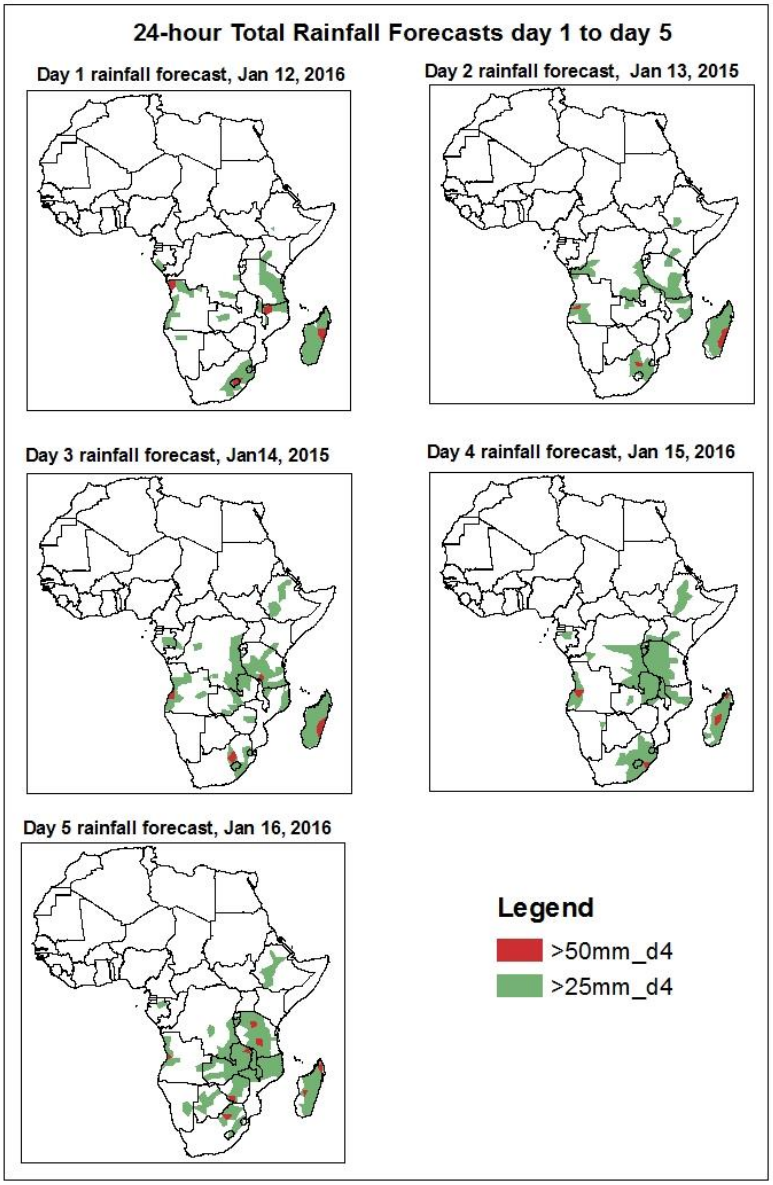
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

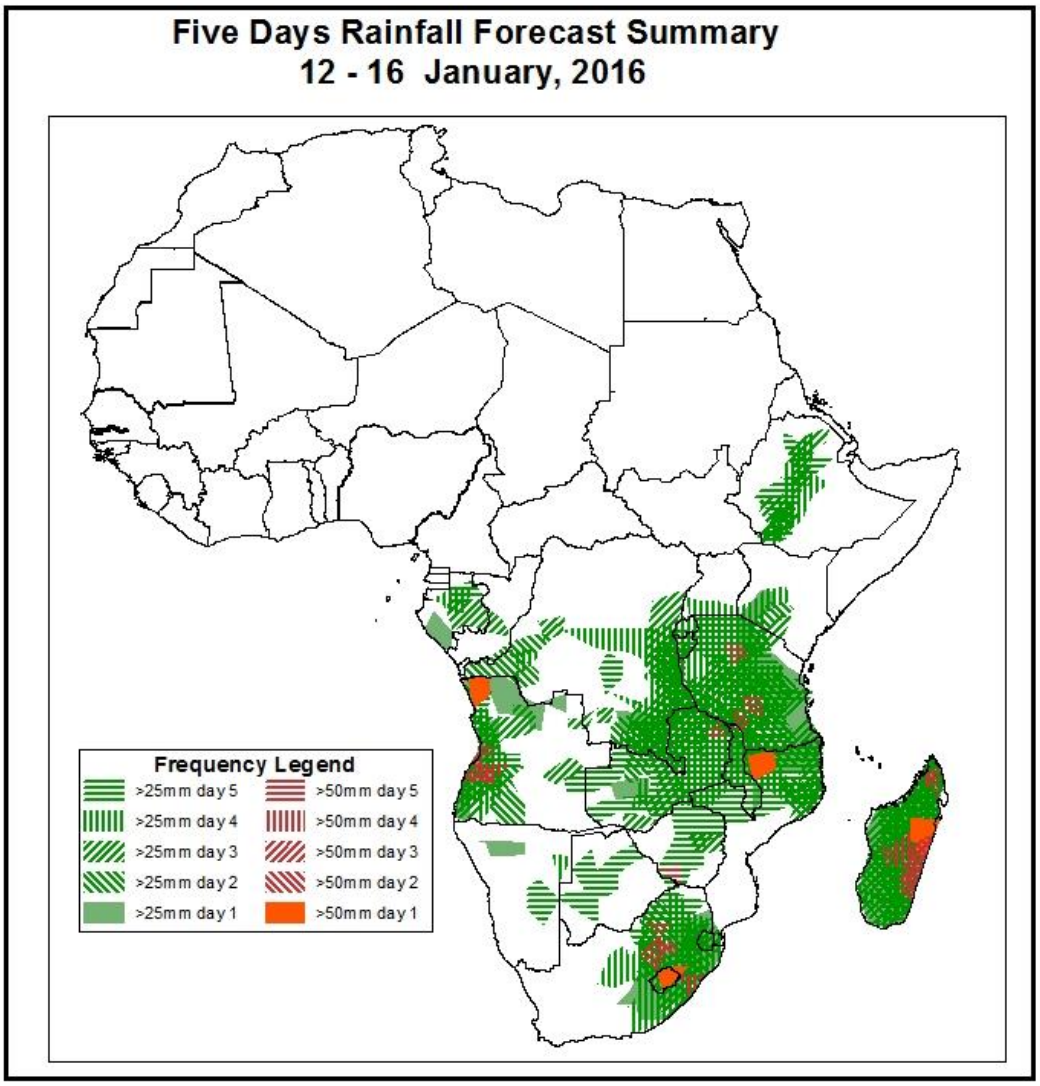
1. Rainfall and Dust Concentration Forecasts

Valid: 06Z of Jan 12 - 06Z of Jan 16, 2016. (Issued on January 11, 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.



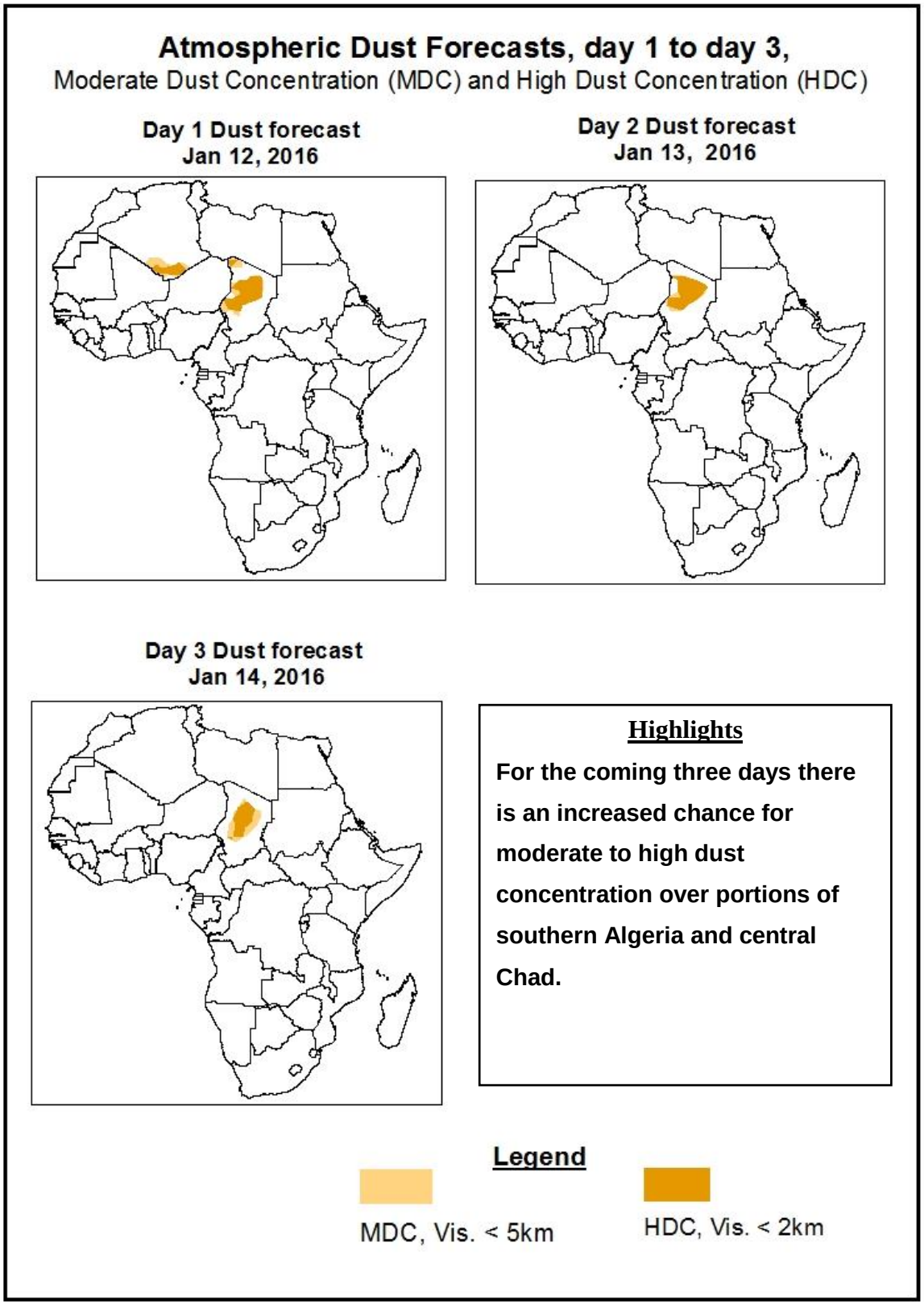


In the coming five days, there is an increased chance for two or more days of moderate to heavy rainfall over parts of south west & northern Ethiopia, North east Mozambique, most parts of Madagascar, western Angola, south eastern DRC, eastern Zambia, most parts of Tanzania, Lesotho, Malawi, Swaziland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

1.2. Atmospheric Dust Concentration Forecasts

Valid: 12Z of Jan 12 – 12Z of Jan 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: 12 - 16 January, 2016

The Extension of Azores high pressure system over Sahara is expected to attain its central value of 1024mb for about 24 hours and weaken into 1023mb in 48 hours' time. This high pressure system is also expected to intensify in to 1026mb in 72 hours' time and back weaken in to 1024mb and in to 1022mb in 96 and 120 hours' time respectively. During the coming five days, this pressure system is expected to fluctuate between 1022mb and 1024mb and no significant spatial variation is expected, as a result of this for the coming three days, dust concentration is expected to be concentrated over southern Algeria and central Chad with high probability of visibility less than 2km over parts of central Chad.
Significant interaction of the subtropical low presser system in to the tropics is observed starting from 48 hours' time, and this interaction is favorable condition to start pulling ITCZ to wards to north. This can be considered as an early indicator for south ward shift of the rainy season.

The Arabian high pressure system is expected to weaken in to 1027mb,in to 1024mb, in to 1022mb and in to 1021mb in 24,48, 72, and 96 hours' time respectively from its central value of 1028mb. By the end of the forecast period, this pressure system expected to intensify back in to 1022mb. 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, is expected to bring rainfall over southern Kenya and parts of south western, central and northern Ethiopia. In association to the development of clouds 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 1025mb and in to 1023mb in 24, 48 hours' time respectively and attain this central value for about 24 hours.

This pressure system is also expected to weaken into 2020mb in 96 hours' time and to intensify back in to the relatively maximum value of 1030 in 120 hours' time.

The Mascarene high pressure system over Southwest Indian Ocean is expected to intensify in to 1028mb in 24 hours' time from the central value of 1025mb and weaken back in to 1027mb in 48 hours' time. This high pressure system is also expected to intensify in to 1028mb, in to 1031mb and into the relatively maximum value of 1034mb in in 72, 96 and 120 hours' time.

The intensification of this high pressure system from 1025mb in to 1034mb in five days' time along with 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 west & northern Ethiopia, North east Mozambique, most parts of Madagascar, western Angola, south eastern DRC, eastern Zambia, most parts of Tanzania, Lesotho, Malawi, Swaziland and north eastern south Africa with high probability of heavy rainfall over parts of southern and central Tanzania, western Angola, eastern Madagascar, north eastern south Africa and Lesotho

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2.0. Previous and Current Day Weather over Africa

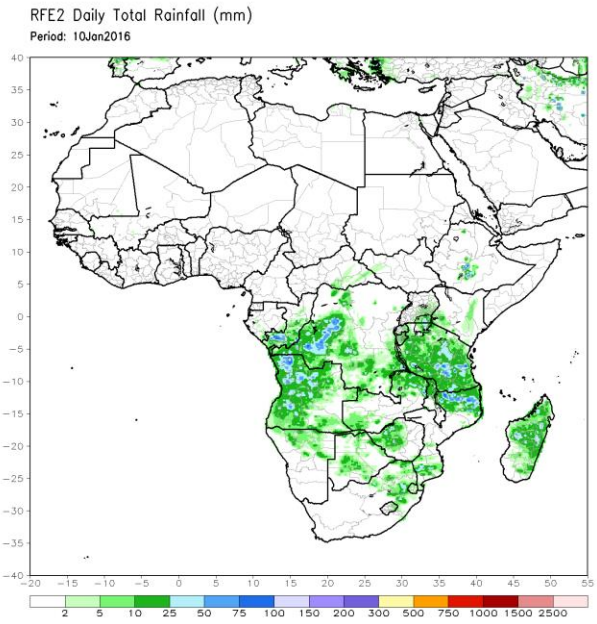
2.1. Weather assessment for the previous day (January 10, 2016)

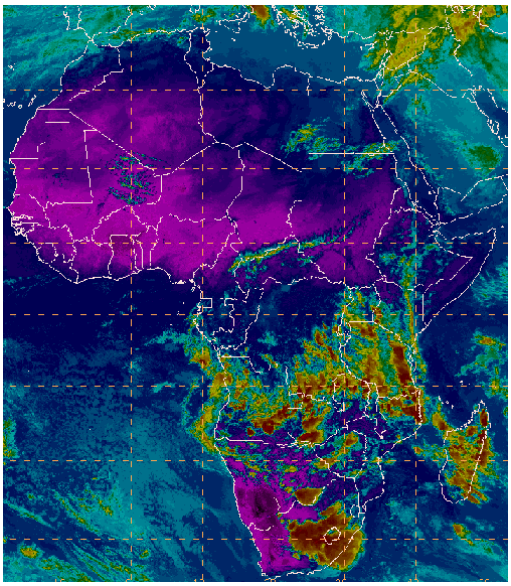
Moderate to heavy rainfall was observed over local areas in northern Madagascar, eastern Mozambique, eastern Zambia, western Zimbabwe, western Angola, western DRC, most parts of Tanzania and parts of south western Ethiopia.

2.2. Weather assessment for the current day (January 11, 2015)

Intense convective clouds are observed across many places over parts of eastern Madagascar, northern Mozambique, Tanzania, Zambia, Angola, southern DRC, South western Ethiopia, north east South Africa, Lesotho and central Zimbabwe.

IR Satellite Image (valid 1830z January 11, 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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