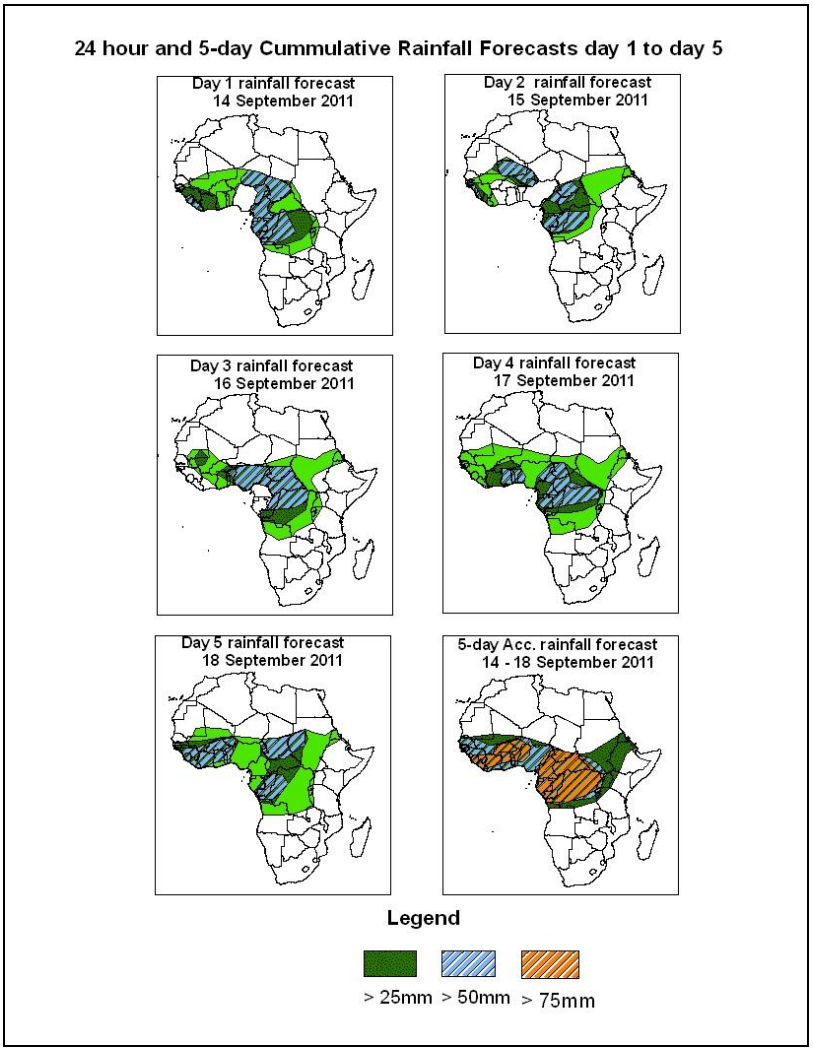
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 14 September – 06Z of 18 September 2011, (Issued at 10:15Z of 13 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, cyclonic circulations and lower tropospheric wind convergences are expected to enhance rainfall across the gulf of Guinea and central African 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, Congo, DRC, CAR, South Sudan, and South Chad.

1.2. Models Comparison and Discussion-Valid from 00Z of 07 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 heat low over northern Mali is expected to shift westward, while filling up with its central pressure value increasing from 1005mb to 1009mb according to the ECMWF model, from 1004mb to 1008mb according to the UKMET model through 24 to 96 hours. this heat low is expected to deepen with its central pressure value increasing from 1009mb to 1008mb according to the ECMWF model, from 1008mb to 1006mb according to the UKMET model Through 96 to 120 hours. According to the GFS model, this heat low is expected shift westward, while filling up, with its central pressure value increasing from 1005mb to 1008mb during the forecast period. According to the GFS model, another low is expected to form over western Chad wile shifting westward, while deepening with its central pressure value decreasing from 1010mb to 1008mb through 24 to 48 hours, filling up with its central pressure value increasing from 1008mb to 1009mb through 48 to 72 hours and then deepening with its central pressure value decreasing from 1009mb to 1007mb through 72 to 120 hours. According to the ECMWF model, a low pressure across the border Mali and Niger tends to deepen with its central pressure value decreasing from 1009mb to 1008mb through 96 to 120 hours. According to the UKMET model, this low is expected to form over the border between Niger and Chad, shifting westward, merging with the heat low over northern Mali, while deepening with its central pressure value decreasing from 1008mb to 1006mb through 24 to 48 hours, and filling up with its central pressure value increasing from 1006mb to 1008mb through 48 to 72 hours. By 96 hours a new low is expected to form over northern Chad with its central pressure value of 1007hpa through 72 to 120 hours according to the UKMET model.

According to the ECMWF model a low pressure located over the Arabian Peninsula is expected with a central pressure value of 1000mb during the forecast period. According to the GFS model the low pressure located over the Arabian Peninsula is expected to fill up with its central pressure value increasing from 1001mb to 1002mb during the forecast period. According to the UKMET model this low is expected to fill up with its central pressure value increasing from 999mb to 1000mb through 24 to 72 hours, to

deepen with its central pressure value decreasing from 1000mb to 999mb through 72 to 96 hours and then to fill up with its central pressure value increasing from 999mb to 1000mb through 72 to 120 hours

During the forecast period, The St. Helena High pressure system over southeast Atlantic Ocean is expected to intensify with its central pressure value increasing from 1024mb to 1025mb according to the ECMWF and GFS models, from 1025mb to 1026mb according to the UKMET model through 24 hours to 48 hours and then tends to weaken with its central pressure value decreasing from 1025mb to 1020mb according to the ECMWF and GFS models, from 1026mb to 1016mb according to the UKMET model through 48 hours to 120 hours

The Mascarene high is expected to weaken with its central pressure value decreasing from 1028mb to 1024mb through 24 to 48 hours, to intensify with its central pressure value increasing from 1024mb to 1030mb through 48 hours to 96 hours and then tends to weaken with its central pressure value decreasing from 1030mb to 1024mb through 96 to 120 hours. The East African ridge is expected to weaken with the weakening of the Mascarene high pressure system and then tends to strengthen along with the intensification of the Mascarene high pressure system it.

At the 850hpa level, a series of cyclonic circulations are expected to dominate the flow across Mauritania, Mali, Niger and southern Chad, while shifting southwestward to the coast of southern Senegal, southeastern Mauritania, Guinea Bissau, Guinea Conakry, Cote D'Ivoire, Ghana, Togo, Benin and northwestern Nigeria during the forecast period. West-East oriented wind convergences are expected between Sudan and Eritrea during the forecast period. Active lower tropospheric wind convergence is also expected near the Lake Victoria during the forecast period.

At 700mb level, an easterly wave is expected to propagate westward across northern Mali through 24 hours. Another easterly wave is expected to propagate westward across southern Chad, Niger, Cameroon, to eastern Guinea Conakry, western Cote D'Ivoire, southern Burkina Faso, northern Ghana, Togo and Benin during the forecast period.

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 northern Burkina Faso by 120 hours.

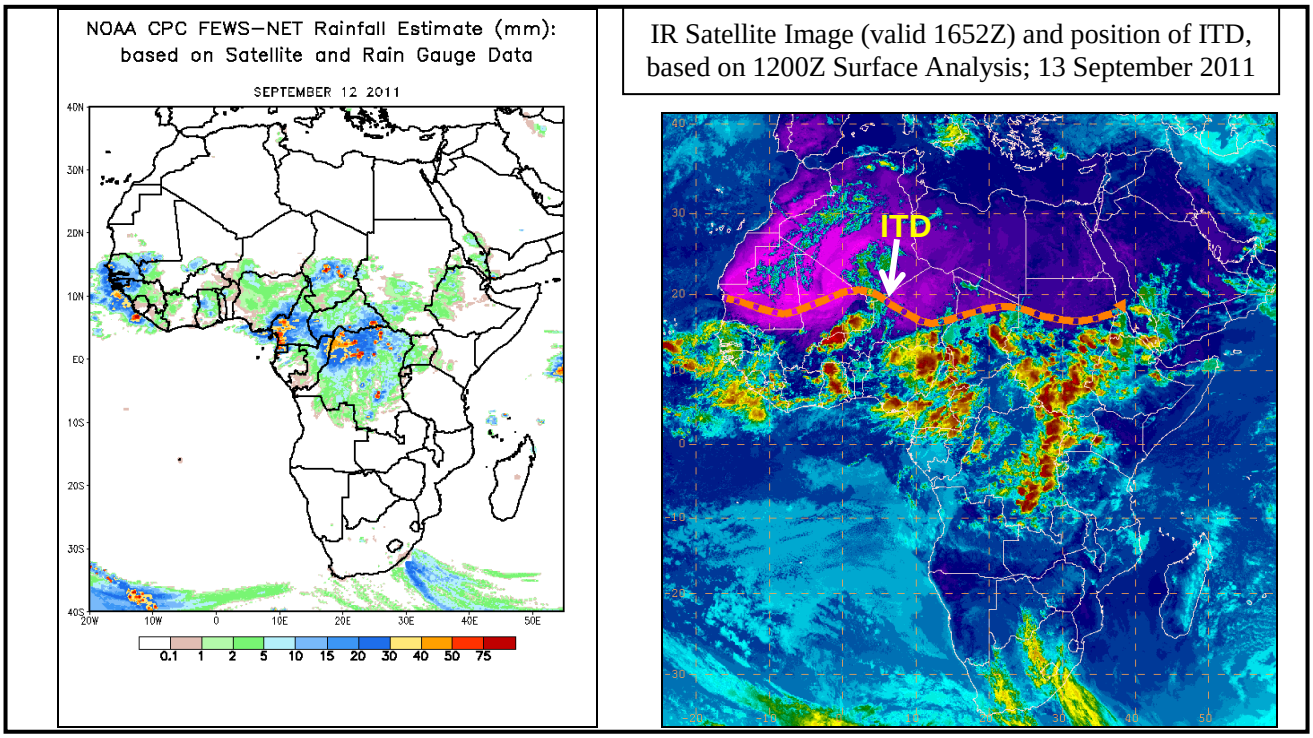
At 150hpa Strong winds, the TEJ is expected to remain weak during the forecast period.

In the next five days, westward propagating thunderstorms, cyclonic circulations and lower tropospheric wind convergences are expected to enhance rainfall across the gulf of Guinea and central African 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, Congo, DRC, CAR, South Sudan, and South Chad.

2.0. Previous and Current Day Weather Discussion over Africa (12 – 13 September 2011)

2.1. Weather assessment for the previous day (12 September 2011): During the previous day, moderate to heavy rainfall was observed over western Guinea Conakry, costal Senegal, southern Cameroon, central Chad, northern DRC, parts of eastern and southern DRC, southwestern and southeastern CAR.

2.2. Weather assessment for the current day (13 September 2011): Intense clouds are observed over the border between Burkina Faso, Mali and Niger, Ghana, part of Cameroon, southern Niger, southern and eastern Chad, CAR, northern Congo, eastern DRC, Burundi, Rwanda, parts of Uganda, southern Sudan and northern 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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