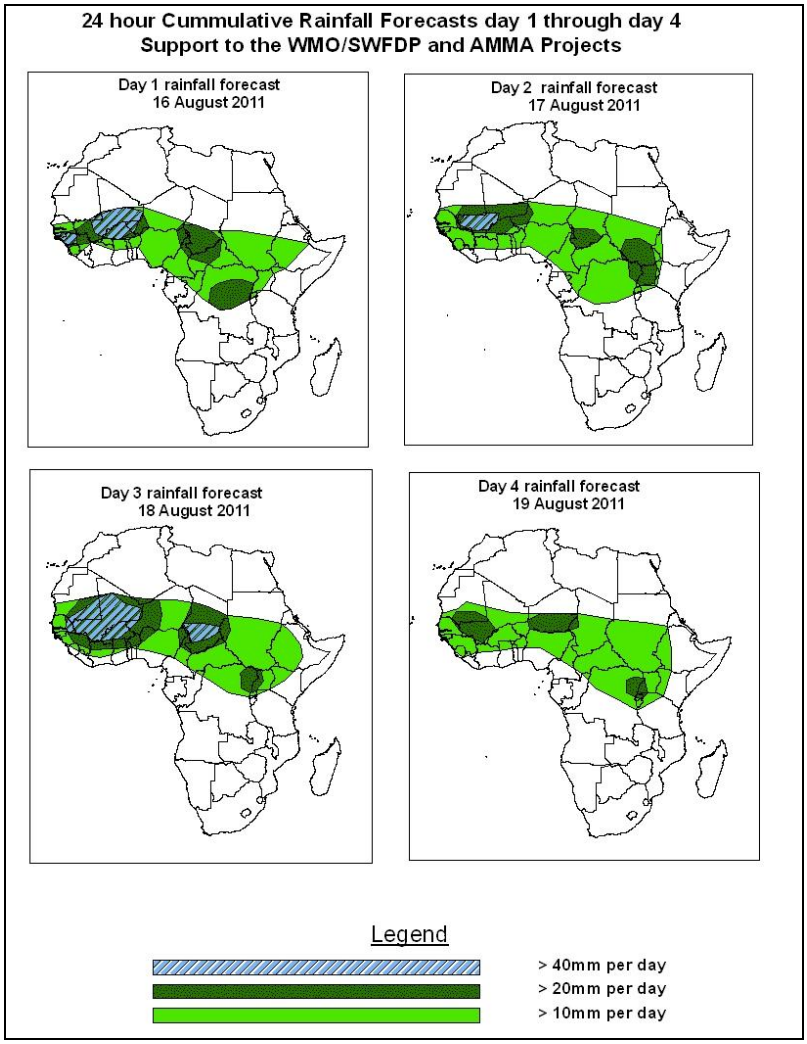
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 16 August – 06Z of 19 August 2011, (Issued at 10:15Z of 15 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, cyclonic circulations and low tropospheric convergences across the Sahel are 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 parts of East Africa. In general, there is an increased chance for moderate to heavy rainfall over Senegal, Mali, Guinea, Burkina Faso, northern Cote d'Ivoire, Niger, southern Chad, northern CAR, southern Sudan, northern DRC, portions of Uganda and Rwanda.

1.2. Models Comparison and Discussion-Valid from 00Z of 15 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 North Mali) tends to deepen, with its central pressure value decreasing from 1006mb to 1004mb according to the ECMWF model during the forecast period. This same heat low is expected to deepen from 1004mb to 1002mb according to the GFS model through 24 to 48 hours and from 1005mb to 1001mb, according to the UKMET model through 24 to 72 hours. The low is expected to fill up with its mean sea level pressure value increasing to 1003mb according to the GFS model, and to MSLP value of 1002mb according to the UKMET towards end of the forecast period. The heat low over central Africa region tends to deepen from 1007mb to 1006mb according to the GFS model through 24 to 48 hours and it tends to fill up to central value pressure of 1009mb by 96 hours. This heat low is expected to maintain mean sea level pressure value of 1006mb according to the UKMET model through 48 to 72 hours. On the other hand, the heat low over eastern Arabian Peninsula is expected to deepen from 997mb to 996mb, according to the ECMWF model during the forecast period. This same heat low tends to fill up slightly from 997mb to 998mb according to the GFS model during the forecast period. The UKMET model tends to fill up this heat low from 994mb to 996mb through 48 to 96 hours. The East African ridge across southeast and East Africa is expected to intensify slightly during the forecast period.

The St. Helena High pressure system over southeast Atlantic Ocean is expected to intensify from 1020mb to 1027mb through 24 to 48 hours. It tends to weaken with central value pressure of 1023mb by 96 hours. The Mascarene high pressure system over southwest Indian Ocean is expected to weaken from 1035mb to 1034mb through 24 to 48 hours, then It tends to strengthen from 1034mb to 1036mb through 24 to 72 hours and then it tends to weaken to mean sea level pressure of 1026mb by 96 hours.

At the 850hpa level, a cyclonic circulation across northern Mali is expected to shift westwards across Mauritania, Mali and Senegal borders during the forecast period. East-west oriented convergence is expected to dominate the flow over Guinea to Mali trough 24 to 48 hours. Another East-west oriented convergence is expected to shift over Cote d'Ivoire, Ghana and Togo and it tends to become a cyclonic circulation as it passes across Nigeria and Niger. A localized convergence is expected to dominate the

flow over southeastern Sudan through 24 to 48 hours and it tends to extend to Angola across DRC towards end of the forecast period. The seasonal convergence in the vicinity of Lake Victoria is expected to remain active 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 over Benin and Nigeria is expected to extend across Cote d'Ivoire, Burkina Faso, Mali, Mauritania and Senegal during the forecast period. Another cyclonic circulation is expected to dominate the flow over South Sudan and northeastern DRC through 24 to 48 hours. West-east convergence is expected to prevail across northern DRC, CAR and Sudan, and it tends to become cyclonic circulation, while propagating westwards across west African regions.

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

At 150mb, a zone of easterly flow that exceeds 70kts, associated with Tropical Easterly Jet (TEJ) is expected to remain weak.

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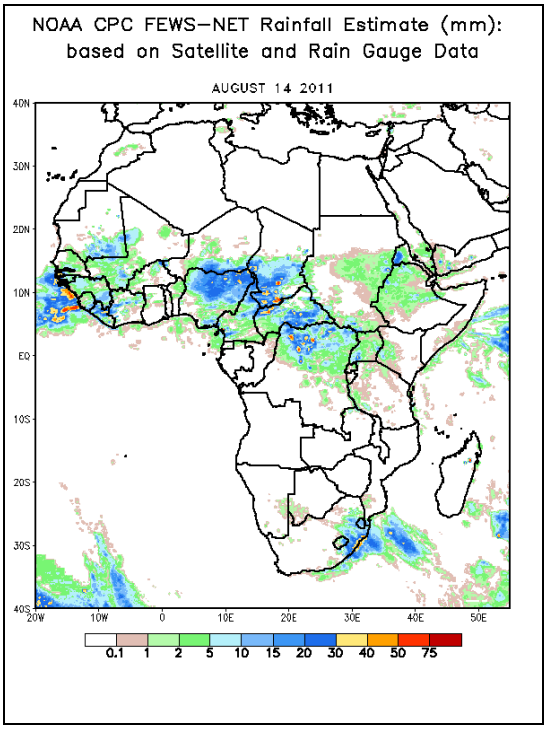
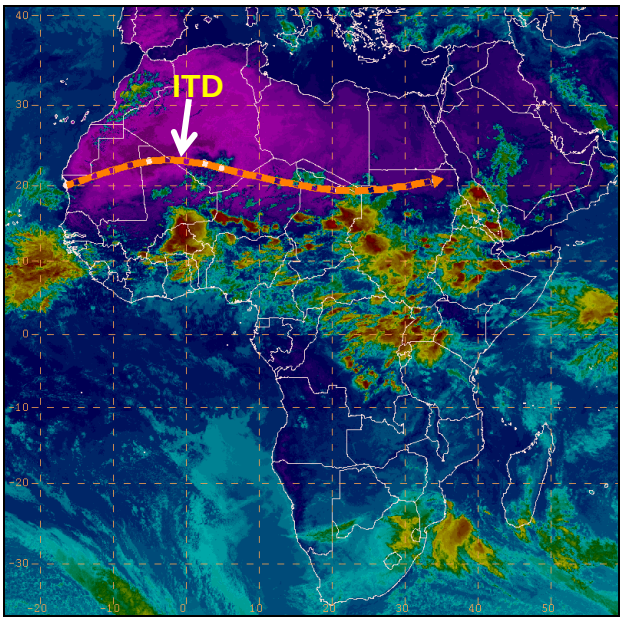
2.0. Previous and Current Day Weather Discussion over Africa (14 – 15 August 2011)

2.1. Weather assessment for the previous day (14 August 2011): During the previous day, moderate to heavy rainfall was observed over coastal Guinea, Mali, northern Mauritania, Nigeria, southern Chad, northern Cameroon, CAR, northern DRC, western Eritrea and southern Uganda.

2.2. Weather assessment for the current day (15 August 2011): Intense clouds are observed over Burkina Faso, northern Mali, Niger, portions of Chad, Sudan, DRC, and Ethiopia.



IR Satellite Image (valid 1622Z) and position of ITD, based on 1200Z Surface Analysis; 15 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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