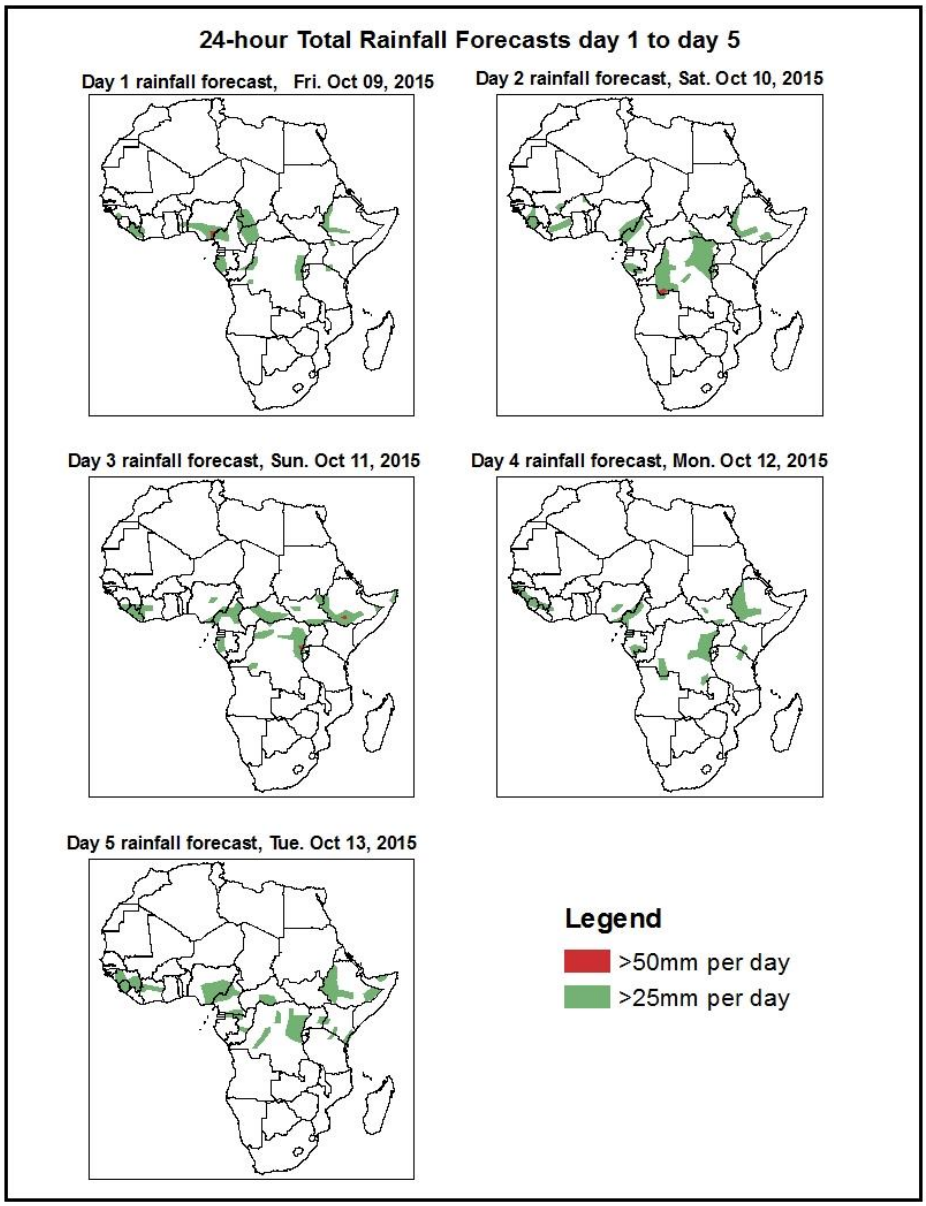
# NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

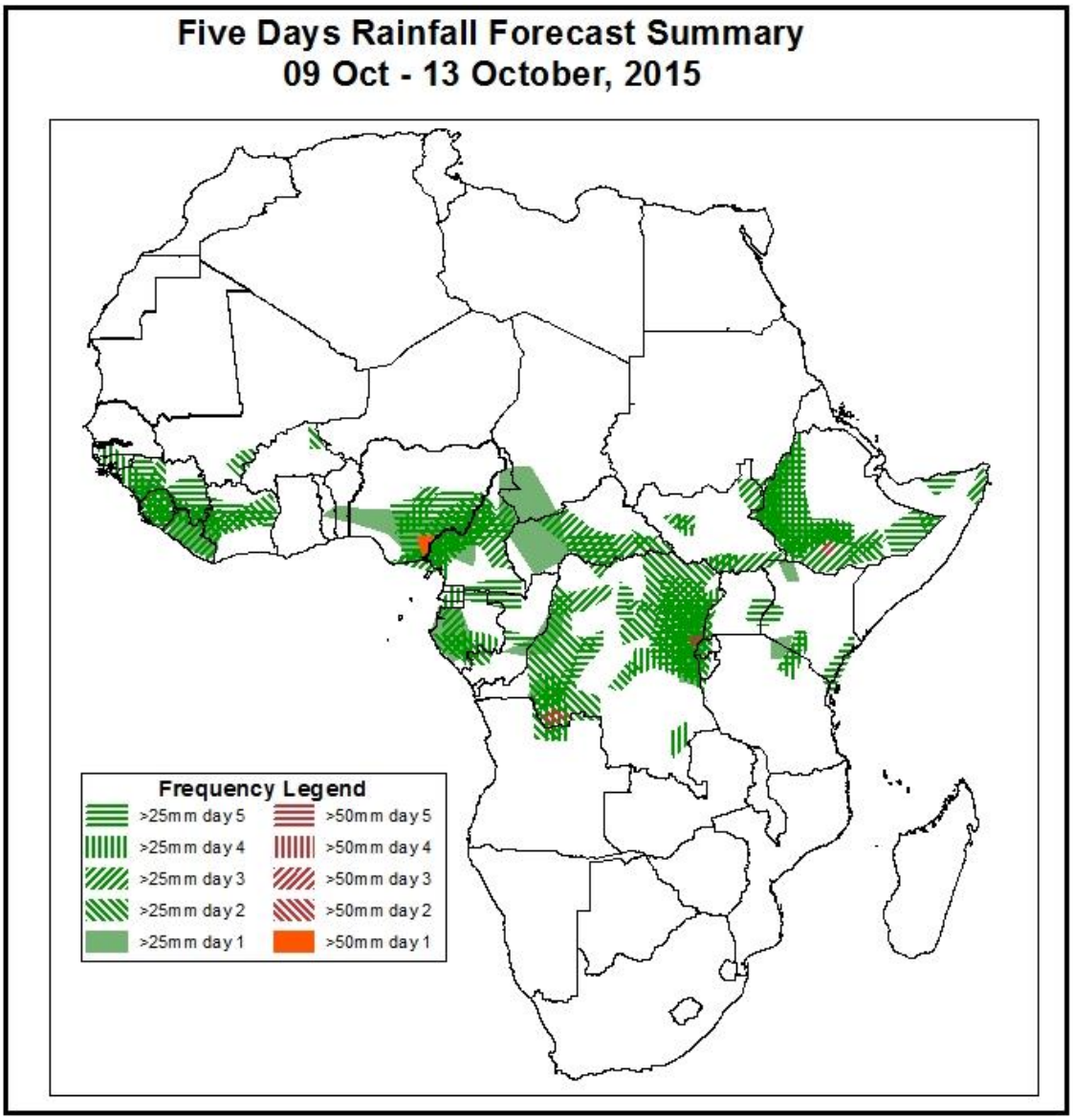
## *1. Rainfall and Dust Concentration Forecasts*

*Valid: 06Z of Oct 09 – 06Z of Oct 13 2015. (Issued on October 08, 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.



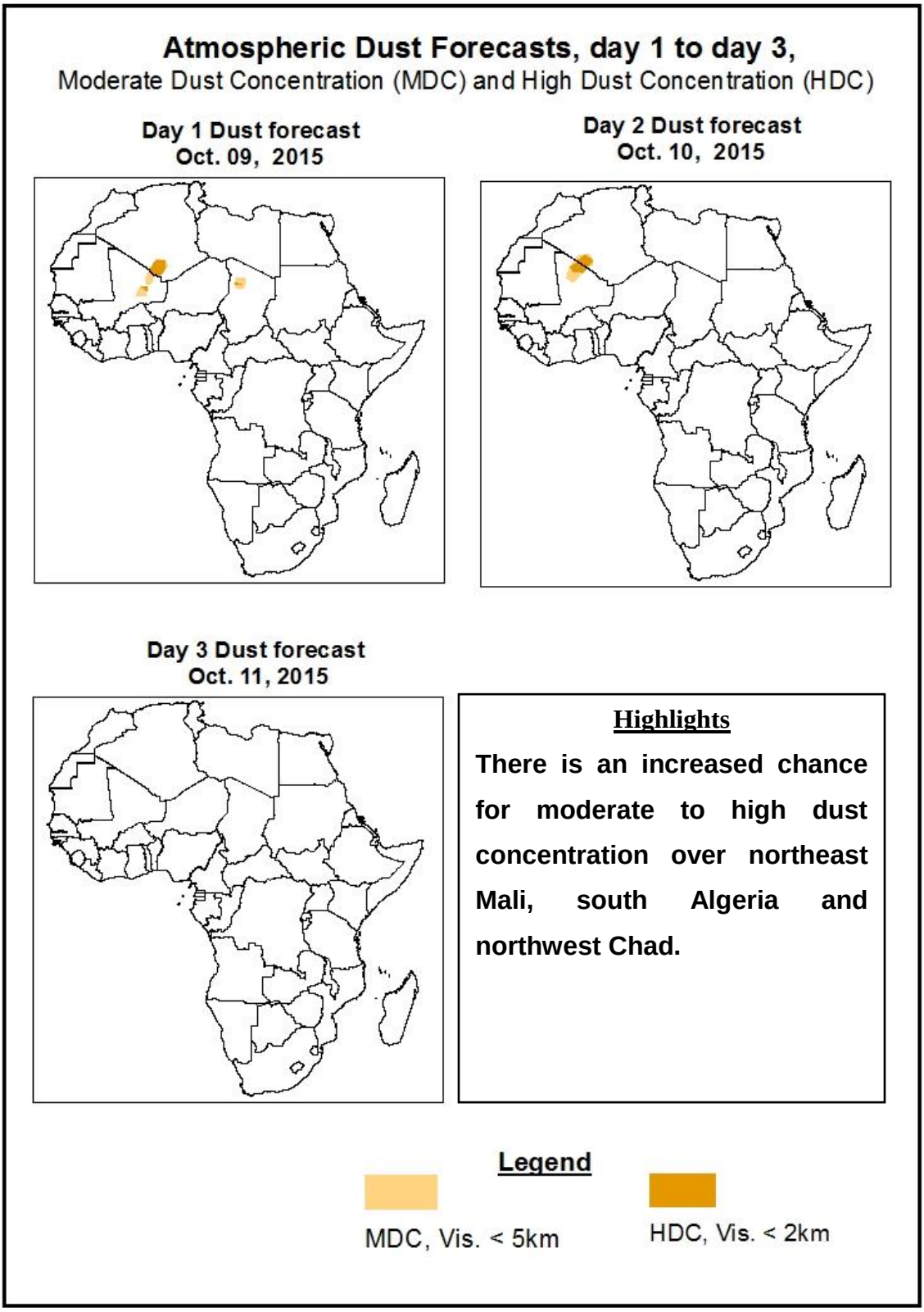



In the coming five days, monsoon flow from the Atlantic Ocean with its associated convergence across West and Central Africa will continue enhancing rainfall in Guinea-Bissau, Guinea-Conakry, Sierra Leone, Liberia, central of Ivory Coast, south Mali, east Burkina Faso, southeastern part and central Nigeria, large part of Cameroon, west Gabon and central Congo, south Chad, CAR, and some parts of Southern Sudan, 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, Rwanda and Burundi.

## *1.2. Atmospheric Dust Concentration Forecasts*

*Valid: 12Z of Oct 09 – 12Z of Oct 11, 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: 09 – 13 October, 2015

The Azores high pressure system over Northeast Atlantic Ocean is in his climatological position with a central pressure value of 1022 mb and is expected to decrease gradually in 48 hours while moving further northeastward the Atlantic Ocean with a central pressure value of 1020 mb. The High pressure system will continue moving far away from its climatological position with a slight increase of the central pressure value in 96 hours up to 1023 mb and 1029 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 72 hours, central pressure values are expected to vary from 1020 up to 1031. It will continue to extend its influence to southwestern Indian Ocean weather patterns by changing its position and 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 1022 mb.

The Mascarene high pressure system will increase gradually within 48 hours with central pressure values varying from 1022 mb up to 1024 mb then its intensification is expected to occur while moving toward western Indian Ocean; the central pressure value is expected to rise up to 1027 mb in 72 hours before reaching 1032 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 Sudan and Mali will gradually filling up in 96 hours and covering region between Mali, Niger and Sudan with expected central pressure values respectively of 1010 mb towards the end of the forecast period while move 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 remain active 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 Guinea-Bissau, Guinea-Conakry, Sierra Leone, Liberia, central of Ivory Coast, south Mali, east Burkina Faso, southeastern part and central Nigeria, large part of Cameroon, west Gabon and central Congo, south Chad, CAR, and some parts of Southern Sudan, 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, Rwanda and Burundi.

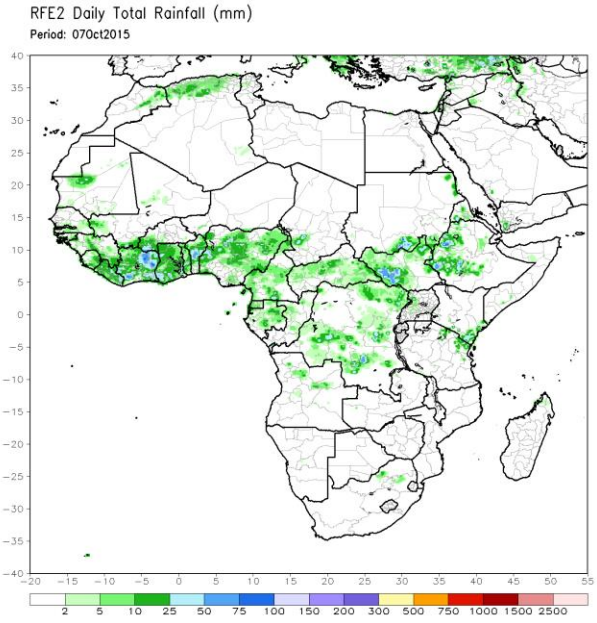
## *2.0. Previous and Current Day Weather over Africa*

### 2.1. Weather assessment for the previous day (October 07, 2015)

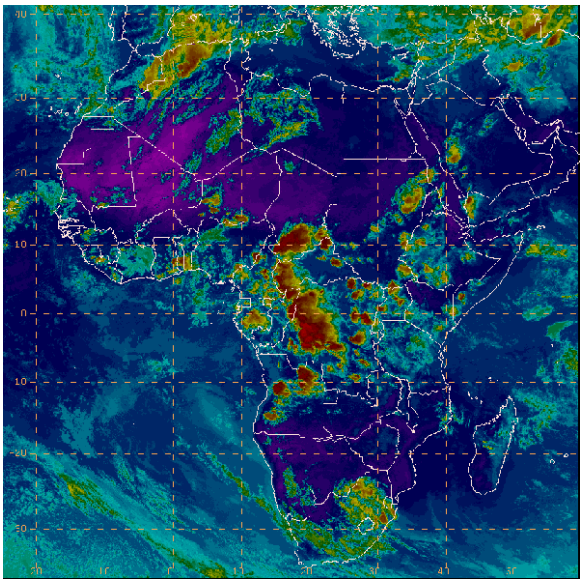
Moderate to locally heavy rainfall was observed over northeast Ivory Coast, west Liberia, southeast Ghana, central Togo, west Nigeria, central DRC, southern South Sudan, west Ethiopia and southeast Kenya.

### 2.2. Weather assessment for the current day (October 08, 2015)

Intense clouds are observed in some parts of West Africa and central Africa, south Benin, Chad, Cameroon, Gabon, west CAR and some places in east African countries: Uganda, west and southeast of DRC and west Ethiopia.




**IR Satellite Image (valid 1630 of October 08, 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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