



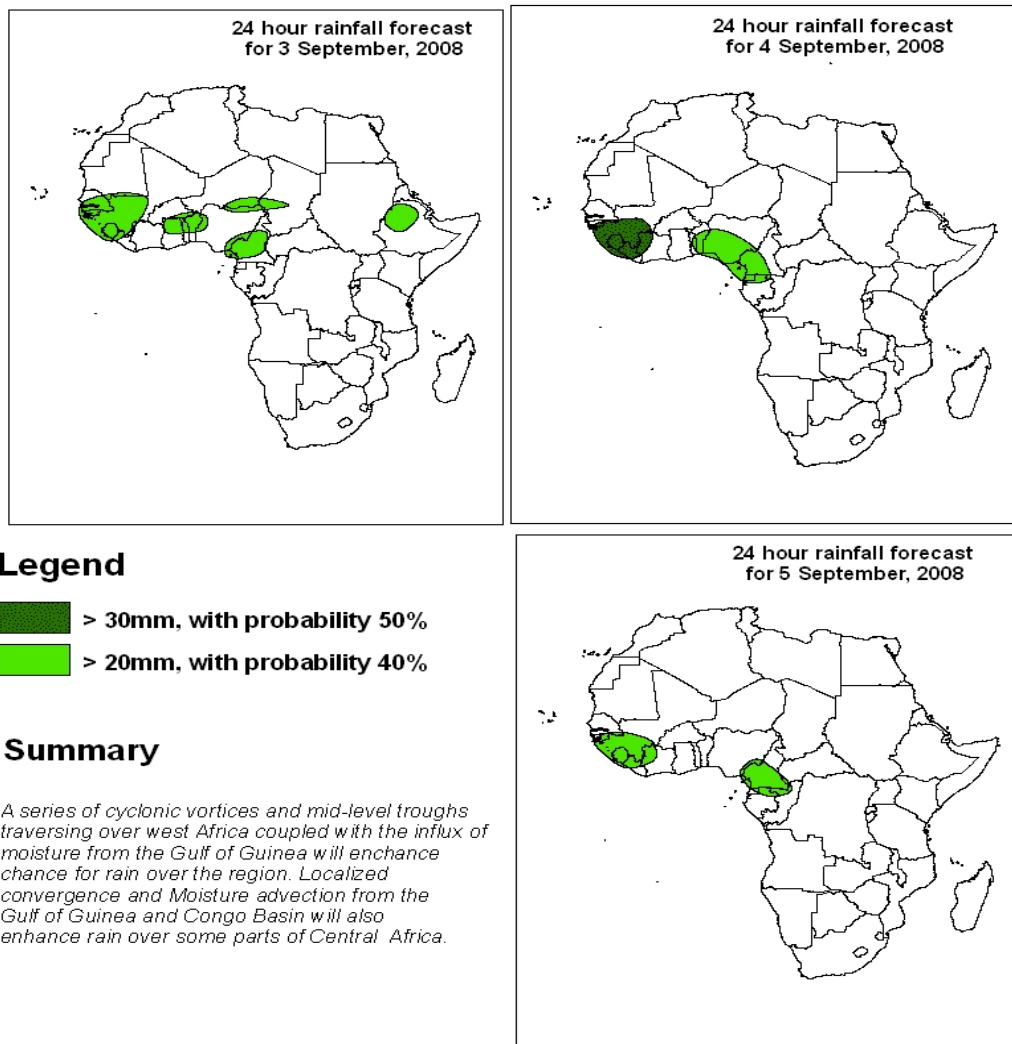
## Forecast Guidance for Africa

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<sup>nd</sup> SEPTEMBER, 2008**  
**Valid: 00Z 03<sup>rd</sup> September – 05<sup>th</sup> SEPTEMBER, 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; 03<sup>rd</sup> September 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 Saharan anticyclonic circulation is expected to dominate the flow over North Africa including western and central Sahel. Series of cyclonic vortices are featured over central Mali, southern Cote d'Ivoire/Ghana northeastern Sudan, northern DRC and western Congo. Localized convergence is likely over southern Senegal, central Ghana stretching to central Benin, eastern Nigeria stretching to eastern Cameroon, western Lake Victoria southern DRC and central Angola. Conversely, localized divergence is likely over most parts of Central and Eastern Africa. Southern Africa will be under the influence of the Mascarene anticyclonic system centered mainly over southern Mozambique. A westerly wave will dominate the flow to the south of South Africa with a trough approaching the western coast.

T+48, a similar flow to that of the previous day will prevail over North Africa and most parts of the Sahel except for a mid-latitude trough which will be featured off the Moroccan Coast. The cyclonic vortex over Mali will propagate northwestwards to southern Mauritania while the one over Cote d'Ivoire/Ghana will propagate to northern Liberia. The cyclonic vortex over Sudan is expected to be quasi-stationary while those featured over central Africa will decay. Localized convergence will occur over southwestern Mali, Guinea Conakry, southern Nigeria, Gabon, eastern DRC and northern Angola; whereas localized divergence will prevail over most parts of Central and Eastern Africa. The mid-latitude trough featured off the western coast off South Africa will progress eastwards into the mainland and is expected to deepen. The rest of Southern Africa will be under the influence of both the St. Helena and Mascarene anticyclonic systems with the later dominating the flow.

T+72, the wind flow is expected to remain quasi-stationary over North Africa. The Cyclonic vortex over Mauritania will decay while the one featured over Liberia will move northwestwards to western Guinea Conakry and intensify. The one over northeast Sudan will move southwestwards towards western Sudan. Confluent flow is likely over eastern Mali, western and southern Niger, eastern Nigeria, northern Congo and central Angola. The diffluent flow over the Great lakes region is expected to persist. With the passage of the mid-latitude trough over South Africa, the Mascarene anticyclonic system is expected to dominate the flow over Southern Africa.

### 2.2. Flow at 500hPa:

T+24, two Sub-Tropical anticyclonic circulation systems are expected to prevail over Northern Africa with centers over eastern Algeria and southern Egypt respectively. These two systems will be separated by a mid-level trough centered over eastern Libya another trough is featured over the Atlantic Ocean off the Moroccan coast. South of the anticyclonic systems are easterlies, in which shortwave troughs are embedded with their

axes lying to the southeast of Cape Verde Islands and between central Niger and Nigeria. A cyclonic circulation is featured over Cote d'Ivoire and is expected to be a deep system. Diffluent flow will occur over CAR and East Africa. The northern sector of Southern Africa will be under the influence of a Sub-Tropical anticyclonic system while the southern sector will be dominated by westerlies.

T+48, similar flow patterns to that of the previous day are expected over Northern and Southern Africa. However, the anticyclonic circulation systems over North Africa will merge; thus, dominating the flow over the region. The cyclonic circulation featured over Cote d'Ivoire will decay and will be replaced by diffluent flow stretching from western Nigeria.

T+72, the main changes expected on the general flow as compared to that of the previous day are the slight northward retreat of the Sub-Tropical anticyclonic system to the north and the intensification of the one to the south. A cyclonic circulation is expected to develop over Sierra Leone and a confluent flow over CAR and Uganda while diffluent flow will prevail over Ethiopia.

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

T+24h, an extensive upper-level anticyclonic flow pattern is expected to prevail over the Sahel/Sahara including parts of gulf of guinea countries. A westerly wave will dominate the flow over the Maghreb region north of the anticyclonic flow with upper-level troughs featured over the northeast Atlantic Ocean and over northeastern Libya. Easterlies will prevail to the south with a short wave trough likely over western Cote d'Ivoire eastern Guinea Conakry. Much of Central Africa, East and the northern parts of Southern Africa will be under the influenced of a Sub-Tropical anticyclonic system, while a westerly wave will dominate to the flow over the southern parts of Southern Africa.

T+48h, the trough over the Atlantic Ocean is expected to deepen and progress towards the Moroccan coast while that over Libya will fill-up. The short wave trough featured over Cote d'Ivoire/Guinea Conakry will propagate northwestwards to Guinea Bissau/Senegal while another will develop over southern Sudan and stretching to southwestern Ethiopia. The flow pattern over the southern sectors of the continent will be similar to that of the previous day except that two upper-level shortwave troughs will be featured embedded on the general westerly flow with their axes centered over northwest Namibia and Malawi/Mozambique.

T+72h, the westerly wave is expected to extend further south over the Maghreb region with another extensive upper-trough featured over Libya and northern Niger; thus splitting the anticyclonic system. The trough over Namibia will fill-up while that over Malawi/Mozambique will prevail and extend to Zambia. The rest of Southern Africa will be dominated by an anticyclonic flow.

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