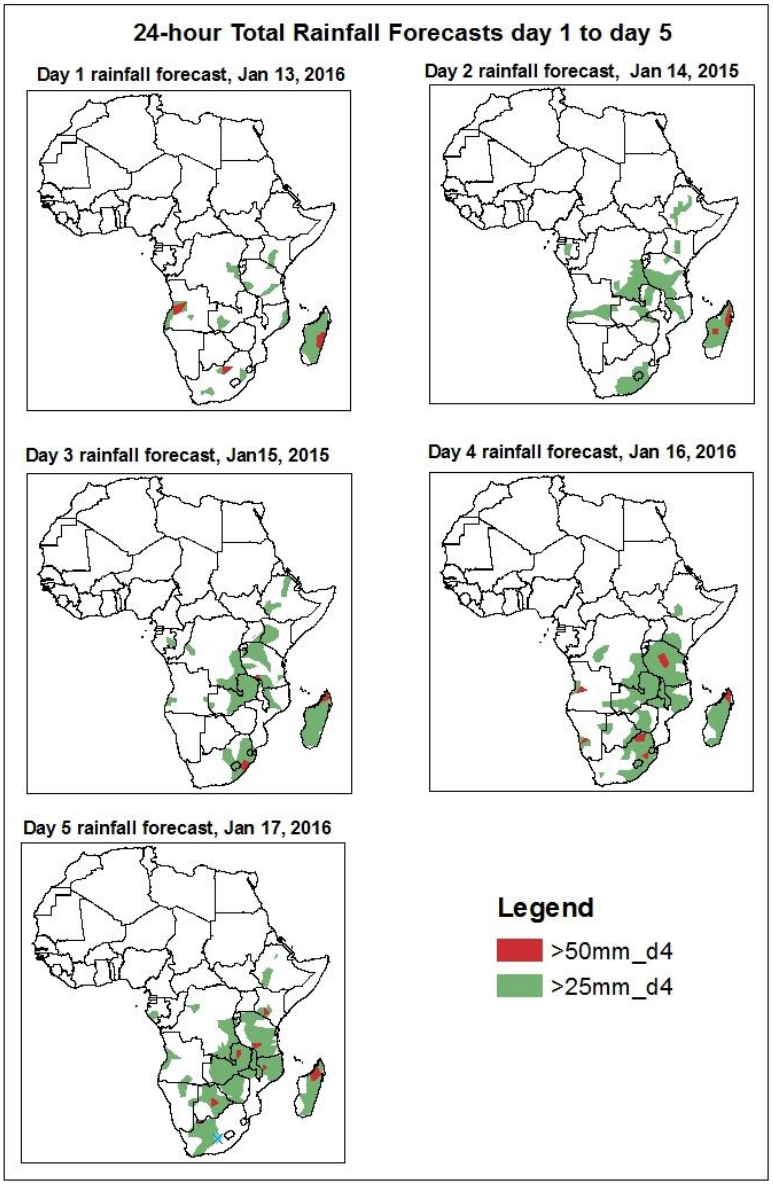
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

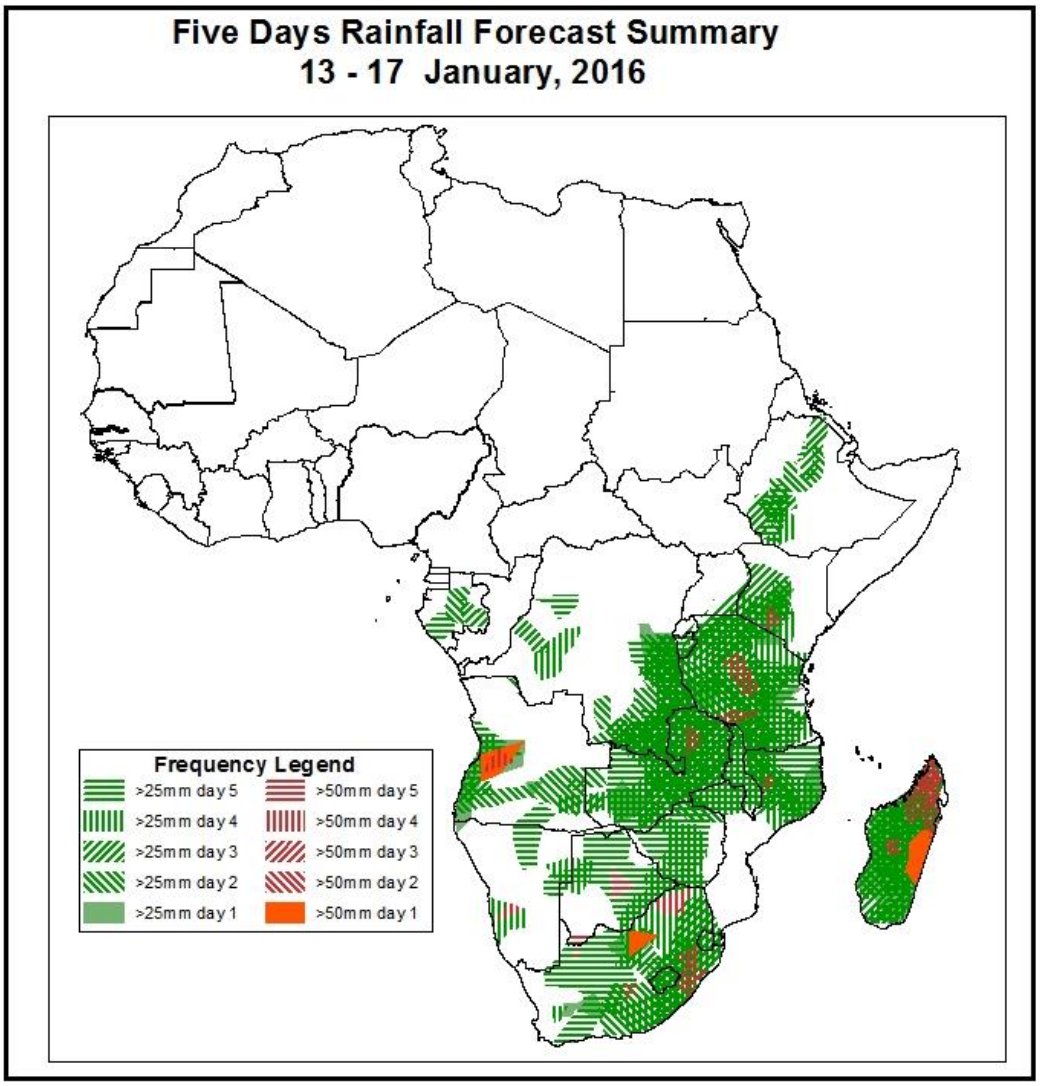
1. Rainfall and Dust Concentration Forecasts

Valid: 06Z of Jan 13 - 06Z of Jan 17, 2016. (Issued on January 12, 2016)

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.



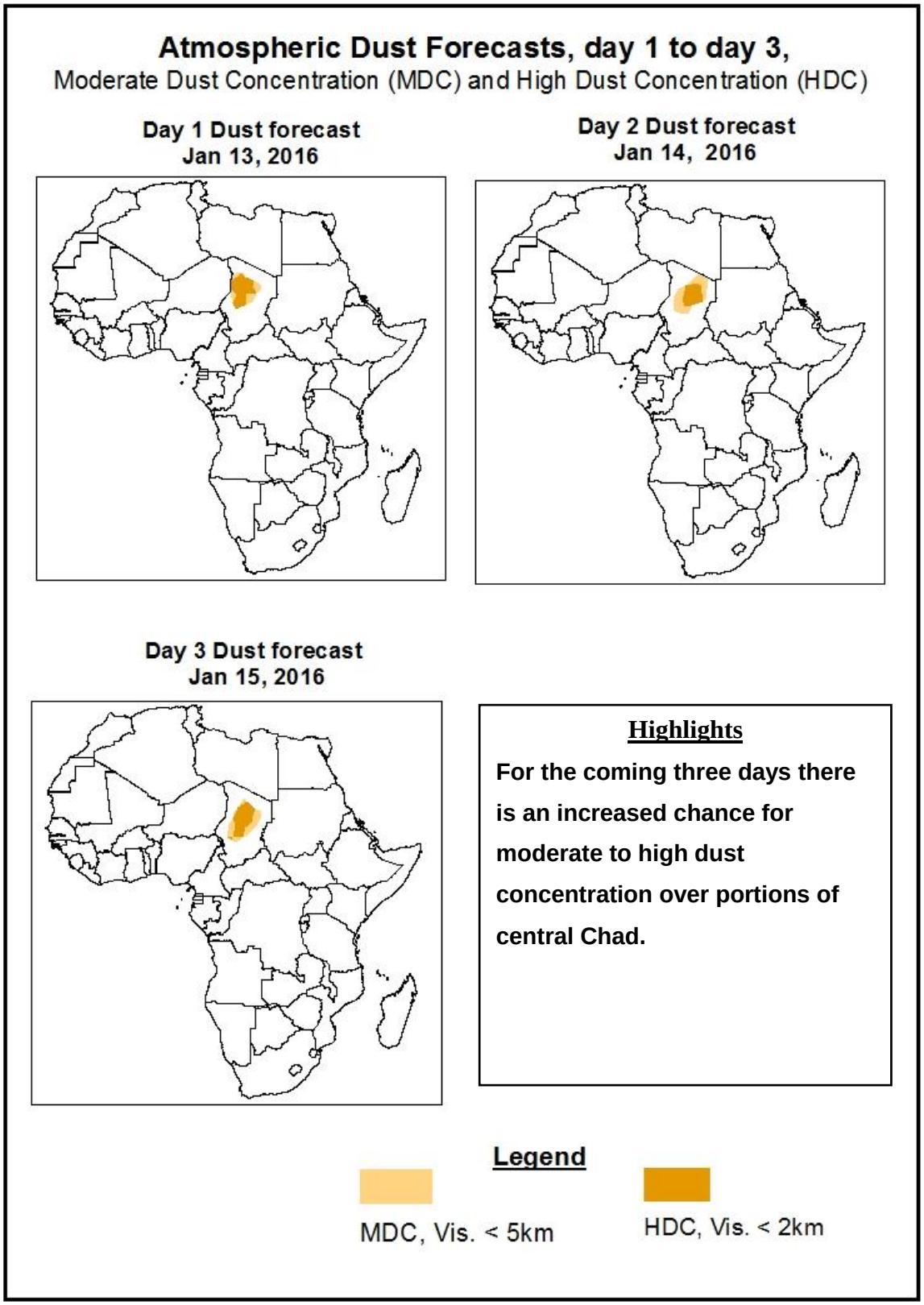


In the coming five days, there is an increased chance for two or more days of moderate to heavy rainfall over parts of south western Ethiopia, North eastern Mozambique, most parts of Madagascar, western Angola, southern DRC, most parts of Zambia, most parts of Tanzania, Lesotho, Malawi, Swaziland and north eastern south Africa with high probability of heavy rainfall over parts of central Tanzania, western Angola, eastern Madagascar, north eastern south Africa and Lesotho

1.2. Atmospheric Dust Concentration Forecasts

Valid: 12Z of Jan 13 – 12Z of Jan 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: 13 - 17 January, 2016

The Extension of Azores high pressure system over Sahara is expected to weaken in to 1023mb in 24 hours' time from the central value of 1025mb and intensify back in to 1026mb in 48 hours' time. This high pressure system is also expected to weaken in to 1024mb and 1021mb in 72 and 96 hours' time respectively and intensify in to the relatively maximum value of 1028. This pressure system is expected not to make significant change in three days' time, as a result of this, for the coming three days, dust concentration is expected to be concentrated over central Chad with high probability of visibility less than 2km.
Significant interaction of the subtropical low presser system in to the tropics is observed, and this interaction is favorable condition to start pulling ITCZ to wards to north.

The Arabian high pressure system is expected to weaken in to 1024mb, in to 1022mb and in to 1021mb in 24, 48 and 72 hours' time respectively from its central value of 1026mb and attain this central value for about 72 hours, up to the end of the forecast period. This high pressure system is observed not to make significant change during the forecast period (in terms of intensity). The interaction of the sub-tropical low pressure system with tropical systems along with the slight shift of the Arabian high pressure system towards the water body, are expected to bring rainfall over southern Kenya and parts of south western, central and northern Ethiopia. In association to the development of cloud daily minimum temperature is expected to increase from the normally expected amount over the high lands of Ethiopia.

The St Helena high pressure system over South East Atlantic Ocean is expected to weaken in to 1024mb in 24 hours' time from its central value of 1025mb and attain this value for about 72 hours. This high pressure system is also expected to intensify in to 1026mb in 96 hours' time and attain this value up to the end of the forecast period. During the forecast period, this system is expected not to make significant change in terms of intensity and position.

Following the relative stability, the amount of moist air that has been incurring from south western Atlantic Ocean in to south western Africa will decrease and following this interaction the amount of cumulative rainfall expected over the region will be normal to below normal.

The Mascarene high pressure system over Southwest Indian Ocean is expected to attain the central value 1027mb for about 72 hours and weaken in to 1025mb in 72 hours' time. This high pressure system is also expected to intensify in to 1028mb in 96 hours' time and attain this value up to the end of the forecast period.
The intensification of low pressure system over southern South Africa, intensify the south westerly moist wind coming from southern Indian ocean towards south eastern Africa and Madagascar.

North-South oriented meridional component of ITCZ is expected to extend from southern Kenya up to northern Mozambique and isolated low level convergences are also observed over central Madagascar and central Ethiopia. Hence north easterly wind coming from Indian Ocean is expected to bring isolated rainfall over eastern Africa and the strong south westerly coming from southern Indian Ocean(which is seasonally expected) will bring enhance rainfall over south eastern Africa and Madagascar.

In the coming five days, there is an increased chance for two or more days of moderate to heavy rainfall over parts of south western Ethiopia, North eastern Mozambique, most parts of Madagascar, western Angola, southern DRC, most parts of Zambia, most parts of Tanzania, Lesotho, Malawi, Swaziland and north eastern south Africa with high probability of heavy rainfall over parts of central Tanzania, western Angola, eastern Madagascar, north eastern south Africa and Lesotho.

2.0. Previous and Current Day Weather over Africa

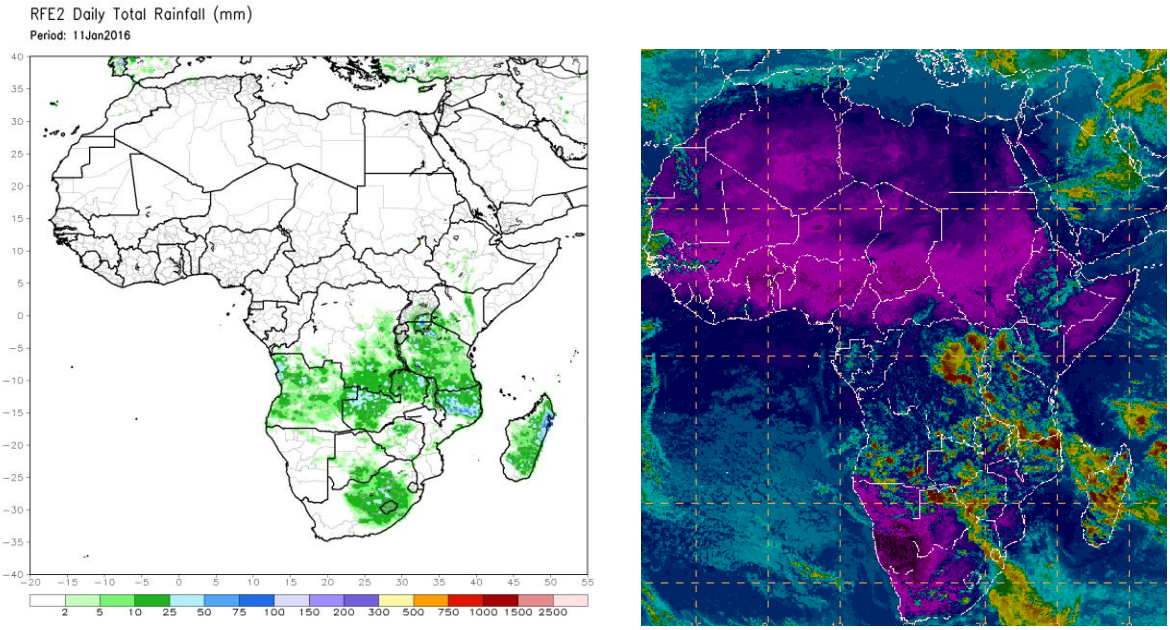
2.1. Weather assessment for the previous day (January 11, 2016)

Moderate to heavy rainfall was observed over local areas in Zambia, western Madagascar, eastern Mozambique, northern Zimbabwe, parts Angola, southern DRC, Malawi and most parts of Tanzania.

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

Intense convective clouds are observed across many places over eastern Madagascar, northern Mozambique, Tanzania, Zambia, Angola, northern DRC, central Uganda, Swaziland and western Zimbabwe.

IR Satellite Image (valid 1830z January 12, 2016)



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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