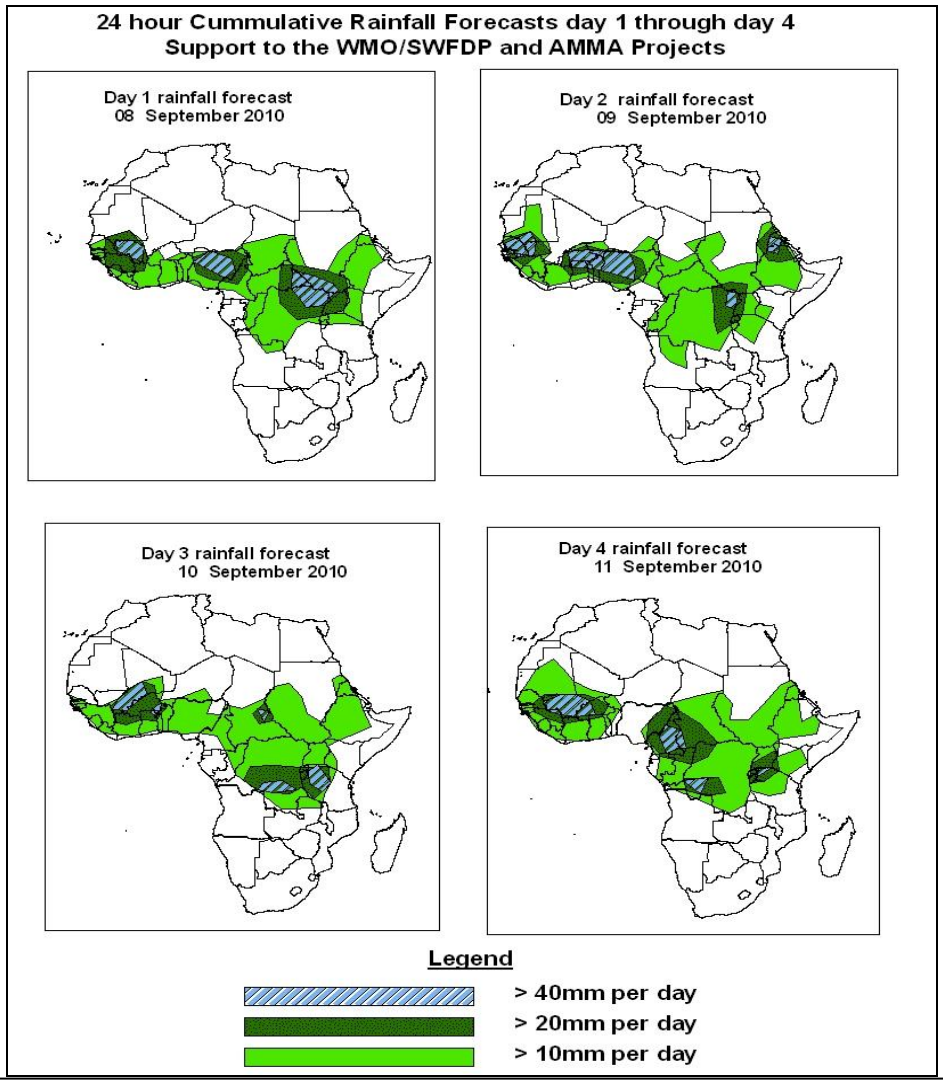
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid, 06Z of 08 SEPTEMBER – 06Z of 11 SEPTEMBER 2010, (Issued at 14:00EST of 07 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 across the parts of the Sahel countries and the active monsoon flow from the Atlantic Ocean is expected to maintain the moderate to heavy rainfall in the region. Especially, there is an increased chance for rainfall to exceed 40mm per day in parts of Senegal, southern Mali, Burkina Faso, Nigeria and parts of Central African Republic and southern Niger. Meanwhile, parts of Ethiopia, southern Sudan, Uganda, parts of western Kenya and northeast DRC are expected to receive moderate to heavy rainfall due to active CAB in the region.

1.2. Models Comparison and Discussion-Valid from 00Z of 07 September 2010

A low pressure system situated over eastern Niger is expected to move westward while slightly deepening. Its central pressure value is expected to change from 1007 to 1006hPa according to the GFS model through to 24 to 96hours. A second low pressure system located over eastern chad is expected to move towards central Chad while deepening. Its central pressure value is expected to change between 1008 to 1004mb according to the GFS model and between 1005 and 1003 according to the ECMWF model. A low pressure system situated over northern Sudan is expected to maintain its position, while its central pressure value is expected to change from 1005 to 1008hPa through 48 to 96hours according to the GFS model. The seasonal low pressure system located over DRC is expected to change from central pressure value of 1010 to 1008hPa according to the GFS model, 1011 to 1010hPa according to the ECMWF model and 1008 to 1006hPa according to the UKMET models. In general the Inter-Tropical Front (ITF) is expected to remain between 18^{o}N and 22^{o}N latitudes across West African countries west of the Prime Meridian, while it is expected to stay between 17^{o}N and 20^{o}N latitudes east of the Prime Meridian.

The Azores high-pressure system is expected to intensify from central pressure value of 1020hPa in 24 hours to a value of 1028hPa in 96hours, while its ridge is expected to remain off the coast of northeast Africa. The St. Helena high, situated over southern Atlantic Ocean is expected to intensify from central pressure values of 1028 to 1034mb through 24 to 72hours. The Mascarene high pressure system is also expected to intensify through 24 to 48hours, and to relax through 72 to 96hours. Its central pressure value is expected to change from 1030 to 1031hPa through 24 to 48 hours and 1028 to 1026hPa trough 72 to 96hours.

At 850hpa, a cyclonic circulation situated over northern Mali is expected to move towards northern Mauritania through 24 to 96 hours, while its associated trough is expected to continue maintaining rainfall over the region. Another cyclonic circulation over central Niger is expected to move towards northern Mali while slightly weakening. A third cyclonic circulation situated over central Nigeria is expected to move towards northern Burkina Faso and Southern Mali. Another cyclonic circulation is expected to shift between eastern Sudan and Chad and weaken gradually through 24 to 96 hours.
The convergence associated with the CAB is expected to remain active in the region between eastern Angola and southwest Ethiopia through 24 to 96 hours.

At 700Hpa**,** a trough associated with the African easterly wave is expected leave the western coastal regions of West Africa and propagate into the Atlantic Ocean, while another deep trough is moving across the longitudes of Guinea, Mali and Mauritania. Another trough is also expected to propagate across the longitudes of Togo, Benin, Niger and Nigeria through 24 to 96 hours. A weak trough in the area bordering Cameroon, CAR and Sudan is expected to shift southwestwards while weakening through 24 to 96 hours.

At 500hpa, wind speeds associated with the African Easterly Jet are expected to exceed 30Kts in the vicinity of southern Niger and western Mali while the core of the jet is propagating westwards through 24 to 96 hours.

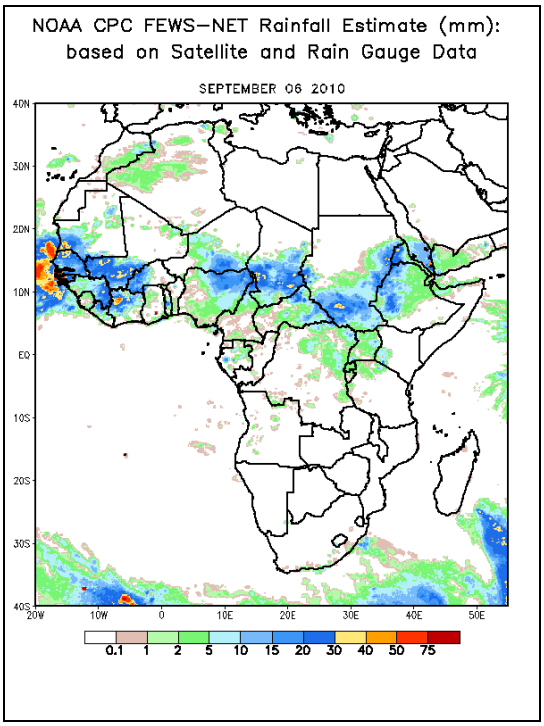
At 200hPa**,** zone of strong wind (>50Kts) is expected to dominate the flow in the vicinity of central and eastern Mediterranean Sea and the adjoining areas of northern Africa. Meanwhile, strong upper tropospheric easterly wind (>35Kts) is expected to dominate the flow across northern Somalia, southern Ethiopia, parts of Sudan, Central African Republic and Cameroon through 24 to 48hours.

In the coming four days, the westward propagating convection systems across the parts of the Sahel countries and the active monsoon flow from the Atlantic Ocean is expected to maintain the moderate to heavy rainfall in the region. Especially, there is an increased chance for rainfall to exceed 40mm per day in parts of Senegal, southern Mali, Burkina Faso, Nigeria and parts of Central African Republic and southern Niger. Meanwhile, parts of Ethiopia, southern Sudan, Uganda, parts of western Kenya and northeast DRC are expected to receive moderate to heavy rainfall due to active CAB in the region.

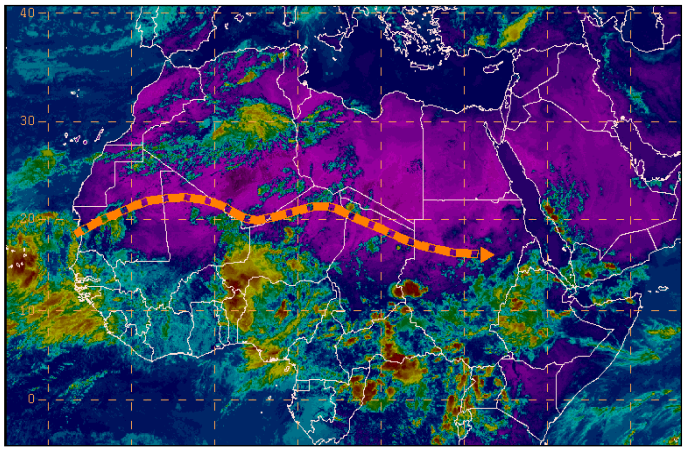
2.0. Previous and Current Day Weather Discussion over Africa (06 - 07 September 2010)

2.1. Weather assessment for the previous day (06 September 2010): During the previous day, moderate to heavy rainfall was observed over southern parts of Mauritania, Senegal, Gambia, southern Mali, western Burkina Faso, Cote d'Ivoire northeast Nigeria, southern Chad, southern Sudan and western Ethiopia.

2.2. Weather assessment for the current day (07 September 2010): Intense clouds are observed over Mauritania, Senegal, parts of Mali, Niger, Nigeria, Benin, Nigeria, Central African Republic and DRC, parts of Sudan, Ethiopia, and Uganda.



IR Satellite Image, Valid 1422Z, September 7, 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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