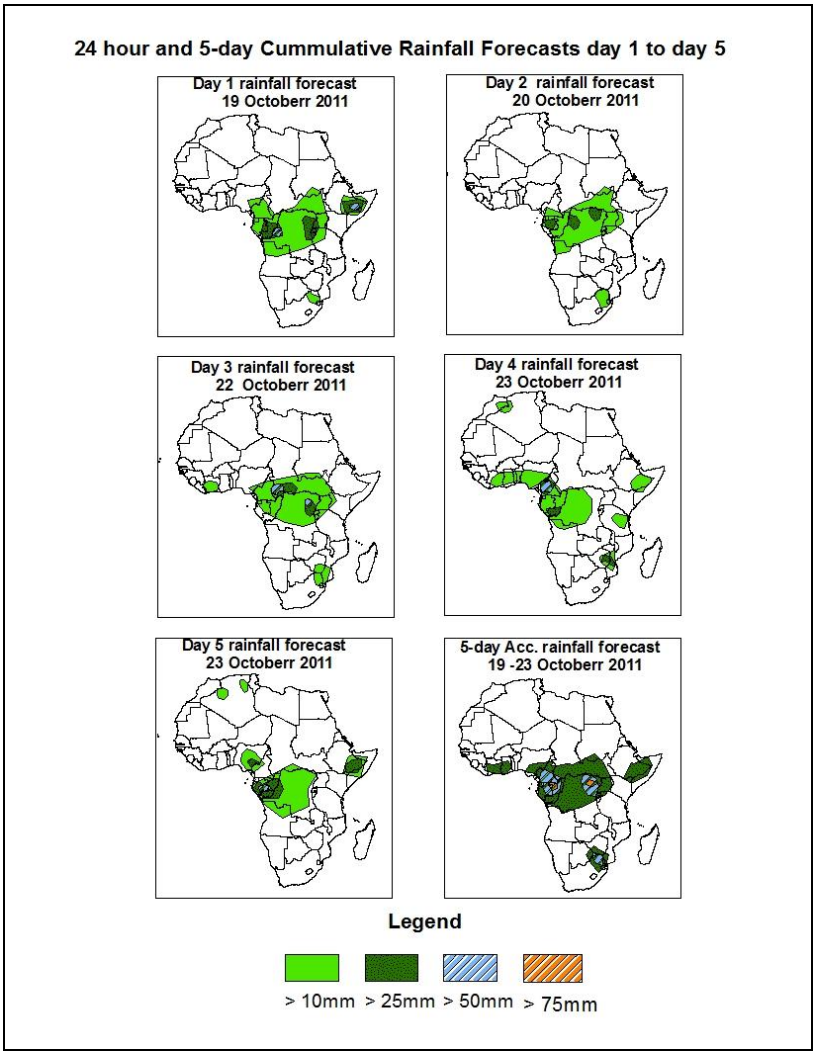
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 19 October – 06Z of 23 October 2011, (Issued at 15:30Z of 18 October 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 and the Horn of Africa are expected to enhance rainfall in their respective areas. Hence, there is an increased chance for heavy rainfall over Cameroon, CAR, Gabon, Equatorial Guinea, Congo Brazzaville, DRC, South Sudan Republic, southern Ethiopia, western Kenya, Uganda and parts of Somalia. Parts of Zimbabwe and the Maize Triangle of South Africa are also expected to have enhanced rainfall due to mid-latitude frontal system.

1.2. Models Comparison and Discussion-Valid from 00Z of 19 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 1009mb to 1007mb through 96 to 120 hours, according to the GFS model. The heat low over central Africa region is expected to deepen, with its central value pressure decreasing from 1006mb to 1004mb, according to the GFS model through 48 to 72hours and fill up by 96 hours to MSLP value of 1006 and deepen to 1005mb towards end of the forecast period. This same low tends to fill up from 1006mb to 1007mb, according to the UKMET model through 24 to 48 hours and it tends to deepen from MSLP value of 1007mb to 1005mb by 72hours and then fill up to 1007 towards end of the forecast period. According to the ECMWF model, this low tends to maintain a central MSLP value of 1008mb during the forecast period. A localized high pressure over Ethiopia tends to weaken from MSLP value of 1016mb to 1012mb through 24 to towards end of the forecast period according to GFS model.

The St. Helena High pressure system over southeast Atlantic Ocean is expected to weaken, with its MSLP value decreasing from 1022mb to 1020mb through 24 to 72hours according to both GFS and ECMWF models and tends to intensify to MSLP value of 1032mb towards end of the forecast period. According to UKMET model, it tends to weaken, with its MSLP value decreasing from 1022mb to 1021mb through 24 to 48hours and tends to intensify towards the end of the forecast period to MSLP value of 1032mb. The Mascarene high pressure system over southwest Indian Ocean is expected to weaken, with its MSLP value decreasing from 1016mb to 1012mb according to both ECMWF and UKMET models towards end of forecast period. According to ECMWF model, the same high pressure system tends to weaken, with its MSLP value decreasing from 1016mb to 1012mb by 72hours and tends to intensify to MSLP value of 1016mb during the forecast period.

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, Cameron, Gabon. Localized wind convergences are also expected to dominate the flow over portions of Ethiopia, Tanzania, Zambia, Mozambique, Botswana, Mali, Algeria, Nigeria, Senegal Rwanda, and Burundi 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 Tunisia, Algeria and Morocco. Another trough is expected to prevail over eastern Mediterranean Sea and the adjoining areas of Egypt. A mid latitude frontal system is expected to propagate eastwards across the Southern African countries during the forecast period.

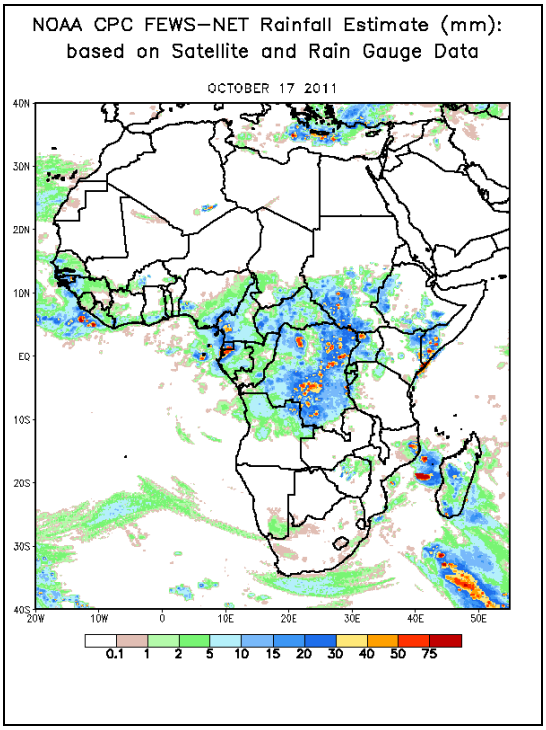
At 200mb, strong winds associated with Sub-Tropical Westerly Jet are expected to dominate the flow over northern Africa, during the forecast period. The intensity of the jet is expected to exceed 130 kts near Morocco by 120hours. The southern Hemisphere sub-tropical westerly jet is also expected to weakening gradually across South Africa during the forecast period.

In the next five days, the seasonal wind convergences over central African region and the Horn of Africa are expected to enhance rainfall in their respective areas. Hence, there is an increased chance for heavy rainfall over Cameroon, CAR, Gabon, Equatorial Guinea, Congo Brazzaville, DRC, South Sudan Republic, southern Ethiopia, western Kenya, Uganda and parts of Somalia. Parts of Zimbabwe and the Maize Triangle of South Africa are also expected to have enhanced rainfall due to mid-latitude frontal system.

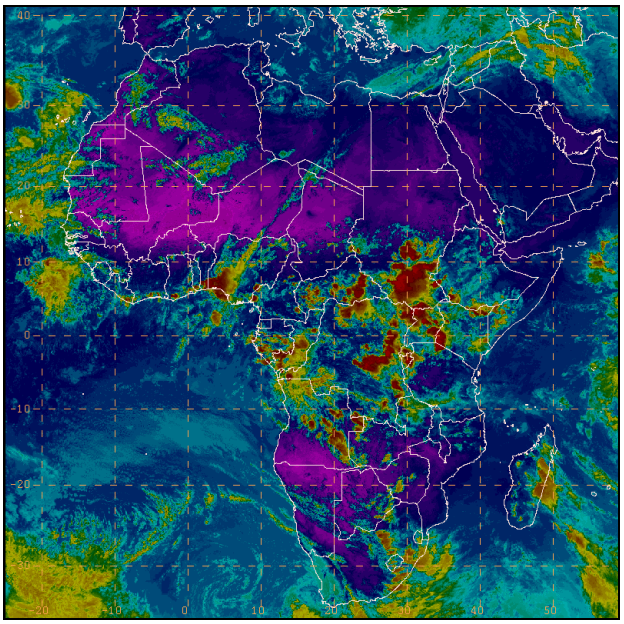
2.0. Previous and Current Day Weather Discussion over Africa (17 October - 18 October 2011)

2.1. Weather assessment for the previous day (17 October 2011): During the previous day, moderate to heavy rainfall was observed over southern Somalia, portions of Ethiopia, CAR, parts of Sudan Republic, eastern Nigeria, much of DRC and Gabon.

2.2. Weather assessment for the current day (18 October 2011): Intense clouds are observed over much of central Africa and GHA countries, parts of, parts of Angola, Gulf of Guinea and Southern Africa.



IR Satellite Image (valid 1500Z of 18 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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