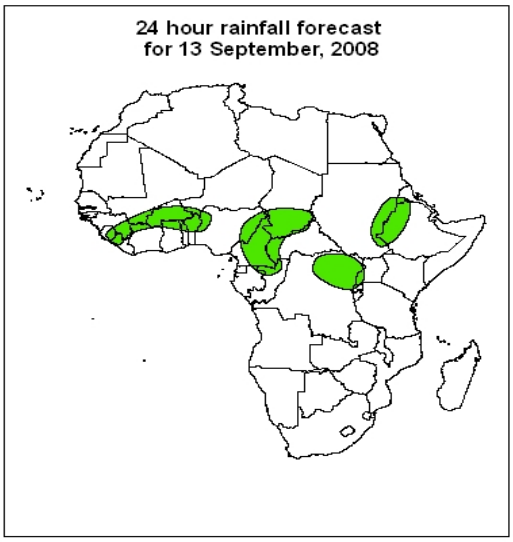
Forecast Guidance for Africa

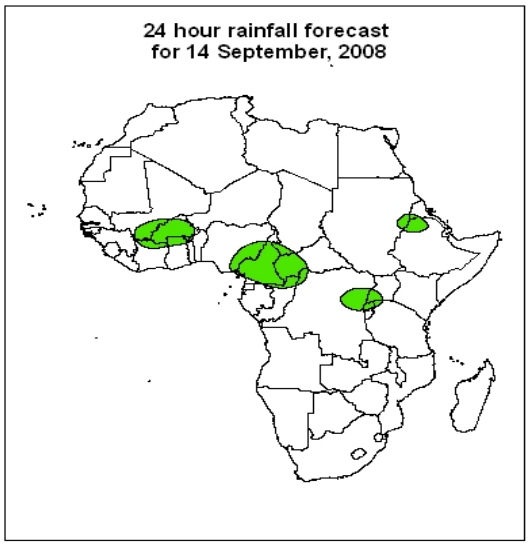
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative.

FORECAST DISCUSSION 14H00 EST, 12th SEPTEMBER, 2008
Valid: 00Z 13th September – 15th SEPTEMBER, 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.



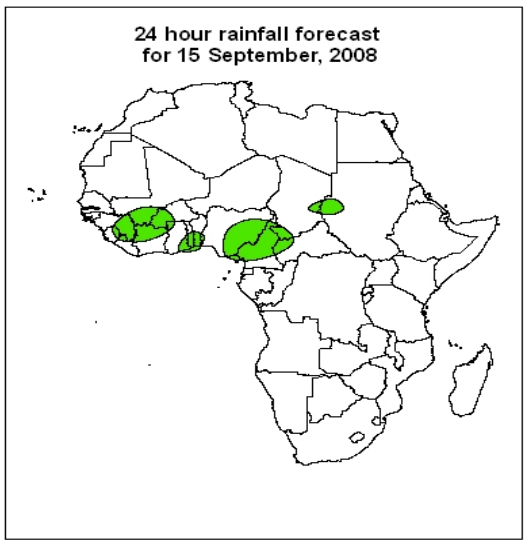


Legend

- africa_countries_new
- > 30mm, with probability 50%
- > 20mm, with probability 40%

Summary

The Azores anticyclonic circulation featured at the mid and upper levels will continue to suppress rain over western Sahel. However, cyclonic vortices and Localized convergence expected over other parts of west and central Africa coupled with Moisture influx from the Gulf of Guinea and Congo Basin will enchance chance for rain over those areas.



2. Model discussion

Model comparison (Valid from 00Z; 13th September 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°S and 10°N) Continental Africa.

2.1. Flow at 850hPa:

T+24h, the Saharan anticyclonic circulation is expected to be centered over central Mediterranean Sea and will influence the flow over Northeastern Africa; whereas, the Northwestern sectors will be affected by cyclonic circulations . A series of cyclonic vortices will develop off the coast of Mauritania with another to the southwest, over Mali and between the borders of Niger/Benin. Localized convergence is likely over central Mali, western Burkina, northwestern Niger, southwestern Chad, western Eritrea, eastern Sudan/northwestern Ethiopia, outskirts of DRC and northwestern Namibia. Conversely, localized divergence is likely to occur over the Gulf of Guinea Countries, western Sudan, DRC and over East Africa. The entire Southern African region is expected to be under the influence of an off-shore anticyclonic system "Mascarene"centered off the southeastern coastline of South Africa except over Madagascar which will be affected by a mid-latitude trough.

T+48, the flow pattern over Northern Africa is expected to be similar to that of the previous day; however, a cyclonic vortex will evolve over southern Algeria. The cyclonic vortex over Mauritania will weaken; the one over Mali will decay, while the one over the border of Niger/Benin will shift to the border of Burkina/Togo. Localized convergence is likely to occur over western Mali, western Burkina, southern Niger, eastern Chad, northern Sudan, southern Eritrea, central Ethiopia, western CAR, the Lake Victoria region and Angola; whereas, localized divergence will prevail over southern Chad, eastern CAR, northern DRC and East Africa. Much of Southern African is expected to be under the influence of the Mascarene anticyclonic system except for the southwestern sector which will be affected by a mid-latitude trough.

T+72, the cyclonic circulation over western Algeria will remain quasi-stationary. The cyclonic vortex featured over Burkina will move to the border between Mali and Cote d'Ivorie; whereas other cyclonic vortices will develop over northwestern Algeria, southern Libya, northern Burkina and northwestern Nigeria. Localized convergence will likely occur over Sudan and western Ethiopia, central DRC, southwest of Lake Victoria and Angola. Localized divergence will affect much of western/central Sahel, western Congo Basin and East Africa. A similar flow to that of the previous day will prevail over Southern Africa.

2.2. Flow at 500hPa:

T+24, an extensive Sub-Tropical anticyclonic circulation system is expected to prevail over Northern Africa with two well pronounced mid-level troughs featured over Morocco/Algeria and Egypt respectively. A cyclonic circulation will be featured over western Mali/northern Guinea Conakry; whereas, an anticyclonic vortex is expected over the coast of Ghana. Mid-level convergence is likely over both western and eastern Burkina, southern CAR and northern DRC with Confluent flow-lines likely to occur over eastern DRC and to the south of Lake Victoria. The flow over Southern Africa will be dominated by a Sub-Tropical anticyclonic system centered over Botswana.

T+48, the mid-level trough over Morocco/Algeria is expected to fill-up; thus enhancing the Sub-Tropical anticyclonic circulation system over the region. The cyclonic circulation featured over Mali/Guinea will decay; whiles another will develop over the border between Burkina, Ghana and Togo; whereas, the anticyclonic vortex featured over the coast of Ghana will propagate northwestwards to the coast of Guinea Conakry/Bissau. A mid-level shortwave trough is likely to occur over eastern Nigeria. A slanting trough is expected over Madagascar while, the rest of Southern Africa will be under the influence of a Sub-Tropical anticyclonic circulation.

T+72, not many changes are expected on the general flow as compared to that of the previous day except that the cyclonic circulation over Burkina/Ghana is expected to decay while, the anticyclonic circulation over Guinea will move into the Atlantic Ocean with a development of a cyclonic circulation to its north. The Shortwave trough featured over eastern Nigeria will persist while another is likely to affect southern Mali. The southwestern sector of Southern Africa will likely be under the influence of a westerly wave while the trough over Madagascar will persist and the rest of Southern Africa will continue being dominated by a Sub-Tropical anticyclonic system.

2.3. Flow at 200hPa:

T+24h, an extensive upper-level anticyclonic flow pattern will prevail over much of Northern Africa extending to Arabia; except over Morocco and northern Algeria which are likely to be under the influence of an upper-level Trough. Easterlies will dominate the flow equator-wards with shortwave troughs featured over central Sudan. The northern sector of Southern Africa will be dominated by an anticyclonic flow while the southern sector will be under the influence of a westerly wave.

T+48h, the main change on the flow expected will be of the westerly wave becoming more pronounced over the northwestern Maghreb region.

T+72h, similar flow patterns are expected to that of the previous day.

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