

# ADAPTING TO THE IMPACT OF CLIMATE CHANGE ON DISASTERS:

## DEVELOPMENT OF THE EARLY WARNING SYSTEM IN SADC

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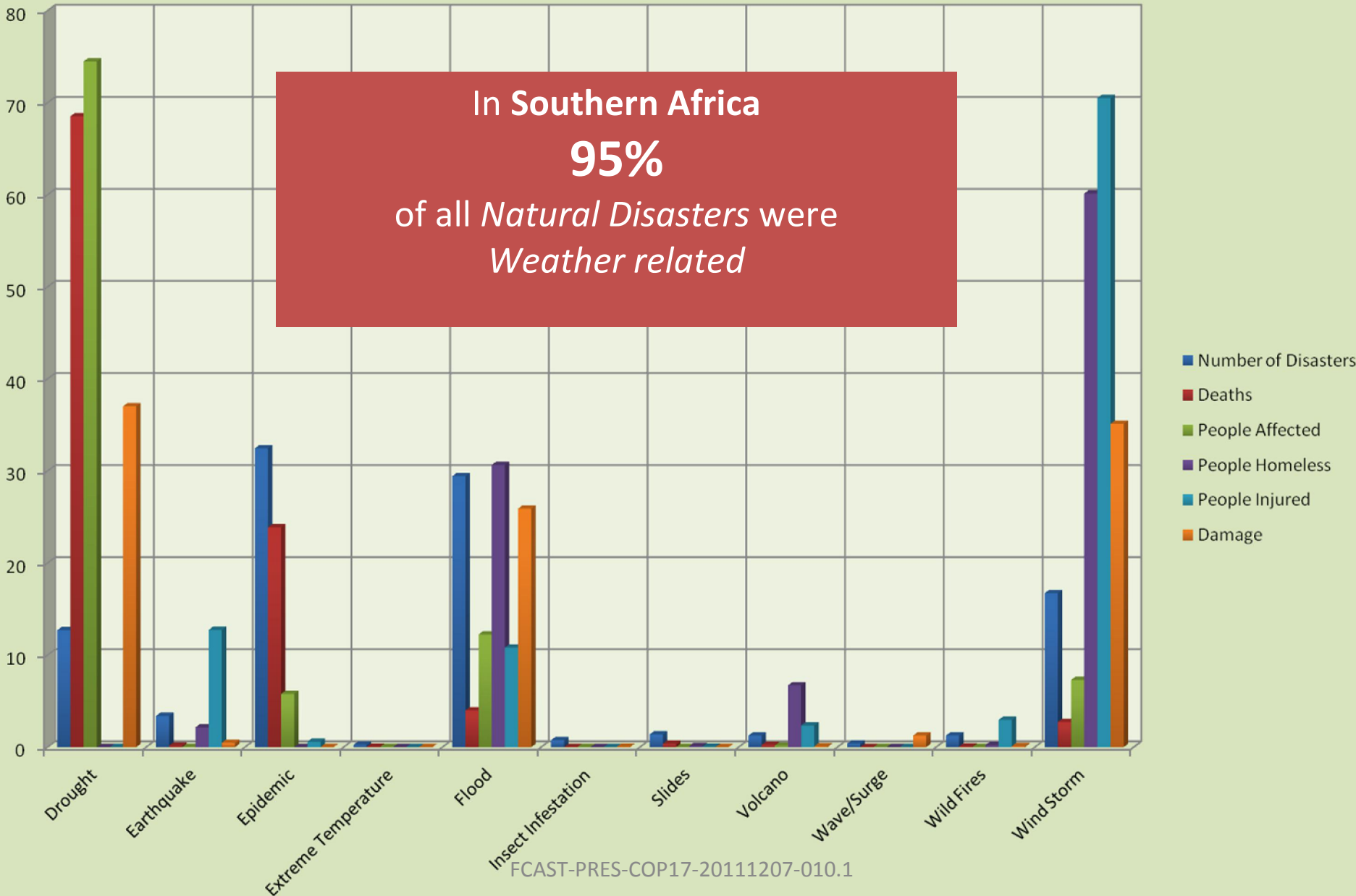
South African Weather Service



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

(Source: CRED)

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



# Progress in the Development of Regional EWS in Southern Africa



SARCOF: Consolidated seasonal climate forecasts in September on the likelihood of above / below normal rain for the coming summer season over SADC

6 months

SWFDP: Enhancing capacity in NMSs to issue severe weather warnings for the next 5 days

Days

SARFFG: Developing technology for flash flood warnings

Few Hours

Late 1990's

2006

2011/2012



**ENHANCING THE MULTI-HAZARD EWS IN SADC:  
WARNING OF POTENTIAL FLASH FLOODING WITH  
THE FFGS**

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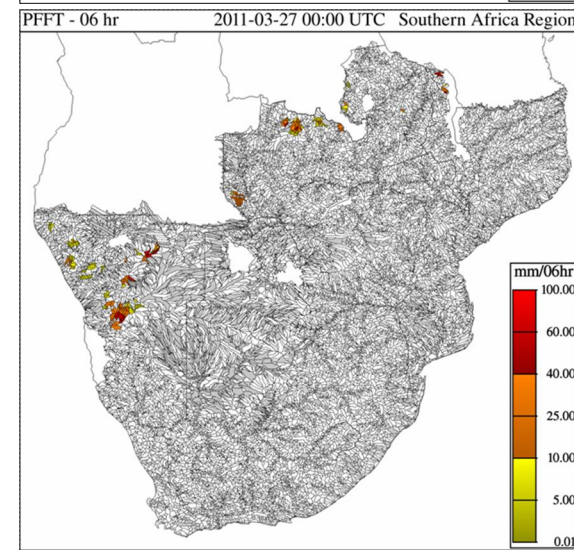
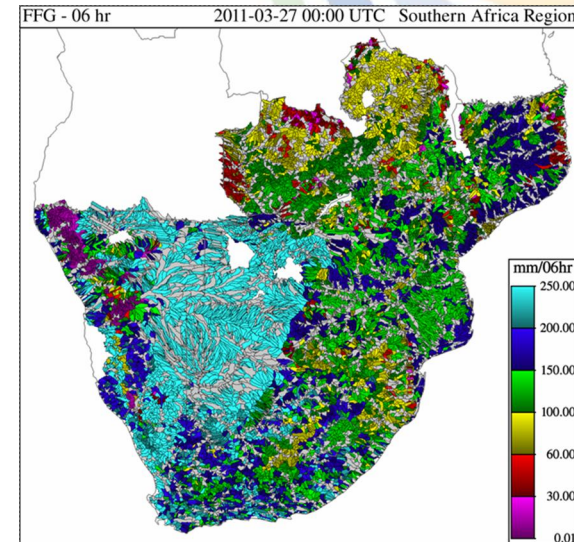
# Flash Floods – a Priority Hazard

- *River Floods* like Vaal or Zambezi River floods have a slow response to rain: days
- *Flash Flood* are quick response flooding in small basins following a heavy rain event – within 6 hours
- Recent findings of the WMO country-level survey: “Of the 139 countries, 105 indicated that *flash floods* were among the top two most important hazards around the world and require special attention”
- “On average these events kill more people worldwide than any other natural disaster” (WMO)
- In a Climate Change scenario there is a high likelihood for flash floods to increase in future

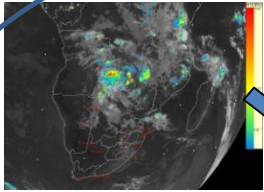
# WMO Initiative on Implementing Regional Flash Flood Guidance Systems

- Aim to improve flash flood warnings in sub-region around the world
- The FFG concept proved in Central America and Mekong River Basin
- SARFFG covers basins in 7 SADC countries
  - Developed by US Hydrologic Research Center in San Diego
  - Funded by USAID
  - Managed by WMO Hydrology Unit

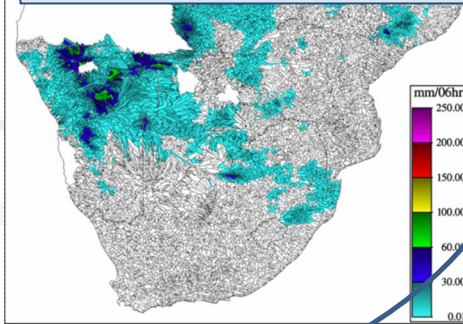
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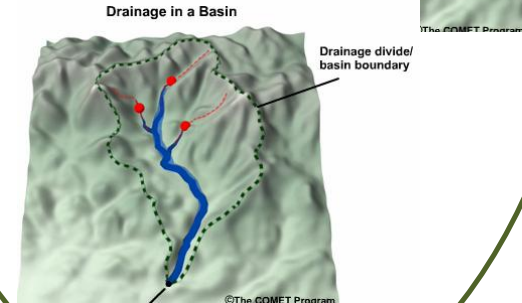
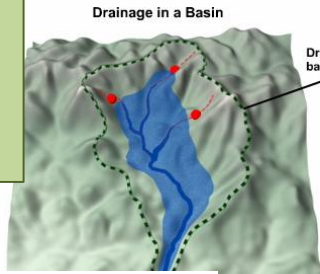
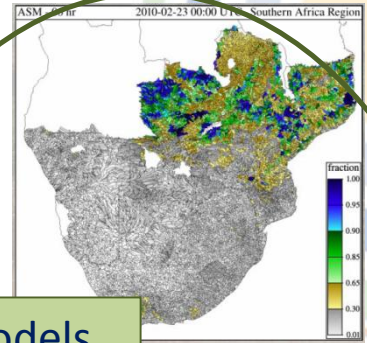
# Flash Flood Guidance Process



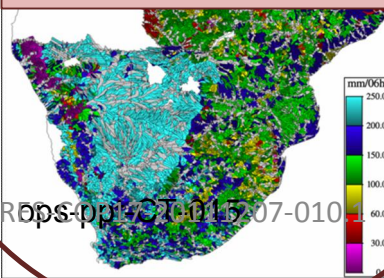
Calculate from satellite & rain gauge info the averaged rainfall over small basins



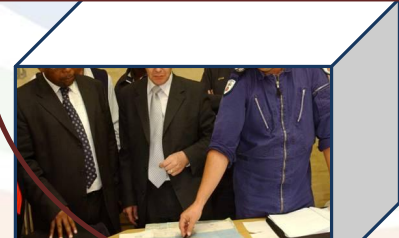
Hydrologic models determine likely soil moisture and rainfall runoff for small basins



Determines potential for flash floods



Warnings to Disaster Management and Public



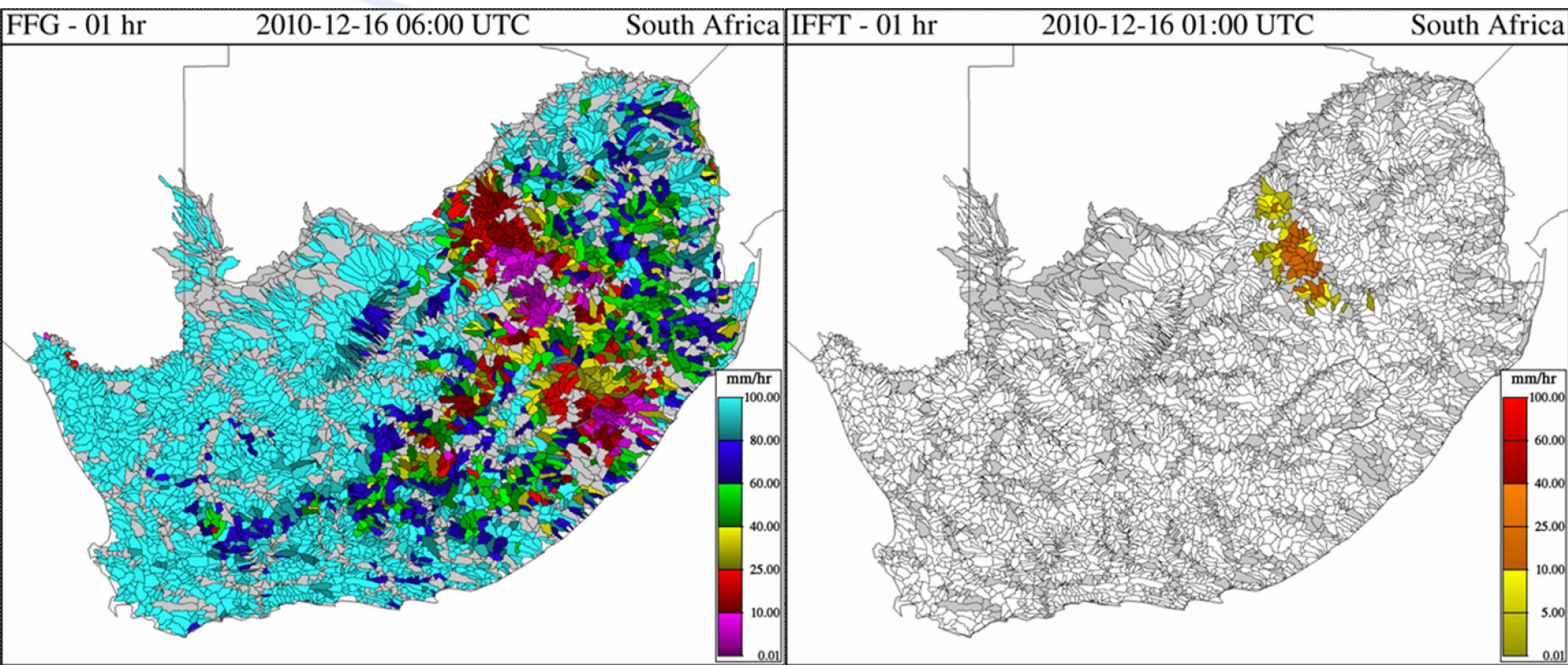


# Implementation of SARFFG

- Beta-system already running on at HRC in San Diego for a year
- Case studies has demonstrated its potential for flash flood guidance, and hydrologists in Namibia found it useful even in river flood situations
- Operational implementation scheduled for 2012 in the RSMC Pretoria at SAWS
- NMCs in countries will have internet access to the system for their own countries
- Training events will be conducted for forecasters and hydrologists of these countries

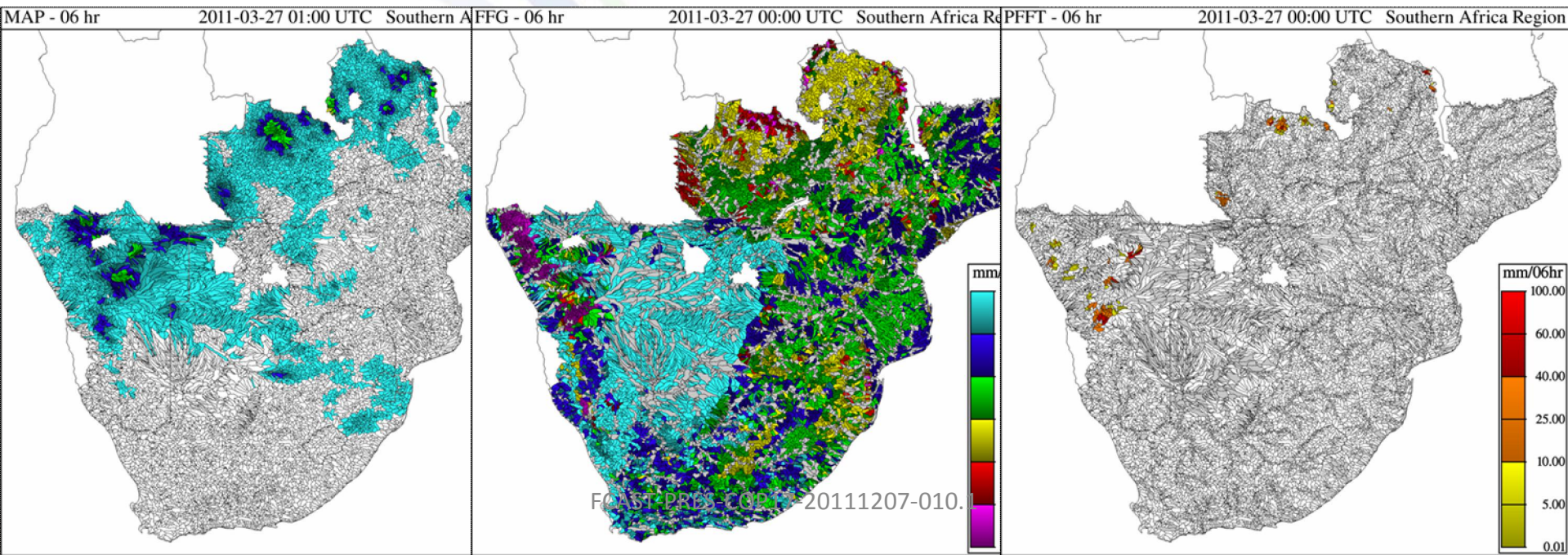
# Flooding in Gauteng: 15-16 Dec 2010

- Severe flash flooding occurred in various places with some fatalities, severe disruption and infrastructure damage
- SARFFG was able to capture this event successfully



# Flash flood events in Namibia: 2011/3/27

- Captured flash flooding in central Namibia quite well
- Also provided useful info to hydrologists in Namibia's river flood dilemma in early 2011



# Summary

- Beta system of SARFFG already running at San Diego
- Implementation now due: transferred to RSMC Pretoria during 2012
- Important to develop a seamless warning system between SWFDP (daily) to SARFFG (nowcasting)
- Strengthens the multi-hazard nature of SWFDP Framework



*Thank you*