



## Forecast Guidance for Africa

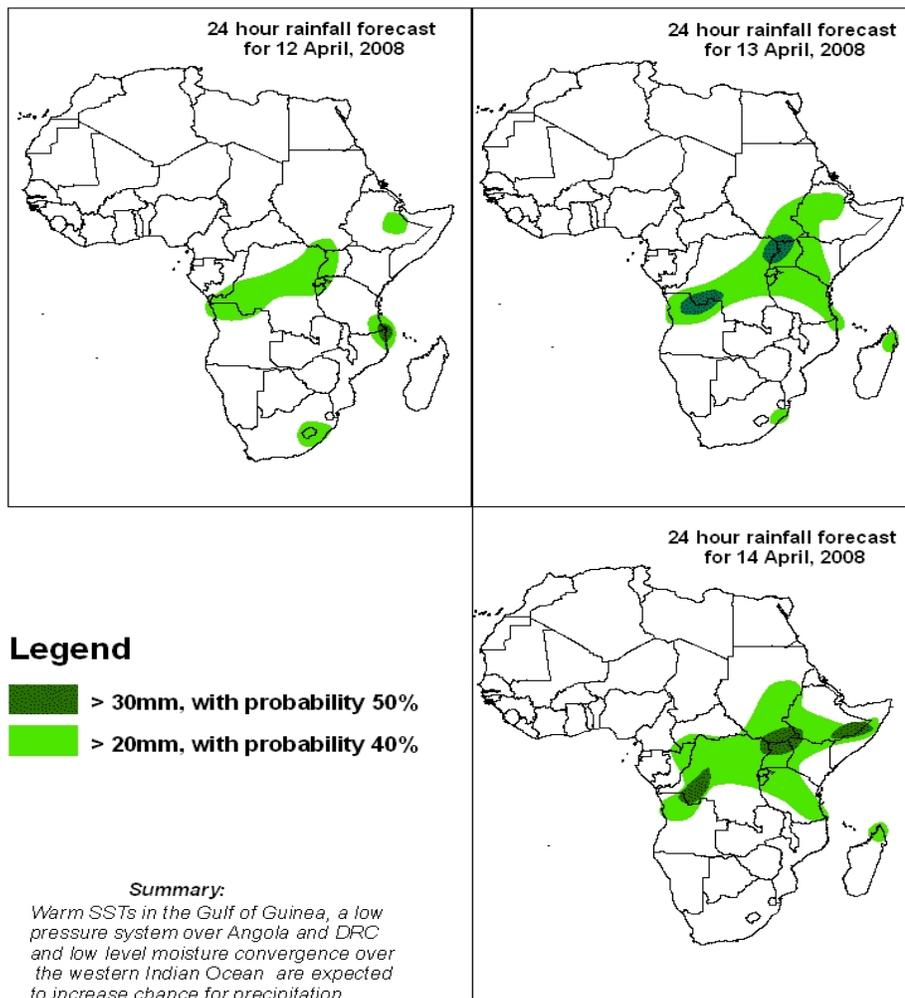
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

**FORECAST DISCUSSION 14H00 EST, 11 APRIL 2008**

**Valid: 00Z, 12-14 APRIL, 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.



## **2. Model discussion**

*Model comparison (Valid from 00Z; 11 April 2008): There is a general agreement between the UKMET, ECMWF, and GFS models with respect to positioning of large scale features.*

### **2.1. Flow at 850hPa**

T+24h, an anticyclonic circulation system centered over Libya is expected to dominate over North Africa and the Sahara desert, contributing convergence over the western Africa countries (southern Mali, Burkina, Nigeria and Cameroon). A cyclonic circulation system is expected to extend northeastward from western DRC through southern Sudan to northern Ethiopia and another one will dominate the northwestern Indian Ocean feeding moist easterly flow over east Africa (Tanzania, Kenya, Sudan and Ethiopia). An anticyclonic circulation system is expected to dominate over southern Africa with a weak cyclonic circulation over southeastern South Africa and an embedded cyclonic circulation to the south of Madagascar.

T+48h, the anticyclonic circulation system over north Africa is expected to prevail and maintain convergence over western Africa, while the cyclonic circulation in the northwest Indian Ocean is expected to prevail over the east coast of Africa, enhancing convergence over western DRC, northern Tanzania, Uganda, western Kenya and eastern Ethiopia. The anticyclonic circulation system over southern Africa is expected to prevail and the weak frontal system over South Africa is expected to move eastward with the cyclonic circulation system to the south of Madagascar.

T+72h, an anticyclonic circulation system is expected to prevail over northern Africa. The associated northeasterlies will converge with the southeasterlies from Gulf of Guinea to enhance convergence over western Africa. The cyclonic circulation system over the northwest Indian Ocean is expected to shift northeastward and decrease convergence over DRC and enhance it over east Africa. An anticyclonic circulation system is expected to prevail over southern Africa with weak a trough along the Atlantic coast and western South Africa.

### **2.2. Flow at 500hPa**

T+24, two high pressure centers are expected to dominate over northern Africa with a trough in between over central Egypt, eastern Chad and western Sudan contributing to localized convergence activity over Central African Republic and northwestern DRC. A Low pressure center is expected to dominate over Gabon, Congo, western DRC and northern Angola and another one is expected to dominate along the coast of southern Somalia and Tanzania. An extensive anticyclonic flow system is expected to dominate between latitude  $10^{\circ}\text{S}$  and  $20^{\circ}\text{S}$ , from the Atlantic Ocean to the western Indian Ocean with an extensive trough is expected to dominate over south of latitude  $20^{\circ}\text{S}$ .

T+48, the two high pressure centers are expected to prevail over northern Africa with a trough in between leading to convective activities to prevail over western Sudan, Central African Republic and western DRC. The low pressure over Gabon, Congo, western DRC

and northern Angola is expected to prevail while a trough is expected to dominate over northern Madagascar. An anticyclonic circulation pattern is expected to dominate over eastern Angola, southern DRC, Zambia, Tanzania, northern Mozambique, northern Namibia and Botswana and over Zimbabwe while an extensive trough is expected to prevail over south of latitude 20°S with a northwards extension over Madagascar.

T+72, an anticyclonic flow pattern is expected to dominate over the Sahara Desert with a trough over Western Sahara and Mauritania. A southeasterly flow is expected to dominate over the Sahel causing convergence activities over there due to a northeasterly flow emanating from the anticyclonic circulation over the Sahara desert and a southeasterly flow from the Gulf of Guinea. Three low pressure systems are expected to dominate over northwestern Angola, DRC and over off the coast of southern Somalia, Tanzania and northern Mozambique, respectively. An extensive anticyclonic flow pattern is expected to dominate over southern Africa, from the Atlantic Ocean to western India Ocean with a trough over southern Madagascar.

### **2.3. Flow at 200hPa**

T+24h, an upper level disturbance is expected to dominate over north Africa with an anticyclonic flow centered over west Africa and a trough extending over Libya, Egypt, Chad and western Sudan, and a divergent flow over eastern Sudan, while isolated divergent flow is expected to dominate over Congo, northern DRC, southern Sudan, Uganda, central Tanzania, and northern Angola. A westerly flow pattern is expected to dominate over southern Africa with diffluent flow pattern to the southeast of Madagascar.

T+48h, the upper level disturbance over North Africa and the anticyclonic flow centered over West Africa are expected to prevail with a diffluent flow pattern over eastern Sudan. A divergent flow pattern is expected to dominate over Gulf of Guinea, Congo western DRC, northern Angola, Uganda, northern Kenya and southeastern Tanzania, while a westerly flow pattern is expected to prevail over southern Africa.

T+72h, the upper level disturbance over North Africa and the associated anticyclonic circulation over West Africa are expected to weaken with a prevailing diffluent flow pattern over eastern Sudan. An upper level divergence flow is expected to prevail over central DRC and southeastern Tanzania, while a westerly convergent flow pattern is expected to dominate over southern Africa.

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