

**SWFDP – Eastern Africa
Regional Training Workshop on
Severe Weather Forecasting (GDPFS) and Warning Services (PWS)
Arusha, Tanzania, 21 November – 2 December 2011**

Provisional Programme for GDPFS session
1st week: 21 to 26 November 2011
Version 6.XI.2011

Monday 21/11	
08:30	Registration
09:00	Opening - welcome and remarks (TMA/Soares) 15 min Introductory remarks (subject matter, objectives, workshop programme, concepts). <ul style="list-style-type: none"> ○ Training Workshop goals/objectives, programme (Soares) 15 min ○ WMO GDPFS Programme - SWFDP – Eastern Africa (Soares) 15 min ○ Introduction to NWP/EPS in Operational Weather Forecasting <ul style="list-style-type: none"> • general aspects, medium-range (Davies) 30 min • regional and local aspects, short-range, nowcasting (Kabelwa) 30 min ○ Local hosts remarks and arrangements (Kanemba) 10 min
COFFEE BREAK	
11:00	Severe Weather Forecasting Demonstration Project (SWFDP) <ul style="list-style-type: none"> ○ Overview of the SWFDP (Soares) 20 min ○ SWFDP-EA Website and portal (Interactive Demo) (Sakwa) 30 min ○ Lake Victoria Website (interactive Demo) (Kabelwa) 20 min Detailed review of the programme for week-1 (Kanemba) 10 min
12:30 – 14:00	LUNCH
14:00	Current weather discussion (Lipiki) 10 min
COFFEE BREAK	Verification <ul style="list-style-type: none"> ○ Why Verification? Work assignment (Wilson) 40 min Global NWP models and their products for Eastern Africa <ul style="list-style-type: none"> ○ Numerical Weather Prediction Process (Davies) 40 min <ul style="list-style-type: none"> ▪ Basics: data assimilation, resolution, physical parameterisation; ▪ Strengths and weaknesses of the ECMWF model; ○ UKMO Global Model – UM (Davies) 25 min <ul style="list-style-type: none"> ▪ Overview, strengths, weaknesses and products (access demo.) ○ ECMWF model products available to WMO (Davies) 25 min <ul style="list-style-type: none"> ▪ access, products, surf ○ NOAA/NCEP products available on the African Desk (Grumm) 25 min <ul style="list-style-type: none"> ▪ access, products, surf
– 17:00	
Tuesday 22/11	
9:00	Regional NWP/Limited Area Model (LAM) <ul style="list-style-type: none"> ○ Operational aspects: boundary conditions, topography, local sfc and u/a observations, LAM data assimilation, integration (time constraints), UM Africa LAM and L. Victoria (Davies) 45 min ○ HRM and WRF – strengths and weaknesses (Sakwa/Kabelwa/Grumm) 30 min ○ Access to products, demonstration (Davies/Sakwa/Kabelwa/Grumm) 30min
COFFEE BREAK	
11:00	Verification <ul style="list-style-type: none"> ○ Verification of global and regional model products (Wilson) 30 min Ensemble Prediction Systems and Probabilistic Forecasting <ul style="list-style-type: none"> ○ General probability concepts for forecasting (Davies) 30 min ○ ECMWF Extreme Forecast Index (EFI), probability charts and EPSgrams (Davies) 30 min

12:30 – 14:00	LUNCH
14:00	Current weather discussion (Mushi) 10 min
COFFEE BREAK	<p>Ensemble Prediction Systems and Probabilistic Forecasting (cont.)</p> <ul style="list-style-type: none"> MOGREPS system and outputs (Davies) 30 min Incl. access demo: MOGREPS, ECMWF (Davies) 30 min GIFS-TIGGE products (Soares) 15 min <p>Use of Probabilistic Predictions</p> <ul style="list-style-type: none"> Uses of NWP “deterministic” with EPS products (Grumm) 50 min Use of probabilistic forecasting at RSMC Nairobi (Sakwa) 30 min
– 17:00	
Wednesday 23/11	
9:00	<p>Discussion: Forcing mechanisms and the development of Severe Weather in the region</p> <ul style="list-style-type: none"> Using NWP to diagnose synoptic scale forcing (led by Davies) 35 min <p>Application of NWP products to Severe Weather (medium-range to short-range)</p> <ul style="list-style-type: none"> NWP and EPS products (Grumm) 20 min <ul style="list-style-type: none"> Using NWP and other weather information for forecasting severe weather; Quantitative Precipitation Forecasts (QPF); Specific products (diagnosis of deep convection): K-Index, Total Totals Index, Lifted Index, Vertical Velocity, CAPE, Precipitable water, Theta-e, CIN (Grumm) 30 min Using GFS vertical profiles (Grumm) 20 min Detecting and monitoring hazardous weather (Sakwa/Msemo) 30 min <ul style="list-style-type: none"> Ensemble forecasts and their use, in particular in the preparation of severe weather forecasts Use of probabilities and NWP guidance for severe weather forecasting; Knowledge of climatology Real time observations <p>Statistical adaptation of NWP products</p> <ul style="list-style-type: none"> Statistical Post-processing NWP outputs (Wilson) 30 min Experience with statistical adaptation (Sakwa/Kabelwa) 30 min
COFFEE BREAK	
12:30 – 14:00	LUNCH
14:00	Current weather discussion (Lungo) 10 min
COFFEE BREAK	<p>Medium-range forecasting for this weekend and next week (Davies) 30 min</p> <p>Seasonal forecasting (Grumm/Sakwa) 30 min</p> <p>Verification</p> <ul style="list-style-type: none"> Introduction to verifying forecasts and warnings (Wilson) 45 min SWFDP verification tasks and interpretation of results (Wilson) 60 min
– 17:00	
Thursday 24/11	
9:00	<p>Forecast process for forecasting severe weather, including priority tasks of the forecasters (Davies) 30 min</p> <p>How to prepare Case study (Davies) 30 min</p> <p>Severe weather - Case study</p> <ul style="list-style-type: none"> Hands-on session (all, led by Davies/Sakwa/Msemo) 105 min The Best practice for Severe Weather Forecasting: Case study work 1– Use of NWP and EPS products for forecasting severe weather. Practicality: Best use of Global Models: deterministic and EPS, Diagnostic tools for Severe weather forecasting, early warnings, best use of LAM models, best use of products from the RSMC, observational data for monitoring and forecasting severe weather in EA, to provide alerts and warnings Reports on the case study (participants) 30 min
COFFEE BREAK	

12:30 – 14:00	LUNCH
14:00 COFFEE BREAK – 17:00	<p>Current weather discussion (Lipiki) 10 min</p> <p>Short-range Forecasting and Nowcasting of Severe Weather (Kanemba) 30 min</p> <ul style="list-style-type: none"> ○ Use of observations: Reports, Radars, Satellites, Lightning detection ○ Short-range forecasting, warning services, and verification <p>Nowcasting using satellite products (Kageny) 125 min</p> <ul style="list-style-type: none"> ○ Satellite basics ○ Image data processing and interpretation
Friday 25/11	
9:00 COFFEE BREAK	<p>Nowcasting using satellite products (Kageny) 195 min</p> <ul style="list-style-type: none"> ○ Forecasting process using various data products ○ Case studies/scenarios
12:30 – 14:00	LUNCH
14:00 COFFEE BREAK – 17:00	<p>Current weather discussion (Mushi) 10 min</p> <p>Using satellite (MSG) and model data to anticipate convection (On-line session; deConing) 60 min</p> <p>Short-range Forecasting and Nowcasting - Case study (using current weather situation in Eastern Africa, focusing on Lake Victoria Basin Region</p> <ul style="list-style-type: none"> ○ Hands-on session <i>(all, led by Kageny)</i> 55 min The Best practice for Severe Weather Nowcasting: Case study work 2 – Use of NWP products and observations for short-range forecasting, including nowcasting, severe weather. Practicality: Best use of satellite products, best use of products from the RSMC ○ Reports on the case study <i>(participants)</i> 20 min <p>Verification</p> <ul style="list-style-type: none"> ○ Review of assignment (Wilson) 20 min
Saturday 26/11	
9:00 COFFEE BREAK	<p>Specialized NWP products (e.g. ECMWF wave products, including wave EPSgrams, KMD products) (Sakwa) 60 min</p> <p>NWP and satellite-based products in support of agriculture and fisheries (Stefanski/Kabelwa/Mushi) 90 min</p> <p>Discussion: Implementing the Severe Weather Forecasting Demonstration Project (SWFDP) in Eastern Africa, focusing on Lake Victoria Basin Region <i>(led by Soares)</i> 45min</p> <ul style="list-style-type: none"> ○ Management, schedule feed-back and organization ○ Tasks for the RSMT members ○ Recommendations to improve the Project Web Portal <p>Complete WMO Training Workshop Questionnaire (GDPFS) <i>(participants)</i> 20 min</p> <p>Closing remarks (TMA/Soares) 10 min</p>
13:00	CLOSURE

Course Director: **Augustine Kanemba** (TMA)
WMO Secretariat and lecturers: **Alice Soares and Robert Stefanski** (WMO)
Invited lecturer: **Paul Davies** (Met Office UK)
Invited lecturer: **Vincent Sakwa** (KMD/RSMC Nairobi)
Invited lecturer: **Lawrence Wilson** (Consultant)
Invited lecturer: **Richard Grumm**
Invited lecturers: **Hamza Kabelwa** (TMA)
Invited lecturers: **Samwel Mbuya** (TMA)
Invited lecturers: **Hellen Msemu** (TMA)

Invited lecturer (satellite): **Joseph Kagenyi (KMD/IMTR) and Estella deConing (SAWS) (representing Eumetsat)**
participants: Burundi, Ethiopia, Kenya, Rwanda, Tanzania, and Uganda

Notes:

Daily session:

Monday-Friday: 09:00-17:00 (08:30 start of registration on Monday, 21 November 2011)

Saturday: 09:00-13:00

Health breaks:

15 minutes mid-morning and mid-afternoon

Current weather discussion:

Beginning of each afternoon session