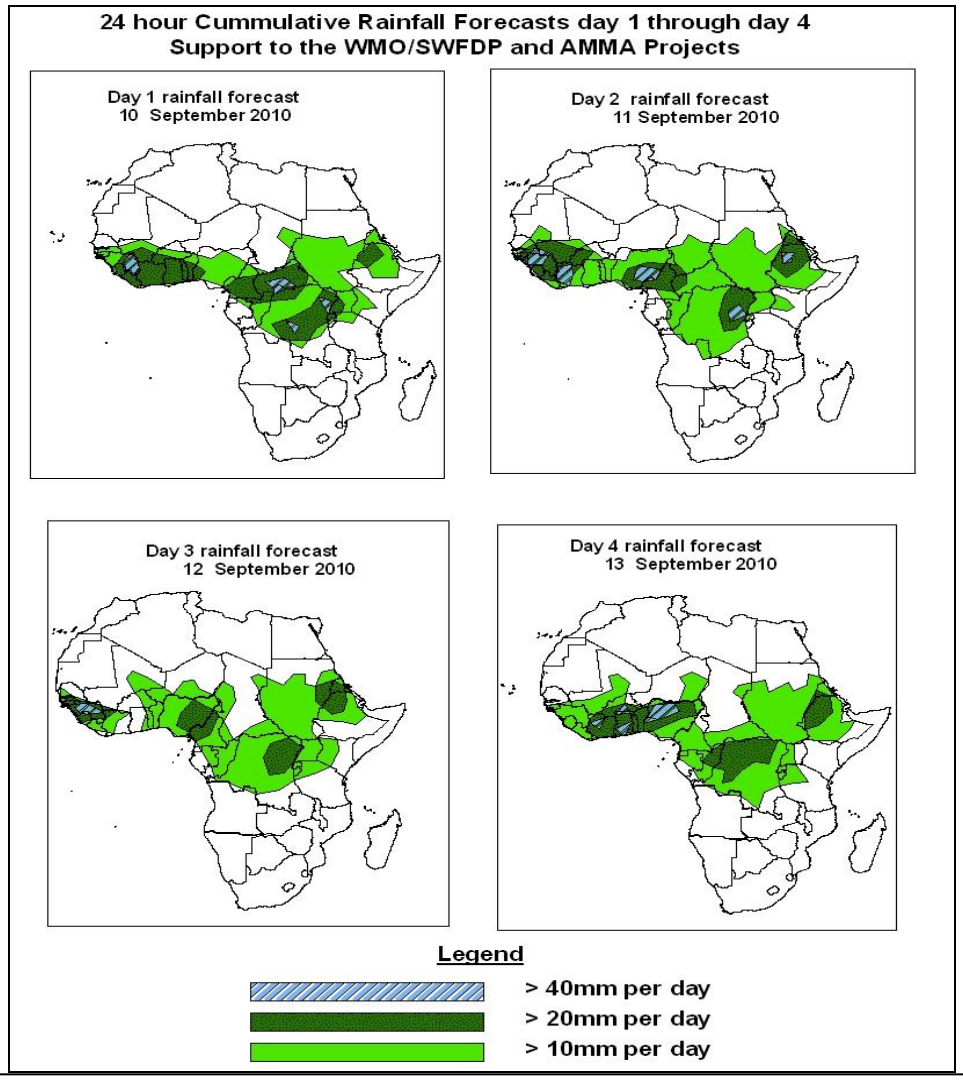
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid, 06Z of 10 SEPTEMBER – 06Z of 13 SEPTEMBER 2010, (Issued at 14:00EST of 09 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, many places in the western parts of West Africa, including the Gulf of Guinea countries are expected to receive moderate to heavy rainfall due to westward propagating convection systems and the active monsoon flow from the Atlantic Ocean. Especially, there is an increased chance for rainfall to exceed 20mm per day in parts of Senegal, southern Mali, Burkina Faso, Nigeria and parts of southern Niger. Meanwhile, rainfall is expected to decline slightly across the Horn of African countries due to a gradual weakening of the CAB. However, parts of Ethiopia, southern Sudan, parts of western and central DRC are expected to receive fair to moderate rainfall.

1.2. Models Comparison and Discussion-Valid from 00Z of 09 September 2010

A low pressure system situated over central Mali is expected to move toward western Mauritania while slightly deepening. Its central pressure value is expected to change from 1010 to 1008hPa through 24 to 72hours according to the GFS model. A second low pressure system located over western Niger is expected to move towards northern Mali while deepening. Its central pressure value is expected to change between 1009 to 1006hPa through 24 to 96hours according to the GFS and ECMWF models. Another low pressure system situated over central Chad is expected to move towards western Niger while deepening. Its central pressure value is expected to change from 1009 to 1006hPa through 24 to 72hours on the GFS model, 1008 to 1005hPa on the ECMWF model and 1006 to 1004hPa on the UKMET model. A low pressure system located over southern Sudan is expected to move towards western Chad while deepening. Its central pressure value is expected to change from 1010 to 1006hPa on the GFS model through 24 to 48hours. The seasonal low pressure system located over southern DRC is expected to change from central pressure value of 1010 to 1009hPa according to the GFS model, 1011 to 1010hPa according to the ECMWF model and 1009 to 1007hPa according to the UKMET models. In general, the Inter-Tropical Front (ITF) is expected to remain between 20^{o}N and 22^{o}N latitudes across West African countries west of the Prime Meridian, while it is expected to stay between 19^{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 1024hPa in 24 hours to a value of 1034hPa in 96hour, while extending its ridge towards northern African countries. The St. Helena high, situated over southern Atlantic Ocean is expected to intensify from central pressure values of 1031 to 1033hPa through 24 to 48hours and to relax from central pressure value of 1032 to 1031hPa through 72 to 96hours. The Mascarene high pressure system is also expected to intensify. Its central pressure value is expected to change from 1029 to 1030hPa through 24 to 48hours.

At 850hpa, a cyclonic circulation situated over Ghana is expected to move towards southern Cote-d'Ivoire through 24 to 48hours and continue moving towards southern Mali and Guinea trough 48 to 72hours. A cyclonic circulation is expected to shift between central Niger and Mali and weaken gradually through 24 to 48 hours. Another cyclonic circulation over western Sudan is expected to move towards eastern Chad and Niger while slightly weakening. Another cyclonic circulation located over northern CAR is expected to move toward Cameroun and Nigeria through 24 to 48hours and Ghana

through 72 to 96hours, while slightly weakening. The convergence associated with the CAB is expected to weaken gradually in the region between eastern Namibia, Angola, DRC, Uganda and southwest Ethiopia through 48 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 Ghana and Burkina Faso and continue to propagate across Guinea and southern Mali through 24 to 96 hours. Another trough is expected to move between western Sudan and CAR, and continue to propagate towards western Chad through 48hours, and Ghana, Burkina Faso, Mali through 96hours.

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

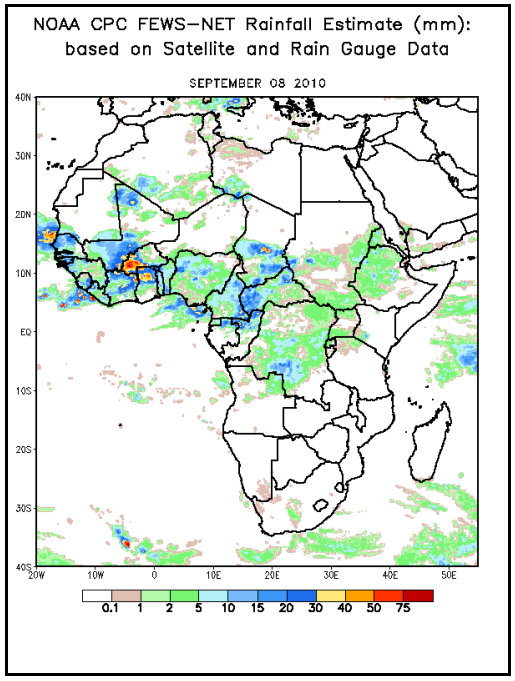
At 200hPa**,** zone of strong wind (>50Kts) is expected to dominate the flow in the vicinity of central and eastern Mediterranean Sea and the adjoining areas of northern Africa. Meanwhile, strong upper tropospheric easterly wind (>35Kts) is expected to dominate the flow across northern southern Ethiopia,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

In the coming four days, many places in the western parts of West Africa, including the Gulf of Guinea countries are expected to receive moderate to heavy rainfall due to westward propagating convection systems and the active monsoon flow from the Atlantic Ocean. Especially, there is an increased chance for rainfall to exceed 20mm per day in parts of Senegal, southern Mali, Burkina Faso, Nigeria and parts of southern Niger. Meanwhile, rainfall is expected to decline slightly across the Horn of African countries due to gradual weakening of the CAB. However, parts of Ethiopia, southern Sudan, parts of western central DRC are expected to receive fair to moderate rainfall.

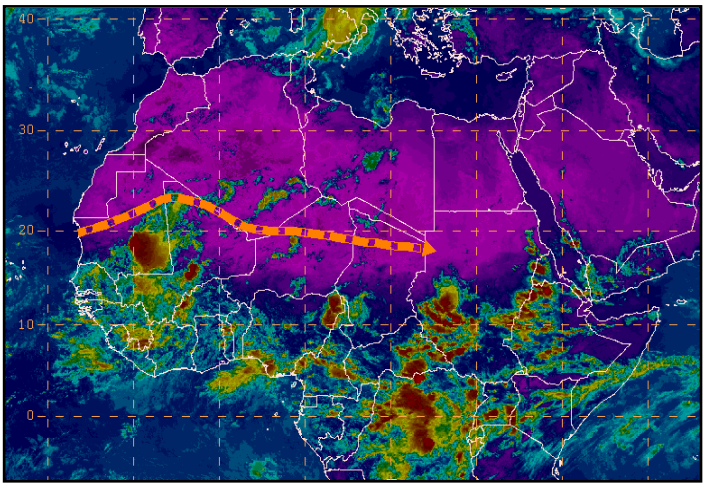
2.0. Previous and Current Day Weather Discussion over Africa (08 - 09 September 2010)

2.1. Weather assessment for the previous day (08 September 2010): During the previous day, moderate to heavy rainfall was observed over, Mali, Burkina Faso, Ghana, Togo, Benin, parts of southern Sudan and DRC.

2.2. Weather assessment for the current day (09 September 2010): Intense clouds are observed over Mauritania, Mali, Burkina Faso, Guinea, Togo, Nigeria, Cameroun, Central African Republic and DRC, parts of Sudan, Ethiopia and Uganda.



IR Satellite Image, Valid 1422Z, September 9, 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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