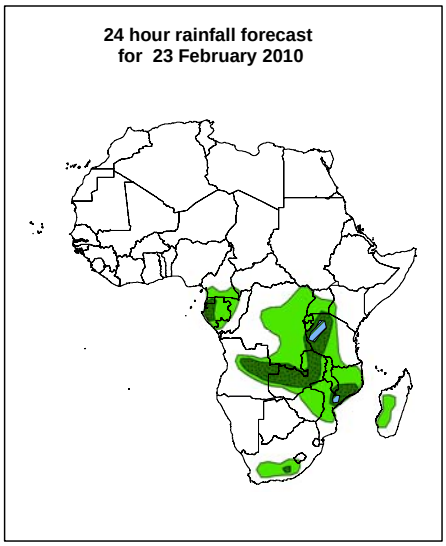
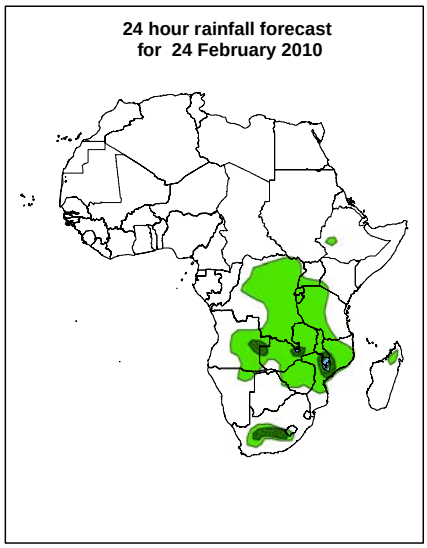
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid, 06Z of 23 February –06Z of 25 February 2010, (Issued at 14:00EST of 22 February 2010)

1.1. Twenty Four Hour Cumulative Rainfall Forecasts

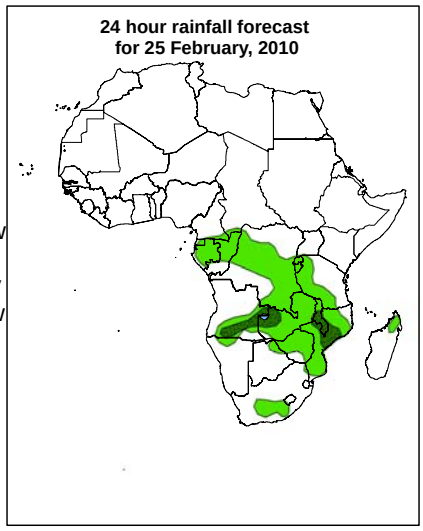
The forecasts are expressed in terms of probability of precipitation (POP) exceedence based on the NCEP, UK Met Office and the ECMWF NWP outputs, the NCEP global ensemble forecasts system (GEFS) and expert assessment.





Legend

- > 40mm per day
- > 20mm per day
- > 10mm per day



Summary

The expected increase in moist easterly flow towards East Africa, the active lower level convergence over the Congo Air Boundary (CAB) region, the East African monsoon flow and its associated convergence over Southeast Africa, the localized lower level convergence zones over Angola, Zambia and western parts of equatorial Africa are expected to maintain moderate to heavy rainfall in the respective regions in the coming three days. Moreover, the mid-latitude frontal system is expected to increase precipitation over southern parts of South Africa while crossing the region in the coming three days.

1.2. Models Comparison and Discussion - Valid from 00Z of 23 February 2010

A mid latitude westerly trough is expected to move from western Mediterranean Sea to eastern Mediterranean Sea while deepening through 48 to 72 hours. West of the westerly the Saharan high is expected to build up with its central pressure value becoming 1024mb through 24 to 72 hours. On the other hand, The mean sea level pressure values associated with the equatorial trough are expected to be about 1006mb over the Gulf of Guinea through 24 to 72 hours, whereas with the equatorial trough is expected to deepen over Central African Republic and southern Sudan with its central pressure value becoming 1003mb through 48 to 72 hrs. The low pressure system over the Mozambique Channel is expected to persist through 24 to 72 hours with little change in its central values.

At 850mb level, a trough in the westerlies is expected to deepen over eastern Mediterranean Sea and the adjacent areas of Northeast Africa through 24 to 72 hours. With deepening of this trough, the Arabian anticyclone is expected to shift towards the Arabian Sea, resulting in increased easterly flow towards the Horn of Africa through 24 to 72 hours. Moreover, the lower level convergence associated with Congo Air Boundary (CAB) is expected to remain active through 24 to 72 hours, while the East African monsoon wind and its associated convergence are expected to dominate the flow over southeast and southern Africa through 24 to 72 hours. Persistent lower level convergence zone is also expected to persist over eastern parts of the Gulf of Guinea.

At 500mb level, the mid-latitude westerly flow is expected to expand gradually into northern parts of the Horn of Africa regions, while a sub-tropical high is expected to build up over Northwest Africa through 24 to 72 hours. On the other hand, the flow over the sub-tropical regions of the southern hemisphere is expected to a attain a wavy pattern, with a deep trough in the westerlies approaching the southern tip of south Africa through 24 to 72 hours.

At 200mb, the flow over sub-tropical regions of North Africa is expected to be more zonal with a weak wavy pattern. On the other hand, the flow over the subtropical regions of the southern hemisphere is expected to remain wavy through 24to 72 hours. The wind speed associated with sub-tropical westerly jet stream of the northern hemisphere is expected to exceed 110 knots through 24 to 48 hrs, while the jet is expected to weaken slightly through 48 to 72 hours.

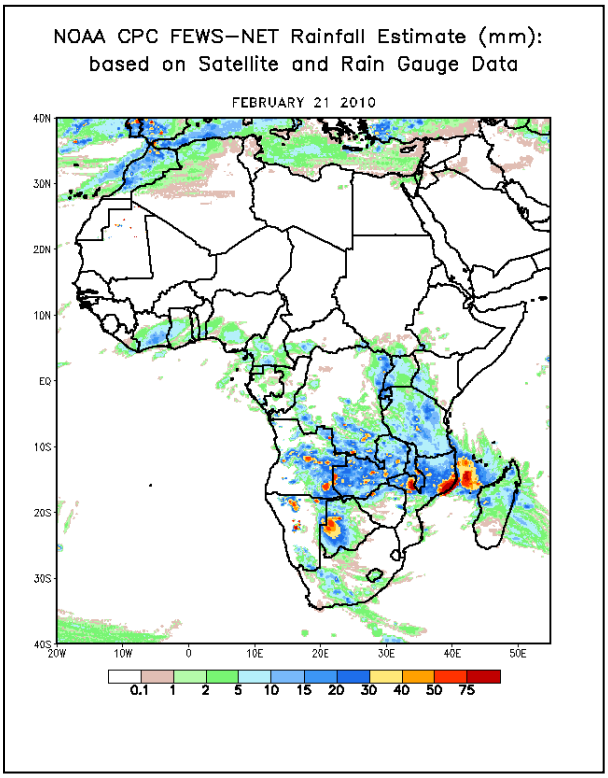
The expected increase in moist easterly flow towards East Africa, the active lower level convergence over the Congo Air Boundary (CAB) region, the East African monsoon flow and its associated convergence over Southeast Africa, the localized lower level convergence zones over Angola, Zambia and western parts of equatorial Africa are expected to maintain moderate to heavy rainfall in the respective regions in the coming

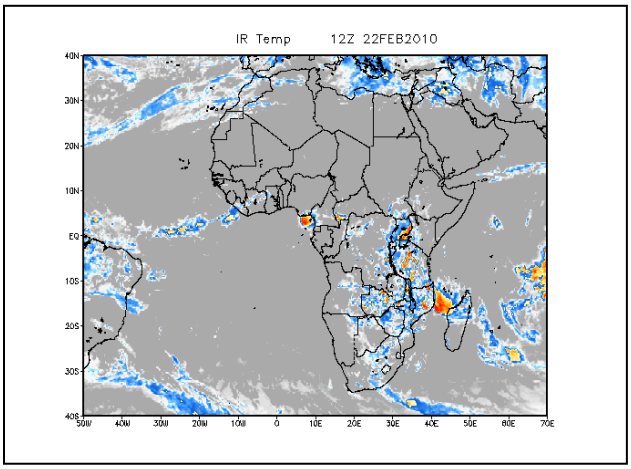
three days. Moreover, the mid-latitude frontal system is expected to increase precipitation over southern parts of South Africa while crossing the region in the coming three days.

2. 0. Previous and Current Day Weather Discussion over Africa (21-22 February 2010)

2.1. Weather assessment for the previous day (21 February 2010): During the previous day, heavy rainfall events were observed over southeastern Botswana, northern part of Mozambique and few places of Zambia and eastern Angola. Besides, light to moderate rainfall events were observed over much of Tanzania, Zambia, Malawi, Uganda, Angola, DRC, Rwanda, Burundi, Cameroon, Ivory Coast and Madagascar.

2.2. Weather assessment for the current day (22 February 2010): Intense cloud patches are observed over some places of Uganda, Tanzania, Zambia, Mozambique, Malawi and Central African Republic.





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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