



## Forecast Guidance for Africa

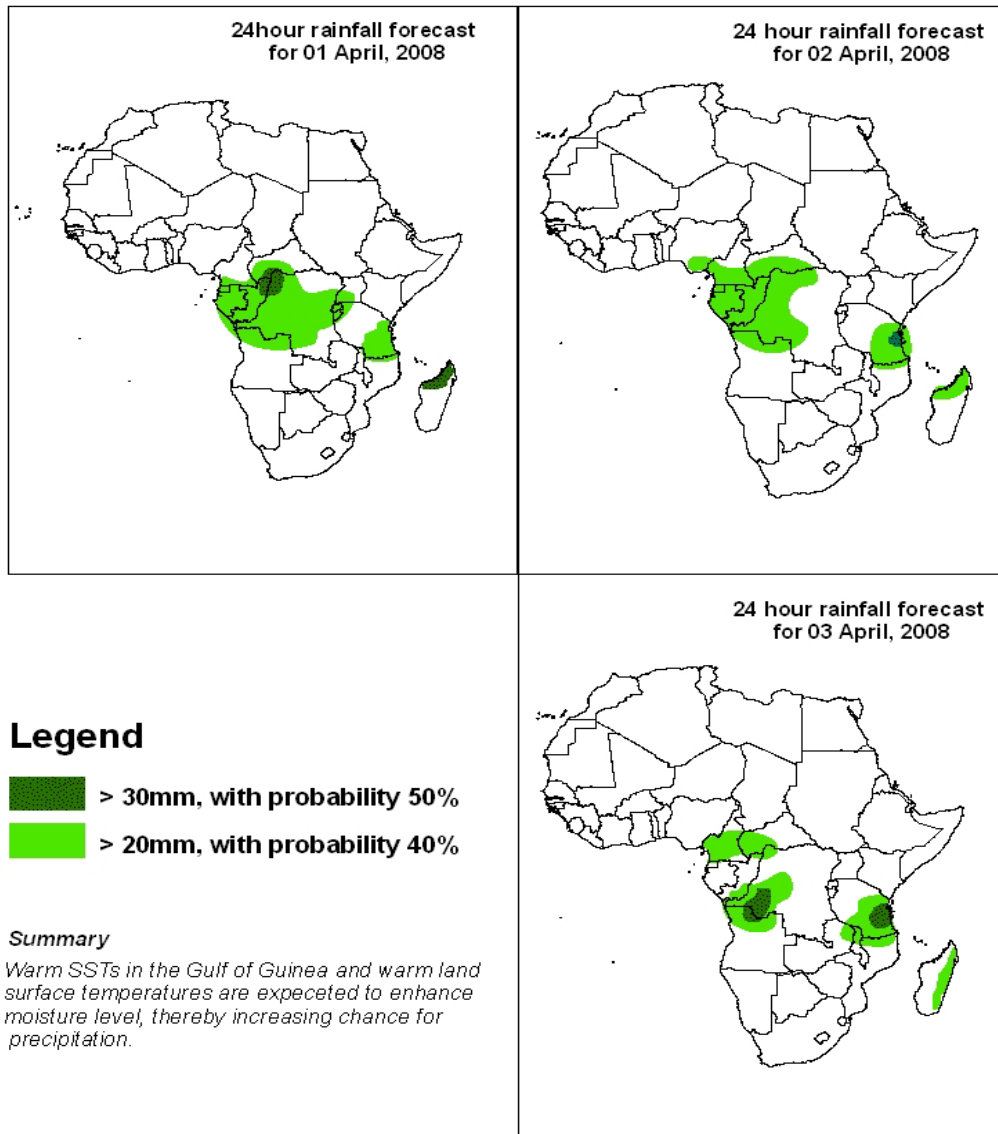
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

**FORECAST DISCUSSION 14H00 EST, 31 MARCH 2008**

**Valid: 00Z, 01-03 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; 31<sup>th</sup> March 2008): There is a general agreement between UK MET, ECMWF and GFS models.*

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

T+24h, an anticyclonic flow pattern is expected to dominate over the southern part of the subcontinent (southern and central Mozambique, Zimbabwe, Zambia, eastern Namibia, Botswana and South Africa) and over northeastern Madagascar. A trough area is expected to dominate over the Mozambique Channel including southern Madagascar while a low pressure system is expected to dominate off the coast of northern Namibia. This system is expected to create a generally easterly flow between the latitude 15S and the Equator (ie, from the Indian Ocean to the Atlantic Ocean across the subcontinent).

T+48h, the anticyclonic flow pattern over the southern part of the subcontinent is expected to prevail as well as the one over northeastern Madagascar. The trough over the Mozambique Channel is expected to strengthen while another one is expected to dominate over southern South Africa in the Atlantic Ocean. The low pressure system over the coast off Namibia is expected to move further to the northwest. The easterly flow between the Equator and latitude 15S across the subcontinent is expected to prevail.

T+72h, At T+72, the anticyclonic flow pattern over the southern part of the subcontinent is expected to prevail as well as the trough over southern South Africa in the Atlantic Ocean and over the Mozambique Channel. The easterly flow is expected to dominate between the Equator and north of latitude 20S.

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

T+24, a cyclonic circulation system is expected to be centered over the Gulf of Guinea, in the Atlantic Ocean and to dominate over DRC, Congo and Gabon while an anticyclonic circulation is expected to be centered over southern Zambia extending over Angola, Zimbabwe and South Africa. A cyclonic circulation associated with a frontal system is expected to dominate over the Indian Ocean including southern Madagascar and southern Mozambique. An extensive anticyclonic circulation is expected to dominate over the eastern part of the continent through northern Mozambique to the Horn of Africa, causing an easterly flow pattern to the south.

T+48, the anticyclonic circulation centered over eastern Angola is expected to prevail with its extension to the west into the Atlantic Ocean and southward into southern Africa. Its extension with eastward is expected to separate the cyclonic circulation across the subcontinent into two parts: the one centered over the Gulf of Guinea, DRC is expected to extend northward, while the other will prevail from southern Mozambique and southern Madagascar in a southeastward direction.

T+72, all circulation patterns are expected to be maintained as those of 24 hours before (T+48h), with cyclonic circulations expected to weaken.

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

T+24, an upper level divergence is expected to dominate over eastern Central African Republic and DRC as a result of convection over there, causing an upper level confluence over southern Sudan and northern Kenya, while a westerly flow is expected to dominate the southern part of the subcontinent with an embedded anticyclonic circulation over the western part of South Africa.

T+48, the upper level divergent circulations are expected to prevail and move slightly to the south, causing confluent pattern over Uganda, while a westerly flow is expected to prevail over the southern part of the subcontinent. An upper level anticyclonic flow system is expected to dominate the tip of South Africa behind a cyclonic circulation to the south of Madagascar, this system will cause confluent flow over the northeastern part of South Africa.

T+72, the upper level divergent circulation is expected to move back to the north over Gabon, northern DRC and Central African Republic. The anticyclonic/cyclonic circulation over South Africa is expected to move eastward and develop a frontal system at the surface.

*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).*