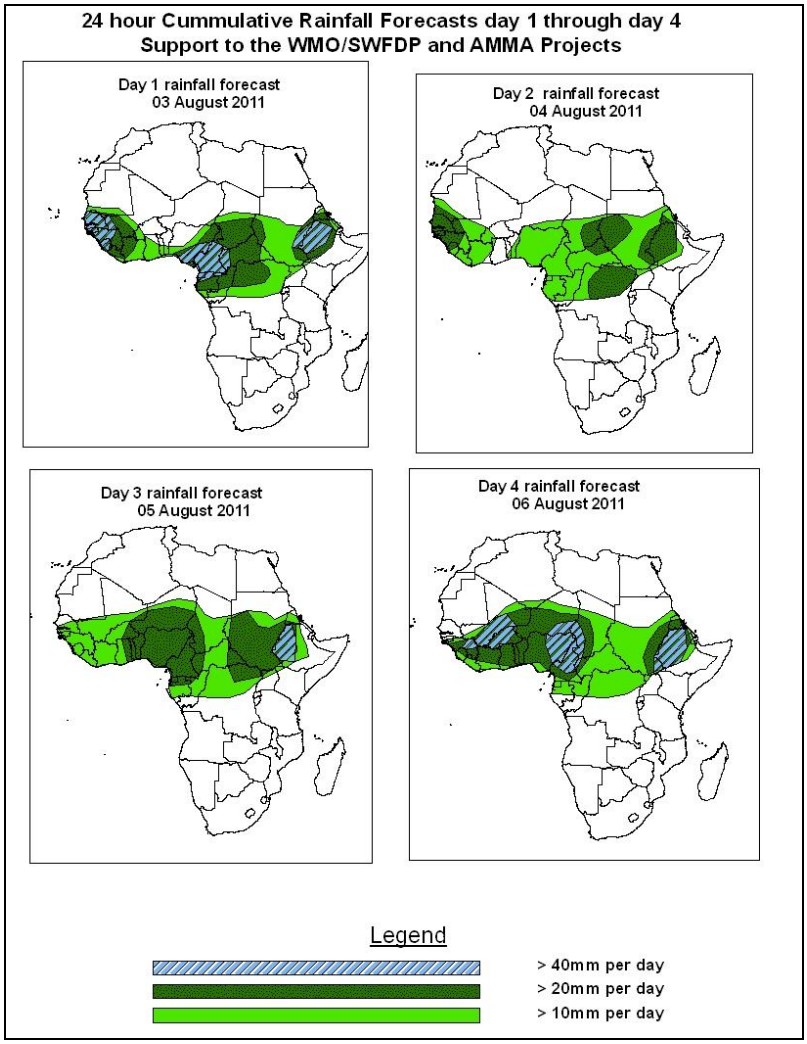
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 03 August – 06Z of 06 August 2011, (Issued at 10:15Z of 01 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, strong lower tropospheric convergences across western and central African countries together with westward propagating convective activities are expected to continue enhancing rainfall in the regions. Thus, there is an increased chance for rainfall to exceed 20mm per day over Senegal, Gambia, Guinea Bissau, Guinea, Sierra Leone, Liberia, southern Mali, Burkina Faso, Cote D'Ivoire, Ghana, Togo, Benin, Nigeria, southern Niger and Chad. The active lower tropospheric convergence over the GHA region and the seasonal monsoon flow are expected to maintain moderate to heavy rains over parts of northern DRC, South Sudan and Ethiopia.

1.2. Models Comparison and Discussion-Valid from 00Z of 02 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 tends to deepen slightly, with its central pressure value decreasing from 1005mb to 1004mb through 24 to 96 hours, according to the ECMWF model, while its central pressure value is expected to decrease from 1005mb to 1002mb according to the GFS and UKMET models. In contrast, the heat low over central African region tends to fill up, with its central pressure value increasing from 1005mb to 1007mb according to the ECMWF model. The GFS and UKMET models tend to maintain central pressure value of 1004mb during the forecast period over central African region. On the other hand, the heat low near Sudan is expected to show little or no change during the forecast period, according to the ECMWF model, while the GFS and UKMET models tend to deepen the low through 24 t0 72 hours. The East African ridge across southeast and East Africa is expected to weaken as the center of the Mascarene high shifts to the east.

The St. Helena High pressure system over southeast Atlantic Ocean is expected to intensify, with its central pressure value increasing from 1020 in 24 hours to 1032mb in 96 hours. The Mascarene high pressure system over southwest Indian Ocean is also expected to intensify, from central pressure value of 1027mb in 24 hours to 1036mb in 72 hours, according to the GFS model.

At the 850hpa level, a cyclonic circulation near the west coast of West Africa is expected to move westwards and leave the West Africa coast in 24 hours. Another cyclonic circulation over northern Mali is expected to deepen, while expanding towards Mauritania during the forecast period. The seasonal monsoon flow from the Atlantic Ocean across eastern Gulf of Guinea is expected to converge into the east-west oriented convergence in the region between southern Niger and western Sudan. Part of this flow also tends to converge into Sudan, Eritrea and Ethiopia during the forecast period. On the other hand, the seasonal moist cross equatorial flow, across southeast and eastern Africa is expected to continue enhancing rainfall over northern parts of the GHA region.

At 700mb level, a weak easterly wave is expected to propagate between northern Nigeria and Burkina Faso through 48 to 96 hours.

At 500hpa, easterly winds with moderate intensity (10 to 25knots) are expected to dominate the flow over the Gulf of Guinea, southern Sahel region and Sudan. Zone of strong easterlies associated with the African Easterly Jet (AEJ) is expected to propagate westwards between Nigeria and Senegal during the forecast period.

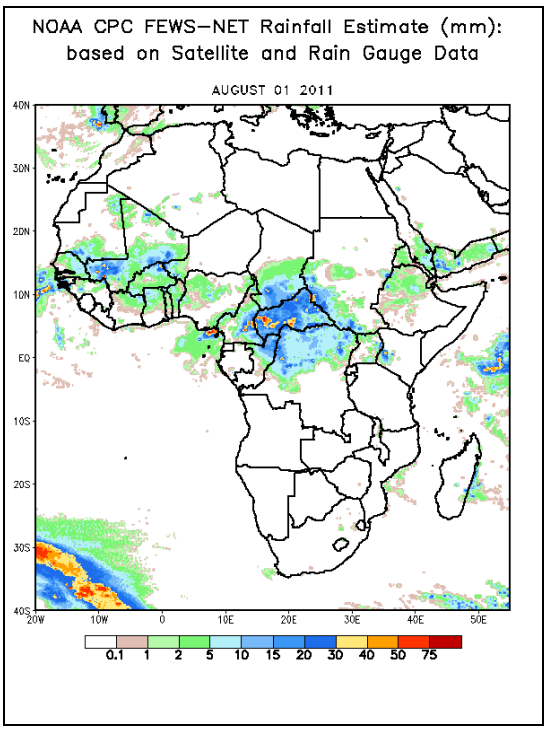
A zone of strong wind (>90Kts) at 200hpa level associated with the Sub Tropical westerly Jet in the southern hemisphere is expected to propagate between southeast Atlantic Ocean and southwest Indian Ocean across South Africa during the forecast period.

In the next four days, strong lower tropospheric convergences across western and central African countries together with westward propagating convective activities are expected to continue enhancing rainfall in the regions. Thus, there is an increased chance for rainfall to exceed 20mm per day over Senegal, Gambia, Guinea Bissau, Guinea, Sierra Leone, Liberia, southern Mali, Burkina Faso, Cote D'Ivoire, Ghana, Togo, Benin, Nigeria, southern Niger and Chad. The active lower tropospheric convergence over the GHA region and the seasonal monsoon flow are expected to maintain moderate to heavy rains over parts of northern DRC, South Sudan and Ethiopia.

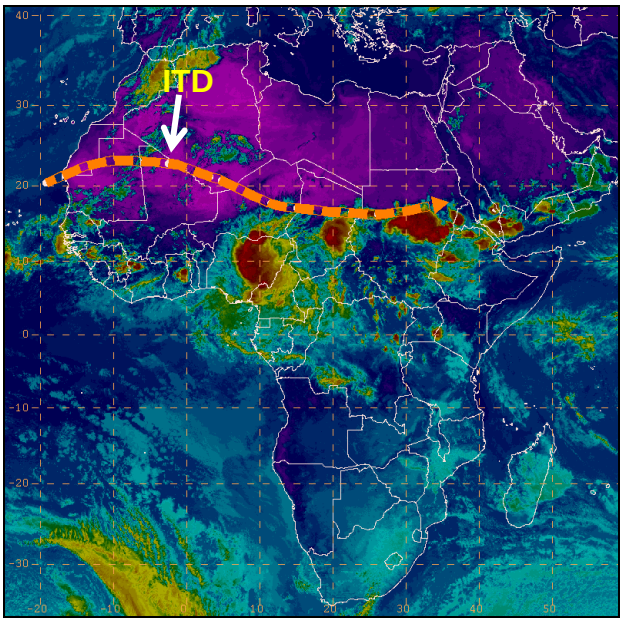
2.0. Previous and Current Day Weather Discussion over Africa (01 – 02 August 2011)

2.1. Weather assessment for the previous day (01 August 2011): During the previous day, moderate to heavy rainfall was observed over portions of Mali, Cameroon, much of CAR, southern Chad and northern DRC.

2.2. Weather assessment for the current day (02 August 2011): Intense clouds are observed over Nigeria, Chas Sudan and local areas of Ethiopia, and Eritrea.



IR Satellite Image (valid 1622Z) and position of ITD, based on 1200Z Surface Analysis; 02 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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