

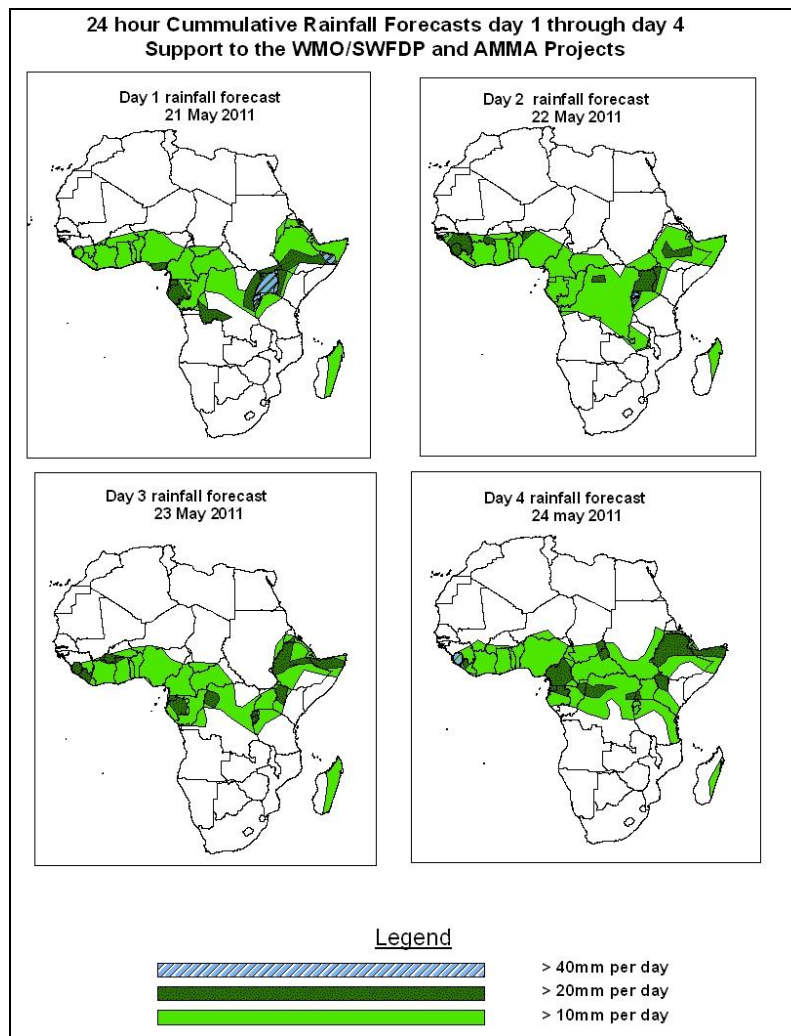


NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 21 May – 06Z of 24 May 2011, (Issued at 9:50Z of 20 May 2011)

1.1. Twenty Four Hour Cumulative Rainfall Forecasts

The forecasts are expressed in terms of 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, lower tropospheric cyclonic circulation in the vicinity of the Gulf of Aden is expected to maintain moderate to heavy rains over parts of the GHA region. The lower and mid-tropospheric easterly winds that dominate the flow in the equatorial Africa region are expected to continue enhancing westward propagation of thunderstorms into the western equatorial Africa. Moreover, the convergence in the Congo Air Boundary Region is expected to increase rainfall in the vicinity of the Lake Victoria area. In general, there is an increased chance for rainfall to exceed 20mm per day over part of Cameroon, Sierra Leone, Guinea, northern Ghana, parts of DRC, southern Burkina Faso, Ethiopia, parts of Somalia, Uganda, Gabon, Rwanda, Burundi and Congo, with the heaviest rainfall event expected to occur over Sierra Leone, eastern Ethiopia, Uganda, Rwanda and Burundi.

1.2. Models Comparison and Discussion-Valid from 00Z of 20 May 2011

According to the GFS, ECMWF and UKMET models, the east-west oriented trough, associated with heat lows across the Sahel region, Sudan, DRC and Iberian Peninsula is expected to have pressure values varying from 1002 and 1006hpa during the forecast period. On the other hand, the East African ridge, associated with the Mascarene high pressure system is expected to extend up to the latitudes of northern Ethiopia during the forecast period.

The St. Helena High pressure system over southeast Atlantic Ocean is expected to maintain a central pressure value of 1020hpa through 24 hours and tends to intensify progressively to 1024hpa in 48 hours, to 1028hpa in 72 and 96 hours. The Mascarene high pressure system over the southwest Indian Ocean is expected to maintain central pressure value of 1016hpa in 24 hours and tends to intensify to 1020hpa and in 48 and 72 hours and to 1024 by 96 hours.

At the 850hpa level, a strong equatorial flow, associated with the Somali Jet, is expected to dominate the flow over the western Indian Ocean and the coastal areas of the Horn of Africa. The GFS model also maintains east-west oriented convergence line in the region between West Africa and Sudan across central African region. This convergence is expected to remain active during the forecast period. The north-south oriented convergence in the CAB region is expected to remain active during forecast period.

At the 700hPa level, the cyclonic circulation that has developed over the Horn of Africa is expected to shift northwards into the Arabian Peninsula through 24 to 96 hours, while weakening. A lower tropospheric trough is expected across northern Mali, Algeria, Tunisia and Libya and tends to weaken towards end of the forecast period. The northeasterly to easterly winds in Sudan, central African region and the Gulf of Guinea are expected to persist through 24 to 96 hours.

At 500hpa, easterly winds with moderate intensity (10 to 20knots) are expected to dominate the flow over Sudan, central African and the Gulf of Guinea and southern Sahel region, while the strongest winds associated with the African Easterly Jet is expected over east of Guinea and Sudan at 96 hours.

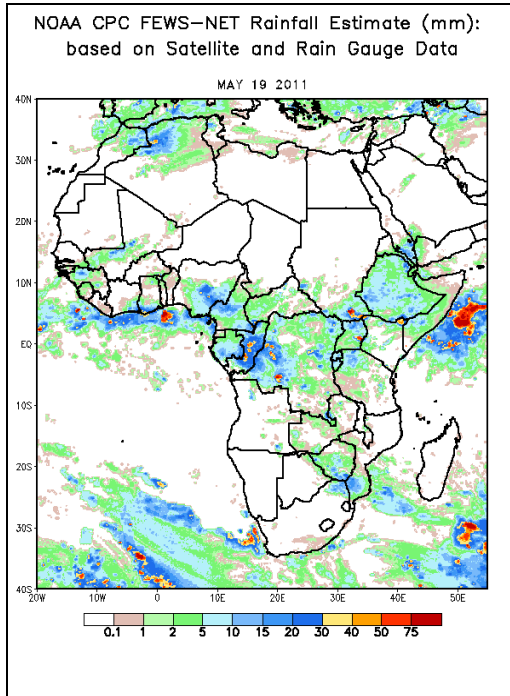
A zone of strong wind (>90Kts) at 200hpa level associated with the Sub Tropical westerly Jet is expected to propagate eastwards across the Atlantic Ocean to Algeria, Morocco, Mauritania and Libya through 24 hours and weakens to (>70kts) in 48 to 96 hours. On the other hand, strong winds (>130Kts) associated with the Sub-Tropical Westerly Jet is expected in the southern hemisphere across Atlantic Ocean through 24 hours and intensify to (>150kts) in 48 hours and back to (>130kts) in 72 and 96 hours.

In the next four days, lower tropospheric cyclonic circulation in the vicinity of the Gulf of Aden is expected to maintain moderate to heavy rains over parts of the GHA region. The lower and mid-tropospheric easterly winds that dominate the flow in the equatorial Africa region are expected to continue enhancing westward propagation of thunderstorms into the western equatorial Africa. Moreover, the convergence in the Congo Air Boundary Region is expected to increase rainfall in the vicinity of the Lake Victoria area. In general, there is an increased chance for rainfall to exceed 20mm per day over part of Cameroon, Sierra Leone, Guinea, northern Ghana, parts of DRC, southern Burkina Faso, Ethiopia, parts of Somalia, Uganda, Gabon, Rwanda, Burundi and Congo, with the heaviest rainfall event expected to occur over Sierra Leone, eastern Ethiopia, Uganda, Rwanda and Burundi.

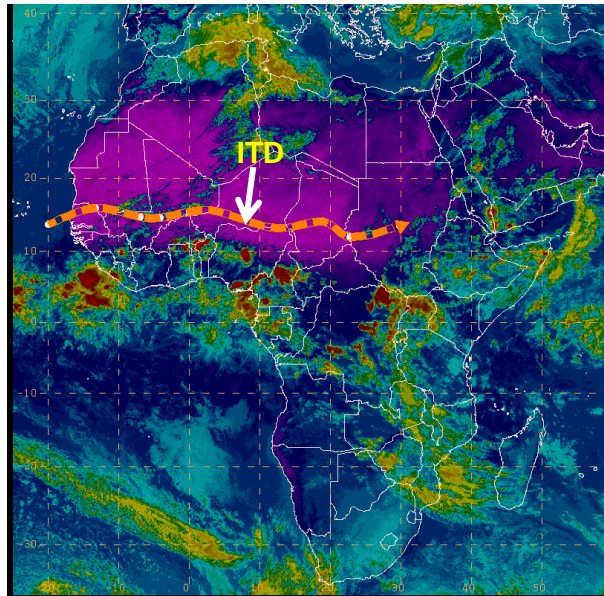
2.0. Previous and Current Day Weather Discussion over Africa (19 May –20 May 2011)

2.1. Weather assessment for the previous day (19 May 2011): During the previous day, a combination of moderate and heavy rainfall was observed over parts of Gulf of Guinea region and Ethiopia, with locally heavy rainfall recorded southern Nigeria, southern Sudan, northern DRC, southern Kenya, Djibouti and central and southern Somalia.

2.2. Weather assessment for the current day (20 May 2011): Intense clouds are observed over southern Sierra Leone and Liberia; Rwanda, southern Nigeria, eastern DRC, Cameroon, Uganda, Congo, Djibouti, Kenya, and northern Somalia.



IR Satellite Image (valid 1500Z) and position of ITD,
based on 1200Z Surface Analysis; 20 May 2011



*Previous day rainfall condition over Africa (Left)
based on the NCEP CPCE/RFE and current day
cloud cover (top) based on IR Satellite image*

Author(s): Orlando Mendes (Direcção Geral da Meteorologia Nacional da Guiné-Bissau) / CPC-African Desk), orlando.mendes@noaa.gov and

Albert M. Sherman (Liberian Meteorological Agency) / CPC-African Desk),
albert.sherman@noaa.gov

Disclaimer: This bulletin is for training purposes only and should be used as guidance. NOAA does not make forecasts for areas outside of the United States.