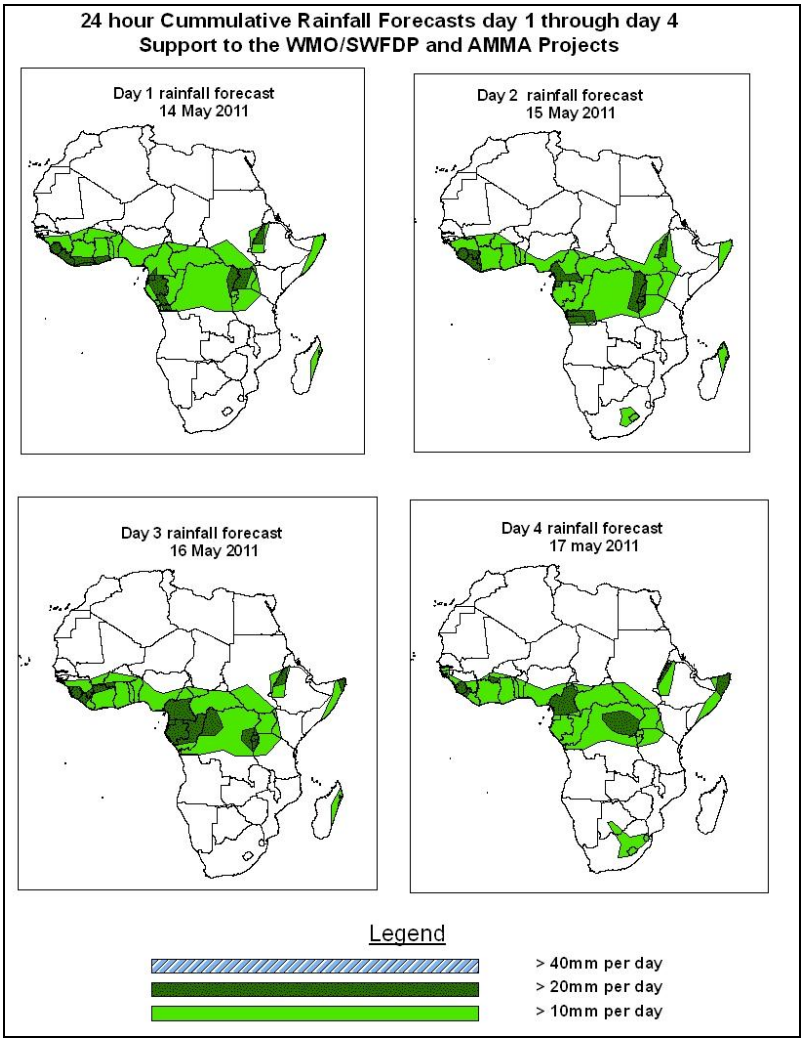
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 14 May – 06Z of 17 May 2011, (Issued at 10:00Z of 13 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, the lower and mid-tropospheric easterly winds that the dominate the flow between western GHA and the Gulf of Guinea across central African region are expected to enhance westward propagation of thunderstorms into the western equatorial Africa, parts of central Africa and the Gulf of Guinea countries. Moreover, the seasonal lower tropospheric convergence in the Congo Air Boundary Region and the southeasterly to easterly winds from the western Indian Ocean, converging into eastern GHA are expected to enhance rainfall in their respective regions. In general, there is an increased chance for rainfall to exceed 20mm per day over portions of the Gulf of Guinea, parts of DRC, Uganda, Burundi, Rwanda, and portions of Ethiopia and Somalia.

1.2. Models Comparison and Discussion-Valid from 00Z of 13 May 2011

According the GFS, ECMWF and UKMET models, the Saharan High and its associated ridge is expected to dominant over northern Africa, in the region between Algeria and Egypt through 24 to 96 hours. The east-west oriented trough, associated with heat lows across the Sahel region, Sudan and Iberian Peninsula is expected to have pressure values varying from 1002 and 1007hpa 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 southern Ethiopian through 24hours and it tends to weaken gradually during the rest of the forecast period.

The St. Helena High pressure system over southeast Atlantic Ocean is expected to maintain a central pressure value of 1020hpa during forecast period. The Mascarene high pressure system over southwest Indian Ocean is expected to maintain central pressure value of 1024hpa in 24 at 96 hours.

At the 850hpa level, the GFS model maintains the east-west oriented convergence line in the region between West Africa and Sudan across central African region. This convergence is expected to remain active through 48 at 96 hours. The north-south oriented convergence in the CAB region is expected to remain active in the vicinity of its climatological position during forecast period. Southeasterly winds from the Atlantic Ocean are expected to feed abundant moisture to the convergence line across the Gulf of Guinea region through 48 to 72 hours, while the easterly to southeasterly winds from western Indian Ocean are expected to continue forming a strong convergence over the eastern parts of the GHA region during the forecast period.

At the 700hPa level, a trough in the westerlies is expected to propagate across eastern Libya, Sudan, Egypt, and Red Sea, while weakening towards end of the forecast period. The persistent northeasterly to easterly winds in central African region and the Gulf of Guinea are expected to attain a wavy pattern that propagates across the region through 24 to 96 hours.

At 500hpa, easterly winds with moderate intensity (15 to 20knots) are expected to dominate the flow over Sudan, central African and the Gulf of Guinea region while the locally strong winds (>30kts) associated with the African Easterly Jet is expected to southern Burkina Faso and northern Cote D’Ivoire through 48 hours .A mid-latitude

trough is expected to propagate across Egypt, Libya, and Sudan gradually moving to the Middle East during forecast period

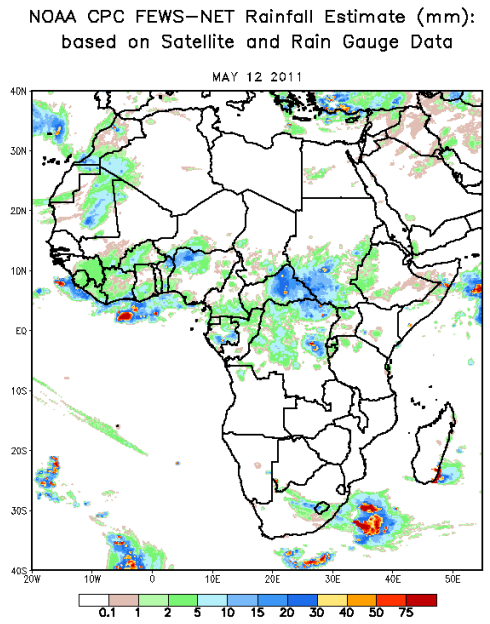
A zone of strong wind (>110Kts) at 200hpa level associated with the Sub Tropical westerly Jet is expected to propagate eastwards across to Algeria, Libya, Egypt and mid-east through during the forecast period. On the other hand, strong winds (>110Kts) associated with the Sub-Tropical Westerly Jet is expected in the southern hemisphere across Atlantic, Southern Africa and Swaziland through 24hours and tend to intensifying gradually to (>130Kts) at 48 72 hours and to (>150Kts) by 96 hours.

In the next four days, the lower and mid-tropospheric easterly winds that the dominate the flow between western GHA and the Gulf of Guinea across central African region are expected to enhance westward propagation of thunderstorms into the western equatorial Africa, parts of central Africa and the Gulf of Guinea countries. Moreover, the seasonal lower tropospheric convergence in the Congo Air Boundary Region and the southeasterly to easterly winds from the western Indian Ocean, converging into eastern GHA are expected to enhance rainfall in their respective regions. In general, there is an increased chance for rainfall to exceed 20mm per day over portions of the Gulf of Guinea, parts of DRC, Uganda, Burundi, Rwanda, and portions of Ethiopia and Somalia.

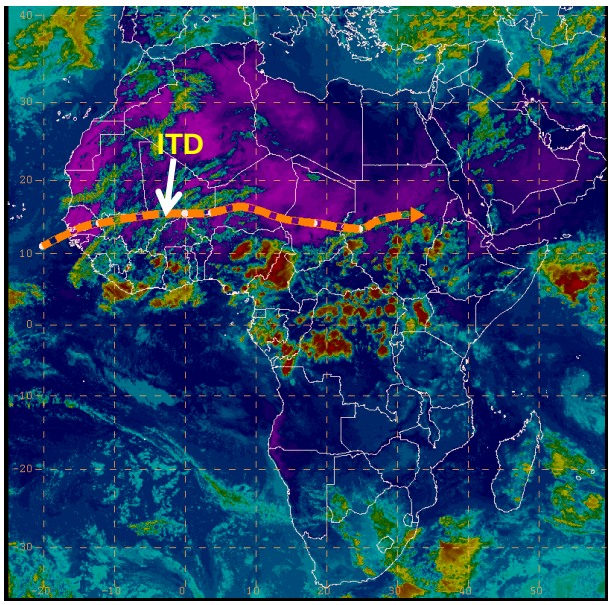
2.0. Previous and Current Day Weather Discussion over Africa (12 May –13 May 2011)

2.1. Weather assessment for the previous day (12 May 2011): During the previous day, a combination of moderate and heavy rainfall was observed over Southern Sierra Leon and Cote D'Ivoire, CAR, eastern Somalia and eastern Southern Africa.

2.2. Weather assessment for the current day (13 May 2011): Intense clouds are observed over Liberia, Cote D'Ivoire, Ghana, Nigeria, Cameroon, Gabon, Southern Sudan, DRC and western Ethiopia.



IR Satellite Image (valid 1500Z) and position of ITD, based on 1200Z Surface Analysis; 13 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

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