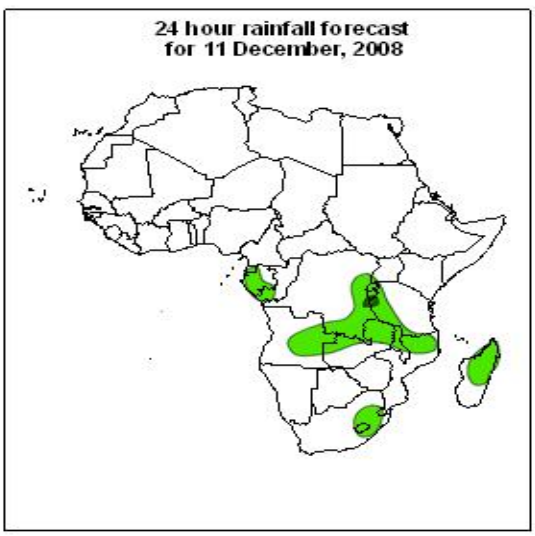
Forecast Guidance for Africa

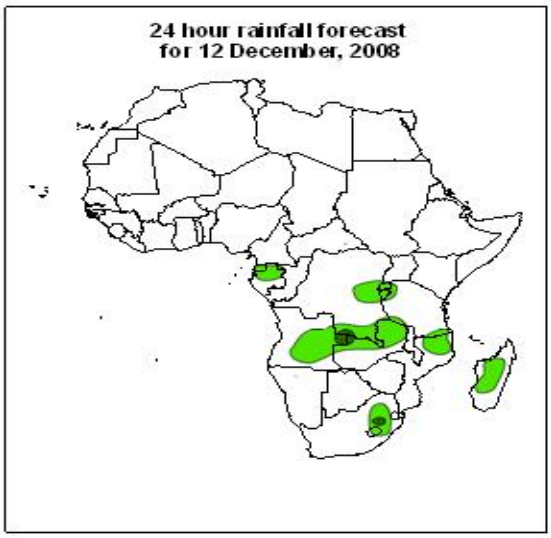
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative.

FORECAST DISCUSSION 14H00 EST, 10th DECEMBER, 2008
Valid: 00Z 11th DECEMBER – 13th 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.





Legend

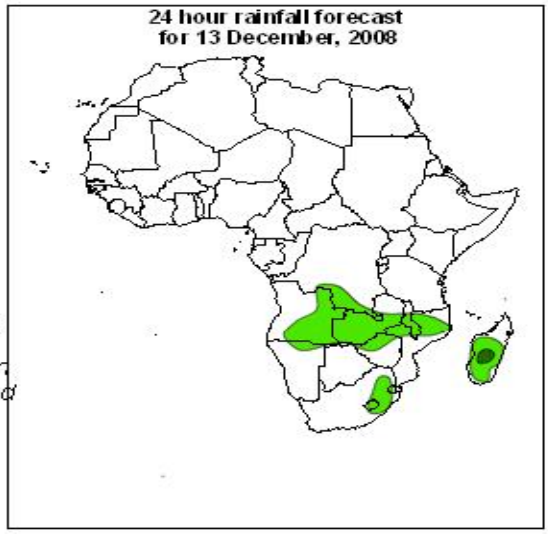
africa_countries_new

> 30mm, with probability 50%

> 20mm, with probability 40%

Summary

Localized convergence over areas surrounding the Congo Basin, moiture influx from south-eastern Atlantic Ocean and southwestern Indian Ocean, passage of frontal systems are expected to enchance chance for precipitation.



2. Model discussion

Model comparison (Valid from 00Z; 11th 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^oS and 10^oN) 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 Morocco, Algeria, Tunisia western Libya and northern Mali. Small troughs are expected to affect northern DRC and central Angola. Localized convergence is expected to occur over eastern Cameroon, northeastern DRC, southeastern Uganda, northern Zambia and over central South Africa. Confluent flows will be featured over eastern Tanzania, northeastern and eastern Namibia, western Botswana and western Zimbabwe. Diffluent flows will occur over northeastern Sudan, southern Congo and over southern DRC. Much of Southern Africa will be under the influence of the St. Helena and Mascarene anticyclonic circulation systems over the Atlantic and West Indian Oceans respectively with a westerly wave to the south.

T+48, the Saharan anticyclonic circulation will continue to prevail over much of North Africa. The trough over western Maghreb will weaken and retreat northeastwards but still affect northeastern Algeria and northern Tunisia. A closed anticyclonic circulation will be featured over the northwestern sector of DRC, while a cyclonic vortex is likely to develop over southern Angola. Convergence will occur over northeastern DRC, the Lake Victoria region and over northern Tanzania. Confluent flows are expected to occur over southern Ethiopia, central Zambia, eastern Namibia, western Zimbabwe onto eastern Botswana and over northern South Africa. Divergence will occur over southeastern DRC. Diffluent flows are expected to occur over the coast of Tanzania 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 flow over much of North Africa will be similar to that of the previous day. The trough over northern Algeria and Tunisia will deepen and expand southwestwards. The closed anticyclonic circulation over northwestern DRC will merge with the St. Helena anticyclonic circulation, while a cyclonic vortex is likely to develop over southern Angola. Localized convergence will be featured over the Lake Victoria region, northwestern Botswana and central South Africa. Confluent flows are expected to occur over southeastern Ethiopia, northern Tanzania, central Mozambique, western Zimbabwe and over southwestern Botswana. Divergence is expected to occur over southeastern DRC. 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 Tunisia, is expected to dominate the flow over much of North Africa. To the South, the Saharan anticyclonic circulation system is expected to prevail. Confluent flows are expected to occur over southern Somalia, eastern Uganda, northwestern DRC, northern and central Angola and over southwestern Zambia. On the other hand, diffluent flows are expected to occur over southern Gabon and over western DRC. 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 the southern sector of South Africa.

T+48, the flow over much of North Africa will be similar to that of the previous day. However, the trough over Algeria and Tunisia is expected to weaken and retreat northwards. Confluent flows will be featured over northeastern Angola, southeastern DRC, northeastern Namibia and northeastern South Africa. Diffluent flows are expected to occur over northwestern Angola, central DRC and over western Botswana. The flow over much of Southern Africa will still 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 and Madagascar.

T+72, the trough in the westerly wave over northern Algeria is likely to strengthen and move southwestwards to Morocco. To the South, the Saharan anticyclonic circulation system will prevail. Cyclonic vortices are likely to develop over southeastern Angola, western Zambia and northern Botswana. Confluent flows are expected to occur over southern DRC, northeastern Angola and northwestern Mozambique. Localized divergence is expected to occur over northwestern Angola and southern Botswana. Diffluent flows will be featured over northeastern DRC. The St. Helena and Mascarene anticyclonic circulation systems will continue to dominate the flow over much of Southern Africa with a westerly wave affecting the southern sector of South Africa.

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 Algeria and Tunisia. The near equatorial region will be dominated by an extensive upper-level anticyclonic circulation. Confluent flows are expected to occur over southern Ethiopia, eastern DRC, northeastern Angola and northwestern Namibia. Divergence is expected to occur over southeastern DRC, central Angola and central Zambia. The flow over the southern sector of Southern Africa will be under the influence of 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 Algeria and Tunisia is expected to weaken and retreat northwards. Confluent flows are expected to occur over southern Gabon, southeastern Kenya, central Angola and southern Tanzania. Divergence is expected to occur over southeastern DRC, southwestern Angola and over western 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 Algeria and Tunisia is expected to move southwestwards to northern Morocco. To the South, an extensive anticyclonic circulation system will dominate the flow. Confluent flows are expected to occur over northwestern CAR, northern Congo, northeastern Kenya, southeastern DRC and southern Tanzania. On the other hand, Divergence is likely to occur over southern Angola and over central 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.

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