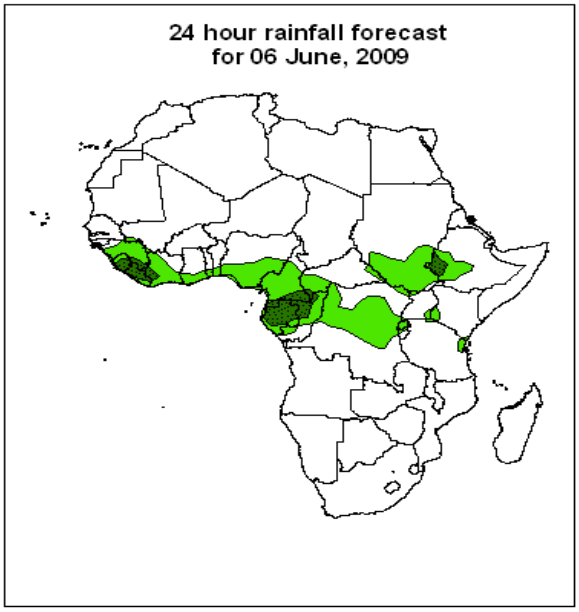
Forecast Guidance for Africa

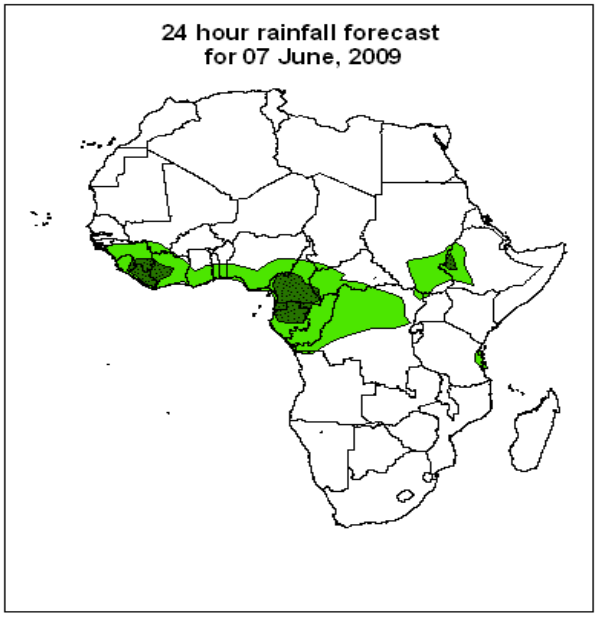
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative.

FORECAST DISCUSSION 14H00 EST, 05 JUNE, 2009
Valid: 00Z 06 JUNE – 08 JUNE, 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.



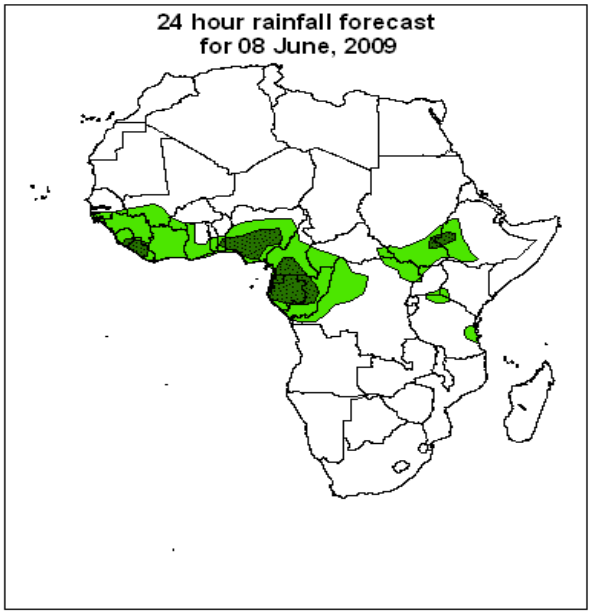


Legend

- africa_countries_new
- > 20mm, with probability 70%
- > 10mm, with probability 70%

Summary

The weakening of Saharan anti-cyclonic system over northwestern Africa is expected to enhance chances of precipitation over the Gulf of Guinea region, while the persistent monsoon cross equatorial flow is expected to influence eastern Africa and the horn of Africa region. Localized convegence and confluences lines over Gulf of Guinea extending into the Congo basin, in association with moisture flux from southwest Indian and Southeast Atlantic oceans are expected to enchance chance for precipitation.



2. Model discussion

Model comparison (Valid from 00Z; 05 June, 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: In the northern hemisphere, the weakening and contraction of Saharan anti-cyclonic system over northwestern Africa is expected to enhance chances of precipitation over the Gulf of Guinea region, while the persistent monsoonal cross equatorial flow is expected to influence eastern Africa and the horn of Africa region. A trough associated with the westerly wave is expected over northeast Atlantic Ocean, Morocco and northwestern Algeria. Localized convergence and confluent lines are expected over the Gulf of Guinea region, Cameroun, Central African Republic, northern DR Congo, southern Sudan, and Ethiopia. In the southern hemisphere, the sub-tropical anti-cyclonic system is expected to influence flow over much of southern Africa and over the Atlantic Ocean, the peripheral winds associated with anti-cyclonic system extends northwards up to the Gulf of Guinea.

T+48h: In the northern hemisphere, the Saharan anti-cyclonic system is expected to weaken further and move eastwards; while the trough over northeast Atlantic is expected to expand eastwards over Tunisia and parts of western Libya. Localized convergence and confluent lines are expected to maintain their previous day positions. In the southern hemisphere, the flow is expected to be more similar to the previous day; however the mid-latitude troughs over southwestern Indian Ocean is expected to extent northwards up to 25^0S latitude over southern Africa.

T+72h: In the northern hemisphere, the Saharan anti-cyclonic system is expected to expand westwards; while the trough over northeast Atlantic is expected to contract and confined over Morocco and northwestern Algeria. The localized convergence and confluent lines are expected to maintain their previous day positions. In southern Africa, no significant changes are expected in the main features affecting the flow; however the trough associated with the westerly wave over southwestern Indian Ocean is expected to move eastwards.

2.2. Flow at 500hPa

T+24h: In the northern hemisphere, the sub-tropical ridge is expected to extend further northwards over northwestern Africa and the Arabian Peninsula; while troughs associated with the westerly wave are expected over North Africa and northeast Atlantic Ocean, creating a shortwave flow pattern over northern Africa. In the southern hemisphere, feeble trough associated with the westerly wave is expected over Southern Africa; however the westerlies are expected to take a generally zonal flow pattern.

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 are expected to move eastwards. In the southern hemisphere, the southerly extent of the sub-tropical ridge system is expected to create some disturbances in the westerlies.

T+72h: In the northern hemisphere the flow is expected to be more similar to the previous day; however the trough over northern Africa is expected to be more enhanced and the

systems are expected to continue moving eastwards. In the southern hemisphere, a trough associated with the westerly wave over southwestern Indian Ocean is expected to extend northwards over southern Africa, creating more disturbances in the westerly flow.

2.3. Flow at 200hPa

T+24h: The sub-tropical anti-cyclonic systems in both hemispheres are expected to establish closer to the Equator, creating strong easterly flow over eastern Africa. Feeble troughs associated with the westerly wave are expected over northern Africa creating disturbances in the flow of the westerlies. In the southern hemisphere, the westerly flow in the mid-latitudes is expected to take a generally zonal flow pattern.

T+48h: The flow is expected to be similar to that of the previous day in both the northern and southern hemispheres.

T+72h: Troughs associated with the westerly wave are expected to be more enhanced in the northern and hemisphere, creating a disturbed flow pattern of the westerlies. In the southern hemisphere, the sub-tropical ridge is expected to extend to 400S latitude over the Atlantic, creating a disturbed flow of the westerlies over the Atlantic Ocean; however the westerly flow over the Indian Ocean is expected to take a generally zonal flow pattern.

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