



## Forecast Guidance for Africa

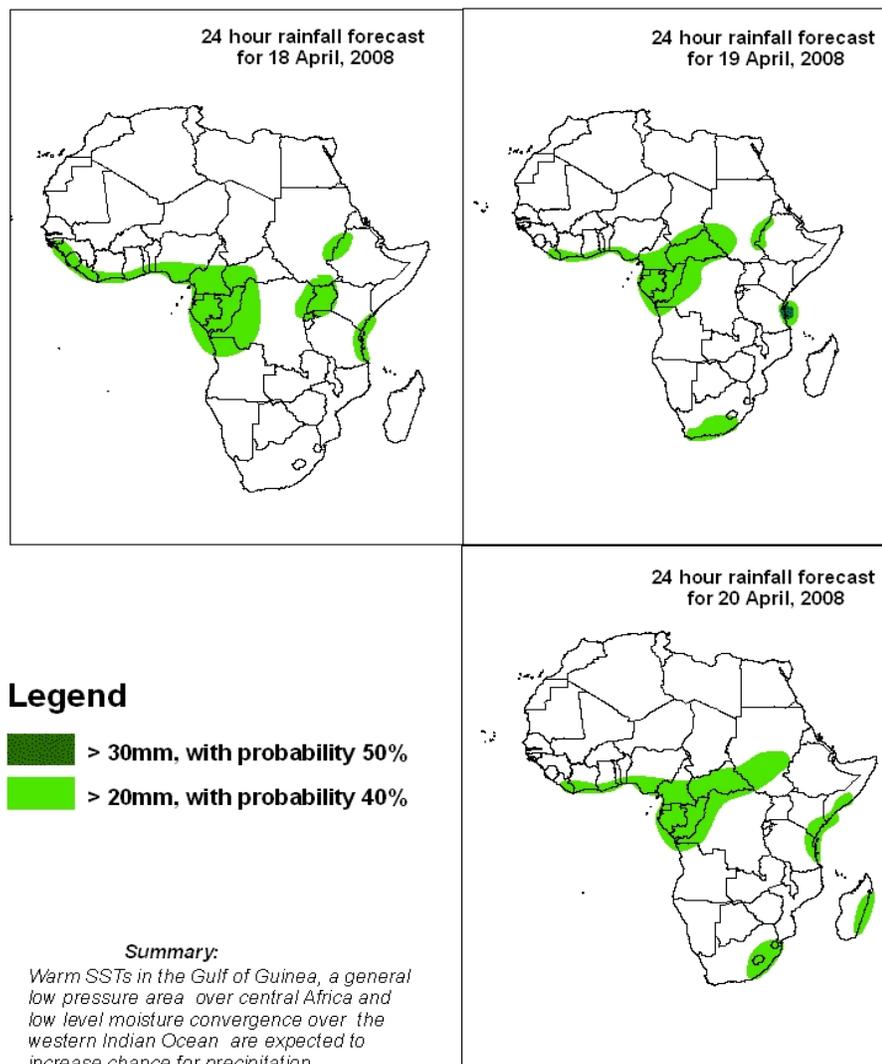
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

**FORECAST DISCUSSION 14H00 EST, 17 APRIL 2008**

**Valid: 00Z, 18-20 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; 17 April 2008): There is a general agreement between the UKMET, ECMWF, and GFS models with respect to positioning of large scale features. However, GFS model overestimates a ridge and a high pressure over eastern Africa compared to UKMET and ECMWF models.*

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

T+24h, an anticyclonic flow pattern is expected to dominate over a large part of North Africa with a trough to the west (over Morocco and northwestern Algeria) and a general low pressure area over western Africa through central Africa, Congo, DRC, Uganda to Ethiopia causing localized convergence off the coast of Sierra Leone and Liberia, southwest Burkina Faso, northern Nigeria, Western DRC, eastern Sudan and western Uganda. A southeasterly flow pattern is expected to dominate along the coast of Somalia to central Mozambique causing moisture advection inland from the Indian Ocean. An anticyclonic flow pattern is expected to dominate over southern Africa with a trough over southern and northern Madagascar.

T+48h, an anticyclonic flow pattern is expected to prevail over eastern North Africa with a trough to the west (over Morocco, northwestern Algeria, Tunisia and northern Mali) while a general low pressure area is expected to prevail from West Africa through Central Africa, Congo, DRC, Uganda to Ethiopia with localized convergence over West Africa, western Sudan, western and northeastern Ethiopia. A southeasterly flow pattern is expected to prevail along the coast from Somalia to northern Mozambique that will cause moisture advection from the Indian Ocean. An extensive anticyclonic flow pattern is expected to dominate over the southern and eastern parts of the subcontinent, from the Atlantic Ocean to the western Indian Ocean with a trough over southwest South Africa.

T+72h, an anticyclonic flow pattern is expected to prevail over eastern North Africa with a trough to the west, over Morocco, northwestern Algeria, Tunisia and northwestern Mali. A general low pressure area is expected to prevail over West Africa through central Africa, Congo, DRC, Uganda to Ethiopia. A trough is expected to dominate off the coast of Tanzania and Kenya and cause moisture advection inland from the Indian Ocean. An extensive anticyclonic flow pattern is expected to prevail over the southern and eastern parts of the subcontinent, from the Atlantic Ocean to the western Indian Ocean with a trough over southeast South Africa.

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

T+24h, an extensive anticyclonic flow pattern is expected to dominate over Northern Africa with a trough to the west (over Morocco, northern Algeria and Tunisia). Another extensive anticyclonic flow pattern is expected to dominate over southern Africa, from the Atlantic Ocean to western Indian Ocean with a trough over south of the Mozambique Channel and southern Madagascar. Northeasterlies from the anticyclonic cell over North Africa and southeasterlies from the anticyclonic cell over the southern Africa are expected to converge over Western and Central Africa.

T+48h, an extensive anticyclonic flow pattern is expected to prevail over Northern Africa with a general low pressure area over central Africa. Another anticyclonic flow system is expected to dominate from the coast of Angola through Zambia to Madagascar, with a trough to its south (over Namibia, southern Botswana, South Africa and southern Mozambique).

T+72, an extensive anticyclonic flow pattern is expected to dominate over a large part of North Africa and a general low pressure area is expected to prevail over central Africa as well as the anticyclonic flow pattern from the coast of Angola through Zambia to Madagascar and the trough area to its south.

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

T+24h, an upper level westerly jet is expected to dominate over northern Africa with an upper level anticyclonic circulation system over the Sahel and divergent flow over Benin, west Nigeria, and southern Chad. A divergent southeasterly flow from the Indian Ocean is expected to dominate over the Horn of Africa while an anticyclonic circulation system will dominate over central Africa, with a divergent flow pattern over western DRC and northern Angola, and an upper level convergent flow over eastern DRC and western Tanzania. A westerly flow associated with an upper level jet is expected to dominate over southern Africa with an anticyclonic divergent flow associated with a frontal system over eastern South Africa.

T+48h, the upper level jet over northern Africa is expected to move southward and cause a divergent flow over southern Niger and central Chad while a divergent flow pattern is expected to prevail over southern Sahel. The upper level divergence system over western DRC is expected to weaken with a result of an upper level convergence over the southern part of the country and northeastern Angola. A southwesterly convergent flow is expected to dominate over the Horn of Africa with a westerly flow over southern Africa.

T+72h, an upper level disturbance over western Sudan is expected to cut off the jet over northern Africa and cause a divergent flow over western Niger and western and southern Sudan while the divergent flow over southern Sahel is expected to weaken. Two isolated divergent flow patterns are expected to dominate over northern and southwestern DRC respectively while a southwesterly convergent flow is expected to prevail over the Horn of Africa. Southern Africa is expected to be dominated by a westerly flow.

*Authors: 1. Leon Guy Razafindrakoto (“Direction Generale de la Meteorologie” (DGM), Madagascar and African Desk)*

*2. Arlindo Meque (“Instituto Nacional de Meteorologia” (INAM), Mozambique and African Desk).*