

SWFDP-SA: Progress and Phase 4 Concepts

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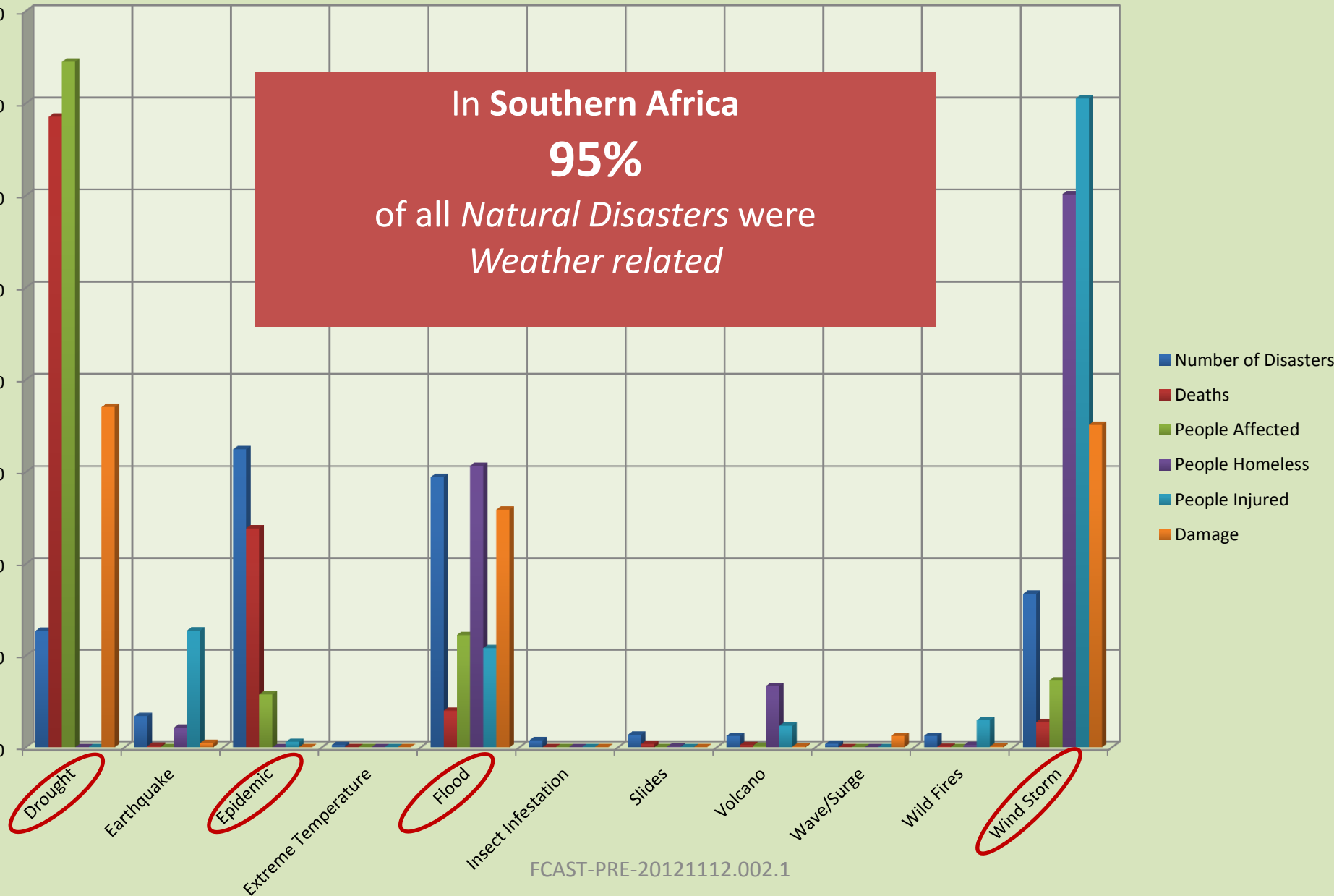
RSMC Pretoria

THE NEED FOR REGIONAL EARLY WARNING SYSTEMS

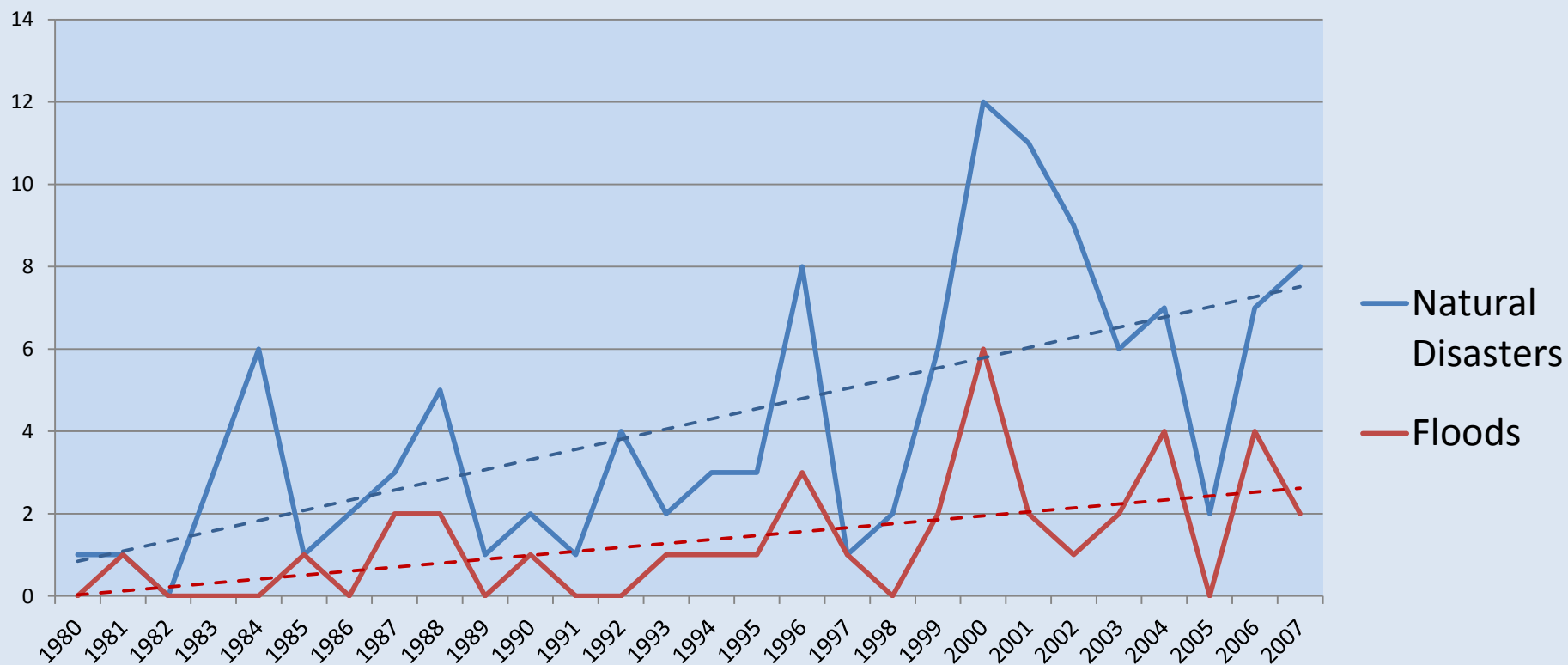
% IMPACT OF NATURAL DISASTERS ON SOUTHERN AFRICA: 1920-2008

(Source: CRED)

In Southern Africa
95%
of all *Natural Disasters* were
Weather related

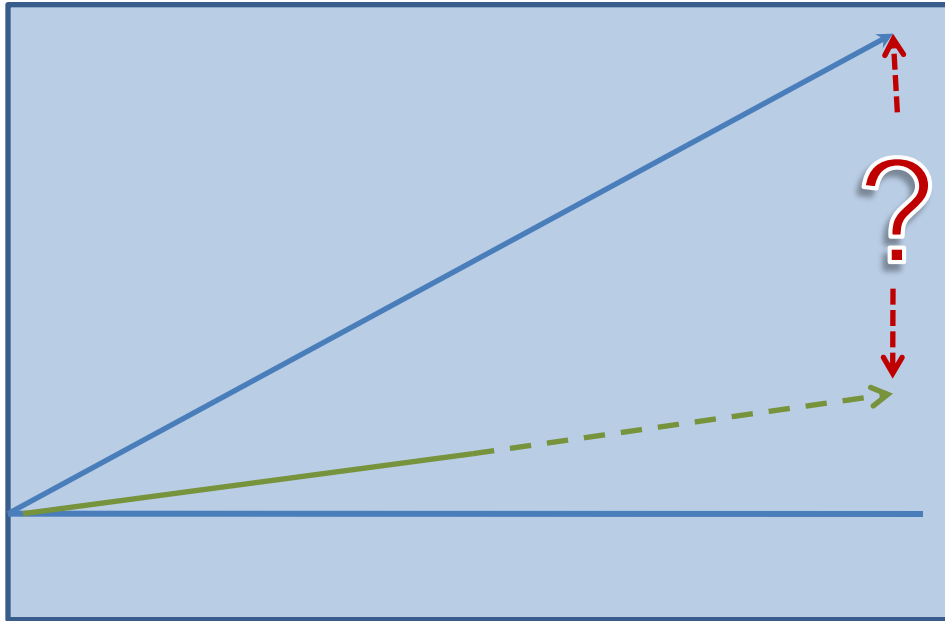


Rising Trend of Weather Related Disasters in Southern Africa 1980 - 2007 (CRED Database)

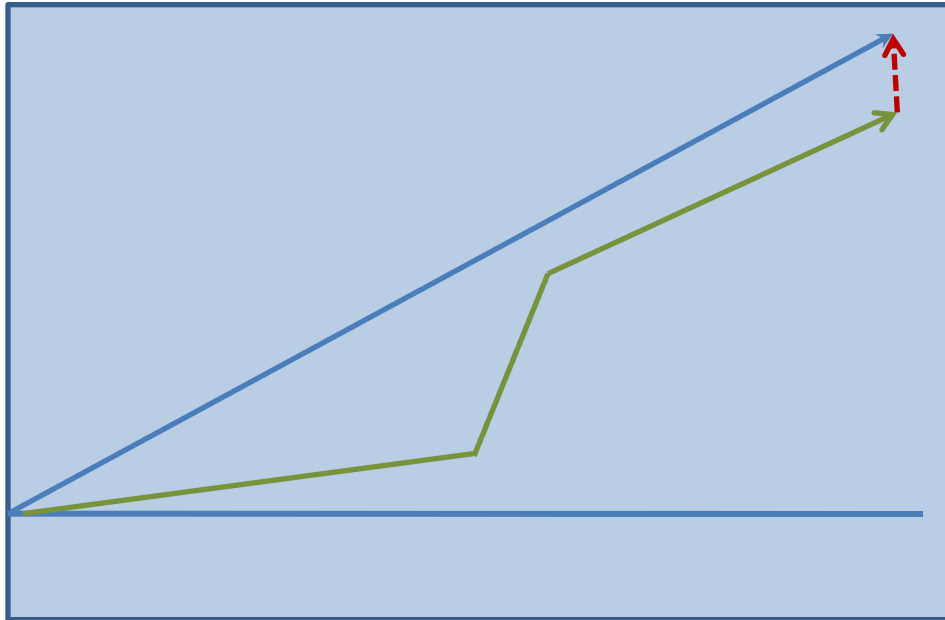


Enhancing the EWS in Southern Africa

- Dramatic developments in weather forecasting science over the past decades
- Increasing gap in developing countries of application of modern forecasting technology (NWP, EPS) in early warnings



Enhancing the EWS in Southern Africa



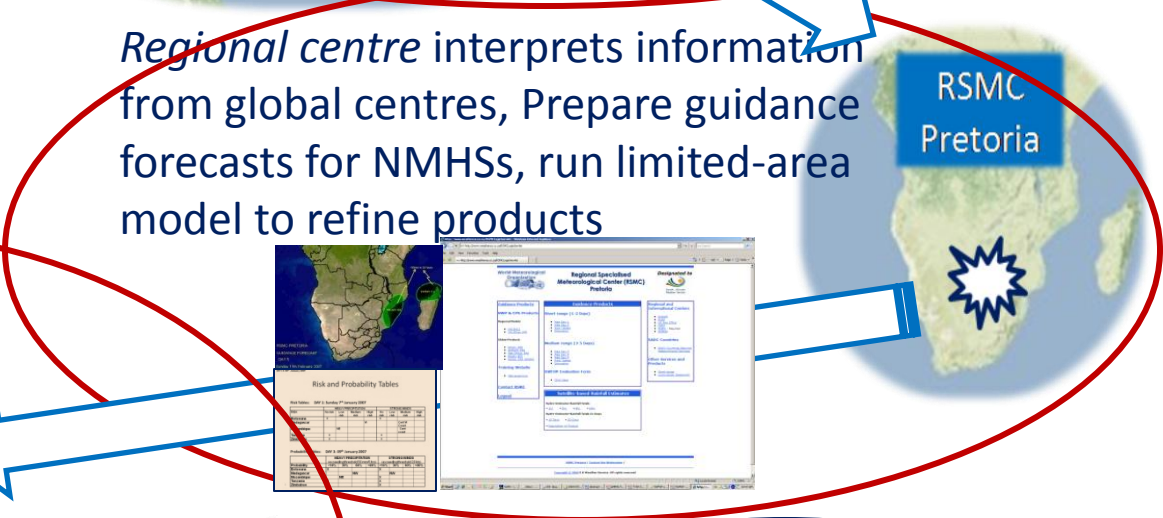
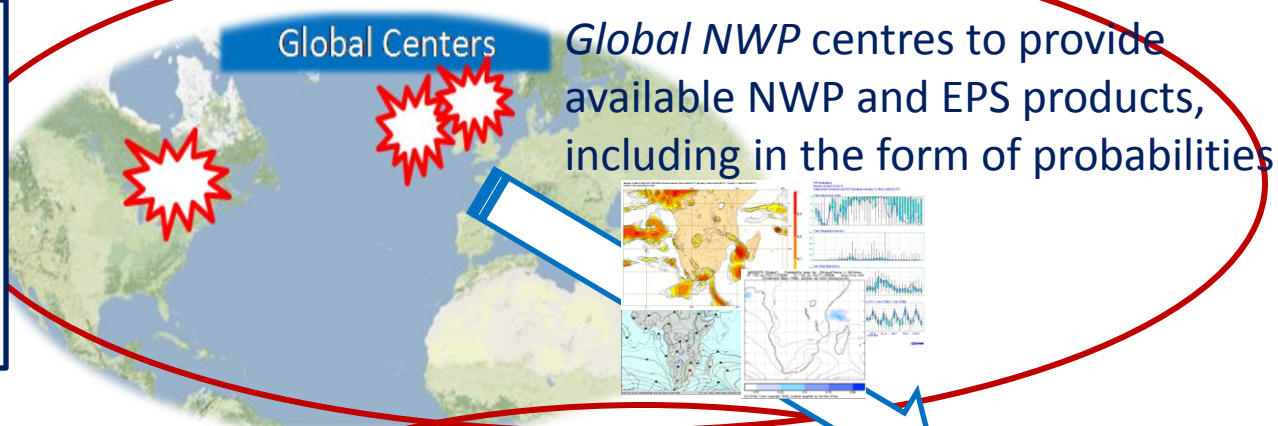
- Dramatic developments in weather forecasting science over the past decades
- Increasing gap in developing countries of application of modern forecasting technology (NWP, EPS) in early warnings
- *There is a need to support developing countries to close this gap*
- *Hence, the need for Regional EWSs*

SWFDP-SA: OVERVIEW

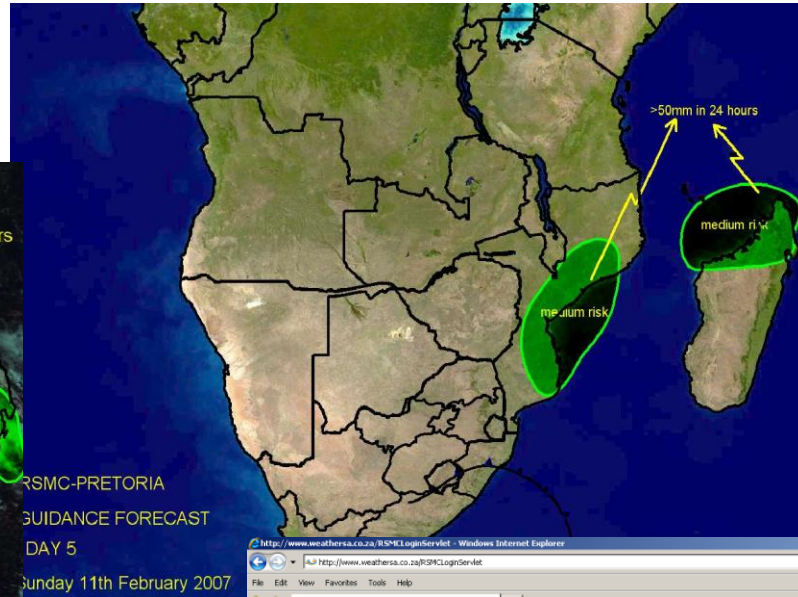
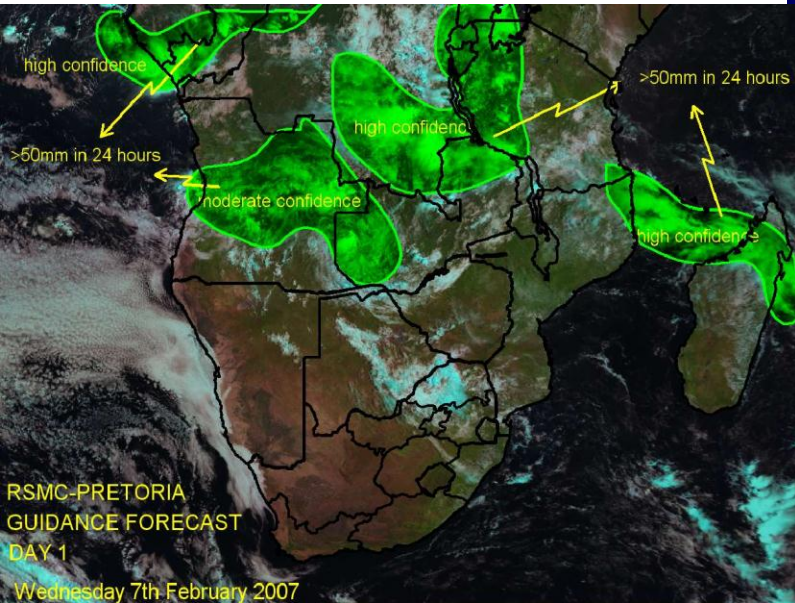
Aim of the WMO SWFDP Program

- To improve ability of National Meteorological Services (NMSs) to forecast severe weather events for the next 5 days using existing technology – to close the technology gap
- To improve interaction of NMSs with Disaster Management Agencies
- SWFDP is about *enhancing delivery of warning services as adaptation against a likely increase of disasters due to climate change and socio-economic vulnerabilities*

SWFDP Cascading Process



Examples of SWFDP Guidance Products from RSMC Pretoria



World Meteorological Organization
Regional Specialised Meteorological Center (RSMC) Pretoria
Designated to South African Weather Service

Guidance Products

NWP & EPS Products

Regional Models

- UM 24x2
- UM Africa LAM

Global Products

- ROMS, EPS
- SWW, EPS
- Met Office, EPS
- ROMS, EPS
- RAFS, EPS (SAWS)
- Observations

Training Website

- MetLearnings

Contact RSMC

Logout

Guidance Products

Short-range (1-2 Days)

- Map_Day_1
- Map_Day_2
- Risk Tables
- Observations

Medium-range (3-5 Days)

- Map_Day_3
- Map_Day_4
- Map_Day_5
- Risk Tables
- Observations

SWFDP Evaluation Form

- Click here

Satellite-based Rainfall Estimates

Hydro-Estimator Rainfall Totals

- 1hr, 3hr, 6hr, 24hr

Hydro-Estimator Rainfall Totals In Days

- 10 Days, 30 Days
- Description of Product

Regional and International Centers

- SWAF
- SIEM
- UM West Africa
- WMO
- RSMC - Reunion
- SAWS

SADC Countries

- SADC Countries National Meteorological Services

Other Services and Products

- Short-range
- Long-range (Seasonal)

RSMC Pretoria / Contact the Webmaster /
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Risk and Probability Tables

Risk Tables: DAY 1: Sunday 7th January 2007

RISK	HEAVY PRECIPITATION				STRONG WINDS			
	No risk	Low risk	Medium risk	High risk	No risk	Low risk	Medium risk	High risk
Botswana	X				X			
Madagascar				W			Cent W Coast	Cent coast
Mozambique		NE						
Tanzania	X				X			
Zimbabwe	X				X			

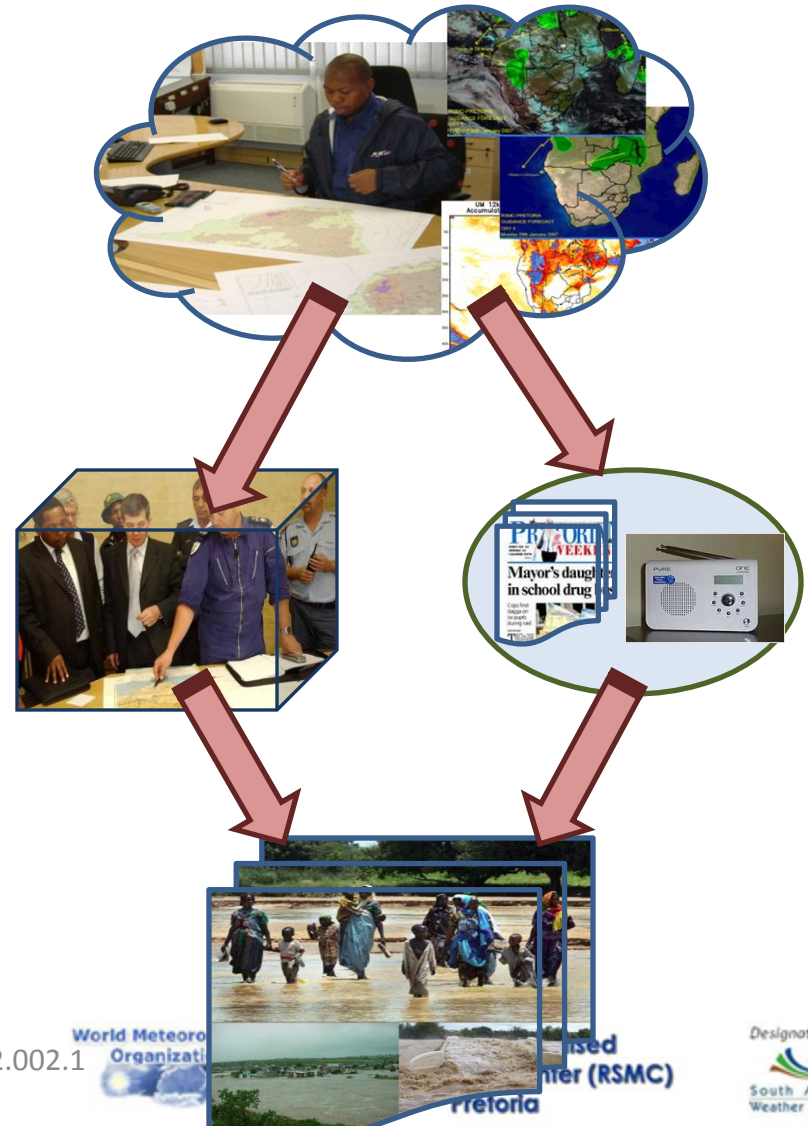
Probability Tables: DAY 3: 09th January 2007

Probability	HEAVY PRECIPITATION (exceeding threshold 50 mm/6 hrs)				STRONG WINDS (exceeding threshold 20 kts)			
	<10%	30%	60%	>80%	<10%	30%	60%	>80%
Botswana	X				X			
Madagascar							NW	
Mozambique		NE			X			
Tanzania	X				X			
Zimbabwe	X				X			

FCAST-PRE-20121112.002.1

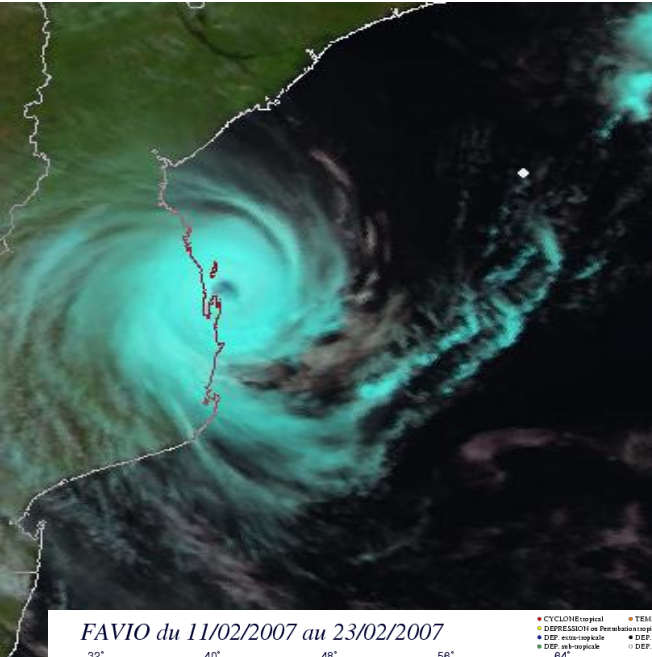
Warnings from National Meteorological Services

- NMSs evaluate model products supported by RSMC guidance products
- Issue warnings if needed against their own in-country criteria for severe weather
- Provide disaster management with up to 5 days lead-time of expected major hazards
- Coordinate with media for end-user dissemination

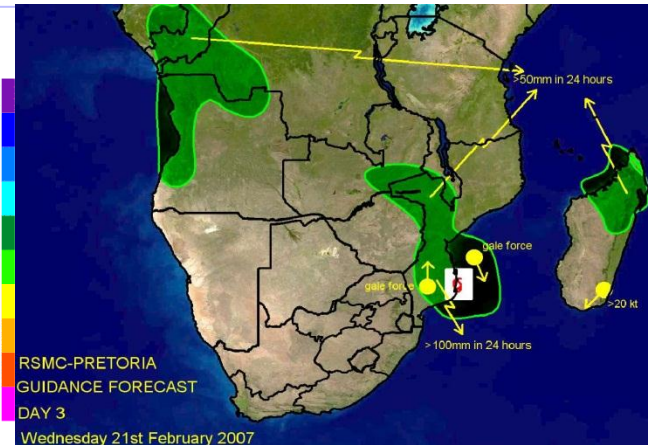
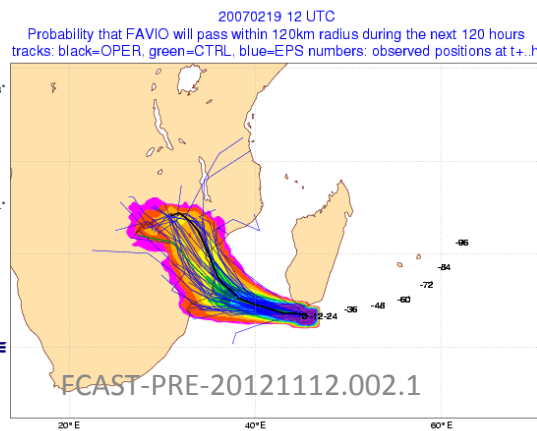
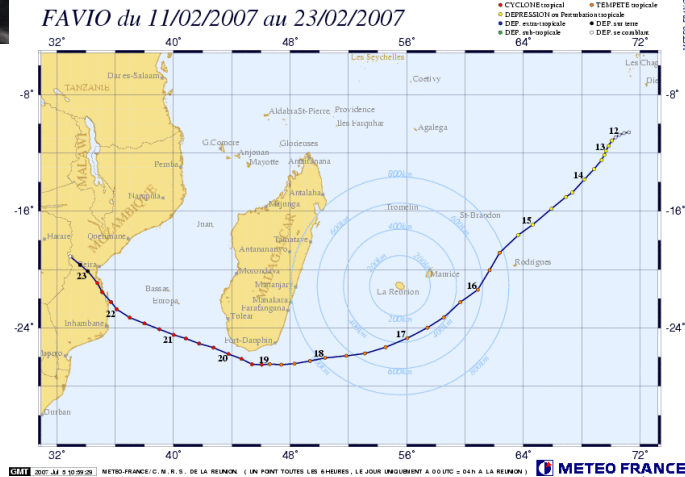


Example: Tropical Cyclone Favio

20-24 Feb 2007



- TC Favio caused widespread damage over Mozambique and Zimbabwe
- The consistency of model forecasts provided confidence to RSMC Pretoria to issue guidance to NMCs on potential landfall and movement 5 days in advance
- The model forecast proved to be quite accurate with landfall at Vilancoulos, moving to Eastern Zimbabwe



Impact of Tropical Cyclone Favio

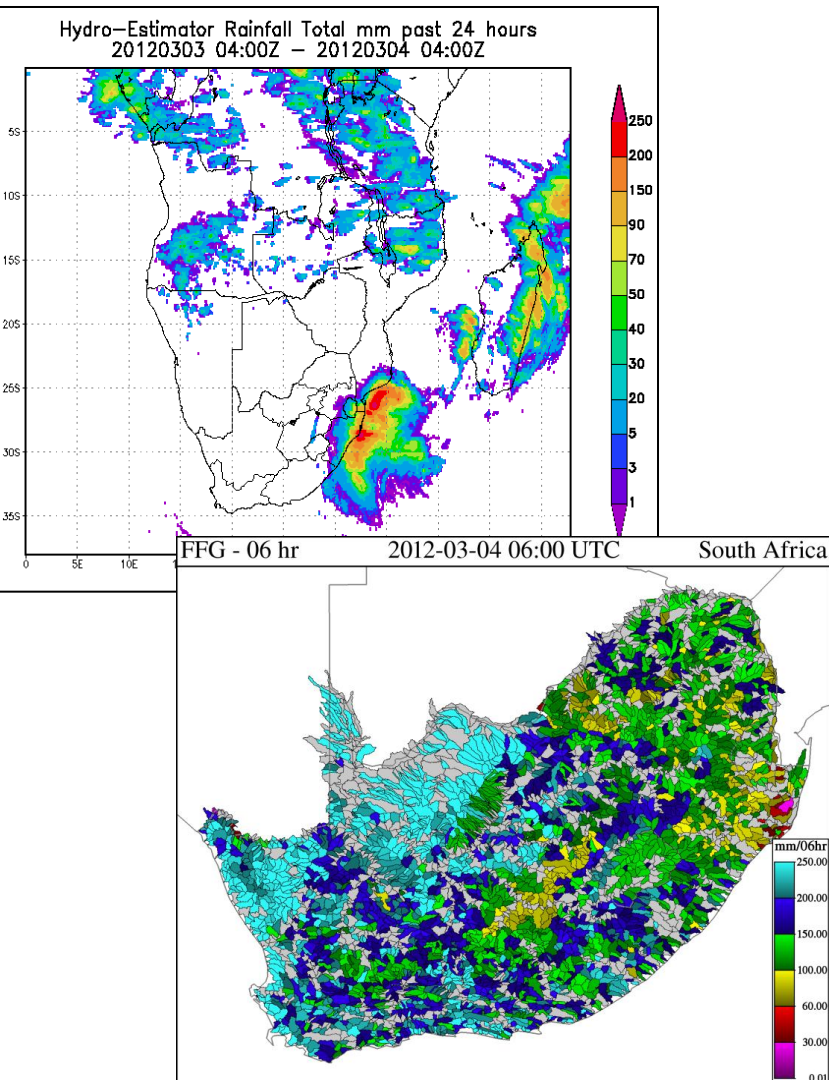


- In both Mozambique and Zimbabwe the NMCs agreed with the guidance products and issued warnings up to 5 days in advance to disaster management departments
- Both countries responded early:
 - Provinces were put on alert levels 2 - 3 days in advance
 - The public responded well and major loss of life were prevented



Tropical Cyclone IRINA- 4 March 2012

Example of collaboration in SWFDP between forecasters of RSMC Pretoria and the NMSs of Swaziland and Mozambique



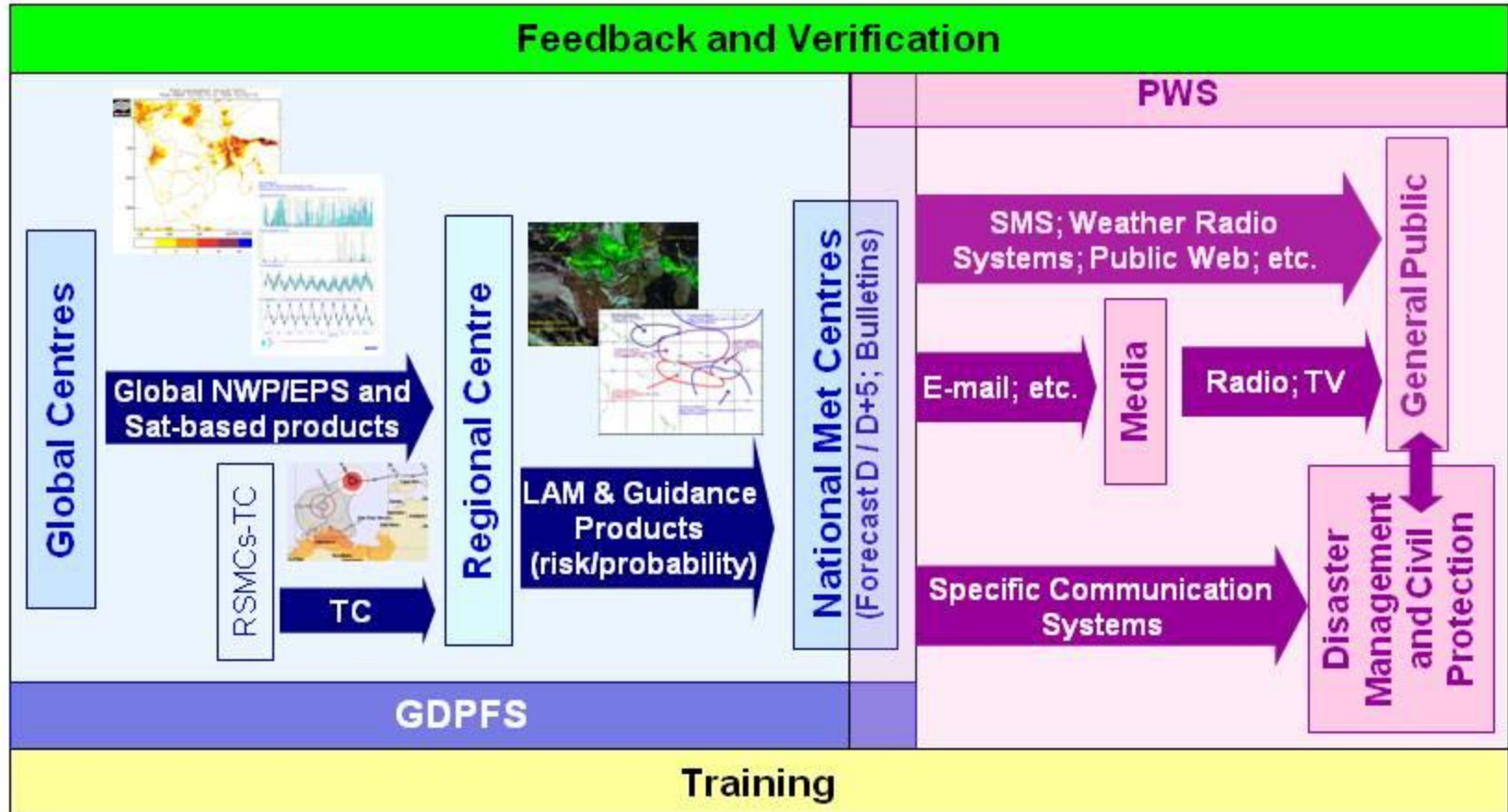
- RSMC-Pretoria issued guidance forecasts for potential impact around northern KZN, Swaziland, Maputo region
- NMSs of Swaziland and Mozambique were in regular contact via email on the progress and uncertainty of the landfall
- Disaster Management centres of the 3 countries were kept up to date by their NMSs

SWFDP: PHASE 4 CONCEPTS AND IMPACT ON SOUTHERN AFRICA



Severe Weather Forecasting Demonstration Project (SWFDP) main components

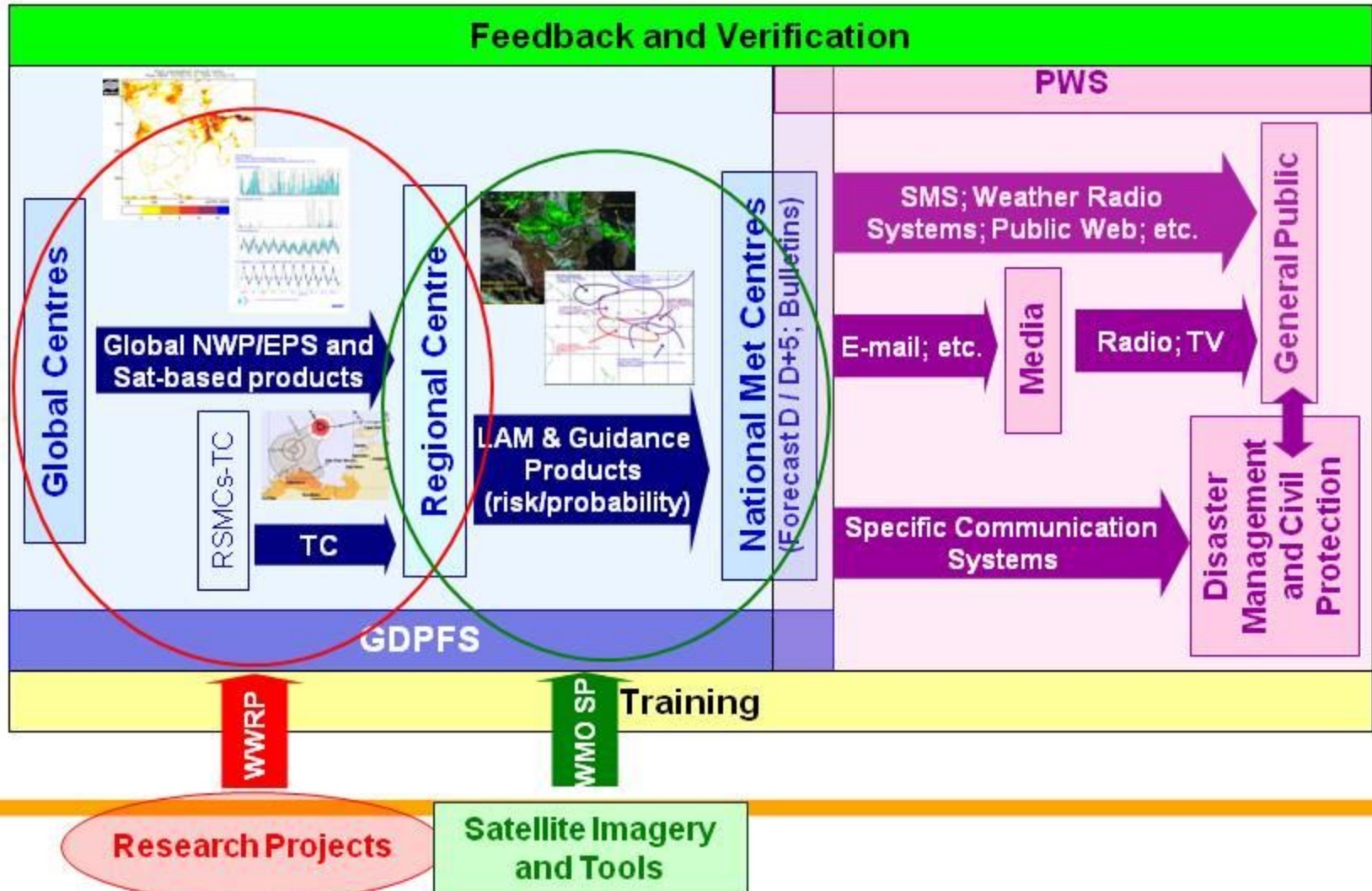
Phases 1 and 2





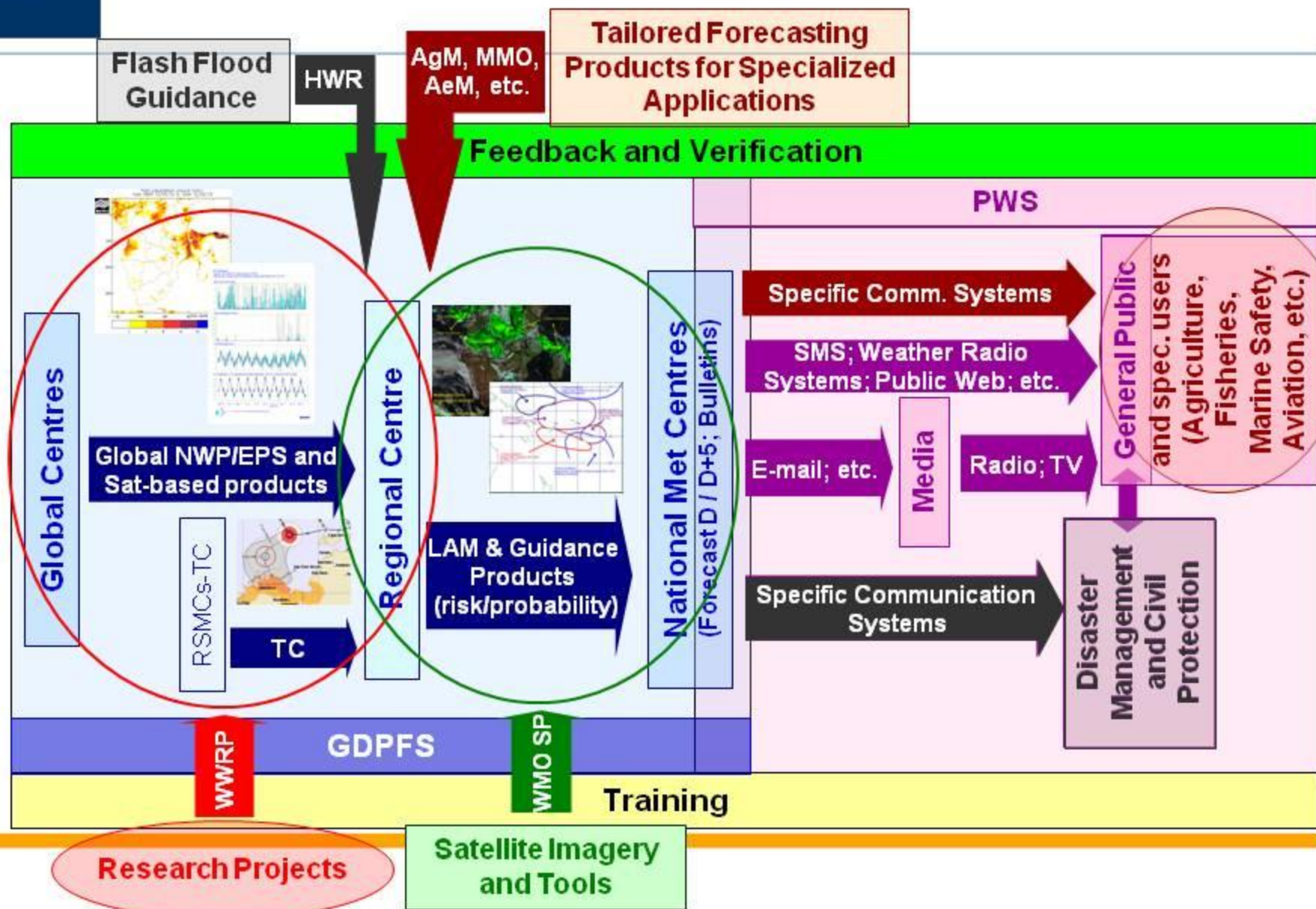
Severe Weather Forecasting Demonstration Project (SWFDP) main components

Phase 3 (more countries, more severe weather hazards)





Phase 4 – sustainability and development



Evolution of the SWFDP-SA Project

- *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
- SWFDP considered a very successful project: has improved warning services in many countries, and contributed to the improvement of relations between NMHSs and DMCPAs
- Recognized that some countries need more help to fully benefit from SWFDP
- SWFDP developed a framework for collaboration among NMSs and with their disaster management structures and media

Impact of Phase 4 on SWFDP-SA

- Future sustainability is uppermost
- Management moved from WMO to MASA
- WMO still requires general reporting from the region to assess if there is a need for specific support activities
- The strong SWFDP “brand” in WMO circles can still be used and should benefit the region as other activities are linking up with the SWFDP programme: we will not miss on new developments provided to SWFDP subprojects
- Further development and expansion to other hazards or sectors should be done

➤ ***This is just the beginning of an exciting new era – depends on you***

Some Future Development needs for SWFDP-SA

- Disaster management collaboration in various countries still need to be strengthened
- Application at local level to be improved: dissemination and end-user response (Buzi-river example in Mozambique, others?)
- Important to develop a seamless warning system from seasonal (SARCOF) to daily (SWFDP) to hourly (SARFFG) providing useful end-user products
- Some applications into new sectors envisaged:
 - Hydromet applications
 - Agromet applications
 - Coastal inundation issues

Questions?