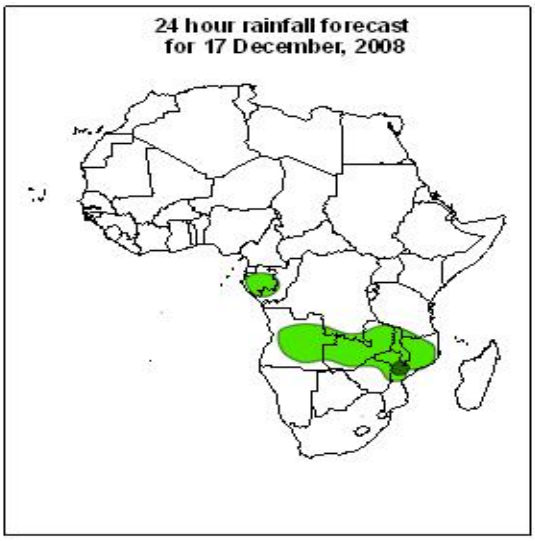
Forecast Guidance for Africa

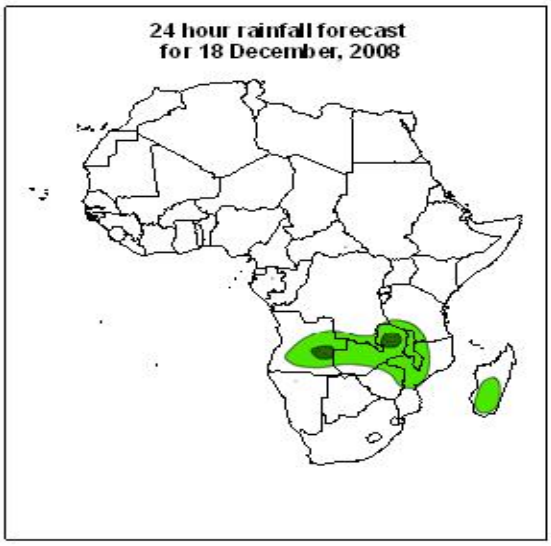
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative.

FORECAST DISCUSSION 14H00 EST, 16th DECEMBER, 2008
Valid: 00Z 17th DECEMBER – 19th 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

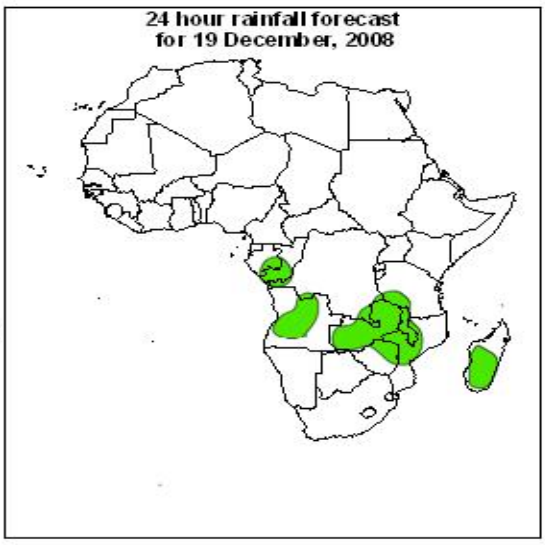
africa_countries_new

> 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 are expected to enchance chance for precipitation.



2. Model discussion

Model comparison (Valid from 00Z; 17th 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+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 deep trough featuring over parts of Algeria and Tunisia. An anticyclonic vortex is likely to develop over southern DRC. Localized convergence is expected to occur over southern Gabon, the Lake Victoria region, northern Tanzania, central Angola, central Zambia and over central South Africa. Confluent flows will be featured over eastern Cameroon, southeastern Ethiopia, northeastern DRC and western Zambia. Diffluent flows are likely to occur over southern Nigeria, southeastern DRC and over eastern Botswana. The flow over much of Southern Africa will be dominated by the St. Helena and Mascarene anticyclonic circulations with a westerly wave to the south.

T+48h, the Azores and Saharan anticyclonic circulations are expected to merge and dominate the flow over much of North Africa. The trough over Algeria and Tunisia will weaken and move northeastwards to northwestern Libya. A closed cyclonic circulation centered over the Atlantic Ocean will affect the southern coast of Angola. Localized convergence is expected to occur over central Cameroon, northwestern Tanzania, central Angola, western Zambia, the southern coast of Mozambique and over central South Africa. Confluent flows are expected to occur over southeastern Ethiopia, southeastern Sudan, western DRC, southeastern Uganda and over northern Zimbabwe. On the other hand, diffluent flows are expected to occur over northern DRC, eastern Tanzania and southeastern Zimbabwe. 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+72h, the Azores anticyclonic circulation is expected to weaken and retreat westwards, while the Saharan anticyclonic circulation will intensify 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 affect the southern sector of Mozambique. Localized convergence is expected to occur over central Cameroon, western Ethiopia, western and northeastern DRC, southern Uganda, southern Angola and over northern Zimbabwe. Confluent flows are expected to occur over eastern DRC, northwestern Tanzania, western Zambia, northeastern Zimbabwe, northern Namibia and over northern South Africa. On the other hand, Divergence will be featured over southern Gabon. Diffluent flows are expected to occur over southern DRC and southwestern Zambia. Much of Southern Africa will be under the influence of the St. Helena and Mascarene anticyclonic circulation systems. To the South, a trough in the westerly wave will affect the southern sector of South Africa.

2.2. Flow at 500hPa:

T+24, a westerly wave will dominate the flow over much of North Africa with an embedded trough over Morocco and parts of Algeria. To the South, the Saharan anticyclonic circulation system will prevail. Convergence is expected to occur over southeastern Angola and northern Zambia. Confluent flows will be featured over eastern

DRC, northern Tanzania, southeastern Kenya and over central Angola. Diffluent flows will be featured over southeastern Tanzania and southeastern DRC. Much of Southern Africa will be dominated by an anticyclonic circulation system. A deep back hanging trough in the westerly wave will affect parts of Mozambique and the southeastern sector of Zimbabwe.

T+48, the trough over Morocco and Algeria is expected to move northeastwards to Tunisia. A Sub-tropical anticyclonic circulation will dominate the flow over much of North Africa. A cyclonic vortex is likely to develop over southeastern Angola. Convergence will be featured over the Lake Victoria region, central Malawi, western Zambia and over the southern coast of Mozambique. Confluent flows are expected to occur over northern Tanzania, southern DRC and over northern Mozambique. Diffluent flows are expected to occur over eastern DRC, eastern Angola and northern Zimbabwe. The flow over much of Southern Africa will be dominated by the St. Helena and Mascarene anticyclonic circulation systems to the sooth of which a westerly wave will prevail.

T+72, a westerly wave will continue to prevail over much of North Africa. The trough over northern Algeria and Tunisia will remain in the same position. To the South, a sub-tropical anticyclonic circulation will prevail. The closed cyclonic circulation over southeastern Angola will remain in the same position. Convergence will be featured over southern Uganda and southern Mozambique. Confluent flows are likely to occur over northern Angola, southeastern DRC, northwestern Mozambique and over southwestern Zambia. Diffluent flows are expected to occur over central DRC and northern Botswana. 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 with an embedded trough over northern Morocco and northwestern Algeria 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 central DRC, southeastern Tanzania and southwestern Zambia Divergence is likely to occur over northwestern DRC, eastern Angola and southern Zambia. The flow over the northern sector of Southern Africa will be dominated by an anticyclonic circulation, while the southern sector and Madagascar will be affected by a westerly wave.

T+48h, the flow over much of North Africa will be similar to that of the previous day. The trough over northern Morocco and Algeria will weaken and retreat northeastwards. To the South, an anticyclonic circulation system will prevail. Confluent flows are expected to occur over southern Sudan, northwestern DRC, western Zambia and southern Angola. Divergence is likely to occur over northern Congo, eastern DRC, central Angola and northern Zambia. 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 .The near equatorial region will be affected by an anticyclonic circulation system. Confluent flows are expected to occur over western and central DRC, southeastern Uganda, northern Tanzania and southern Zambia. Divergence is likely to occur over northwestern Congo 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.

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