

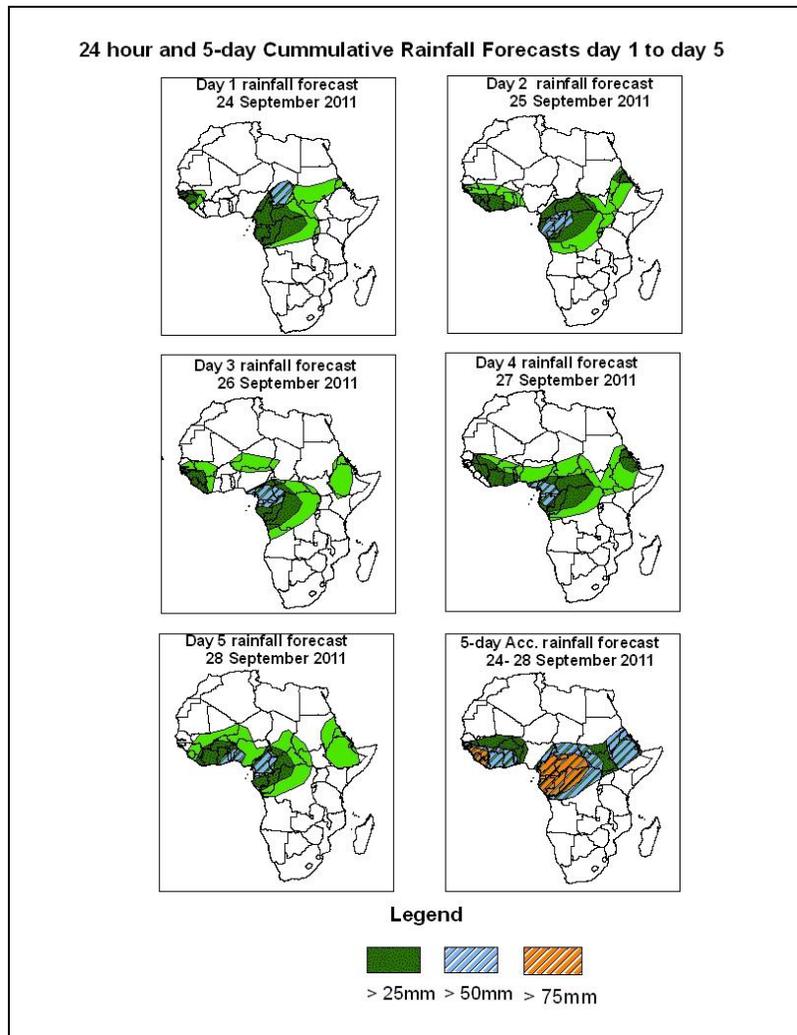


NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 24 September – 06Z of 28 September 2011, (Issued at 10:15Z of 23 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, 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 much of Guinea Conakry, Sierra Leone, Liberia, Cote D'Ivoire, Ghana, Togo, southern Benin, southern Cameroon, CAR, northern DRC, southwestern Sudan Republic, western and northern Ethiopia, eastern Sudan and Eritrea.

1.2. Models Comparison and Discussion-Valid from 00Z of 24 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. The ECMWF model indicate a low pressure over northern Mali, which is expected to fill up with its central pressure value increasing from 1008mb to 1010mb through 48 to 72 hours and then to deepen with its central pressure value decreasing from 1010mb to 1009mb through 72 to 120 hours. The GFS model tends to position this low over eastern Mali while shifting southwestward to coastal Mauritania, while filling up with its central pressure value increasing from 1007mb to 1008mb through 72 to 96 hours during the forecast period. According to the UKMET model this low is located over northern Mali and it is expected to fill up, while its central pressure value increasing from 1008mb to 1010mb through 48 to 72 hours and then to deepen with its central pressure value decreasing from 1010mb to 1008mb through 72 to 120 hours. According to the ECMWF model another low is expected over western Chad, while weakening with its central pressure value increasing from 1007mb to 1010mb during the forecast period. The GFS model tends to localize this low over border between Niger, Nigeria and Chad, while is expected to fill up with its central pressure value increasing from 1008mb to 1011mb during the forecast period. According to the UKMET model this low is located over eastern Chad and tends fill up with its central pressure value increasing from 1008mb to 1012mb through 24 to 96 hours and then to deepen with its central pressure value decreasing from 1012mb to 1007mb through 96 to 120 hours. The GFS model tends to indicate another low over Sudan, while deepening with its central pressure value decreasing from 1012mb to 1009mb through 72 to 120 hours. According to the GFS model a low is expected to develop over the border between Niger and Nigeria, while filling up with its central pressure value increasing from 1009mb to 1011mb through 48 to 120 hours. According to the UKMET model this low is located over border between Niger, Nigeria, Cameroon and Chad and it tends to fill up with its central pressure value increasing from 1008mb to 1010mb through 48 to 72 hours.

According to the ECMWF model, the low pressure located over the Arabian Peninsula is expected fill up with its central pressure value increasing from 1003mb to 1005mb

through 24 hours to 96 hours and then tends to deepen with its central pressure value decreasing from 1005mb to 1004mb through 96 hours to 120 hours. According to the GFS model, this low is expected fill up with its central pressure value increasing from 1004mb to 1008mb through 24 hours to 72 hours and then tends to deepen with its central pressure value decreasing from 1008mb to 1007mb through 72 hours to 120 hours. According to the UKMET model this low tends to fill up with its central pressure value increasing from 1002mb to 1005mb during the forecast period.

According to the ECMWF model, the St. Helena High pressure system over southeast Atlantic Ocean is expected to intensify with its central pressure value increasing from 1024mb to 1025mb through 24 hours to 48 hours, to weaken with its central pressure value decreasing from 1025mb to 1022mb through 48 to 96 hours and then tends to intensify with its central pressure value increasing from 1022mb to 1024mb through 96 hours to 120 hours. According to the GFS model, this High pressure system over southeast Atlantic Ocean is expected to weaken with its central pressure value decreasing from 1028mb to 1024mb through 24 hours to 96 hours, and it tends to intensify with its central pressure value increasing from 1024mb to 1025mb through 96 to 120 hours. According to the UKMET model the St. Helena High pressure system is expected to intensify with its central pressure value increasing from 1024mb to 1026mb through 24 hours to 48 hours, to weaken with its central pressure value decreasing from 1026mb to 1023mb through 48 to 96 hours and then tends to intensify with its central pressure value increasing from 1023mb to 1024mb through 96 hours to 120 hours.

The Mascarene high is expected to intensify with its central pressure value increasing from 1032mb to 1036mb through 24 hours to 72 hours, to weaken with its central pressure value decreasing from 1036mb to 1024mb through 72 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 cyclonic circulation is expected to dominate the flow over southeastern Niger, shifting westward eastern Mali and deepening during the forecast period. Another cyclonic circulation is expected to dominate the flow over central Chad, shifting border between Niger, Nigeria and western Chad during the forecast period. A

deep cyclonic circulation is expected to dominate the flow over northern DRC, southern CAR, southern Cameroon, Gabon and Congo during the forecast period. A wind convergence is expected to dominate the flow across and from southern Sudan to 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 GHA region.

At 700mb level, an easterly wave is expected to propagate over center of Chad and southeastern Mauritania. Another easterly wave is expected to propagate southwestward from southern Cameroon/southwestern CAR to southwest Nigeria, south Benin and south Togo.

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 remain weak during the forecast period.

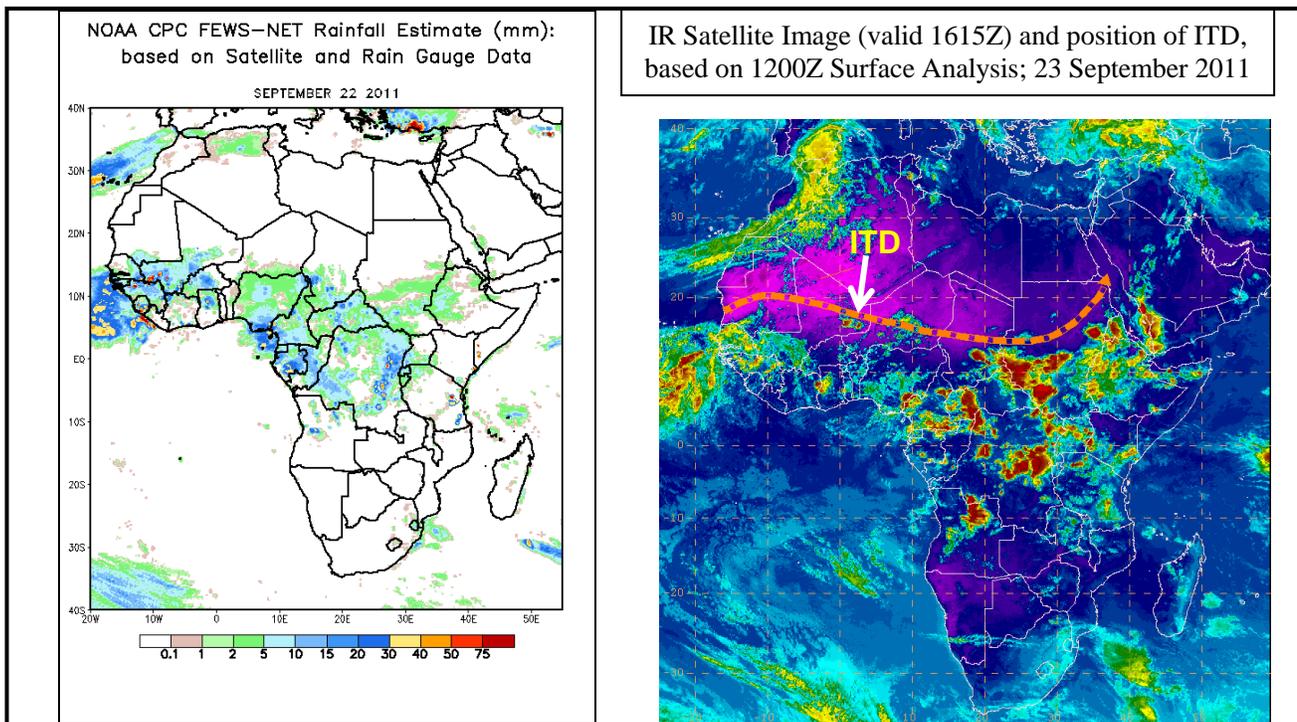
At 150hpa Strong winds, the TEJ is expected to remain weak during the forecast period.

In the next five days, 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 much of Guinea Conakry, Sierra Leone, Liberia, Cote D'Ivoire, Ghana, Togo, southern Benin, southern Cameroon, CAR, northern DRC, southwestern Sudan Republic, western and northern Ethiopia, eastern Sudan and Eritrea

2.0. Previous and Current Day Weather Discussion over Africa (22 – 23 September 2011)

2.1. Weather assessment for the previous day (22 September 2011): During the previous day, moderate to heavy rainfall was observed near the border between Mali and Guinea Conakry, castle line of Liberia and Serra Leone, castle line of Cameroon and Nigeria, parts of Gabon, parts of Congo and parts of DRC.

2.2. Weather assessment for the current day (23 September 2011): Intense clouds are observed over eastern Guinea Conakry, eastern Senegal and Mali, border between Cote D'Ivoire and Ghana, southeastern Nigeria, parts of Cameroon, western DRC, southern Sudan, southeastern Sudan, much of northern DRC, much of western Ethiopia, much of Uganda.



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

Author(s): Sadibou Ba (Agence Nationale de la Meteorologie du Senegal) / CPC-African Desk), sadibou.ba@noaa.gov and Aminata Makalou (Direction Nationale de la Meteorologie du Mali-ASECNA) / CPC-African Desk), aminata.makalou@noaa.gov

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