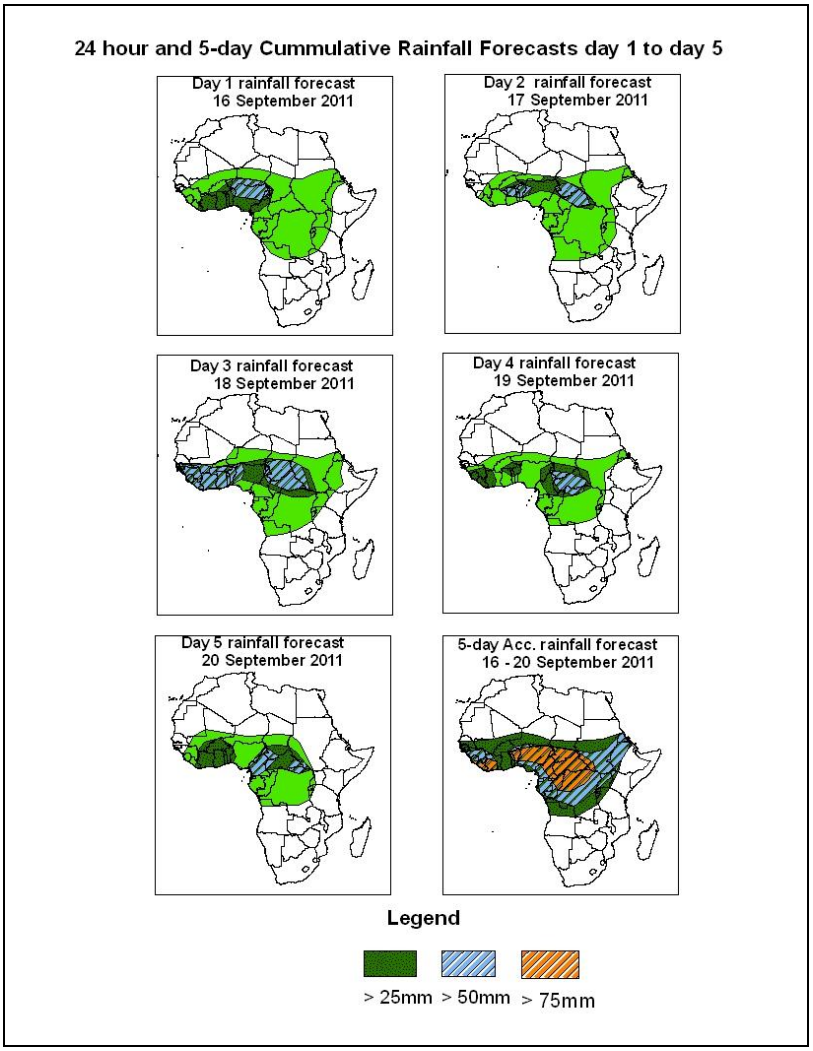
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 16 September – 06Z of 20 September 2011, (Issued at 10:15Z of 15 September 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 five days, westward propagating thunderstorms localized cyclonic circulations and lower tropospheric wind convergences are expected to enhance rainfall across the Gulf of Guinea, central African and the Congo Air boundary (CAB) region. In general, there is an increased chance for heavy rainfall over Liberia, Sierra Leone, Cote D'Ivoire, Burkina Faso, Ghana, Togo, Benin, Nigeria, northern Cameroon, northern Congo, northern DRC, CAR, South Sudan, and South Chad.

1.2. Models Comparison and Discussion-Valid from 00Z of 15 September 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. A low across northern Mali, Mauritania Niger and Chad is expected to shift westward, while deepening with its central pressure value decreasing from 1010mb to 1008mb according to the ECMWF model, from 1008mb to 1006mb according to the GFS model, from 1009mb to 1007mb according to the UKMET model through 24 to 96 hours and then it tends to fill up with its central pressure value increasing from 1008mb to 1009mb according to the ECMWF model, from 1006mb to 1009mb according to the GFS model, from 1007mb to 1009mb according to the UKMET model through 96 to 120 hours.

A low pressure located over the Arabian Peninsula is expected deepen with its central pressure value decreasing from 1001mb to 1000mb according to the ECMWF model, from 1000mb to 999mb according to the UKMET model and then tends to fill up with its central pressure value increasing from 1000mb to 1003mb according to the ECMWF model, from 999mb to 1003mb according to the UKMET model through 72 to 120 hours. According to the GFS model this low pressure located over the Arabian Peninsula is expected to fill up with its central pressure value increasing from 1002mb to 1006mb during the forecast period.

According to the GFS model, the St. Helena High pressure system over southeast Atlantic Ocean is expected to weaken with its central pressure value decreasing from 1029mb to 1012mb during the forecast period. According to the ECMWF model, this High pressure system over southeast Atlantic Ocean is expected to weaken with its central pressure value decreasing from 1024mb to 1021mb through 24 hours to 48 hours, and tends to intensify with its central pressure value increasing from 1021mb to 1032mb through 48 hours to 96 hours and then tends to weaken with its central pressure value decreasing from 1032mb to 1028mb through 96 hours to 120 hours. According to the UKMET model, this High pressure system is expected to weaken with its central pressure value decreasing from 1024mb to 1020mb through 24 hours to 72 hours, and then it tends to intensify with its central pressure value increasing from

1020mb to 1036mb through 72 hours to 96 hours and it tends to weaken again with its central pressure value decreasing from 1036mb to 1032mb through 96 hours to 120 hours

The Mascarene high is expected to intensify with its central pressure value increasing from 1018mb to 1028mb through 24 hours to 48 hours, and it tends to weaken with its central pressure value decreasing from 1028mb to 1019mb through 48 to 120 hours. The East African ridge is expected to strengthen along with the intensification of the Mascarene high pressure system and then tends to weaken with the weakening of the Mascarene high pressure system.

At the 850hpa level, a series of cyclonic circulations are expected to dominate the flow across Mauritania, Mali, western Niger, Burkina Faso and northern Nigeria and southwestern Sudan, shifting southwestward to Mali, southeastern Mauritania, Burkina Faso, Cote D'Ivoire, Guinea Conakry, Togo and Benin during the forecast period. West-East oriented wind convergences are expected between Sudan and Eritrea during the forecast period. North-south oriented seasonal convergences are expected to remain active near the Lake Victoria region 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, an easterly wave is expected to propagate westward across the coastline of Serra Leone, Liberia, Cote D'Ivoire, Ghana, Togo, Benin and Nigeria through 72 hours to 120 hours. Another easterly wave is expected to propagate westward across Cameroon, CAR, southwestern Sudan Republic, southern Chad and Nigeria.

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. The AEJ is expected to strengthen over border between Burkina Faso Ghana and Cote D'Ivoire, shifting southwestward to Guinea Conakry, through 48 hours to 72 hours.

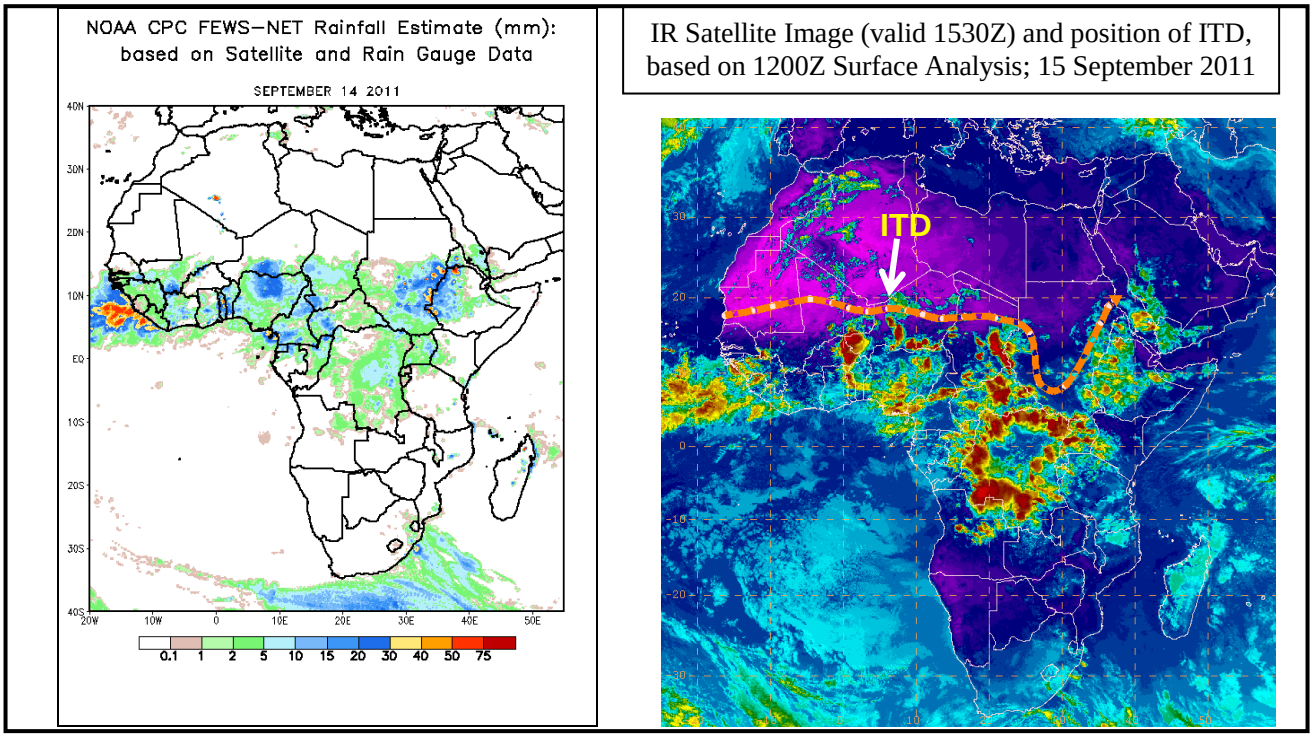
At 150hpa Strong winds, the TEJ is expected to remain active over southern Ethiopia, through 72 hours.

In the next five days, westward propagating thunderstorms localized cyclonic circulations and lower tropospheric wind convergences are expected to enhance rainfall across the Gulf of Guinea, central African and the Congo Air boundary (CAB) region. In general, there is an increased chance for heavy rainfall over Liberia, Sierra Leone, Cote D'Ivoire, Burkina Faso, Ghana, Togo, Benin, Nigeria, northern Cameroon, northern Congo, northern DRC, CAR, South Sudan, and South Chad.

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

2.1. Weather assessment for the previous day (14 September 2011): During the previous day, moderate to heavy rainfall was observed over southern Mali, costal line of Serra Leone and Liberia, northern Nigeria, southern Togo, southern Benin, part of Cameroon, southwestern Chad, parts of CAR, eastern Sudan Republic and western Ethiopia

2.2. Weather assessment for the current day (15 September 2011): Intense clouds are observed over southwestern Mali, southern Senegal, western Guinea Conakry, part of Guinea Bissau, part of Serra Leone, part of Liberia, the border between Burkina Faso and Niger, center of Niger, Togo, much of Nigeria, central Cameroon, southeastern Chad, CAR, much of DRC and Ethiopia



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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