



## Forecast Guidance for Africa

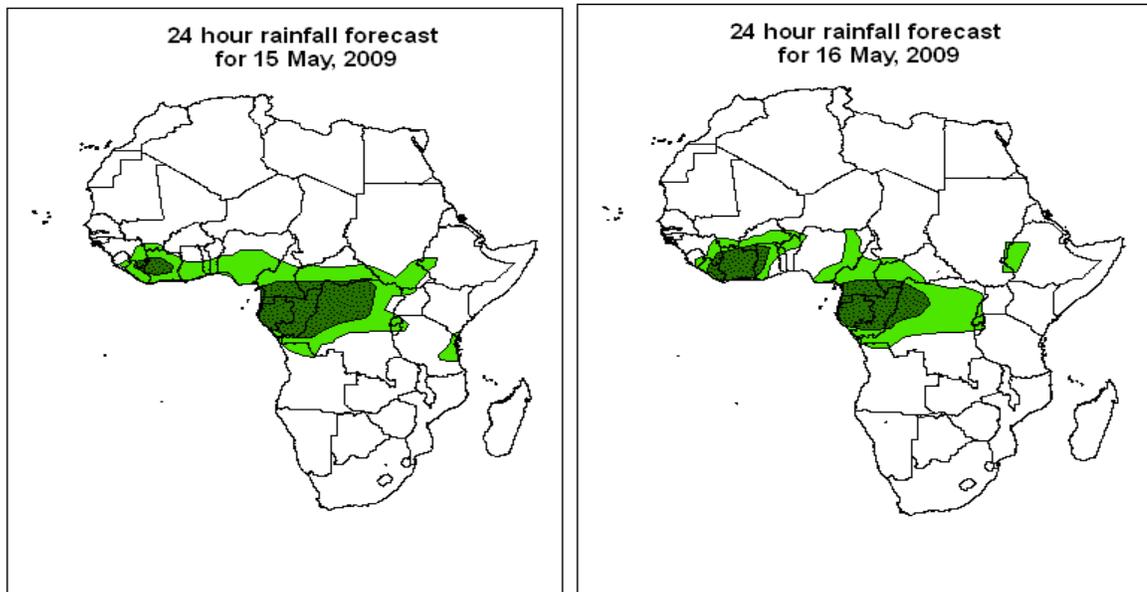
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative.

### FORECAST DISCUSSION 14H00 EST, 14 MAY, 2009

Valid: 00Z 15 MAY – 17 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.

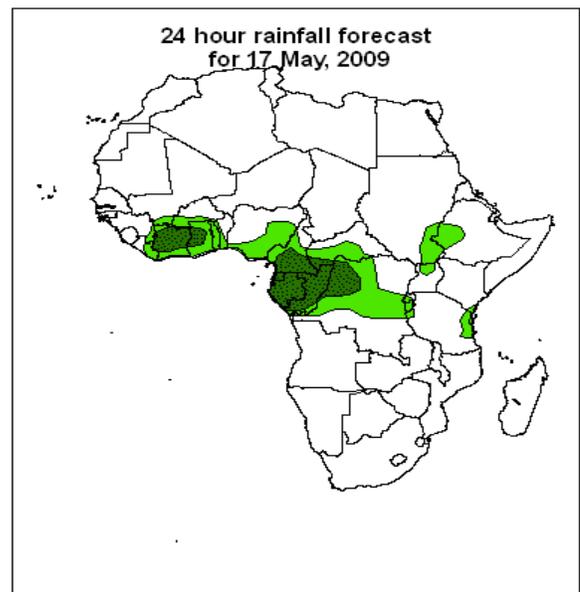


#### Legend

-  africa\_countries\_new
-  > 30mm, with probability 50%
-  > 20mm, with probability 40%

#### Summary

*The Sahara anti-cyclonic system is expected to influence the flow over northern Africa and the weakening of the Arabian ridge over northwestern Indian Ocean is expected to allow the interaction between the mid-latitude and Equatorial troughs across the horn of Africa. Localized convection and confluence lines over Gulf of Guinea extending into the Congo basin, in association with moisture flux from Southwest Indian and Atlantic oceans are expected to enhance chance for precipitation.*



## 2. Model discussion

*Model comparison (Valid from 00Z; 14 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°S and 10°N).*

### 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, Central African Republic, 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 extend northwards up to 15°S latitude and separate the anti-cyclonic systems.

**T+48h:** In the northern hemisphere, the Azores anti-cyclonic system is expected to strengthen and expand eastwards, pushing both the mid-latitude trough and the Saharan anti-cyclonic system. Localized convergence and confluent lines are expected to maintain their previous day positions. In southern Africa, the anti-cyclonic systems are expected to maintain their previous day positions; while a second trough associated with the westerly wave is expected to develop over southern Atlantic Ocean.

**T+72h:** In the northern hemisphere, a closed cyclonic circulation system is expected to develop over western Mediterranean Sea and the apparent merger of the Saharan with the Azores anti-cyclonic systems is expected to block the interaction between the mid-latitude and Equatorial troughs across Morocco. 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 the troughs associated with the westerly wave are expected to move eastwards over southeastern 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 developments of anti-cyclonic system together with cyclonic circulation systems over southeast Atlantic Ocean 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 the anti-cyclonic system is expected to expand and intensify creating more disturbed flow of the westerlies.

**T+72h:** In the northern hemisphere the flow is expected to take a zonal pattern; however a closed cyclonic circulation system is expected over western Mediterranean Sea. In the

southern hemisphere, the closed cyclonic systems within the westerly wave is expected to move eastwards to the tip of South Africa, while two-way anti-cyclonic systems are expected over southeast Atlantic Ocean and southwest Indian Ocean.

### **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 an anti-cyclonic system over southeast Atlantic Ocean and a closed cyclonic system 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; however the anti-cyclonic system over southeast Atlantic Ocean is expected to intensify and expand, but the flow is expected to take on a more zonal pattern over southern Indian ocean.

**T+72h:** The feeble troughs associated with the westerly wave in the northern hemisphere are expected to cause some disturbances; however the flow is expected to take a more zonal pattern. In the southern hemisphere, a disturbed flow pattern is expected over southeast Atlantic Ocean with the expansion of anti-cyclonic system, while a more zonal flow pattern is expected over southern Indian Ocean.

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