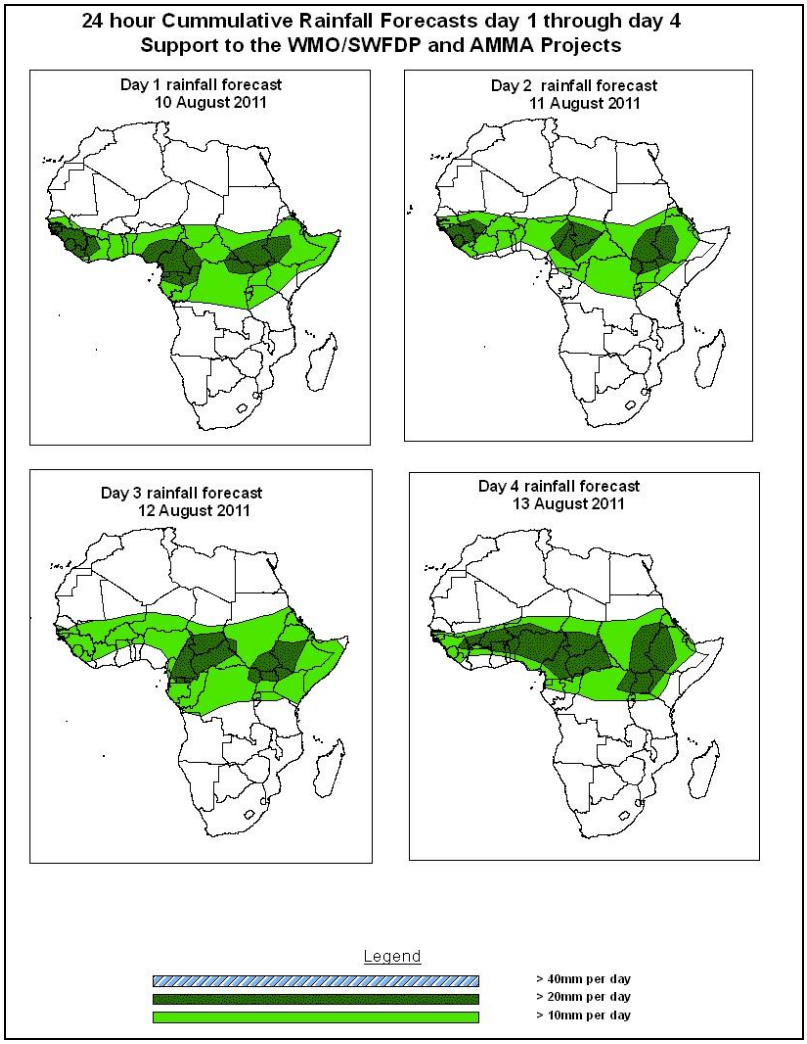
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 10 August – 06Z of 13 August 2011, (Issued at 10:15Z of 09 August 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 four days, low tropospheric convergence across eastern parts of the Gulf of Guinea and the neighboring areas central African countries is expected to increase rainfall in these regions. On the other hand, the active seasonal convergence in the Congo Air Boundary (CAB) region is expected to enhance rainfall across portions of East Africa. In general, there is an increased chance for moderate rainfall over Guinea, southern Senegal, southern Mali, Sierra Leone, Liberia, Burkina Faso, Cameroon, portions of Cote D'Ivoire, Nigeria, DRC, southern Niger and southern Chad, CA, much of South Sudan, Ethiopia and Kenya.

1.2. Models Comparison and Discussion-Valid from 00Z of 09 August 2011

According to the NCEP/WRF, 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 heat low along its western end (near the border between Mali and Algeria) tends to deepen, with its central pressure value decreasing from 1007mb to 1002mb through 24 to 96 hours, according to the ECMWF model, from 1006mb to 1001mb according to the GFS model and from 1006mb to 1001mb according to the UKMET model. The GFS model and the UKMET model tend to deepen the heat low over central region. The mean sea level pressure value is expected to decrease from 1006mb to 1004mb and from 1004mb to 1002mb during the forecast period, according to the ECMWF and the UKMET models, respectively. This same heat low is expected to deepen from 1005mb to 1002mb through 24 to 72 hours, according to the GFS model and it tends to fill up to pressure value of 1003mb by 96 hours. On the other hand, the heat low over eastern Arabian Peninsula is expected to deepen during the forecast period from 994mb to 991mb, according to the ECMWF model and from 993mb to 990mb, according to the GFS model. The mean sea level pressure of this heat low is expected to increase from 993mb to 994mb through 24 to 72 hours according to the UKMET model and it is expected to deepen from mean sea level pressure value of 994mb to 992mb through 72 to 96 hours. The East African ridge across southeast and East Africa is expected to remain weak during the forecast period.

The St. Helena High pressure system over southeast Atlantic Ocean is expected to intensify, with its central pressure value increasing from 1023mb to 1028mb during the forecast period. The Mascarene high pressure system over southwest Indian Ocean is expected to weaken from 1028mb to 1016mb through 24 to 96 hours.

At the 850hpa level, a cyclonic circulation over coastal Senegal, Guinea, Liberia and Sierra Leone is expected to move westwards and leave the coast of West Africa by 48hours. Another cyclonic circulation is expected to dominate the flow near the border between Chad and Sudan through 24 and 48 hours and, it tends to weaken gradually through 72 to 96 hours. West-east oriented lower tropospheric convergence across Burkina Faso, southern Niger, Nigeria and western Chad is expected to prevail during the forecast period. The seasonal convergence in the vicinity of Lake Victoria is expected to remain active, while extending towards southwestwards to DRC and northwards to Sudan during the forecast period. The monsoon flow from the Atlantic

Ocean and the moist equatorial flow from the Indian Ocean are expected to continue providing abundant moisture to the lower tropospheric convergences in western and central African region and the northern parts of the GHA region.

At 700mb level, a trough across coastal Senegal, Guinea, Sierra Leone and Liberia is expected to leave the West coast of Africa in 24 hours. Another northeast-southwest oriented trough between southwest Ethiopia and western Ghana is expected to dominate the flow in the regions and, it tends to form cyclonic circulation across eastern parts of the Gulf of Guinea region through 48 to 72 hours and, it tends to weaken by 96 hours.

At 500hpa, easterly winds with moderate intensity (10 to 25knots) are expected to dominate the flow over Senegal, southern Sahel region and Sudan. Strong localized easterly winds, associated with the African Easterly Jet (AEJ) are expected to prevail near Senegal, Burkina Faso and Mali during the forecast period.

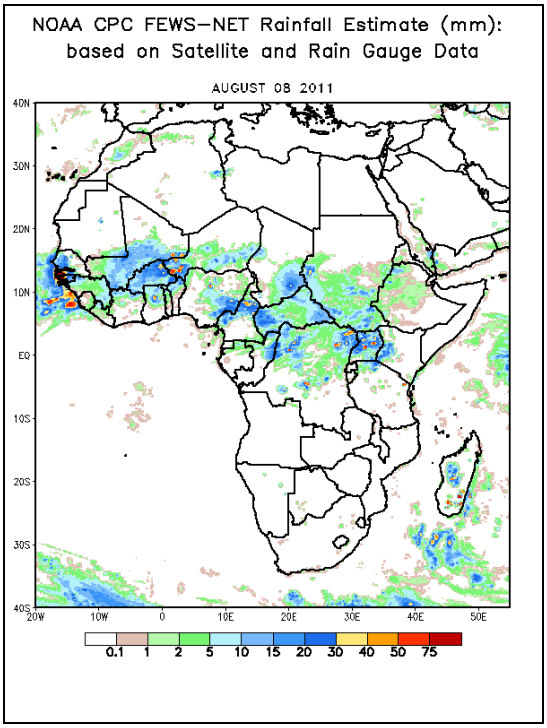
At 150mb, a zone of easterly flow that exceeds 70kts, associated with Tropical Easterly Jet (TEJ) is expected to dominate the flow between Chad and Somalia through 24 to 48 hours and it tends to weaken gradually through 72 to 96 hours.

In the next four days, low tropospheric convergence across eastern parts of the Gulf of Guinea and the neighboring areas central African countries is expected to increase rainfall in these regions. On the other hand, the active seasonal convergence in the Congo Air Boundary (CAB) region is expected to enhance rainfall across portions of East Africa. In general, there is an increased chance for moderate rainfall over Guinea, southern Senegal, southern Mali, Sierra Leone, Liberia, Burkina Faso, Cameroon, portions of Cote D'Ivoire, Nigeria, DRC, southern Niger and southern Chad, CA, much of South Sudan, Ethiopia and Kenya.

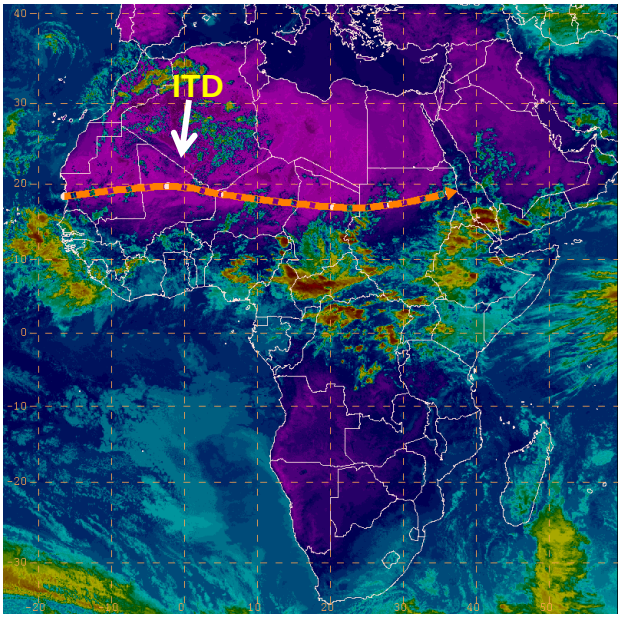
2.0. Previous and Current Day Weather Discussion over Africa (07 – 08 August 2011)

2.1. Weather assessment for the previous day (08 August 2011): During the previous day, moderate to heavy rainfall was observed over western Senegal, western Niger, Burkina Faso, Mali, eastern Nigeria, central Cameroon, eastern Chad, pats of CAR, Northern DRC and Uganda.

2.2. Weather assessment for the current day (09 August 2011): Intense clouds are observed over central and eastern Africa.



IR Satellite Image (valid 1800Z) and position of ITD, based on 1200Z Surface Analysis; 08 August 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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