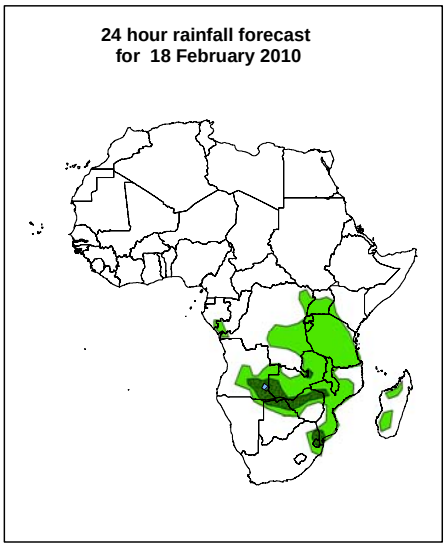
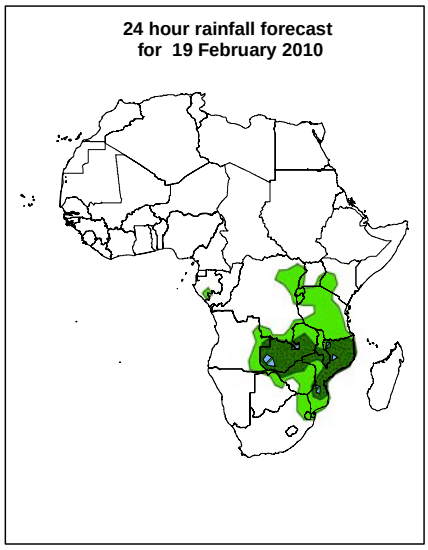
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid, 06Z of 18 February –06Z of 20 February 2010, (Issued at 14:00EST of 17 February 2010)

1.1. Twenty Four Hour Cumulative Rainfall Forecasts

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



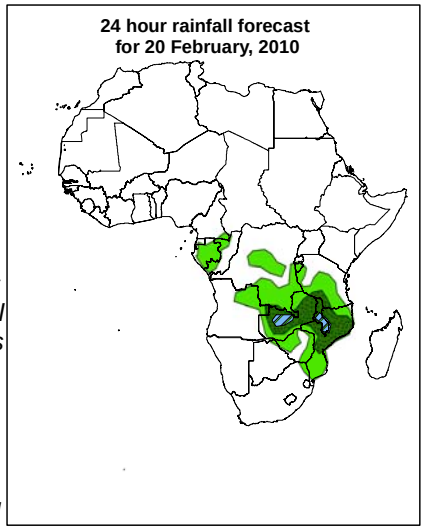


Legend

> 40mm per day

> 20mm per day

> 10mm per day



Summary

The strong lower level convergence over southern parts of the Congo Air Boundary (CAB) region is expected to maintain rainfall over 20mm per day over Zambia and the its adjacent areas through 24 to 72 hours. Moreover, the east African monsoon flow and its associated convergence are expected to maintain moderate to heavy rainfall over Mozambique and adjacent areas through 24 to 72 hours. The rainfall activity is expected to remain weak over the rest of the seasonal-rain-getting areas through 24 to 72 hours.

1.2. Models Comparison and Discussion - Valid from 00Z of 18 February 2010

The ridge extending from the Arabian Peninsula up to the horn of Africa is expected to be strong in 24 to 48 hours while weaken through 48 to 72 hours. On the other hand, A low pressure system situated over Northeast Atlantic Ocean, with central pressure value of 986mb, is expected to move eastwards, with its trough axis reaching central Mediterranean region in 72 hours. The mean sea level pressure values associated with the equatorial trough are expected to about 1008mb over the Gulf of Guinea, about 1006 over Central African Republic and about 1005mb over southern Sudan in 24 hrs. The central pressure values are expected remain more or less the same through 48 to 72 hours. Furthermore, the weak low pressure system over the southeastern tip of South Africa is expected to shift eastward, giving a way to the sub-tropical ridge during 48 to 72 hours.

At 850mb level, the mid-latitude westerlies are expected to dominate the flow over northwest Africa through 24 to 48 hours, with a trough axis deepening across the coastal areas of Northwest Africa. On the other hand, a weak trough in the westerlies is expected to move eastwards crossing the southeastern tip of Africa in 24 hours. The East African monsoon wind and it associated convergence is expected to dominate the flow over southeast Africa through 24 to 72 hours. The seasonal lower level convergence is expected to persist influencing the rainfall activity over southern portions of the Congo Air Boundary (CAB) region through 24 to 72 hours, while the convergence over Angola is expected to weaken gradually through 48 to 72 hours.

At 500mb level, a wavy pattern in the westerly wind is expected to dominate the flow over sub-tropical regions of northern and southern Africa. The northern hemisphere westerly flow is expected to be characterized by two trough axes, extending southward across northwest Africa and the Middle East region. On the other hand, a feeble trough in the westerlies is expected to move eastwards crossing South Africa in 24 hours.

At 200mb, the flow over sub-tropical regions of North Africa will have a wavy pattern, with the associated westerlies dominating the northern Africa regions. Similarly, the flow over the subtropical regions of the southern hemisphere is expected to remain wavy through 24 to 72 hours, with a trough associated with flow is expected to cross South Africa in 24hours. The wind speed associated with sub-tropical westerly jet stream of the northern hemisphere is expected to exceed 130 knots through 24 to 48 hrs, while the jet is expected to weaken slightly through 48 to 72 hours

The strong lower level convergence over southern parts of the Congo Air Boundary (CAB) region is expected to maintain rainfall over 20mm per day over Zambia and the its adjacent areas through 24 to 72 hours. Moreover, the east African monsoon flow and its associated convergence are expected to maintain moderate to heavy rainfall over Mozambique and adjacent areas through 24 to 72 hours. The rainfall activity is expected to remain weak over the rest of the seasonal-rain-getting areas through 24 to 72 hours.

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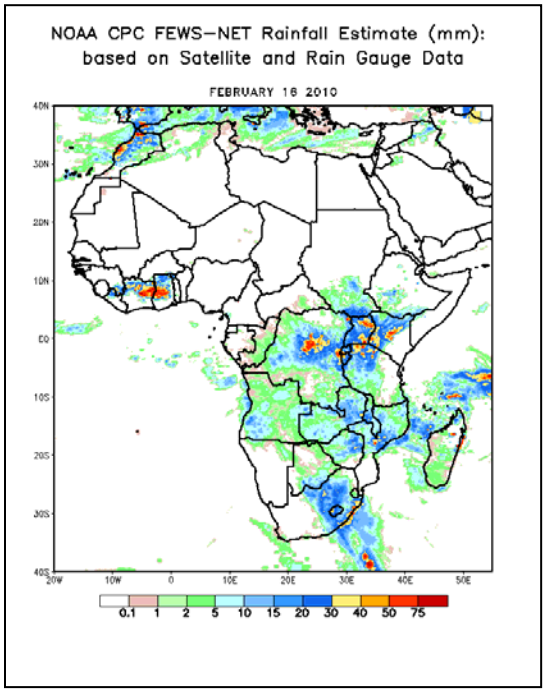
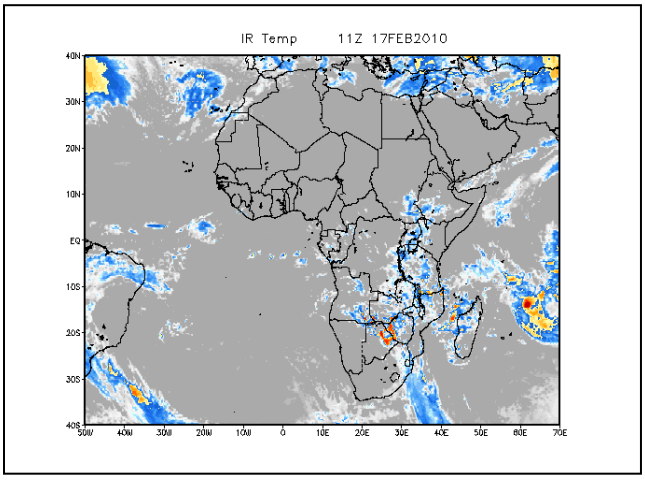
2. 0. Previous and Current Day Weather Discussion over Africa (15-16 February 2010)

2.1. Weather assessment for the previous day (16 February 2010): During the previous day, heavy rainfall events were observed over DRC and the adjoining areas of great Lake Region as well as central parts of Ivory Coast and Togo. Besides, light to moderate rainfall events were observed over much of DRC, Rwanda, Burundi, Angola, Zambia, Botswana, eastern part of South Africa, northern half of Mozambique, much of Tanzania, Zimbabwe, Congo, southern Sudan, southwestern Ethiopia and Madagascar.

2.2. Weather assessment for the current day (17 February 2010): Intense cloud patches are observed over northeastern Botswana and adjoining areas of Zimbabwe and Zambia.





Previous day rainfall condition over Africa (Left) based on the NCEP CPCE/RFE and current day cloud cover (up) based on IR Satellite image

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