



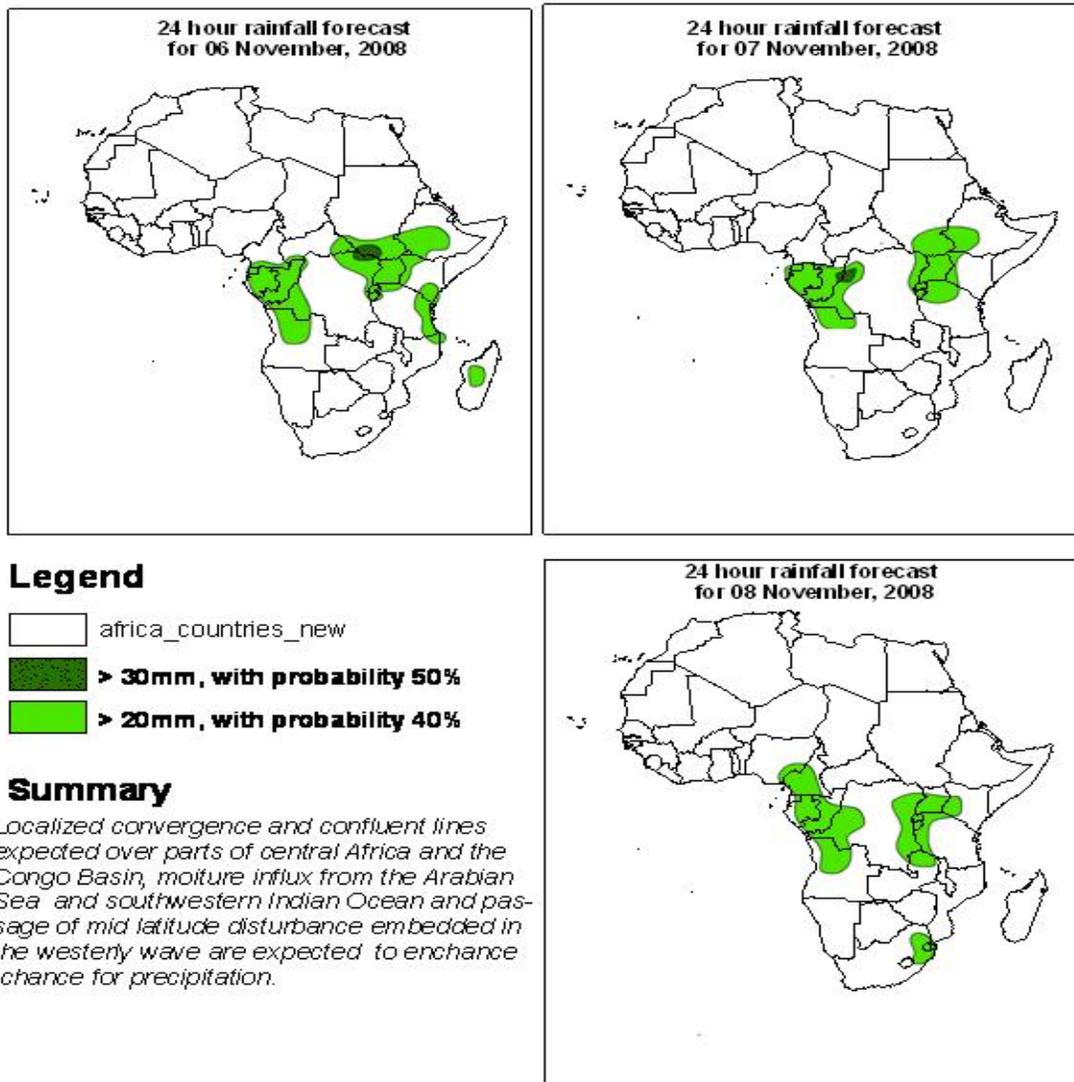
## Forecast Guidance for Africa

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<sup>th</sup> NOVEMBER, 2008**  
**Valid: 00Z 06<sup>th</sup> NOVEMBER – 08<sup>th</sup> NOVEMBER, 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; 06<sup>th</sup> November, 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, a merger of the Azores and the Saharan anticyclonic circulations will dominate the flow over much of North and West Africa with a trough affecting parts of Algeria and Tunisia. A cyclonic vortex will feature over northeastern Sudan, northern Ethiopia and part of Eritrea. Localized convergence is likely to occur over the Lake Victoria region, southern Angola and over southeastern Namibia. Confluent flows are expected to occur over eastern Ethiopia, eastern Cameroon, western and southeastern DRC, northwestern Zambia and over northern Mozambique. On the other hand, localized divergence is expected to occur over southeastern Sudan and over southwestern DRC. Much of Southern Africa will be under the influence of the St. Helena anticyclone on the Atlantic Ocean side and Mascarene anticyclonic circulation system over the South West Indian Ocean. To the south, a westerly wave will prevail.

T+48, the merger of the Azores and Saharan anticyclonic circulations is expected to intensify. The trough over Algeria will weaken and retreat northeastwards but still affect northern Tunisia. The cyclonic vortex over northern Ethiopia will remain in the same position. Convergence is likely to occur over southwestern Sudan, the Lake Victoria region, southeastern DRC and over northern Botswana. Confluent flows are expected to occur over northeastern Nigeria, western Sudan, southern Nigeria, western CAR, western Gabon, central DRC, eastern and southern Angola, northern Mozambique and over southwestern Madagascar. Divergence is expected to occur over central Sudan and over northwestern Angola. The flow over much of Southern Africa will be dominated by the St. Helena and Mascarene Anticyclonic circulation systems separated over h Africa by a deep trough.

T+72, the Azores anticyclone is likely to retreat northwestwards and the Saharan anticyclonic circulation system will dominate the flow over much of North and West Africa. The trough over northern Tunisia will weaken and retreat northwards. Convergence is expected to occur over northern Ethiopia, northeastern Nigeria, western Cameroon, northern Tanzania, southern Angola and over western Zambia. Confluent flows are likely to occur over western Sudan onto eastern Chad, western DRC, southwestern Tanzania, southeastern Botswana and over the southern Mozambique Channel. On the other hand, divergence will be featured over northeastern Sudan and over northwestern Angola. Much of Southern Africa is expected to be under the influence of the St. Helena and Mascarene anticyclonic circulations with a westerly wave to the South.

### **2.2. Flow at 500hPa:**

T+24, a westerly wave in which two troughs are embedded over northern Morocco and northern Algeria and over Egypt with a sub-tropical anticyclonic circulation system to the South. Localized convergence is expected to occur over southern Chad, southwestern Sudan, the eastern Gulf of Guinea, northern Congo and over northeastern DRC. Confluent flows will be featured over northwestern Somalia southern Cameroon, western Congo, western and southeastern DRC, southeastern Tanzania and over northern Madagascar. Divergence will be featured over southern Sudan and over eastern DRC. Much of Southern

Africa will be dominated by an anticyclonic circulation system, with a westerly wave to the South.

T+48, the trough embedded in the westerlies over northern Morocco and Algeria will weaken and retreat northwards, while the one over Egypt will also retreat eastwards but still affect the southeastern sector. An anticyclonic circulation featured to the South will affect the northeastern sector of Egypt. To the South, a sub tropical anticyclonic circulation will prevail. Convergence is expected to occur over southeastern Nigeria, southeastern Sudan, and over western Gabon. Confluent flows are likely to occur over southern Chad, western and central DRC and over western Tanzania. Divergence is expected to occur over eastern Chad and over southeastern Sudan. Much of Southern Africa will be under the influence of the St. Helena ridge except for Madagascar which will be affected by a trough in the westerly wave.

T+72, the trough over Morocco and Algeria is likely to weaken and retreat northwards, while the one over Egypt will weaken and retreat northeastwards. The anticyclonic circulation over northeastern Egypt will decay. A Sub-tropical anticyclonic circulation system will dominate the flow over the rest of North Africa. Cyclonic vortices will be featured over southeastern Nigeria and over western DRC. A closed cyclonic circulation will affect the eastern Gulf of Guinea. Convergence is expected to occur over western CAR and over eastern DRC. Confluent flows are expected to occur over western Ethiopia, western Cameroon, northeastern DRC, eastern Kenya, northwestern Angola and over northeastern Zambia. Diffluent flows are likely to occur over eastern Ethiopia. The flow over much of Southern Africa will be dominated by St. Helena ridge with a westerly wave to the south.

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

T+24h, a westerly wave with two embedded troughs over northern Algeria and northeastern Egypt will dominate the flow over the Maghreb region including Egypt. To the south, an anticyclonic circulation system will prevail. Confluent flows will be featured over eastern Sudan, southwestern Kenya, eastern DRC and over northeastern Angola. Divergence is likely to occur over southern Sudan and over northeastern DRC. The flow over the northern sector of Southern Africa will be dominated by an anticyclonic circulation, while a westerly wave will affect the southern sector.

T+48h, a westerly wave will dominate the flow over Northern Africa. The trough over northern Algeria will expand eastwards, while the one over northeastern Egypt will also weaken and retreat northeastwards. To the South, an anticyclonic circulation system will prevail. Confluent flows are expected to occur over northern Somalia, western Kenya, western and eastern DRC. Divergence is likely to occur over western Congo and central Uganda. The flow over Southern Africa will be similar to that of the previous day.

T+72h, a westerly wave will prevail over North Africa and the trough over northern Algeria is expected to weaken and retreat northwards. An anticyclonic circulation is expected to dominate the flow to the South. Confluent flows will be featured over central Nigeria, southern Somalia and over eastern Angola. Divergence is likely to occur over eastern Congo, eastern DRC and over northwestern Kenya. The flow over much of Southern Africa is expected to be dominated by a mid latitude westerly wave except for the northwestern sector which will be under the influence of an anticyclonic circulation.

*Author: Lutumba Tima (Instituto Nacional de Meteorologia, Angola, and African Desk).*