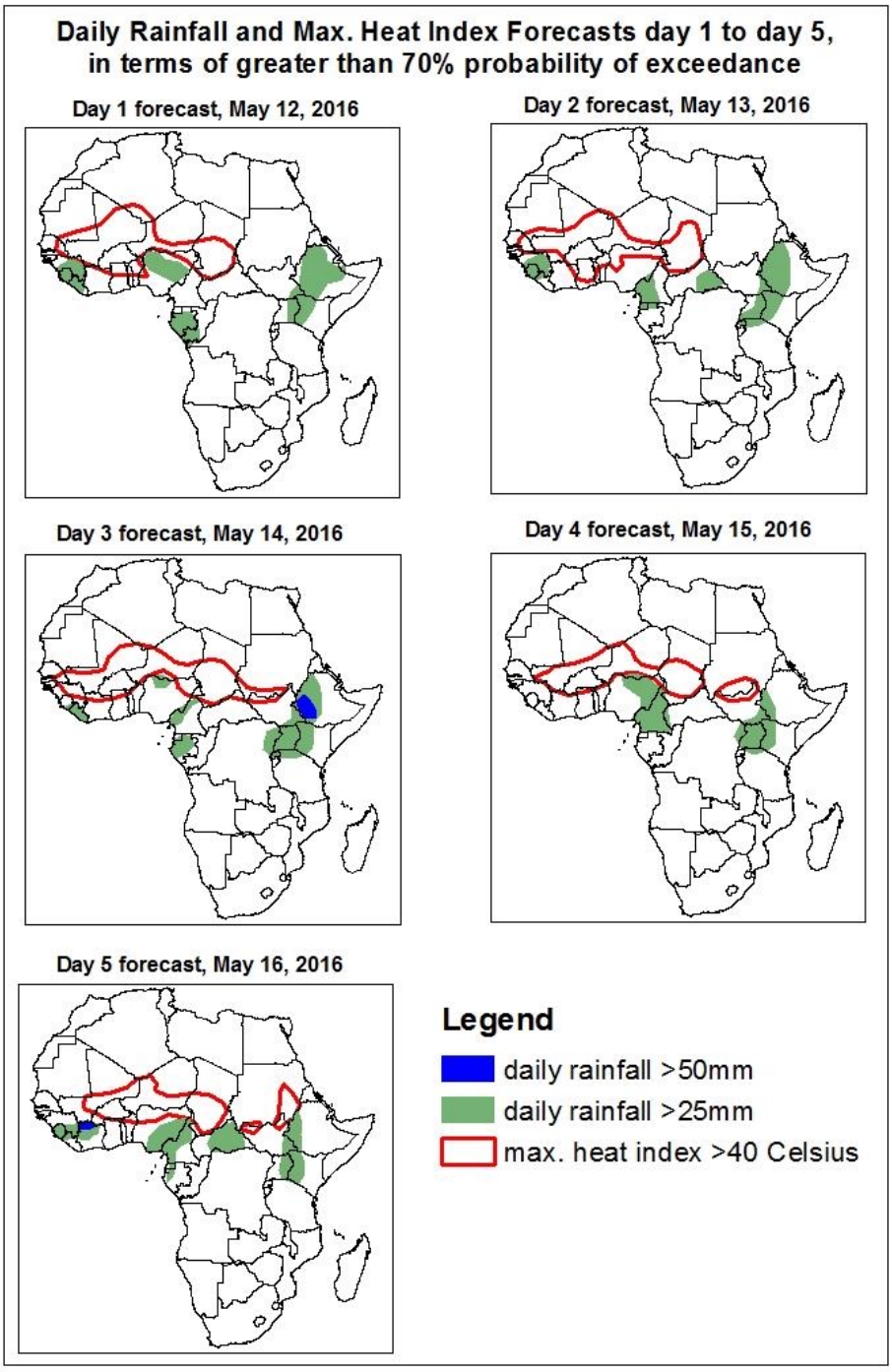
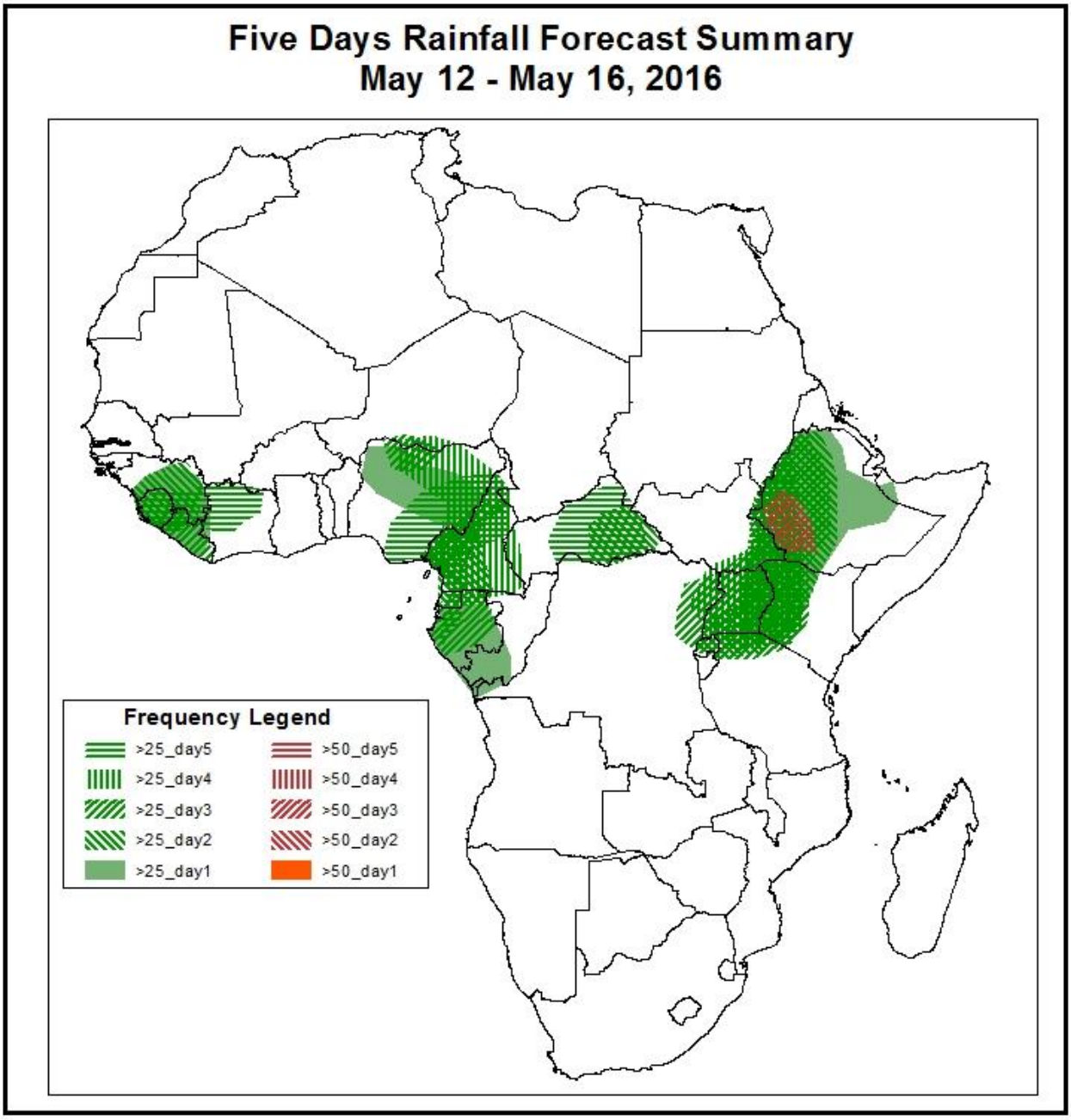
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on May 11, 2016)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (*valid: May 12– May 16, 2016)*

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



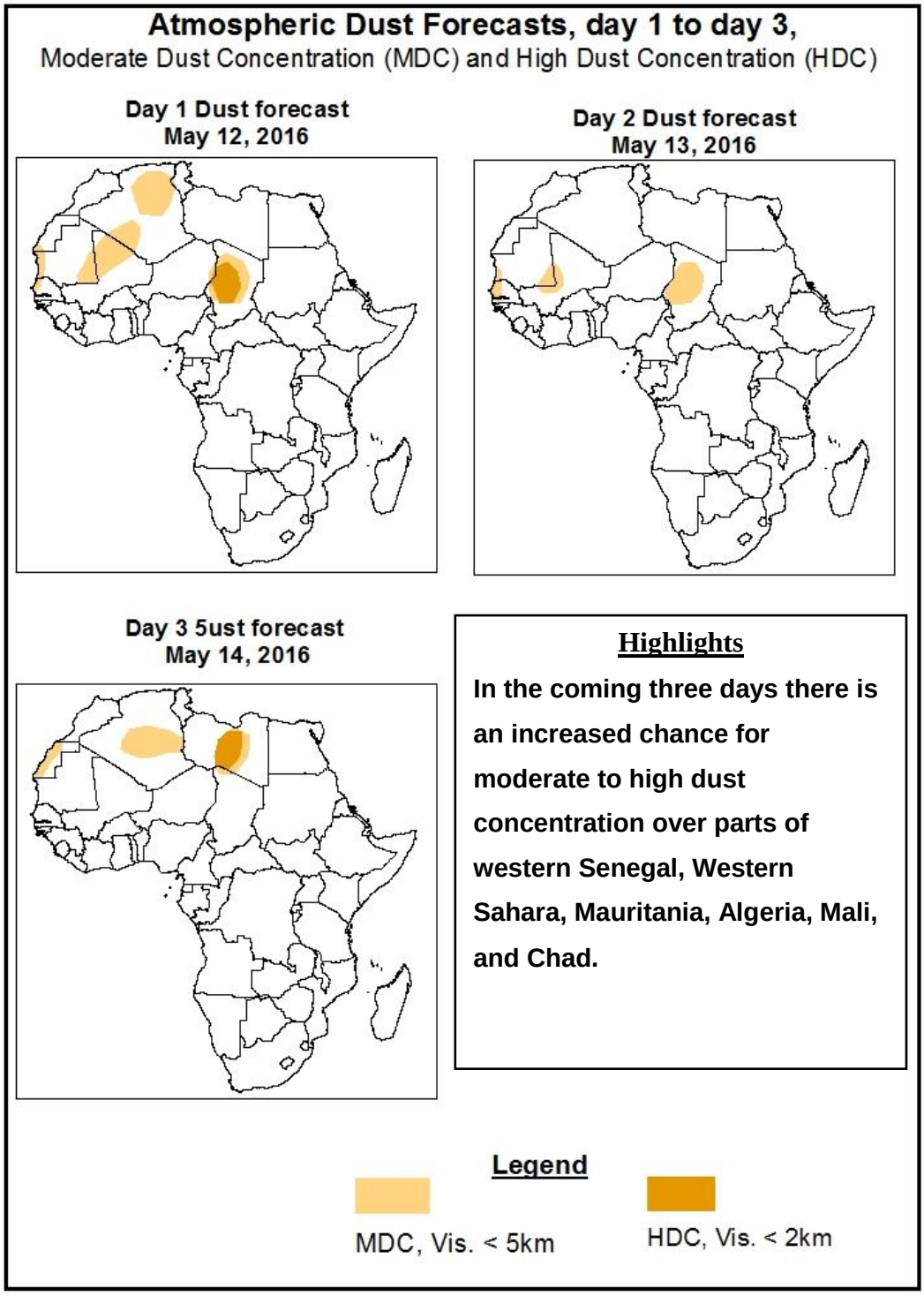


Highlights

In the coming five days, monsoon flow from the Atlantic Ocean with its associated lower level convergence is expected to enhance rainfall across portions of West Africa. Local wind convergences across central Africa, interactions between mid-latitude and tropical systems across the Greater Horn of Africa and active meridional wind convergences near the Lake Victoria region are expected to enhance rainfall in their respective areas. Therefore, there is an increased chance for two or more days of moderate to heavy rainfall over portions of Sierra Leone, eastern Guinea, parts of Nigeria, Cameroon, Gabon, eastern CAR, northeastern DRC, Rwanda, Uganda, northwestern Tanzania, western Kenya, eastern South Sudan, and many parts of Ethiopia.

1.2. Atmospheric Dust Concentration Forecasts *(valid: May 12 – May 14, 2016)*

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: May 12 – May 16, 2016

The Azores high pressure system over the Northeast Atlantic Ocean is expected to intensify gradually with its central pressure value increasing from about 1023hPa to 1030hPa during the forecast period.

The St. Helena High pressure system over the Southeast Atlantic Ocean is expected to weaken gradually while shifting eastwards, with its central pressure value decreasing from about 1026hPa to 1021hPa during the forecast period..

The Mascarene high pressure system over the Southwest Indian Ocean is expected to weaken with its central pressure value decreasing from about 1031hPa to 1025hPa during the forecast period.

Central pressure value associated over heat lows across western Sahel is expected to decrease from about to 1007hPa to 1005hPa during the forecast period, whereas heat lows over central Sahel and Sudan are expected to maintain average central value of 1007hPa during the forecast period.

At 925HPa level, dry northeasterly to easterly flow is expected to prevail across northern Africa and parts of western and central Sahel countries, with wind speeds to exceed 35knots occasionally over northern Mali, Chad and southern Algeria. On the other hand, moist southwesterly monsoon flow is expected to prevail across the Gulf Guinea countries during the forecast period.

At 850hPa level, anti-cyclonic ridge is expected to prevail across the western end of West Africa during the forecast period. A zonal wind convergence is expected to prevail in the region between northeastern Burkina Faso and Sudan across the Sahel region. A broad area of southeasterly flow is expected to prevail across eastern and central Africa. Meridional wind convergence near the Lake Victoria region is also expected to maintain seasonal rainfall in the region.

At 700hPa level, a broad area of anti-cyclonic ridge is expected to prevail in the region between Senegal and Libya, across southern Mali, Burkina Faso, southern Algeria and Niger, during the first half of the forecast period, and gradually weakening towards end of the forecast period. Northeasterly flow is expected to prevail across eastern Gulf of Guinea, central Sahel and central Africa regions during the forecast period.

At 500hPa level, a trough in mid-latitude westerly flow is expected to prevail across Northeast Africa and the neighboring areas of Red Sea, with the southern extent of the westerly trough reaching the latitudes of Eritrea and Ethiopia during the first half of the forecast period, and this system is expected to fill up gradually towards end of the forecast period.

In the coming five days, monsoon flow from the Atlantic Ocean with its associated lower level convergence is expected to enhance rainfall across portions of West Africa. Local wind convergences across central Africa, interactions between mid-latitude and tropical systems across the Greater Horn of Africa and active meridional wind convergences near the Lake Victoria region are expected to enhance rainfall in their respective areas. Therefore, there is an increased chance for two or more days of moderate to heavy rainfall over portions of Sierra Leone, eastern Guinea, parts of Nigeria, Cameroon, Gabon, eastern CAR, northeastern DRC, Rwanda, Uganda, northwestern Tanzania, western Kenya, eastern South Sudan, and many parts of Ethiopia.

There is also an increased chance for maximum heat index values to exceed 40^{o}C over portions of eastern Senegal, Mali, Burkina Faso, Ghana, Togo, Nigeria, Niger, Chad, parts of CAR, and near the Sudan South Sudan border.

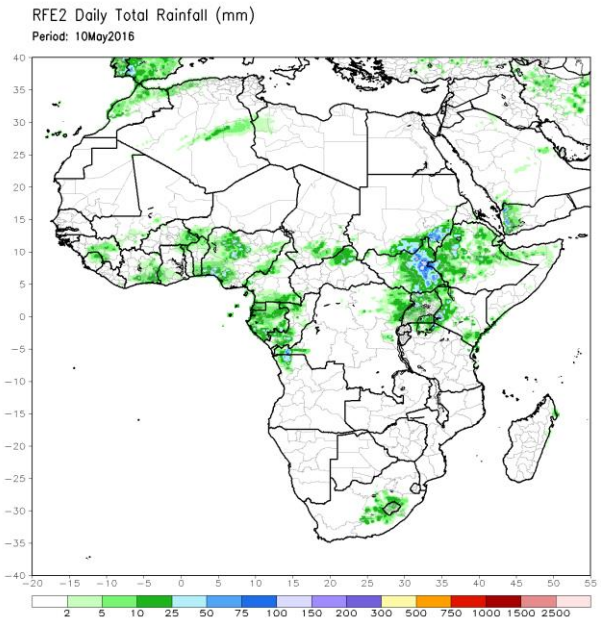
2.0. Previous and Current Day Weather over Africa

2.1. Weather assessment for the previous day (May 10, 2016)

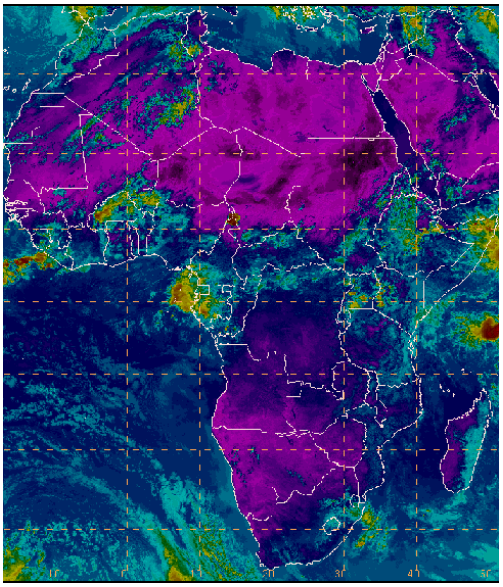
Moderate to locally heavy rainfall was observed over portions of Gulf of Guinea, some Central Africa countries, Greater Horn of Africa and local areas of South Africa.

2.2. Weather assessment for the current day (May 11, 2016**)**

Intense convective clouds are observed across coast of Gabon.



IR Satellite Image (valid 1500z May 11, 2016)



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

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