfall for the period was, in the northern districts, generally about average. In the remainder of the Province totals were

variable. The July to December 1979 period recorded about average falls but during the second half of the year totals were generally deficient by between 15 and 30%. In general rainfall totals in May 1980 were within the normal range for that month.

Rift Valley Province

In the northern districts, the highlands west of the Rift Valley and Narok District rainfall totals were between about 50 and 70% of the normal during the first six months of the year. Remaining areas of the province recorded between 70 and 90% of the average. In the months January to June 1980 the southern half of the Province reported rainfall at or somewhat below the average and the northern Districts, in general, 20-40% below the average.

Central Province and Nairobi

The Short rains of November and December 1979 were generally a little below normal and the totals for the first six months of the period ranged between 70 and 90% of the average. With the exceptions of parts of Muranga and Nyeri Districts, rainfall in the January to June 1980 period was nearer to normal particularly in Nyandarua District and the western parts of Kiambu District.

Eastern Province

The Short rains of November and December 1979 were generally well distributed but a little below average in Machakos, Embu and Meru Districts. The lower areas of the Province were deficient in rainfall during the July to December 1979 period by about 40% of the normal. A similar pattern of rainfall was recorded during the months of January to June 1980.

North Eastern Province

The total rainfall for the twelve months varied but was generally well below average - Mandera recording on 45% of the long term average. Very variable amounts of rain were reported during the July to December 1979 period and in the following six months well below average totals were received - Garissa with only 18% of its average being particularly deficient.

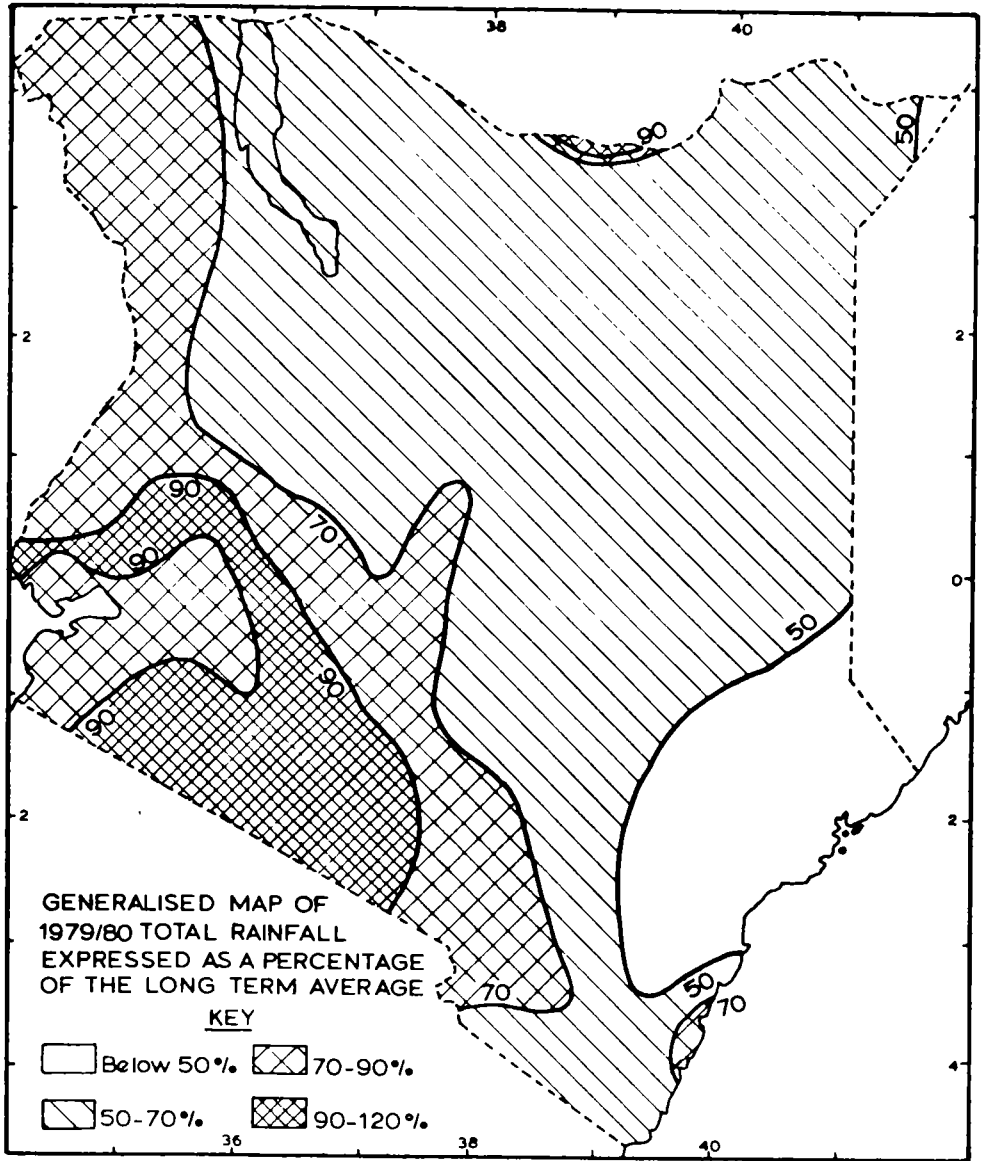
Coast Province

With the exception of the coastal strip between Kilifi and Mombasa and Taita District, which reported about 70% of the normal, most areas of the Province were deficient in rainfall during the year. Inland areas reported about 55% of the average for the year and were particularly low during the January to June 1980 period.

**Annual Rainfall Totals for the period July 1979 to June 1980 and
the Percentage of the long term Mean**

STATION	TOTAL (mm)	% OF MEAN
<i>Western Province</i>		
Bungoma	1035	67
Kaimosi	1987	97
Kakamega	1063	82
Busia	924	53
<i>Nyanza Province</i>		
Kisumu	1269	96
Kadenge	1213	106
Kisii	1498	63
<i>Rift Valley Province</i>		
Lodwar	153	80
Kitale	931	78
Eldama Ravine	916	82
Nandi	1846	116
Rumuruti	499	72
Kericho	1410	85
Njoro	853	85
Nakuru	944	97
Naivasha	705	112
Narok	686	92
Magadi	411	97
<i>Central Province and Nairobi</i>		
Nyahururu	950	79
Nyeri	680	73
Muranga	923	77
Kiambu	997	96
Limuru	1320	99
Nairobi	996	95
Thika	777	88
<i>Eastern Province</i>		
Marsabit	484	57
Meru	983	72
Machakos	591	84
Mwingi	520	68
Endau	423	52

STATION	TOTAL (mm)	% OF MEAN
<i>North Eastern Province</i>		
Moyale	632	92
Mandera	119	45
Wajir	168	61
Garissa	204	62
<i>Coast Province</i>		
Lamu	364	40
Malindi	579	54
Mombasa	719	68
Voi	509	92
Taveta	571	80



4.3 Agrometeorology and Agromet Observatories

The section remained understaffed following the resignation of meteorological assistants and the expiry of contract of two agrometeorologists. However, the Headquarters office was reinforced by Mr. Matheka who rejoined the section after serving for about a year at Jomo Kenyatta International Airport.

Little expansion was accomplished as only one new station, Mtwapa was established during the year. The following is the list of Agrometeorological stations in the country:- Kabete, Katumani, Kitale, Nyeri, Embu, Meru, Nyahururu, Kakamega, Njoro, Thika, Kisii and Mtwapa.

The section continued its involvement in the following research investigations:- Crop/weather relationship, soil moisture status, Armyworm research project.

4.4 Hydrometeorology

The Hydrometeorology Unit continued to function under the Climatology section since the training programme for a Hydro-meteorologist is not yet complete. The unit worked closely with the Water Department and the Hydromet Survey Project of Lake Victoria.

The Hydromet unit maintains a network of rainfall measuring stations throughout the country. There are over 1,500 rainfall stations. The rainfall Inspector made one inspection safari during the year to Meru, Samburu, Isiolo and Laikipia Districts. Two recruitment safaris were made covering Kitui, Tana River, Kilifi, Taita Taveta and Machakos Districts. During these safaris, a total of 100 new stations were recruited and 60 raingauges and 70 measuring glasses were replaced. The inspection safaris were delayed due to lack of measuring glasses which have to be imported.

4.5 Climatology and Data Processing

The principal activities of the Climatological and Data Processing sections is the routine processing and archiving of Meteorological Data from stations all over the country and the preparations and issuance of routine and non-routine summaries to our user agencies. Data Processing is now semi-computerized with

the use of magnetic tapes for storing the Data. The Meteorological charts are stored in micro-films.

During this period, data from 23 synoptic stations, 32 temperature stations, 54 Agrometeorological stations and 1142 rainfall stations were processed for putting onto magnetic tapes. 8640 Meteorological charts and 552 registers were stored in micro-films. Enquiries made by letters, telephone calls and personal visits totalled over 400 during the year.

We suffered several constraints within our Machine Room with the Electrical Card Punching Machines withdrawn by ICL resulting to use of manual punching machines. Further, we were unable to convert our Key-Edit Unit to 9-tracks in conformity with the developments made by the University computer with whom we work closely. Negotiations are once again under way to try and carry out this job during the next reporting period. During this same period the rationing of electricity affected our work output.

4.6 Training Activities

The Division was co-ordinating the training activities of the Department as a whole. The Department gives a lot of emphasis on training of professionals on specialized fields as well as the participation in seminars that are of relevance to Meteorology.

The following local and overseas training including seminars were attended during the year:-

- (a) Under the Voluntary Co-operation Programme (VCP) which is operated by the World Meteorological Organization in Geneva, we trained the following:-
- Two Engineering Technicians were trained in USA.
 - Four Technicians were trained in the U.K. in the field of Radar and Telecommunications.
 - One Meteorologist attended a training seminar in the USA on the field of satellite Meteorology.
 - One Meteorologist continues to attend a Post-graduate course in Agricultural Meteorology in U.K.
 - The network officers and rainfall inspector participated in a training seminar held in Cairo.
 - One Meteorologist participated on a seminar on Climate variability in Italy.

One Meteorologist returned from a successful Post-graduate course in Hydrometeorology held in Hungary.

- (b) Six Engineering Technicians attended various courses in France connected with the new equipment that is being supplied through a French Loan Agreement. The training covers the field of satellite picture transmission, Telecommunications equipment i.e. receivers and transmitters, micro-wave equipment e.t.c.
- (c) Nine Instrument Assistants continue to attend a course at the Kenya Polytechnic leading to Diplomas and Technician certificates of East African Examinations Council.
- (d) Four Instruments Assistants were trained in WMO Class IV course to widen their knowledge on Meteorological equipment.
- (e) Nine Communications Assistant trainees attended a basic Communications course at the East African School of Aviation.
- (f) Seven Senior Communication Assistants and two Assistant Communications officers attended a six weeks supervisors course at the East African School of Aviation.
- (g) Eight Communications Assistants attended a Communications Operations course at the East African School of Aviation.
- (h) Two Senior officers attended a Personnel Management course at KIA.
- (i) 18 Security Guards were trained for a period of three weeks at the Administrative Police Training College at Embakasi.

4.7 Observatories

During this period the Principal Meteorologist in charge of Observatories physically inspected the Meteorological stations in the Coast and Northern regions. At the end of the period, arrangements for inspection of stations to the Western regions were completed. Although no new stations were opened during this period, Eldoret station was upgraded from 18-hour observing station to 24-hour

observing station. It is the intention of the Department to upgrade all stations to 24-hour with the improvement of staff situation.

A lot of progress was made in developing the existing stations by putting up staff houses and office accommodation. It is the intention of the Department to house all staff in the outstations in Departmental quarters since they are expected to work at odd hours.

The networks officer whose primary duty is to supply stores to outstations visited the whole of the republic. As a result, we had very few complaints of lack of stores and this improved the standard of performance in the outstations. 18 stations did pilot balloon work and there was a significant improvement in the work over the previous reporting period.

The following now is a full list of our national network as well as the report of pilot balloon ascents:-

24-Hr. Stations 21-Hr. Stations 18-Hr. Stations 12-Hr. Stations

Embakasi	Meru	Voi	Nyeri
Mombasa	Nakuru	Makindu	Moyale
Malindi	Eldoret	Narok	Thika
Kisumu		Lodwar	Machakos
Kitale		Mandera	Kisii
		Marsabit	Nyahururu
		Embu	Kabete
		Lamu	
		Wajir	
		Wilson	
		Garissa	

ASCENTS MADE BETWEEN 1-7-79 TO 30-6-80

Station	No. Possible	No. Made	Percentage	No. Above 1500 Ft.	Percentage	Highest in Feet	Date
1. Lodwar	732	698	95	327	46	64690	27-8-79
2. Nakuru	732	638	87	524	82	66141	6-2-80
3. Kisumu	732	636	86	423	66	54269	26-10-79
4. Mombasa	732	569	77	117	20	54202	3-4-80
5. Narok	732	558	76	293	52	62700	22-2-80
6. Makindu	732	528	72	172	32	62780	2-5-80
7. Marsabit	732	468	63	321	68	56913	25-2-80
8. Kitale	732	466	63	324	69	64200	29-5-80
9. Eldoret	732	413	56	316	76	48499	29-10-79
10. Malindi	732	410	56	98	23	52570	6-11-79
11. Nyeri	732	404	55	122	30	43400	7-5-80
12. Garissa	732	387	52	124	32	54982	19-4-80
13. Voi	732	386	52	66	17	55390	19-3-80
14. Meru	732	336	45	179	53	55100	27-2-80
15. Moyale	732	289	39	100	34	53600	13-1-79
16. Wajir	732	266	36	38	14	38300	9-12-79
17. Embu	732	222	30	102	45	34900	14-12-79
18. Mandera	732	204	27	80	39	36255	23-11-79

4.8 Services to public including enquiries, Shows e.t.c.

The Division continued to serve the public through answering enquiries, which were made both in person, by letter or by telephone. The details of climatological requests that were attended to are given under 4.5. The Department for the first time participated in the Mombasa Show and put up an impressive display. It continued to participate in the 1979 Nairobi International Show.

The Department was called upon by the Government to coordinate activities concerning the Eclipse that occurred in February, 1980.

4.9 Instruments

The Instruments Section has the primary duty of maintaining meteorological Instruments in the Department. It has embarked on production of simple meteorological equipment and therefore saves the Government a lot of foreign exchange. The Instruments personnel managed to visit all the stations in the republic repairing and calibrating the equipment. They were also involved in the Airport development work by installing suitable Instruments. Most of the staff were attending training courses at the Kenya Polytechnic.

4.10 Printing Section

The Printing Section of the Department is responsible for the printing of operational forms and publishing meteorological memoirs, pamphlets, Agrometeorological data, Research Reports e.t.c. During this period the section continued to work with obsolete equipment and had problems in coping with heavy work load. The section printed material for some other Ministries on request. By the end of the reporting period, tendering for new printing machines had been completed and delivery was expected at the beginning of the next reporting period.

A total of 76,389 different books were printed and 1494 books were bound. Several Research Reports were printed and a lot of material for the solar eclipse were printed also.

5. Institute for Meteorological Training and Research

5.1 Administrative and support services

5.1.1 Staffing

During the period, the running of the Institute Hostel was improved by the employment of a qualified house-keeper. The end of

the period saw a lot of movement among the teaching staff of the Institute. The duties of co-ordinating training which were being performed by Mrs. Mwebesa were assigned to Mr. L.N. Njau. The co-ordination of research activities which was being done by Mr. P. A. Mwingira was assigned to Mr. R.E. Okoola.

5.1.2 Accounts and the Stores

During the period covered by the report, the revenue collected at the Institute was as follows:-

Hostel charges	K.Shs. 268,756.00
Tuition fees	K.Shs. 87,290.00
Sale of Departmental Publication (by library)	K.Shs. 3,340.00
Sale of Tea/ Coffee	K.Shs. 3,352.50

5.1.3 Institute Hostel

The number of Institute Hostel residents ranged from 90 to 118. Besides our students, we also offered accommodation to students from East African School of Aviation, Strathmore College and the Kenya Polytechnic.

5.2 General Services

5.2.1 Library Services

During the period under review, the Library continued to offer its services to the academic staff, research workers, students and professional users outside the Department.

During the Mombasa and Nairobi Agricultural Show, the Library sold many Departmental Publications to the public.

Departmental publications continued to be of great demand by Institutions, Industrial and Commercial concerns, researchers and individuals. Two titles in great demand were 'Summary of rainfall in Kenya, Tanzania and Uganda as far back as 1960', and 'Meteorological data recorded at agricultural, hydrological and synoptic stations in East Africa, from 1963'.

A training course for Library Assistants working in special Libraries was held at the Institute. The participants were sponsored by Co-ordinating Centre for Regional Information Training (CRIT), the British Council and the Kenya Library Association.

One of our Library Assistants, Mr. H.M. Maraigua took part in the course. The Principal of the Institute, Mr. J. Kagia Njihia was

one of several people who addressed the participants, lecturers and invited guests during both the opening and closing sessions of the course. The Library experienced a great demand by the general public of the pamphlet 'Total Solar Eclipse, February 16th 1980'. Various institutions, schools and foreign embassies in Kenya received copies of the pamphlet, too.

The Library received, through the British Council in Kenya, a big consignment of books to the value of £3,000, a grant, by the Overseas Ministry of Development (United Kingdom). A formal presentation of these books was made by Dr. Barrot, the British Council Representative in Kenya. The books were received by the Deputy Director, Mr. A.L. Alusa. We are all very grateful to the British Government for this grant.

The Librarian made a successful inspection visit to the Mombasa Branch Library where he solved a number of problems confronting the staff. One library clerk will be sent to Mombasa to manage the Branch Library after undertaking some library training at the Kenya Polytechnic, Nairobi.

Books and periodicals ordered through the Crown Agents Indent started arriving. The Library is subscribing to the following new titles during 1980. 'Hydrological Sciences Bulletin', 'Electronic Design', 'Agronomy Journal', 'Library Trends', and 'Journal of applied Ecology'.

5.2.2 *Library Statistics*

New publication (periodicals, non-accessioned)	1770
Departmental publications issued	1080
Books borrowed	1055
Books bound (by Department's printing section)	124

5.2.3 *Research papers published as Departmental Publications*

- (a) The Nairobi heat island - by R.E.A. Okoola.
Research Report No. 4/78 published in August 1979.
- (b) Graphical methods for forecasting minimum temperature at Jomo Kenyatta International Airport - by M.N. Mwebesa.
Research Report No. 5/79, published in August 1979.
- (c) Vertical profiles of horizontal divergence over Nairobi area, Kenya - by R.E.A. Okoola.
Research Report No. 6/79 published in August 1979.

- (d) The relationship between plant density, global radiation and yield of maize crop - by J. Kagia Njihia. Research Report No. 7/79, published in August 1979.
- (e) Diurnal variation of precipitation in East Africa - by G.C. Asnani and J.H. Kinuthia. Research Report No. 8/79, published in September, 1979.
- (f) Atmospheric pollution potentials over Africa by J.K. Patnaik, J.K. Ng'ang'a and P.M.R. Kiangi. Research Report No. 1/80, published in January, 1980.
- (g) Net radiation over a banana field at Mombasa and its relation to global radiation - by P.A. Mwingira. Research Report No. 2/80, published in January, 1980.
- (h) Studies on fog occurrence at Jomo Kenyatta Airport by M.N. Mwebesa. Research Report No. 3/80, published in January, 1980.
- (i) The influence of low tropospheric flow on the onset of the summer monsoon over India in June 1979 by B.S. Nyenzi. Research Report No. 4/80, published in January, 1980.

5.2.4 Departmental Publications reprinted

- (a) A moisture/stability index as an aid to local forecasting in East Africa by H.W. Sansom. Technical Memorandum No. 9, first published in 1963.
- (b) Probable maximum precipitation (PMP) in East Africa for durations up to 24 hours by F.E. Lumb. Technical memorandum No. 16, first published in 1971

5.3 Training activities

During this period, a number of courses were held at the Institute for various cadres of meteorological personnel. The Institute continued to give lectures to non-meteorological trainees from the East African School of Aviation and the Water Development Staff Training School. Two Instructors travelled to the former school to give lectures on aeronautical meteorology, while

trainees of the latter school came to the Institute on Saturday mornings for lectures on general meteorology and meteorological instruments.

At the beginning of July, a special basic course for University of Nairobi second year students - who were going to take meteorology in their third year - was held at the Institute.

During the period under review, one Instructor successfully completed his Master of Science Degree in Meteorology, eight Instructors were working on their thesis, and one Instructor was in his first year of undergraduate studies leading to Bachelor of Science Degree in Meteorology.

A summary of courses held at the Institute is tabulated in the following page.

DETAILED SUMMARY OF THE COURSES HELD AT THE INSTITUTE DURING THE PERIOD UNDER REVIEW

Course	Kenya	Uganda	Tanzania	Malawi	Zambia	Botswana	Nepal	Lesotho	Seychelles	Ethiopia	Somalia	Zimbabwe	Total No.	Successful No.
WMO Class IV Course B. 40 26-6-79 to 19-10-79	34	10											44	36
WMO Class IV Course B. 41 14-1-80 to 9-5-80	33							2			1		36	32
WMO Class IV Course B. 42 19-5-80 to 12-9-80	30							6					36	
WMO Class II Course No. MOC 15 16-1-78 to 7-12-79	4	3	3		2			1	3	5	1		22	18
WMO Class II Course No. MOC 16 8-1-79 to 5-12-80	2		9	2	3	4		1	2				23	
WMO Class II Course No. MOC 17 7-1-80 to 4-12-80	6					1			2	2			16	
WMO Class III Course No. AOC I 8-1-79 to 7-9-79	15												15	14
WMO Class III Course No. AOC 2 7-1-80 to 10-10-80	12		7										19	
Specialized Course in Agromet Course No. 5A 18-1-79 to 6-7-79				2			1						3	3
Specialized Course in Agromet Course No. 6A 30-1-80 to 1-8-80			3										3	
Operational Training Course No. 9 (OTC) 16-7-79 to 30-11-79	11							1					12	10

Note: *Course still in progress.

5.4 Research Activities

5.4.1 Research completed during the period

Nine research projects were completed during this period and these have been published as research reports - see section 5.2.3.

The following other research projects were completed but had not been printed by the end of the period under review:-

- (a) Climatological aspects of air pollution dispersion in Nairobi - by J.K. Ng'ang'a.
- (b) Measurement of diffuse solar radiation at Dagoretti Corner - by P.A. Mwingira.
- (c) The distribution of actual evaporation/evapotranspiration over East Africa - by B.S. Nyenzi.
- (d) The Interpolation of rainfall in the Nairobi area by S. Nicuwolt.
- (e) The influence of maize density on mean air temperature distribution - by J. Kagia Njihia.

Mr. R.E. Okoola participated in the Monex Field Phase Experiment in India during the reporting period.

5.4.2 Research Programmes in Progress

- (a) Army-worm research continued throughout the period. Two Meteorological Assistants were deployed to help the Muguga scientists in pilot balloon work during the field phase experiment near Lukenya hills.
- (b) Total Solar Eclipse - 16th February, 1980. Local and international scientists converged at the Kenya Coast to observe and measure meteorological parameters during the eclipse. Messrs A.L. Alusa, P. Mwingira, B.S. Nyenzi and J. Waioto were still working on the solar eclipse data at the end of the reporting period.
- (c) The stability of the monsoon flow over the central Arabian sea during June, 1979 - by R.E. Okoola. This research report is nearly completed.
- (d) Use of Weibull Distribution in modelling pentad rainfall by S.B.B. Oteng'i. This research report is nearly completed.
- (e) Diagnostic mesoscale study of Lake Victoria - by G. Obua.

- (f) Development of numerical weather prediction models for East Africa - by N. Pyuzza and D. Wambura.
- (g) Diurnal and seasonal variation of precipitation in East Africa - by A.W. Majugu.
- (h) Tropospheric wave disturbances in East Africa - by L.N. Njau.
- (i) A study of the water and energy balance for particular crops - by P. Olunga.
- (j) Fluctuations in the intensity of the monsoon circulation at the equator and to the South during the period June to August 1979 - by R.E. Okoola.
- (k) Fog forecasting at Jomo Kenyatta Airport - by J. Wairoto.
- (l) Condensation nuclei at the Kenya Coast - by W. Mtuli (Miss).

5.5 Mt. Kenya Baseline Station

The Mt. Kenya Project continued its Bridging Operation activities by maintaining;

- (a) Observations from an Automatic Weather Station at Timau Hill, the selected site for the establishment of Mt. Kenya Baseline Station for Background Air Pollution Monitoring Network (BAPMON) for climatic change.
- (b) Measurements of atmospheric condensation nuclei (CN) by means of small particle detector, the Gardner CM Counter, and
- (c) precipitation collection for precipitation chemistry at Meru Station, a recommended site near Timau Hill.

During the period under review, three visits were made to the Timau Hill site. The first visit was between 13th and 15th September 1979. The second visit to the site fell between 10th and 12th January, 1980. The third trip was between 6th and 8th March 1980. In all the three occasions, measurements of atmospheric condensation nuclei (CN) concentrations were carried out. During the occasions the Instruments Officer, Mr. P. Kahutu continued maintaining the Automatic Weather Station. On 7th March 1980, in the last trip

during the period, the Project co-ordinator was accompanied by an East African Power and Lighting Company Engineer and a mountain guide. The primary objective of the Engineer's visit was to study the Timau Hill site and look into the possibilities of having electric power installation. After the visit the Company Engineer was able to pass his recommendations to the Department regarding the power installations.

The hiring of equipments at Naro Moru River Lodge continued still at exorbitant charges. To curb the situation, participants had to minimise the hiring of equipments even though extreme weather conditions continued to prevail at the mountain. The hiring of the services of a mountain guide was done during the three occasions.

The Bridging Operation activities experienced a major drawback when the Automatic Weather Station broke down. The station started functioning again on 11th January, 1980. Two months later the station had a major breakdown on 7th March, 1980. The long rains of April and May rendered other trips to the Timau Hill impossible. There was also no immediate replacement due to lack of a spare station. However, the Bridging Operation phase expired before June 1980 according to the recommendations of the Scientific Advisory Working Group (SAWG) meeting held between 27th to 30th June 1978 which recommended a duration of 18 months effective from July 1978. The expiry of the Bridging Operation phase will not hamper installation of an Automatic Weather Station but CN monitoring will be discontinued until another phase of the Project programme is initiated. However, the precipitation collection at Meru Station, already well in advance will continue as it forms a complete network of stations for precipitation sampling.

6. Administrative, Finance, Planning and Supplies Division

6.1 Staff Administration

The post of Senior Executive Officer created after the collapse of the East African Community was filled. The administrative duties which were being performed by a Principal Meteorological Officer were transferred to the Senior Executive Officer.

Contracts of 32 non-Kenyan expired during the period. 16 of these non-Kenyans were offered further employment but only eleven

opted to renew their contracts.

13 Clerical Officers who had been engaged by the Ministry of Home Affairs during the Registration of Persons Exercise were transferred to the Department.

Resignation of Meteorological Assistants, Communications Assistants and Engineering Technicians continued to be one of the major staff problems in the Department. Private sector and other Ministries who do not train their own personnel normally offer higher salaries to staff from the above cadres. This resulted in poaching of Meteorological staff. The problem is likely to continue unless there are openings for promotion in the cadres.

6.2 Accounting Services

The Financial Year 1979/1980 was closed on 30th June, 1980. According to the books of Accounts, the position regarding our finances as at the close of the year was as follows:-

	Approved Estimates K.Shs.	Actual Expenditure K.Shs.	Balance K.Shs.
Recurrent Expenditure			
Headquarters and Outstations	33,375,300	25,664,100	7,711,200
Training	<u>7,549,100</u>	<u>2,171,460</u>	<u>5,377,640</u>
	<u>40,924,400</u>	<u>27,835,560</u>	<u>13,088,840</u>
Development Expenditure	23,200,400	10,225,660	12,974,740
Appropriation- in-Aid			
	Estimated	Realised	Excess
Headquarters	10,000	136,380	126,380
Training	<u>600,000</u>	<u>810,180</u>	<u>210,180</u>
	<u>610,000</u>	<u>946,560</u>	<u>336,560</u>

There was no change in the Accounts Staff. However, three Clerical Officers were released to take ACNC II Courses at Mombasa and Maseno. I am glad to report that two officers completed the course successfully.

6.3 Planning and Development

6.3.1 Estimates

The Estimates for 1979/80 had an increase in Telecommunications Equipment from K.Shs. 4,000,000 to K.Shs. 8,000,000 and the Staff Housing at Headquarters was allocated K.Shs. 500,000. K.Shs. 6,000,000 was allocated to staff housing and offices at the Out-Stations where we had very encouraging activities. During the year, the Estimates for 1980/81 were also prepared and submitted to the Ministry. The outstanding sections of the Estimates were; the new Sub-Heads for Food and Rations, Meteorological Instruments, Training Expenses and the French Loan Facilities were included and accepted by the Treasury. The record figure of K.Shs. 12,000,000 for the construction of houses and offices at the Out-Stations was approved. The construction of staff houses and offices for six new Stations were also included namely:- Kitale, Meru, Marsabit, Mandera, Mombasa and Makindu. The 5-year plan ending 1983 was updated.

6.3.2 Access Road and Parking Space

The work which stopped the previous year resumed but progress was poor. About 60% of the project had been completed by the end of the reporting period.

6.3.3 On-Going Projects

The staff Housing and offices at Lodwar, Eldoret, Garissa, Moyale, Narok and Headquarters were under construction with the exception of Eldoret where the Contractor abandoned the site and had his contract determined. The work at Garissa progressed but at a rather slow rate. The Showground building roof was completely over-hauled and the Mombasa Showground stand was built. The Contractor at Voi just started work towards the end of the Financial Year. During the year, there were minor snags like the fencing of the Headquarters compound which did not come off the ground because the firm which won the contract was incompetent. The maintenance of the air-conditioning at the RTH was not done properly by the Ministry of Works. The boiler at the Institute was also not properly maintained by the Ministry of Works. It was recommended that some of these essential services should be removed from the Ministry of Works and given to private firms who, in any case, are the experts and the suppliers of these equipment. The

Ministry of Works, Nairobi area completely failed to repair the expansion joint at the Hostel Building and the leakage at the Institute Auditorium.

6.3.4 New Plans

During the year the Department planned to have an 8-storey building to ease the congestion of offices at the Headquarters and to cater for the new sections which the Department intends to start. The building will house the Printing Section, Archives, Agromet Section, Hydromet Section, Telecommunications Training Unit, Engineering Training Unit, Data Processing Unit, Met. Computer Wing, Radar Section and the Directorate. The attached wing of the building will house the Instruments Section and the workshops for the Artisans. It was also planned to partition the RTH to accommodate the Automatic Switching Unit being provided on the French Loan. The generator building for the Transmitter Station stand-by-generator was also planned during the period.

6.4 Supply Services

The Supplies Section underwent changes both in Personnel and in the Supplies procedures.

Supplies Staff

The Supplies Section was understaffed due to lack of qualified personnel and most of the functions were carried out by a few clerical officers who did not have any training in Government stores procedures. The Head of Supplies services was requested to transfer some storemen to the Department in order to improve the efficiency of the section.

Documentation

Procedures and documentation in accordance with the Kenya Government Supplies Manual were introduced. However, some of the documentation methods were left out as they did not have much relevance in the Department.

Stock Control

Stock control was reorganized and the relevant documents such as S3 cards, dues out records, and monthly issue rate calculations were all introduced. Still many items needed to be deleted from the stores catalogue as they were no longer used.

Purchasing

The section had been streamlined and reorganized into Advertising order placing and progressing of deliveries to ensure smooth continuity of events related to procurement procedures. During the period, seventeen tenders were advertised and concluded although not all the items requested for were delivered by the end of the period. About 276 quotations were invited for the supply of urgent and small quantity items.

Warehouses (Stores)

A special board of survey was called during the reporting period and many obsolete and unserviceable stores boarded and disposed.

There were still a lot of unserviceable stores which have accumulated as nobody offered to buy some of the stores boarded. A Board of Survey was to be called to come and decide on the method of disposal.

Training

Several clerks attended clerical and stores courses at the Kenya Polytechnic. Mr. E. Ogolla was selected for the Supplies Course which was held at Maseno Government Training Institute.

6.5 Transport

During the year thirty vehicles were in good condition and operated well and this enabled a lot of safaris to be made throughout the republic. In all about 100 safaris were made outside Nairobi.

Three vehicles were boarded, sold and replaced by three new landrovers. Recommendation has been made to the Ministry of Transport and Communications for examination and boarding of another five vehicles.

Repair work was carried out to maintain the vehicles in good condition. Five vehicles had their engines overhauled while accident repairs were carried out on eight other vehicles.

6.6 Security

The security section did remarkable work in safeguarding Government property despite the fact that the section was still understaffed. Eighteen security guards from the Department successfully completed in-service training at the Administration Police Training College (APTC) Embakasi.

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