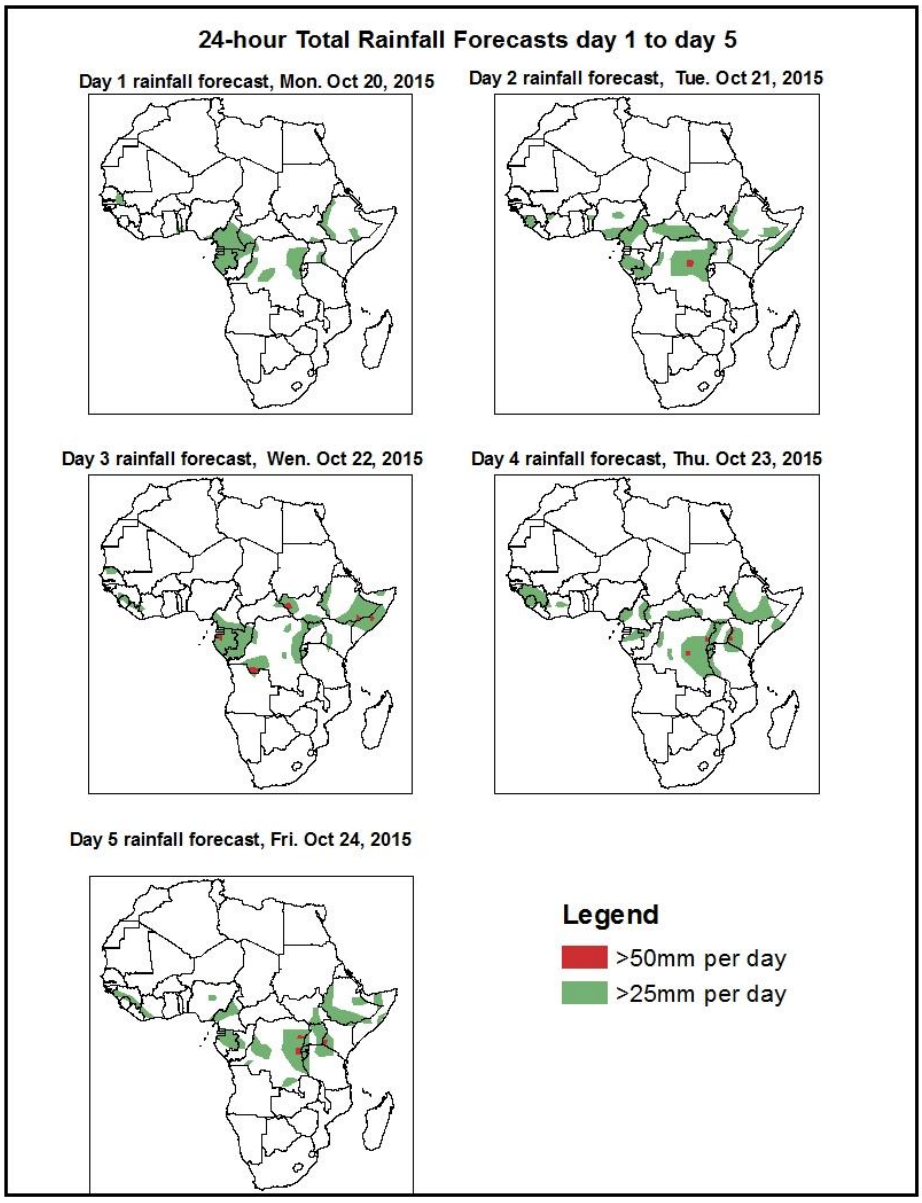
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

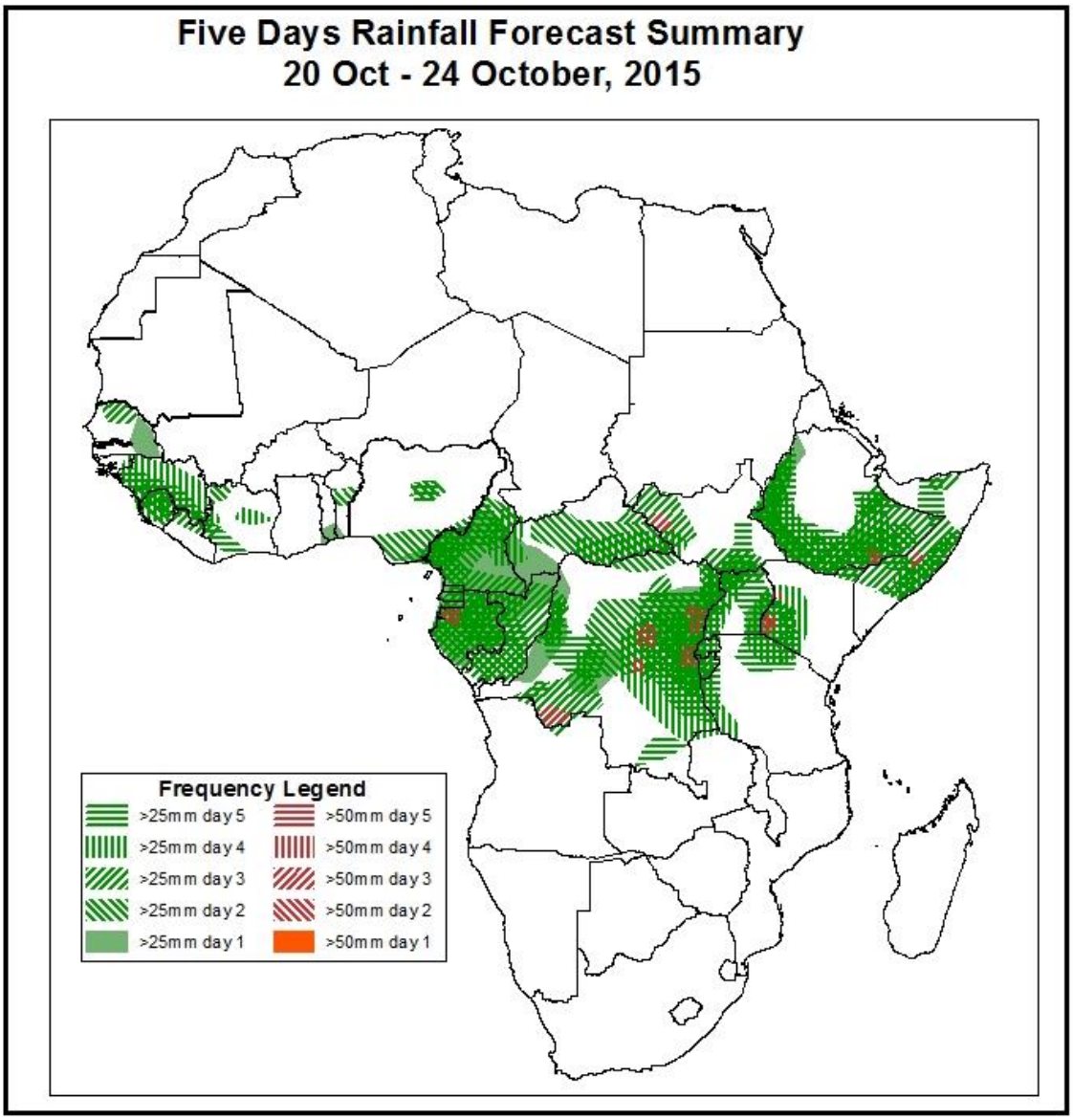
1. Rainfall and Dust Concentration Forecasts

Valid: 06Z of Oct 20 – 06Z of Oct 24 2015. (Issued on October 19, 2015)

1.1. 24-hour Cumulative Rainfall Forecasts

The forecasts are expressed in terms of high probability of precipitation (POP), based on the NCEP/GFS, ECMWF and the NCEP Global Ensemble Forecasts System (GEFS) and expert assessment.



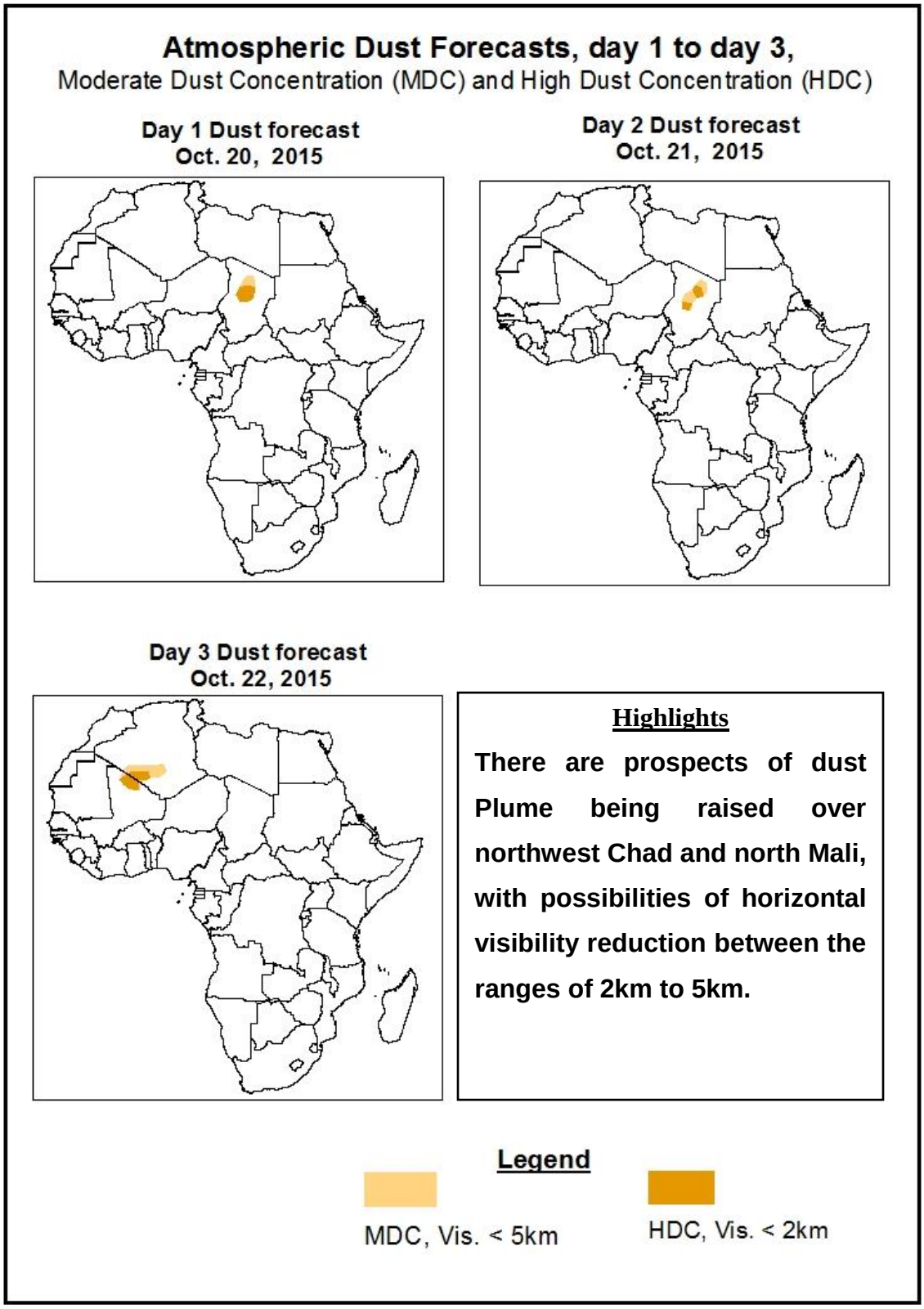


In the coming five days, it is expected that the moist westerly wind flow from the Atlantic Ocean with its associated convergence across West Africa (ITD) and Central Africa will continue to move southward of the Equator thereby limiting Rainfall mostly to the southern part and coastal part of West Africa and in land of Central Africa that are high weather system trigger areas. Moderate rainfall is expected over Guinea, Sierra Leone, parts of ivory coast, Southern Nigeria, Cameroon, Gabon, Congo, Central African Republic also Democratic Republic of Congo, Rwanda, Kenya and southern Sudan are expected to have moderate to heavy rainfall.

1.2. Atmospheric Dust Concentration Forecasts

Valid: 12Z of Oct 20– 22Z of Oct 19, 2015

The forecasts are expressed in terms of high probability of dust concentration, based on the Navy Aerosol Analysis and Prediction System, NCEP/GFS lower-level wind forecasts and expert assessment.



1.3. Model Discussion, Valid: 20– 24 October, 2015

The Azores high pressure system over Northeast Atlantic Ocean is expected to increase in its central value in 48 hours while moving further northeastward the Atlantic Ocean with a central pressure value of 1032 mb. The High pressure system will continue moving far away from its climatological position with slight decrease of the central pressure value in 72 hours up to 1028 mb and then increasing to 1030 mb at the end of the forecast period according to the GFS model.

Pressure values of the ridge associated with the St Helena high pressure system over the Southeast Atlantic Ocean will increase gradually in 96 hours, central pressure values are expected to vary from 1024 up to 1032. It will continue to extend its influence to southwestern Indian Ocean weather patterns by changing its position and then it will weaken gradually before the subtropical high pressure systems resume their climatological position towards the end of the forecast period with a central pressure value reaching 1021 mb.

The Mascarene high pressure system will decrease gradually within 48 hours with central pressure values varying from 1035 mb to 1026 mb then increases is expected to occur in 72 hours with pressure value of 1027 mb while moving toward western Indian Ocean; the central pressure value is expected to decrease and rearch 1030 mb at the end of the forecast period according to the GFS model.

A thermal lows with central pressure value varying between 1007 mb and 1010 mb are expected to propagate westward through 24 to 120 hours. The low pressures over Niger, Chad and Sudan will gradually deepen in 96 hours and covering region between Mali, Niger and Sudan with expected central pressure values of 1007 mb over south Mali and thermal lows will fill up reaching 1011 mb towards the end of the forecast period while moving westward.

At 925 mb, Maritime winds flow from the Atlantic Ocean was observed over place like Guinea, Liberia, Ivory Coast, Ghana, Togo, Benin Republic, Nigeria, Gabon, and Cameroun. Whereas an Anticyclone situated over the Indian Ocean directs moist wind into the inlands of Kenya, Uganda, Somalia, South Sudan and Ethiopia.

At 850 mb level, a large anticyclonic circulation observed over West and Central Africa. The winds at this level are predominantly easterlies,

At 700 mb level, a persistent easterly flow is expected to propagate westwards in the region between central Sudan toward the gulf of Guinea during the forecast period.

In the coming five days, it is expected that the moist westerly wind flow from the Atlantic Ocean with its associated convergence across West Africa (ITD) and Central Africa will continue to move southward of the Equator thereby limiting Rainfall mostly to the southern part and coastal part of West Africa and in land of Central Africa that are high weather system trigger areas. Moderate rainfall is expected over Guinea, Sierra Leone, parts of Ivory Coast, Southern Nigeria, Cameroon, Gabon, Congo, Central African Republic also Democratic Republic of Congo, Rwanda, Kenya and southern Sudan are expected to have moderate to heavy rainfall.

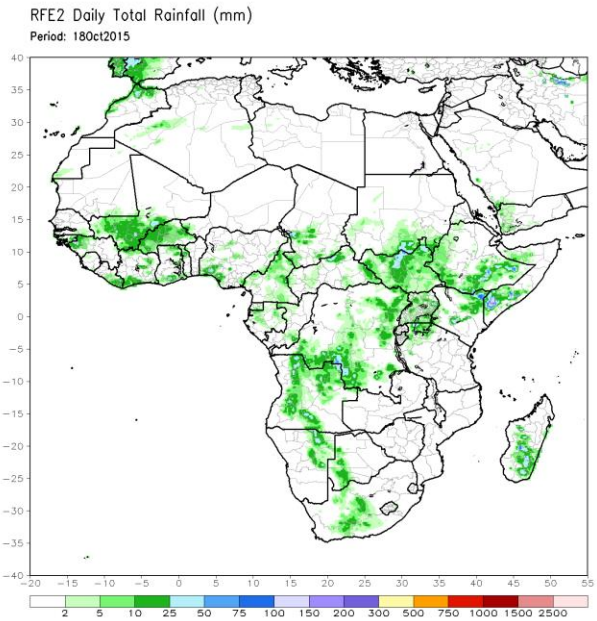
2.0. Previous and Current Day Weather over Africa

2.1. Weather assessment for the previous day (October 18, 2015)

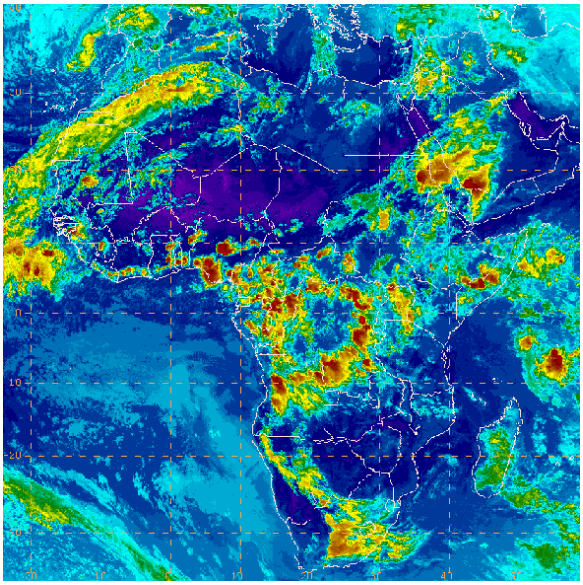
Moderate to locally heavy rainfall was observed over Mali, Guinea Conakry, Ghana, Coastal areas of Nigeria, Chad, DRC, Cameroon, CAR, Kenya, Sudan and south Sudan.

2.2. Weather assessment for the current day (October 19, 2015)

Intense clouds are observed in some parts of West Africa and central Africa, Sierra Leone, Nigeria, Cameroon, Gabon, Congo, CAR, DRC and some places in east Africa, South Sudan, Kenya, Rwanda, Burundi, Uganda, Somalia and Ethiopia.



IR Satellite Image (valid 1630 of October 19, 2015)



Previous day rainfall condition over Africa (top Left) based on the NCEP CPCE/RFE and current day cloud cover (top right) based on IR Satellite image

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