



**Regional Specialised  
Meteorological Center (RSMC)  
Pretoria**



# **SWFDP-SA (Severe Weather Forecasting Demonstration Project Southern Africa)**

***Progress Report 2012***

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# Overview of the SWFDP-SA Project Evolution

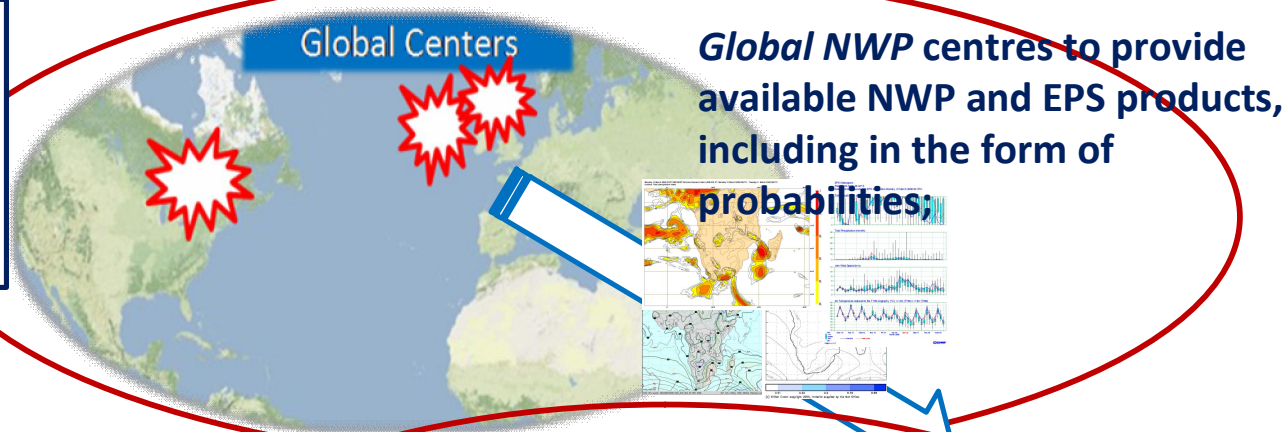
- Phase 1 started with a planning meeting in Aug 2006 in Pretoria, South Africa, followed by the first regional training session in November 2006 in Pretoria, South Africa
- The demonstration phase (Phase 2) from November 2006 till November 2007, five countries, RSMC, 3 Global Centres
- MASA requested WMO to roll SWFDP out to the entire region, based on the successes of the demonstration phase
- This led to Phase 3 in which the SWFDP activities was rolled out to all 16 Southern African countries
- Following the conclusion of Phase 3 in December 2011, the SWFDP-SA entered Phase 4: long-term sustainability and continuous development

# Countries involved in the SWFDP-SA

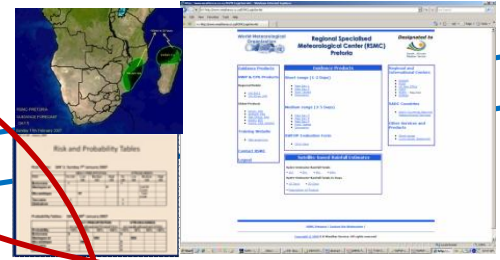
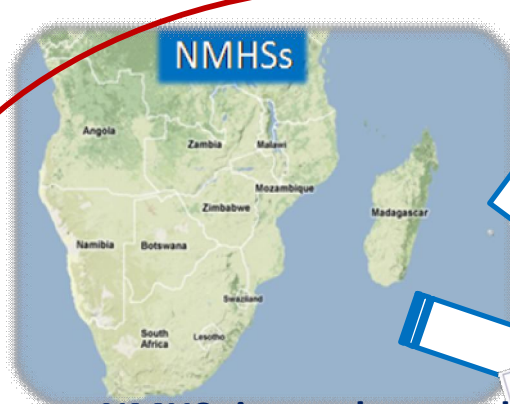
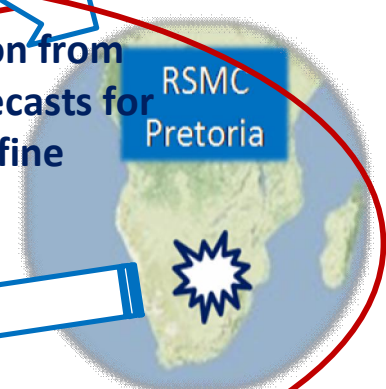


- Angola
- Botswana
- Demo Rep Congo (DRC)
- Lesotho
- Mauritius
- Madagascar
- Malawi
- Mozambique
- Namibia
- Seychelles
- South Africa
- Swaziland
- Tanzania
- Zambia
- Zimbabwe
- Comoros

# Overview of SWFDP Southern Africa



*Regional centre interprets information from global centres, Prepare guidance forecasts for NMHSs, run limited-area model to refine products*



*NMHSs issue alerts and warnings to Disaster Management and public*

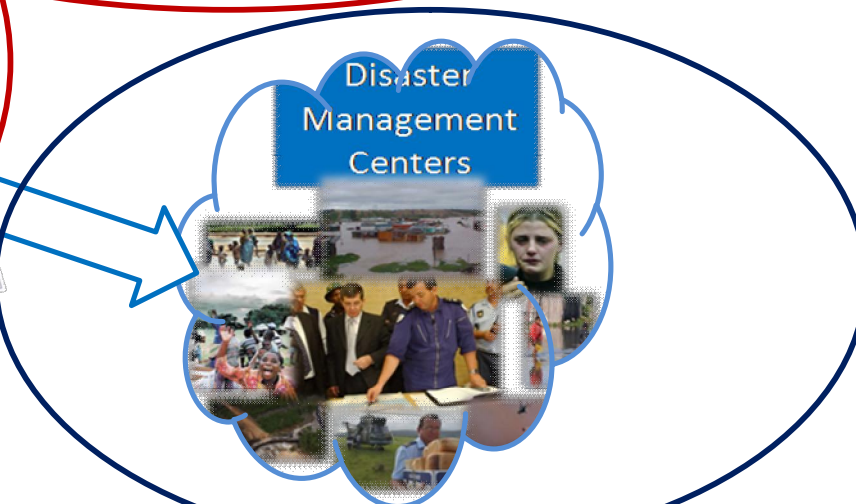
**Flash warnings of severe or extreme weather**  
 These are issued when the Met Office has 80% or greater confidence that severe weather is expected in the next few hours.

Local areas affected	Warning type	Valid from	Valid to
Hire & Heavy Rain		0635 Thu 21	1800 Thu 21

...rain will become increasingly heavy and intense across northeastern Scotland during the course of the day, giving up to 30 mm in the latest Scottish public are advised to take extra care to the latest Scottish Action Agency Live Flood Warning, and also to check for further advice on road conditions.

428 Thu 21 Aug

**Mayor's daughter in school drug bust**



# Overview of Phase 3:

## Rollout to 16 Southern African Countries

- Phase 3 lasted till December 2011
- Sixteen countries , 2 regional centres (RSMC Pretoria and RSMC La Reunion), 3 global centres (ECMWF, NOAA, Met Office)
- Similar products, additional hazards (winter weather, swell)
- Annual training workshops were held in Pretoria and later at RSMC La Reunion:
  - sessions on the GDPFS (week 1), PWS (week 2)
  - shortened to one week instead of two weeks
- In August 2011 a meeting of the Regional Technical Implementation Team (RTIT) was held in Mauritius



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## Guidance Products

### NWP & EPS Products

#### Regional Models

- [UM SA12](#)
- [UM Africa LAM](#)
- [Aladin La Reunion](#)

#### Global Products

- [NOAA: GFS](#)
- [ECMWF: EPS](#)
- [Met Office: EPS](#)
- [NOAA: EPS](#)
- [SAWS: EPS \(SAWS\)](#)

### Training Website

- [Met-eLearning](#)

### RSMC Guidance Archive

### Contact RSMC

### Logout

## Guidance Products

### Short-range (1-2 Days)

- [Map Day 1](#)
- [Map Day 2](#)
- [Risk Tables](#)
- [Discussion](#)

### Medium-range (3-5 Days)

- [Map Day 3](#)
- [Map Day 4](#)
- [Map Day 5](#)
- [Prob Tables](#)
- [Discussion](#)

### SWFDP Evaluation Form

- [Click Here](#)

## Regional and International Centers

- [ECMWF](#)
- [NCEP](#)
- [UK Met Office](#)
- [WMO](#)
- [RSMC - Reunion](#)
- [ACMAD](#)

### SADC Countries

- [SADC Countries National Meteorological Services](#)

### Other Services and Products

- [Short-range](#)
- [Long-range \(Seasonal\)](#)

## Satellite-based 0-12 Hour Products

### Satellite-Based Rainfall

#### Hydro-Estimator Rainfall Totals

- [1hr](#)
- [3hr](#)
- [6hr](#)
- [24hr](#)

#### Hydro-Estimator Rainfall Totals In Days

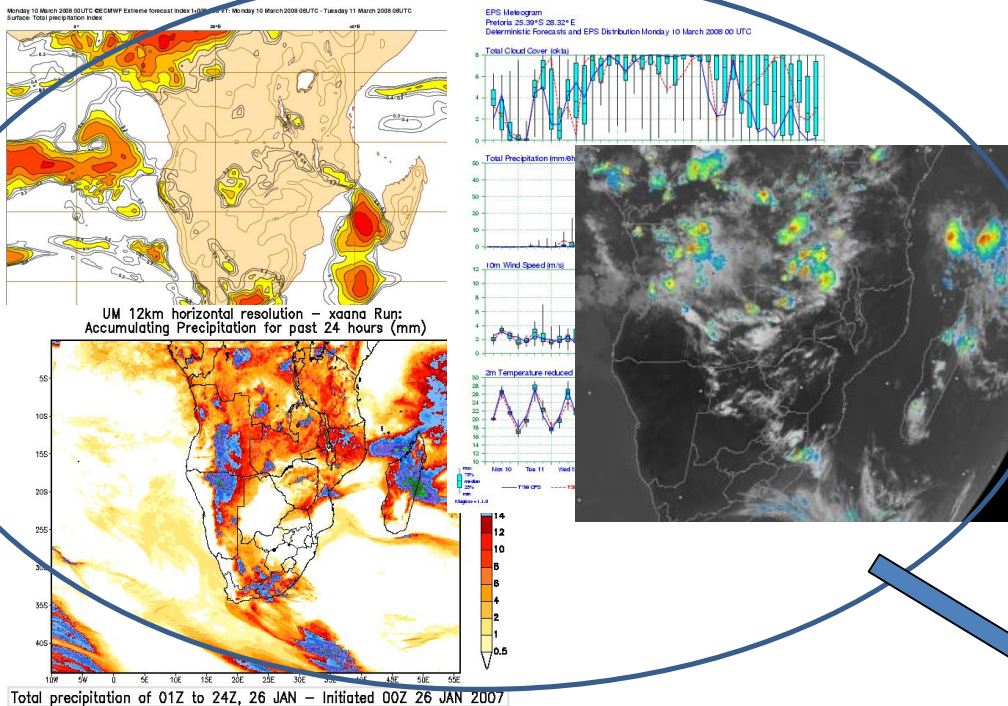
- [10 Days](#)
- [30 Days](#)
- [Description of Product](#)

### Convective Thunderstorm Forecasts

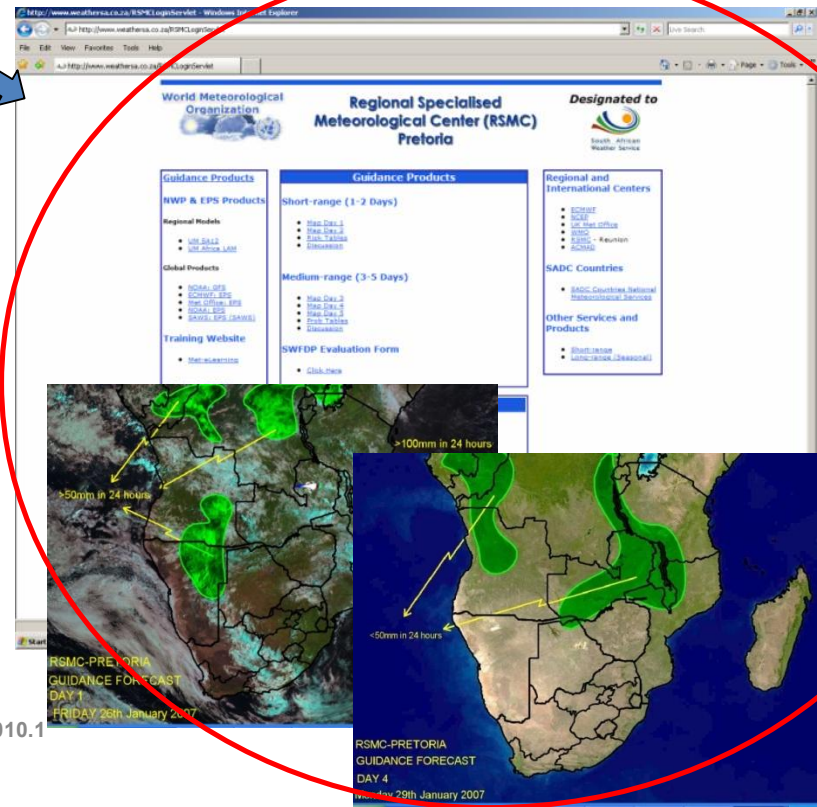
#### Probability of Convective Thunderstorms

- [CII](#)
- [Description of Product](#)

# SWFDP Guidance Products from RSMC Pretoria



- RSMC analysis forecast information
- Prepares guidance every day for the next 5 days
- Hazards heavy rain, strong wind, high seas and swell, severe winter weather
- Guidance info made available through dedicated webpage to NMCs



# New products: NWP from RSMC La Reunion

## RSMC La Reunion: Aladin 10km



Regional Specialised  
Meteorological Center (RSMC)  
Pretoria



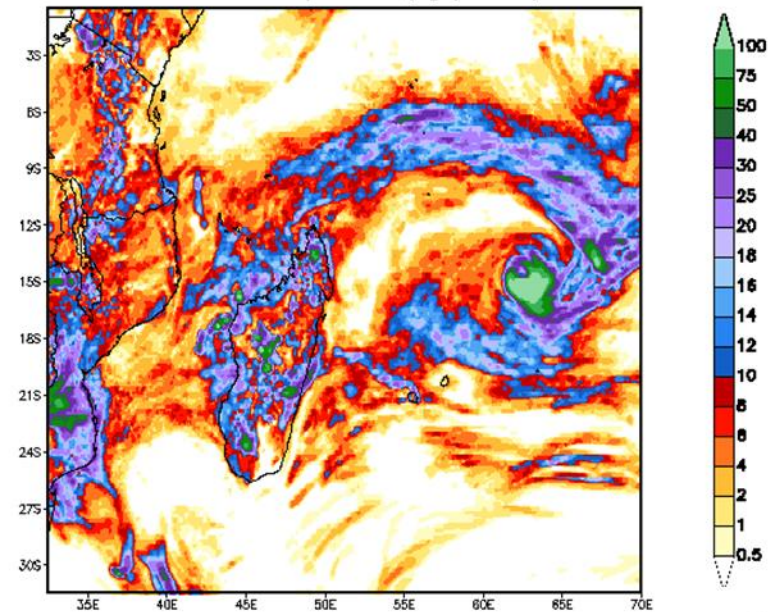
MeteoFrance Aladin Model running at 10km resolution at La Reunion

### Aladin Model 00Z Forecasts (Available ~ 08Z)

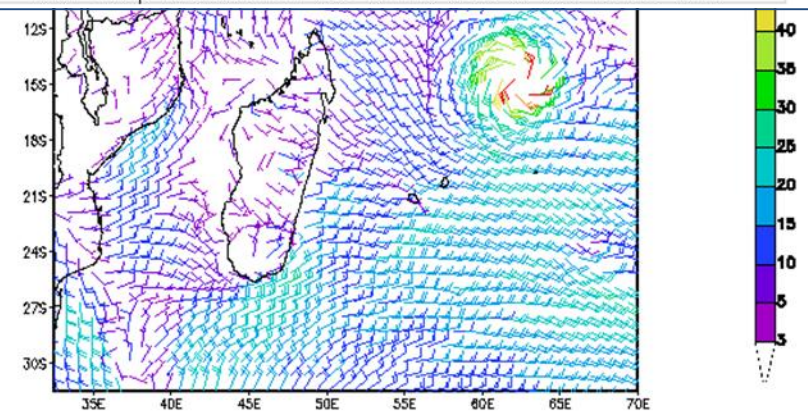
Surface Variables	Time	Analysis	Day 1	Day 1	Day 1	Day 2	Day 2	Day 2	Day 3	Day 4
		00Z	06 Hours	12 Hours	18 Hours	24 Hours	36 Hours	48 Hours	60 Hours	72 Hours
Field		All Fields	All Fields	All Fields	All Fields	All Fields	All Fields	All Fields	All Fields	All Fields
Temperature	All Times									
Accumulating Total Precipitation	All Times									
6 to 12-hourly Total Precipitation	All Times									
Sea-level Pressure	All Times									
Wind Field at 10m above ground	All Times									
Relative Humidity	All Times									
Surface CAPE	All Times									

Upper Air Variables	Time	Analysis	Day 1	Day 1	Day 1	Day 1	Day 2	Day 2	Day 3	Day 3
		00Z	06 Hours	12 Hours	18 Hours	24 Hours	36 Hours	48 Hours	60 Hours	72 Hours
Field		All Fields	All Fields	All Fields	All Fields	All Fields	All Fields	All Fields	All Fields	All Fields
Temperature at 850hPa	All Times									
Temperature at 700hPa	All Times									
Temperature at 500hPa	All Times									

Aladin 10km horizontal resolution –  
Surface Precipitation (kg / m<sup>2</sup>)



Total Precip Forecast from 00Z 18 FEB 2010 to 00Z 19 FEB 2010



Analysis for 00Z 18 FEB 2010

Speeds less than 3 knots are shown as blank



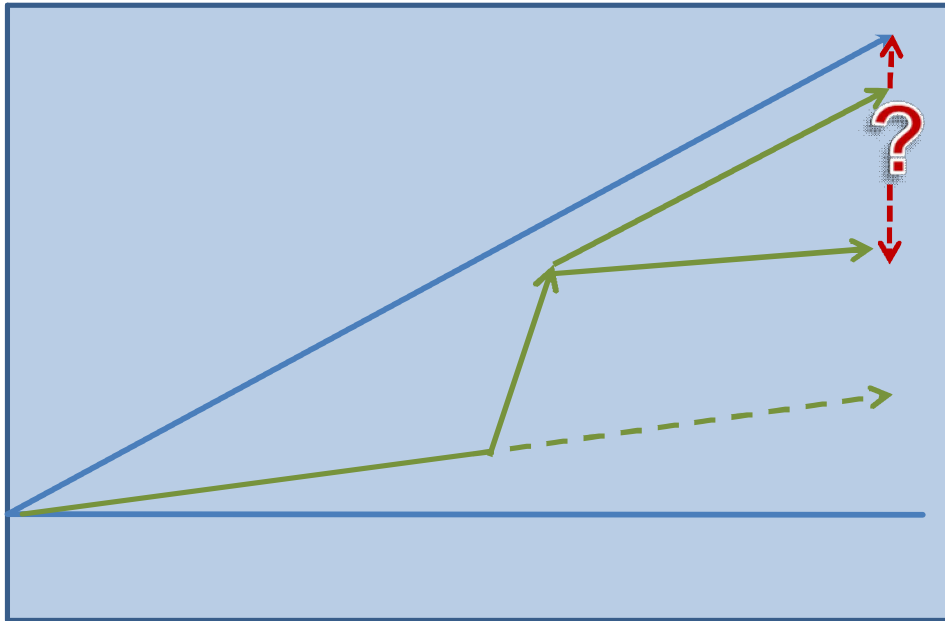
# Outcomes of the Aug 2011 RTIT Meeting

- Progress of Phase 3 was discussed, and the migration to Phase 4 planned
- MASA) expressed its strong support for the project
  - highlighted the enormous benefit of the project to its members
  - annual meeting of the Ministers of SADC recognized SWFDP relevance
  - requested their NDMCs to secure the future of the project through sufficient budget allocations
  - MASA also requested the continued participation of the global and regional centres, and continued coordination with WMO
- RTIT meeting prepared a set of messages to MASA

## Phase 3 Evaluation from Reports

- SWFDP considered a very successful project: has improved warning services in many countries, and contributed to the improvement of relations between NMHSs and DMCPAs
- Still concerns about the effective participation of some countries: DRC, Angola, Comoros, recently Madagascar
- Products provided by the RSMCs and the Global Centres were highly commended
- Verification of forecasts achieved moderate success
- PWS: important lessons countries learnt
  - relationships between NMHSs and DMCPAs to be formalized, incl SOPs
  - NMHSs need to actively pursue the user groups
- Lack of user feedback from the rural areas was highlighted due to communication problems from the rural communities

# Phase 4: Continuous Development Phase



- Phase 4 developed to ensure sustainability and continued development
- Challenge is to continue on this path and not let the gap redevelop
- SWFDP ideal regional EWS platform for **synergy** with other related initiatives

## Phase 4 in SWFDP-SA

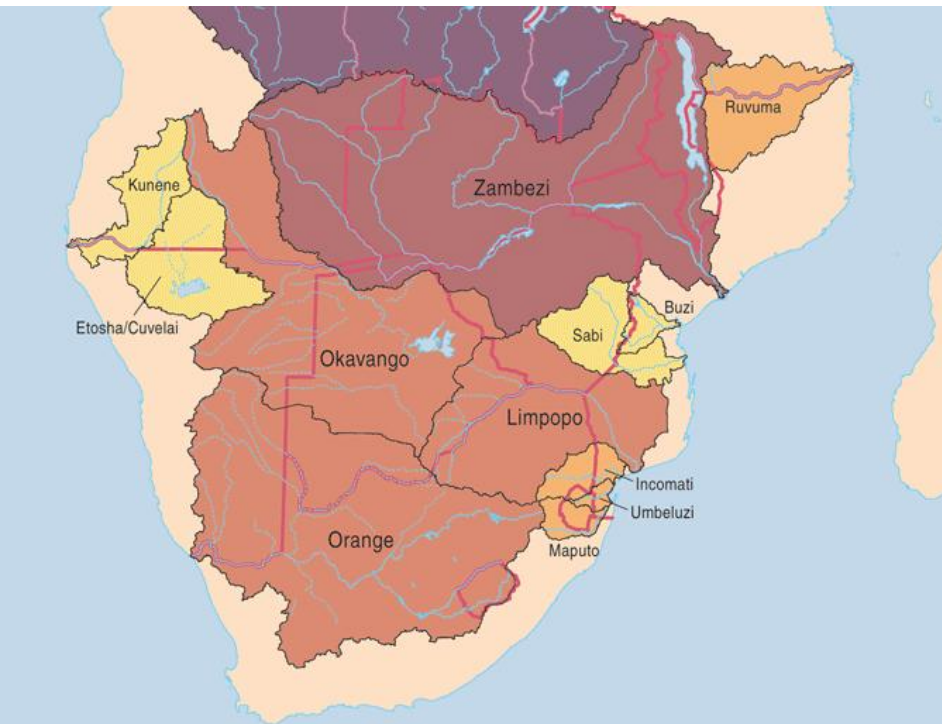
- Continue with the cascading concept as the model
- MASA support for the sustainability of SWFDP-SA is crucial
- Management to evolve from CBS to SADC Regional Association (MASA effectively), while maintaining regular reporting to the CBS Steering Group for SWFDP
- Regional Sub-project Implementation Plan (RSIP) is under development
- Since the official conclusion date of Phase 3, activities in the region have continued to function under Phase 4 as before in all respects

## Phase 4 in SWFDP-SA continued....

- Continued training is regarded as of high importance
  - concept of establishing a SWFDP Training Desk at RSMC Pretoria
  - training visits by regional experts to various NMHSs, and particularly those lagging behind
  - Virtual Laboratory for SWFDP
  - e-learning options, regular short training sessions like SATREP-Online sessions currently done by RTC Pretoria with Eumetsat
- Need for improvements in the current system and methodologies
  - Verification, RSMC Pretoria website, reporting, etc.
- Synergy with the implementation of the SARFFG system
- TIGGE/GIFS developments
- Contribution to regional climate change adaptation
  - Side-event by WMO and SAWS at COP17 in Durban during November 2011 where SWFDP and SARFFG was highlighted: SG and Dep Minister

# SARFFG

## a flash flood warning system for SADC



- WMO Hydrology responsible for the implementation of FFGS in various regions, including SADC
- Provide guidance to forecasters to issue flash flood warnings
- Will use similar cascading concept as in SWFDP:
  - RSMC to host the model server and provide guidance
  - NMSs issue local warnings to disaster management as needed

# Summary

- The third phase of Southern Africa SWFDP went well, moved to Phase 4 from 2012
- Generally it is making a very positive impact on the countries in the region
- Appreciation is expressed by the region to WMO and Global Centres for their support up to now – it was and is an initiative well worth the effort that made a tremendous impact
- Challenge will be to keep the momentum

Thank you