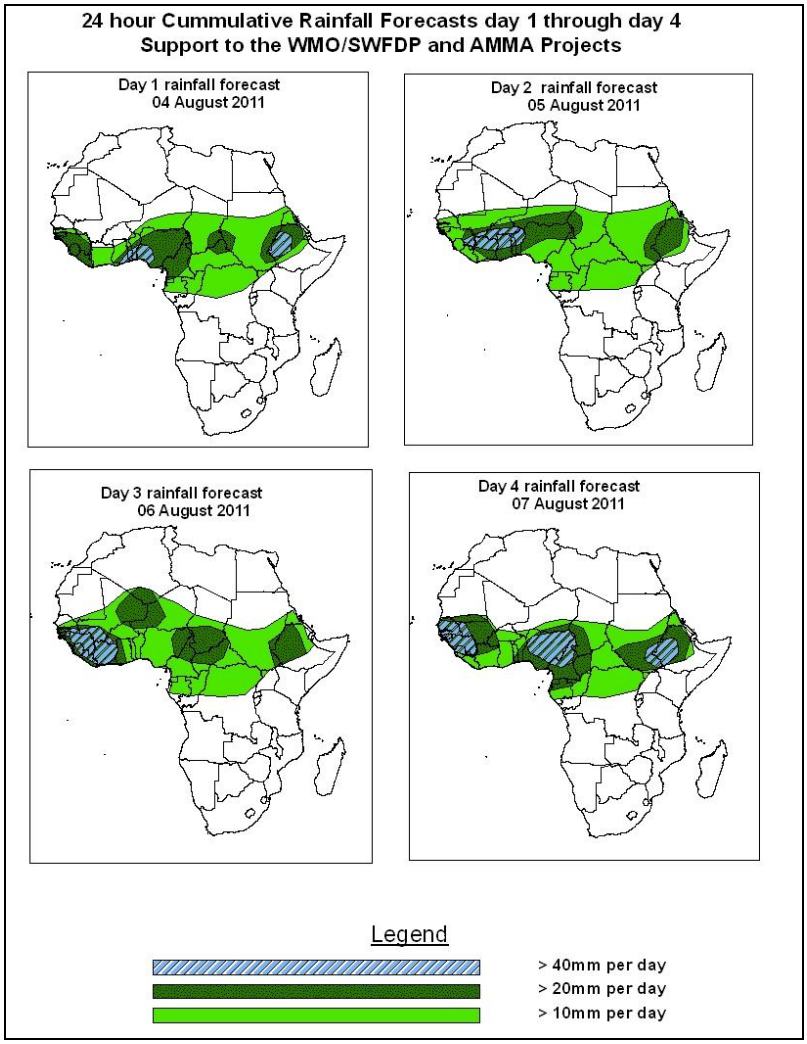
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 04 August – 06Z of 07 August 2011, (Issued at 10:15Z of 03 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, westward propagating waves and their associated convective activities are expected to continue enhancing rainfall over central and western parts of Africa. Hence, there is an increased chance for moderate to heavy rainfall over Senegal, Gambia, Guinea Bissau, Guinea, Sierra Leone, Liberia, portions of Mali, Burkina Faso, Cote D'Ivoire, Ghana, Togo, Benin, Nigeria, Cameroon, southern Niger and southern Chad. The active lower tropospheric convergence over the GHA region and the seasonal cross-equatorial flow are expected to maintain moderate to heavy rains over parts of South Sudan and Ethiopia.

1.2. Models Comparison and Discussion-Valid from 00Z of 03 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, with its central pressure value decreasing from 1007mb to 1004mb through 24 to 96 hours, according to the ECMWF model, from 1006mb to 1003mb according to the GFS model and from 1006mb to 1001mb according to the UKMET model. The heat low over central African region also tends to deepen slightly, with its central pressure value decreasing from 1009mb to 1007mb through 24 to 72 hours according to the ECMWF model, from 1007mb to 10005mb according to the GFS model, while the UKMET model tend to maintain central pressure value of 1005mb during the forecast period over central African region. On the other hand, the heat low eastern Arabian Peninsula is expected to deepen slightly from central pressure value of 994mb in 24 hours to pressure value of 992mb in 96 hours according to the ECMWF and UKMET models, while the central pressure value is expected to decrease from 993mb to 992mb according to the GFS model. The East African ridge across southeast and East Africa is expected to remain weak through 24 to 48 hours and it tends to re-strengthen through 72 to 96hours.

The St. Helena High pressure system over southeast Atlantic Ocean is expected to intensify, with its central pressure value increasing from 1024 in 24 hours to 1032mb in 72 hours, while shifting towards the southern tip of South Africa. The Mascarene high pressure system over southwest Indian Ocean tends to maintain mean sea level pressure of 1032 through 24 to 72 hours, while shifting southeastwards.

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. An east-west oriented wind convergence in the region between northern Mali and Chad is expected to become a closed cyclonic circulation while shifting towards the border between Mauritania and Mali through 24 to 96 hours. A lower tropospheric wind convergence in the region between central Chad and Sudan is also expected to become a cyclonic circulation, while shifting towards the border between Nigeria and Niger 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 weak easterly wave is expected to propagate between northeast Nigeria and southwestern coast of West Africa, while another wave tends to propagate in the region between Central African Republic and Nigeria during the forecast period.

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 Burkina Faso and Senegal during the forecast period.

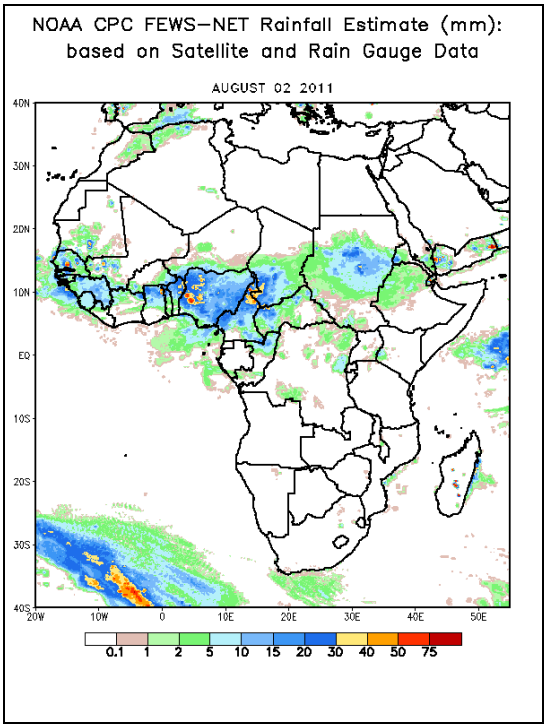
A zone of strong wind (>90Kts) at 200hpa level associated with the Sub Tropical westerly Jet in the southern hemisphere is expected to propagate between southeast Atlantic Ocean and southwest Indian Ocean across South Africa during the forecast period.

In the next four days, westward propagating waves and their associated convective activities are expected to continue enhancing rainfall over central and western parts of Africa. Hence, there is an increased chance for moderate to heavy rainfall over Senegal, Gambia, Guinea Bissau, Guinea, Sierra Leone, Liberia, portions of Mali, Burkina Faso, Cote D'Ivoire, Ghana, Togo, Benin, Nigeria, Cameroon, southern Niger and southern Chad. The active lower tropospheric convergence over the GHA region and the seasonal cross-equatorial flow are expected to maintain moderate to heavy rains over parts of South Sudan and Ethiopia.

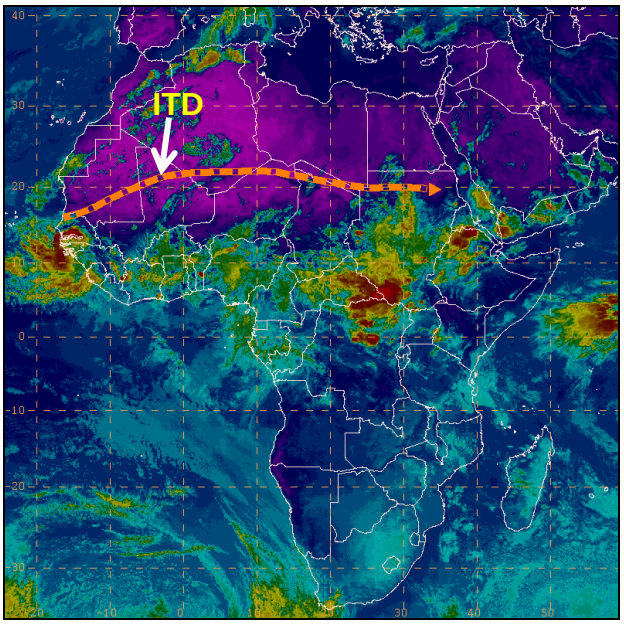
2.0. Previous and Current Day Weather Discussion over Africa (02 – 03 August 2011)

2.1. Weather assessment for the previous day (02 August 2011): During the previous day, moderate to heavy rainfall was observed over Senegal, Gambia, Guinea Bissau, Guinea, northern Ghana, much of Nigeria, Cameroon, southern Chad, and central Sudan.

2.2. Weather assessment for the current day (03 August 2011): Intense clouds are observed over Senegal, CAR, northern DRC, South Sudan, Ethiopia, local areas of the Gulf of Guinea countries.



IR Satellite Image (valid 1622Z) and position of ITD, based on 1200Z Surface Analysis; 03 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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