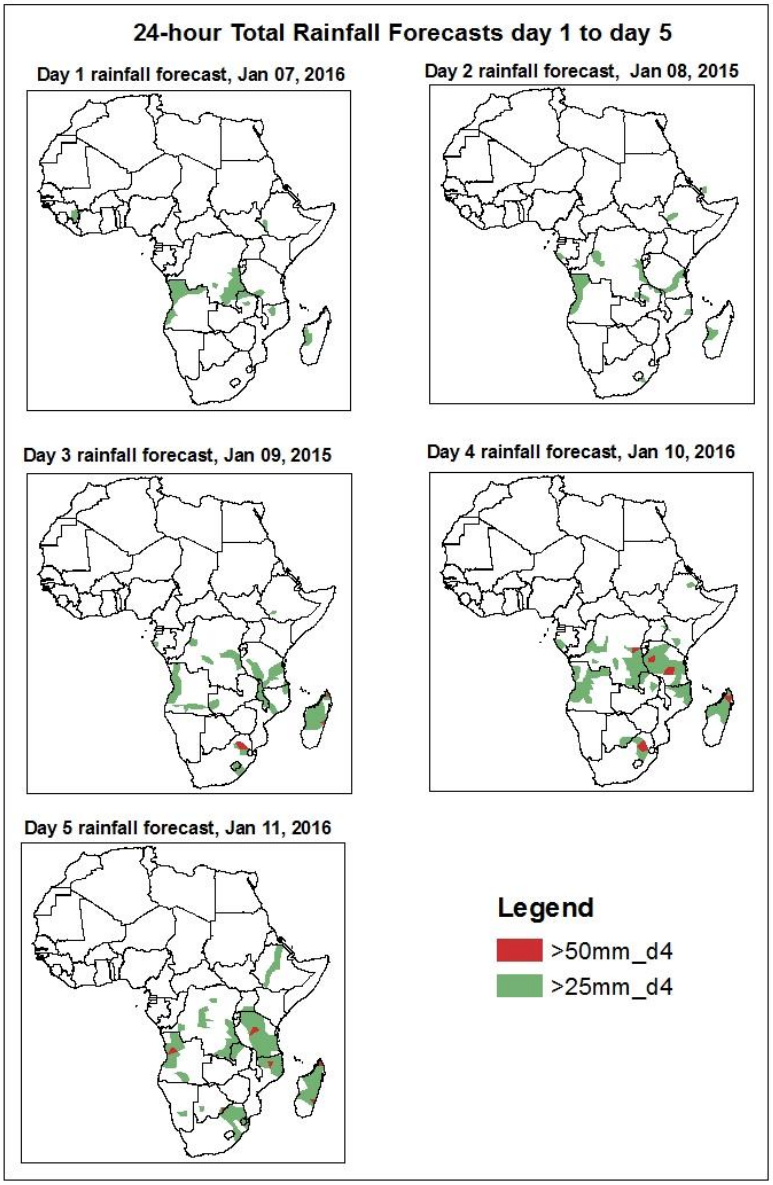
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

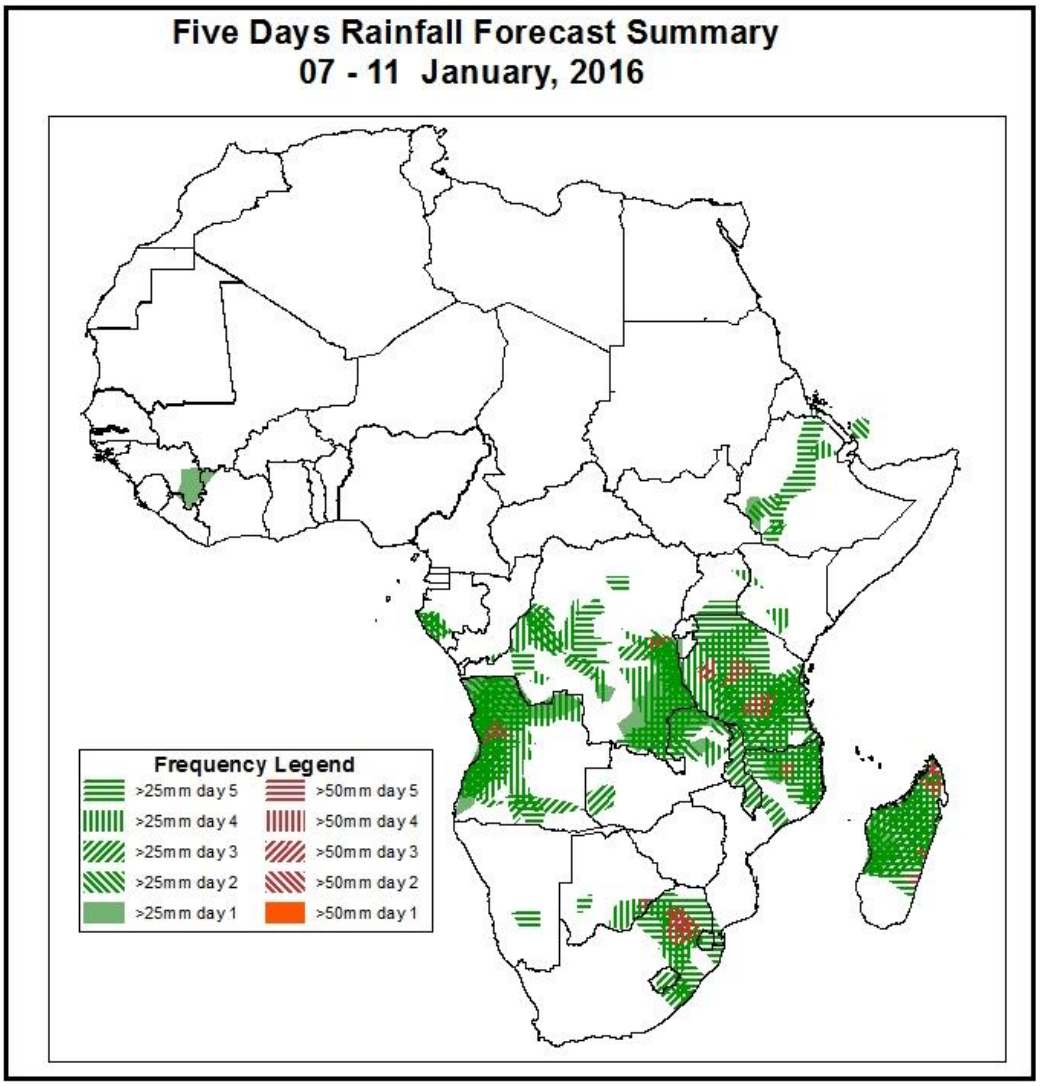
1. Rainfall and Dust Concentration Forecasts

Valid: 06Z of Jan 07 - 06Z of Jan 11, 2016. (Issued on January 06, 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.



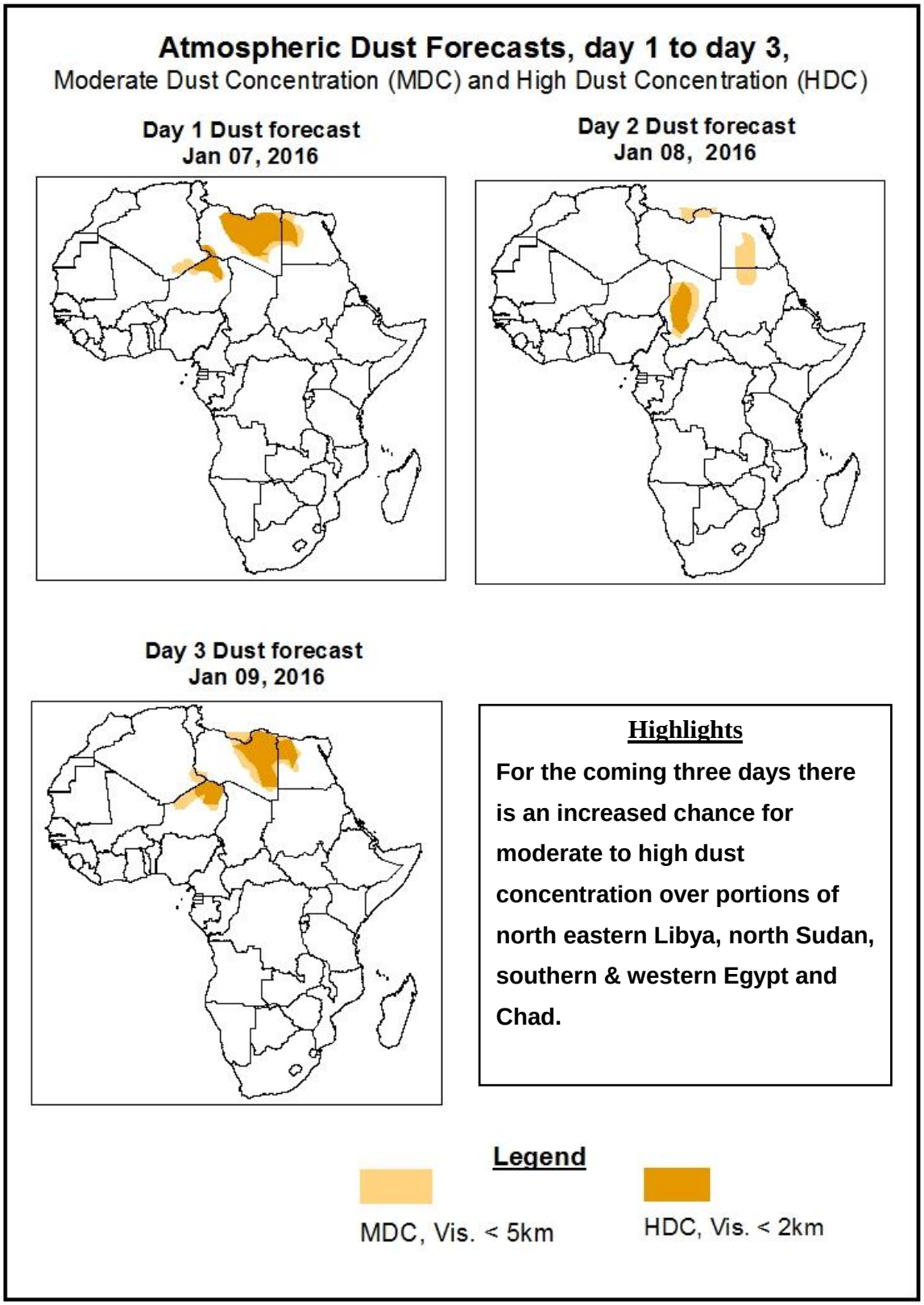


In the coming five days, there is an increased chance for two or more days of moderate to heavy rainfall over North east Mozambique, northern Madagascar, western Angola, south eastern DRC, western Zambia, most parts of Tanzania, western Gambia, Guinea and Swaziland, with high probability of heavy rainfall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

1.2. Atmospheric Dust Concentration Forecasts

Valid: 12Z of Jan 07 – 12Z of Jan 09, 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: 07 - 11 January, 2016

The Extension of Azores high pressure system over Sahara is expected to weaken into 2024mb in 24 hours' time from its central value of1025mb and intensify in to 1026mb in 48 hours' time. This high pressure system is also expected to weaken in to 1021mb, in 72 hours' time and weaken back to 1023mb in 96 hours' time and attain this central value up to the end of the forecast period. The low pressure system developed over north western coastal of Africa(), is expected to reverse the direction of the dominant north easterly wind in to south westerly hence there is high probability of unseasonal moisture incursion towards north western Africa from northern Atlantic Ocean. Following the slight displacement of this system to ward north east direction, Dust concentration is also expected to expand in to the north east direction. By the coming three days there is an increased chance for moderate to high dust concentration over portions of north eastern Libya, north Sudan, southern & western Egypt and Chad, with high probability of visibility less than 2km over parts of Chad and Libya.

The Arabian high pressure system is expected to weaken in to 1023mb in 24 hours' time from its central value of 1024mb and attain this value for about 24 hours' time. This pressure system is also expected to intensify in to 1026mb in 72 hours' time and weaken in to 1025mb in 96 hours' time. By the end of the forecast period, this pressure system is expected to attain central value of 1027mb.The intensification of middle latitude low pressure system around this pressure system enhance the formation of low level convergence over Ethiopia which intern facilitate the moisture incursion from Indian Ocean. In association to this system the daily minimum temperature is expected to increase from the normally expected amount.

The St Helena high pressure system over South East Atlantic Ocean is expected to intensify in to 1035mb in 24 hours' time from its central value of 1019mb and attain this value for about 24 hours. This high pressure system is also expected to weaken into 1032mb in 72 hours' time and attain this central value for 24 hours and weaken back in to 1o30mb in 120 hours' time.

The intensification of this high pressure system in to 1035mb from 1019mb in 24 hours' time and the interaction of middle latitude low pressure system facilitate conditions for the development middle level convergence over north western Africa.

The Mascarene high pressure system over Southwest Indian Ocean is expected to intensify in to 1021mb and in to 1024mb in 24 and 48 hours' time respectively from the central value of1019mb. This high pressure system is also expected to weaken in to 1023mb and 1021mb in 72 and 96 hours' time respectively. By the end of the forecast period, this high pressure system is expected to intensify in to 1025mb.The development of low pressure system over central Indian Ocean is expected to depress the amount of moisture supposed to incur from south western Indian Ocean in to south eastern Africa and Madagascar.

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925mb and 850mb level: The low level anticyclonic activity supposed to develop over northern Africa enhances the dust concentration over north eastern Libya, north Sudan, southern & western Egypt and Chad. Low level convergence, observed over Ethiopia, is also expected to facilitate moisture incursion from Indian Ocean to Ethiopia.

In general the low level south westerly wind, developed in relation to the development of low pressure system over the coastal area of north western Africa, is expected to intensify and facilitate conditions to bring rainfall towards north western Africa. North-South oriented meridional component of ITCZ that have been vertically cross western DRC Angola and Northern Namibia, will attain its previous day location. The low pressure systems developed over central Atlantic Ocean and south western Indian Ocean are expected to influence the moisture incursion towards south western and south eastern Africa. The low level convergence over Ethiopia is expected to bring moisture from Northern Indian Ocean leading to rainfall over pars of central and northern Ethiopia.

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

2.0. Previous and Current Day Weather over Africa

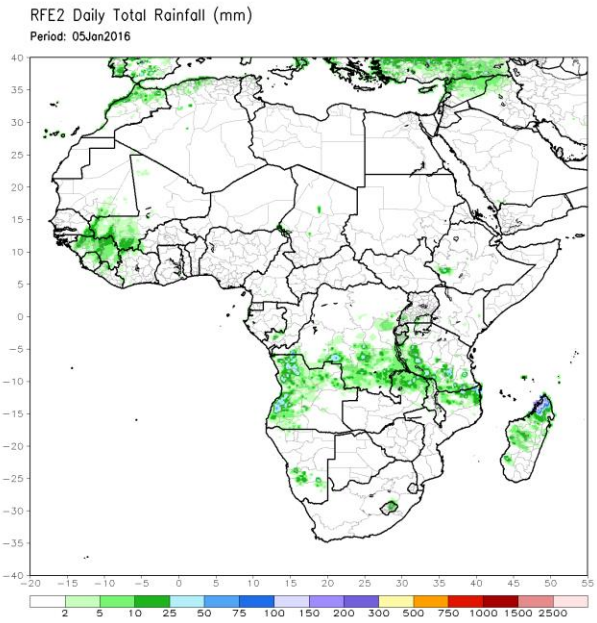
2.1. Weather assessment for the previous day (January 05, 2016)

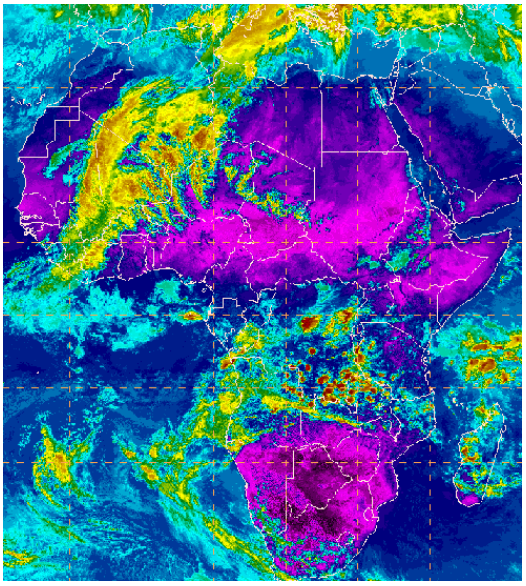
Moderate to heavy rainfall was observed over local areas in northern Madagascar, southern Tanzania, eastern Guinea, southern DRC, western Mali and western Angola.

2.2. Weather assessment for the current day (January 06, 2015)

Intense convective clouds are observed across many places over parts of western Madagascar, western Angola, western Tanzania, central DRC, Serra Leone, Liberia, southern Mali and western Mauritania.

IR Satellite Image (valid 1830z January 06, 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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