



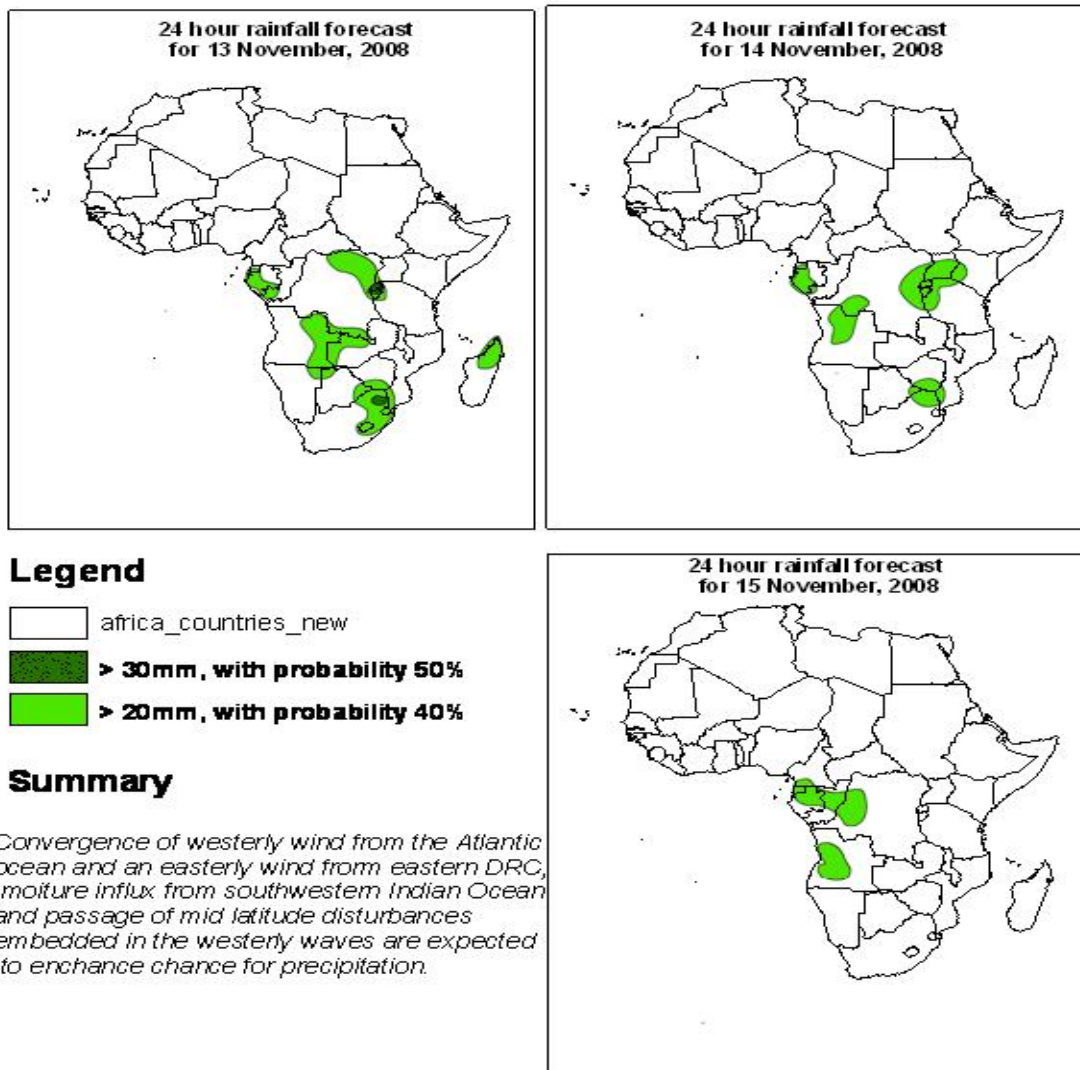
## Forecast Guidance for Africa

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

**FORECAST DISCUSSION 14H00 EST, 12<sup>th</sup> NOVEMBER, 2008**  
**Valid: 00Z 13<sup>th</sup> NOVEMBER – 15<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; 11<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, the flow over much of North and West Africa is expected to be dominated by the Saharan anticyclonic circulation system with a deep trough featured over parts of Algeria and Tunisia. An anticyclonic vortex is likely to develop over northern DRC, while cyclonic vortices are expected to develop over northeastern Angola and southern South Africa. Localized convergence is likely to occur over central Zambia and over eastern Namibia. Confluent flows are expected to occur over western CAR onto eastern Cameroon, southwestern Sudan, southwestern Ethiopia onto southeastern Sudan, southeastern Ethiopia, central and southern Tanzania, southwestern Angola, northwestern Zambia and over the eastern sector of South Africa. On the other hand, localized divergence is expected to occur over eastern DRC. Diffluent flows are expected to occur over the northwestern coast of Angola. Much of Southern Africa will be under the influence of the St. Helena anticyclonic circulation system.

T+48, the Saharan anticyclonic circulation will continue to prevail over much of North and West Africa. The trough over Algeria and Tunisia will expand eastwards to northwestern Libya. Anticyclonic vortices are likely to develop over central DRC and over southern Congo, western DRC and northwestern Angola. Conversely, cyclonic vortices are expected to develop over northeastern Angola and over central South Africa. Convergence is expected to occur over northern Uganda, southern Angola, southern Zambia and over eastern Namibia. Confluent flows are expected to occur over southern CAR, western and southeastern Ethiopia, southwestern Tanzania, northern Zambia and over the western sector of Angola. Diffluent flows will be featured over eastern Angola. The flow over much of Southern Africa will be dominated by the St. Helena and Mascarene Anticyclonic circulation systems with a westerly wave will prevail to the South.

T+72, the flow over much of North and West Africa will be similar to that of the previous day. However, the trough over northern Algeria will deepen and stretch southwards. A closed cyclonic circulation will affect the northern coast of Angola. Convergence is expected to occur over northern Zambia, the border between southern Angola and northern Namibia, eastern Namibia and over southwestern Mozambique. Confluent flows are likely to occur over central Cameroon, western and eastern Ethiopia, eastern DRC, western Tanzania, northeastern Angola, southwestern Zambia and over southern Botswana. On the other hand, divergence will be featured over southeastern DRC and over southeastern South Africa. Much of Southern Africa is expected to be under the influence of the St. Helena and Mascarene anticyclonic circulations. A trough in the westerly wave will affect the southern sector of the Mozambique Channel.

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

T+24, a westerly wave in which a trough is embedded over northern Morocco and Algeria will dominate the flow over much of North Africa. To the South, a sub-tropical anticyclonic circulation system will prevail. Confluent flows will be featured over northwestern Gabon, northeastern and eastern Congo, central DRC, southwestern Angola and over southern Botswana. Diffluent flows will be featured over western Gabon and over the coast of Tanzania. Much of Southern Africa will be dominated by the Mascarene

anticyclonic circulation system, while a westerly wave is expected to dominate the southern sectors with a deep back hanging trough over the southeastern Atlantic Ocean.

T+48, a westerly wave will dominate the flow over much of North Africa with a trough over northern Algeria will extending eastwards to Tunisia. To the South, a sub-tropical anticyclonic circulation will prevail. Confluent flows are likely to occur over northwestern Gabon, northern Angola and over northwestern, western and central DRC. Divergence is expected to occur over the northeastern CAR and over the northwestern sector of DRC. Much of Southern Africa and the region surrounding Madagascar will be under the influence of the Mascarene anticyclonic circulation, while the southern sectors of South Africa and Namibia will be affected by a westerly wave with a cut off anticyclonic system over the Atlantic Ocean.

T+72, the trough in the westerly wave over western Maghreb is expected to strengthen and expand eastwards to northwestern Libya. A Sub-tropical anticyclonic circulation system will dominate the flow over the rest of North Africa. Confluent flows are expected to occur over southeastern central and southern Somalia, western Kenya onto eastern Uganda and over northeastern Tanzania. Divergence is likely to occur over northwestern Congo and over central DRC. The flow over much of Southern Africa will be dominated by an anticyclonic circulation, to the South of which a westerly wave will prevail.

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

T+24h, a westerly wave with an embedded trough over western Maghreb will dominate the flow over the Maghreb region including Egypt. Another trough will affect the western Gulf of Guinea. To the south of which, an anticyclonic circulation system will prevail with an embedded closed cyclonic circulation over parts of Tanzania and southeastern Kenya. Confluent flows will be featured over northern and southeastern CAR, western Ethiopia onto southeastern Sudan and over central DRC. Divergence is likely to occur over southwestern Congo and over the northeastern sector of DRC. The flow over much of Southern Africa will be dominated by an anticyclonic circulation.

T+48h, The trough over the western Maghreb will weaken and retreat northeastwards but still affect northern Algeria, while the one over the western Gulf of Guinea will remain in the same position. To the South, an anticyclonic circulation system will prevail. The closed cyclonic circulation over Tanzania will move westwards to eastern DRC. Confluent flows are expected to occur over northwestern DRC, southern Somalia, southern Kenya, the coast of Tanzania and over northwestern Angola. Divergence is likely to occur over central DRC and over eastern Kenya. Much of Southern Africa will be under the influence of an anticyclonic circulation.

T+72h, a westerly wave will prevail over North Africa and the trough over northern Algeria will expand northeastwards, while the one over western Gulf of Guinea is likely to weaken. An anticyclonic circulation is expected to dominate the flow to the South. A cyclonic vortex is likely to develop over southeastern DRC. Localized convergence is expected to occur over central Uganda. Confluent flows will be featured over northern Somalia, eastern Ethiopia, northwestern Kenya, northern and southwestern Tanzania. Divergence is likely to occur over southern DRC. The flow over much of Southern Africa is expected to be dominated by an anticyclonic circulation except for the southern sector which will be under the influence of a westerly wave.

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