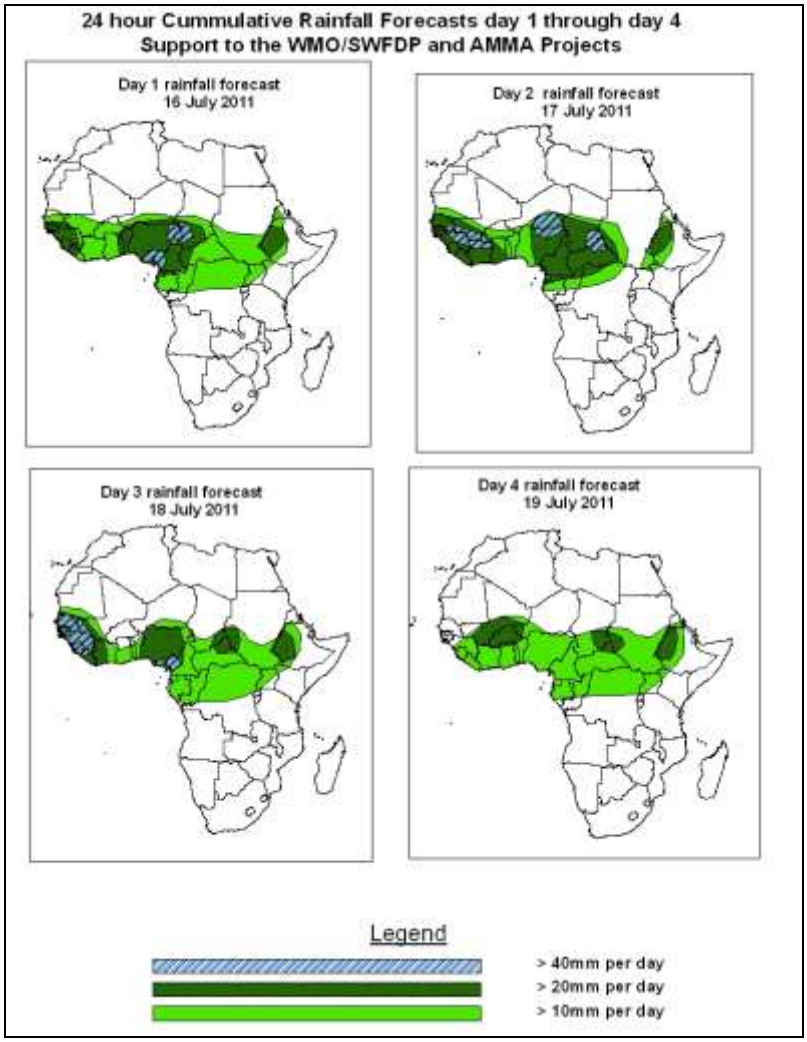
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 16 July– 06Z of 19 July 2011, (Issued at 10:00Z of 15 July 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 westward propagating waves with their associated thunderstorms are expected to enhance rainfall over western and central African regions. As a result of this, there is an increased chance for heavy rainfall over Senegal, Gambia, Guinea Bissau, Guinea, Sierra Leone, southern Mali, northern Cote D'Ivoire, western Burkina Faso, southern Niger and northern Nigeria. The seasonal monsoon flow is also expected to maintain moderate rains over parts of Ethiopia and Eritrea.

1.2. Models Comparison and Discussion-Valid from 00Z of 15 July 2011

According 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 heat low along its western end (near Mauritania and Mali) is expected to deepen through 24 to 72 hours from central pressure value of 1008mb in 24 hours to 1005mb in 72 hours according to ECMWF, from 1007mb to 1003mb according to UK met office model and from central pressure values of 1008mb in 24 hours to 1005mb in 72 hours according to the NCEP/GFS model. This heat low tends to fill up slightly by 96 hours. The heat lows over central African region, Sudan and Arabian Peninsula are expected to show no significant change during the forecast period according to the three models. The East African ridge across southeast and East Africa is expected to weaken gradually through 24 to 96 hours.

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The St. Helena High pressure system over southeast Atlantic Ocean is expected to intensify gradually through 24 to 96 hours, with its central pressure value increasing from 1024hpa in 24 hours to 1028 hpa in 96 hours. The Mascarene high pressure system over southwest Indian Ocean is expected to weaken during the forecast period while shifting eastwards.

At the 850hpa level, the seasonal moist southeasterly flow from the Indian Ocean across East Africa, turning into southwesterly flow as it passes northern DRC and CAR, and Sudan, is expected to converge over parts of Sudan and western Ethiopia during the forecast period through 24 hours. However, this flow from the Indian Ocean is expected to be confined across the East and southeast African countries with a more of southerly direction. At the same time, southwesterly to westerly flow from the Atlantic Ocean is expected to dominate the flow over eastern parts of the Gulf of Guinea, central African region and portions of the Horn of Africa. Lower tropospheric convergences across western parts of West Africa and central African region are expected to strengthen during the forecast period.

At 700mb level, two easterly waves, one across the western end of West Africa, and the other one across central and eastern parts of the Gulf of Guinea are expected to dominate the flow over western and central African countries. The wave in the vicinity of Burkina Faso is expected to leave the West African coast through 72 hours, while the

wave over central Africa region is expected to move towards the eastern parts of the Gulf of Guinea.

At 500hpa, easterly winds with moderate intensity (10 to 25knots) are expected to dominate the flow over western Sudan, central African and the Gulf of Guinea and southern Sahel region, with the stronger winds associated with the African easterly Jet are expected over, Mali, Burkina Faso, Niger, Chad and Sudan through 24 to 48 hours, with the core of the stronger winds propagating towards the West Coast of West Africa through 72 hours.

A zone of strong wind (>110Kts) at 200hpa level associated with the Sub Tropical westerly Jet is expected in the southern hemisphere across Atlantic and Indian Ocean southern Africa during the forecast period..

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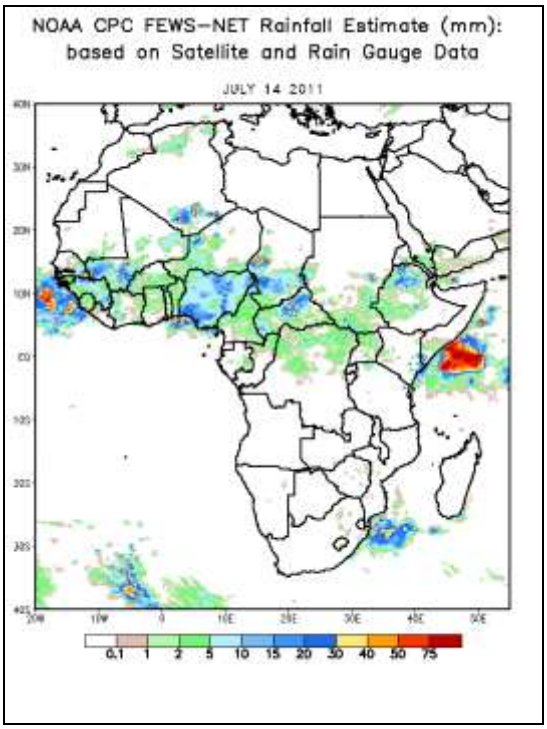
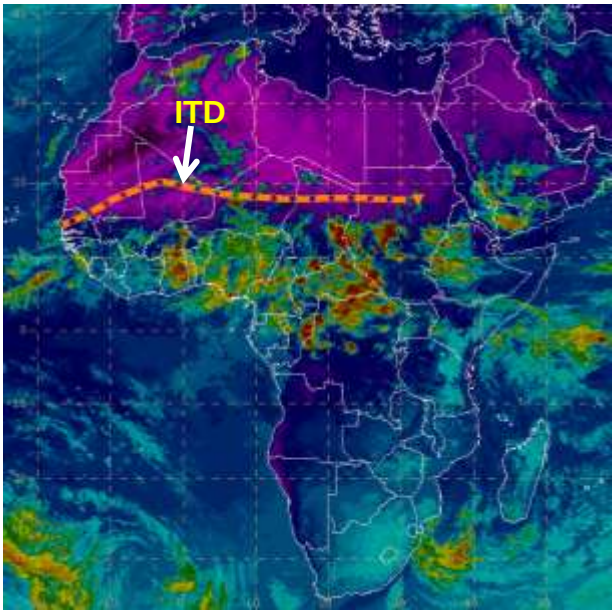
2.0. Previous and Current Day Weather Discussion over Africa (14 July -15 July 2011)

2.1. Weather assessment for the previous day (14 July 2011): During the previous day, moderate rainfall was observed over many places of western and central Africa, and northern Ethiopia.

2.2. Weather assessment for the current day (15 July 2011): Intense clouds are observed over portions of the Gulf of Guinea and central African region, and parts of Ethiopia.



IR Satellite Image (valid 1545Z) and position of ITD, based on 1200Z Surface Analysis; 15July 2011



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

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