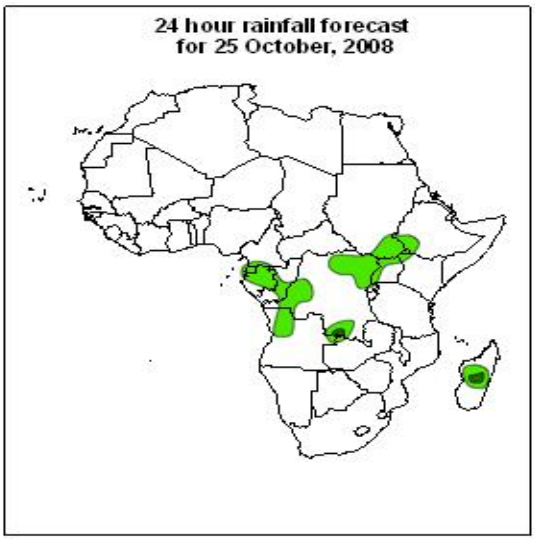
Forecast Guidance for Africa

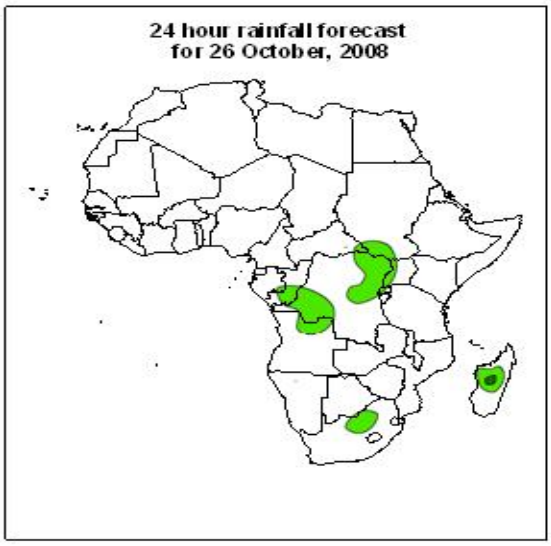
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative.

FORECAST DISCUSSION 14H00 EST, 24th OCTOBER, 2008
Valid: 00Z 25th OCTOBER – 27th OCTOBER, 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

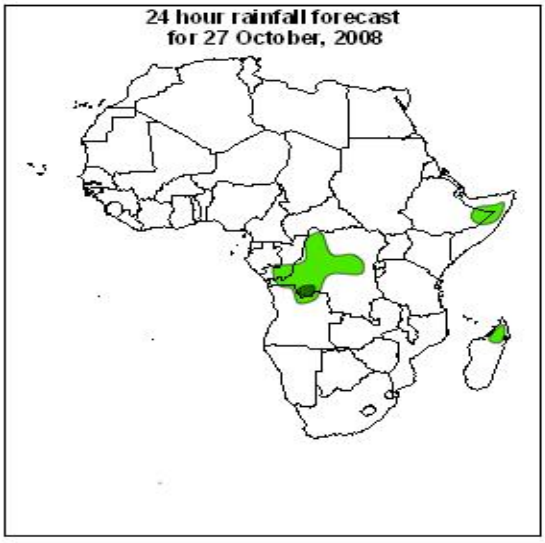
africa_countries_new

> 30mm, with probability 50%

> 20mm, with probability 40%

Summary

Localized convergence expected over parts of central Africa, moisture influx from the Gulf of Guinea and Congo Basin, low pressure over the equatorial western Indian Ocean, mid latitude frontal passage are expected to enchance chance for precipitation.



2. Model discussion

Model comparison (Valid from 00Z; 25th October, 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.

2.2. Flow at 850hPa:

T+24h, the Azores and Saharan anticyclonic circulation systems will dominate the flow over the western bulge and much of Northern Africa respectively. However, a cyclonic vortex centered over western Algeria is expected to separate the anticyclonic circulation systems. Another cyclonic vortex will be featured over northern DRC while an anticyclonic vortex is likely to be featured at the coast of DRC. Localized convergence will occur over Ethiopia, Lake Victoria region, central and southeastern DRC, northwestern Angola and over northern Namibia. Conversely, localized divergence will occur over southern Sudan, northern Kenya and southern DRC, most parts of Angola and central Namibia. Much of Southern Africa will be dominated by the St. Helena anticyclonic system except for the northeastern sector of Madagascar which will be under the influence of the Mascarene ridge and it's central areas which will likely be affected by a weaken cut-off cyclonic circulation.

T+48, the Azores and Saharan anticyclonic system are expected to merge. The cyclonic vortex centered over western Algeria will drift slightly eastwards with another expected to develop over northern Mauritania. The other cyclonic vortex featured over northern DRC will move southeastwards and intensify extending a deep trough onto the northern coast of Angola. The anticyclonic vortex featured over the coast of DRC will intensify while propagating southwestwards onto the equatorial Atlantic and is expected to generate a ridge over Gabon, Congo and extend onto northwestern DRC. Localized convergence is likely to occur over northern Ethiopia, Lake Victoria region, eastern and southern Angola. Much of Southern Africa is expected to be under the influence of the Mascarene anticyclonic system; whereas, the flow over the southwestern sector will be dominated by an off-shore cyclonic system.

T+72, the cyclonic system featured over western Algeria will continue to prevail but expected to weaken while, its counter-part over northern Mauritania will propagate eastwards onto Mali. The cyclonic vortex featured over eastern DRC will degenerate and be replaced by a line of convergence this is expected to extend northeastwards onto the lake Victoria region and southwestwards onto eastern Angola. Localized convergence will affect central Ethiopia, central DRC, southern Angola and northeastern Namibia. Much of Southern Africa will be dominated by the Mascarene anticyclonic system except for the western sectors which will be under the influence of the St. Helena's ridge and the southwest which will be under the influence of a weak mid-latitude trough.

2.2. Flow at 500hPa:

T+24, a westerly wave, in which troughs are embedded over Morocco and Egypt, is expected to dominate the flow over the Maghreb region. To the South, the Sahara anticyclonic circulation system is expected to prevail over much of North and West Africa. Localized convergence is expected to occur over southwestern Ethiopia, western Kenya and over central DRC and confluent flows over western Sudan onto northeastern CAR, southwestern DRC and over western Angola. On the other hand, divergence will be featured over southern Somalia, southeastern DRC and over the coast of Tanzania. The flow over Southern Africa will be dominated by the St. Helena and Mascarene anticyclonic

circulation system. A westerly wave will affect the flow over the southern sector of South Africa

T+48, the flow over much of North and West Africa will be similar to that of the previous day. The trough over Morocco will move northeastwards, while the one over Egypt is likely to weaken and expand eastwards and southwards. Confluent flows are expected over northwestern Ethiopia, western Sudan into southeastern Chad, southeastern CAR, western and southeastern DRC. Conversely, divergence is expected to occur over central DRC. The flow over much of Southern Africa will be under the influence of the St. Helena and Mascarene anticyclones. A westerly wave will affect the southern sector of South Africa.

T+72, much of North and West Africa is likely to be under the influence of the Saharan anticyclonic circulation system, while the trough over western Maghreb in the westerlies will expand southeastwards to Western Sahara, northern Mauritania and northwestern Mali. Confluent flows will be featured over northern Cameroon, central CAR, northwestern Gabon, western Congo and over northeastern DRC. Localized divergence is expected to occur over southeastern DRC. The St. Helena anticyclonic circulation system will dominate the flow over much of Southern Africa. A westerly wave will affect the flow over southern South Africa and southern Madagascar.

2.3. Flow at 200hPa:

T+24h, the Maghreb region including Egypt will be under the influence of a westerly wave with an embedded upper level trough over northern Morocco and northwestern Algeria. To the South, an extensive upper-level anticyclone circulation will dominate the flow. Convergence is expected to occur over the border of southeastern Kenya and northeastern Tanzania and confluent flows will be featured over western DRC and over eastern Kenya. Divergence is expected to occur over central Gabon. The flow over the northern sector of Southern Africa will be dominated by an anticyclonic circulation, while the southern sector 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 Africa. The trough over the western Maghreb will strengthen and expand southwestwards to much of Morocco. Confluent flows will be featured over northern Sudan onto southeastern Egypt, southwestern Kenya onto northeastern Tanzania and over southern DRC. Conversely, localized divergence is expected over central Congo and over northeastern DRC.

T+72h, a westerly wave will prevail over the Maghreb region and the trough over Morocco will expand westwards to western and northwestern Algeria. To the South, an aticyclonic circulation system will dominate the flow. Confluent flows will be featured over southeastern Mali and over northwestern Congo. On the other hand, divergence is likely to occur over northwestern Gabon and over northeastern DRC. The northern sector of Southern Africa will be dominated by an anticyclonic circulation, while the southern sector will be under the influence of a westerly wave.

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