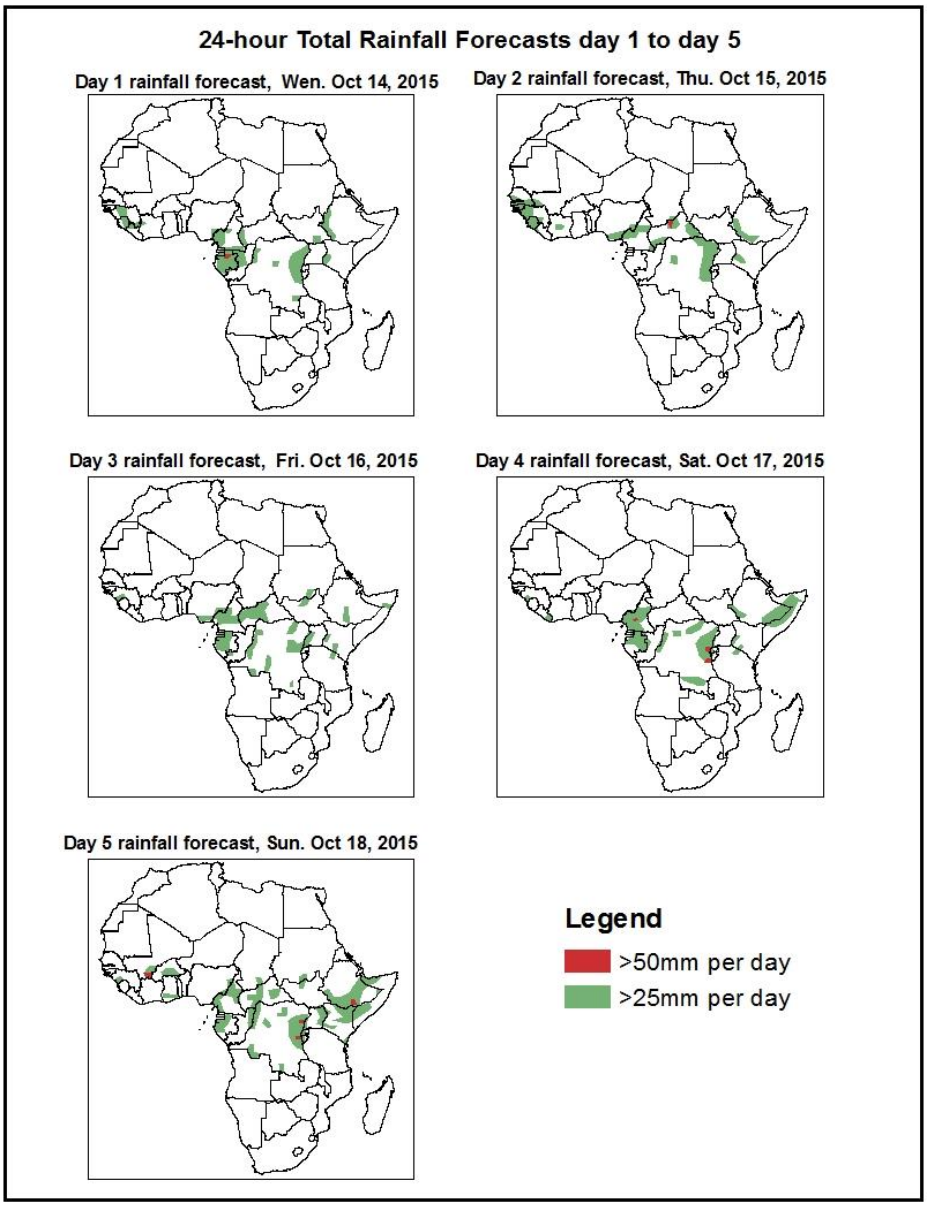
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

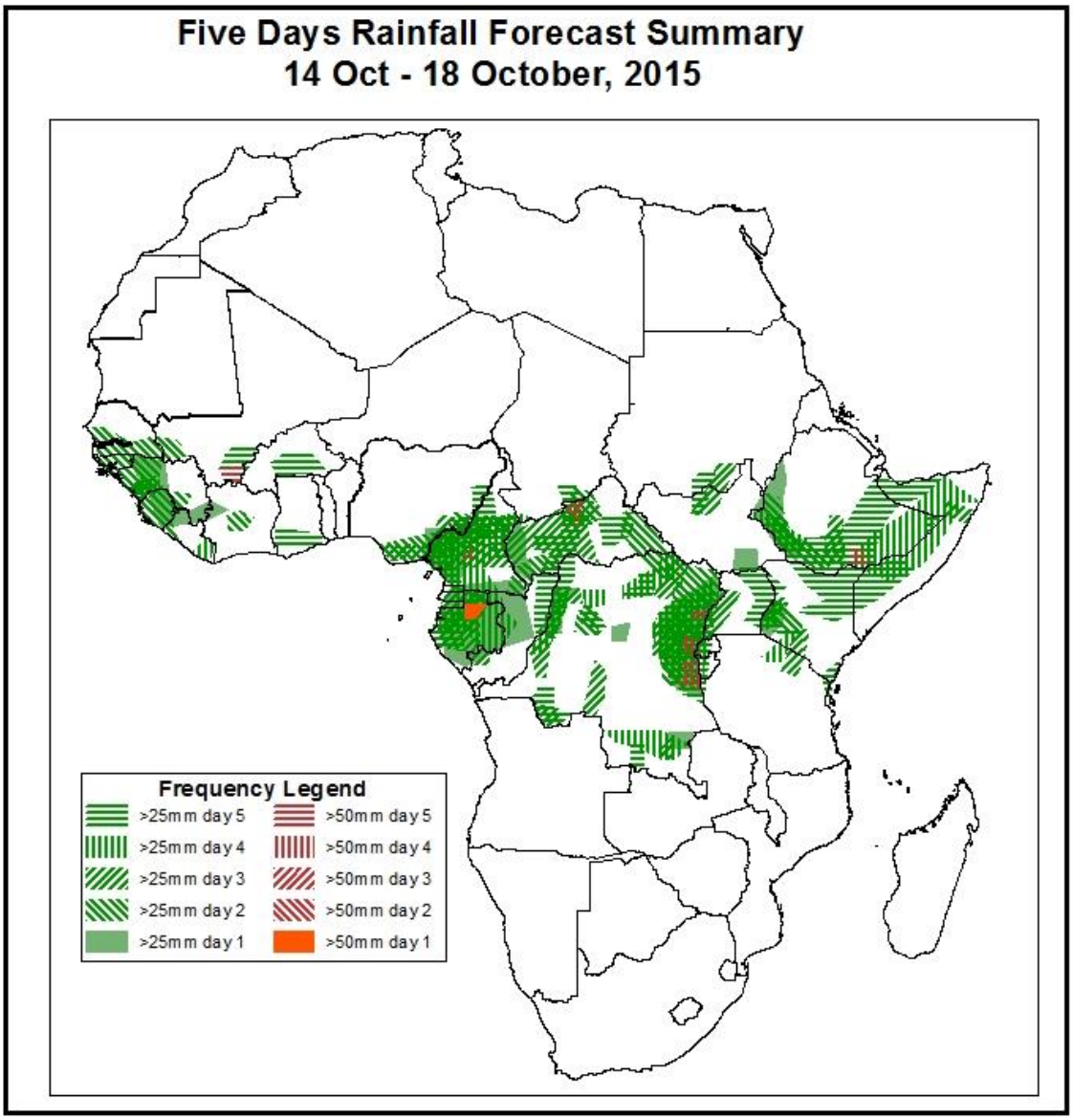
1. Rainfall and Dust Concentration Forecasts

Valid: 06Z of Oct 14 – 06Z of Oct 18 2015. (Issued on October 13, 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.



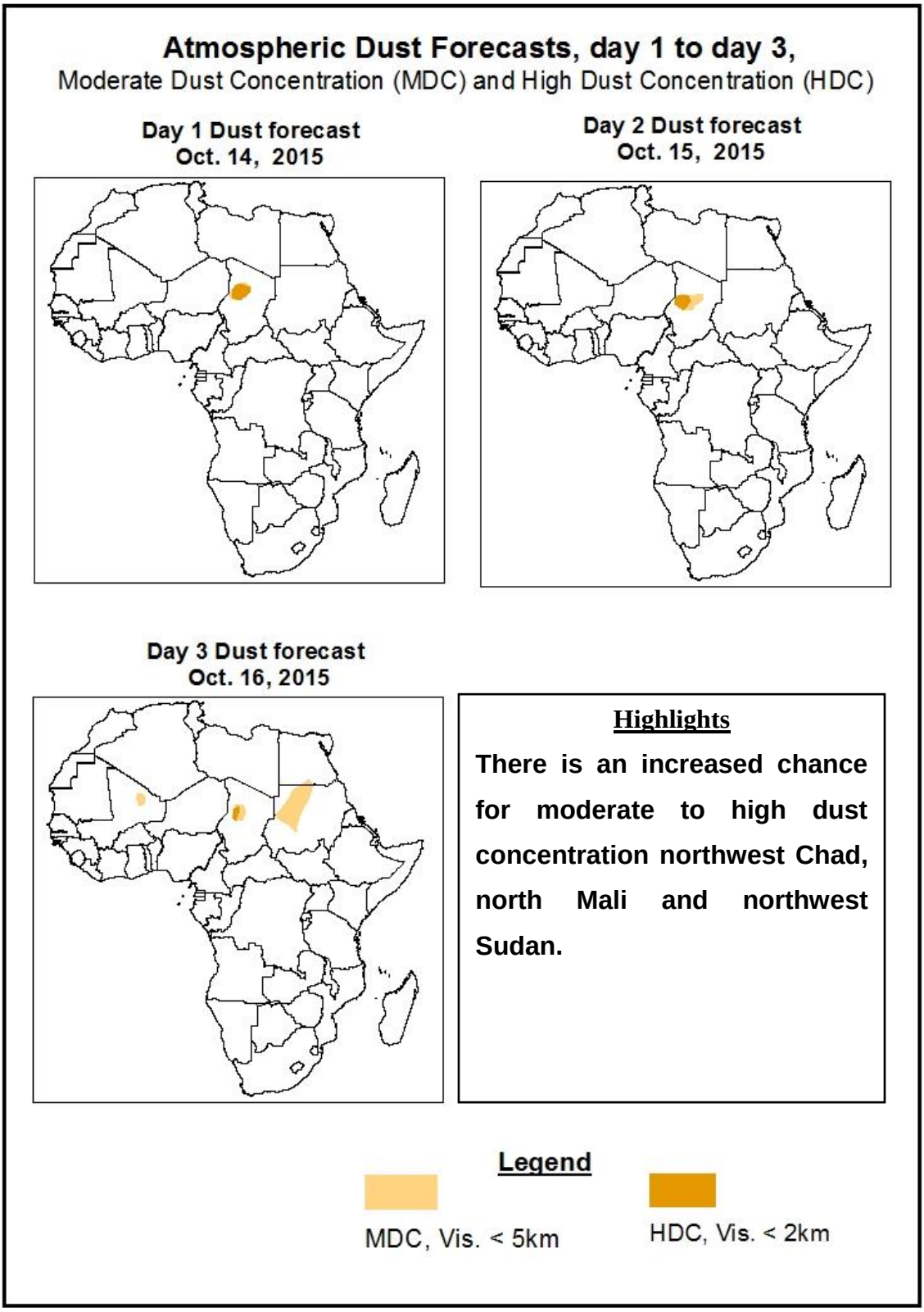


In the coming five days, monsoon flow from the Atlantic Ocean with its associated convergence across West and Central Africa will continue enhancing rainfall in Senegal, Guinea-Bissau, Guinea-Conakry, Sierra Leone, Liberia, central of Ivory Coast, south Mali, east Nigeria, large part of Cameroon, Gabon and Congo, large part of CAR, portion of South Sudan and large area of DRC will receive rainfall. Seasonally moderate to heavy rainfall is also expected to continue across eastern Africa, portion of Tanzania, Uganda and Kenya, west and southeast of Ethiopia and east of Somalia, west of Rwanda and Burundi.

1.2. Atmospheric Dust Concentration Forecasts

Valid: 12Z of Oct 14 – 12Z of Oct 16, 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: 14 – 18 October, 2015

The Azores high pressure system over Northeast Atlantic Ocean is expected to increase gradually in 48 hours while moving further northeastward the Atlantic Ocean with a central pressure value varying from 1023 mb up to 1024 mb. The High pressure system will continue moving far away from its climatological position with a decrease of the central pressure value in 72 hours up to 1022 mb and then 1021 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 decrease gradually in 72 hours, central pressure values are expected to vary from 1028 up to 1023. 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 1020 mb.

The Mascarene high pressure system will decrease gradually within 48 hours with central pressure values varying from 1031 mb up to 1028 mb then its intensification is expected to occur while moving toward western Indian Ocean; the central pressure value is expected to continue falling up to central pressure value of 1026 mb at the end of the forecast period according to the GFS model.

A thermal lows with central pressure value varying between 1008 mb and 1011 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 1010 mb towards the end of the forecast period while moving westward.

At 925 mb, a cyclonic circulation over Niger is expected to propagate towards the coastal area of Senegal across Mali through 24 to 120 hours. Strong Zonal wind convergence is expected to prevail across Chad, Niger and Mali during the forecast period. Meridional wind convergence is expected to persist in the region between Sudan and Northeast DRC towards western coast of Ethiopian region during the forecast period.

At 850 mb level, a large cyclonic circulation over Niger is expected to propagate towards coastal areas of Senegal by passing through Niger and Mali during the forecast period.

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, monsoon flow from the Atlantic Ocean with its associated convergence across West and Central Africa will continue enhancing rainfall in Senegal, Guinea-Bissau, Guinea-Conakry, Sierra Leone, Liberia, central of Ivory Coast, south Mali, east Nigeria, large part of Cameroon, Gabon and Congo, large part of CAR, portion of South Sudan and large area of DRC will receive rainfall. Seasonally moderate to heavy rainfall is also expected to continue across eastern Africa, portion of Tanzania, Uganda and Kenya, west and southeast of Ethiopia and east of Somalia, west of Rwanda and Burundi.

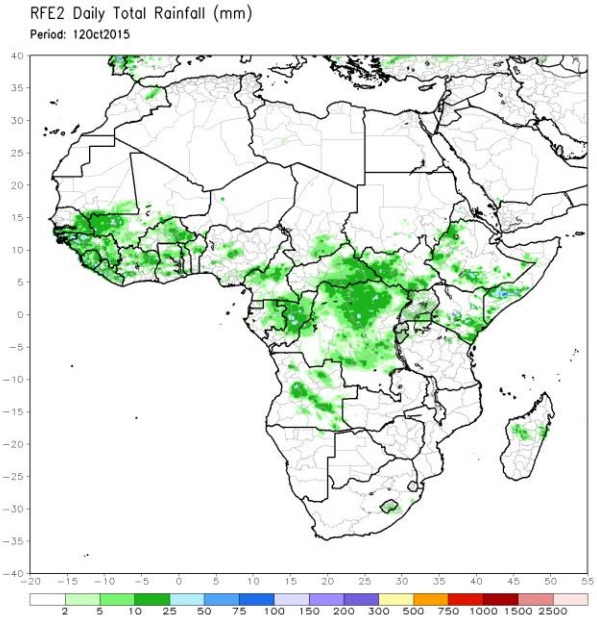
2.0. Previous and Current Day Weather over Africa

2.1. Weather assessment for the previous day (October 12, 2015)

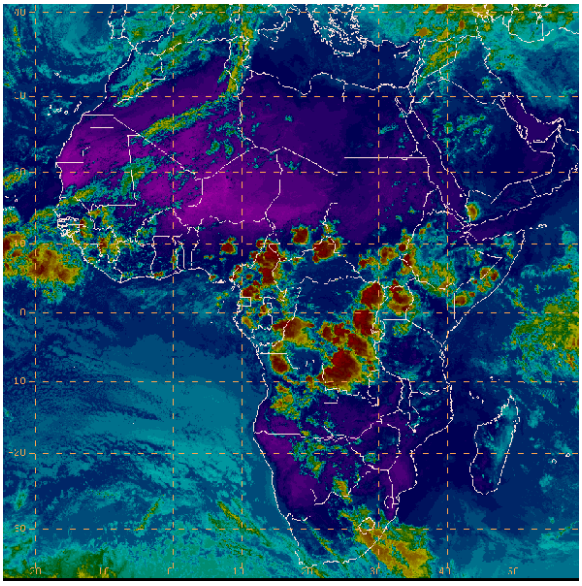
Moderate to locally heavy rainfall was observed over south Mali, south Guinea Conakry, Sierra Leone, Liberia, Congo, DRC, South Ethiopia, central Kenya, and south Somali.

2.2. Weather assessment for the current day (October 13, 2015)

Intense clouds are observed in some parts of West Africa and central Africa, Guinea Bissau, Guinea Conakry, Nigeria, Cameroon, north CAR, east and central DRC and some places in east Africa, South Sudan, Uganda, Ethiopia and Somali.



IR Satellite Image (valid 1622 of October 13, 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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