

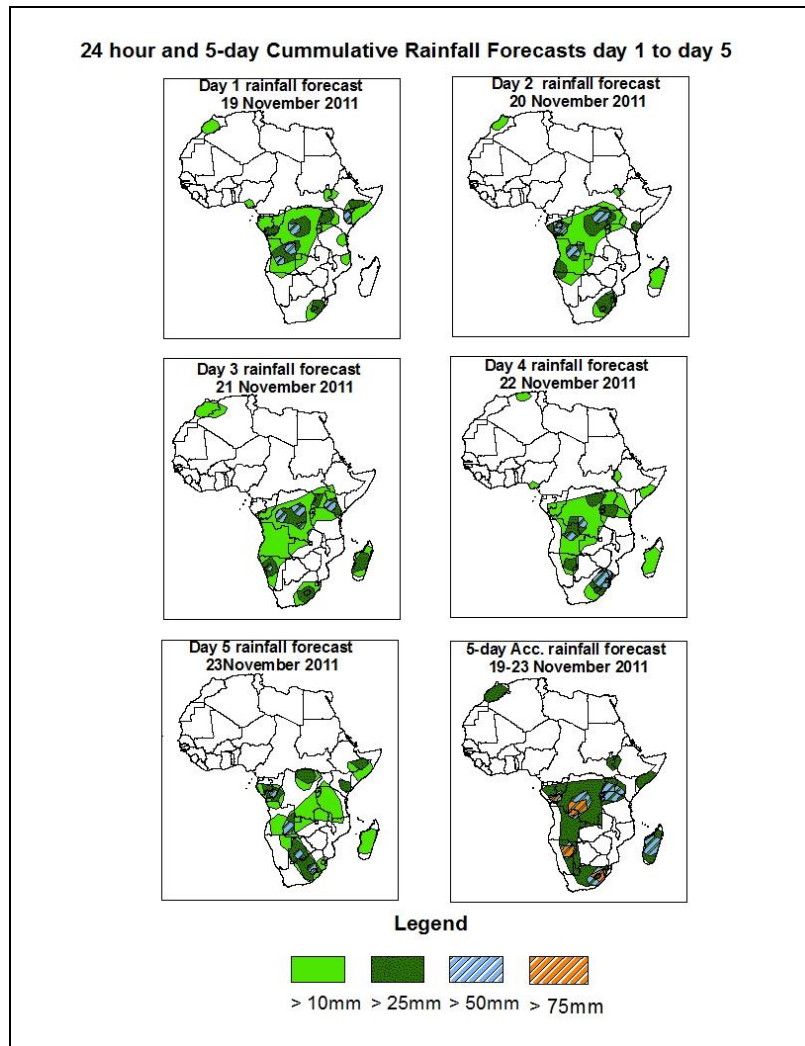


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid 06Z of 19November – 06Z of 23November 2011, (Issued at 17:45Z of 18November 2011)

### 1.1. Twenty Four Hour Cumulative Rainfall Forecasts

The forecasts are expressed in terms of high probability of precipitation (POP) exceeded, based on the NCEP, UK Met Office and the ECMWF NWP outputs, the NCEP global ensemble forecasts system (GEFS) and expert assessment.



### Summary

In the next five days, seasonal and localized wind convergences are expected to enhance rainfall in their respective regions. Hence, there is an increased chance for heavy rainfall over Angola, Gabon, Congo Brazzaville, DRC, northern Tanzania, Namibia, parts of Zambia, parts of Madagascar, Sothern Somalia, parts of Morocco, portion of Ethiopia, Burundi, portion of Sudan Uganda and southern Africa.

## **1.2. Models Comparison and Discussion-Valid from 00Z of 19 November 2011**

The GFS, ECMWF and UKMET models indicate series of lows and their associated troughs across central and the South African countries. The low over DRC is expected to fill up, with its mean sea level pressure value increasing from 1008mb to 1009mb through 24 to 96hours and tends to deepen to 1008mb by 120hours according to the GFS model. Another low is expected to form in the vicinity of Botswana and is expected to deepen, with its mean sea level pressure decreasing from 1008mb to 1005mb according to GFS model while according to UKMET model its center increasing from 1008mb to 1009mb through 24 to 48hours. Another low is expected to form in the vicinity of Madagascar and is expected to deepen, with its central pressure value decreasing from 1009mb to 1007mb through 24 to 48hours according to GFS model. While according to UKMET model it tends to deepen from 1008mb to 1007mb. Another low is expected to form extending across Angola, Namibia, Zambia and Botswana and tends to deepen, with its MSLP value decreasing from 1008mb to 1006mb during the forecast period according to UKMET model. Another low is expected to form in the vicinity of Tanzania and tends to fill up, with its central pressure increasing from 1009mb to 1010mb towards the end of the forecast period according to the GFS model.

The St. Helena High pressure system over southeast Atlantic Ocean is expected to intensify, with its MSLP value increasing from 1020mb to 1032mb towards the end of the forecast period according to GFS model. According to ECMWF this low is expected to intensify, with its MSLP value increasing from 1020mb to 1033mb towards the end of the forecast period. While according to UKMET model it is expected to intensify to 1036mb. The Mascarene high pressure system over southwest Indian Ocean is expected to intensify, with its central pressure value of increasing from 1020mb to 1024mb towards the end of the forecast period according to UKMET, ECMWF and the GFS models towards the end of the forecast period.

At the 850hpa level, a lower tropospheric wind convergence is expected to dominate the flow over parts of Angola during the forecast period. The seasonal wind convergence across central African countries is expected to remain active during the forecast period extending across DRC. Localized wind convergences are also expected to dominate the flow over portions of Ethiopia, Zambia, South Africa, Tanzania, Congo, Gabon,

Cameron, Algeria, Namibia, CAR ,Madagascar, Botswana, and Uganda, during the forecast period.

At 500hpa, eastward propagating trough in the westerly is expected to dominate the flow over Mediterranean Sea during the forecast period; with the low geopotential value of 5820gpm extending to the latitudes of Egypt and Libya By 24 and expected to propagate over Egypt towards the end of the forecast period .Another trough is expected to propagate over Morocco and Algeria through 24hours and is expected to extend over Tunisia towards the end of the forecast period .Amid latitude frontal system is expected to propagate eastwards across the Southern African countries through 48 to 120hours.

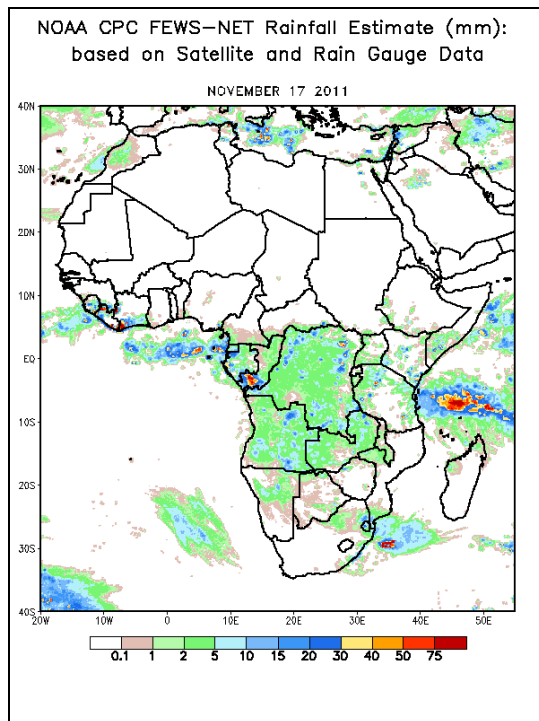
At 200mb, strong winds associated with Sub-Tropical Westerly Jet are expected to dominate the flow over northern Africa, during the forecast period. The intensity of the jet is expected to exceed 110kts over Egypt, Libya and Algeria by 24hours. While by 48 hours it is expected to propagate over Libya and Egypt. By the end of the forecast period it is expected to propagate over Egypt, Libya and Algeria. Wind speed values associated with the southern Hemisphere sub-tropical westerly jet are expected to exceed 90kts, while intensifying towards end of forecast period across South Africa.

In the next five days, seasonal and localized wind convergences are expected to enhance rainfall in their respective regions. Hence, there is an increased chance for heavy rainfall over Angola, Gabon, Congo Brazzaville, DRC, northern Tanzania, Namibia, parts of Zambia, parts of Madagascar, Sothern Somalia, parts of Morocco, portion of Ethiopia, Burundi, portion of Sudan Uganda and southern Africa.

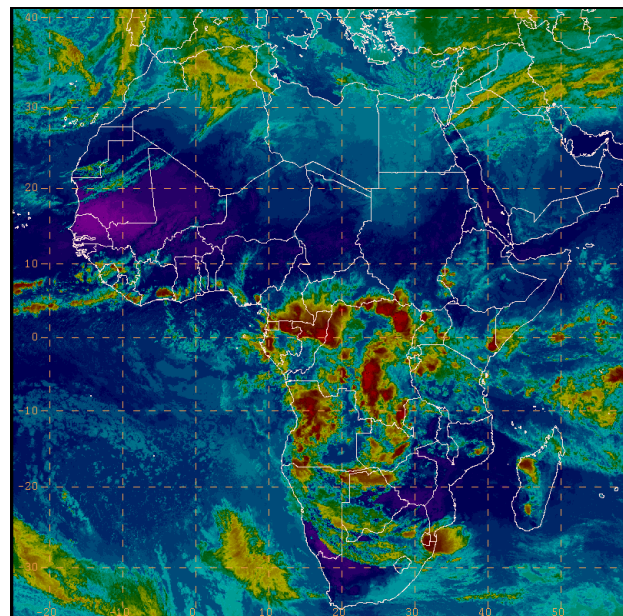
## **2.0. Previous and Current Day Weather Discussion over Africa (17November - 18November 2011)**

**2.1. Weather assessment for the previous day (17November 2011):** During the previous day, moderate to locally heavy rainfall was observed over parts of DRC, southern Kenya, southern Congo, western Gabon, portions of Tanzania, parts of Sierra Leone, Liberia, Cote D'Ivoire and parts of Angola.

**2.2. Weather assessment for the current day (18November 2011):** Intense clouds are observed over parts of DRC, parts of Angola, parts of Zambia, parts of Tanzania, southern CAR, parts of Somalia, parts of Cameroon, parts of Gabon, parts of Mozambique, parts of Madagascar, parts of coastal Gulf of Guinea and parts of Uganda.



IR Satellite Image (valid 1722Z of 18November 2011)



*Previous day rainfall condition over Africa (top Left) based on the NCEP CPCE/RFE and current day cloud cover (top right) based on IR Satellite image*

**Author(s):** Amira Ibrahim (Egyptian Meteorological Authority) / CPC-African Desk),  
[Amira.ibrahim@noaa.gov](mailto:Amira.ibrahim@noaa.gov),  
Sadibou Ba (Agence Nationale de la Meteorologie du Senegal) / CPC-African Desk),  
[sadibou.ba@noaa.gov](mailto:sadibou.ba@noaa.gov) and  
Aminata Makalou (Direction Nationale de la Meteorologie du Mali-ASECNA) / CPC-African  
Desk), [aminata.makalou@noaa.gov](mailto:aminata.makalou@noaa.gov)