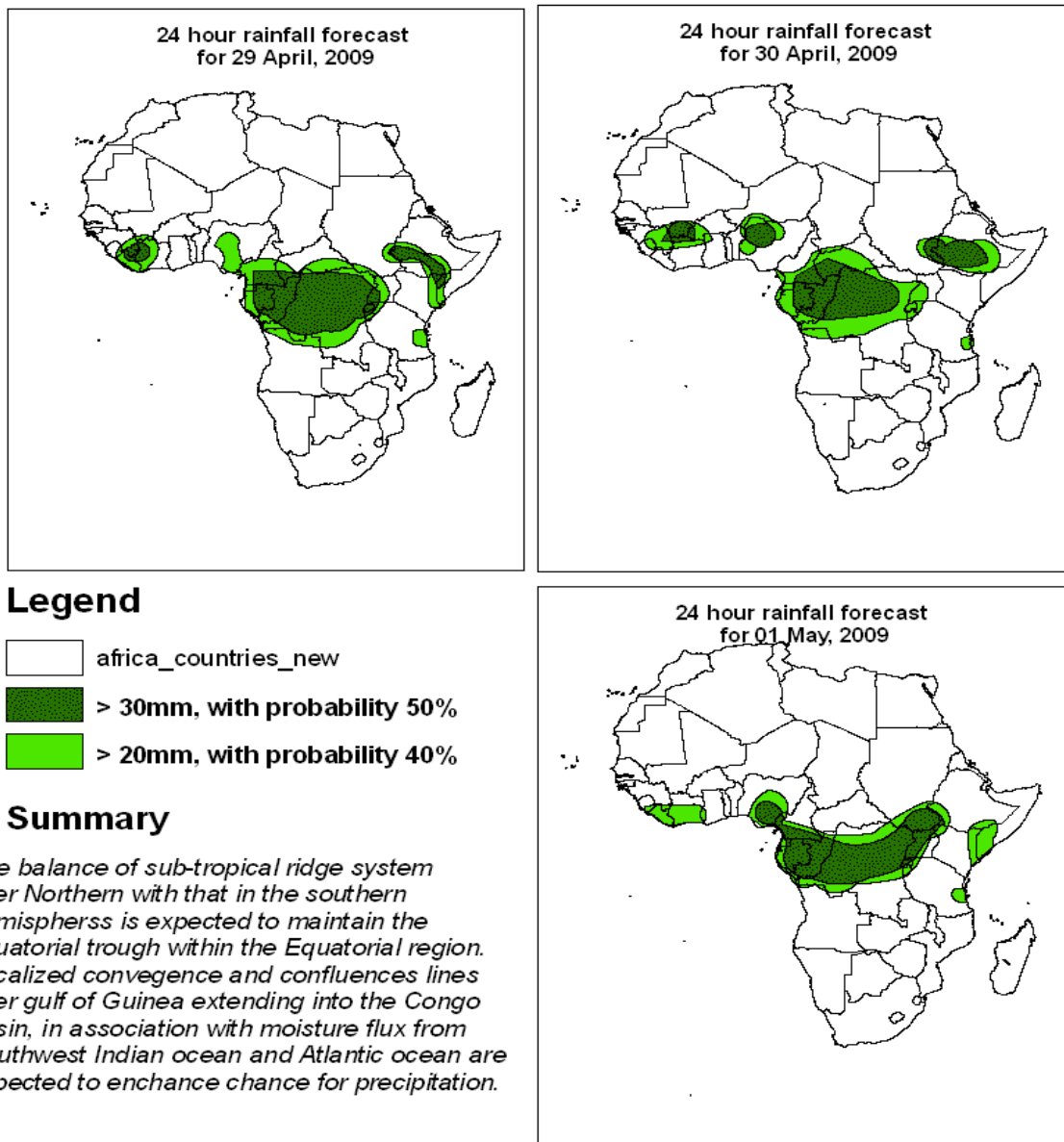# Forecast Guidance for Africa

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

FORECAST DISCUSSION 14H00 EST, 28 APRIL, 2009
Valid: 00Z 29 APRIL – 01 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.

24 hour rainfall forecast for 29 April, 2009

24 hour rainfall forecast for 30 April, 2009

Legend

- africa_countries_new
- > 30mm, with probability 50%
- > 20mm, with probability 40%

Summary

The balance of sub-tropical ridge system over Northern with that in the southern hemispherss is expected to maintain the equatorial trough within the Equatorial region. Localized convegence and confluences lines over gulf of Guinea extending into the Congo basin, in association with moisture flux from Southwest Indian ocean and Atlantic ocean are expected to enchance chance for precipitation.

24 hour rainfall forecast for 01 May, 2009

2. Model discussion

Model comparison (Valid from 00Z; 28 April, 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 sub-tropical ridge system over Northern parts of Africa and Arabia is expected to intensify and maintain the equatorial trough within the equatorial region, while a closed cyclonic circulation system over Morocco, western Algeria, and Western Sahara separates the Azores anti-cyclonic system from the Saharan anti-cyclonic circulation system. Localized convergence and confluent lines are expected over the gulf of Guinea region, Central Africa Republic, northern DR Congo, southern Sudan, Uganda and western Ethiopia. Much of Southern Africa is expected to be under the influence of the Mascarene assuming continental characteristics as it extends into southern Africa, while to the South, a series of cyclonic systems associated with a westerly wave and the frontal system extends northwards up to 20^{0}S latitude.

T+48h: The sub-tropical ridge system over Northern parts of Africa and Arabia is expected to weaken and move eastwards, while a trough to the west is expected over Morocco, western Algeria, Western Sahara and Mali. Localized convergence and confluent lines are expected to maintain their previous day positions. Mascarene and St. Helena anti-cyclonic circulation systems are expected to intensify, weakening the troughs and frontal systems associated with the westerly wave.

T+72h: The sub-tropical ridge system over Northern parts of Africa and Arabia is expected to move slightly eastwards dragging the trough over northeastern Atlantic Ocean, Morocco and Algeria eastwards. The localized convergence and confluent lines are expected to maintain their previous day positions. The cyclonic systems associated with the westerly wave in southern hemisphere are expected to move eastwards.

2.2. Flow at 500hPa

T+24h: Troughs associated with westerly waves are expected in sub-tropical areas of the southern hemisphere with a closed cyclonic circulation over the southeast Atlantic Ocean, while the flow in the northern hemisphere is characterized by zonal flow except for a feeble trough over Morocco.

T+48h: A significant weakening of the trough associated with westerly flow in the northern hemisphere; otherwise the flow is similar to the previous day both in the southern and northern hemispheres.

T+72h: The cyclonic system in the southern hemisphere is expected to move eastwards, otherwise the flow is similar to that of the previous day in both hemispheres.

2.3. Flow at 200hPa

T+24h: Westerly wave with trough axes over 10^0W and 40^0E longitudes are expected to dominate the flow over northern portions of Africa. Moreover in the south, the flow takes on more of zonal pattern.

T+48h: The flow is similar to that of the previous day. The axes of the troughs associated with the westerly wave shift slightly to the east in the northern hemisphere. In the southern hemisphere is similar to the previous day

T+72h: The flow is similar to that of the previous day. However in the northern hemisphere, the flow is taking more of a zonal pattern.

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