

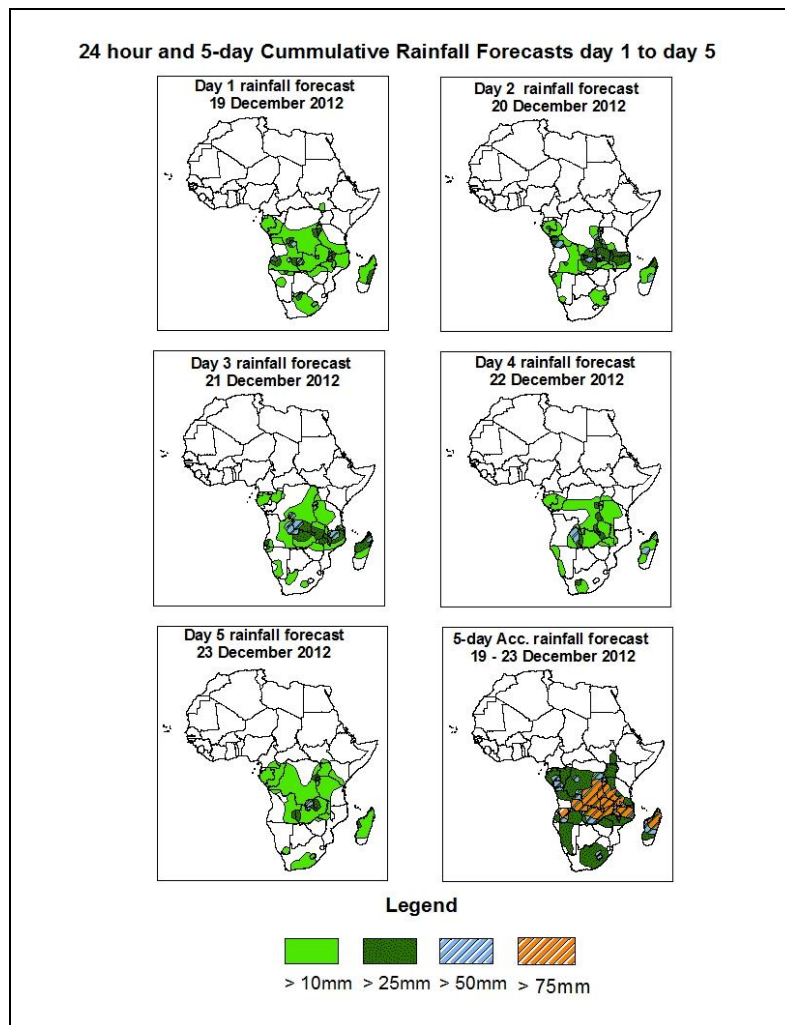


NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 19 December – 06Z of 23 December 2012. (Issued at 17:00Z of 18 December 2012)

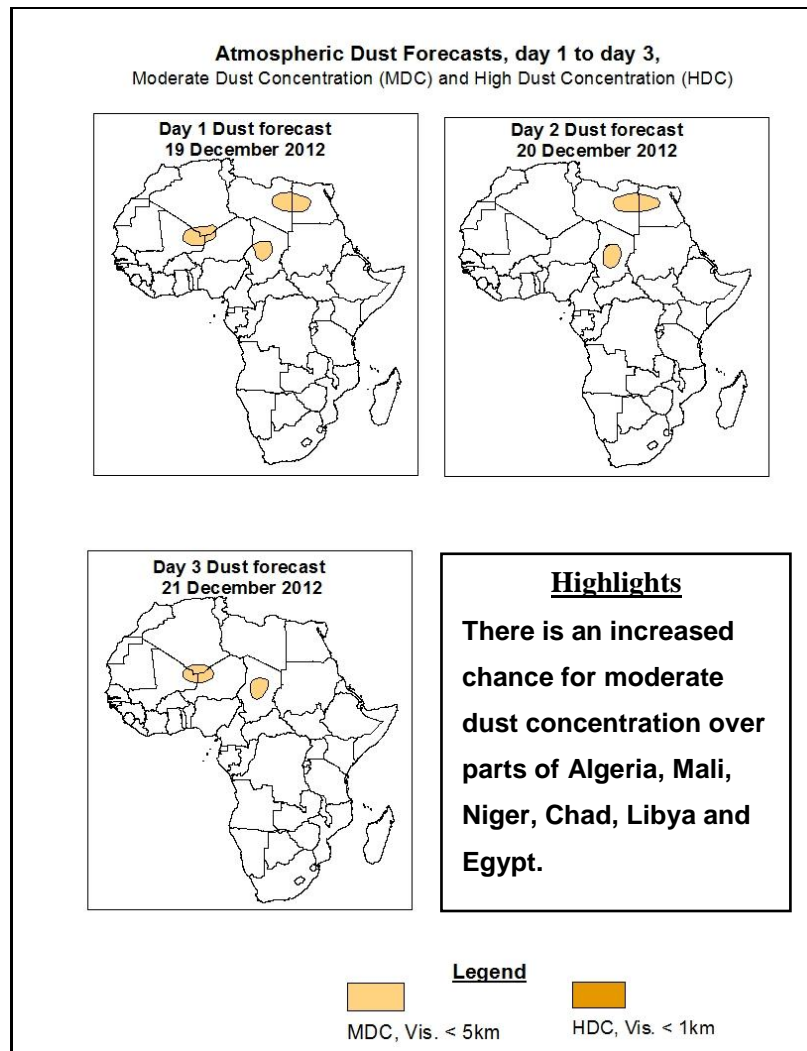
1.1. Twenty Four Hour Cumulative Rainfall Forecasts

The forecasts are expressed in terms of 75% probability of precipitation (POP) exceeded, based on the NCEP, UK Met Office and the ECMWF NWP outputs, the NCEP global ensemble forecasts system (GEFS) and expert assessment.



Summary

In the next five days, localized wind convergences across equatorial countries, lower-level wind convergences over parts of Southern Africa countries and a mid-latitude trough over South Africa are expected to enhance rainfall in their respective regions. Thus, there is an increased chance for heavy rainfall over local areas in Gabon, Congo, DRC, Zambia, Zimbabwe, Uganda, Kenya, Malawi, Angola, western region of Tanzania, parts of Namibia, southeastern region of South Africa, central and northern region of Mozambique and Madaqascar.



1.2. Model Discussion: Valid from 00Z of 18 December 2012

Model comparison (Valid from 00Z; 18 December 2012) shows all the three models are in general agreement in terms of depicting eastward movement of the Mascarene and St Helena high pressure systems during the forecast period. However, the models show slight differences in terms of central pressure values.

The St. Helena High pressure system over southeast Atlantic Ocean is expected to weaken slightly through 24 to 48 hours, with its central pressure value decreasing from about 1019hpa to 1016hpa according to the GFS and the UKMET models, and from 1018hpa to 1017hpa according to the ECMWF model.

The Mascarene high pressure system over southwestern Indian Ocean is also expected to weaken, while shifting eastwards with its central pressure value decreasing through

24 to 48 hours, from 1019hpa to 1016hpa, in agreement with all the three models (GFS, ECMWF and UKMET). A new Mascarene high pressure system is expected to form over Southwest Indian Ocean, after cutting itself from the St. Helena High pressure system through 24 to 48 hours. The central pressure value of the newly formed high is expected to re-strengthen gradually, with its central pressure increasing from about 1016hpa to 1019hpa according to the GFS model, from about 1016hpa to 1021hpa according to the ECMWF model, and from 1016hpa to 1020hpa according to the UKMET model.

The seasonal lows across equatorial and Central Africa countries, with central pressure of about 1008hpa, will remain unchanged throughout the forecast period, according to all the three models (GFS, ECMWF and UKMET).

At the 850hpa level, the seasonal lower level wind convergence near the CAB region is expected to remain active through 24 to 96 hours. Lower level wind convergences are expected to remain active across Angola, Uganda, Kenya, Zambia, Zimbabwe, Malawi and northern Mozambique, while localized wind convergences are expected to dominate the flow over parts of Tanzania, Namibia and eastern region of South Africa.

At 500hpa, a trough in the mid-latitude westerly flow is expected to remain active over Northeast region of Africa through 24 to 48 hours, while a trough is expected to dominate the flow over the same region towards end of forecast period. A cut of cyclonic circulation is expected to remain active through 24 to 96 hours over Central region of Southern Africa while a mid-latitude trough is expected to propagate over Southeast region of South Africa during the forecast period.

At 200hpa, the northern hemisphere sub-tropical westerly jet is expected to remain active with the core wind speed occasionally exceeding 110kts during the forecast period over Libya and Egypt.

In the next five days, localized wind convergences across equatorial countries, lower-level wind convergences over parts of Southern Africa countries and a mid-latitude trough over South Africa are expected to enhance rainfall in their respective regions. Thus, there is an increased chance for heavy rainfall over local areas in Gabon, Congo,

DRC, Zambia, Zimbabwe, Uganda, Kenya, Malawi, Angola, western region of Tanzania, parts of Namibia, southeastern region of South Africa, central and northern region of Mozambique and Madagascar.

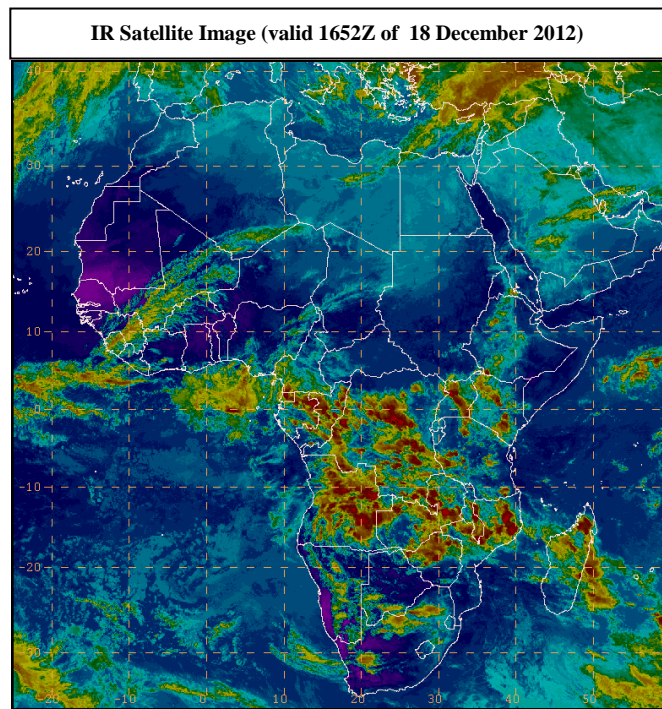
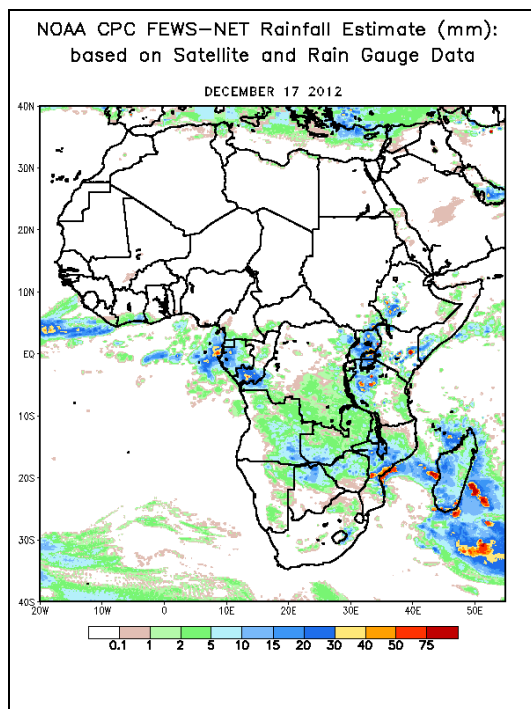
2.0. Previous and Current Day Weather Discussion over Africa (17 December 2012 – 18 December 2012)

2.1. Weather assessment for the previous day (17 December 2012)

During the previous day, moderate to locally heavy rainfall was observed over Gabon, Congo, Uganda, Madagascar and central region of Mozambique; parts of Angola, Tanzania and central region of Kenya.

2.2. Weather assessment for the current day (18 December 2012)

Intense clouds are observed over Gabon, DRC, Uganda, Angola, Zambia, Zimbabwe, central and northern region of Mozambique and Madagascar; parts of Kenya and Tanzania.



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

Author: Lameque Matimbe, (Mozambique National institute of Meteorology / CPC-African Desk); lameque.matimbe@noaa.gov