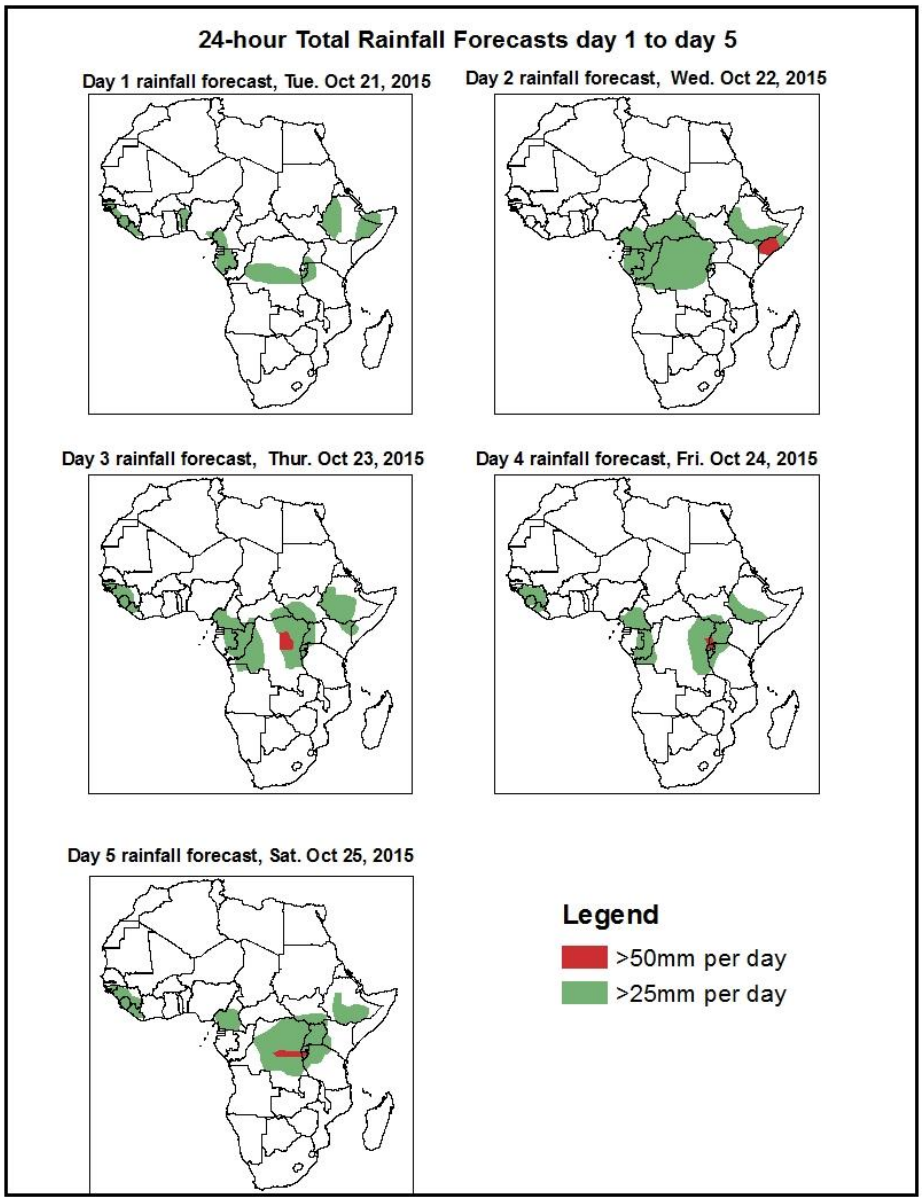
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

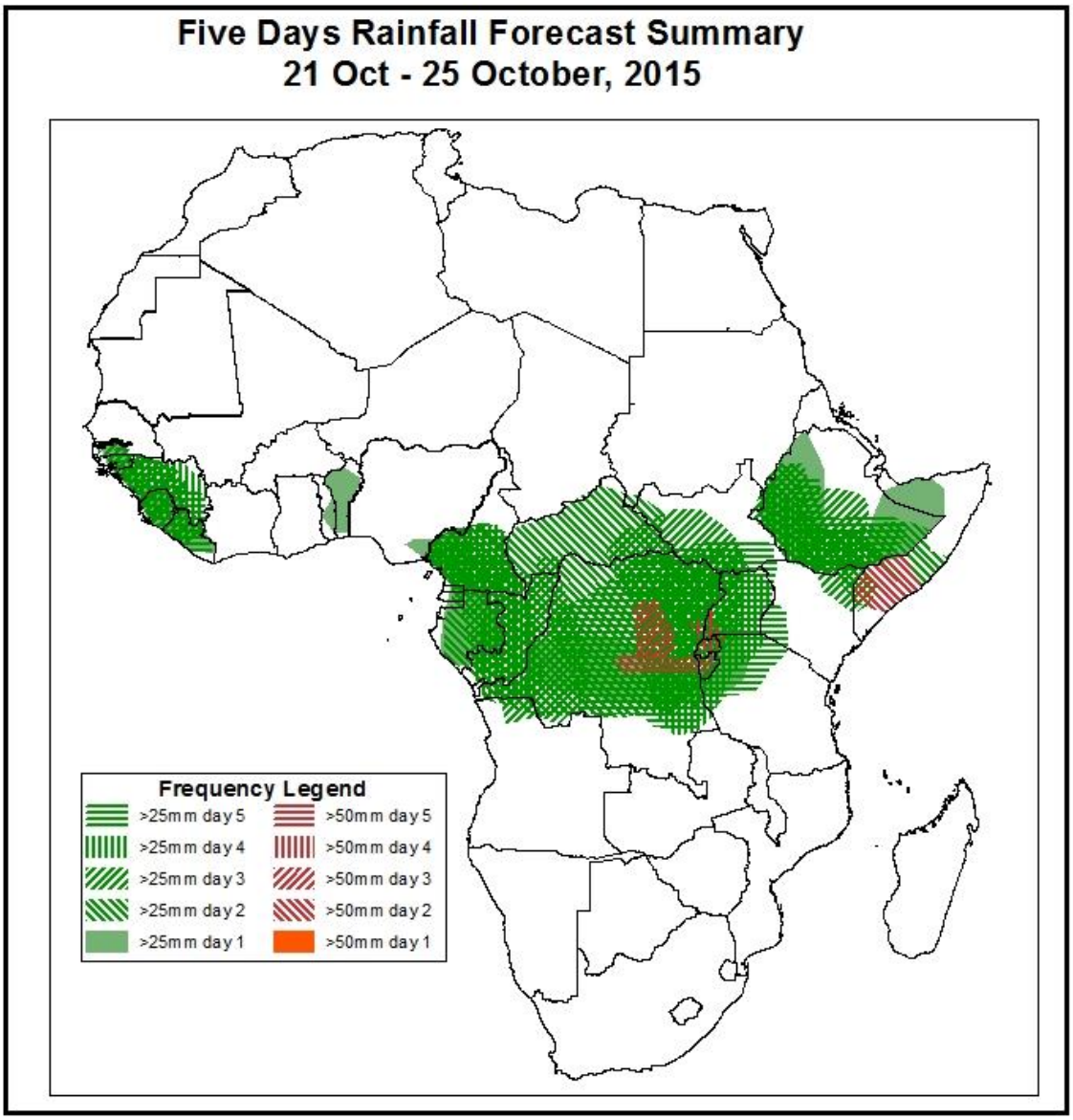
1. Rainfall and Dust Concentration Forecasts

Valid: 06Z of Oct 21 – 06Z of Oct 25 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.



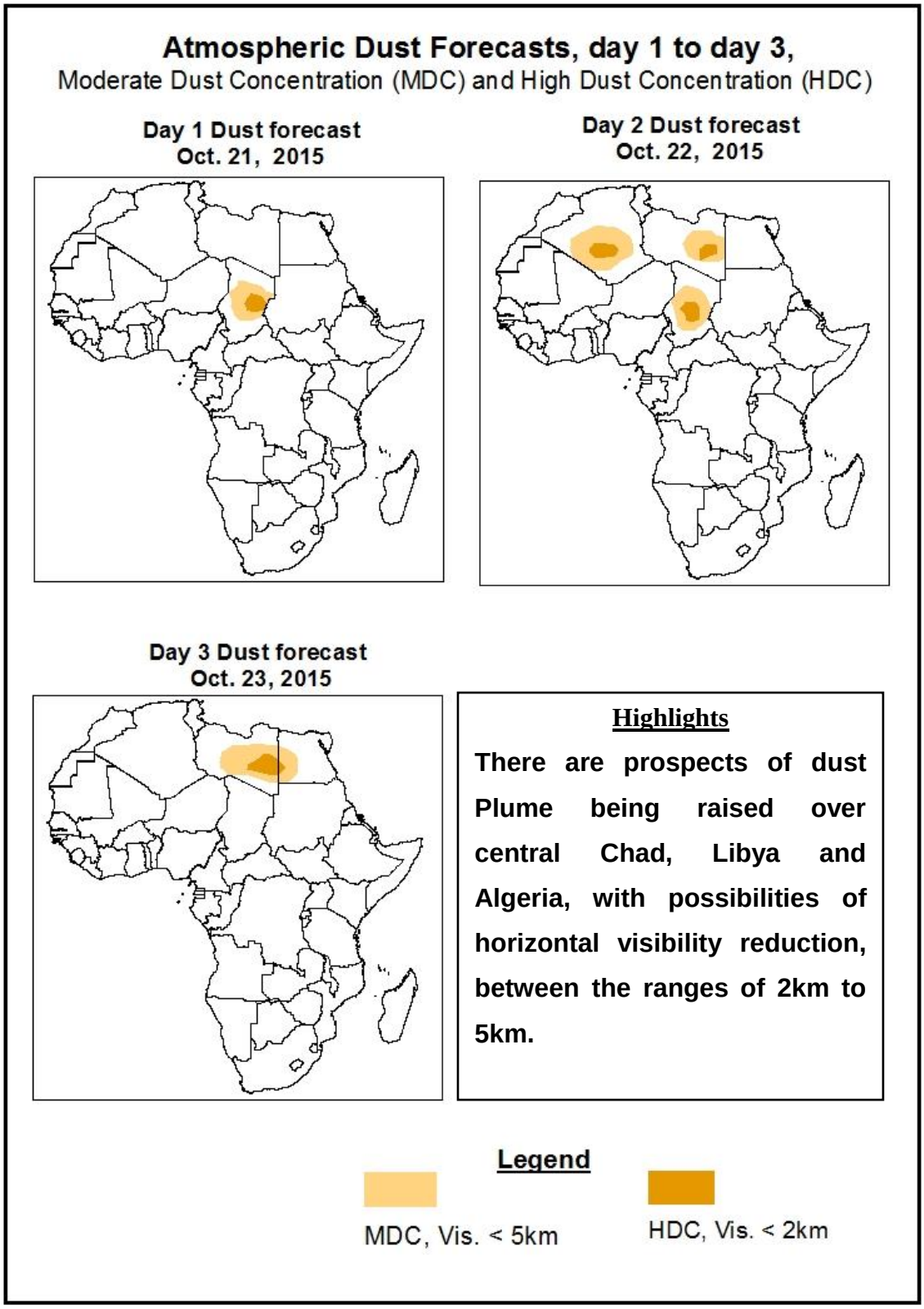


In the coming five days, it is expected that the moist westerly wind flow from the Atlantic Ocean with its associated convergence across West Africa (ITD) will continue to propagate southward towards the Equator. The meridional convergence in DRC and neighboring areas, and the East African monsoon convergence over the Horn of Africa are expected to enhance rainfall in their respective regions. Therefore the following places are expected to have moderate to heavy rainfall as a result of the reasons stated above. Guinea. Sierra Leone, Liberia, Benin and coastal part of Nigeria in West Africa. Cameroun, Congo, Equatorial Guinea, CAR, Democratic Republic of Congo in Central Africa and Ethiopia and Somalia in the horns of Africa.

1.2. Atmospheric Dust Concentration Forecasts

Valid: 12Z of Oct 21– 12Z of Oct 23, 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: 21– 25 October, 2015

The Azores high pressure system is expected to intensify in its central value in next 48 hours by 1mb with a central pressure value of 1029 mb. The High pressure system will continue to weaken of the central pressure value in 72 hours up to 1030 mb and then weaken to 1026 mb at the end of the forecast period according to the GFS model.

The St Helena high pressure system over the Atlantic Ocean will weaken gradually in 72 hours, with its central pressure values varying from 1031 up to 1026. It will continue to weaken and retreat southward towards at the end of the forecast period with a central pressure value of 1022 mb.

The Mascarene high pressure system will weaken gradually within 48 hours with central pressure values varying from 1029 mb to 1027 mb then increases is expected to occur in 96 hours with pressure value of 1028 mb then intensifying to 1030 at the end of the forecast period according to the GFS model.

Thermal Equatorial lows pressure system was observed extending from East Africa through Central Africa up to Liberia in West Africa. Its central pressure value filling from 1007 mb to 1010 mb.These Centre pressure values were maintained throughout the forecast period. The are expected to propagate westward between 24 to 120 hours.

At 925 mb, Maritime winds flow from the Atlantic Ocean was observed over places 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, an 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) will continue to propagate southward towards the Equator. The meridional convergence in DRC and neighboring areas, and the East African monsoon convergence over the Horn of Africa are expected to enhance rainfall in their respective regions. Therefore the following places are expected to have moderate to heavy rainfall as a result of the reasons stated above. Guinea. Sierra Leone, Liberia, Benin and coastal part of Nigeria in West Africa.

Cameroun, Congo, Equatorial Guinea, CAR, Democratic Republic of Congo in Central Africa and Ethiopia and Somalia in the horns of Africa

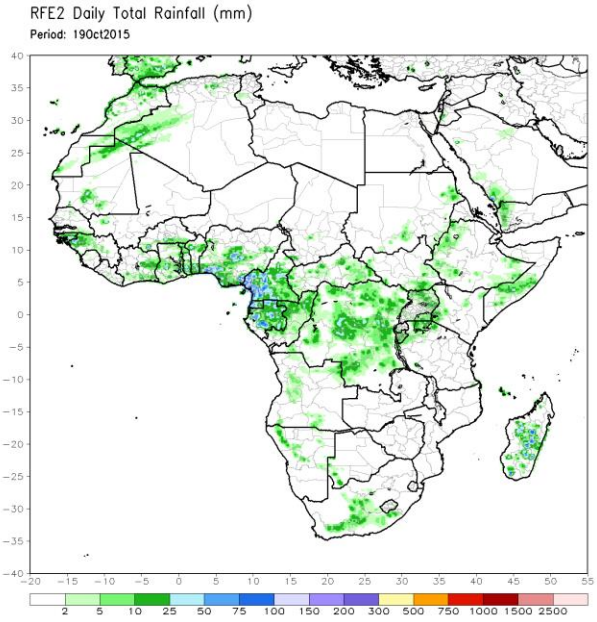
2.0. Previous and Current Day Weather over Africa

2.1. Weather assessment for the previous day (October 19, 2015)

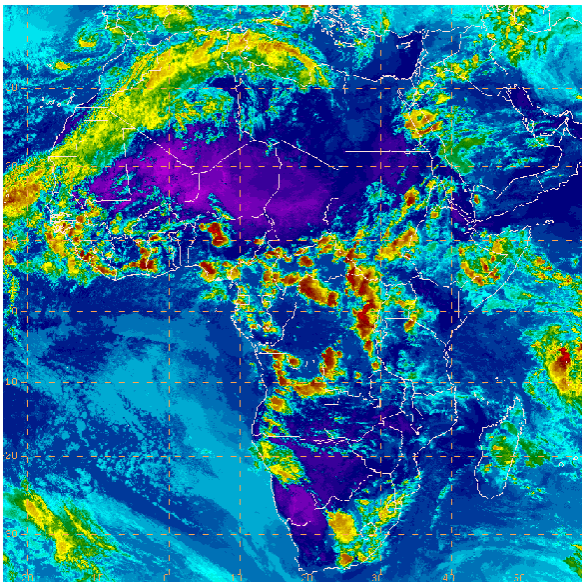
Moderate to locally heavy rainfall was observed over Sierra Leone, Guinea Conakry, Ghana, Togo, Cameroon, Gabon, CAR, Sudan, south Sudan and Somalia.

2.2. Weather assessment for the current day (October 20, 2015)

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



IR Satellite Image (valid 1630 of October 20, 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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