

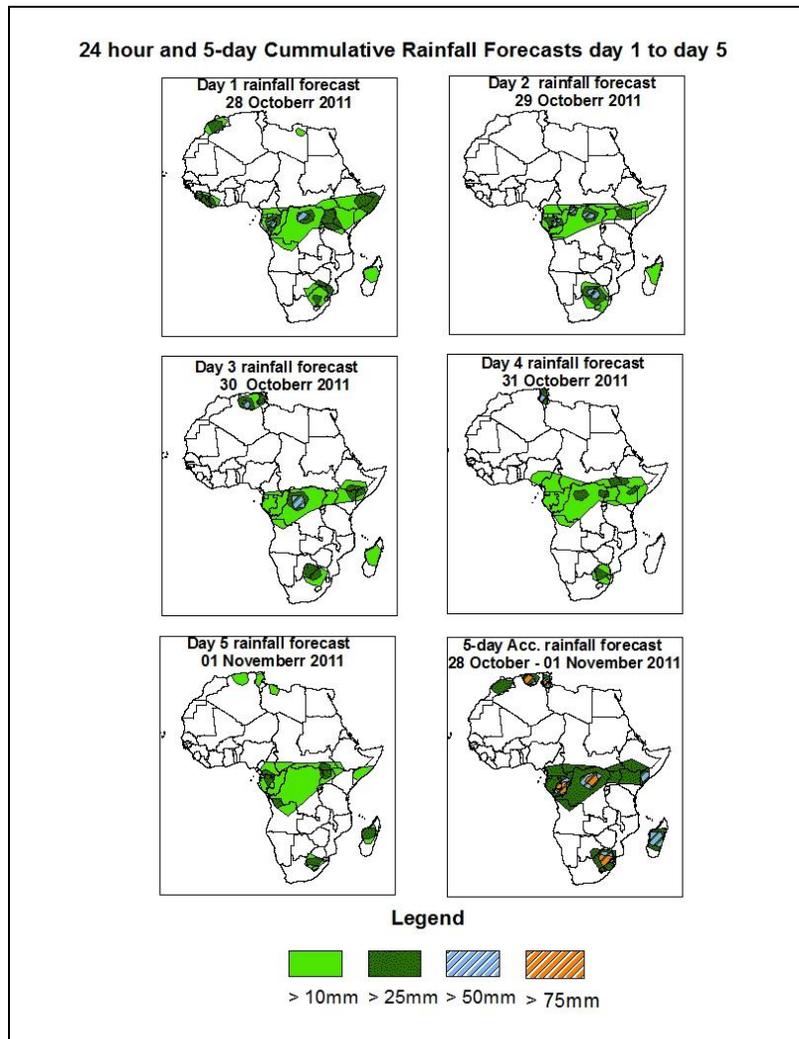


NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 28 October – 06Z of 01 November 2011, (Issued at 15:30Z of 27 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, 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, Gabon, Congo Brazzaville, parts of DRC, Southern Somalia, parts of Kenya, parts of Madagascar Uganda and portions of eastern South Africa. Parts of Algeria, parts of Morocco and Tunisia are also expected to have enhanced rainfall due to mid-latitude frontal system.

1.2. Models Comparison and Discussion-Valid from 00Z of 28 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 near Senegal is expected to deepen, with its mean sea level pressure value decreasing from 1010mb to 1008mb through 24 to 72 hours, according to the GFS model and tends to fill up to MSLP value of 1009mb towards end of the forecast period. This same heat low tends to dominate the flow over Senegal and Mali with central value pressure changing from 1010mb to 1009mb through 24 to 72hours according to UKMET model. The heat low over central Africa region is expected to maintain its central to MSLP value of 1008mb during the forecast period according to the UKMET model. This low tends to deepen to MSLP value of 1006 towards the end of the forecast period, according to the GFS model. According to ECMWF model, this heat low tends to deepen to MSLP value of 1008 by 96hours and then expected to fill up to 1009mb towards the end of the forecast period. The heat low over Botswana is expected to extend towards Zambia, Mozambique, Angola, Namibia and Zimbabwe, while deepening with its central value pressure decreasing from 1008mb to 1004mb through 24 to 48hours and tends to fill up to MSLP value of 1005mb by 72 hours and then tends to deepen to 1004mb towards the end of the forecast period, according to GFS model. This same low is expected to deepen with its central value pressure decreasing from 1006mb to 1005mb according to ECMWF model through 24 to 96hours and tends to fill up, to MSLP value of 1006mb towards end of the forecast period. According to UKMET model this low is expected to fill up, from 1003mb to 1005mb through 24 to 48hours and tends to deepen to 1001mb through 72 to 96hours to MSLP and tends to fill up to 1002mb towards the 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 is expected to extend over Uganda, Kenya and Tanzania with its central pressure value of 1012mb through 24 to 27 hours according to ECMWF model and tends to dominate over Ethiopia by 96hours with its central pressure value of 1011mb.

The St. Helena High pressure system over southeast Atlantic Ocean is expected to intensify, with its MSLP value increasing from 1028mb to 1032mb during the forecast

period according to both ECMWF and UKMET models. While according to the GFS model, this same high pressure is expected to intensify to MSLP value changing from 1028mb to 1032mb through 24 to 96hours and tends to weaken, to MSLP value of 1028 by 120hours. The Mascarene high pressure system over southwest Indian Ocean is expected to weaken, with its MSLP value decreasing from 1018mb to 1012mb according to both the GFS and ECMWF models during the forecast period. According to UKMET model, the same high pressure system tends to intensify to MSLP value of 1019mb by 48 hours and weaken to 1012mb towards end of 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, CAR and Cameroun. Localized wind convergences are also expected to dominate the flow over portions of Ethiopia, Tanzania, Botswana, Kenya, Zambia, Uganda, Namibia, Mali, Algeria, Niger, Congo, Gabon, Libya, Gabon 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 Egypt and Libya by 24hours. This trough tends to shift towards Egypt through 48 hours and back to Libya by 96hours. There is another trough is expected to propagate over Algeria, Morocco and Tunisia during the forecast period. A mid latitude frontal system is expected to propagate eastwards across the Southern African countries during the forecast period.

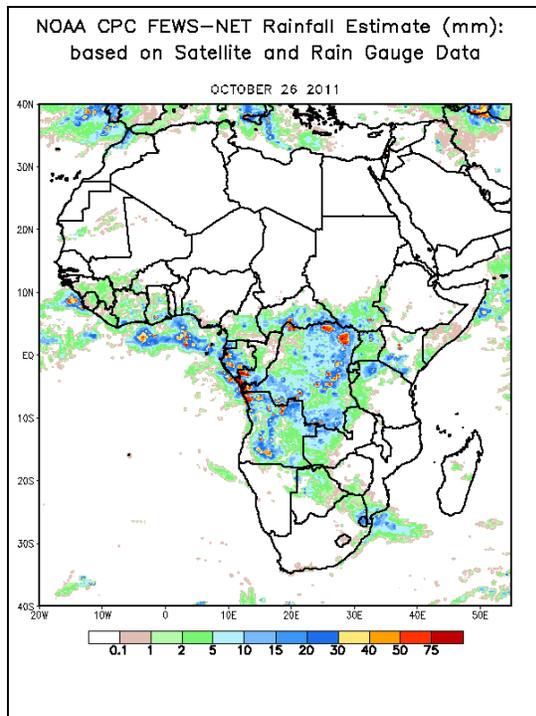
At 200mb, strong winds associated with Sub-Tropical Westerly Jet are expected to dominate the flow over northern Africa, during the forecast period. The intensity of the jet is expected to exceed 70kts near Egypt and Libya through 24 to 72hours and then tend to intensify with maximum winds exceeding 90kts towards end of the forecast period. Another zone of maximum wind speed is expected to prevail over Morocco by 24hours with maximum wind speed exceeding 90kts, and extends to Algeria and Tunisia towards the end of forecast period. The southern Hemisphere sub-tropical westerly jet is expected to weaken gradually to wind speed values of over 110kts towards end of 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, Gabon, Congo Brazzaville, parts of DRC, Southern Somalia, parts of Kenya, parts of Madagascar Uganda and portions of eastern South Africa. Parts of Algeria, parts of Morocco and Tunisia are also expected to have enhanced rainfall due to mid-latitude frontal system.

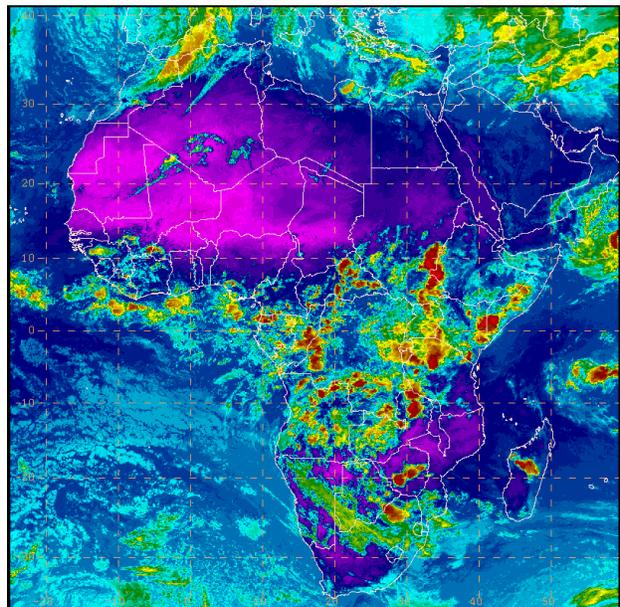
2.0. Previous and Current Day Weather Discussion over Africa (26 October - 27 October 2011)

2.1. Weather assessment for the previous day (26 October 2011): During the previous day, moderate to locally heavy rainfall was observed over parts of DRC, portions of Angola, parts Gabon, parts of Congo and Swaziland.

2.2. Weather assessment for the current day (27 October 2011): Intense clouds are observed over much of central Africa, parts of GHA countries, parts Madagascar, parts of Burkina Faso and parts of southeast Africa.



IR Satellite Image (valid 1500Z of 27 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

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