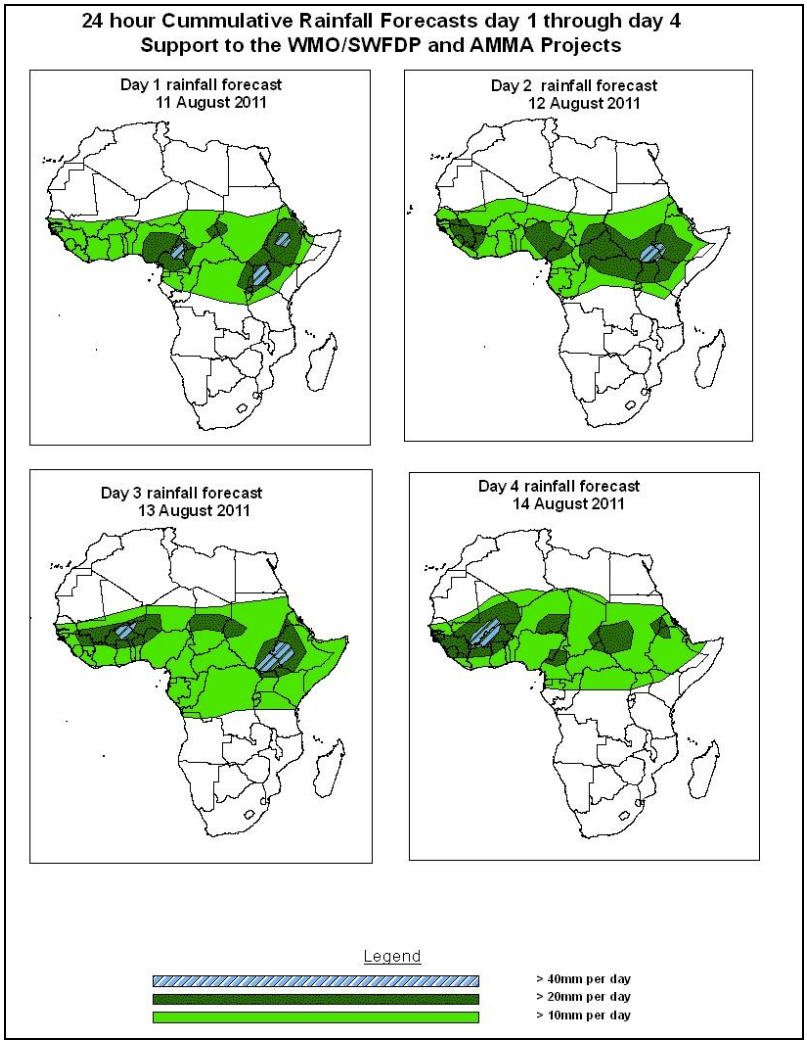
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 11 August – 06Z of 14 August 2011, (Issued at 10:15Z of 10 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 convergences across the Sahel and the neighboring areas of the Gulf of Guinea and central African countries are expected to increase rainfall in these regions. On the other hand, the active seasonal convergence in the Congo Air Boundary (CAB) region, with the predicted strong upper tropospheric jet (TEJ) across the Horn of Africa is expected to enhance rainfall across portions of East Africa. In general, there is an increased chance for moderate and heavy rainfall over southern Senegal, Mali, Guinea, Burkina Faso, Niger, portions of southern Mali, Burkina Faso, Cameroon, portions of Sierra Leone, Liberia and Ghana, Cote D'Ivoire, much of Nigeria, Cameroon, RDC, CAR, South Sudan, Nigeria, DRC, southern Niger and southern Chad, CA, much of South Sudan, Ethiopia and pats of Kenya and Uganda..

1.2. Models Comparison and Discussion-Valid from 00Z of 10 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 Mali, Mauritania and Algeria border) tends to deepen, with its central pressure value decreasing from 1006mb to 1002mb, according to the ECMWF model, from 1005mb to 1000mb according to the GFS model and from 1004mb to 1000mb according to the UKMET model during the forecast period. The GFS and the UKMET models tend to deepen the heat low over central Africa region. The mean sea level pressure value is expected to decrease from 1004mb to 1002mb according to the GFS model during the forecast period, while the pressure value is expected to decrease from 1004mb to 1002mb through 24 to 72 hours according to the UKMET model. This same heat low is expected to deepen from 1005mb to 1004mb through 24 to 72 hours, and it tends to fill up to pressure value of 1005mb by 96 hours according to the ECMWF model. On the other hand, the heat low over eastern Arabian Peninsula is expected to deepen though 24 to 72 hours from 994mb to 991mb, according to the ECMWF model and from 994mb to 991mb, according to the UKMET model. The mean sea level pressure of this heat low is expected to increase from 991mb to 995mb according to the ECMWF model and from 991mb to 996mb according to the UKMET model through 72 to 96 hours. Another heat low localized over northern Sudan is expected to deepen from 1004mb to 1002mb according to the GFS model during the forecast period. The East African ridge across southeast and East Africa is expected to strengthen slightly 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 1032mb through 24 to 72 hours. It tends to weaken from 1032mb to 1028mb towards end of the forecast period. The Mascarene high pressure system over southwest Indian Ocean is expected to weaken slight from 1022mb to 1021mb through 24 to 48 hours and it tends to intensify to mean sea level pressure value of 1028mb by 96 hours.

At the 850hpa level, west-east oriented convergence across Mali, Niger and eastern Chad is expected to shift westwards the region between Mauritania and Niger, while tending to form two cyclonic circulations over Mali and Niger by 48hours. This cyclonic circulation across its western end (near Mali) tends to become more active, while the cyclonic circulation across its eastern end (near Niger) tends to weaken. Another

cyclonic circulation is expected to dominate the flow over Sudan through 24 and 48 hours and, it tends to weaken gradually through 72 to 96 hours. The seasonal convergence in the vicinity of Lake Victoria is expected to remain active and strong, while extending towards southwestwards to DRC and northwards to South Sudan and Ethiopia 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 cyclonic circulation is expected to prevail over Cameroon through 24 to 48 hours and it tends to move westwards across Nigeria, Benin, Togo, Ghana and Cote d'Ivoire, while becoming more active through 72 and 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 Cote d'Ivoire, northern Nigeria and northern Cameron through 24 and 48 hours. Another localized zone of strong easterlies is expected near the Mali and Guinea border through 48 and 72 hours.

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

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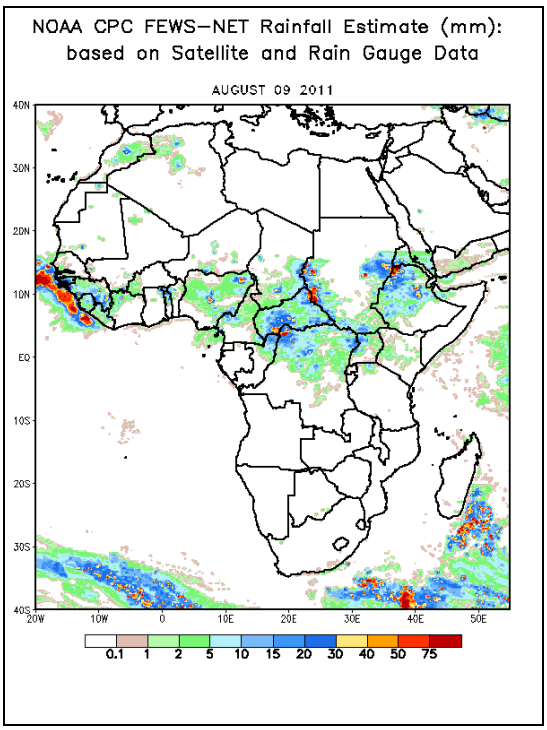
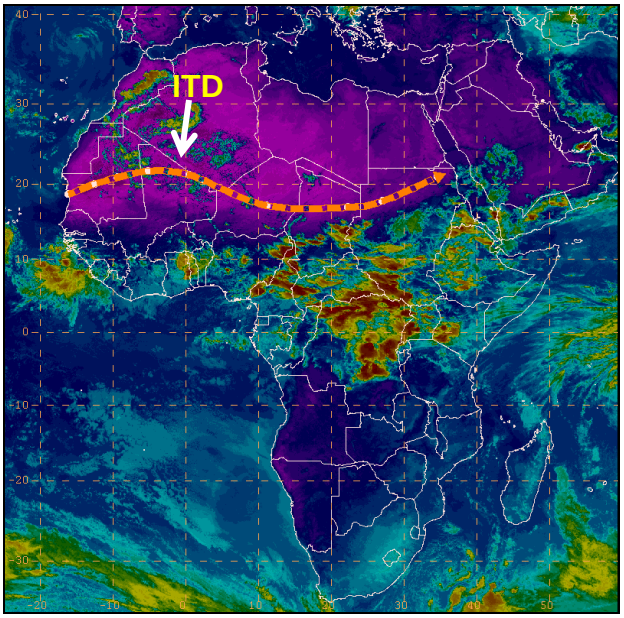
2.0. Previous and Current Day Weather Discussion over Africa (09 – 10 August 2011)

2.1. Weather assessment for the previous day (09 August 2011): During the previous day, moderate to heavy rainfall was observed over southwestern coast of west Africa, Nigeria, northern Cameroon, CAR, northern DRC, portions of Sudan and northern Ethiopia.

2.2. Weather assessment for the current day (10 August 2011): Intense clouds are observed over central and eastern Africa and over Ghana.



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

Author(s): 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

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