Reports received and what we know!

- Burkina-Faso
- Cabo Verde
- Comoros
- Egypt
- Kenya
- Madagascar
- Nigeria
- South Africa
- Zimbabwe
OBSERVATIONAL ACTIVITIES

- Use of ozone layer by Satellite (Meteosat 8). **No other** gases are measured
- **No UV** measurement was done
- Calibration only basic meteorological Sensors

RESEARCH

- Using WRF for Modelling. But only weather data are concerned. Due to lack of ozone data collection to validate the model, WRF-Chem is not yet run.

PUBLIC INFORMATION

- Traditional weather forecast, Dust suspension provided through visibility estimate.
- Fumes from vehicles Bio-meteorological information related to health (meningitis-related and malaria related meteorological parameters)

FUTURE PLANS

- With the support of the WMO and the Ozone Secretariat, **we aim to received the deployment** of an instrument, such as Dobson, for Ozone and UV measurement.
Cabo Verde - Islands

OBSERVATIONAL ACTIVITIES – Some Progress since 9ORM

• **Do not use satellites**, no observations of Strat/Trop Ozone Measurements
• **Surface Ozone Analyzer**, Model 49i from manufacturer THERMO Electron Corp.
• **No UV measurements**
• Calibration activities only basic meteorological sensors.

Data available through World Data Centre for Reactive Gases (WDCRG), WMO-GAW and **British Atmospheric Data Centre (BADC)** - collaboration

PUBLIC INFORMATION

• Traditional weather forecast, Dust suspension provided though visibility estimate.
• Warning - Fumes from vehicles, Bio-meteorological information related to health

NEEDS AND RECOMMENDATIONS

• **Need more cooperation and training** for Ozone monitoring in Cabo Verde.
• **Need equipment and training** for measurement and ozone and UV forecasting,
• **Financial support needed** for Ozone and UV Meetings, Congresses, and Symposiaums.
Comoros - Archipelago of four Islands

Ministry of Production, Environment, Energy, Industry and (MPEEIA)
• The Ozone Office's mission is to coordinate and implement the entire MP.
• Significant efforts for the reduction of ODS, CFC consumption.

OBESERVATIONS AND RESEARCH
• No Activities

FUTURE PLANS
• There is local expertise in research units
• The establishment of an air pollution control station
• Equip a station with instruments for measurements (UV-B)
• Capacity-building for researchers / managers involved in monitoring and research
• Archiving data from various sources of observation for research

NOTE: - A detailed Research and Monitoring Research Proposal is attached to the Country report. < Need to be funded >
Egypt

OBSERVATIONS AND RESEARCH - (Extensive over 40 Years)
Conducted by (EMA). Dobsons and Brewers
All the observations data are performed by ozone and UV solar radiation experts.
After that the data are stored in the central data base of EMA.
Data and Metadata such as station lists with locations, data in WOUDC.
Measurements of the total ozone amount and ozone vertical profile by the Umkehr method.

Cairo – The Regional Ozone Center (ROC)
Re-calculating the data of all ozone stations by “DOBSON” software package
Surface ozone stations in urban regions, at Hurghada, an official WMO GAW regional station.
Surface ozone at Sidi Branni and at Qena city.
Broadband UV solar radiation due to its biological effect at different sites
Aerosol Optical Depth Measurements (AOD) and total amount of sulfur dioxide at ground level
at Matrouh

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10ORM, WMO/UNEP 28-31 March 2017, Geneva, Switzerland
Kenya

OBSERVATIONS AND RESEARCH (A Substantial Program)
• Nairobi regional GAW station monitors the total column of ozone using Dobson 018, since 2005
• Profile Measurements of Ozone - vertical profile of ozone since 1996. ECC balloon soundings
• No Ultra Violet (UV) Measurements
• Surface Ozone Measurements
• Mt Kenya – A WMO GAW Global Station (one of three on the African Continent)
• Important MeteoSwiss Twinning

DATA REPORTING
Both column and profile ozone measurements are submitted (MeteoSwiss) and the World Ozone and UV Data Centre (WUDC).

Surface O3 and CO data (both from May 2002 – July 2010) have been submitted to the World Data Centre for Greenhouse Gases (WDCGG).

PUBLIC INFORMATION
Commemorate 16 September each year
Information from government ministries - when pollution the levels are high.
Madagascar has **devoted much effort to implement** the Montreal Protocol.

Great success.

**OBSERVATIONS AND RESEARCH**

No Ozone Activates.

Training of Refrigeration Technicians / Customs Officers **etc...funded from the Multilateral Fund Projects**

**PUBLIC INFORMATION**

Each year, celebration of the World Day for the Protection of the Ozone Layer takes place according to the theme of the year is developed and implemented.
A fair program - Nigerian Meteorological Institute (NIMET)

OBSERVATIONAL ACTIVITIES
Total Column Ozone is measured at the GAW stations in Oshodi, Lagos and Oshogbo. **Dobson spectrophotometer #5703 (Shimatzu type).** Calibration - RSA 2000 and Dahab in Egypt in 2004
Total ozone measurements are archived in the **database of (NIMET).** Data to WOUDC.

RESEARCH
Earlier Studies: - **MOZAIC observations of vertical O3 profiles** from commercial flights at Lagos and Abuja
Comparative analysis - total ozone Dobson spectrophotometer / satellite instrument EPTOMS
New, UV and Solar Measurements - at several locations in Nigeria. **WMO GAW regional stations** in Lagos and Oshogbo.
Studies relating to the effects of UV-B on human health and the ecosystems. The **UV is measured** with silicon photodiode sensor.

PUBLIC INFOMATION
The National Ozone Office (NOO) annually commemorates the International Day for the preservation of the Ozone Layer
South Africa

OBSERVATIONAL ACTIVITIES (A Substantial Program)

• Dobson’s 035 (UK Met Office), D089 and D132 located at Stellenbosch, Irene and Springbok
• Annual data submission to WOUDC
• ECC ozone soundings, from Irene (1991) - part of SHADOZ
• LiDAR equipment - Research programs - University KwaZulu Natal University (UKZN)
• African Air Quality Information System (SAAQIS) - online platform for managing air quality information

145 air quality monitoring stations. Parameters: PM 2.5 and 10.0, SO2, NOx, CO, O3, BTEX. [http://www.saaqis.org.za/]

RESEARCH

• A handful of universities involved - Strong national and international collaboration

CAPE POINT GAW - GLOBAL STATION

• Parameters namely: - surface O3, gases which lead to stratospheric ozone depletion such as: CFC13, CCl2F2, CCl2F
CCIF2, CH3CCl3, CCl4, SO2 and N2O greenhouse gases CO2 (22 years), CH4 (30 years) and reactive gases such as CO with a 37 year. Total gaseous mercury (Hg) - long standing record - GEMS project.
• Wet chemistry and passive sampling is conducted on the parameters, NO2, NH3, SO2 and O3. DEBITS Program
• SAWS has revamped its Solar Radiation network with 12 SOLYS2 tracking stations. High quality DNI, GHI and DIFF even larger the Southern African Universities Radiometric Network (SAURAN)
Zimbabwe

OBSERVATIONS AND RESEARCH
• No observations and no specific research

FUTURE PLANS
• A Desire to start some activities

NEEDS AND RECOMMENDATIONS
• Planning to Develop Observation and research projects for submissions

10ORM, WMO/UNEP 28-31 March 2017, Geneva, Switzerland
INFORMATION - OTHER AFRICAN COUNTRIES

NO REPORTS, But we know this

ALGERIA - Global GAW station (Tamanrasset )

BOTSWANA - MAUN Dobson 089 (Inactive, IO3C)

SEYCHELLES - MAHE Dobson 056 (Inactive)

UGANDA - KAMPALA Dobson

New in NAMIBIA - HENTIES BAAI (2016 Regional GAW station)
IMPLEMENTATION OF THE RECOMMENDATIONS OF THE 9th OZONE RESEARCH MANAGERS MEETING

A summary of Africa progress reporting

- **Continued Commitment** in Protection of the Ozone Layer - excellent progress

- Observations - Very few new initiatives - The "STATUS QUO" remains
  - Mainly, economic priorities, resource and collaboration absenteeism.

- **Maintaining what is in place** and what can be achieved with in-house resources.

- The calls for international support **continues unabated**.
OBSERVATIONS AND RESEARCH

- To note: **Africa very poor spatial observations** especially in the tropics. There is **great gaps in many** networks on the continent. E.G. UV, GHG, CFC, HCFS, etc.
- **Need more cooperation and training** to implement ozone monitoring.
- Need equipment, instruments to start an observations program. Instruments such as Dobson, Brewer spectrophotometers and UV sensor.
- **Need regional generated UV information** and forecasting capabilities
- **Financial support for participation in Ozone** and UV Meetings, Congresses, and Symposium.
- Assistance for **continued maintenance** and calibration of Instruments E.G. Dobson’s
NEEDS AND RECOMMENDATIONS [10ORM]
Summary (2)

OBSERVATIONS AND RESEARCH

✓ Participate in a scientific research program for ozone and climate change modelling.
✓ Lack of the establishment in Africa of a regional centre for research on ozone-climate interactions.
✓ Africa - Inadequate computing facilities for research that involves Global models.
✓ Twinning with more advanced research centres should be encouraged.
✓ Participation in regular workshops that provide training on metadata collection and archiving data.
✓ Resources for the exchange programs, scholarships, scientific visits of personnel.
✓ Efforts to ensure technology and knowledge transfer for sustainment.
✓ WMO/GAW and UNEP Programs to reinforce their key role in Capacity Building.
THE END

FROM AFRICA

THANK YOU FOR YOUR ATTENTION
THE END

FROM AFRICA - THANK YOU FOR YOUR ATTENTION

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