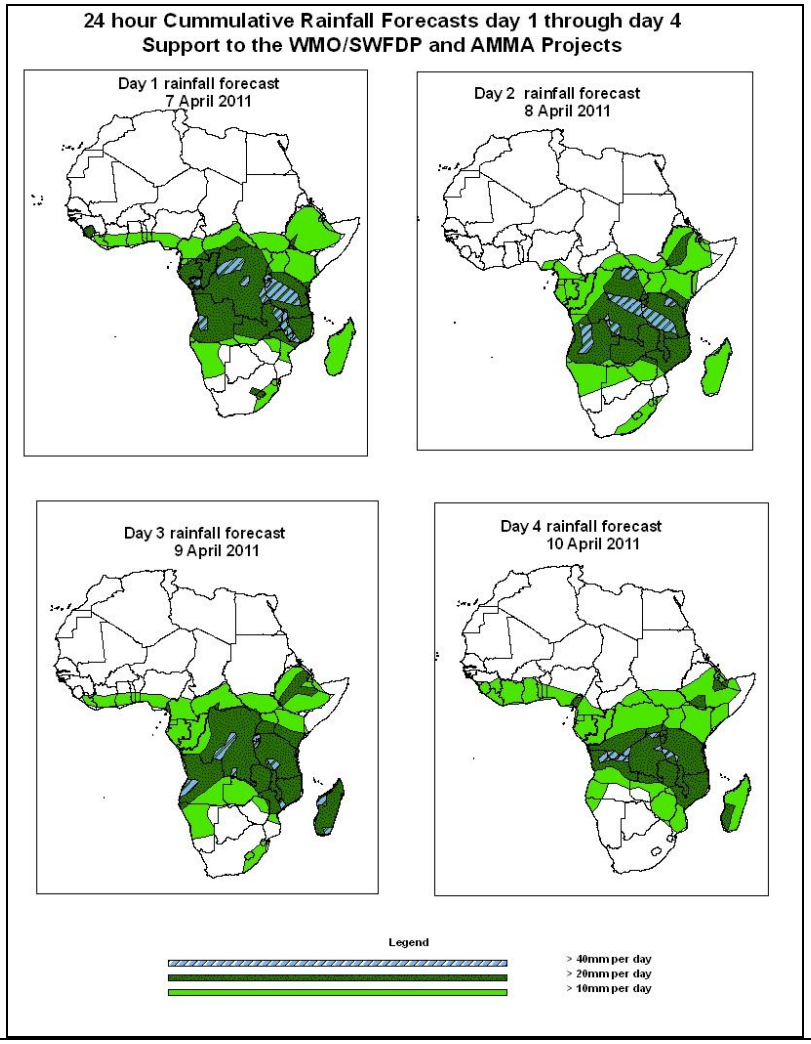
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid, 06Z of 07 April – 06Z of 10 April 2011, (Issued at 13:50Z of 06 April 2011)

1.1. Twenty Four Hour Cumulative Rainfall Forecasts

The forecasts are expressed in terms of probability of precipitation (POP) exceeded based on the NCEP, UK Met Office and the ECMWF NWP outputs, the NCEP global ensemble forecasts system (GEFS) and expert assessment.



Summary

Rainfall should continue over most of southern Africa in the next four days. Strong lower level convergence and the influx of moisture laden easterly's over the eastern coast of Africa should enhance moderate to heavy rainfall over southern Africa, the Congo Air Boundary (CAB) and the vicinity of the Greater Horn of Africa. There should be a slight respite over the Gulf of Guinea coast. South Africa will also witness moderate to heavy rainfall aided by the influence of a mid- latitude westerly wave. Hence, there is an increased chance for rainfall to exceed 20mm per day over Guinea, Sierra Leone, Congo, DRC, CAR, southern Sudan, Ethiopia, Kenya, Uganda, Burundi, Rwanda, Angola, Zambia, Malawi, Mozambique, Madagascar, South Africa, Zimbabwe, Tanzania and Cameroun.

1.2. Models Comparison and Discussion-Valid from 00Z of 7 April 2011

The GFS, ECMWF and UKMET models show the persistence of an east-west oriented trough within the next four days, formed by a series of cut off lows over southern Sudan, parts of Central African region and the coast of the Gulf of Guinea. A central pressure value of 1005hpa is expected along its eastern end (mainly over Central African Republic / Sudan region), and a pressure value of 1007hpa along its western end. The lows associated with the meridional arm of the ITCZ are active over central DRC and northeastern Tanzania by 24 hours with a central pressure value of 1010hpa. The low pressure system over Angola region maintains a central pressure value of 1008hpa. While the low pressure system over the Mozambique Channel is absent all through. The three models; ECMWF, GFS and UKMET show some level of similarity in their presentation of pressure patterns.

The St. Helena High pressure system over southeast Atlantic maintains a central pressure value of 1028hpa from 24 to 48 hours, then weakening to 1024hpa from 72 to 96 hours. The Mascarene high pressure system over southwest Indian Ocean intensifies from 1024hpa by 24 hours to 1028hpa by 48 hours and back to 1024hpa by 96 hour period.

At the 850hpa level, the GFS model shows the east-west oriented convergence line in the region between the coastal areas of the Gulf of Guinea and northeast DRC deepens progressively, filling only by 96 hour period. The north-south oriented convergence line persists all through, active mostly over DRC, Burundi and Rwanda. The convergence line over Angola region persists, filling from 72 to 96 hours. The convergence line over the Mozambique Channel, absent by 24 hours, deepens from 48 hours' time.

Mostly northeasterly winds dominate across most of western and central African countries at the 700hpa level with strong lower tropospheric convergence dominating the flow over Angola, Gabon, Congo, DRC, Tanzania, Burundi, Rwanda and Somalia.

There is the presence of a mid-latitude westerly wave adjoining the coast of South Africa. A mid-latitude trough extending over most of northeast Africa propagates from latitude 25°E by 24 hours to about 35°E by 96 hours.

At 500HPa, zones of strong wind in excess of 90Kts, which are associated with the African Easterly Jet, decreasing to excess of 70Kts by 48 hours are expected in the vicinity of Egypt, the north Atlantic and Mid-east. Similar strong winds in excess of 50Kts are expected over the Indian Ocean, the south Atlantic and off the coast of South Africa.

A zone of strong wind (>150Kts) at 200hpa level associated with the Sub Tropical westerly Jet is expected in the vicinity of Libya, Egypt and the mid-east and expected to be wavy.

Similarly, strong winds (>90Kts) associated with the Sub-Tropical Westerly Jet in the Sub Tropical region of South Africa, south Atlantic and the Indian Ocean is expected to be wavy all through.

Rainfall should continue over most of southern Africa in the next four days. Strong lower level convergence and the influx of moisture laden easterly's over the eastern coast of Africa should enhance moderate to heavy rainfall over southern Africa, the Congo Air Boundary (CAB) and the vicinity of the Greater Horn of Africa. There should be a slight respite over the Gulf of Guinea coast. South Africa will also witness moderate to heavy rainfall aided by the influence of a mid- latitude westerly wave. Hence, there is an increased chance for rainfall to exceed 20mm per day over Guinea, Sierra Leone, Congo, DRC, CAR, southern Sudan, Ethiopia, Kenya, Uganda, Burundi, Rwanda, Angola, Zambia, Malawi, Mozambique, Madagascar, South Africa, Zimbabwe, Tanzania and Cameroun.

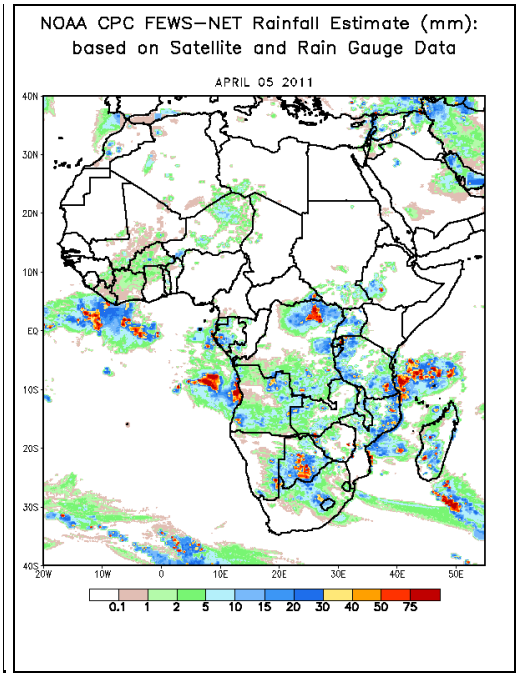
2.0. Previous and Current Day Weather Discussion over Africa (05 April – 06 April 2011)

2.1. Weather assessment for the previous day (05 April 2011):

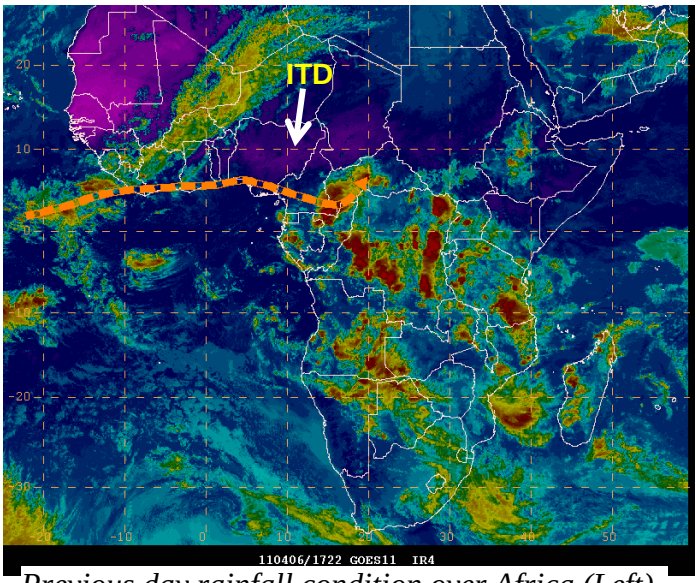
During the previous day, a combination of moderate and heavy rainfall was observed over Namibia, Botswana, South Africa, Zimbabwe, Zambia, Mozambique, Tanzania, Burundi, Rwanda, Angola, CAR, DRC, Uganda, Ethiopia, southern Sudan, Gabon and Burkina Faso.

2.2. Weather assessment for the current day (06 April 2011):

Intense clouds are observed over CAR, Cameroun, Congo, Gabon, DRC, Kenya, Tanzania, Zambia, Malawi, Ethiopia, Mozambique, Madagascar, Angola, Namibia and Botswana.



IR Satellite Image (valid 1722Z) and position of ITD, based on 12Z Surface Analysis; 06 April 2011



Previous day rainfall condition over Africa (Left) based on the NCEP CPCE/RFE and current day cloud cover (top) based on IR Satellite image

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