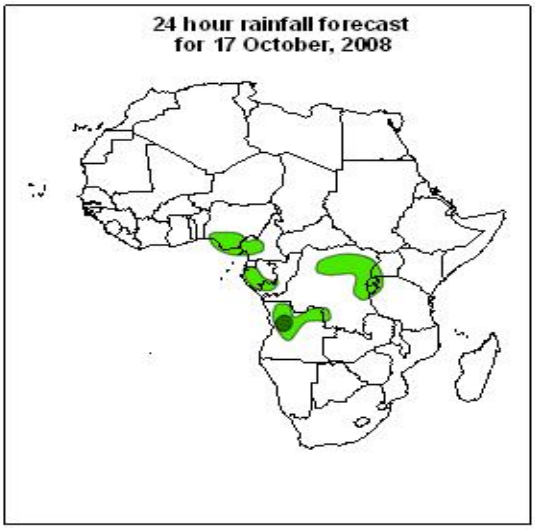
Forecast Guidance for Africa

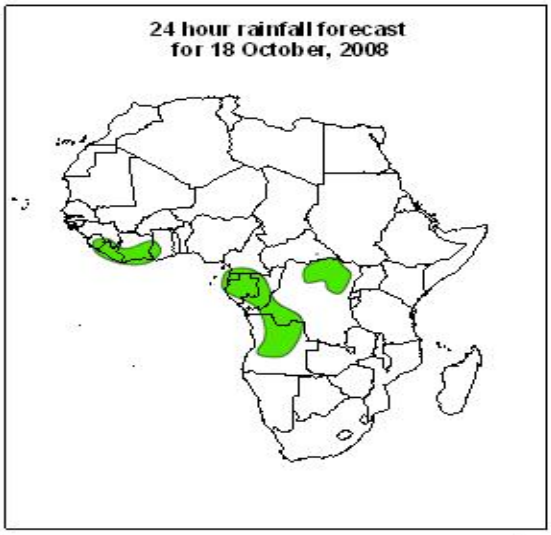
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative.

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

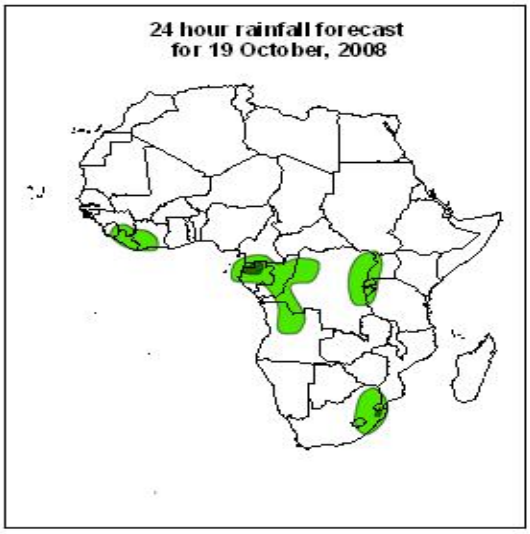
africa_countries_new

> 30mm, with probability 50%

> 20mm, with probability 40%

Summary

The Saharan anticyclonic circulation featured at the mid and upper levels will likely suppress rain over western sahel. Localized convergence expected over parts of west and central Africa; coupled with moisture influx from the Gulf of Guinea and Congo Basin will enchance chance for rain.



2. Model discussion

Model comparison (Valid from 00Z; 17th 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.

2.1. Flow at 850hPa:

T+24h, The Saharan anticyclonic circulation will be centered over northern Libya, thus dominating the flow over much of North Africa except over much of Morocco due to the penetration of a trough over the sea.. To the South, the subtropical anticyclone easterlies are expected to prevail with localized convergences over southwestern Niger, southeastern Ethiopia, central Gabon, the Lake Victoria region and over southwestern Angola and confluent flows over western Chad, southeastern DRC and over the border between southern Angola and northern Namibia. Divergent flow is likely to occur over central Sudan. Much of Southern Africa will be under the influence of a merger of the Santa Helena and Mascarene anticyclones with westerly wave to the South.

T+48, a similar flow to that of the previous day will prevail over North Africa and the trough over Morocco will weaken and retreat northwards. Easterlies will prevail equator-wards. Convergence is likely to occur over western Burkina Faso, the border between eastern Chad and western Sudan, Lake Victoria region and over northeastern Namibia and confluent flows over northwestern Western Sahara, southwestern Mali, northwestern DRC onto northern Congo, southeastern Sudan, eastern Angola and southeastern Namibia. Divergent flows will be featured over northern Algeria and over southwestern coast of Gabon. The southern African region is expected to be dominated by the Santa Helena and Mascarene ridges.

T+72, The Saharan anticyclonic circulation is expected to intensify with its center over central Libya and the trough over Morocco will strengthen and propagate northwestwards affecting northern Algeria. Convergence is likely to occur over southern Morocco, northeastern Ethiopia, northwestern DRC, the Lake Victoria region and over central coast of Angola with confluent flows over northeastern Mali, western Sudan, southeastern DRC, eastern Angola and over southeastern Namibia. On the other hand, divergence will be featured over eastern Sudan and over southwestern Chad. Southern Africa will be under the influence of the merger of the Santa Helena and Mascarene Anticyclones.

2.2. Flow at 500hPa:

T+24, the flow pattern over Northern Africa is likely to be dominated by an extensive Sub-tropical anticyclonic circulation system. A mid-latitude trough from the Mediterranean Sea will affect much of Morocco, northern Algeria and Tunisia. Easterlies will prevail equator-wards with confluent flows over southwestern Sudan onto eastern CAR, northeastern DRC, western Kenya onto eastern Uganda, central Angola, central Zambia and over northeastern Mozambique. Conversely, divergence will be featured over central Ethiopia and over eastern Kenya. Much of Southern Africa will be dominated by an anticyclonic circulation system, while a westerly wave will affect the flow over southern South Africa.

T+48, similar flow patterns to that of the previous day are expected to prevail over Northern and Southern Africa. The mid-latitude trough over Morocco and northern Algeria will propagate westwards and reach northern Libya. Convergence is expected over the Lake Victoria region with confluent flows over northeastern Nigeria, north eastern DRC,

northeastern Angola and over southern Kenya onto northeastern Tanzania. Conversely, a strong divergence will be featured over southeastern Sudan. A westerly wave will affect the flow over southern South Africa.

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T+72, the trough over western Maghreb will weaken and retreat northeastwards but still prevail over much of Morocco and northwestern Algeria, while the rest of North Africa is likely to be under the influence of the Sub-tropical anticyclonic circulation system. Convergence will be featured over the Lake Victoria region with confluent flows over central Mali, central Nigeria and over northwestern DRC. Localized divergence will be featured over central Sudan and over southeastern DRC. Much of Southern Africa will be dominated by the Santa Helena Ridge, while a westerly wave will affect the flow over southern South Africa and over the Indian Ocean.

2.3. Flow at 200hPa:

T+24h, a westerly wave will feature a trough over most of Morocco and northern Algeria .To the south, an extensive anticyclonic circulation system will prevail. Convergent flows are expected over northeastern Senegal onto southern Mauritania, northeastern Chad, northeastern Sudan, northeastern DRC onto southern CAR, eastern DRC, and over northeastern Mozambique. Divergence will be featured over southern eastern Somalia and over south eastern DRC. The northern sector of Southern Africa will be under the influence of an anticyclonic circulation System, while a mid-latitude westerly wave will dominate the flow over the southern sector of Southern Africa.

T+48h, the wind flow pattern is expected to remain as that of the previous day. However, the trough featured over western Maghreb will propagate eastwards and affect northeastern Libya. Confluent flows will be featured over southwestern Mali, northeastern Niger, northwestern CAR, central Kenya and over northeastern Mozambique. Conversely, localized divergence is expected over southwestern Sudan and over eastern Gulf of Guinea. A trough from the mid-latitude westerly wave will affect the flow over the Indian Ocean.

T+72h, the westerly wave will prevail over North Africa and the upper-level trough over western Maghreb will weaken and retreat northeastward but still affecting northeastern Morocco. To the South, an anticyclonic circulation is expected to dominate the flow. Confluent flows will be featured over western Gulf of Guinea, northwestern Nigeria, northeastern Sudan, eastern Kenya and over the channel of Mozambique. The flow over the northern sector of Southern Africa is dominated by an anticyclonic circulation system, while the southern sector is under the influence of a mid-latitude westerly wave.

Authors: George Stafford (Department of Water Resources,The Gambia and African Desk).
Lutumba Tima (Meteorological Institute Angola, and African Desk).