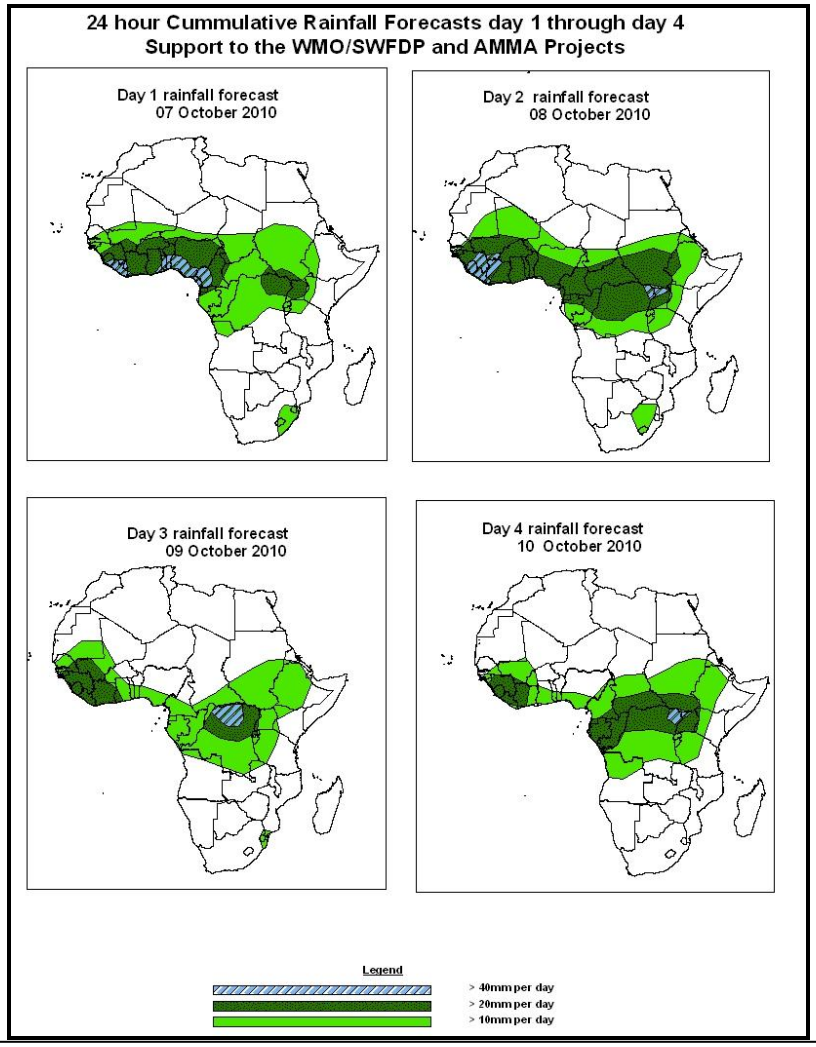
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid, 06Z of 07OCTOBER – 06Z of 10 OCTOBER 2010, (Issued at 14:00Z of 06 OCTOBER 2010)

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 coming four days, there is an increased chance for rainfall to exceed 20mm per day over parts west Africa countries with chances of locally heavy rainfall over southeast coast of Nigeria, Liberia, and part of Cote D'Ivoire due to localized convergences and westward propagating meso-scale convection systems. However, there is a likelihood of decreasing rainfall over the northern parts of Nigeria, Chad and Nigeria mainly in the 72hours cycle. Also moderate to heavy rainfall is expected over the northern parts of the CAB region, western Uganda in particular including parts of Central Africa republic. Rainfall in excess of 20mm is expected over parts of Lake Victoria region.

1.2. Models Comparison and Discussion-Valid from 00Z of 06 OCTOBER 2010

A trough situated in the border between Mauritania and Mali is expected to become a cut-off low as it moves over north Mauritania in the next 48hour, thereafter becoming a cut off low with central pressure of 1011hPa from 72 to 96hours. Another trough over central Chad is expected to be extended over eastern Mali and western part of Niger. Its central pressure value is expected to change from 1006 to 1007hPa according to the GFS model while progressively filling up according to ECMWF model while UKMET shows generally a persistent central pressure of 1006hPa through the entire forecast period. A low pressure system situated over central Sudan is expected to remain quasi stationary while filling up towards the end of the forecast period. Its central pressure value is expected to change from 1005 to 1007hPa through 24 to 96hours on the GFS model, 1006 to 1008hPa according to ECMWF while UKMET model keep the central pressure at 1006hPa. The seasonal low pressure system (Meridianal component of the ITCZ) located over DRC is expected to extend a trough over western part of Tanzania, Rwanda and Burundi areas including a greater part of the Lake Victoria Region. This scenario is according to GFS model and is supported by ECMWF and UKMET models. Also according to GFS and UKMET this system is likely to retreat northwards between 48 and 72 hours.

A deep cyclonic flow over the Southeast Atlantic Ocean associated with a frontal system is quickly moved eastwards ahead of the intensifying St, Helena High pressure system from 24 to 72hours. The St Helena High pressure system is expected to intensify from central pressure value of 1022 to 1024hPa during that period. On the other hand, all the three models are projecting for a stronger East African Ridge emanating from the intense Mascarene high pressure system with central pressure of about 1032hPa through 24 to 72hours, maintaining the Ridge up to northern parts of Ethiopia.

At 850hpa, a cyclonic circulation is situated over Chad and Sudan and is expected to move over Cote D'Ivoire through Nigeria in the next 96hours. The system is expected to remain strong during the forecast and exit over the Atlantic Ocean. Another cyclonic circulation starts over the border of Benin and Togo and move over Burkina Faso in 48hours. A cyclonic system in the vicinity of Senegal in 24hrs is expected to weaken towards the end of the forecast period. Another convergence line oriented northeast over northeast DRC to northern Namibia is expected to be inclined towards the Lake Victoria region through Rwanda and Burundi and become more organized over eastern

DRC and western Tanzania from 24 to 48hours. A cyclonic circulation over central Sudan is expected start weakening in the next 72 to 96hours.

At 700Hpa, a trough system over Guinea is expected to move westwards over the Atlantic Ocean. Another trough system over southern Sudan is expected to move towards Central Africa in 48hours and then progressively move to Cameron in 72hours. Near equatorial trough (NET) over the East African coast is expected to remain weak over the northeast Tanzania and Sothern coast of Kenya. It will be of interest to monitor this system as the East African Ridge becomes diffused due to a weakening Mascarene High pressure system.

At 500hpa, the African Easterly Jet is expected to remain weak with its associated wind speeds remaining below 25Kts in many areas of western and central African regions.

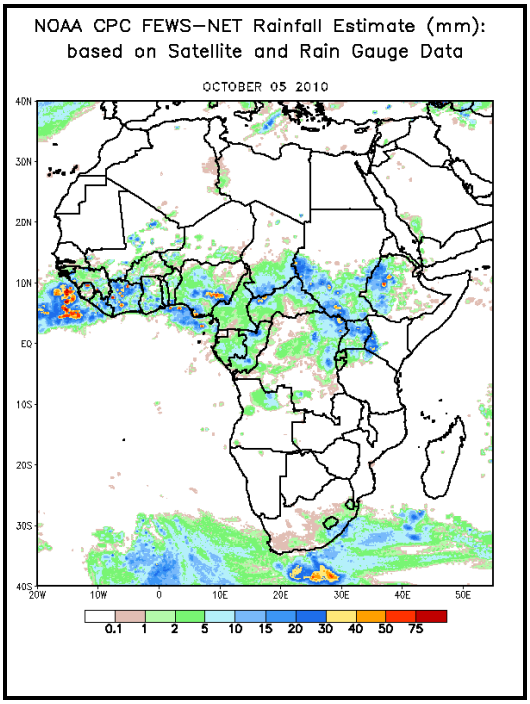
At 200hPa, zone of strong wind (>50Kts) is expected over northern Mali extending from the Persian Gulf in the next 72hours. The strength of the Sub Tropical Jet is expected to be 70 to 90Kts during this period and attain a wave like pattern. On the other hand, the TEJ related strong winds are expected to remain patch and weak (30Kts) across much of the tropical African region during the forecast period.

In the coming four days, there is an increased chance for rainfall to exceed 20mm per day over parts west Africa countries with chances of locally heavy rainfall over southeast coast of Nigeria, Liberia, and part of Cote D'Ivoire due to localized convergences and westward propagating meso-scale convection systems. However, there is a likelihood of decreasing rainfall over the northern parts of Nigeria, Chad and Nigeria mainly in the 72hours cycle. Also moderate to heavy rainfall is expected over the northern parts of the CAB region, western Uganda in particular including parts of Central Africa republic. Rainfall in excess of 20mm is expected over parts of Lake Victoria region.

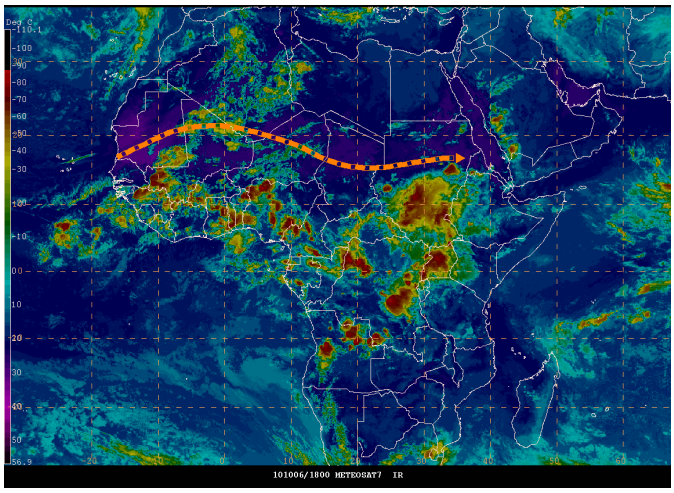
2.0. Previous and Current Day Weather Discussion over Africa (05 October – 06 October 2010)

2.1. Weather assessment for the previous day (05 October 2010): During the previous day, moderate to heavy rainfall was observed over many places of the Gulf of Guinea and central African countries, and parts of the Horn of Africa.

2.2. Weather assessment for the current day (06 October 2010): Intense clouds are observed over much of the Gulf of Guinea countries, parts of the Sahel region, central African countries and the Congo Air Boundary region.



IR Satellite Image, Valid 1800Z, October 05, 2010 and position of ITD (based on 1200Z Surface Analysis)



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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