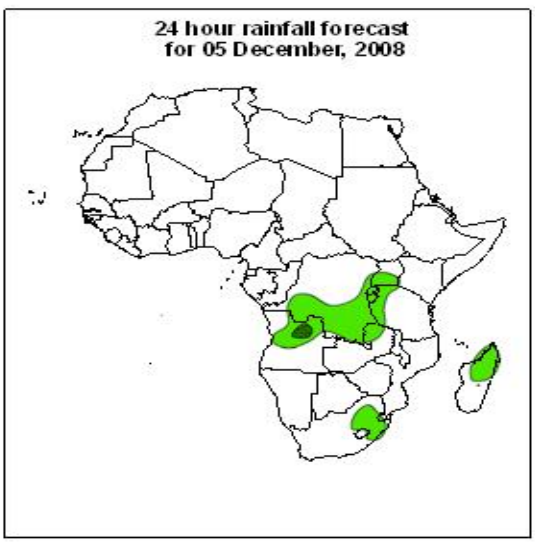
Forecast Guidance for Africa

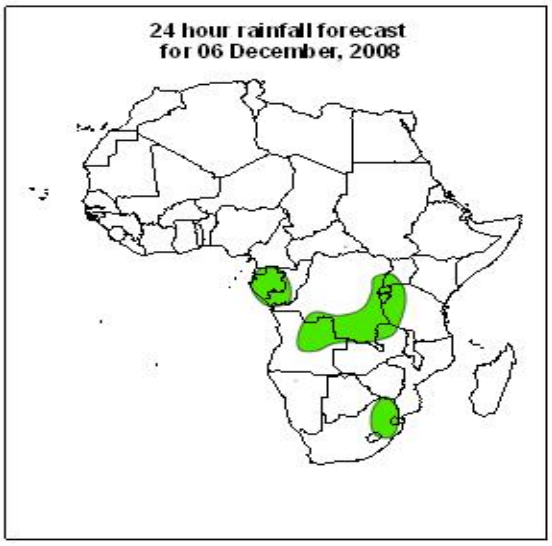
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative.

FORECAST DISCUSSION 14H00 EST, 04th DECEMBER, 2008
Valid: 00Z 05th DECEMBER – 07th 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

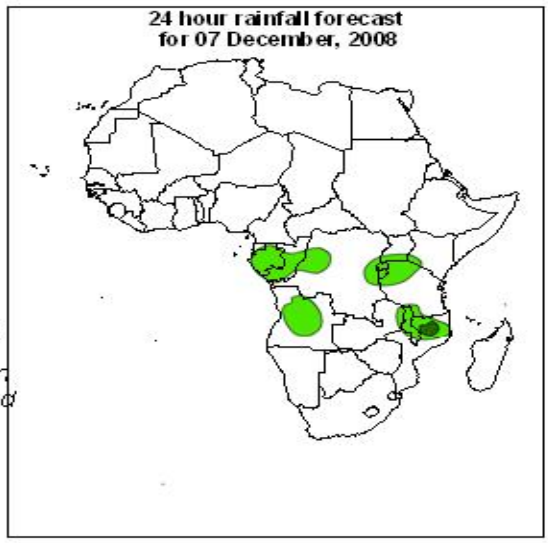
africa_countries_new

> 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; 05th 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 Azores and Saharan anticyclonic circulation will dominate the flow over much of North Africa. A trough will affect northeastern Algeria and Tunisia, while a closed cyclonic circulation will prevail over southern Algeria and environs. Localized convergence is expected to occur over northwestern Cameroon, central Uganda and southeastern South Africa. Confluent flows will be featured over northwestern Congo, northwestern DRC, southern Angola, southwestern Zambia, northwestern Botswana and eastern Namibia. Diffluent flows will occur over southern Nigeria, northeastern Sudan, eastern Kenya and 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 Azores and Saharan anticyclonic circulations will continue to prevail over much of North Africa. The trough over northeastern Algeria and Tunisia will weaken and retreat northeastwards, while the closed cyclonic circulation over southern Algeria and environs is also expected to weaken and move northeastwards to Libya. A small ridge will be featured over western DRC and northwestern Angola. Convergence will occur over eastern CAR and over eastern Namibia. Confluent flows are expected to occur over southern Chad, western and southern Ethiopia, northeastern DRC, southwestern DRC onto northern Angola, southern Angola onto northern Namibia, southwestern Zambia and over the central sector of South Africa. Divergence will occur over western Gabon and over southeastern DRC. Diffluent flows are expected to occur over the coast of Tanzania. 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 circulations are expected to merge and dominate the flow over much of North Africa. The closed cyclonic circulation over Libya will weaken and turn into a trough over parts of Libya and northwestern Egypt. Localized convergence will be featured over southern Uganda, eastern Namibia and western Botswana. Confluent flows are expected to occur over eastern Cameroon, northeastern CAR, southern Ethiopia, eastern DRC, eastern Angola and over southwestern Zambia. Divergence is expected to occur over southeastern DRC and southeastern Angola. Much of Southern Africa will be dominated by a merger of 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. Convergence will be featured over the border between southern Sudan and northeastern DRC and over northwestern Angola. Confluent flows are expected to occur over northwestern Kenya onto southeastern Sudan, northwestern Uganda and over southeastern DRC. Diffluent flows are expected to occur over southern Cameroon and southern 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. The trough over Algeria and Tunisia is expected to strengthen and move northeastwards to western Libya. Convergence is expected to occur over southern DRC. Confluent flows will be featured over southeastern DRC and over the central coast of Angola. Diffluent flows are expected to occur over eastern Nigeria and over central DRC. The flow over much of Southern Africa will still be under the influence of a merger between the St. Helena and Mascarene anticyclonic circulation systems which will expand to cover the eastern part of South Africa. A westerly wave will affect the southern sector of Madagascar.

T+72, the trough in the westerly wave over parts of Libya is likely to weaken and withdraw northwestwards to northeastern Algeria. To the South, the Saharan anticyclonic circulation system will prevail over southern Egypt, eastern Chad, northern Sudan, Eritrea and northwestern Ethiopia, while the Azores anticyclone will prevail over the bulge of Africa. Cyclonic vortices are likely to develop over southern DRC and northwestern Angola. Confluent flows are expected to occur over western Ethiopia, central Gabon, eastern Congo, northeastern and southern DRC. Diffluent flows are expected to occur over northern Congo eastern DRC and over southern Ethiopia. The merger between the St. Helena and Mascarene anticyclonic circulation system will continue to dominate the flow over much of Southern Africa with a westerly wave affecting southern 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 parts of Algeria and Tunisia, while its extension will be featured over the western Gulf of Guinea. The near equatorial region will be dominated by an extensive upper-level anticyclonic circulation. A cyclonic vortex is likely to develop over southern Zambia and northern Zimbabwe. Confluent flows are expected to occur over eastern Kenya, western Tanzania and over southern Angola. Divergence is expected to occur over southern Congo and southern DRC. 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 Algeria and Tunisia is expected to weaken and retreat northeastwards but still affecting northwestern Libya, while the one over the western Gulf of Guinea is also expected to weaken. Confluent flows are expected to occur over northeastern DRC, western Kenya, eastern Tanzania southeastern Angola and over northwestern Zambia. Divergence is expected to occur over eastern Gabon, northeastern Zambia and over the northern coast of Angola. The flow over much of Southern Africa will be dominated by an anticyconic circulation with a trough in the westerly wave affecting parts of South Africa resulting into a cut off anticyclonic system to the southwest of South Africa. .

T+72h, a westerly wave will prevail over much of North Africa. The trough over northern Algeria and Tunisia is expected to weaken and retreat northwestwards, while the one over the western Gulf of Guinea is expected to weaken. To the South, an extensive anticyclonic circulation system will dominate the flow. Confluent flows are expected to occur over western DRC, northern Angola and over western Tanzania. On the other hand, Divergence is likely to occur over southern Angola and over southern Zambia. The flow over much of Southern Africa will be under the influence of an extensive anticyclonic circulation system except for southern Madagascar which will be affected by a trough in the westerly wave.

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