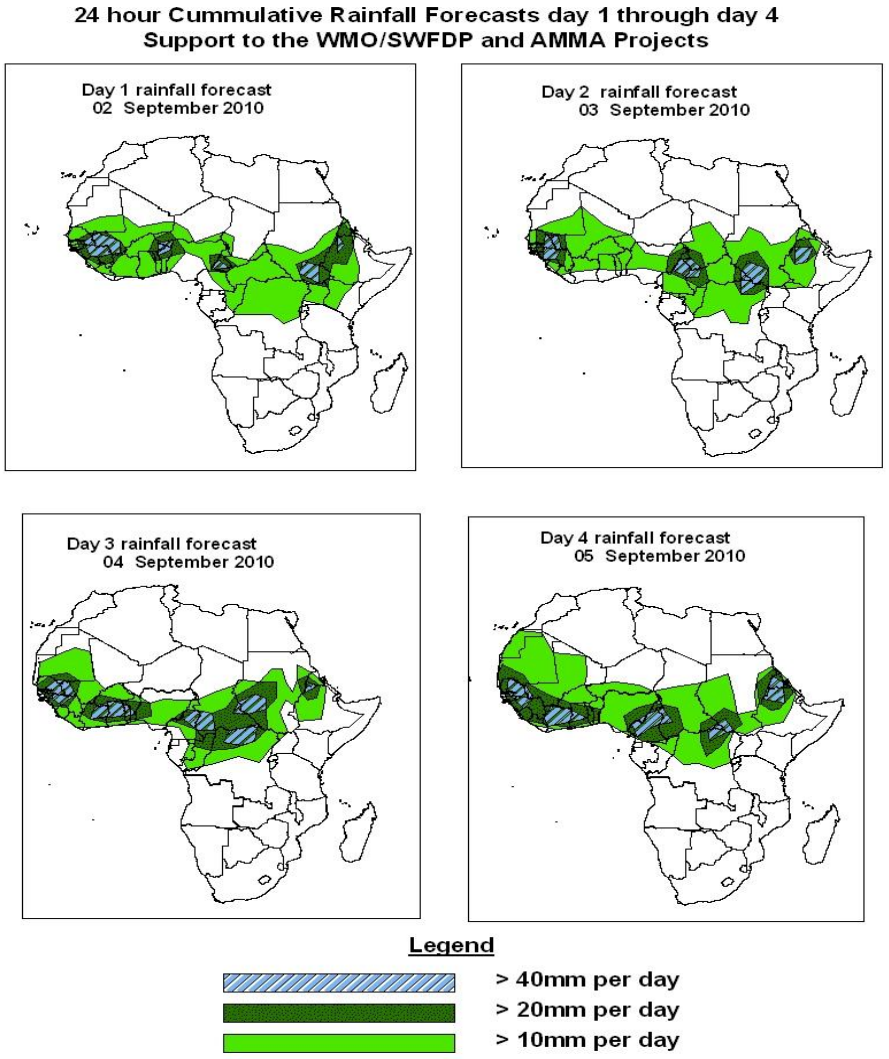
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid, 06Z of 02 SEPTEMBER – 06Z of 05 SEPTEMBER 2010, (Issued at 14:00EST of 01 SEPTEMBER 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, the westward propagating convection systems and the seasonal monsoon flow is expected to maintain moderate to heavy rainfall in many parts of West Africa. Especially, there is an increased chance for rainfall to exceed 30mm per day in Guinea Conakry, Mali, Cote-d'Ivoire, Burkina Faso, Ghana, Togo, Benin, and Nigeria, Cameroon and Central African Republic. Parts of the Horn of Africa countries are also expected to receive moderate to heavy rainfall due to the active convergence in the vicinity of the CAB region. Thus, there is an increased chance for rainfall to exceed 20mm per day in parts of Ethiopia and southern Sudan and DRC.

1.2. Models Comparison and Discussion-Valid from 00Z of 01 September 2010

A low pressure system situated over eastern Mauritania is expected to move westward while weakening. It central pressure value is expected to change from 1004 to 1009hPa according to the GFS model, 1008 to 1009hPa according to the ECMWF model and 1004 to 1005hPa according to the UKMET model through to 48 to 72hours. Another low pressure system located over eastern Chad is expected to move towards western Niger while deepening. Its central pressure value is expected to change from 1007 to 1005hPa according to the GFS model, 1009 to 1008hPa according to the ECMWF model, and 1006 to 1004hPa according to the UKMET model. A low pressure system situated over eastern Sudan is expected to move westward while slightly deepening. Its central pressure value is expected to change from 1006 to 1005hPa through 48 to 96hours according to the GFS model, followed by another low pressure system over southern Sudan. Its central pressure value is expected to change between 1011 to 1009hPa through 48 to 72hours according to the GFS model. The seasonal low pressure system located over southern DRC is expected to change from central pressure value of 1010 to 1008hPa according to the GFS model, 1011 to 1009hPa according to the ECMWF model and 1009 to 1008hPa according to the UKMET models. All the three models indicate a stretch of east-west oriented trough between Low pressure systems located over northeastern Atlantic Ocean and Mali through 24 to 48hours. A low pressure system situated over southern Algeria is expected to move toward western Libya while slightly deepening. Its central pressure value is expected to change between 1009 to 1005hPa through 48 to 72hours on the GFS model. A high pressure and its associated ridge are expected to dominate the flow over parts of the Gulf of Guinea countries through 24 to 72 hours. In general the Inter-Tropical Front (ITF) is expected to remain between 18^{o}N and 22^{o}N latitudes across West Africa and between 17^{o}N and 20^{o}N latitudes across northeast Africa.

The Azores high-pressure system is expected to weaken slightly from central pressure value of 1020hPa in 24 hours to a value of 1018hPa in 48hours, while its ridge is expected to remain across the northern African countries. The St. Helena high, situated over southern Atlantic Ocean is expected to relax from central pressure values of 1022 to 1029hPa through 24 to 48hours. The Mascarene high pressure system is also expected to relax through 24 to 48hours. Its central pressure values are expected to change from 1030 to 1028hPa through 24 to 48 hours.

At 850hpa, a cyclonic circulation situated over eastern Mauritania is expected to move towards western Mauritania through 48 to 96 hours. Another cyclonic circulation over central Sudan is expected to move towards southern Chad through 24 to 72hours. The lower level convergence associated with the Congo Air Boundary (CAB) is expected to remain active across southern Sudan and southwest Ethiopia through 24 to 72 hours. Localized zones of lower level wind convergence are expected over Namibia, Angola, Congo and DRC through 24 to 96 hours.

At 700Hpa**,** a trough associated with the easterly wave is expected to propagate westwards across longitudinal positions of Guinea/Mali and Chad/CAR through 24 to 72hours and Nigeria/Niger through 48 to 72hours, and parts of CAR/Cameroun/Sudan through 72 to 96hours.

At 500hpa, winds associated with the African Easterly Jet are expected to exceed 30Kts in the vicinity of southern Chad/ southern Niger/central Mali.

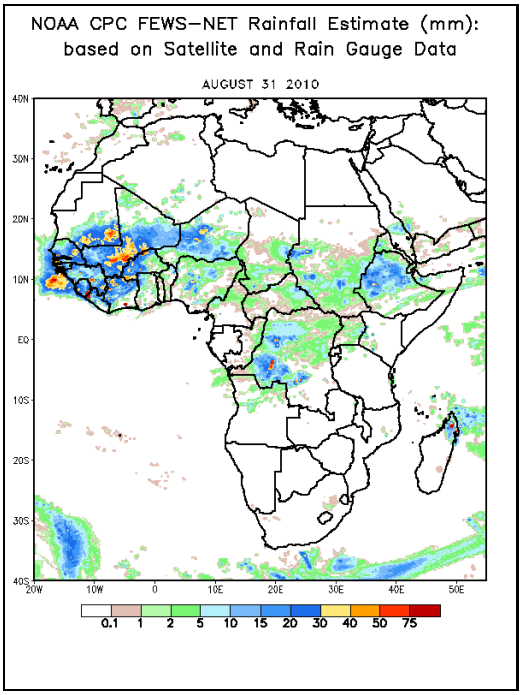
At 200hPa**,** zone of strong wind (>50Kts) is expected to dominate the flow in the vicinity of Algeria, northern Libya and the adjoining areas of Mediterranean region. While strong upper tropical easterly Jet (wind >35Kts) is expected to dominate the flow across Sudan, Chad, Nigeria and Ghana.

In the coming four days, the westward propagating convection systems and the seasonal monsoon flow is expected to maintain moderate to heavy rainfall in many parts of West Africa. Especially, there is an increased chance for rainfall to exceed 30mm per day in Guinea Conakry, Mali, Cote-d'Ivoire, Burkina Faso, Ghana, Togo, Benin, and Nigeria, Cameroon and Central African Republic. Parts of the Horn of Africa countries are also expected to receive moderate to heavy rainfall due to the active convergence in the vicinity of the CAB region. Thus, there is an increased chance for rainfall to exceed 20mm per day in parts of Ethiopia and southern Sudan and DRC.

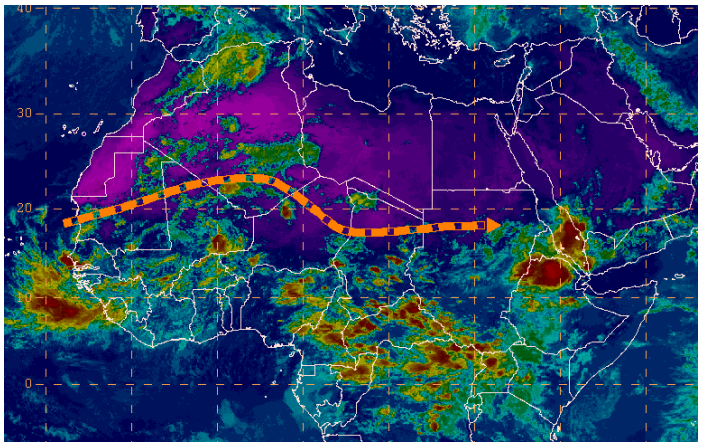
2.0. Previous and Current Day Weather Discussion over Africa (31 August 2010 – 01 September 2010)

2.1. Weather assessment for the previous day (31 August 2010): During the previous day, moderate to heavy rainfall was observed over parts of Mauritania, Mali, Burkina Faso, Cote-d'Ivoire, Niger, Sudan, Ethiopia and northern DRC.

2.2. Weather assessment for the current day (01 September 2010): Convective clouds are observed over much of western Africa, central Africa and the Horn of Africa countries, with the intense clouds observed over Mauritania, Mali, Niger, Nigeria, Chad, DRC, Cameroun, Sudan and Ethiopia.



IR Satellite Image, Valid 1652Z, August 31, 2010
and position of ITD (based on 1200Z observation)



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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