



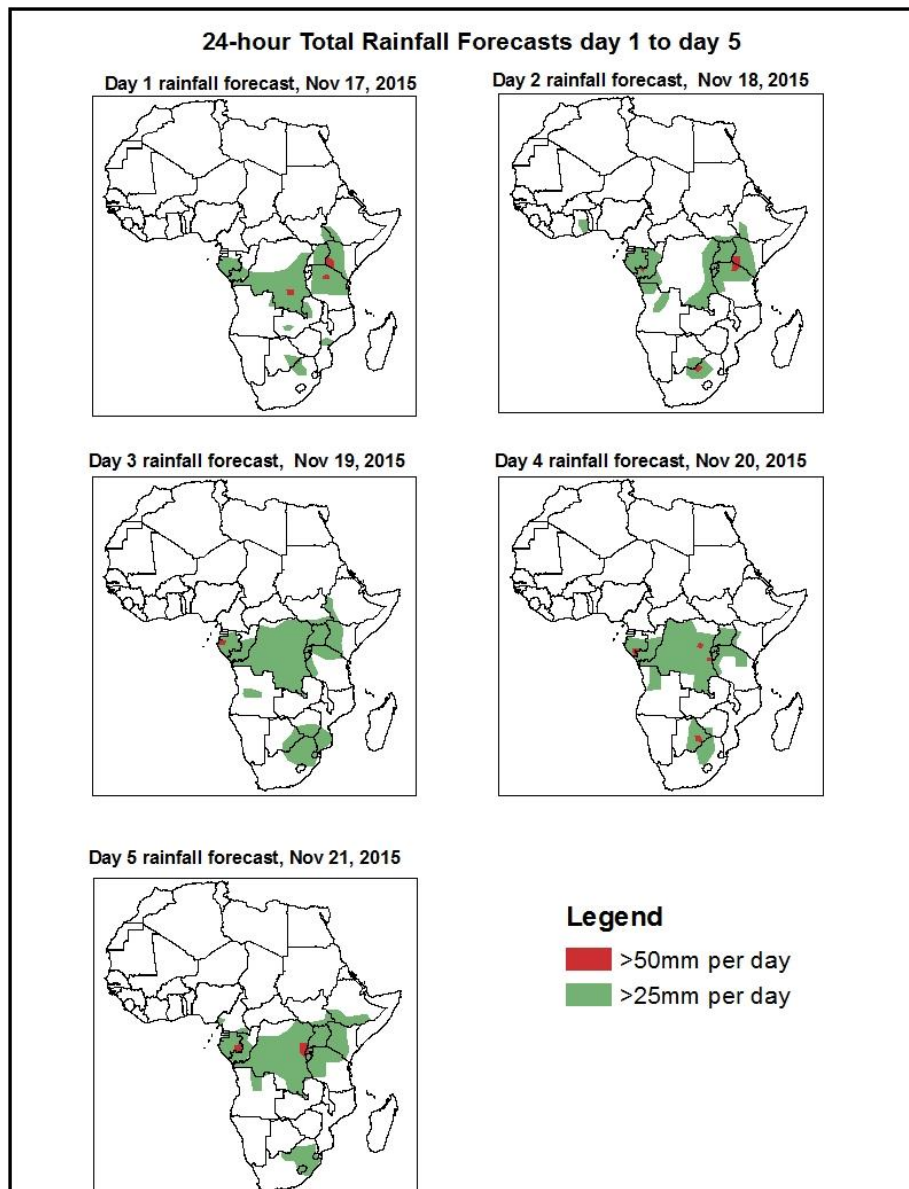
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Rainfall and Dust Concentration Forecasts

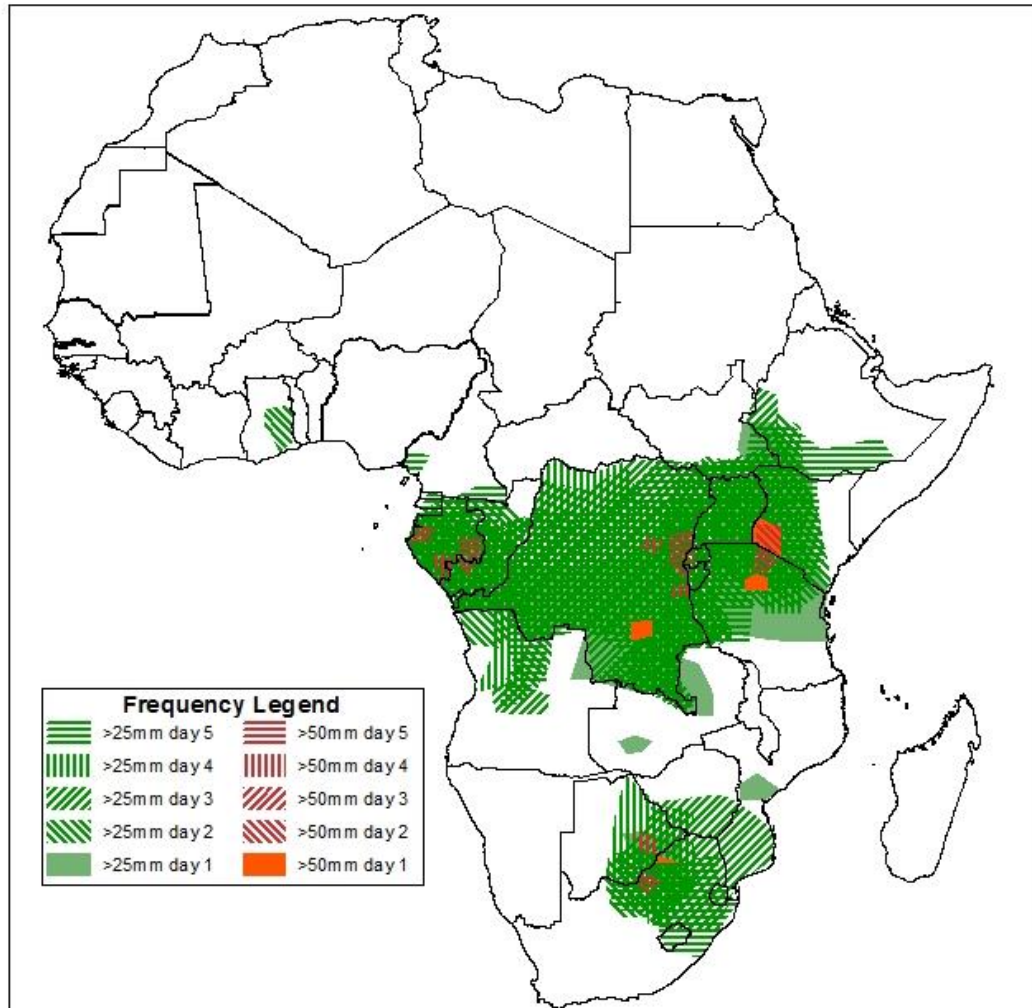
Valid: 06Z of Nov 17 – 06Z of Nov 21, 2015. (Issued on November 16, 2015)

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.



Five Days Rainfall Forecast Summary 17 - 21th November, 2015

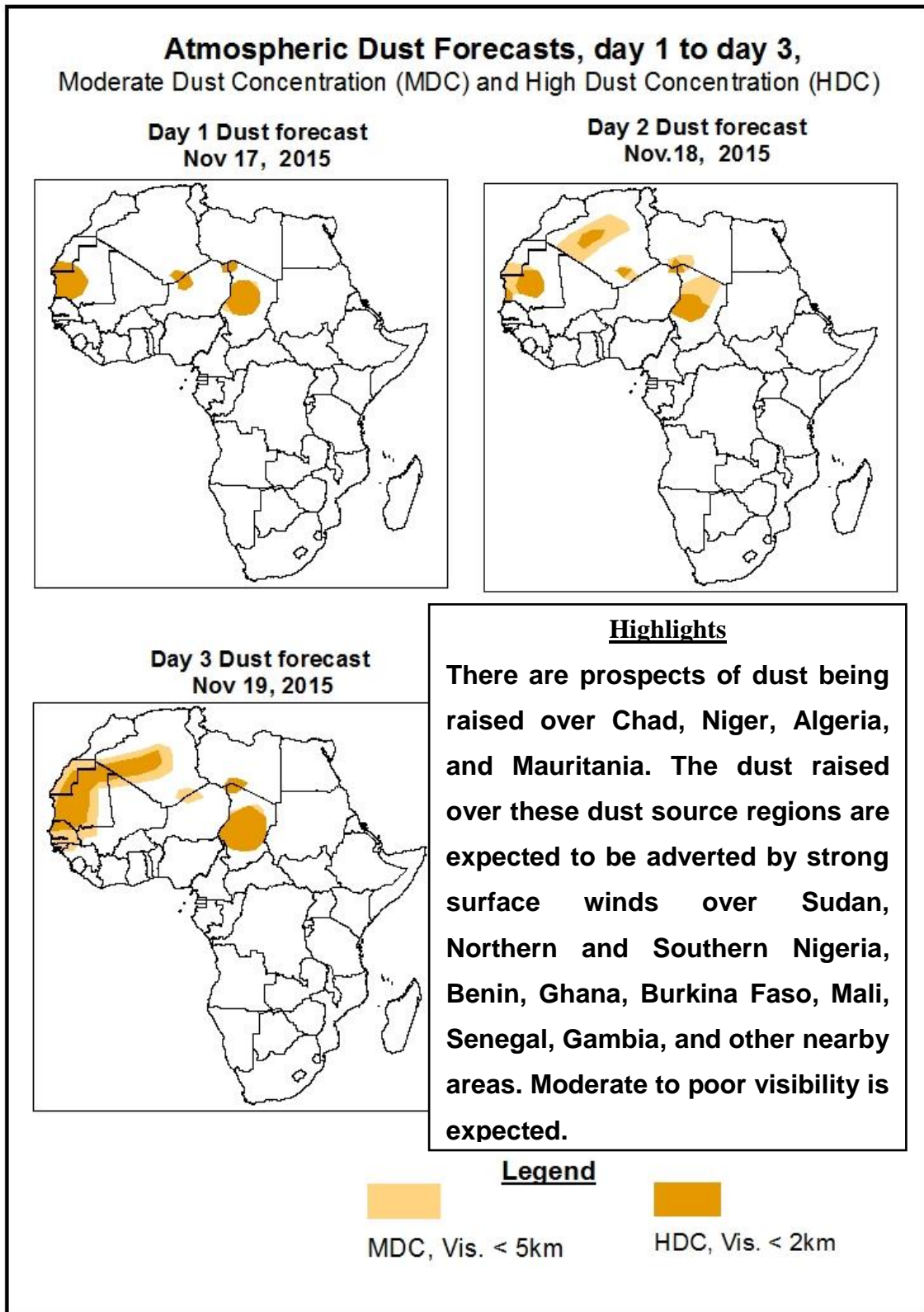


Recent update of rainfall occurrence and distribution for the next five days over West, central, East and Southern Africa reveals that the North easterly trade wind is more resilient and well established over its counterpart the southwesterly trade wind over West Africa, Chad and Sudan. The Intertropical Discontinuity (ITD) is propagating towards its minimum position southwards. The ITD is expected to propagate between 6 and 8 degrees north of the Equator. In view of above, few occurrence of rainfall is expected over the Coastlines of West African region. The meridional convergence over DRC and the East African monsoon are expected to still be active; therefore rainfall is expected to continue over most part of Central, Eastern and the Horn of Africa. Convection and low level moisture convergence from the Indian Ocean has prompted rainfall over the South African region. Therefore the following places are expected to have moderate to heavy rainfall Ghana in West Africa. Southern Cameroun, Gabon, Congo, Equatorial Guinea, DRC in Central Africa and South Sudan, Kenya, Uganda, Rwanda, Burundi, Tanzania, Zambia and Angola in East Africa. Ethiopia in the horns of Africa and South Africa, Zimbabwe, Botswana, and Botswana in Southern Africa.

1.2. Atmospheric Dust Concentration Forecasts

Valid: 12Z of Nov 17– 12Z of Nov 19, 2015

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: 17 – 21 November, 2015

The Azores high pressure system is expected to intensify in the next 48 hours, its center value will increase from 1026 mb to 1028 mb. This High pressure system will intensity further by 1 mb in the next 72 hours, thereby having a central pressure value of 1029 mb. It will then intensify further from 1029 to 1031 mb at the end of the forecast period according to GFS models.

The Libyan high pressure system which is an extension or a cut off High from Azores high pressure system is expected to maintain its current position, at approximately 14 and 15 degrees north of the Equator, just like the previous days. Therefore, widespread dust is expected over the dust source regions of West and Northern Africa during the upcoming days. The dust raised will be propagated by relatively moderate to strong Northeasterly trade winds towards areas and zones along their trajectory. This development is a strong indication that active rainfall and weather activities are moving towards the southern hemisphere.

The St Helena high pressure system at the beginning of the forecast period had a central pressure value of 1025 mb. This high pressure system is expected to weaken in the next 48 hours, by 3 mb with its central pressure value decreasing from 1025 to 1022 mb. It will intensify from 1022 to 1036 mb in the next 72 hours. By the end of the forecast period it is expected that this high pressure system will weaken to 1031 mb according to GFS Models. This pressure system was observed to have retreated remarkably from the coast of Western Africa and moved closer to the tips of southern Africa, towards the end of the forecast period.

The Mascarene high pressure system is expected to maintain its central pressure value in the next 72 hours. It will weaken in the next 96 hours by 5 mb. Its central pressure values varying from 1028 mb to 1023 mb, and intensify again by 5 mb, having a central pressure of 1029 mb at the end of the forecast period according to the GFS model. This high pressure system was observed to have retreated from southern African and moved more into the Indian Ocean. Its current position has given room for maritime winds and active convection to start taking over that region.

Isolated cut off Equatorial low pressure systems were observed over West, Central and Eastern Africa. Its central pressure values did not respond remarkably to thermal heating thereby causing their central values to remain stationary. Their center values deepen from 1010 mb to 1008 mb over East and Western Africa. At the end of the forecast period the center pressure values these isolated thermal low was observed to fill back from 1008 to 1011 mb at the end of the forecast period. Thermal low pressure systems were observed over Southern Africa and the deepen remarkably within the forecast period.

At 925 mb streamlines; Maritime winds from the Atlantic Ocean were still observed streaming into some countries in West Africa namely Sierra Leone, Liberia, Ivory Coast, Ghana, Togo, Benin Republic, and Southern Nigeria within the forecast period. Maritime winds were also observed streaming into Cameroun, Equatorial Guinea, Gabon and into the inlands of central Africa like, Angola, and DRC. Maritime wind flow patterns from the Indian Ocean were also observed streaming into the inlands of Kenya, Uganda, Tanzania, Malawi, Zambia, thereby establishing the Congo boundary convergence. Indian Ocean monsoon was also observed over Mozambique, Malawi, Botswana, Swaziland and Lesotho in Southern Africa. Whereas The Northeasterly continental wind flow pattern was predominantly over Senegal, Guinea, Burkina Faso, Mali, Chad, Niger, Northern and central Nigeria, Central African Republic and Sudan.

At 850 mb streamlines; continental flows, predominant North easterly trade winds were observed over most parts of West Africa namely Senegal, Gambia, Mauritania, Sierra Leone, Liberia, Burkina Faso, Ghana, Togo, Niger, Chad, Nigeria and Cameroun. A high pressure system was also observed over the Indian Ocean, this induced maritime wind flows patterns to stream into Congo, Southern Sudan and DRC in Central Africa and Kenya. Uganda, Ethiopia and Somalia in East Africa. Also a low pressure system was observed over Tanzania. Maritime winds from the Indian Ocean were also observed over Mozambique, Swaziland and Lesotho in Southern Africa.

At 700 mb streamlines; a wet ridge was observed over most part of South Africa. High pressure systems observed over Mauritania and Northern Chad, establishing an anticyclonic flow patterns over Mauritania, Senegal, Guinea, Sierra Leone, Ghana, Benin, Burkina Faso, Chad, Niger, Nigeria, Sudan, and Central African Republic. The winds were observed at this level to converge over Tanzania and DRC. The easterly jets are expected to propagate westwards from central Sudan toward the Gulf of Guinea during the forecast period. Strong maritime winds flow pattern were also observed streaming into East and central Africa from the Indian Ocean.

At 200 mb streamlines; Anticyclonic flow patterns were observed over West, central and Eastern Africa. The jets associated with this flow pattern had moderate to strong wind speeds. Meridional Flow patterns were observed at this level over West and, Central Africa.

Recent update of rainfall occurrence and distribution for the next five days over West, central, East and Southern Africa reveals that the North easterly trade wind is more resilient and well established over its counterpart the southwesterly trade wind over West Africa, Chad and Sudan. The Intertropical Discontinuity (ITD) is propagating towards its minimum position southwards. The ITD is expected to propagate between 6 and 8 degrees north of the Equator. In view of above, few occurrence of rainfall is expected over the Coastlines of West African region. The meridional convergence over DRC and the East African monsoon are expected to still be active; therefore rainfall is expected to continue over most part of Central, Eastern and the Horn of Africa. Convection and low level moisture convergence from the Indian Ocean has prompted rainfall over the South African region. Therefore the following places are expected to have moderate to heavy rainfall Ghana in West Africa. Southern Cameroun, Gabon, Congo, Equatorial Guinea, DRC in Central Africa and South Sudan, Kenya, Uganda, Rwanda, Burundi, Tanzania, Zambia and Angola in East Africa. Ethiopia in the horns of Africa and South Africa, Zimbabwe, Botswana, and Botswana in Southern Africa.

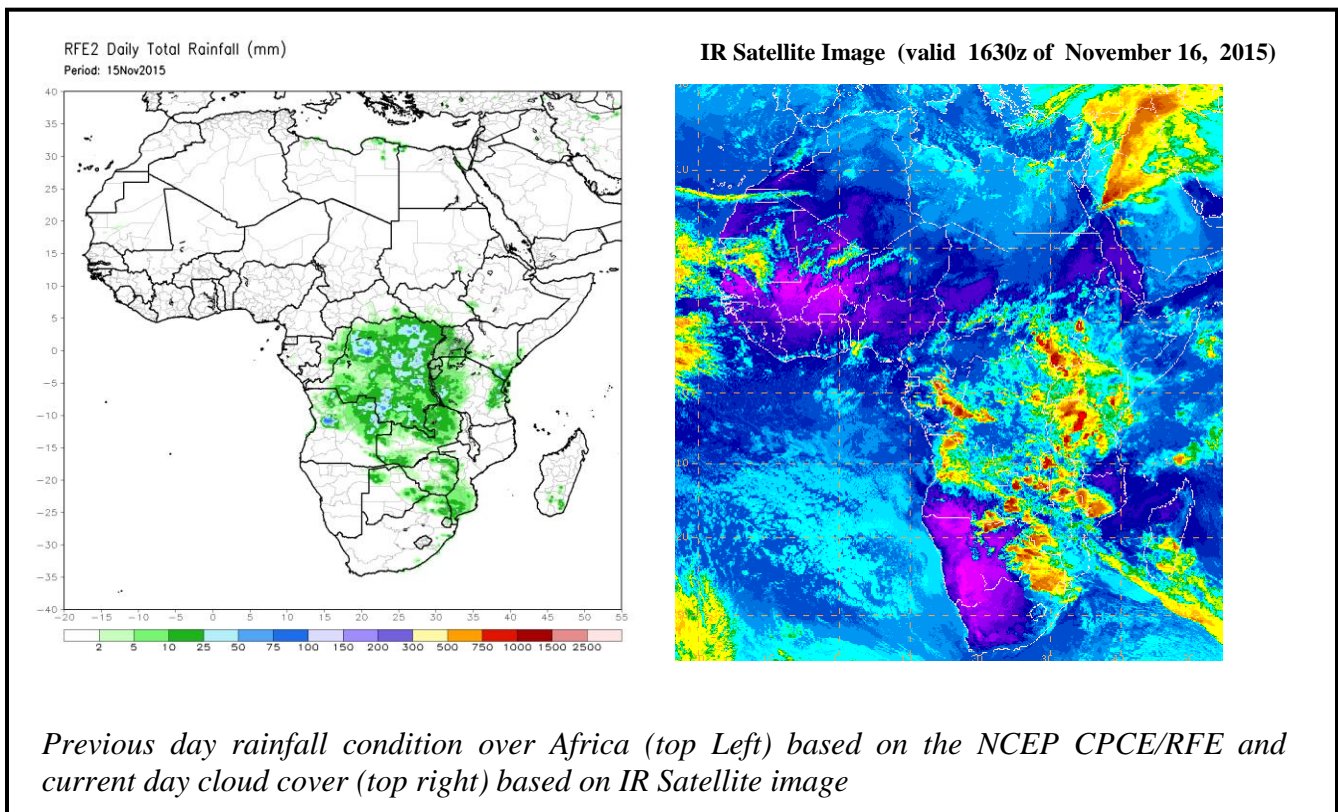
2.0. Previous and Current Day Weather over Africa

2.1. Weather assessment for the previous day (November 15, 2015)

Assessment of daily total rainfall for the previous day over Africa revealed that there were no cases of moderate to heavy rainfall over West Africa, because raining season is at its cessation stage in that part of the continent. In central Africa, DRC and Angola recorded moderate to heavy rainfall also Kenya, Tanzania, Zambia recorded moderate to Heavy rainfall. Over South Africa, Mozambique and Zimbabwe also recorded the same.

2.2. Weather assessment for the current day (November 16, 2015)

Convective, dense clouds with small and large ice particles observed over few countries in West Africa, namely, Togo and Benin. These clouds were also observed over Cameroon, Equatorial Guinea, Gabon, Congo, Angola and DRC in central Africa. Same convective cloudy were observed over South Sudan, Kenya, Uganda, Burundi, Rwanda, Tanzania, and Ethiopia in East Africa. Likewise Zambia, Zimbabwe, Swaziland and Mozambique in South Africa, Dust plume observed over Senegal, Gambia, Western Sahara, Algeria, Southern Mauritania, Guinea, Mali, Burkina Faso, Ghana, Niger, Benin, Togo, Northern and Southern Nigeria, Chad and Sudan.



Author: Arua Kalu Onumah (Nigerian Meteorological Agency (NiMet) / CPC-African Desk); kalu.arua@noaa.gov