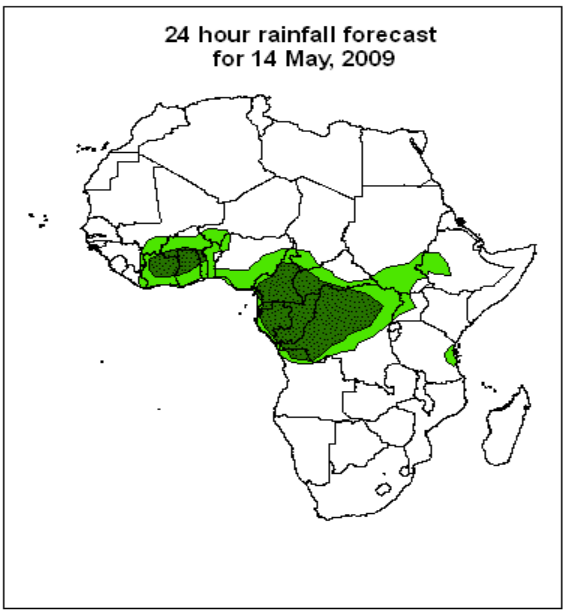
Forecast Guidance for Africa

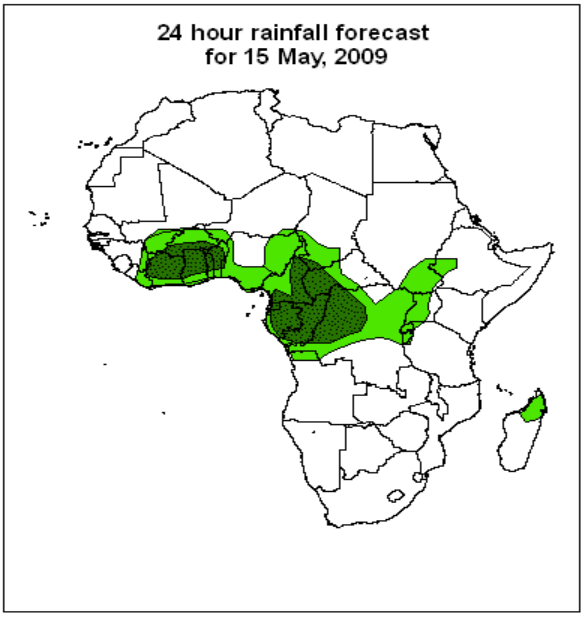
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative.

FORECAST DISCUSSION 14H00 EST, 13 MAY, 2009
Valid: 00Z 14 MAY – 16 MAY, 2009

1. Twenty Four Hour Cumulative Rainfall Forecasts

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



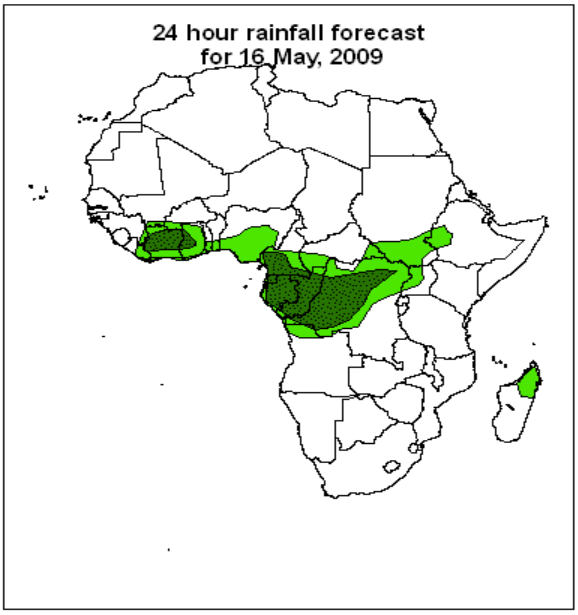


Legend

africa_countries_new

> 30mm, with probability 50%

> 20mm, with probability 40%



Summary

The Sahara anticyclonic system is expected to influence the flow over northern Africa, however the weakening of the Arabian anti-cyclonic system is expected to the interaction between the mid-latitude and Equatorial troughs across the horn of Africa. Localized convegence and confluences lines over Gulf of Guinea extending into the Congo basin, in association with moisture flux from Southwest Indian and Atlantic oceans are expected to enchance chance for precipitation.

2. Model discussion

Model comparison (Valid from 00Z; 13 May, 2009): all the three models are in general agreement especially with respect to the positioning of large scale features, however, the UK model tends to give lower values than both the GFS and ECMWF models especially in the Equatorial region (10^oS and 10^oN).

2.1. Flow at 850hPa

T+24h: The Sahara anti-cyclonic system is expected to influence the flow over northern Africa; however the weakening of the Arabian anti-cyclonic system and southwards movement over northwestern Indian Ocean is expected to allow the interaction between the mid-latitude and Equatorial troughs across the horn of Africa. A mid latitude trough is expected to interact with the equatorial trough across Morocco, Western Sahara and Mali. Localized convergence and confluent lines are expected over the Gulf of Guinea region, Cameroun, Gabon, northern DR Congo, southern Sudan, northern Uganda and southern Ethiopia. In southern Africa, the Mascarene and St. Helena anti-cyclonic systems are expected to intensify and expand; while the trough associated with the westerly wave over southeast Atlantic Ocean off the coast of southern Africa is expected to separate the anti-cyclonic systems.

T+48h: The flow in the northern hemisphere is expected to be similar as the previous day; however Sahara anti-cyclonic system is expected to move slightly eastwards. Localized convergence and confluent lines are expected to maintain their previous day positions. In southern Africa, the anti-cyclonic systems are expected maintain their previous day positions; while the cyclonic systems associated with the westerly wave are expected to merge into a single trough and extent further northwards up to 20^0S latitude over southeastern Atlantic Ocean the trough.

T+72h: The flow in the northern hemisphere is expected to be similar as the previous day; however the Azores anti-cyclonic system is expected to expand eastwards, pushing the other systems eastwards. The localized convergence and confluent lines are expected to maintain their previous day positions. In southern Africa, the flow is expected to be similar as the previous day; however a closed cyclonic system associated with the westerly wave is expected to develop over southern Atlantic Ocean.

2.2. Flow at 500hPa

T+24h: In the northern hemisphere, two-way troughs associated with the westerly wave are expected one over North Africa across eastern Mediterranean Sea and the other over northwestern Africa, creating a shortwave flow pattern. A closed cyclonic system is expected to develop over the Gulf of Aden region. In the southern hemisphere, the development of anti-cyclonic system over southern Africa, together with cyclonic circulation systems over southeast Atlantic are expected to create a disturbed flow pattern of the westerlies.

T+48h: In the northern hemisphere the flow is expected to be more similar to the previous day; however the troughs associated with the westerly waves is expected to move slightly eastwards. In the southern hemisphere flow is expected to take more of a zonal pattern with two small closed cyclonic systems over southeast Atlantic Ocean.

T+72h: In the northern hemisphere the flow is more similar to the previous day; however the troughs associated with the westerly waves is expected to fill-up and take on a more zonal flow pattern. In the southern hemisphere, the cyclonic systems within the westerlies are expected to fill-up and the flow is expected to take a zonal pattern.

2.3. Flow at 200hPa

T+24h: In the northern hemisphere, two-way troughs associated with the westerly wave are expected over northeast Atlantic Ocean and the Mediterranean Sea, creating a shortwave flow pattern over North Africa. Moreover in the south, the flow is expected to take a slightly disturbed pattern with a feeble trough over southeast Atlantic Ocean off the tip of South Africa.

T+48h: The flow is similar to that of the previous day but the troughs associated with the westerly wave are expected to fill-up and shift slightly to the east in the northern hemisphere. In the southern hemisphere the flow is expected to be similar to the previous day, but take on a more zonal pattern.

T+72h: The troughs associated with the westerly wave in the northern hemisphere are expected fill-up further giving way to a more zonal flow pattern. In the southern hemisphere, a disturbed flow pattern is expected over southeast Atlantic Ocean with the development of anti-cyclonic system, while a more zonal flow pattern is expected over southern Indian Ocean.

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