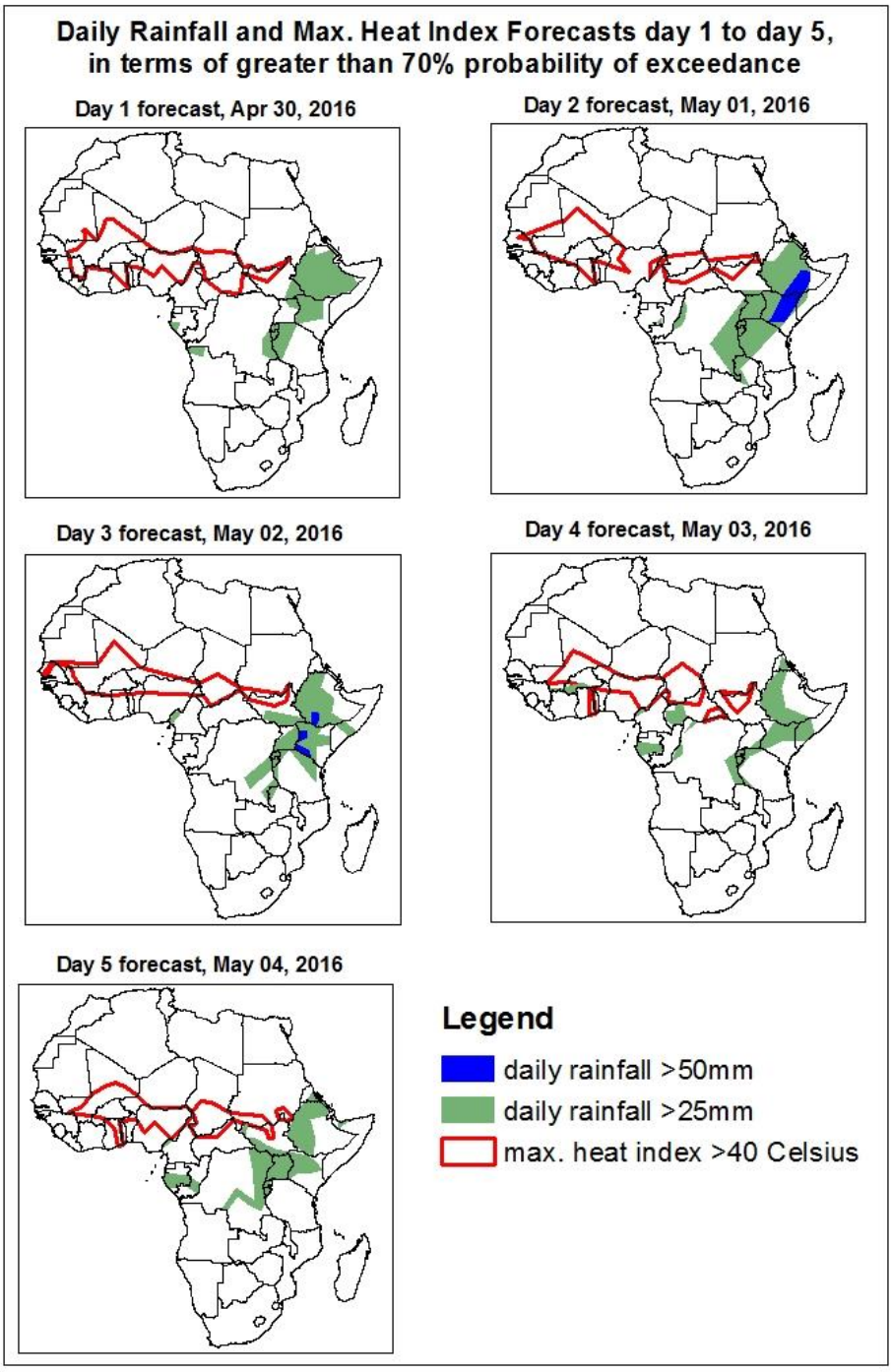
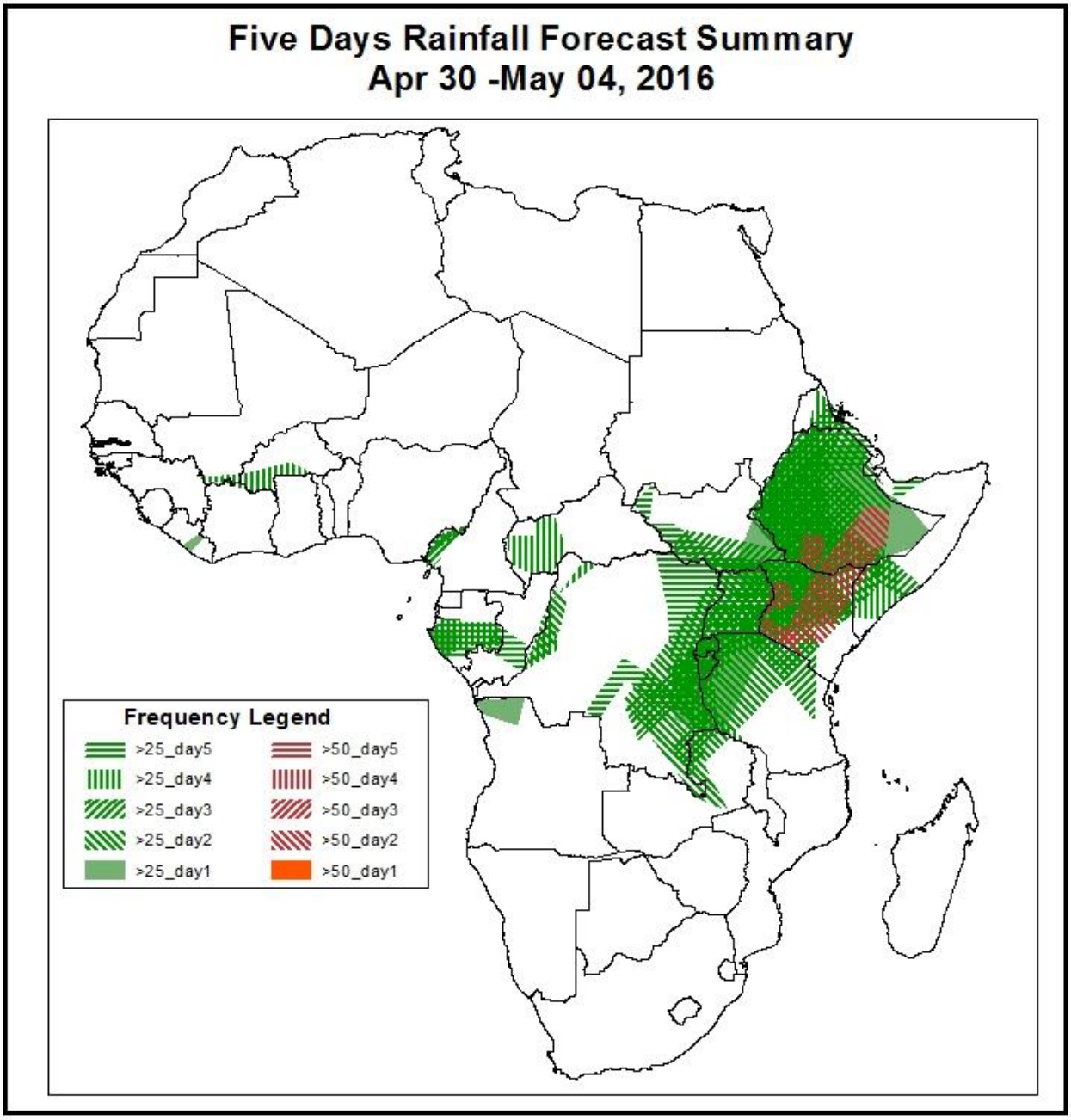
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on April 29, 2016)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (*valid: April 30– May 04, 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.



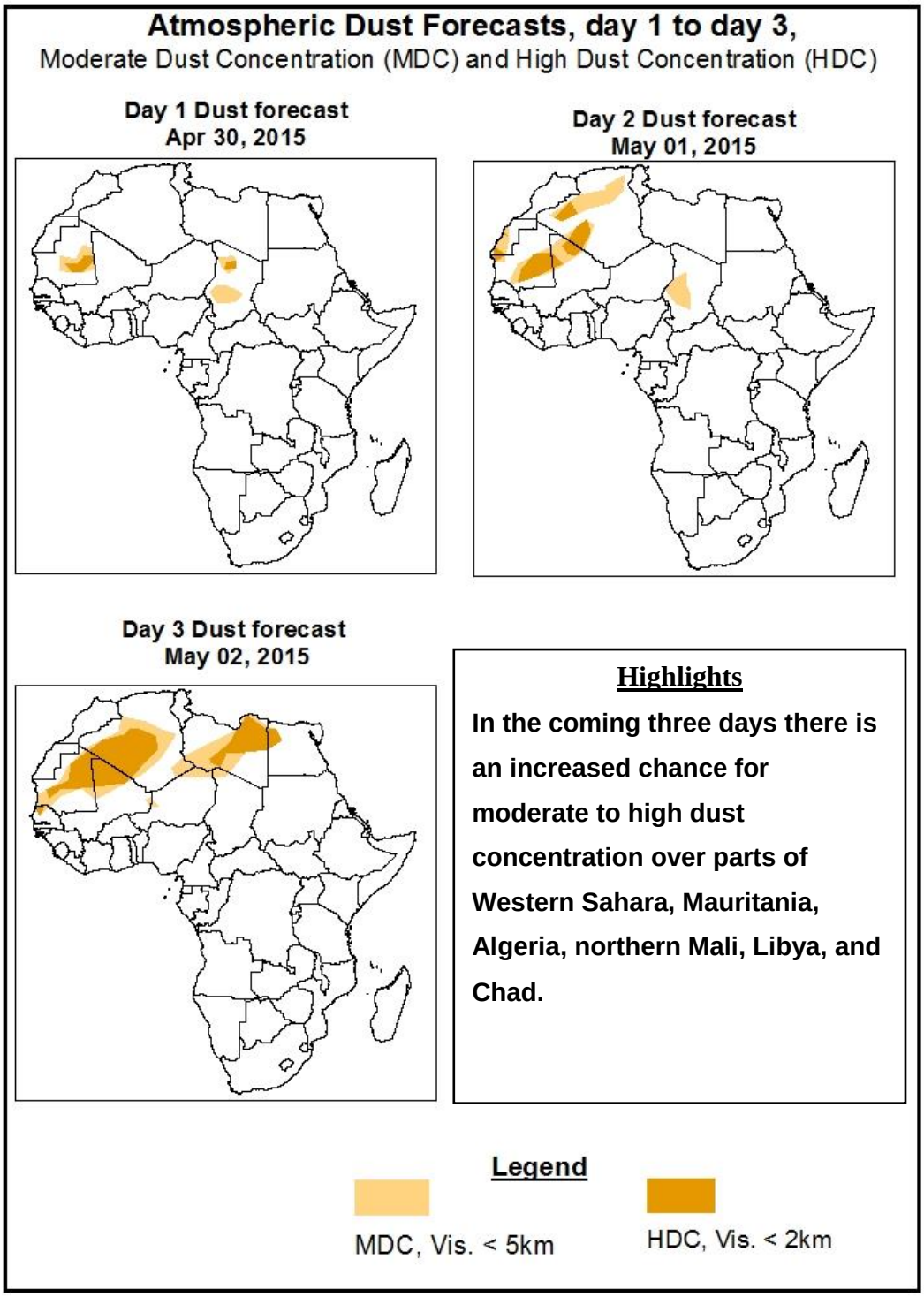


Highlights

In the coming five days, interactions between mid-latitude and tropical systems across Eritrea and Ethiopia, monsoon flow from the Indian Ocean with its associated convergence across Kenya and Tanzania, 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 much of Eritrea, Ethiopia and Kenya, portions of Tanzania, Uganda, Rwanda, northeastern Zambia, and much of Gabon, northwestern Angola.

1.2. Atmospheric Dust Concentration Forecasts *(valid: April 30 – May 2, 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: April 29 – May 03, 2016

The Azores high pressure system over the Northeast Atlantic Ocean is expected to intensify gradually, with its central pressure increasing from about 1024hPa to 1033hPa in 48Hrs and decrease to about 1025Hpa during the forecast period.

The St. Helena High pressure system over the Southeast Atlantic Ocean is also expected to weaken gradually, with its central pressure value increasing from about 1028hPa in 24 hours to 1020hPa in 120 hours.

The Mascarene high pressure system over the Southwest Indian Ocean is expected to weaken while shifting eastwards, with its central pressure value decreasing from about 1036hPa to 1024hPa during the forecast period.

The heat low over the western Sahel region is expected to deepen gradually, with its central pressure value decreasing from about 1007hPa to 1002hPa, whereas the heat lows over the central and eastern Sahel are expected to maintain an average central pressure value of 1006hPa during the forecast period.

At 925HPa level, dry northeasterly to easterly flow is expected to prevail across northern Africa and parts of the Sahel countries, whereas moist southwesterly monsoon flow is expected to prevail across the Gulf Guinea countries during the forecast period.

At 850hPa level, east-west oriented wind convergence is expected to prevail in the region between Nigeria and Sudan during the forecast period. A lower-level cyclonic circulation is expected to emerge across Mali and the neighboring areas, while deepening towards end of the forecast period. Lower-level meridional wind convergence is expected to remain active in the Lake Victoria region, extending into the region between Uganda and western Tanzania during the forecast period.

At 500hPa level, a trough in mid-latitude westerly flow is expected to extend southwards into eastern Sudan and western Ethiopia across the Red Sea and Egypt.

In the coming five days, interactions between mid-latitude and tropical systems across Eritrea and Ethiopia, monsoon flow from the Indian Ocean with its associated convergence across Kenya and Tanzania, 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 much of Eritrea, Ethiopia and Kenya, portions of Tanzania, Uganda, Rwanda, northeastern Zambia, and much of Gabon, northwestern Angola

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

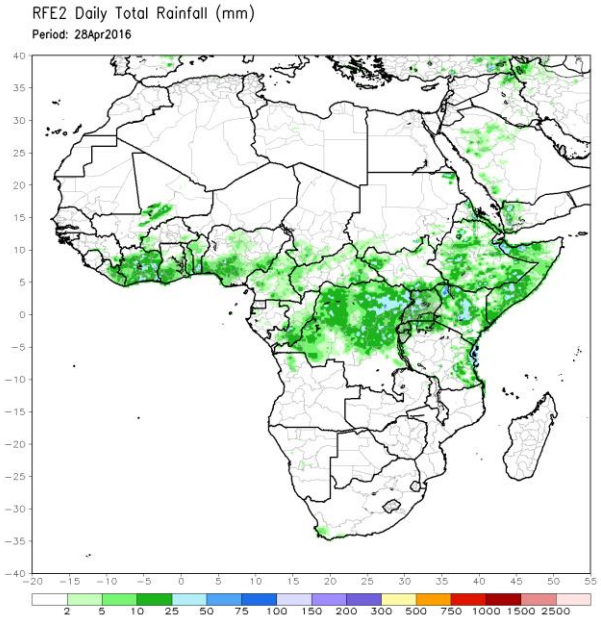
2.0. Previous and Current Day Weather over Africa

2.1. Weather assessment for the previous day (April 28, 2016)

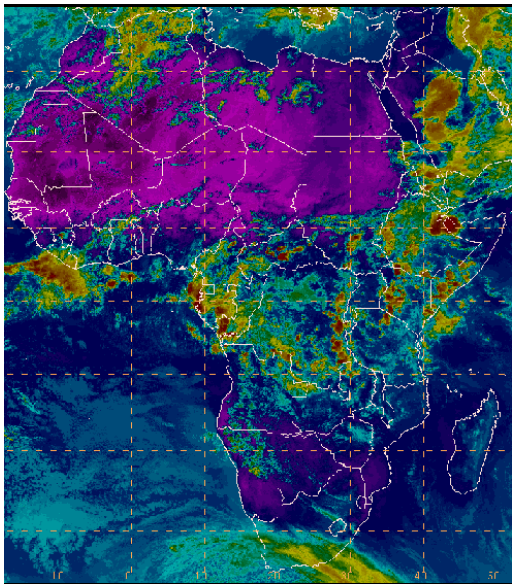
Moderate to locally heavy rainfall was observed over portions of Liberia, Ivory Coast, southern Ghana, Togo, Benin, Nigeria, Cameroon, DRC, South Sudan, Uganda, Kenya, Ethiopia, Somalia and local areas in Tanzania.

2.2. Weather assessment for the current day (April 29, 2016**)**

Intense convective clouds are observed across portions Central Africa countries, and Greater Horn of Africa region.



IR Satellite Image (valid 1604z April 29, 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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