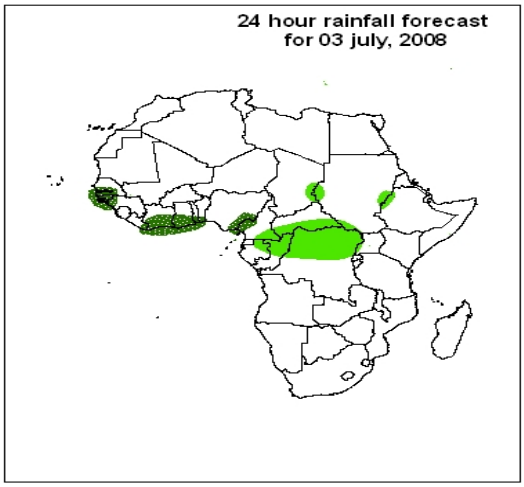
Forecast Guidance for Africa

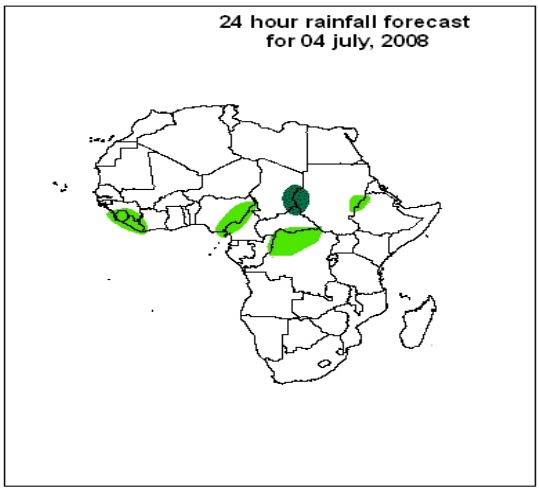
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

FORECAST DISCUSSION 14H00 EST, 02 JULY 2008
Valid: 00Z 03 - 05 JULY, 2008

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.





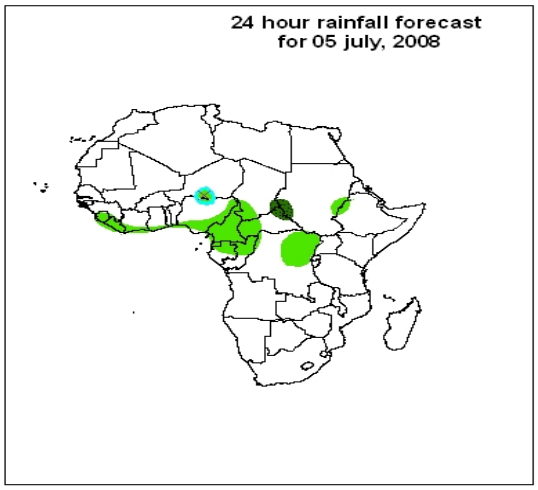
Legend

> 30mm, with probability 50%

> 20mm, with probability 40%

Summary

Moisture advection from the Gulf of Guinea and Atlantic Ocean, localised convergence in the sahel are expected to increase chance for precipitation over the region. Low level moisture advection from the western Indian Ocean and localised convergence over western Ethiopia are expected to increase chance for precipitation over western Ethiopia.



2. Model discussion

Model comparison (Valid from 00Z; 03 July 2008): all the three models are in general agreement especially with respect to the positioning of large scale features, however, the UK model has a tendency to give lower values than the GFS and ECMWF models in the Equatorial (10^oS and 10^oN) Continental Africa.

2.1. Flow at 850hPa

T+24h, a large part of North Africa is expected to be dominated by north easterlies and a ridge over the north western region. These north easterlies will converge over the Sahel and central Africa with the south easterly/south westerly trades emanating from St Helena and Mascarene anticyclones. Southeasterlies from the south western Indian Ocean and Madagascar are expected to turn into south westerlies at the coast of Somalia. A westerly wave with deep troughs and ridges is expected to dominate over the area south of southern Africa.

T+48h, the flow pattern is expected to be similar to that of the previous day, but the St Helena anticyclone and the cyclonic trough in the Atlantic Ocean will move to the east and occupy part of Angola, Namibia and south Africa. While the Mascarene anticyclone is expected to influence a large part of southern Africa as well as Madagascar.

T+72h, the flow pattern is expected to be similar to that of the previous day. However, the ridge over North Africa is expected to develop into an anticyclone and extend over to Tunisia, Libya and Egypt. In the southern hemisphere the St Helene anticyclone and the trough to its east will continue to move eastwards and push the Mascarene anticyclone further to the east over eastern Zimbabwe, Malawi, Tanzania, Mozambique and Madagascar.

2.2. Flow at 500hPa

T+24h, a large part of the African continent from the north to latitude 20^0S is expected to be covered by an anticyclonic flow pattern due to the subtropical anticyclones lying over land, with westerly waves to the extreme north and south of the continent; while easterlies are expected to prevail along the equatorial latitudes with a cyclonic vortex over Somalia.

T+48h, a similar flow pattern will prevail to that of the previous day, but the cyclonic vortex over Somalia is expected to decay.

T+72h, a similar flow pattern will prevail to that of the previous day. However, the subtropical anticyclone over southern Africa is expected to expand zonally from the Atlantic to the western Indian Ocean.

2.3. Flow at 200hPa

T+24h, an extensive upper level anticyclonic flow pattern is expected to prevail over a large part of Africa north of latitude 20^0S due to subtropical anticyclones over the Sahel and over southern Africa, with a ridge trough over Morocco. Easterlies are expected to prevail equator ward of the subtropical anticyclones, and westerly wave pattern to the south of southern Africa.

T+48h, the flow is expected to be similar to the (T+24h) flow pattern, but the trough over Morocco is expected to move to the north western of Morocco and relax.

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