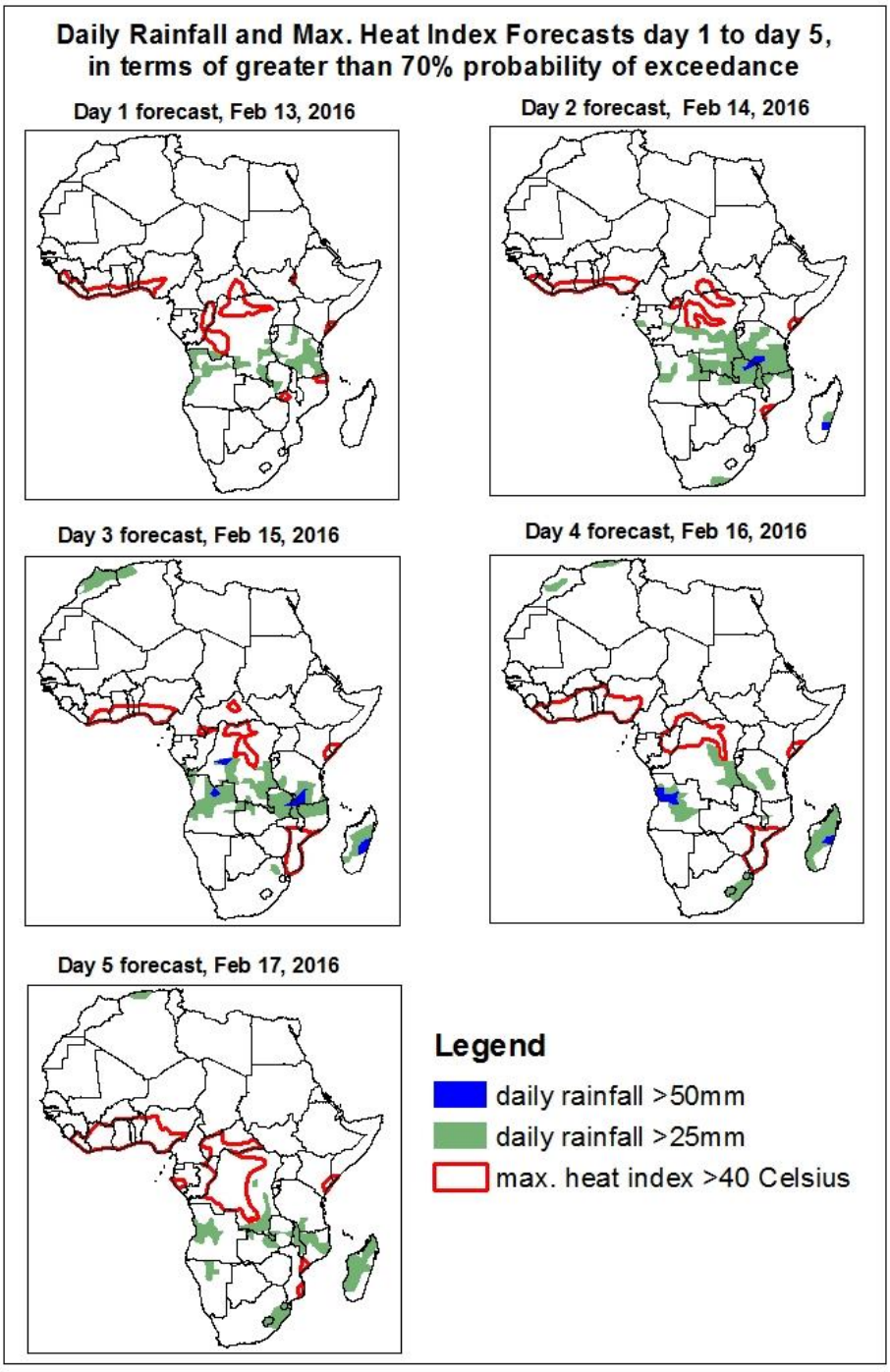
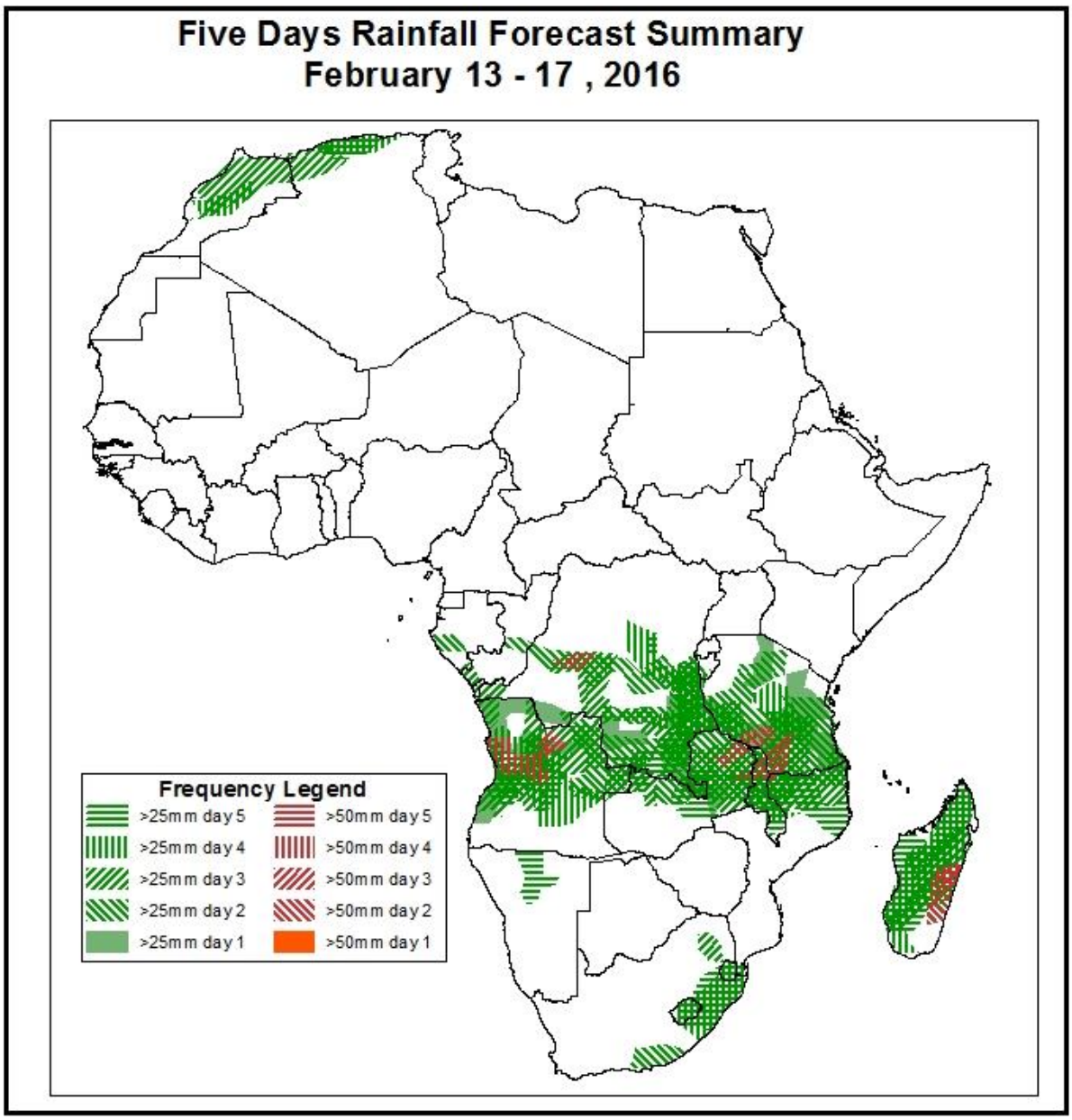
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on February 12, 2016)

1.1. Daily Rainfall and Maximum Heat Index Forecasts (*valid: Feb 13 – Feb 17, 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.



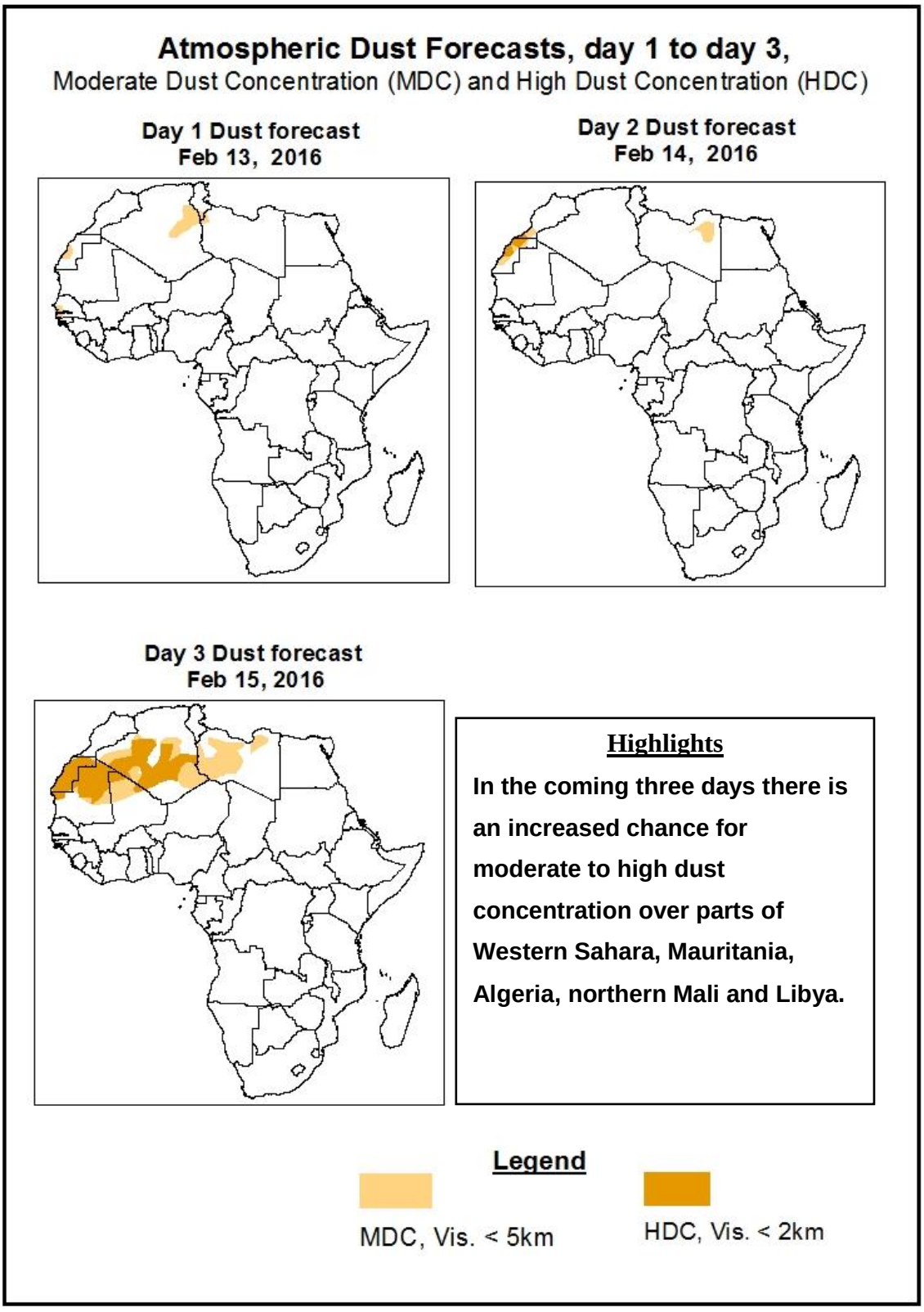


Highlights

In the coming five days, there is an increased chance for two or more days of moderate to heavy rainfall over many places in southern Tanzania, northern Angola, eastern Zambia, southern DRC, northern Malawi, and central Madagascar with high probability of heavy rainfall over parts of southern Tanzania, eastern Madagascar and western Angola.

1.2. Atmospheric Dust Concentration Forecasts *(valid: Feb 13 – Feb 15, 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: Feb 13 – Feb 17, 2016

Extension of Azores high pressure system over Sahara is expected to weaken in to 1023Hpa, in to 1021Hpa, in to 1020Hpa and in to 1018Hpa in 24, 72 and 96 hours' time respectively from the central value of 1023Hpa.This high pressure system is also expected to attain the central value of 1020Hpa by the end of the forecast period. Even if the average value of this high pressure system is weak, following the development of low pressure over northern western coast of Africa, in the coming three days there is an increased chance for moderate to high dust concentration over parts of Western Sahara, Mauritania, Algeria, northern Mali and Libya.

Due to the interaction of low pressure system from subtropics, the Arabian high pressure system is expected to weaken in to 1028Hpa and 1024Hpa in 24 and 48 hours' time and intensify back in to 1025Hpa, in to 1032Hpa and in to 1034Hpa in 72, 96 and 120 hours' time respectively.

The Mascarene high pressure system is expected to attain the central value of 1031Hpa for about 24 hours and weaken in to 1029Hpa and in to 1028Hpa in 48 and 72 hours' time This high pressure system is also expected to intensify back in to 1032Hpa in 96 hours' time and in to 1034 in 120 hours' time. In association to the development of low pressure system over central Indian Ocean, the moisture that has been incurring from southern Indian Ocean in to south eastern Africa is expected to decrease.

St Helena high pressure system is expected to weaken in to in to 1032Hpa, in to 1029Hpa and in to 1028Hpa in 24, 48 and 72 hours' time from the central value of 1034Hpa. In relation to the development of low pressure system over central Atlantic Ocean, the moisture supposed to incur in to south western Africa is also expected to decrease in amount.

In the coming five days, there is an increased chance for two or more days of moderate to heavy rainfall over many places in southern Tanzania, northern Angola, eastern Zambia, southern DRC, northern Malawi, and central Madagascar with high probability of heavy rainfall over parts of southern Tanzania, eastern Madagascar and western Angola.

There is also an increased chance for heat index values to exceed 40^{o}C along the Gulf of Guinea coast, Mozambique, central DRC, southern CAR and coastal East Africa.

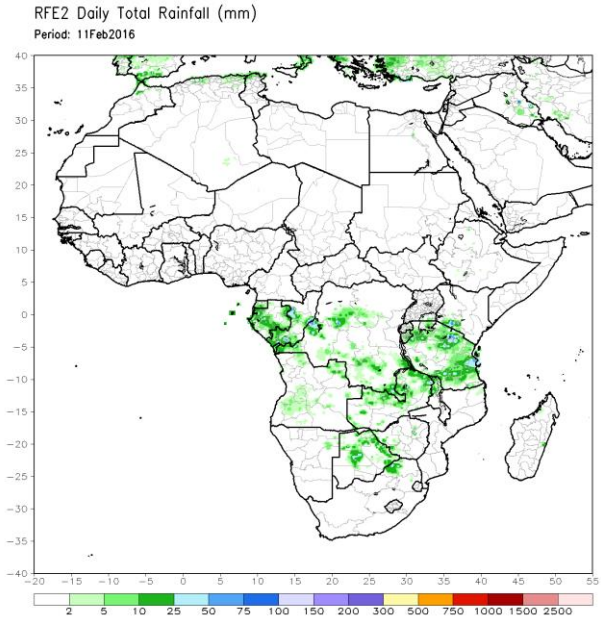
2.0. Previous and Current Day Weather over Africa

2.1. Weather assessment for the previous day (February 11, 2016)

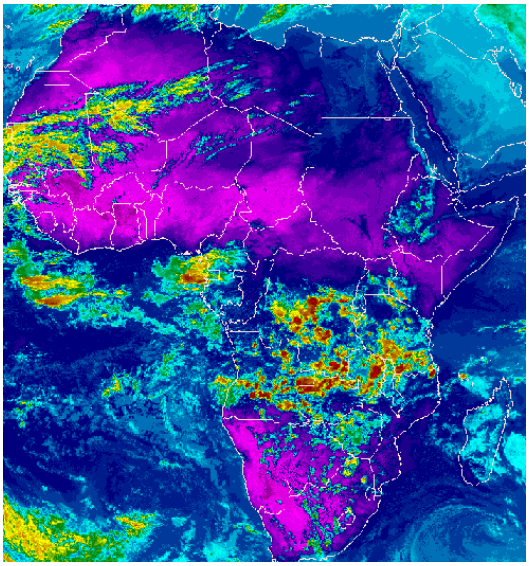
Moderate to heavy rainfall was observed over isolated parts of western DRC, central Angola, central Tanzania, Botswana, Zambia and southern Kenya.

2.2. Weather assessment for the current day (February 12, 2015**)**

Intense convective clouds are observed across southern Tanzania, central DRC, central Angola, Zambia, southern Kenya and Zimbabwe.



IR Satellite Image (valid 1430z February 12, 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

Author: Zerihun Hailemariam (Ethiopian National Meteorological Agency) / CPC-African Desk); zerihun.tessema@noaa.gov