REPORT OF THE DATA MANAGEMENT AND RESCUE TRAINING WORKSHOPHELD AT THE ICPAC, NAIROBI,FOR THE GHA CLIMATE DATA MANAGERS FROM 25TH AND 30TH APRIL 2016

----

1. INTRODUCTION

The training workshop onclimate data management and data rescue (dare) was held at the ICPAC offices in Nairobi between the 25th and 30th of April 2016. Participants were the data managers from the National Meteorological/Hydrological Services (NMHSs) of the Greater Horn of Africa (GHA) region within the jurisdiction of ICPAC. Of the 11 NMHSs, two (2) NMHSs, namely Eritrea and Tanzania were not represented. The Burundi representative arrived one day later than expected.

1: GROUP PHOTO ON THE OPENING DAY

The main objective of this training workshop was to build capacity for the data managers in key concepts of Climate Data management and operational skills expected at their level, in working within the WMO guidelines on climate data management and sharing, and in achievable data rescue concepts and also requirements enabling them to advise the top management on this topical matter

2.1 Country presentations of status of data management and rescue

Each participant represented in the training workshop was able to present its NMHS' status on Climate Data Management and Rescue except for Burundi who came in one day late and following are their summarized below.

2.1.1   DJIBOUTI

Djibouti had one temperature and one synoptic station set up before 1978. The first observations were done in 1901. The meteorological service became an agency in 2013. There is only 1 aeronautical station. All the data is currently held on paper although the Belgium da rescue project of 1985/86 created some micro-fiche. A copy was left in Djibouti while the another was taken to Belgium and recently to ACMAD. There is a major problem of transferring the data from the fiche. It is understood that the IEDRO has provided a machine that is reading the fiche in ACMAD and the resulting image is taken to NOAA. However, no copy has been delivered to Djibouti. Some temperature and rainfall for the years 1950 to 1978 has been digitized by January 2016.

2.1.2   Ethiopia

Observations started between 1890 and 1896. There are 495 aeronautical observations. Most stations are cited along the roads with the interior left devoid f stations. The archives are arranged on shelves except for the sunshine record cards. They have some Automatic Weather Stations (AWS) from which they capture data at 15 minute intervals. This data is transmitted to a central server. They have 2 upper air stations and 4 Automatic Weather Observation Stations (AWOS). They maintain 13 satellite receiving ground stations and a weather radar is in the process of installation. They use CLIDATA Climate Data Management System (CDMS). THE NMHS carried out some data rescue in 2006 with equipment provided by the WMO. 170 stations data were scanned but the rescue is on-going. The challenges they have

- All the data are not yet fully computerized;
- Failure of Data Base Systems at times;
- Lack of trained manpower and fast advancement of technology. Unable to introduce or switch to new technologies at the appropriate time;
- Network lines between head and branch offices not yet functioning properly;
- No well-organized and documented metadata of stations and instruments;
- Data Gaps and length (Most of the stations start recording in the 1970's);
- Lots of data gaps temporally and spatially due to war outbreak,station relocation, instrument failure or break down, absence of observers and leaving the organization without notice, vandalism, representativeness, erroneous measurements, slow maintenance services and the like;
- Acquiring modern instruments needs high budget and using them requires trained manpower;
- Data demand and supply do not agree;

- Data transmission delay or no real time transmission from some stations;
- Getting data from MBD in a wrong data format;
- Dependence on external sources; and
- Money transfer delay through banks.

2.1.3 Kenya

In Kenya the manual and automatic weather stations are sited in the same locations. There is a data rescue system planned in the current strategic plan. However, there bits and pieces of the required system already in place. In data management, only basic quality control is carried out leaving issues such as in-filling and homogeneity checks out. Climatological data observations are concentrated at the areas of high population leaving large areas of the country without observations. In this case the AWS have become really useful. Some challenges include

i. not following project design principles whenever equipment has to be sourced for;
ii. data availability being below 50% per station. Efforts in data rescue include; and
iii. Employment of data clerks who have no meteorological background and therefore do not understand the importance of their work to do key-entry.

Some of the DARE activities that have been done recently include

i. A project of the Government that has employed 40 clerks to do data entry on casual bass; and
ii. A Clinton foundation project (SLEEK) that employed casual key-entry staff for some 9 months and bought some computers for the exercise.

Other data management efforts include a project by ENACTS which deals with data quality control, access, me4rging with proxy data (satellite plus) to cover areas not catered for. They have provided a software known as MAPROOMS but that has a problem as it requires that the climatological data be online.

2.1.4 Somalia

Somalia data collection services collapsed with the civil war of 1990. There are, therefore, a lot of data gaps. Currently there are 7 Automatic Data Systems. There are diverse holders of the Somalia climatological data sets including FAO with data for the period 1961 to 1990. Data from 1991 is held by others but FAO is trying to help get it together. The main challenge is keeping standards of data as there are many people observing it for Somalia.

2.1.5 South Sudan

There is some data from as early as 1924. The data is managed using a CLIMSOFT climate data management system (CDMS).

Challenges include

- Not all data is in CLIMSOFT;
- Difficulties in ingestion of data into CLIMSOFT;
- Maintenance of the AWSs (FAO is supporting but not for long); and
- The war issue.

2.1.6 Sudan

Sudan uses CLIMSOFT climate data management system. They have data since 1900 for the rainfall and maximum and minimum temperature in the CMDS. They had been promised by the CLIMSOFT developers that the Dew Point and Relative Humidity calculations would be automated within CLIMSOFT but his is still pending. MySQL was being used in the CLIMSOFT system. They were making backups as necessary.

2.1.7 Uganda

Uganda has data observed since the beginning of the 20th century. However, the pick data period is the 1960-1970. The issue of aging staff has affected work in the NMHS. Most of the records are on manuscripts. There I s only 1 upper air station on operation. Availability of data is an issue. They have been using CLICOM and CLIMSOSFT for the data management. The Uganda National Meteorological Agency (UNMA) and Makerere University have taken up the challenge of making a CDMS. In the matter of DARE, they have started sorting the data but exercise is not trivial. They have recently renovated the archive and now the manuscripts are in filing cabinets. The IRI ENACTS MAPROOM issue exists for them just like for Kenya. Their main challenges include

- Capacity-building in the field of computing;
- AWS data still stuck in the sensors and not transmitted to the head quarters;
- Lack of patriotism by voluntary observers who now demand compensation
- Uganda digitized 495 rainfall stations under the HYDROCLIMATIC STUDY project of (1999-2001). However some of this data is stuck in CLICOM which has become obsolete before it was migrated to Climsoft.
- Subsequent project helped to digitise the data from the 2003 to 2005 data but lack of a proper functioning CDMS hinders progress.
- The personnel who had skills in CLIMSOFT and CLICOM retired creating a skills gap in the in using modern CDMS

2.1.8 Rwanda

Rwanda has data from 1906 to date. They have a weather radar. They are transmitting Table Driven Code Format messages to Nairobi through the CLIMSOFT CDMS. They have a networked AWS system and use mobile phones for provision of weather data to users.

They have MAPROOM services. They are currently scanning paper data for DARE but are challenged with the size of scanners in use because they are smaller than some of their paper forms.
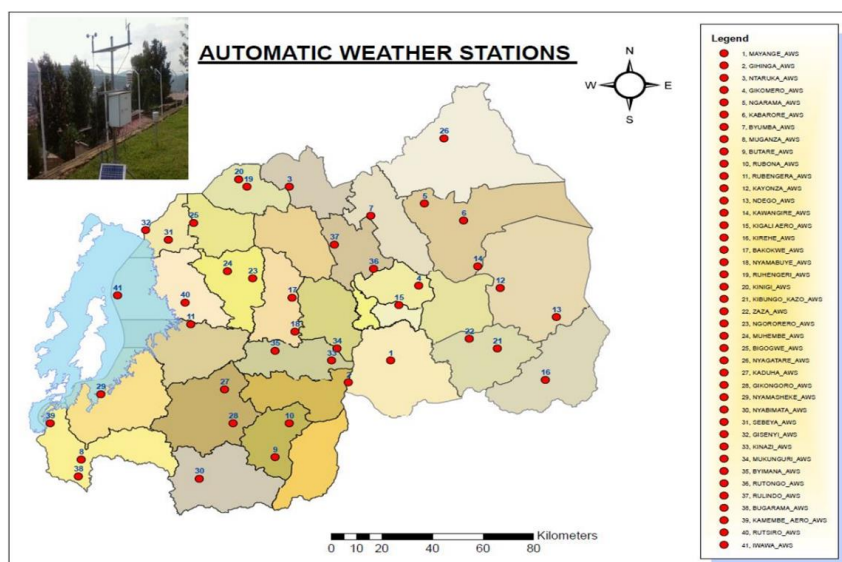
Figure 2: MeteoRwanda network of AWSs

3.0 list of participants

Following is the list of participants from the IGAD NMHSs

LIST OF PARTICIPANT IN THE DATA MANAGERS TRAINING WORKSHOP FROM 25th-30th APRIL 2016

#	Name	Institution	Country	Email Address
1	Mujuni Godffrey	UNMA	Uganda	grmujuni@yahoo.com
2	Emmanuel Quirino Nijak	South Sudan Met service	South Sudan	equrino@yahoo.com
3	Melesse Lema	Ethiopia NMA	Ethiopia	mellemma2001@gmail.com
4	Mr. SAID Ali DARAR	DMTO	Djibuit	darar2012@gmail.com
5	Mr David Muchemi	KMD	Kenya	dmuchemi@bluebottle.com
6	Mrs. Eman Hassan Sultan	SMA	Sudan	emansultan_met@hotmail.com
7	Euphraim Ntirampebwa	IGEB BURINDI	Burundi	emphraim5int@gmail.com
8	Ms Blandine MUKAMNA	Meteo Rwanda	Rwanda	mublandy@gmail.com
9	Eng Abdolahi Adawe	Somalia New Met service	Somalia	cadaawe100@gmail.com
10	Janet Loningo	TMA	Tanzania	janet_ole2001@yahoo.com>
11	-	-	Eretrea	
	Mr. SAID Ali DARAR		Djibuit	DARAR2012@GMAIL.COM