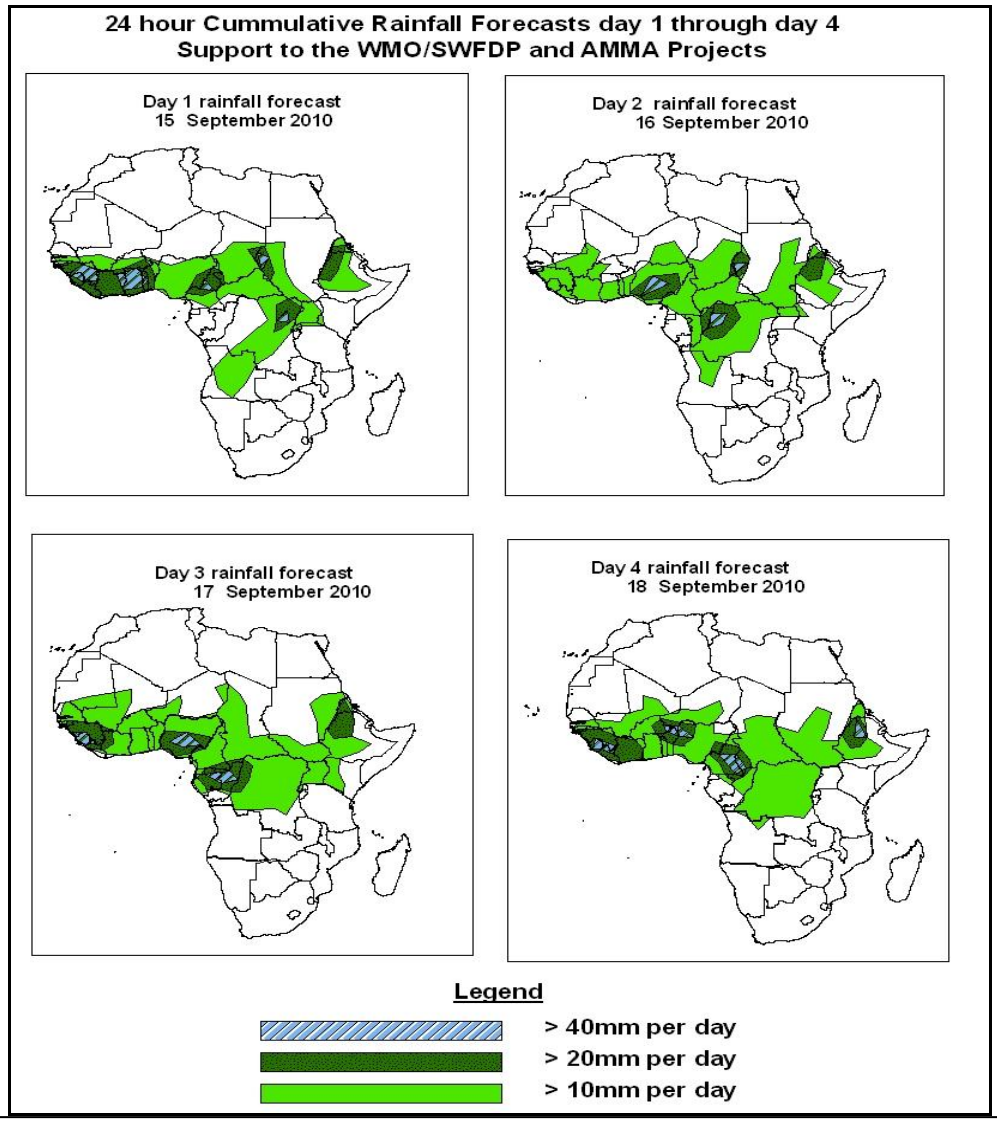
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid, 06Z of 14 SEPTEMBER – 06Z of 18 SEPTEMBER 2010, (Issued at 14:00EST of 14 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 West African Monsoon and its associated westward propagating meso-scale convection systems are expected to maintain the moderate to heavy rainfall in parts of central and West African countries. Especially, there is an increased chance for rainfall to exceed 20mm per day in parts of Guinea, Mali, Cote-d'Ivoire, southern Niger and Nigeria. Western and central parts of Ethiopia are also expected to receive moderate to heavy rainfall due to strong Kiremt weather systems.

1.2. Models Comparison and Discussion-Valid from 00Z of 14 September 2010

A low pressure system situated over central Mali is expected to move towards western Mauritania. Its central pressure value is expected to change from 1005 to 1007hPa through 24 to 96hours according to the GFS model, 1007 to 1008hPa to the UKMET model. A second low pressure system located over central Niger is expected to move towards western Niger. Its central pressure value is expected to change between 1007 to 1009hPa through 24 to 96hours according to the GFS model and 1007 to 1008hPa on the UKEMET model. Another low pressure system situated over eastern Chad is expected to move towards western Chad while deepening. Its central pressure value is expected to change from 1010 to 1007hPa through 24 to 96hours on the GFS model, while its central pressure value changes from 1007 to 1011hPa on the ECMWF model and it tends to maintain its central pressure value of 1007hPa according to the UKMET model through 24 to 72hours. A low pressure system located over southern Sudan is expected to move towards western Sudan while deepening. Its central pressure value is expected to change from 1010 to 1008hPa on the GFS model through 24 to 96hours. The seasonal low pressure system located over southern DRC is expected to change from central pressure value of 1010 to 1007hPa according to the GFS model, 1009 to 1011hPa according to the ECMWF model and tends to maintain central pressure value of 1008hPa according to the UKMET model. A weak high pressure system situated over Cote-d'Ivoire and Cameroun is expected to maintain its position and its central pressure value of 1014hpa through 48 to 72hours. In general, the Inter-Tropical Front (ITF) is expected to remain between 18^{o}N and 20^{o}N latitudes across West African countries west of the Prime Meridian, while it is expected to stay between 17^{o}N and 19^{o}N latitudes east of the Prime Meridian.

The Azores high-pressure system is expected to relax from central pressure value of 1029 to 1027hPa through 24 to 48hours and to intensify from central pressure value of 1027 to 1028hPa through 72 to 96hour, while extending its ridge over northern African countries. The St. Helena high, situated over southern Atlantic Ocean is expected to relax slightly from central pressure values of 1033 to 1031hPa through 24 to 72hours. On the other hand, the Mascarene high pressure system is expected to intensify from central pressure value of 1024 to 1027hPa through 24 to 72hours.

At 850hpa, a cyclonic circulation situated over central Mali is expected to move towards western Mali through 24 to 48hours and continue moving towards Eastern Mauritania

trough 48 to 96hours. Another cyclonic circulation located over central Niger is expected to move towards western Niger and continue moving towards eastern Mali through 24 to 96hours. A cyclonic circulation situated over southern Chad is expected to move towards eastern Nigeria through 24 to 48hours and Togo, Benin, Ghana, RCI trough 48 to 96hours. Another cyclonic circulation over southern Sudan is expected to move towards western Chad while slightly weakening. The convergence associated with the CAB is expected to weaken gradually in the region between eastern Namibia, Angola, DRC, Rwanda, Kenya and southwest Ethiopia through 48 to 96 hours.

At 700Hpa**,** a trough associated with the African easterly wave is expected to move between the longitudes of Sudan, Central African Republic and Cameroun through 24 to 72 hours. This trough is expected to propagate across Nigeria, Niger trough 48hours and continue to move towards Benin, Burkina Faso and southern Mali through 72 to 96hours.

At 500hpa, higher wind speeds associated with the African Easterly Jet are expected to exceed 30Kts in the vicinity of southern Mali and Senegal while the core of the jet is propagating westwards through 24 to 72 hours.

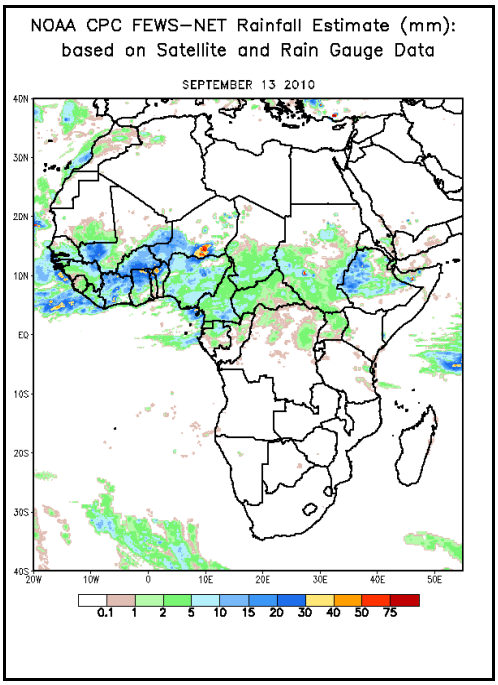
At 200hPa**,** zone of strong wind (>50Kts) is expected to dominate the flow in the vicinity of central and eastern Mediterranean Sea and the adjoining areas of northern Africa. Meanwhile, strong upper tropospheric easterly wind (>35Kts) is expected to dominate the flow across southern Ethiopia, northwestern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

In the coming four days, the West African Monsoon and its associated westward propagating meso-scale convection systems are expected to maintain the moderate to heavy rainfall in parts of central and West African countries. Especially, there is an increased chance for rainfall to exceed 20mm per day in parts of Guinea, Mali, Cote-d'Ivoire, southern Niger and Nigeria. Western and central parts of Ethiopia are also expected to receive moderate to heavy rainfall due to strong Kiremt weather systems.

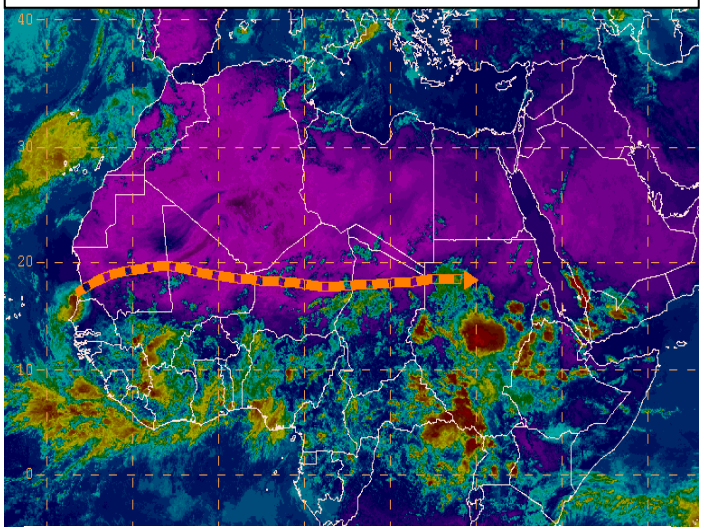
2.0. Previous and Current Day Weather Discussion over Africa (13 - 14 September 2010)

2.1. Weather assessment for the previous day (13 September 2010): During the previous day, moderate to heavy rainfall was observed over southern Mali, Burkina Faso, Benin, Togo, Niger and Ethiopia.

2.2. Weather assessment for the current day (14 September 2010): Intense clouds are observed over southern Mali, Guinea, Cote-d'Ivoire, Nigeria, CAR, southern Sudan and parts of DRC, Uganda and Ethiopia.



IR Satellite Image, Valid 1422Z, September 14, 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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