



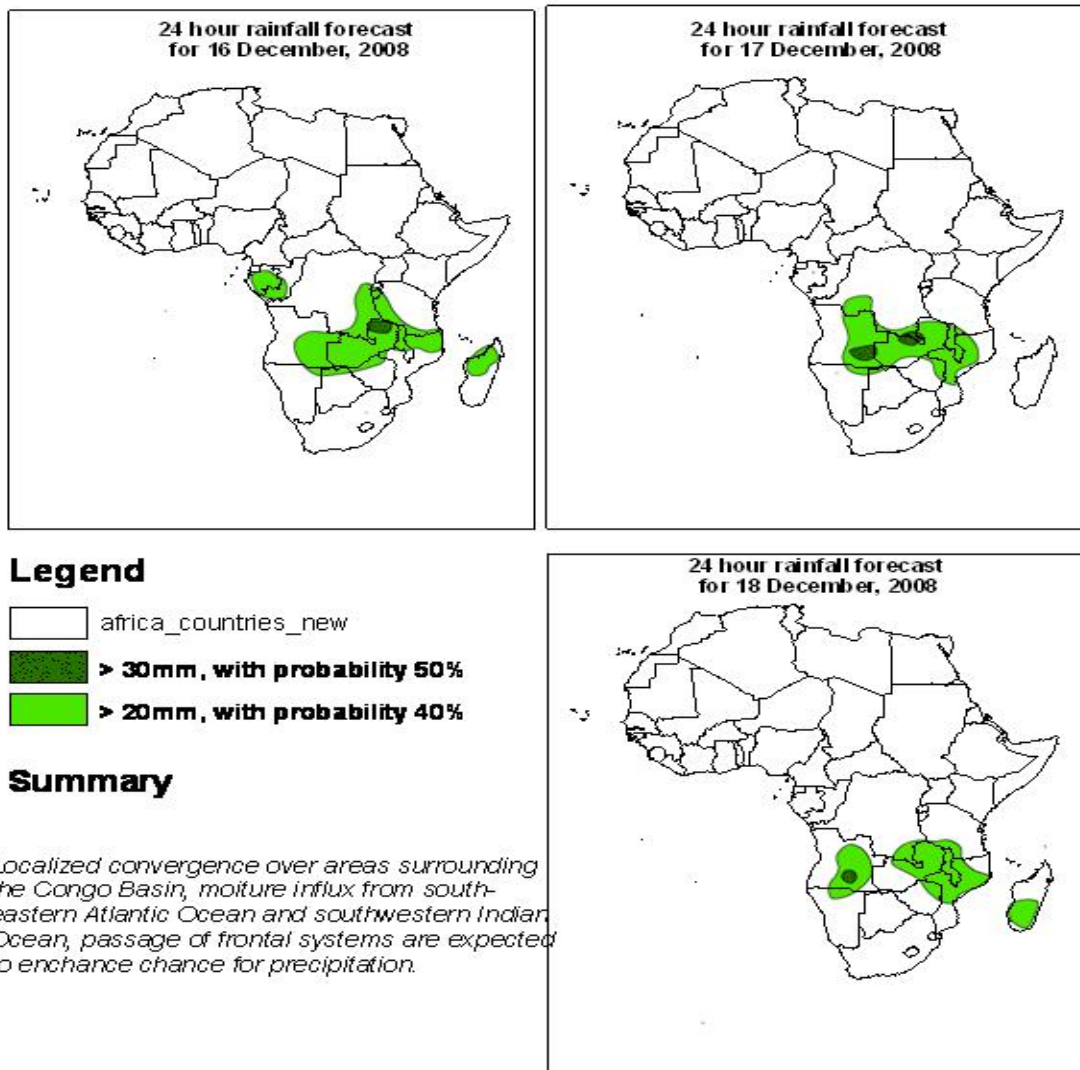
## Forecast Guidance for Africa

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

**FORECAST DISCUSSION 14H00 EST, 15<sup>th</sup> DECEMBER, 2008**  
**Valid: 00Z 16<sup>th</sup> DECEMBER – 18<sup>th</sup> DECEMBER, 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; 16<sup>th</sup> December, 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 will dominate the flow over much of North Africa. A deep trough will be featured over parts of Algeria and Tunisia. Localized convergence is expected to occur over northwestern Cameroon, northeast DRC, northern Tanzania and over eastern Angola. Confluent flows will be featured over southeastern Congo, eastern DRC, southern Angola and over southeastern Namibia. On the other hand, divergence is expected to occur over central DRC. Diffluent flows will occur over southern Somalia and western Angola. Much of Southern Africa will be under the influence of the St. Helena and Mascarene anticyclonic circulation systems with a westerly wave to the south.

T+48, the Saharan anticyclonic circulation will continue to prevail over much of North Africa, while the Azores anticyclonic circulation will affect the bulge of Africa. The trough over Algeria and Tunisia will deepen southwestwards to northern Mali. An anticyclonic vortex is likely to develop over eastern DRC. Convergence will occur over central Cameroon, western DRC, northern Tanzania, southwestern Angola and over central South Africa. Confluent flows are expected to occur over southeastern Ethiopia, southern Uganda, northwestern Zambia and eastern Zimbabwe. Divergence will occur over eastern Namibia. Diffluent flows are expected to occur over northern DRC and northwestern Angola. The flow over much of Southern Africa is expected to be under the influence of the St. Helena and Mascarene anticyclonic circulation systems with a westerly wave to the South.

T+72, the Azores and Saharan anticyclonic circulation are expected to merge and dominate the flow over much of North Africa. The trough over Algeria and Tunisia will weaken and retreat northeastwards but still affect parts of Tunisia. A closed cyclonic circulation will be featured off the southern coast of Angola, while a cyclonic vortex is likely to develop over the southern coast of Mozambique. Localized convergence will be featured over the eastern sector of DRC, southern Angola, southwestern Zambia, southeastern Namibia and southeastern South Africa. Confluent flows are expected to occur over southeastern Ethiopia, western DRC, southern Uganda, northern Tanzania, southeastern Zambia and over northwestern Namibia. Diffluent flows are expected to occur over northern DRC and over southeastern Zimbabwe. Much of Southern Africa will be dominated by the St. Helena and Mascarene anticyclonic circulation systems to the South of which a westerly wave will prevail.

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

T+24, a westerly wave, in which a deep trough is embedded over parts of Algeria and Morocco, is expected to dominate the flow over much of North Africa. To the South, the Saharan anticyclonic circulation system is expected to prevail. Cyclonic vortices are likely to develop over the northern Mozambique Channel and over northwestern Madagascar. Confluent flows are expected to occur over southern Somalia, northern Tanzania, southwestern DRC and central Angola. On the other hand, divergence will be featured over eastern Angola. Diffluent flows are expected to occur over central Tanzania. The flow over

Southern Africa will be dominated by a merger between the St. Helena and Mascarene anticyclonic circulation systems. A westerly wave will affect southern of South Africa.

T+48, the flow over much of North Africa will be similar to that of the previous day. The trough over Algeria and Morocco will remain in the same position. Cyclonic vortices are likely to develop over southern Angola and southwestern Zambia. Confluent flows will be featured over eastern DRC, northern Tanzania, southeastern Kenya, southern Angola and over northern Zimbabwe. Diffluent flows are expected to occur over northwestern Angola, southeastern DRC and over northeastern Zambia. The flow over much of Southern Africa will be under the influence of St. Helena and Mascarene anticyclonic circulation systems that will be separated apart. A westerly wave will affect the southern sector of South Africa.

T+72, the trough in the westerly wave over Algeria and Morocco is likely to expand westwards to Tunisia and northwestern Libya. To the South, the Saharan anticyclonic circulation system will prevail. A closed cyclonic circulation will prevail over central Angola, while a cyclonic vortex is likely to develop over southern Zambia. Confluent flows are expected to occur over northwestern Tanzania and western Zambia. Localized divergence is expected to occur over central Tanzania. Diffluent flows will be featured over eastern DRC and over northwestern Angola. The St. Helena and Mascarene anticyclonic circulation systems will continue to dominate the flow over much of Southern Africa with a trough in the westerly wave affecting the southern sector of Madagascar.

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

T+24h, the flow over much of North Africa will be dominated by a westerly wave in which a trough is embedded over northern Morocco and northwestern Algeria. The near equatorial region will be dominated by an extensive upper-level anticyclonic circulation. Confluent flows are expected to occur over northeastern Kenya, northeastern DRC and over northern Angola. Divergence is expected to occur over southeastern DRC. The flow over the northern sector of Southern Africa will be under the influence of an anticyclonic circulation, while the southern sector will be dominated by a westerly wave.

T+48h, a similar flow to that of the previous day will prevail over most of North Africa. The trough over northern Morocco and northwestern Algeria will remain in the same position. Confluent flows are expected to occur over southern Sudan, western DRC and over northwestern Angola. Divergence is expected to occur over eastern Congo and central Zambia. The flow over much of Southern Africa will be dominated by an anticyclonic circulation with a westerly wave affecting the southern sector of southern Africa.

T+72h, a westerly wave will prevail over much of North Africa. The trough over northern Morocco and northwestern Algeria is expected to move eastwards to northern Tunisia. To the South, an extensive anticyclonic circulation system will dominate the flow. Convergence will be featured over the border between northeastern Congo and northwestern DRC. Confluent flows are expected to occur over southern Sudan, northern DRC and over southern Tanzania. On the other hand, Divergence is likely to occur over eastern Angola and over northern Zambia. The flow over the northern sector of Southern Africa will be under the influence of an extensive anticyclonic circulation system, while the southern sector will be affected by a westerly wave with a back hanging trough over the southeastern Atlantic Ocean.

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