

THE CONTRIBUTION OF THE SADC DROUGHT MONITORING CENTRE IN DISASTER RISK REDUCTION



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Southern African Development Community Drought
Monitoring (SADC DMC)
TOPIC

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- 3. Role of the SADC DMC**
- 4. Tools / Products**
- 5. Attachments/ Capacity building**
- 6. Resource mobilization**
- 7. Planned activities**
- 8. Challenges**
- 9. Conclusion**



INTRODUCTION

- ❑ The Drought Monitoring Centre (DMC) is an institution of Southern African Development Community (SADC) comprising 15 member states with well over 200 million inhabitants.
- ❑ The SADC countries experience recurrent climatic extremes such as droughts, floods, tropical cyclones, which often result in negative impacts on socio-economic development of the Member States.
- ❑ The region is also susceptible to epidemiological diseases such as malaria and cholera that are influenced by climatic factors.

HISTORICAL BACKGROUND

- ❑ Established in 1989/90 together with DMC N by African Gvts with WMO as Executing Agency. Together responsible for 22 countries of Eastern and Southern Africa
- ❑ Central objective to have regional approaches in mitigating adverse climate impacts to socioeconomic developments.
- ❑ Initial funding from UNDP
- ❑ Next funding from the Belgian Government, with a condition that SADC gradually takes over the funding of DMC H.
- ❑ Since April 2002, core activities are funded by SADC.
- ❑ However, programme activities are still being funded by cooperating partners, USAID, NOAA and others.

1) OBJECTIVE

To contribute to mitigation of adverse impacts of extreme climate variations on socioeconomic development.

- ❑ This is achieved through the monitoring of near real-time climatic trends and generating medium-range (10-14 days) and long-range climate outlook products on monthly and seasonal (3-6 months) timescales.
- ❑ These products are disseminated in timely manner to the communities of the sub-region principally through the NMHSs, regional organizations, and also directly through email services to various users who include media agencies. Our products are readily available on our website: **<http://www.dmc.co.zw>** , e.mail address is: **dmc@sadc.int**

- ❑ The provision of early warning for the formulation of appropriate strategies to combat the adverse effects of climate extremes affords greater opportunity to decision-makers for development of prudent plans for mitigating the negative impacts on socio-economic.
- ❑ Since, establishment, the center has played an important and useful role in providing the sub-region with weather and climate advisories and more importantly, timely early warning on drought, floods and other extreme climate events



2. OPERATIONAL ACTIVITIES

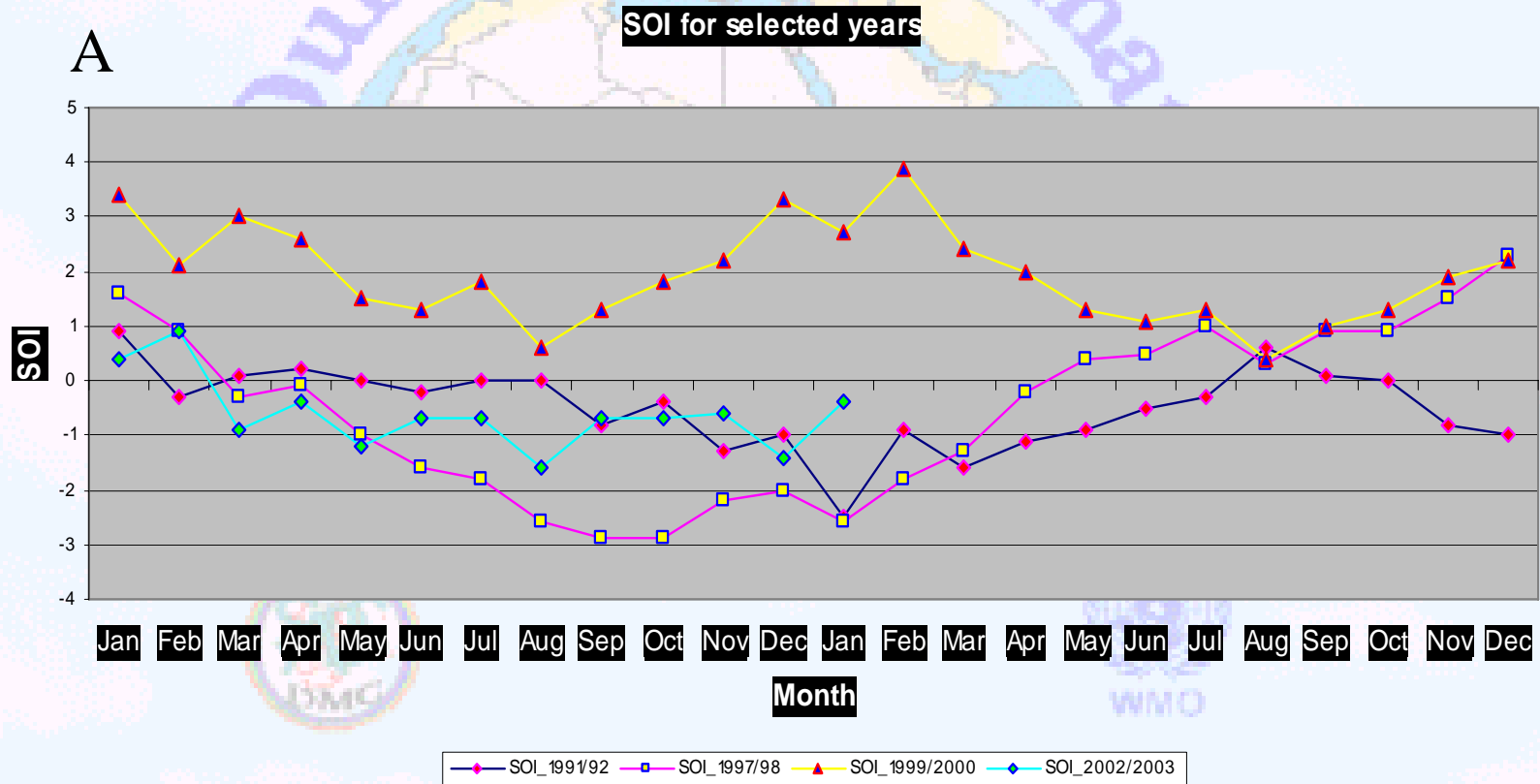
- Developing and archiving of global, regional and national quality controlled climate databanks
- Providing of climate monitoring, prediction and application services,
- Conducting training and capacity building activities in the generation and application of climate products
- Organizing the climate outlook forum for the SADC region,
- Enhancing the interactions with the user through regional users workshops and application pilot projects, and



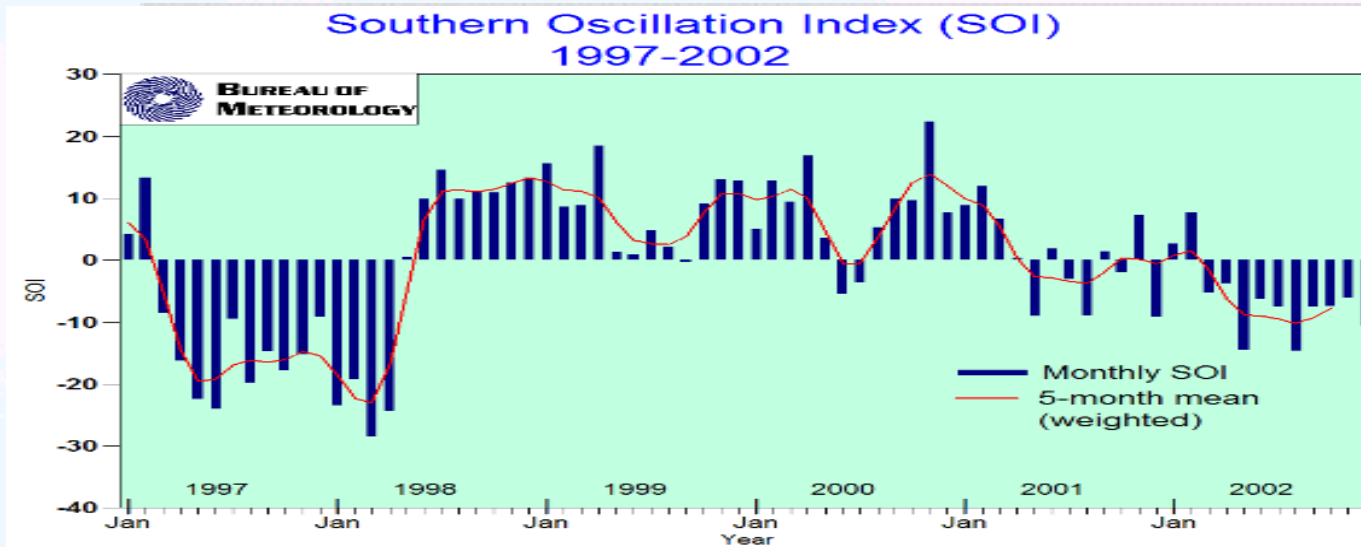
SADC DMC TOOLS

Southern African Development Community Drought
Monitoring Centre (SADC DMC)

The SADC DMC uses several tools to realize its objective and they are listed below:

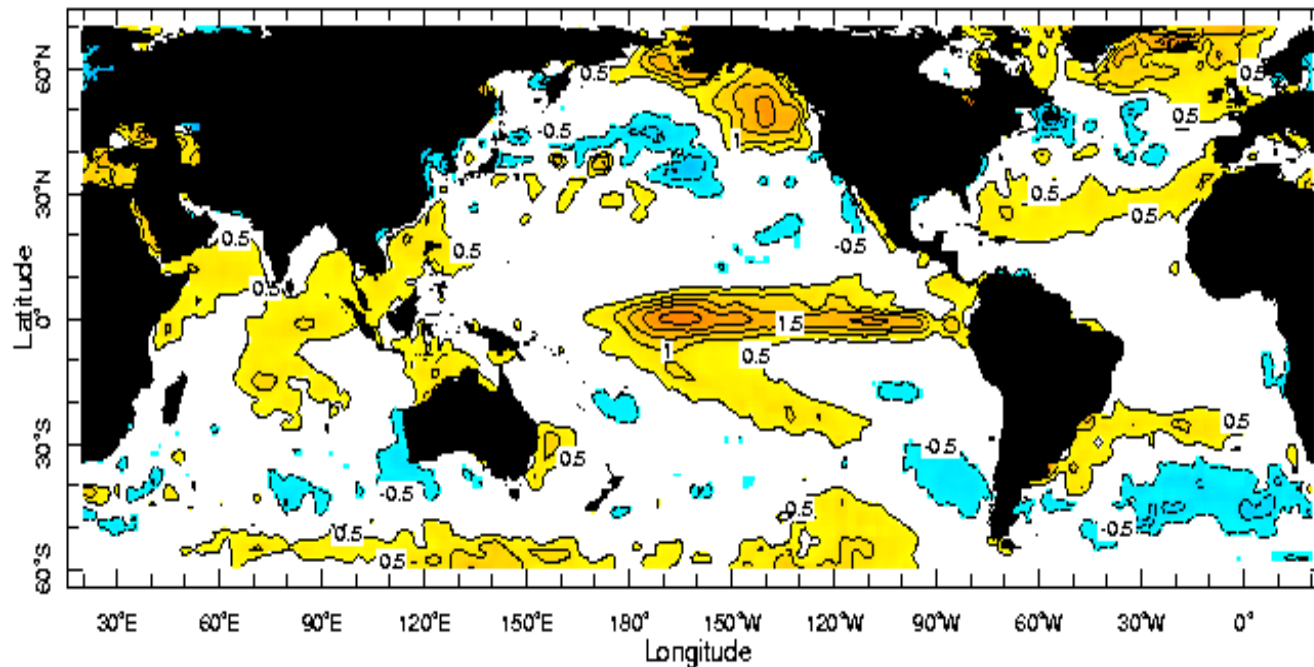


B



Pacific Basin – SST (IRI)

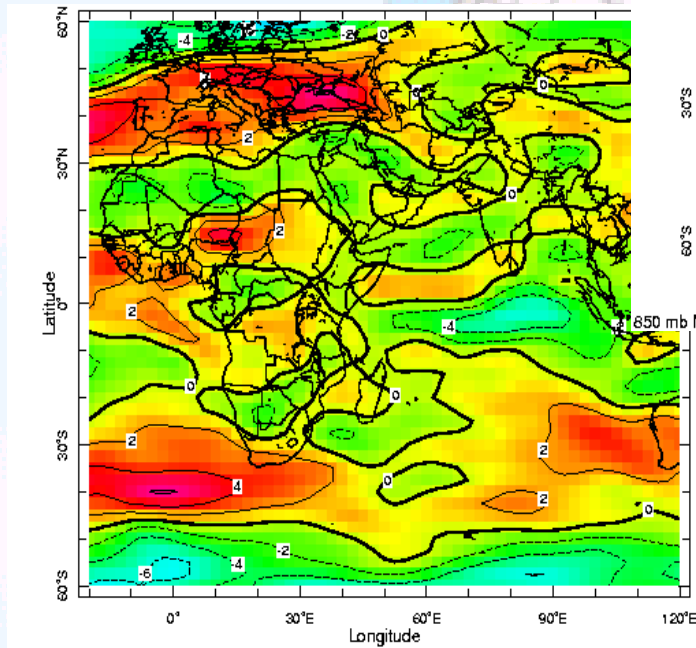
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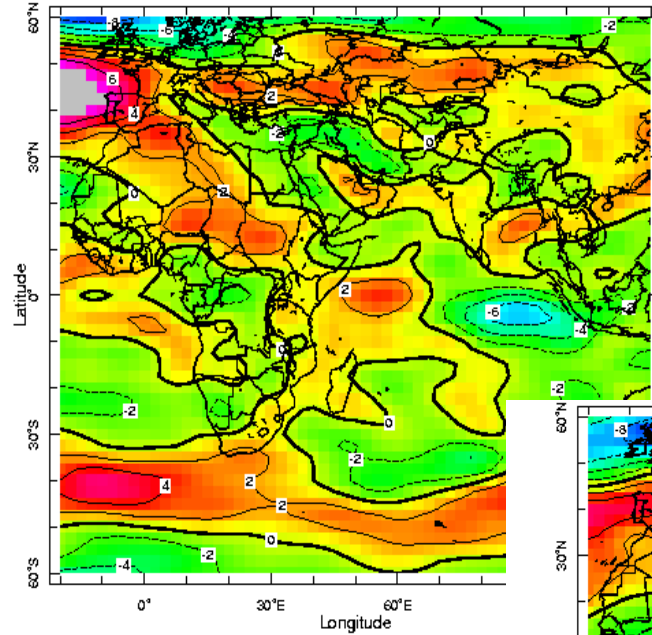
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Selected Atmospheric Patterns

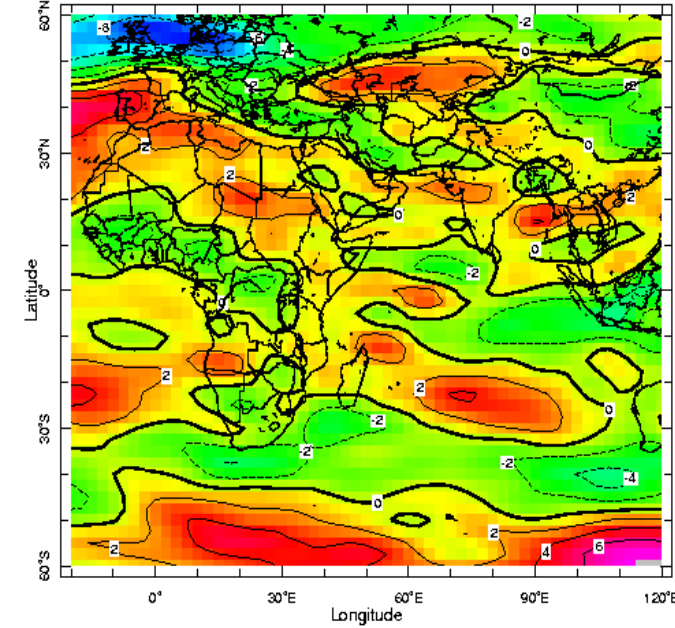
Zonal wind Indian / Atlantic (IRI)



850 mb Oct 2002



850 mb Nov 2002



850 mb Dec 2002

IRI Canonical Correlation Analysis

PROJECT:

X variables:

Training data file:

X input file:

First year of data in file:

First year of X training period:

Number of gridpoints:

EOF modes:

Number of modes:

Maximum number of modes:

Forecast data file:

Forecast file:

First year of data in file:

First year from which to forecast:

Y variables:

Training data file:

Y input file:

Year of first data in file:

First year of Y training period:

Number of series:

EOF modes:

Number of modes:

Maximum number of modes:

Training data:

Length of training period:

Length of cross-validation window

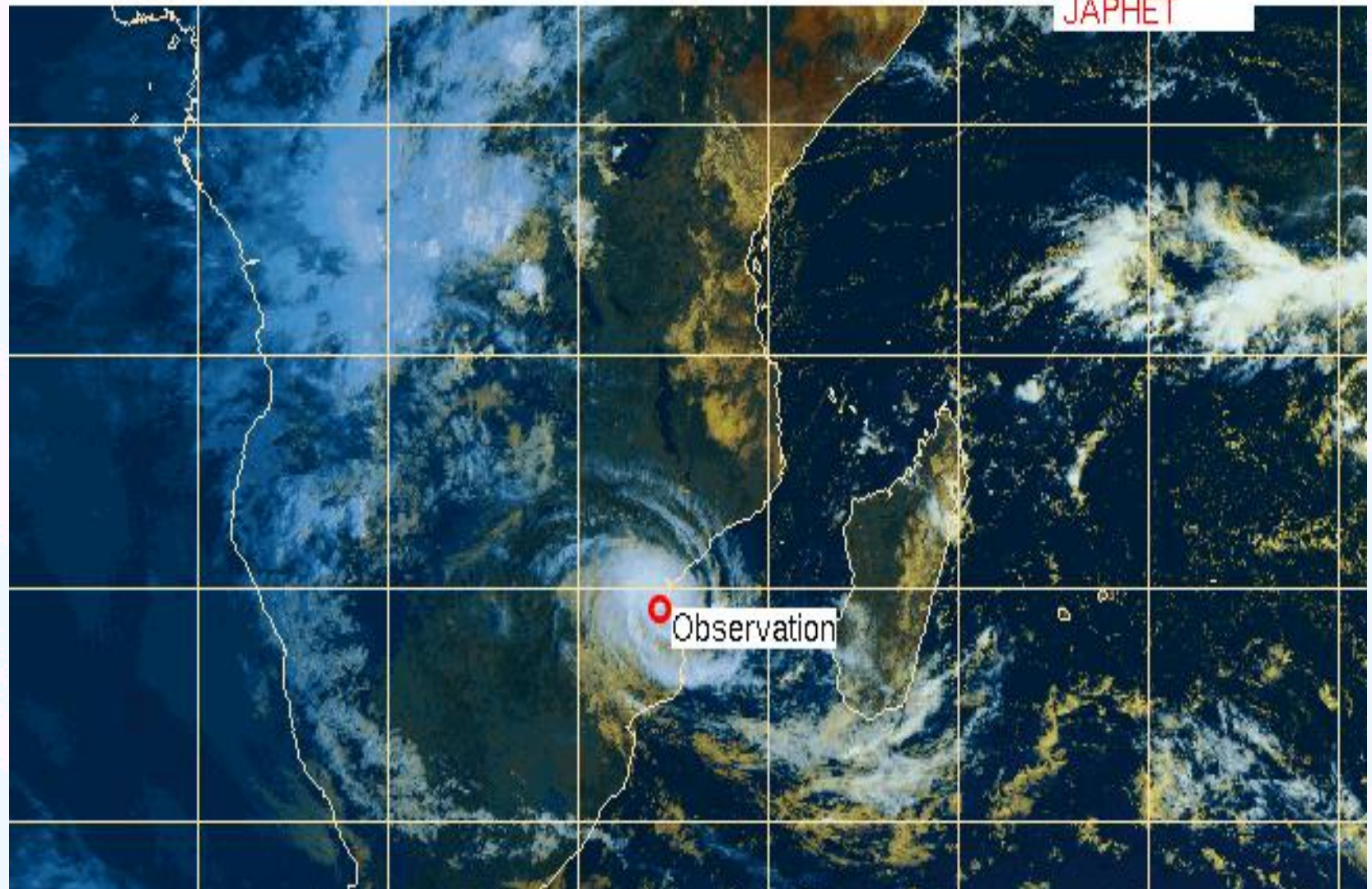
CCA modes:

Number of modes:

Southern African Development Community Drought

COMPOSITION COLOREE du 03/03/2003 06:00 UTC / METEO-FRANCE

JAPHET



Southern African Development Community Drought Monitoring Centre (SADC DMC)

PRODUCTS



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OUTLOOK (APRIL — JUNE 2003)

HIGHLIGHTS

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Outlook Highlights

- Normal to above normal rains over Seychelles.
- Northern and eastern SADC expected to receive normal rainfall.
- Normal to below normal rainfall across the rest of the sub-region.

Rainfall review over the SADC region for 1 January-20 March 2003

Rainfall performance improved across central and eastern SADC during the second part of the rainfall season. Most of the rains occurred during March associated mainly with the passage of tropical cyclone 'Japhet'.

On the other hand, dry conditions persisted over extreme southern and northeastern areas during much of the period with rainfall totals below 200 mm. The rest of the sub-region had rainfall totals ranging from 200 to above 600 mm. fig. 1.

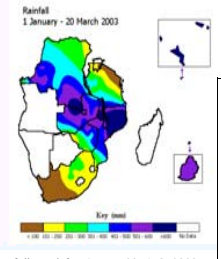


Fig. 1 Rainfall total for 1 Jan-20 MAR 2003.

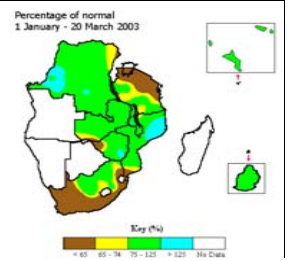


Fig. 2. Percentage of normal rainfall for 1 Jan-20 Mar 2003.

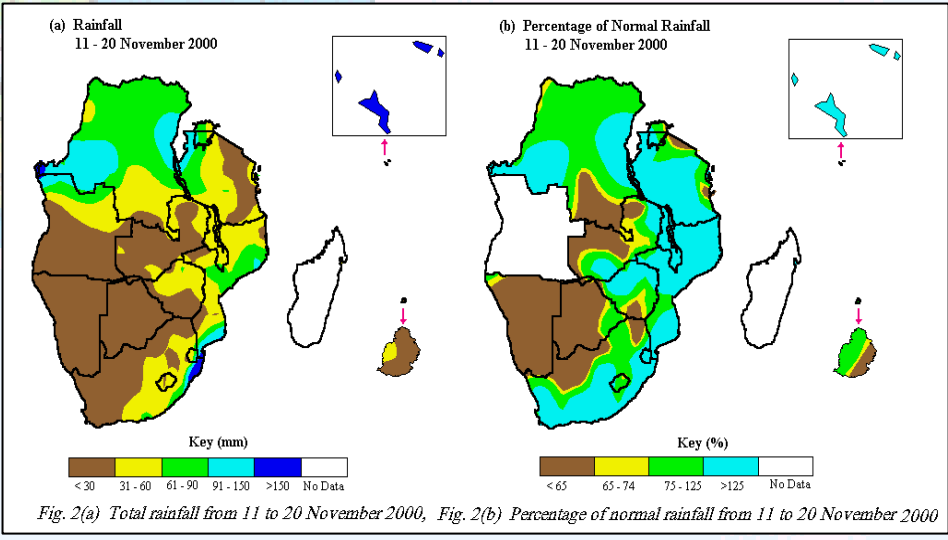
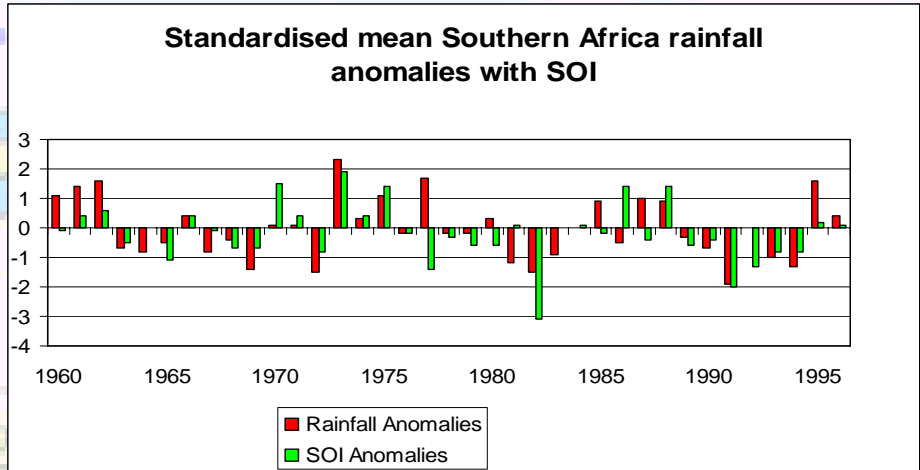
The percentage of normal rainfall map shows that the bulk of the sub-region had normal rainfall, except the extreme southern and northeastern parts which had below normal conditions. (Fig. 2).

EL-NIÑO UPDATE

- Neutral condition most likely to follow
- Moderate El-Niño conditions will continue through March-April 2003.
- SOI index maintained negative values but decrease to -1.2 in Feb 2003



Pictures above indicate flooding in Malawi and Mozambique-January 2003, food crisis in Lesotho - October 2002



SEASONAL OUTLOOK

SEASONAL RAINFALL OUTLOOK (APRIL - JUNE 2003)

FORECAST DETAILS

Zone I: (north-western half of Angola, most of DRC, Tanzania and Mozambique)

Likelihood of Normal rainfall .

Zone II: (Botswana, Malawi, south-eastern Angola, northern South Africa, extreme southern DRC and most of Namibia, Zimbabwe and Zambia)

Likelihood of Normal to below normal rainfall

Zone III: (Lesotho, Swaziland, southwest Namibia and southern South Africa)

Likelihood of Normal to below normal.

Zone IV: (Mauritius)

Likelihood of Normal to below normal rainfall.

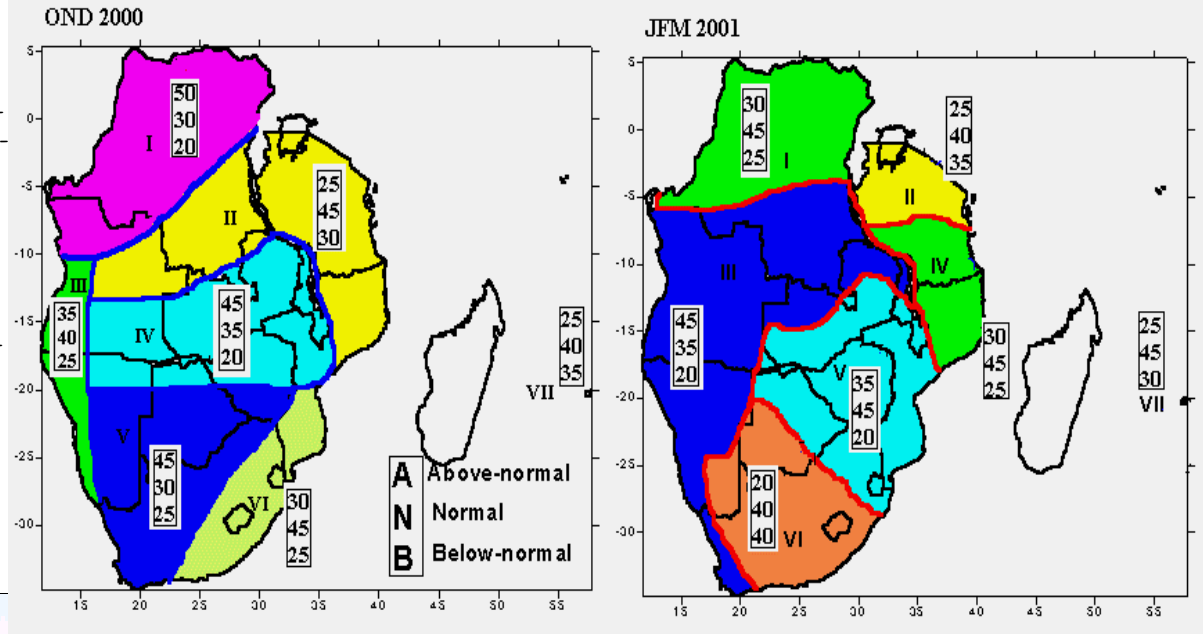
Zone V: (Seychelles)

Likelihood of Normal to above normal rainfall.

- It is emphasized that boundaries between zones should be considered as transition zones. This update is relevant only for three monthly time scales and relatively large areas. Local to month to month variations may occur due to any changes in projected patterns of, for instance, Sea Surface Temperatures (SSTs) and other indicators.
- The users are strongly advised to contact their NMS's for interpretation of this Outlook, finer details and additional guidance.

Map caption

The number for each zone indicate the probabilities of rainfall in each of the three categories: Above normal, Normal and below normal (Fig. 8). The top number indicates the probability of rainfall occurring in the above normal category, the middle number for normal and the bottom number for the below normal. For example, in the case of Zone V there is a 35% probability for rainfall occurring in the above normal category; a 45% probability for rainfall in the normal category; and 20% probability for rainfall for a below normal category.



ATTACHMENT PROGRAMME (SADC DMC)

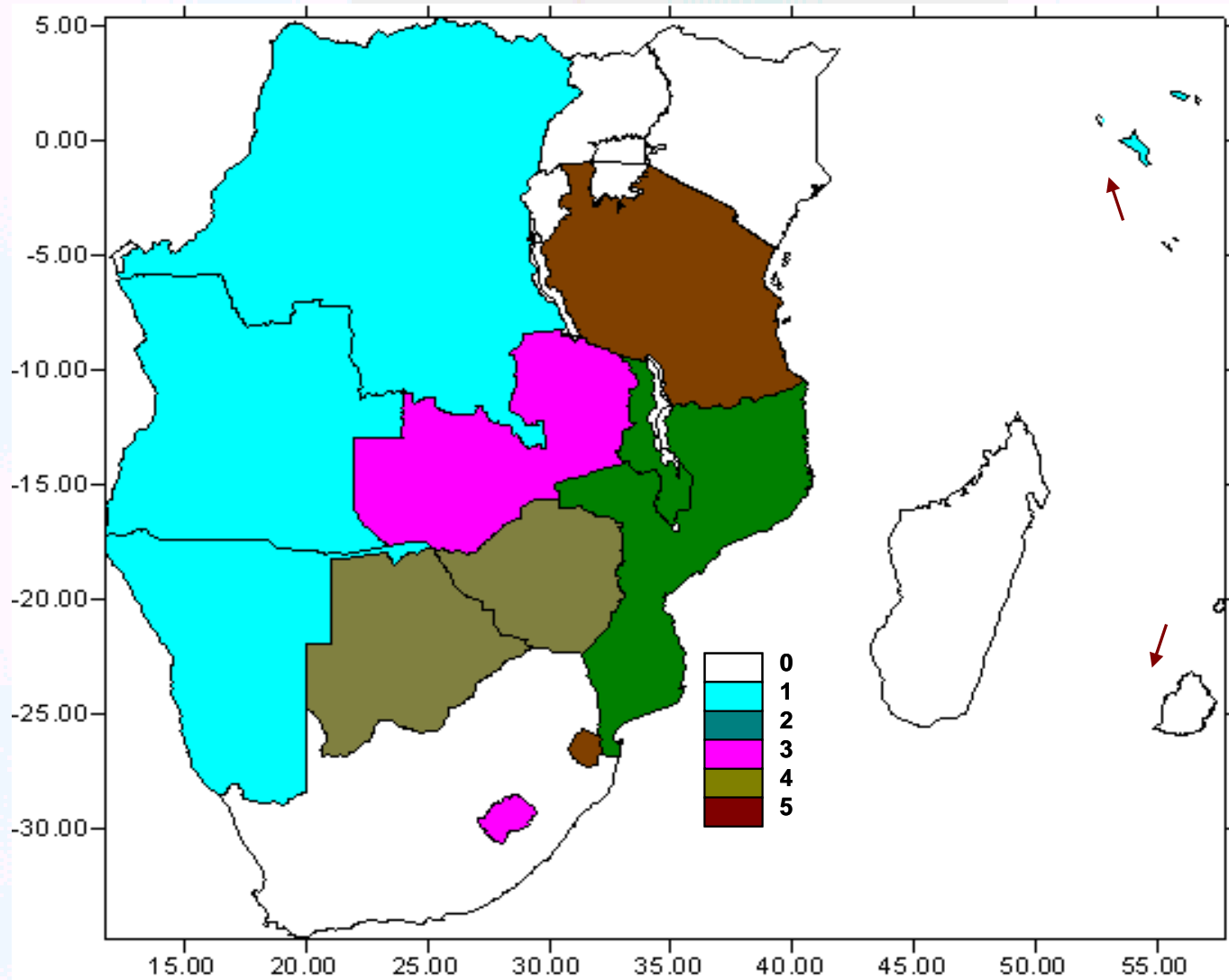
❑ The DMC has over the years hosted many scientists from mostly the subregion. It has also facilitated secondment of scientists to other global centres. Typically the scientists are hosted for a period of six months at a time at the DMC.

❑ Training SADC National Meteorological and Hydrological Services' (NMHSs) staff on attachment at the DMC through guidance in conducting research in climate monitoring and prediction techniques.

❑ After undergoing the training, scientists in prediction and producing climate bulletins, they return to their countries to share their new skills with other colleagues.

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SADC Attachments



3. CAPACITY BUILDING

- ❑ In addition to training SADC (NMHSs) staff on attachment DMC with assistance from other scientists, develop climate monitoring and prediction techniques for developing Southern Africa Region Climate Outlook Forum (SARCOF) products.
- ❑ Providing training to SADC NMHSs staff through capacity 2-4 week building workshops and SARCOF.
- ❑ Strengthening links with users from sectors such as health, food security (early warning systems), water resources management, media, tourism industry, etc.



- ❑ The aim of the pre-SARCOF capacity building workshops is to enhance the capacity of the NMHSs in generating climate outlook products at national level.
- ❑ User workshops (e.g. media and water-resources) have been incorporated into the process so as to enhance the effective dissemination and application of climate monitoring and prediction information, and to create good working relations between the climate scientists and the various weather-sensitive sectors.
- ❑ Since August 1999, the SADC DMC has organized 12 pre-SARCOF capacity building workshops, two media workshops and water resources workshop.
- ❑ In each workshop, inadequacies in the forecasting system are identified from previous experiences and attempts are made to address already recognised weaknesses.

4. CLIMATE OUTLOOK FORUMS

The SADC DMC has organized twelve Southern Africa Climate Outlook forums (SARCOF),

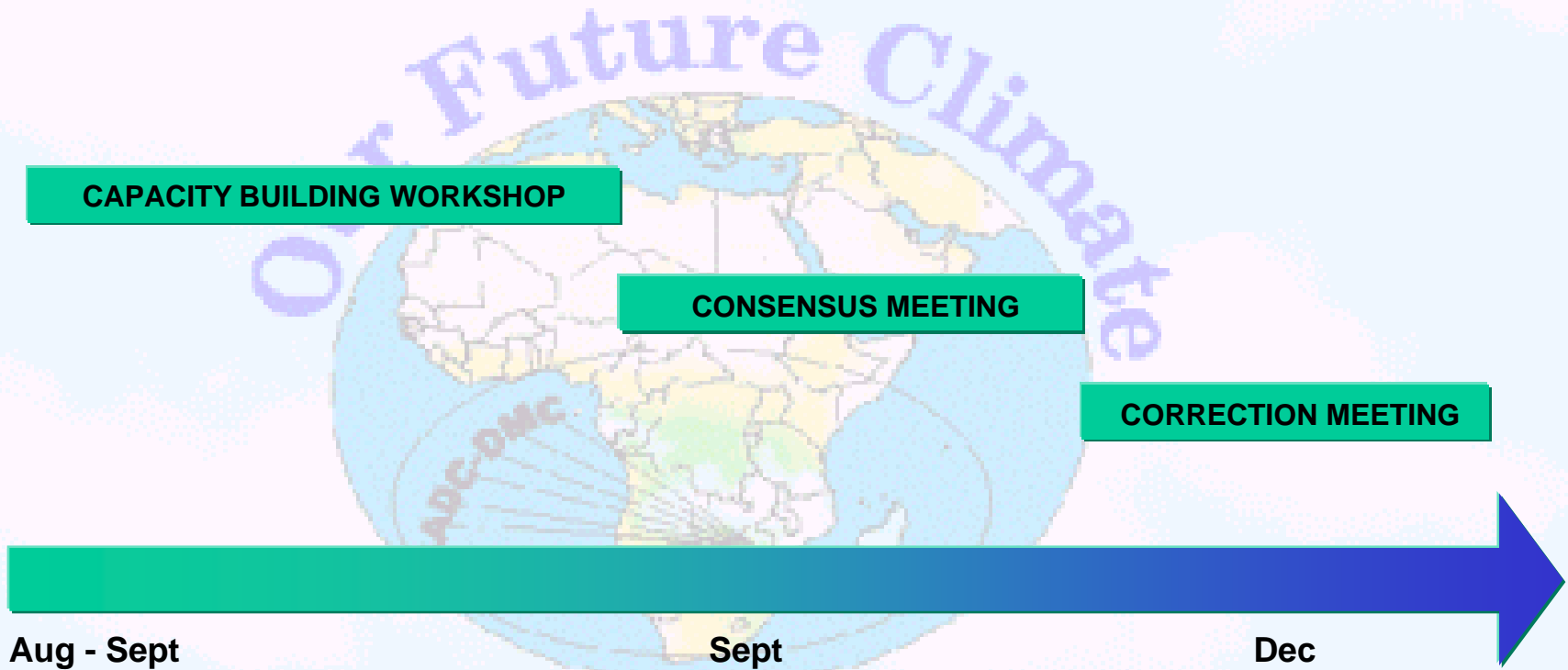
❑ To provide a consensus seasonal climate outlook form for the SADC region.

❑ Create a platform for interaction between the users and the climate scientists to enhance the application of meteorology to the reduction of climate related risks to food security, water resources and health for sustainable development in the SADC region



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Adaptation Centre

The SARCOF Process

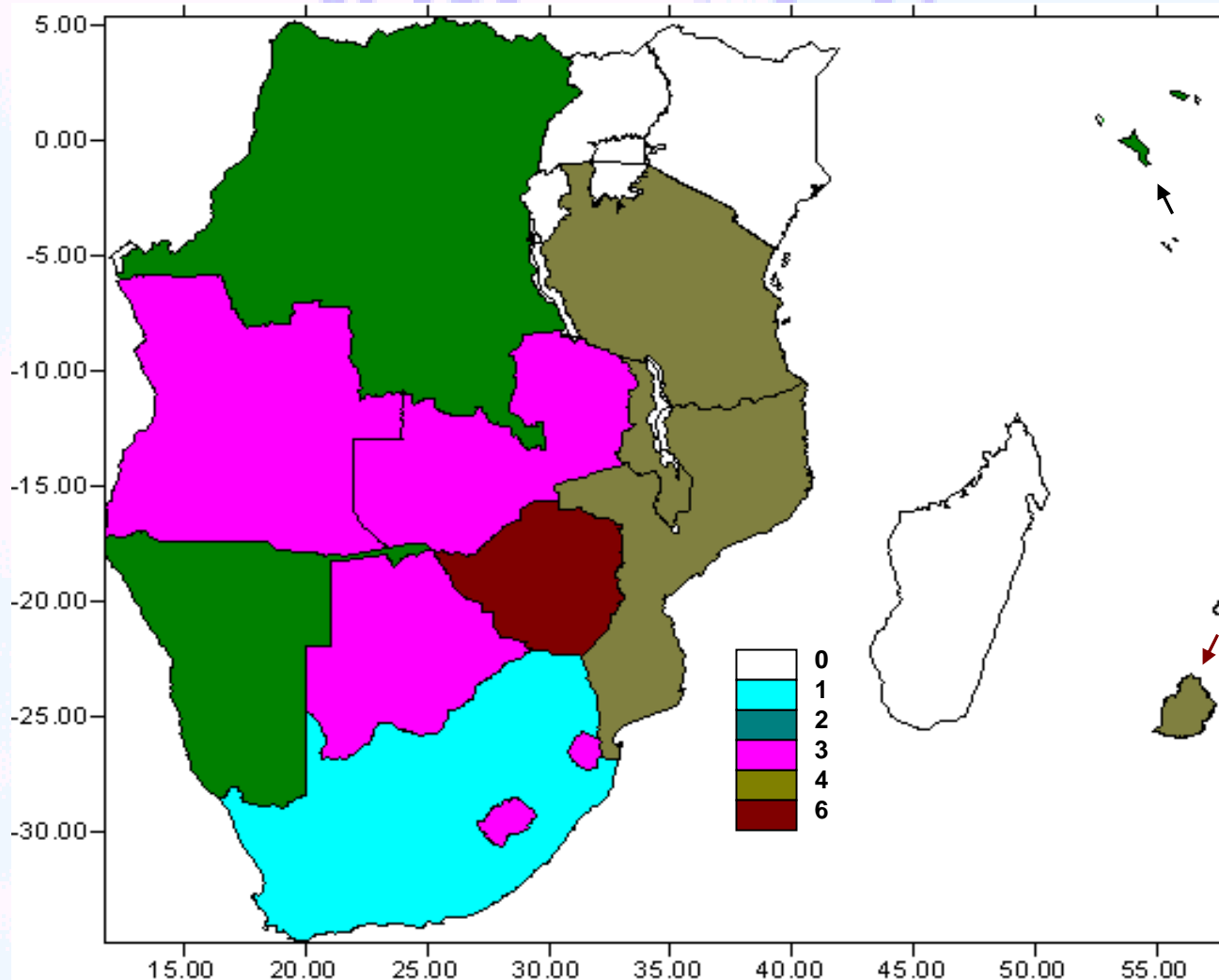


In Addition

User (e.g. media and water resources) Workshops



Capacity Building Workshops



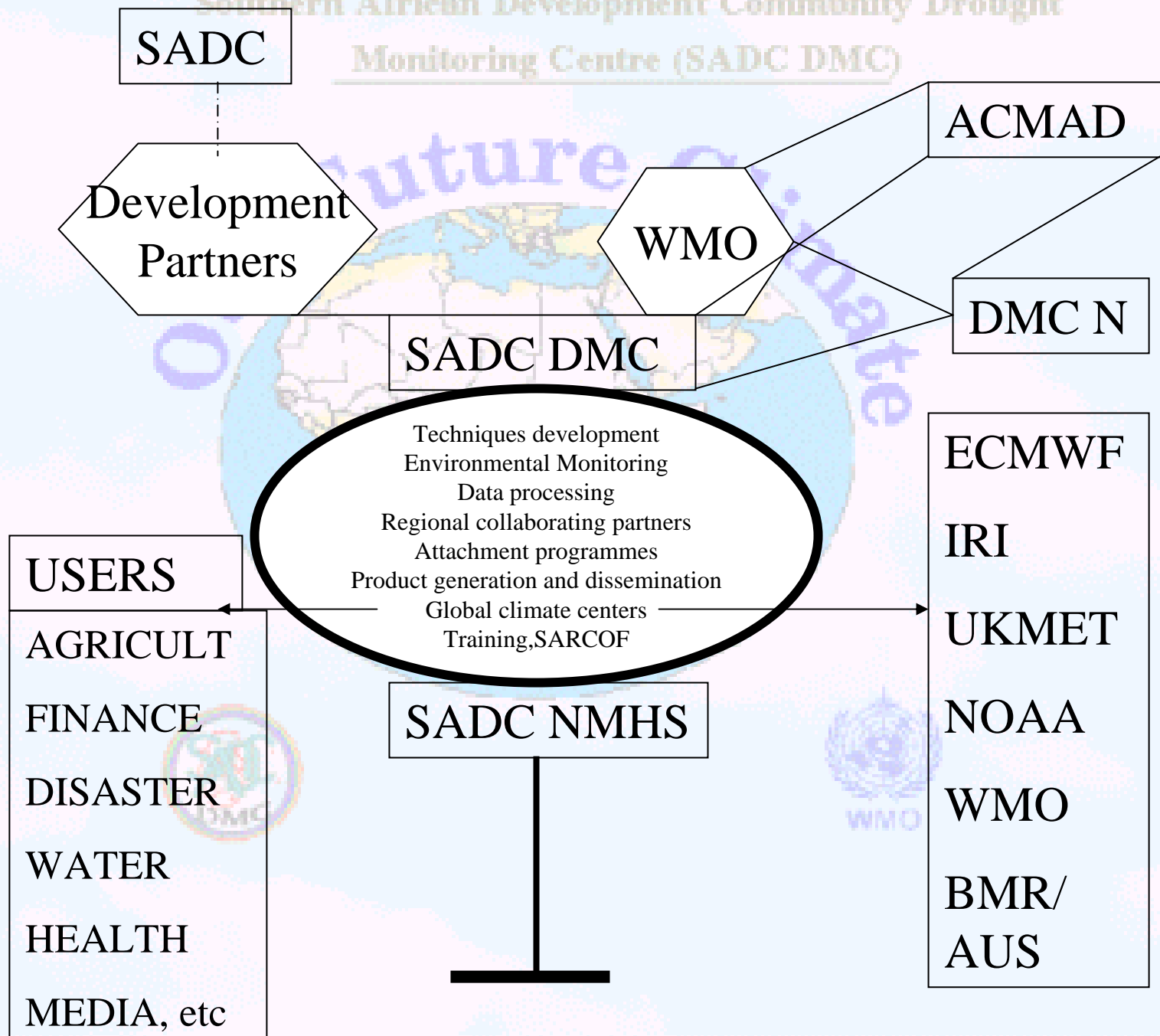
5. PILOT PROJECTS

The SADC DMC has initiated pilot projects with several sectoral users. The specific objectives of the pilot projects include:

- to assess and communicate examples of successful use of seasonal climate prediction products,
- assess and communicate examples of impediments to successful use of seasonal climate prediction products,
- Carry out research activities aimed at developing new application tools that will enable decision makers to take advantage of seasonal forecast information

THE LINKAGE

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RESOURCE MOBILIZATION EFFORTS

❑ Since its establishment in the late early 90's the DMC has enjoyed support from cooperating partners. Without this support its achievements would not have been possible.

❑ The funds have been provided at different times by:

▪ **UNDP**

▪ **KINGDOM OF BELGIUM**

▪ **WORLD BANK**

▪ **USAID**

▪ **NOAA; and**

▪ **OTHERS**



PLANNED ACTIVITIES

❑ The DMC will continue to build on the successes it made in climate analysis and prediction, and strive to improve areas of its weakness.

❑ It will to empower regional experts involved in climate diagnosis and prediction through on-the-job training, workshops and secondment of these experts to advanced climate centres overseas.

❑ This will result in, among other things:

- research focused on long-lead seasonal climate predictability in order to systematically produce useful forecasts; and
- effective use of these experimental forecasts by scientists from participating countries in order to meet their particular social and economic needs.

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□ This will immensely benefit users of climate services in the subregion, i.e. individuals and institutions from both public and private sectors.



CHALLENGES

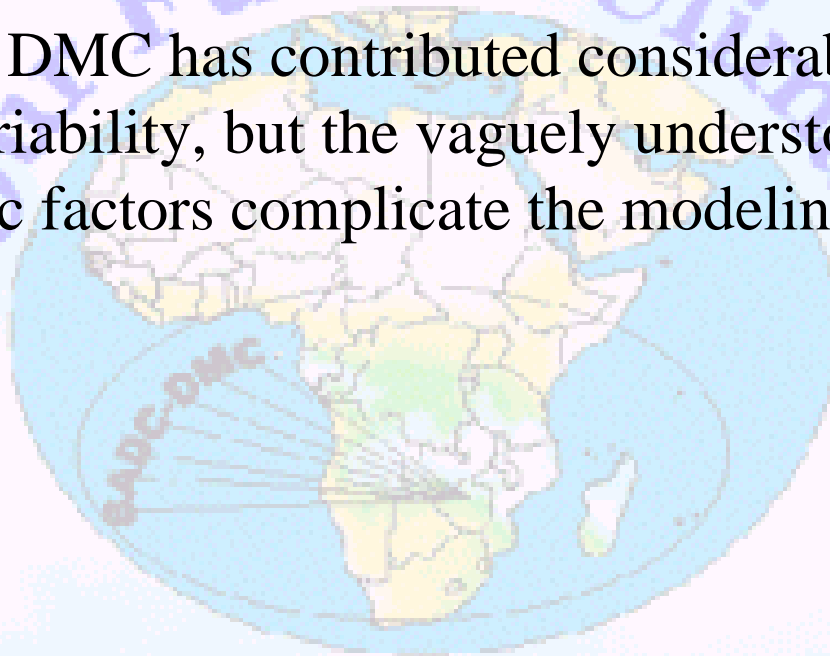
- Dwindling Hydrometeorological data collection platform,
- Inadequate infrastructure and appropriate capacity (human and equipment),
- Lack of coordination and communication between meteorologists and various users group,
- Limited communication opportunities between countries,
- Unavailability of advanced technologies, and
- .



CONCLUSION

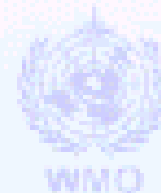
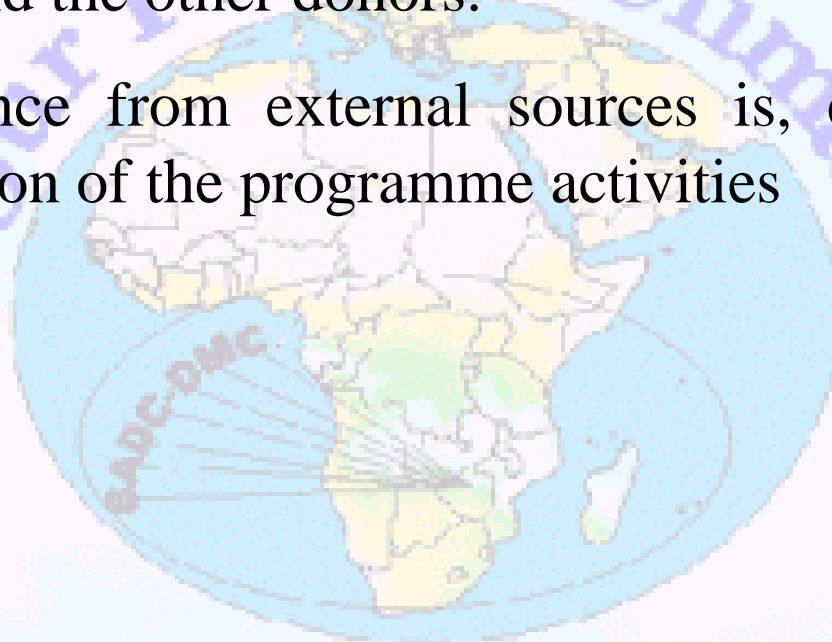
An effective early warning system should emphasize on monitoring key factors, including those that are non hydro-meteorological, such as mass migration, concentration, insecurity and so on.

The SADCD DMC has contributed considerable to the understanding of rainfall variability, but the vaguely understood impacts of anthropogenic factors complicate the modeling.



❑ The SADC DMC highly estimates the invaluable contributions for the support of the current DMC activities through the grants from the Belgian Government , USAID, NOAA and the other donors.

❑ Assistance from external sources is, essential for the continuation of the programme activities



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Our Future Climate

THANK YOU FOR YOUR ATTENTION!!

