



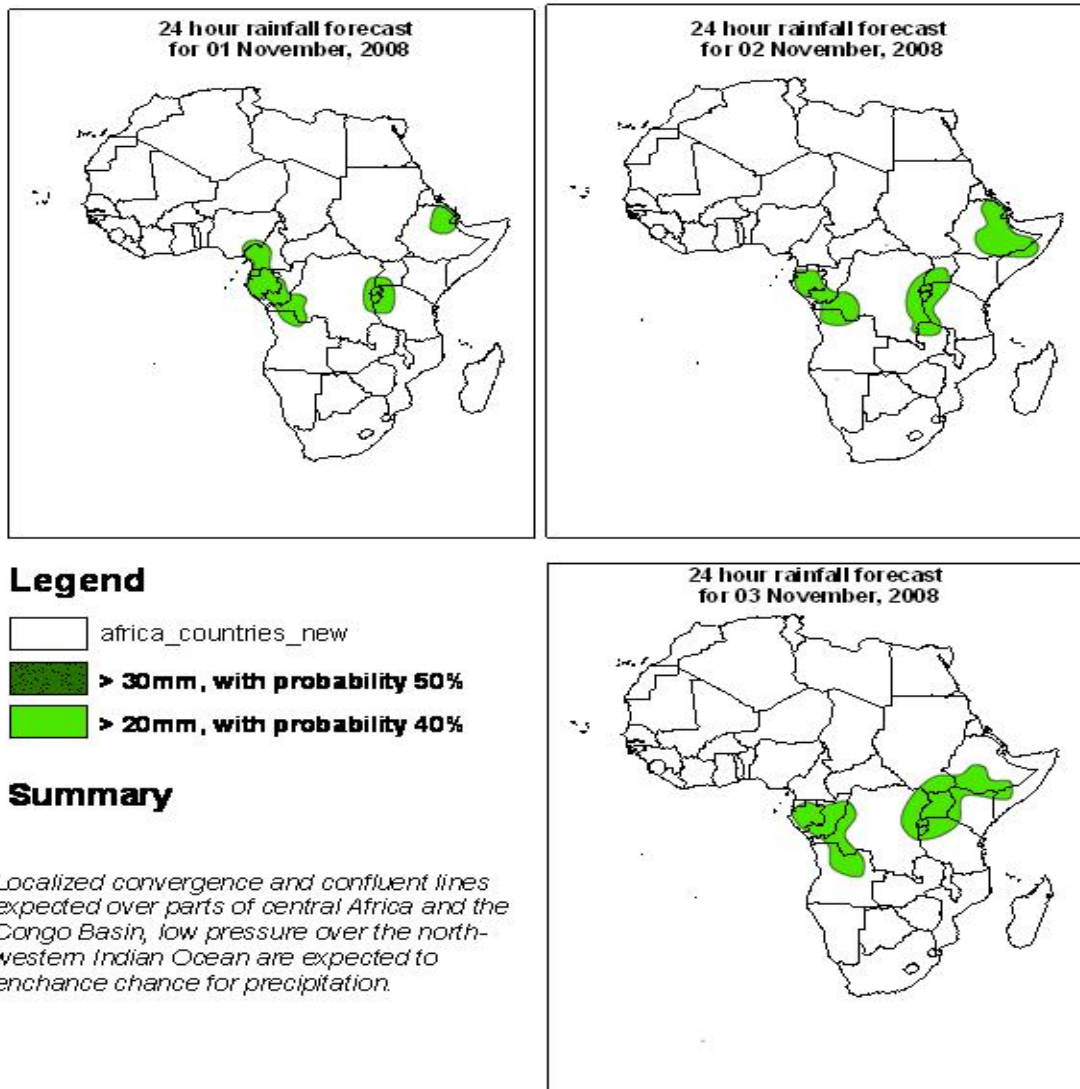
## Forecast Guidance for Africa

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

**FORECAST DISCUSSION 14H00 EST, 31<sup>st</sup> OCTOBER, 2008**  
**Valid: 00Z 01<sup>st</sup> NOVEMBER – 03<sup>rd</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; 01<sup>st</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, while a trough will affect much of western Maghreb. Localized convergence is likely to occur over the Lake Victoria region, southern Angola and over the border between eastern Namibia and western Botswana. Confluent flows are expected to occur over southeastern Nigeria, northern Eritrea, northern and the eastern sector of Ethiopia, northwestern DRC and over western Zambia onto eastern Angola. On the other hand, localized divergence is expected over southeastern Sudan. Diffluent flows will be featured over the western sector of DRC. Much of Southern Africa will be under the influence of St. Helena and Mascarene anticyclones with an embedded mid latitude trough in the westerlies to the South.

T+48, the flow over much of North and West Africa will be similar to that of the previous day. The trough over western Maghreb is likely to expand southeastwards to northern Mauritania and northwestern Mali. Convergence is likely to occur over western Ethiopia, the Lake Victoria region, southern Angola and over eastern Namibia. Confluent flows are expected to occur over the northern sector of Ethiopia, central Gabon, the southeastern sector of DRC and over central Angola. Conversely, divergence is expected over the northern sector of DRC. The flow over much of Southern Africa will be dominated by the St. Helena and Mascarene Anticyclonic circulation systems. To the South, a trough in the westerlies will affect the southeastern sector of South Africa.

T+72, the Saharan anticyclonic circulation will prevail over much of North and West Africa. The trough over western Maghreb is likely to deepen and stretch southwestwards to western Mauritania. Convergence is expected to occur over western Ethiopia, the eastern Gulf of Guinea, the border between western DRC and northwestern Angola and over the Lake Victoria region. Confluent flows are likely to occur over northeastern Ethiopia, northeastern Kenya, southeastern DRC, the southern sector of Angola and over eastern Namibia onto western Botswana. Conversely, divergence will be featured over western DRC. Diffluent flows are expected to occur over the coast of Kenya. Much of Southern Africa is expected to be under the influence of the St. Helena and Mascarene anticyclones. A trough, in the westerlies, will affect the southeastern sector of South Africa.

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

T+24, a westerly wave will in which two deep troughs are embedded off the coast of Morocco and over parts of Egypt and Sudan and an extensive sub-tropical anticyclonic circulation will affect the flow over much of North Africa. Confluent flows are expected to occur over northwestern and southwestern Congo, western and the southeastern sector of DRC. Divergence will be featured over northeastern Zambia. Much of Southern Africa will be dominated by an anticyclonic circulation system, while a westerly wave with an embedded trough will affect southern South Africa, the Mozambique Channel and part of Madagascar.

T+48, a westerly wave with an embedded trough over Morocco will dominate the flow over the Maghreb region, while much of North and West Africa will be under the influence

of a sub-tropical anticyclonic circulation. The trough over eastern Egypt and northeastern Sudan will remain in the same position. Convergence is expected to occur over southeastern DRC and over northeastern Zambia. Confluent flows are likely to occur over northwestern Gabon, northwestern DRC, southeastern Uganda, southeastern Kenya and over eastern Angola. Divergence is expected to occur over central DRC. Much of Southern Africa will be under the influence of the St. Helena ridge except for northern Madagascar which will be affected by the Mascarene Anticyclone. A westerly wave will prevail to the South.

T+72, the trough over Morocco will deepen southeastwards to Western Sahara and western Algeria, while the one over Egypt is likely to strengthen and extend southwards to central Sudan and northern Ethiopia. An extensive Sub-tropical anticyclonic circulation system will dominate the flow over the rest of North Africa. Convergence will be featured over western Tanzania. Confluent flows are expected to occur over southern Gabon, northwestern Angola, northeastern and southeastern DRC and over western Zambia. Divergence is likely to occur over the eastern Sector of DRC. The flow over much of Southern Africa will be dominated by St. Helena ridge, while the Mascarene anticyclone will affect northern Madagascar. A westerly wave will dominate to the South.

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

T+24h, a westerly wave with an embedded trough over Morocco will dominate the flow over the Maghreb region including Egypt. To the south, an extensive anticyclonic circulation system will prevail. Confluent flows will be featured over southeastern Nigeria, southwestern Sudan, northwestern Congo, northern DRC and over southwestern Somalia. Divergence is likely to occur over the northern sector of DRC. The flow over much of Southern Africa will be dominated by a westerly wave except for the northwestern sector which will be under the influence of an anticyclonic circulation.

T+48h, a westerly wave will dominate the flow over the Maghreb region. The trough over western Maghreb will retreat northwards but still affect Morocco. To the South, an extensive anticyclonic circulation system will prevail. Confluent flows are expected to occur over southwestern Niger, western and southern Nigeria, northeastern DRC onto northwestern Uganda and over southern DRC. Divergence is likely to occur over the northern sector of DRC. The flow over the northwestern sector of Southern Africa will be dominated by an anticyclonic circulation system, while the remaining part will be under the influence of a westerly wave.

T+72h, a westerly wave will prevail over North Africa and the upper-level trough over western Maghreb will remain in the same position. An anticyclonic circulation is expected to dominate the flow to the South. Confluent flows will be featured over southern Chad, northeastern CAR, southeastern Sudan, northwestern and southeastern DRC and over eastern Angola. Divergence is likely to occur over western DRC. The flow over much of Southern Africa is expected to be dominated by a mid latitude westerly wave that will expand to northern Zambia and southern Tanzania, while the rest will be under the influence of an anticyclonic circulation system.

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