



## Forecast Guidance for Africa

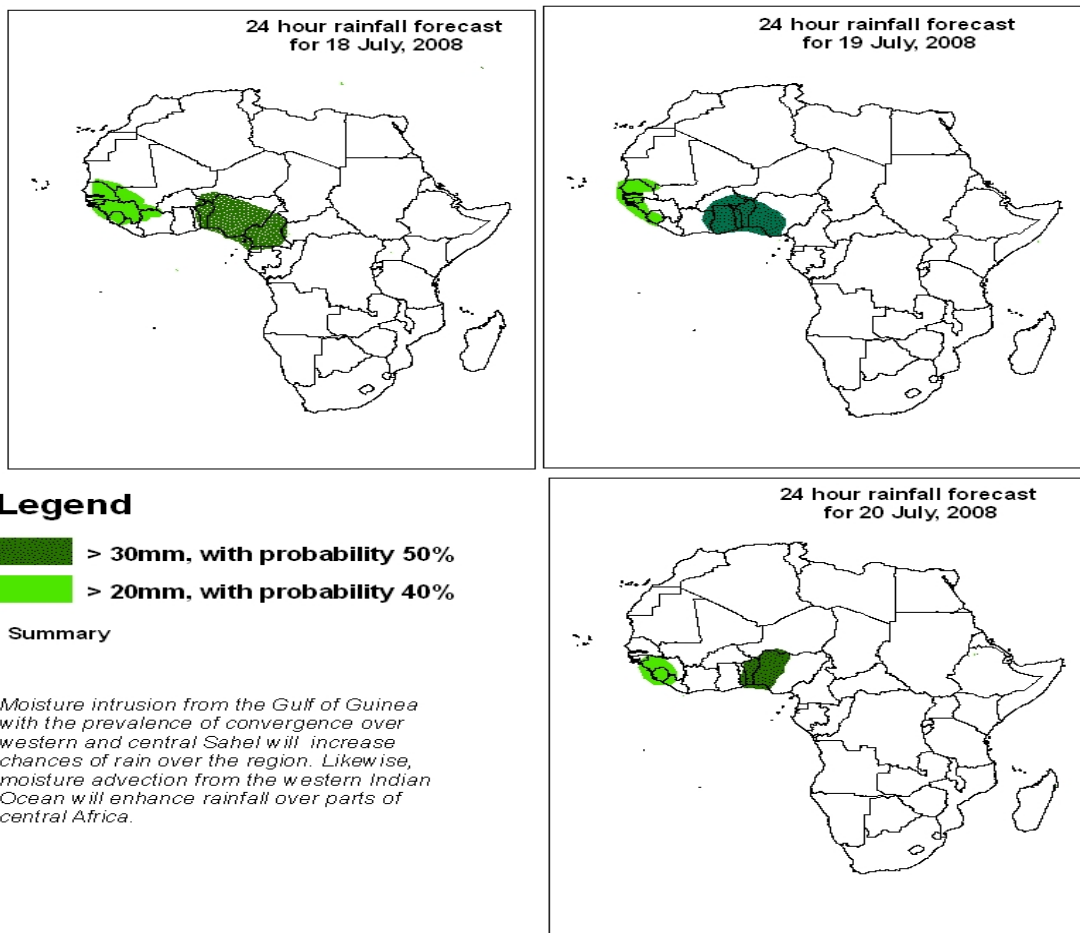
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

**FORECAST DISCUSSION 14H00 EST, 17 JULY 2008**

**Valid: 00Z 18 – 20 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.



## 2. Model discussion

*Model comparison (Valid from 00Z; 18 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°S and 10°N) Continental Africa.*

### 2.1. Flow at 850hPa

T+24h, the Azores and Saharan anticyclonic circulations are expected to merge, covering much of the Maghreb region. However, northerlies will prevail over the eastern portions of Libya and Egypt. Cyclonic vortices will be featured off the coast of Senegal, southern Morocco, northern Mauritania, northwestern Niger, western Sudan and northern Nigeria; while localized convergence will be featured over eastern Ethiopia and the borders of Cameroon/CAR. The West African monsoon is expected to prevail over the Gulf of Guinea countries and further inland up to western Sahel. An anticyclonic system will be featured over the Gulf of Guinea, generating southwesterlies into the region. Much of Southern Africa will be under the influence of the Mascarene anticyclonic circulation that will generate southeasterly flow over northern parts of Southern Africa extending across the Great Lakes region, DRC and into Sudan. The Indian monsoon is expected to prevail over the Western Indian Ocean region of Eastern Africa.

T+48h, the Saharan anticyclonic circulation over Maghreb region will remain quasi-stationary, but will separate from the Azores anticyclone due to the penetration of the Moroccan cyclonic vortex further northwards. However, the cyclonic circulation over northern Nigeria is expected to propagate south-westwards while an anticyclonic circulation will develop over the border between southern Mali and western Burkina and that over the Gulf of Guinea will propagate west-northwestwards. Localized convergence will prevail over eastern Ethiopia, northwestern Sudan, and eastern DRC; whereas, a diffluent flow will be featured over Chad. The Mascarene anticyclonic circulation over Southern Africa will remain quasi-stationary.

T+72h, the Saharan anticyclonic circulation over the Maghreb is expected to merge again with the Azores anticyclone over the north Atlantic, while the northerly airstreams will continue to dominate over parts of Libya and Egypt. The cyclonic vortices over The Gulf of Guinea Countries will continue to propagate westwards with another one developing to its immediate north over central Mali. Thus, the southwesterlies will be confined mainly to the eastern Gulf of Guinea countries. The diffluent flow will persist over Chad and eastern parts of Niger. Localized convergence will form over northern Chad stretching across into northeastern Ethiopia. The Mascarene anticyclonic system over Southern Africa will persist.

### 2.2. Flow at 500hPa

T+24h, the Saharan anticyclonic circulation is expected to prevail over the Maghreb region, extending its ridge up to northern Cote D'Ivoire and flanked by two troughs located off the Moroccan coast and over Egypt respectively. Equator-ward of these systems lie the Easterlies with a perturbation expected over Guinea Bissau/Conakry and northern Nigeria. A cyclonic circulation will be featured over northeastern Namibia to southwestern Angola,

with an anticyclonic circulation to the north, south and east respectively. However, a cyclonic circulation will be featured over the coast of Tanzania extending trough southwestwards into northern Mozambique, Zambia and parts of Zimbabwe. A Westerly wave is expected to prevail over South Africa.

T+48h, the Saharan anticyclonic system will persist over the Maghreb region. The trough over northern Egypt including the cyclonic circulation to the south will persist while that off the Moroccan coast will fade out. An Easterly wave is expected over the Sahel with perturbations centered over the coast of The Gambia and over Nigeria. Cyclonic circulation will prevail over western Angola and Malawi; whereas, an anticyclonic circulation is expected to develop over Botswana and environs. A Westerly wave will persist to the south of Southern Africa.

T+72h, the Flow pattern will be similar over much of Africa to that of the previous day except that the perturbation in the easterlies will be over Ghana/Burkina. Angola and Zambia will be under the influence of a cyclonic System; whereas, the Westerly wave will persist to the south of Southern Africa.

### **2.3. Flow at 200hPa**

T+24h, an extensive upper level subtropical anticyclonic flow pattern is expected to prevail over the entire northern Africa with a mid-latitude trough over Morocco. Easterlies will dominate equator-ward of the subtropical anticyclone with diffluent flow over southern Mali, Chad/Niger and central Sudan. The entire Southern African region is expected to be under the influence of an anticyclonic system centered over northern Mozambique resulting into northeasterly flow to the north and westerly flow to the south.

T+48h, both the subtropical anticyclonic systems over Northern and Southern Africa will intensify. The trough over Morocco will weaken; whereas, northwesterlies will dominate the flow over much of Namibia and South Africa with southerly flow over Mozambique.

T+72h, the flow pattern will be similar to that of the previous day over the North Africa. However, diffluent flows will prevail over Central Sudan and between the borders of Burkina/Ghana/Togo. Northern portions of Southern Africa will be under the influence of an anticyclonic system while the westerly waves will prevail to the south.

#### *Authors:*

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