

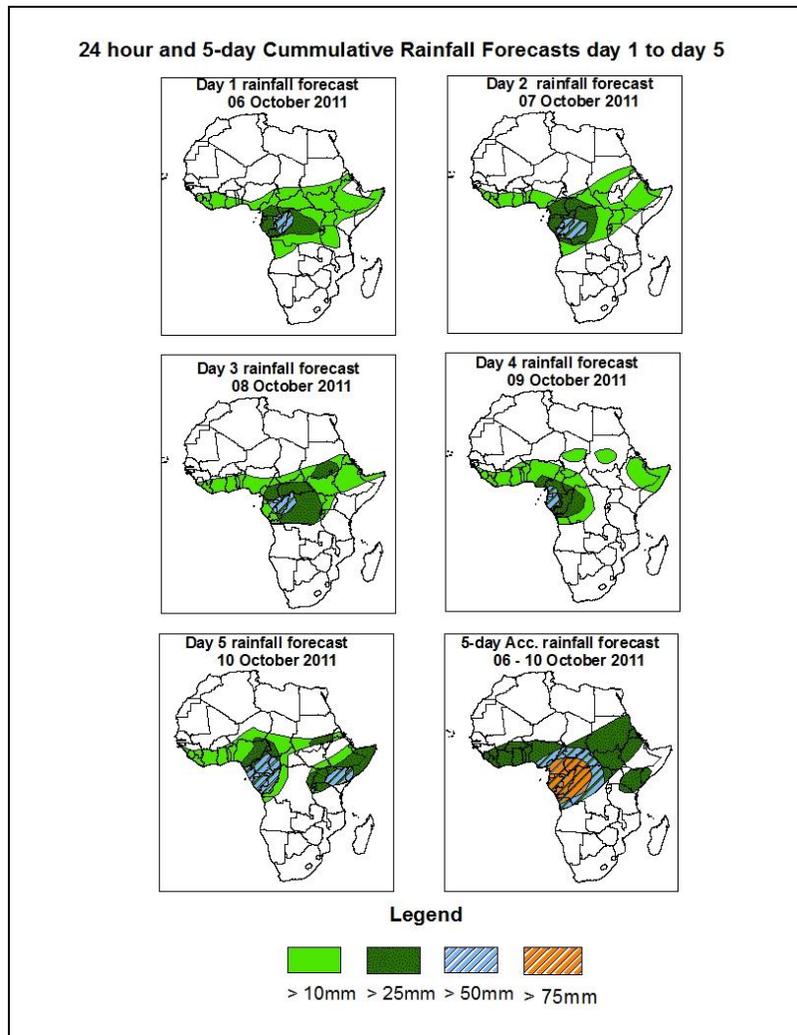


NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 06 October – 06Z of 10 October 2011, (Issued at 10:15Z of 05 October 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 southeastern Nigeria, southern Chad, western CAR, Cameroon, Gabon, Congo, northern, central and western DRC and northwestern Angola.

1.2. Models Comparison and Discussion-Valid from 00Z of 06 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 indicates a low pressure over northeastern Mali, which is expected to shift westward to the border between Mali, Mauritania and Senegal, while deepening with its central pressure value decreasing from 1010mb to 1009mb through 48 to 96 hours and then filling up with its central pressure value increasing from 1009mb to 1010mb through 96 to 120 hours. According to the ECMWF and GFS models a low pressure is expected to develop over western Chad and Mali and Niger border, while filling up with its central pressure value increasing from 1008mb to 1009mb during the forecast period. According to the UKMET model, this low pressure is located over southern Chad, and filling up with its central pressure value increasing from 1007mb to 1008mb through 24 to 48 hours. According to the ECMWF model, a localized low pressure system is expected to form over eastern Sudan, while deepening with its central pressure value decreasing from 1008mb to 1007mb through 48 to 96hours, and then filling up with its central pressure value increasing from 1007mb to 1008mb through 96 to 120 hours. According to the GFS model, this low is expected to be localized over southern Sudan, while shifting northward to central Sudan and filling up with its central pressure value increasing from 1008mb to 1009mb during the forecast period. The GFS model tends to localize a second center associated with low pressure over South Sudan Republic shifting northeastward to the southeast Sudan and deepening with its central pressure value decreasing from 1011mb to 1009mb through 48 to 72hours. Another center of low is expected to develop over Sudan Republic, while deepening with its central pressure value decreasing from 1012mb to 1011mb through 96 to 120hours. The UKMET model tends to localize this low pressure over eastern Sudan while filling up with its central pressure value increasing from 1005mb to 1006mb through 24 to 48 hours, deepening with its central pressure value decreasing from 1006mb to 1004mb through 48 to 72 hours and then filling up filling up with its central pressure value increasing from 1004mb to 1006mb through 72 to 120 hours. According to the GFS model a low pressure is expected to develop over coastline of Mauritania and Senegal, while shifting westward to the Atlantic Ocean and deepening with its central pressure value decreasing from 1008mb to 1007mb through 24 to 96 hours.

The UKMET model tends to localize this low near the Mali, Mauritania and Senegal borders, while deepening with its central pressure value decreasing from 1010mb to 1009mb through 24 to 72 hours. According to the GFS model a low pressure is expected to develop over western Niger, while shifting southwestward to border between Mali and Burkina Faso and filling up with its central pressure value increasing from 1008mb to 1009mb through 48 to 72 hours. According to the UKMET model, a low pressure is expected to develop over eastern Ethiopia, while shifting to the south and filling up with its central pressure value increasing from 1007mb to 1010mb through 24 to 48 hours.

According to the ECMWF model, the low over the Arabian Peninsula is expected fill up with its central pressure value increasing from 1008mb to 1010mb during the forecast period. According to the GFS model, this low tends to fill up with its central pressure value increasing from 1011mb to 1012mb through 24 to 48 hours, to deepen with its central pressure value decreasing from 1012mb to 1011mb through 48 to 72 hours, to fill up by 96 hours and then to develop through 120 hours. According to the UKMET model this low pressure over the Arabian Peninsula tends to fill up with its central pressure value increasing from 1009mb to 1010mb through 24 to 48 hours and then to deepen with its central pressure value decreasing from 1010mb to 1009mb through 48 to 120 hours

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 1027mb through 24 to 48 hours and then to weaken with its central pressure value decreasing from 1027mb to 1016mb through 48 to 120 hours. According to the GFS model, this high pressure tends to weaken with its central pressure value decreasing from 1027mb to 1012mb through 24 to 96 hours and then to intensify with its central pressure value increasing from 1012mb to 1028mb 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 1027mb through 24 to 48 hours, to weaken with its central pressure value decreasing from 1027mb to 1020mb through 48 to 96 hours and then to intensify with its central pressure value increasing from 1020mb to 1024mb through 96 to 120 hours.

The Mascarene high is expected to weaken with its central pressure value decreasing from 1032mb to 1030mb through 24 to 48 hours and then to intensify with its central pressure value increasing from 1030mb to 1032mb through 48 to 120 hours. The East African ridge is expected to weaken during the beginning of the forecast period and it tends to re-strengthen towards end of the forecast period along with the changes in the intensity of the Mascarene high pressure system.

At the 850hpa level, a deep cyclonic circulation is expected to dominate the flow over the Mali, Algeria and Niger border, while shifting to border between northern Mali and southern Algeria through 24 to 96 hours. Another deep cyclonic circulation with four vortices is expected to dominate the flow over southern Chad, Cameroon, southeastern Nigeria, western CAR and DRC, shifting southwestward to southern Nigeria, southern Cameroon, Gabon and Congo during the forecast period. A localized cyclonic circulation is expected to dominate the flow across the southern Niger, northern Nigeria and western Chad borders, while shifting westward to Niger and eastern Mali through 72 to 96 hours. Another localized cyclonic circulation is expected to dominate the flow over Sudan through 48 to 120 hours. Localized wind convergences are expected to dominate the flow over portions of the Gulf of Guinea, central and eastern African regions; over central and western Sudan by 24 hours, across southwest Sudan Republic to Uganda by 48 hours, from Ethiopia to Sudan by 72 hours and over border between Niger, Nigeria and southern Chad by 120 hours.

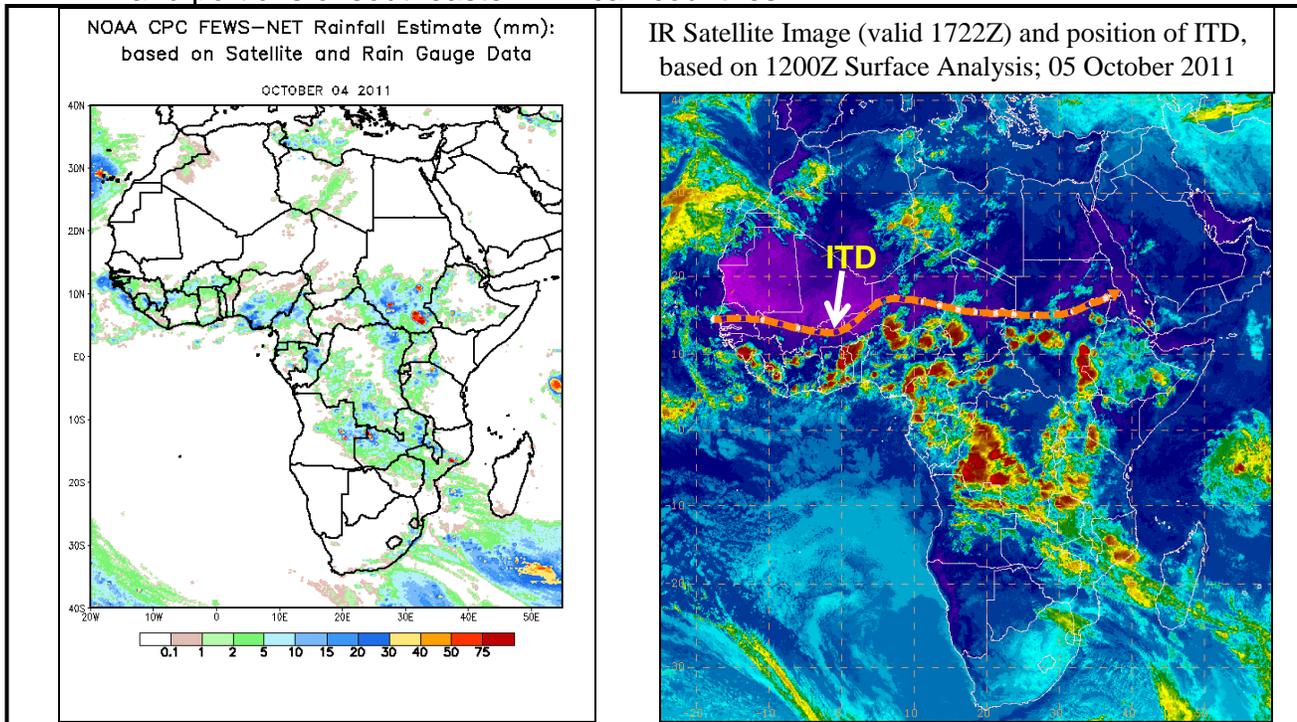
At 500hpa, easterly winds with moderate intensity (10 to 25knots) are expected to dominate the flow over Mali and eastern Senegal during the forecast period.

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 southeastern Nigeria, southern Chad, western CAR, Cameroon, Gabon, Congo, northern, central and western DRC and northwestern Angola.

2.0. Previous and Current Day Weather Discussion over Africa (04 – 05 October 2011)

2.1. Weather assessment for the previous day (04 October 2011): During the previous day, moderate to heavy rainfall was observed near the coastline of Guinea Bissau and Guinea Conakry, southwest Nigeria, eastern Nigeria, northwest Cameroon, northwest Congo, parts of South Sudan Republic, parts of southern Sudan, part of eastern and southern DRC, part of eastern Angola, part of northern Tanzania and part of Zambia

2.2. Weather assessment for the current day (05 October 2011): Intense clouds are observed over coastal Gulf of Guinea, parts of central and eastern Africa and portions of southeastern African countries.



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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