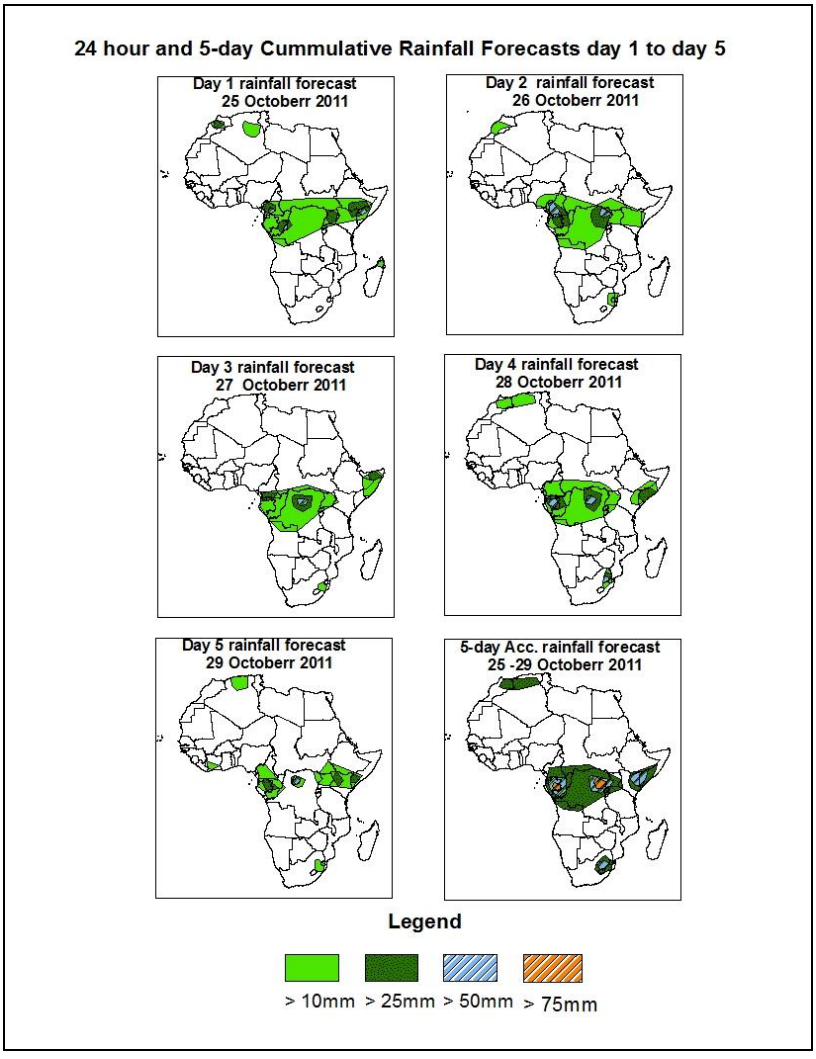
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 25 October – 06Z of 29 October 2011, (Issued at 16:00Z of 24October 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, the seasonal wind convergences over central African region, the Horn of Africa and Southeast Africa are expected to enhance rainfall in their respective areas. Hence, there is an increased chance for heavy rainfall over Cameroon, Northern Angola Southern CAR, Gabon, Congo Brazzaville, DRC, Southern Somalia, parts of Uganda and parts of eastern South Africa. Parts of Algeria and Morocco are also expected to have enhanced rainfall due to mid-latitude frontal system.

1.2. Models Comparison and Discussion-Valid from 00Z of 25 October 2011

According to the GFS, ECMWF and UKMET models, the monsoon trough with its associated heat lows across the Sahel region is expected to maintain its east-west orientation during the forecast period. The models also indicate series of heat lows and their associated trough across central African countries, extending partly to the South African countries. The heat low along its western end (near Senegal) is expected to deepen, with MSLP values changing from 1010mb to 1009mb through 24 to 48 hours, according to the GFS model and tends to fill up to MSLP value of 1010 by 72hours,and then tends to deepen again to MSLP value of 1007 towards end of the forecast period. This same heat low tends to dominate flow over Senegal with central value pressure of 1008mb by 48 hours according to UKMET model and then dominates again by 120 hours. The heat low over central Africa region is expected to deepen, with its central value pressure decreasing from 1008mb to 1006mb, according to the GFS model during the forecast period. In contrast this same low tends to fill up from 1008mb to 1009mb, according to the ECMWF model through 72-hr to end of the forecast period. According to the UKMET model, this low tends to maintain its central value of 1008mb during the forecast period. The heat low over Botswana is expected to deepen with its central value pressure decreasing from 1004mb to 1001mb through 24 to 48hours and tends to fill up to MSLP value of 1005mb towards the end of the forecast period according to GFS model. This same low is expected to extend towards Zambia, Zimbabwe and Botswana, while filling up with its central value pressure increasing from1004mb to 1007mb according to ECMWF model towards end of the forecast period. According to UKMET model this low is expected to extend towards South Africa and Zimbabwe with its central value decreasing from MSLP value of 1003mb to 999mb through 24 to 48hours and then tends to fill up to MSLP value of 1003mb towards end of the forecast period. A localized high pressure over Ethiopia tends to weaken from MSLP value of 1016mb to 1012mb during the forecast period according to GFS model. This same high pressure tends to maintain its central value with MSLP of 1012mb during the forecast period according to ECMWF model.

The St. Helena High pressure system over southeast Atlantic Ocean is expected to weaken, with its MSLP value decreasing from 1028mb to 1024mb towards the end of the forecast period according to the GFS model. According to both UKMET and ECMWF models, this same high pressure is expected to weaken from MSLP value of

1032mb to 1028mb during the forecast period. The Mascarene high pressure system over southwest Indian Ocean is expected to intensify, with its MSLP value increasing from 1011mb to 1018mb according the ECMWF model towards end of forecast period. According to UKMET model, the same high pressure system tends to intensify by 120 hours, to MSLP value of 1012mb. This same high pressure tends to maintain, its central value of 1012mb according to GFS model through 96 to 120hours.

At the 850hpa level, a lower tropospheric wind convergence is expected to dominate the flow over Sudan, 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 and Cameron. Localized wind convergences are also expected to dominate the flow over portions of Ethiopia, Tanzania, Somalia, Botswana, Kenya, Zambia, Tanzania, Cote D'Ivoire, Uganda, Morocco, Namibia, Mali, Algeria, Nigeria and South Africa 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 Morocco during the forecast period. Another trough prevails over Egypt and Libya by 48hours and then tends to shift towards the east prevailing over Egypt towards end of the forecast period. A mid latitude frontal system is expected to propagate eastwards across the Southern African countries during 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 through 24 to 96hours and weaken to wind speed values of over 70kts towards end of the forecast period in the vicinity of Egypt. The southern Hemisphere sub-tropical westerly jet is expected to intensify gradually to wind speed values of over 130kts during the forecast period across South Africa.

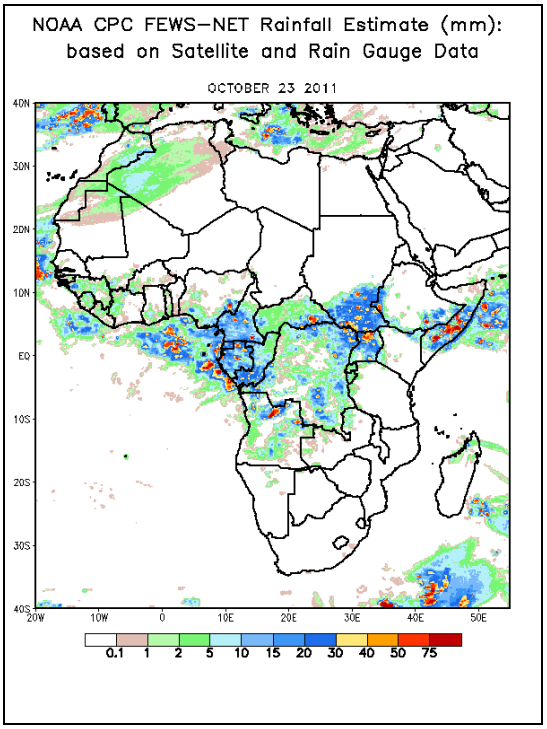
In the next five days, the seasonal wind convergences over central African region, the Horn of Africa and Southeast Africa are expected to enhance rainfall in their respective areas. Hence, there is an increased chance for heavy rainfall over Cameroon, Northern Angola

Southern CAR, Gabon, Congo Brazzaville, DRC, Southern Somalia, parts of Uganda and parts of eastern South Africa. Parts of Algeria and Morocco are also expected to have enhanced rainfall due to mid-latitude frontal system.

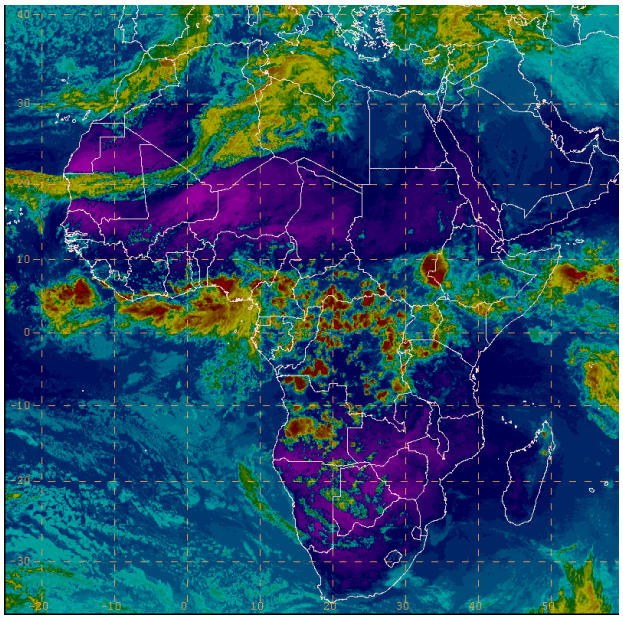
2.0. Previous and Current Day Weather Discussion over Africa (23 October - 24 October 2011)

2.1. Weather assessment for the previous day (23 October 2011): During the previous day, moderate to locally heavy rainfall was observed over South Sudan Republic, parts of DRC, portions of Angola, Uganda, Cameron, Gabon, parts of Congo, South Somalia, Parts of Ethiopia and eastern Nigeria.

2.2. Weather assessment for the current day (24 October 2011): Intense clouds are observed over much of central Africa, coastal Gulf of Guinea, parts of GHA countries, parts of Morocco, parts of Algeria and much of Angola.



IR Satellite Image (valid 1545Z of 24 October 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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