

# KENYA

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**WMO OMM**

World Meteorological Organization

Organisation météorologique mondiale

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# Outline

## **I. Brief introduction to the country and the NMHS**

The present Kenya Meteorological Department (KMD) started as a small colonial service for East Africa way back in 1929, called the British East African Meteorological Service (BEAMS), to provide meteorological and climatological services to various sectors of the economy.

# Outline Cont'd

## I. Brief introduction to the country and the NMHS

KMD became a Department of the Government of Kenya in 1977 from the previous East African Meteorological Department (EAMD) after the collapse of the East African Community (EAC).

# Outline

## II. Current national observing capabilities

- i. Operational stations (both NMHS and other national organizations)

39 Manned Surface Synoptic Stations, 14 of which are Agrometeorological stations —

4 Marine Tidal gauges with automatic Met sensors.

3 UpperAir stations in Nairobi, Lodwar and Garissa



# Outline Cont'd

## II. Current national observing capabilities

- i. Operational stations (both NMHS and other national organizations)

251 Automatic Weather Stations (AWSs)

4 Airport Weather Observation Systems (AWOSs)  
at JKIA, Eldoret Airport, Kisumu & MIA

17 Hydromet AWSs for water catchment areas

Rainfall Stations

Over 1000 rainfall stations most of which are operated by Voluntary Observers

# Outline Cont'd

## II. Current national observing capabilities

- Operational stations (both NMHS and other national organizations)
- **Remote Sensing** with 3 Satellite ground receiving stations (2 for MSG and 1 for NOAA satellite data)
- **Pollution Monitoring** comprising of 1 Global Atmosphere Watch station on Mt. Kenya, 2 stations in Nairobi (measuring ozone, SO<sub>2</sub>, CO, CO<sub>2</sub> etc) as well as one Mobile pollution monitoring system
- **Tsunami Early Warning** with four (4) tidal gauge stations (*Lamu, Malindi, Kilifi and Shimoni*) which are for detection and measurements of multi-hazard, ocean waves, sea level rise, salinity, sea surface temperature and water quality as well as tsunami detection at the Coast.
- **4 Lightning and Thunderstorms detection systems**  
*in Nairobi, Mombasa, Kisumu and at Eldoret*



# Outline Cont'd

## II. Current national observing capabilities

### ii. Known issues and major challenges

Out of 142 AWSs, 21 AWSs are operational but with minor issues. However, the remaining 121 AWSs are not working due to either major or minor issues or both ranging which include lack of airtime, expired SIM cards, faulty batteries, faulty/broken cables, sensors, solar panels, broken radio links, network and other issues. Notably, all the 4 Tidal Gauges (Marine AWSs) at the coastal region are obsolete/not operational. Some of the major issues include requirement for AWS relocation (re-siting), provision of security and new AWSs installation to replace irreparable ones.

# Outline Cont'd

## III. Existing plans for any future changes to the networks

- There is a plan to increase the existing synoptic stations from the current 39 to 60
- The repair and maintenance of the 121 AWSes
- Replacement of all mercury-based instruments within year 2020
- In the National Vision 2030, the NMHS plans to modernize Meteorological services and to do Weather Modification. This will demand a change in Met. Observing instruments (e,g. Weather Radars etc) and observation network design, among others



# Outline Cont'd

## IV. Other remarks

- To achieve the plans indicated above, the NMHS-(KMD) requires developments partners as the Government funding gets lower every year.

# Brief introduction to the country and the NMHS

## (1 slide)

Short overview of the country

- Physical context of the country
- The **geography of [Kenya](#)** is diverse, varying amongst Kenya's [47 Counties](#). [Kenya](#) has a coastline on the Indian Ocean, which contains swamps of [East African mangroves](#). Inland are broad plains and numerous hills.
- Central and Western Kenya is characterised by the [Kenyan Rift Valley](#) and central province home to the highest mountain, [Mount Kenya](#) and [Mount Elgon](#) on the border between Kenya and Uganda. The [Kakamega Forest](#) in western Kenya is a relic of an East African rainforest. Much bigger is [Mau Forest](#), the largest forest complex in East Africa.



# Brief introduction to the country and the NMHS

(1 slide)

## Short overview of the country

- Physical context of the country

Total: 582,650 km<sup>2</sup>,

- Land: 569,140 km<sup>2</sup> (219,750 sq mi)
- Water: 11,227 km<sup>2</sup> (4,335 sq mi)

# Brief introduction to the country and the NMHS

## Cont'd

### Short overview of the country

- Climate, including extreme events
- The climate of Kenya varies by location, from mostly cool every day, to always warm/hot. The climate along the coast is tropical. This means rainfall and temperatures are higher throughout the year. At the coastal cities, Mombasa, Lamu and Malindi, the air changes from cool to hot, almost every day.
- The further inside Kenya, the more arid the climate becomes. An arid climate is nearly devoid of rainfall, and temperature swings widely according to the general time of the day/night. For many areas of Kenya, the daytime temperature rises about 12 °C , almost every day.



# Brief introduction to the country and the NMHS

## Short introduction to the NMHS

- **Mandate**

- a) Protection of life and property;*
- b) Safeguarding the environment;*
- c) Contributing to sustainable development;*
- d) Promoting longterm observation and collection of meteorological, hydrological and climatological data, including related environmental data;*
- e) Promotion of endogenous capacity building;*
- f) Meeting international commitments;*
- g) Contributing to international cooperation.*

# Brief introduction to the country and the NMHS

(Cont.)

## Short introduction to the NMHS

### Infrastructures

- Data Observational systems and network;
- Data telecommunication systems and network;
- Data procession, analysis and forecasting systems;
- Product and information dissemination systems;
- Human resource capital

# Short introduction to the NMHS Cont'd Staff

- About 270 MET Technologists AND PRINCIPAL Technologists
- About 20 MET. TELECOMMUNICATION OFFICERS
- About 100 MET. COMMUNICATION OFFICERS
- About 7 ENGINEERS
- About 100 METEOROLOGISTS

# Thank you

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