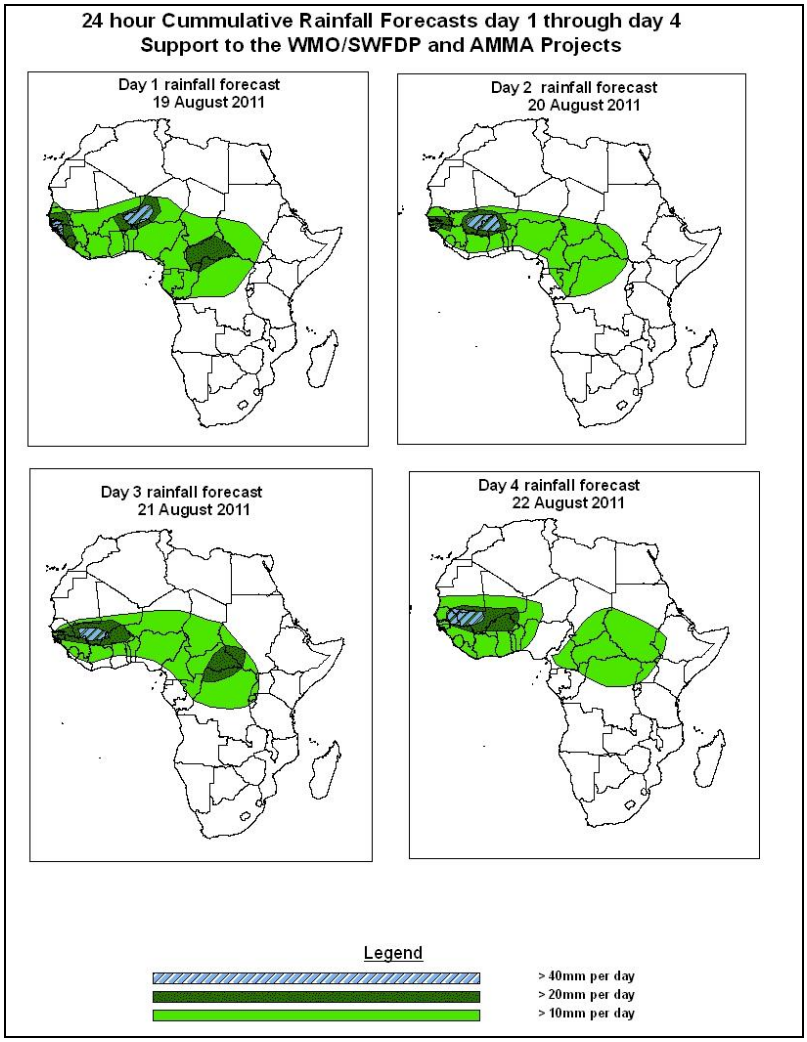
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 19 August – 06Z of 22 August 2011, (Issued at 10:15Z of 18 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 activities are expected to enhance rainfall over portions of central and western African countries. Hence, there is an increased chance for moderate to heavy rainfall over southern Mauritania, Senegal, Gambia, Guinea Bissau, Guinea, portions of Mali, Burkina Faso, Niger, parts of Nigeria and CAR.

1.2. Models Comparison and Discussion-Valid from 00Z of 18 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 Mali, Mauritania and Algeria borders) tends to fill up, with its central pressure value increasing from 1003mb to 1009mb, according to the ECMWF model and from 1002mb to 1005mb, according to the UKMET model during the forecast period. In contrast, the GFS model tends to deepen this same low from 1004mb to 1003mb during the forecast period. The heat low over central Africa region tends to deepen, with its mean sea level pressure decreasing from 1008mb to 1004mb according to the GFS model. This same heat low is expected to deepen, with its central pressure value exceeding 1006mb according to the UKMET model through 72 to 96 hours. On the other hand, the heat low over eastern Arabian Peninsula is expected to fill up from 997mb to 999mb, according to the ECMWF model, from 997mb to 999mb, according to the GFS model and from 996mb to 998mb according to the UKMET model during the forecast period. The East African ridge across southeast and East Africa is expected to weaken during the forecast period.

The St. Helena High pressure system over southeast Atlantic Ocean is expected to intensify from 1024mb to 1036mb through 24 to 72 hours and it tends to weaken mean sea level pressure value of 1032mb towards end of the forecast period. The Mascarene high pressure system over southwest Indian Ocean is expected to weaken from mean sea level pressure value of 1024mb to 1019mb during the forecast period.

At the 850hpa level, a cyclonic circulation near the border between Senegal and Guinea is expected to leave the West Africa coast through 24 to 48 hours. Another deep cyclonic circulation across Mali, Niger and Chad is expected to move towards Senegal and Mauritania during the forecast period. Localized wind convergences are expected to prevail across Gabon, DRC and Sudan through 24 to 48 hours. The northern end of this convergence tends to shift northwards to CAR and Sudan border by 96 hours. 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, an easterly wave across southern Mauritania and Senegal is expected to leave the West African Coast by 48 hours. Another strong wave near the border between Niger and Chad is expected to propagate westwards across central and west African countries during the forecast period. This wave with its associated convective activity is expected to reach near Mauritania and Senegal by 96 hours.

At 500hpa, zone of strong easterly wind, which is associated with the African Easterly Jet (AEJ) near the border between Niger and Chad is expected to propagate towards Mauritania while strengthening during the forecast period.

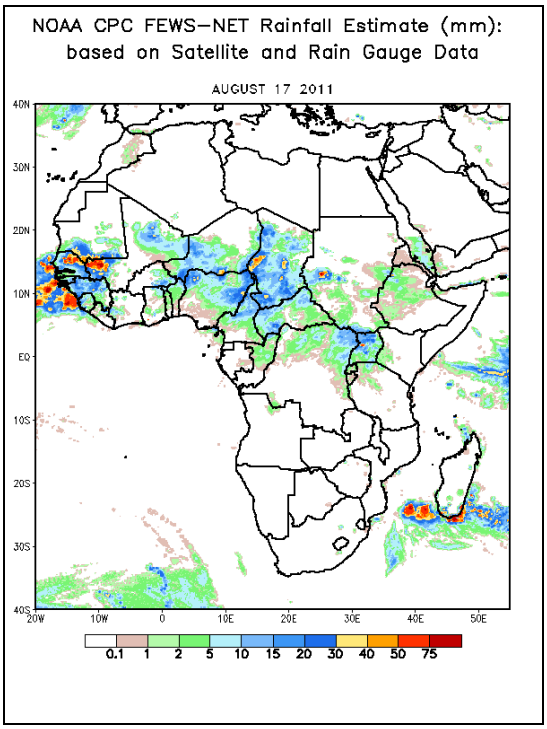
At 150mb, strong winds associated with Tropical Easterly Jet (TEJ) are expected to remain weak during the forecast period.

In the next four days, westward propagating waves and their associated activities are expected to enhance rainfall over portions of central and western African countries. Hence, there is an increased chance for moderate to heavy rainfall over southern Mauritania, Senegal, Gambia, Guinea Bissau, Guinea, portions of Mali, Burkina Faso, Niger, parts of Nigeria and CAR.

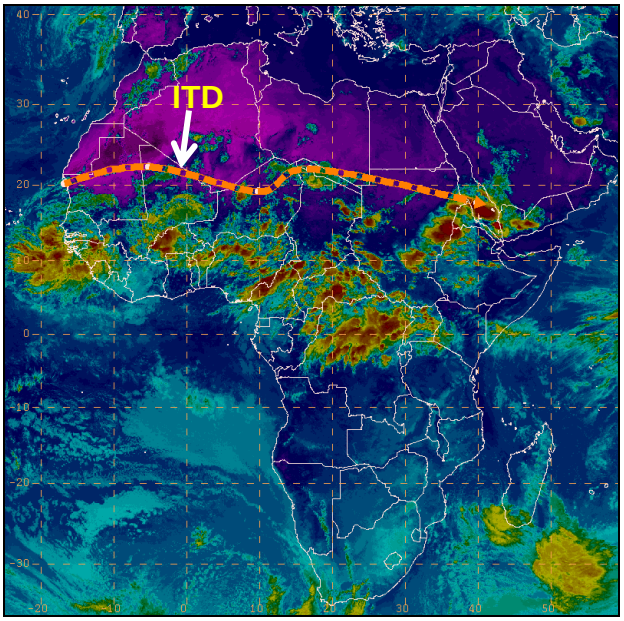
2.0. Previous and Current Day Weather Discussion over Africa (17 – 18 August 2011)

2.1. Weather assessment for the previous day (17 August 2011): During the previous day, moderate to heavy rainfall was observed over Senegal, Guinea, southern Mauritania, eastern and northern Mali, western Niger, northern Nigeria, Chad, northern Cameroon and parts of CAR, northeastern DRC and Sudan.

2.2. Weather assessment for the current day (18 August 2011): Intense clouds are observed over Burkina Faso, Guinea, northern Niger, Cameroon, CAR, northern DRC, eastern Chad and parts of northern Ethiopia, southern Sudan, Eritrea and Uganda.



IR Satellite Image (valid 1622Z) and position of ITD, based on 1200Z Surface Analysis; 18 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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