



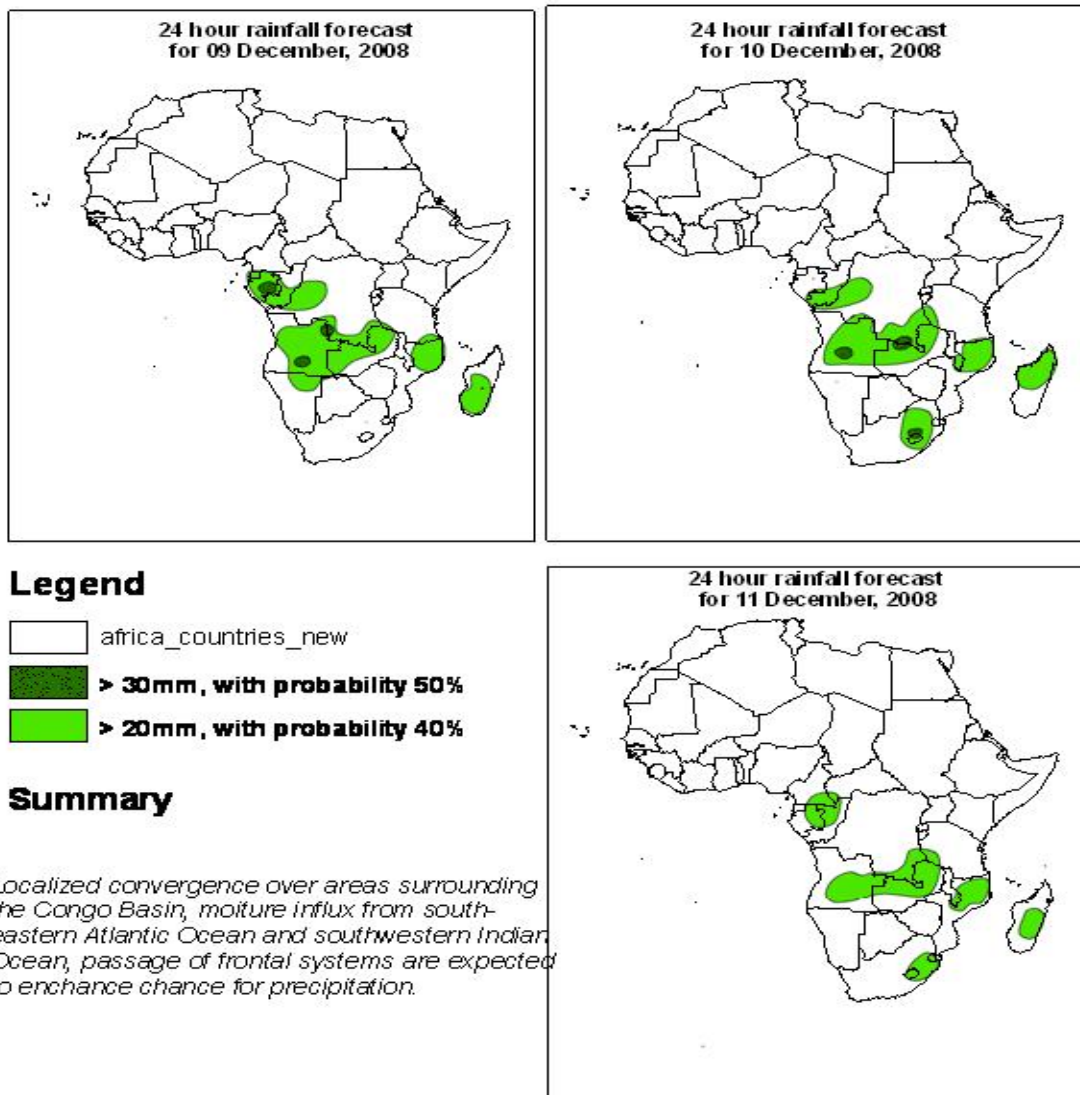
Forecast Guidance for Africa

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

FORECAST DISCUSSION 14H00 EST, 08th DECEMBER, 2008
Valid: 00Z 09th DECEMBER – 11th 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; 09th 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+24, the flow over much of North Africa will be under the influence of the Saharan anticyclonic circulation system, while the Azores anticyclonic circulation will affect the bulge of Africa with a trough featuring over the western Maghreb region. Cyclonic vortices are likely to develop over southern Algeria, southern Chad and central South Africa. Localized convergence is expected to occur over the northeastern sector of DRC, the Lake Victoria region, western Tanzania, northeastern and southwestern Angola and northern Namibia. Confluent flows will be featured over western Ethiopia, southeastern Sudan, eastern Cameroon, northwestern DRC and over southeastern Congo. Diffluent flows are likely to occur over southeastern Kenya, along the coast of Tanzania and over southwestern Zambia. The flow over much of Southern Africa will be dominated by the St. Helena anticyclonic circulation system except for Madagascar which will be influenced by the Mascarene Anticyclone.

T+48h, the Azores anticyclonic circulation is expected to retreat westwards, while the Saharan anticyclonic circulation system is likely to intensify. The trough over western Maghreb will deepen to northwestern Mali. A small ridge will affect parts of Gabon and Congo, while a trough from the Atlantic Ocean will prevail over southwestern Angola. Localized convergence is expected to occur over northwestern CAR, western DRC, western Tanzania, central Namibia and over southeastern South Africa. Confluent flows are expected to occur over southeastern Chad, eastern Cameroon, western and southeastern Ethiopia, eastern DRC, southern Angola and over western Zambia. On the other hand, diffluent flows are expected to occur over northeastern Sudan, southeastern Nigeria and eastern Tanzania. Much of oceanic Southern Africa will be under the influence of the St. Helena and Mascarene anticyclonic circulation systems. To the South, a westerly wave will prevail.

T+72, the Saharan anticyclonic circulation will continue to prevail over much of North Africa. The trough over western Maghreb will expand eastwards to western Libya. A closed cyclonic circulation will affect the central coast of Angola. Convergence is expected to occur over western Ethiopia, northeastern DRC, southwestern Tanzania, central Angola, eastern Namibia and northeastern South Africa. Confluent flows are likely to occur over eastern Cameroon onto northwestern CAR, western CAR, southeastern Ethiopia, northern DRC, northern Tanzania, southeastern Angola and over central Zimbabwe. On the other hand, diffluent flows are expected to occur over western DRC, eastern Kenya, northwestern Angola and southwestern Zambia. Much of Southern Africa will be under the influence of the St. Helena and Mascarene anticyclonic circulation systems that will be confined in the Atlantic Ocean and the southwest Indian Ocean respectively.

2.2. Flow at 500hPa:

T+24, a westerly wave will dominate the flow over much of North Africa with an embedded trough over northern Morocco and northwestern Algeria. To the South, the Saharan anticyclonic circulation system will prevail. Convergence is expected to occur over southern Gabon and northeastern Angola. Confluent flows will be featured over southwestern Ethiopia, northern Tanzania, southeastern DRC, and southeastern Angola.

Diffluent flows will be featured over southeastern Sudan, eastern DRC and southwestern Tanzania. Much of Southern Africa will be dominated by an anticyclonic circulation system with a westerly wave to the South.

T+48, the trough over the western Maghreb region is expected to move southeastwards. A Sub-tropical anticyclonic circulation will dominate the flow over the rest of North Africa. A trough from the Atlantic Ocean will affect parts of Angola. Convergence will be featured over southwestern Sudan and western DRC. Confluent flows are expected to occur over southwestern Cameroon, southern CAR, central DRC and northeastern Angola. Diffluent flows are expected to occur over northern CAR, central Uganda and the eastern sector of DRC. The flow over much of Southern Africa will be dominated by an anticyclonic circulation system. A westerly wave will affect the southern sector of South Africa and Madagascar.

T+72, a westerly wave will continue to prevail over much of North Africa. The trough over the western Maghreb region is likely to expand westwards to Tunisia and northwestern Libya. To the South, a sub-tropical anticyclonic circulation will prevail. The trough over Angola is likely to weaken. Confluent flows are likely to occur over northern Tanzania, western DRC and northwestern Zambia. Diffluent flows are expected to occur over northern Congo and eastern DRC. The flow over 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.

2.3. Flow at 200hPa:

T+24h, a westerly wave will dominate the flow over much of North Africa. To the south, an anticyclonic circulation system will prevail. Confluent flows are expected to occur over western DRC, northern Tanzania, western Zambia and northern Mozambique. Divergence is likely to occur over central Angola. The flow over much of Southern Africa will be dominated by an anticyclonic circulation. To the South a westerly wave with two troughs over southwestern South Africa and parts of Mozambique and Zimbabwe will prevail.

T+48h, the flow over much of North Africa will be similar to that of the previous day. A weak trough will be featured over northern Morocco and northwestern Algeria. To the South, an anticyclonic circulation system will prevail. Confluent flows are expected to occur over northern Tanzania, southeastern DRC and northwestern Angola. Divergence is likely to occur over southwestern Angola and the northern Mozambique Channel. 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+72h, a westerly wave will continue to prevail over North Africa and the trough over the western Maghreb is expected to weaken and retreat northeastwards. Confluent flows are expected to occur over northwestern DRC and northwestern Tanzania. Divergence is likely to occur over central DRC and eastern Angola. The flow over much of Southern Africa is expected to be dominated by an anticyclonic circulation with a westerly wave to the south.

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