

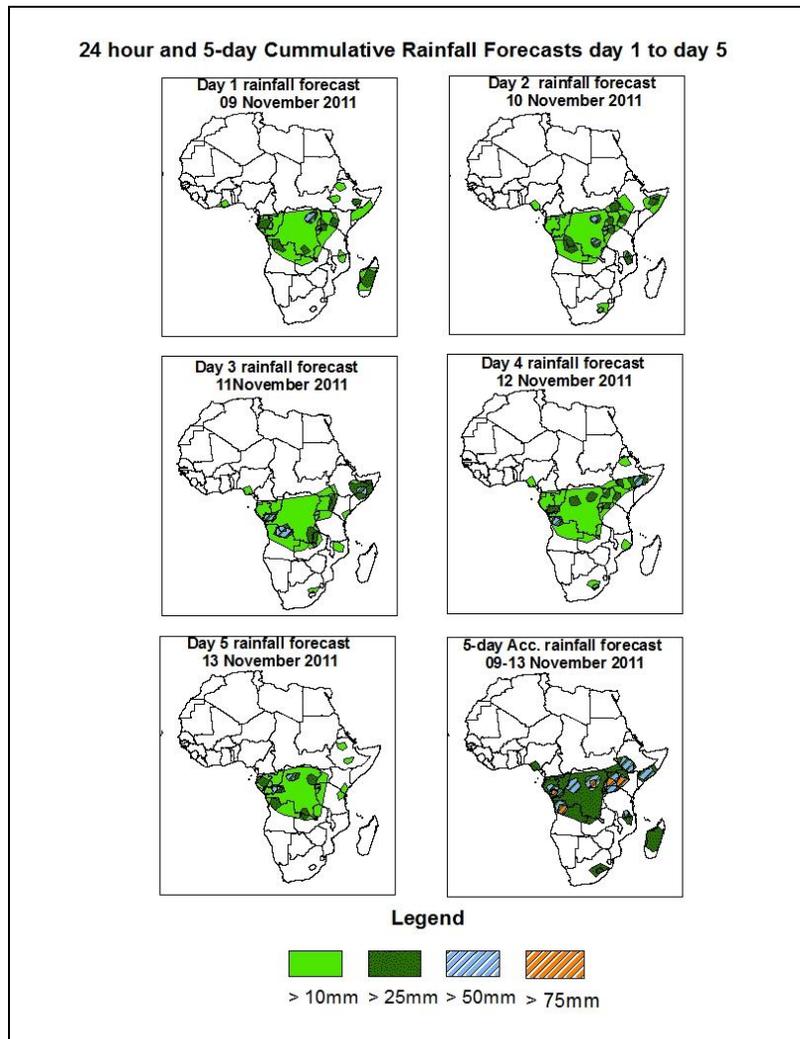


# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

## 1.0. Rainfall Forecast: Valid 06Z of 09 November – 06Z of 13 November 2011, (Issued at 16:45Z of 08 November 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 southern Ethiopia, northern Angola, Gabon, Congo Brazzaville, DRC, parts of Kenya, Madagascar, northern Tanzania, local areas of southern Nigeria, Uganda and southern Somalia.

## **1.2. Models Comparison and Discussion-Valid from 00Z of 09 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 deepen, with its mean sea level pressure value decreasing from 1009mb to 1006mb through 24 to 96hours and tends to fill up to 1007mb towards the end of the forecast period, according to the GFS model. This same low tends to deepen, with its mean sea level pressure value decreasing from 1011mb to 1009mb during the forecast period according to ECMWF model. According to UKMET model this low tends to deepen, with its central pressure value decreasing from 1009mb to 1008mb during the forecast period. A low over Tanzania is expected to deepen from MSLP value of 1009mb to 1008mb through 24 to 72 hours according to the GFS model and then tends to fill up, to 1009mb towards the end of the forecast period. Another low is expected to form extending across Angola, Namibia and Botswana and tends to deepen, with its MSLP value decreasing from 1009mb to 1005mb towards the end of the forecast period according to GFS model. This low is expected to prevail extending across Angola, Namibia, South Africa, Zambia, Botswana and Zimbabwe with its central pressure value decreasing from 1009mb to 1005mb towards the end of the forecast period according to UKMET model. According to ECMWF model, this low is expected to form in the vicinity of Botswana and tends to deepen, with its central pressure value decreasing from 1010mb to 1006mb through 24 to 72hours and tends to fill up to 1006mb by 96hours and then deepen to 1005mb towards the end of the forecast period. The high pressure over Arabian Peninsula is expected to weaken, with its central pressure value decreasing from 1020mb to 1016mb during the forecast period according to both ECMWF and UKMET models. While according to the GFS model it tends to decrease from 1023mb to 1016mb during the forecast period.

The St. Helena High pressure system over southeast Atlantic Ocean is expected to intensify, with its MSLP value increasing from 1032mb to 1036mb through 24 to 72hours and then tends to weaken to MSLP value of 1032mb towards the end of the forecast period according to both ECMWF and the GFS models, and it tends to decrease from 1036mb to 1032mb according to UKMET model through 96 to 120hours. The Mascarene high pressure system over southwest Indian Ocean is expected to

maintain its central pressure value of 1020mb during the forecast period according to ECMWF, UKMET and the GFS models.

At the 850hpa level, a lower tropospheric wind convergence is expected to dominate the flow over parts of Chad and 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, Sudan, South Africa, Mali, Algeria, Tanzania, Botswana, Zambia, Namibia, Morocco, Somalia, Libya, Cameroon, Gabon 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 Algeria and Tunisia by 24hours and expected to propagate over Libya by 48 hours, while it tends to propagate over Egypt and Libya towards the end of the forecast period.

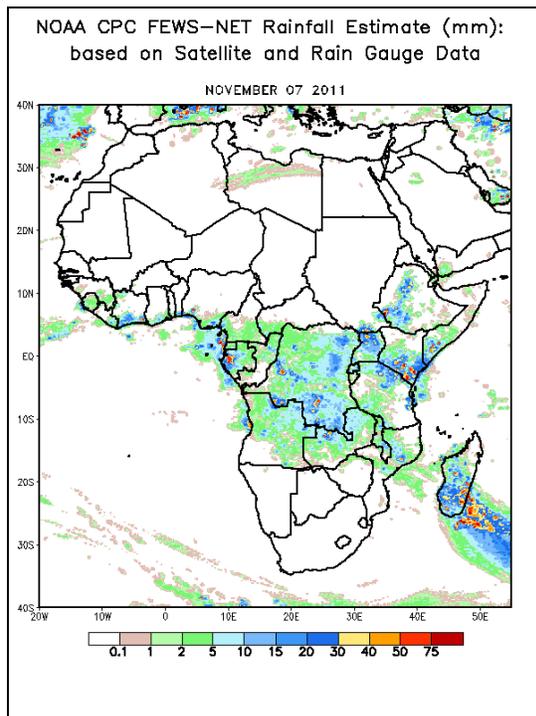
At 200mb, strong winds associated with Sub-Tropical Westerly Jet are expected to dominate the flow over northern Africa, during the forecast period. The intensity of the jet is expected to exceed 90kts near Algeria and Libya and tends to intensify gradually towards end of the forecast period, while propagating across Egypt. 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 southern Ethiopia, northern Angola, Gabon, Congo Brazzaville, DRC, parts of Kenya, Madagascar, northern Tanzania, local areas of southern Nigeria, Uganda and southern Somalia.

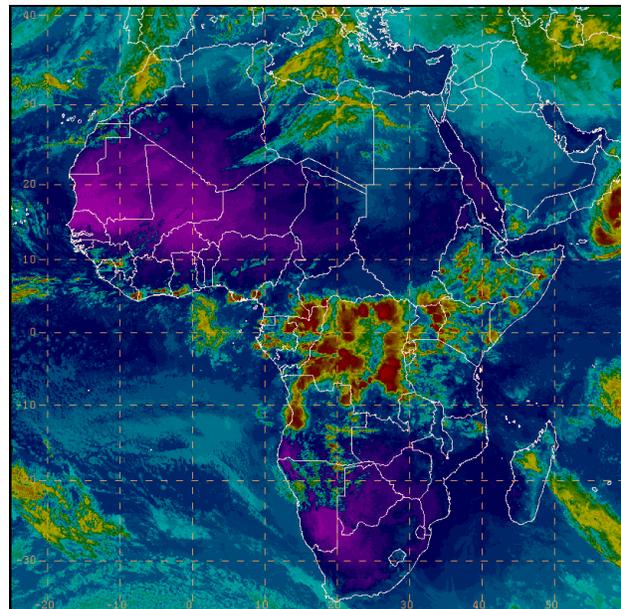
## 2.0. Previous and Current Day Weather Discussion over Africa (07November - 08 November 2011)

**2.1. Weather assessment for the previous day (07November 2011):** During the previous day, moderate to locally heavy rainfall was observed over coastal Gulf of Guinea, western Gabon, many parts of DRC, northern Uganda, portions of Ethiopia, southern Kenya, southern Somalia, and Madagascar.

**2.2. Weather assessment for the current day (08 November 2011):** Intense clouds are observed over much of central African region, parts of the GHA countries, coastal Gulf of Guinea and parts of Angola.



IR Satellite Image (valid 1622Z of 08November 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*

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