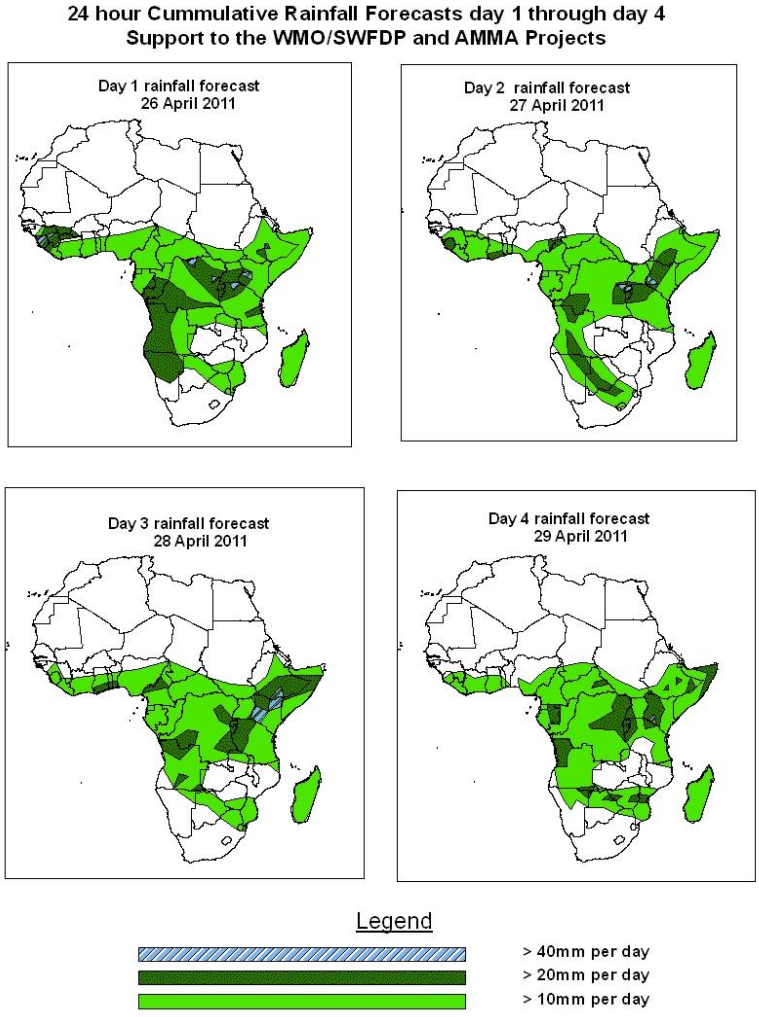
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 26 April – 06Z of 30 April 2011, (Issued at 11:05Z of 25 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

In the next four days, the lower tropospheric wind convergence across the Gulf of Guinea, the north-south oriented wind convergence in the CAB region and eastward propagating frontal system across southern Africa are expected to enhance rainfall in the respective regions. Moreover, easterly flow between eastern Africa and western equatorial Africa is also expected to enhance westward propagation of clouds towards the Gulf of Guinea coast. In general, there is an increased chance for rainfall to exceed 20mm/day over Liberia, Cote d'Ivoire, parts of Nigeria, parts of Ghana, Cameroon, Gabon, Congo, Angola, Uganda, Namibia, Botswana, DRC, Rwanda, Burundi, parts ok Kenya, Tanzania, Somalia, and parts of Ethiopia

1.2. Models Comparison and Discussion-Valid from 00Z of 25 April 2011

According the GFS, ECMWF and UKMET models, the ridge associated with the St Helena high pressure system is expected to remain strong while extending northwards up to the coastal areas of Cote d'Ivoire and Ghana through 24 to 48 hours. This ridge is expected to retreat southwards by 72hours. On the other hand, the east Africa ridge, associated with the Mascarene high pressure system is expected to remain across southeast and East Africa during the forecast period, with no significant change in its intensity, while a ridge associated with the Azores high is expected to extend eastwards gradually across Mauritania and Morocco through 24 to 96 hours.

The St. Helena High pressure system over southeast Atlantic Ocean is expected to maintain a central pressure value of 1028hpa in 24hrs and intensifying to 1032hpa in 48 and 72hrs and weakens back to 1028hpa by 96 hours. The Mascarene high pressure system over southwest Indian Ocean is expected to assume a central pressure value of 1016hpa through 24 hours and intensifying to 1020hpa through 48hours and back to 1016hpa through 72 to 96 hours.

At the 850hpa level, the GFS model shows an east-west oriented convergence line in the region between the western parts of the Gulf of Guinea and Sudan. This convergence is expected to remain active during forecast period. The wind convergence associated with the meridonal arm of the ITCZ is expected remain active in the Congo Air Boundary (CAB) region, while localized convergence is expected to persist in the vicinity of western Gabon through 24 to 96 hours. Southwesterly winds from the Atlantic Ocean are expected to weaken slightly across the Gulf of Guinea region through 48 to 96 hours. The moist southeasterly flow from the Indian Ocean into the Greater Horn of Africa (GHA) is expected to persist through 24 to 96 hours.

At the 700hPa level, a trough in the westerly in the subtropical region of northern Africa is expected to propagate across Sudan, Egypt, Red Sea and Mideast 24 to 96 hours. Persistent northeasterly to easterly winds are expected to dominate the flow in the region between southern Sudan to western equatorial Africa and the northern Angola through 24 to 96 hours.

At 500hpa, easterly winds with moderate intensity (10 to 15knots) are expected to dominate the flow between the Horn of Africa and Cameroon through 24 to 96 hours. Two mid-latitude troughs are expected to propagate across the sub-tropical regions of northern Africa, with one of the troughs is expected to move across Algeria, Tunisia, Libya, Egypt and mid-East through 24 to 96 hours, while the trough in the Horn of Africa tends to weaken slightly by 48 hours. Similarly, mid-latitude frontal systems are expected to propagate between southeast Atlantic Ocean and southwest Indian Ocean across southern Africa through 24 to 96 hours.

A zone of strong wind (>110Kts) at 200hpa level associated with the Sub Tropical westerly Jet is expected to propagate eastwards across Atlantic Ocean, Mauritania, Algeria and Libya through 24 hours and then it tends to intensify to (>130kts) though 48 and 72 hours and it will weaken back to (>110kts) by 96 hours. On the other hand, strong winds (>150Kts) associated with the Sub-Tropical Westerly Jet is expected in the southern hemisphere across southern Africa, Lesotho and Indian Ocean through 24hours and Weakens to (>130Kts) in 48 and (>110Kts) in 72 hours and back to (>130Kts) by to 96 hours.

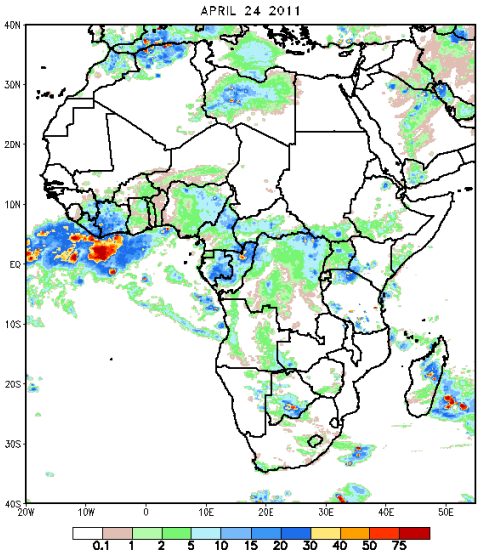
In the next four days, the lower tropospheric wind convergence across the Gulf of Guinea, the north-south oriented wind convergence in the CAB region and eastward propagating frontal system across southern Africa are expected to enhance rainfall in the respective regions. Moreover, easterly flow between eastern Africa and western equatorial Africa is also expected to enhance westward propagation of clouds towards the Gulf of Guinea coast. In general, there is an increased chance for rainfall to exceed 20mm/day over Liberia, Cote d'Ivoire, parts of Nigeria, parts of Ghana, Cameroon, Gabon, Congo, Angola, Uganda, Namibia, Botswana, DRC, Rwanda, Burundi, parts ok Kenya, Tanzania, Somalia, and parts of Ethiopia.

2.0. Previous and Current Day Weather Discussion over Africa (24 April – 25 April 2011)

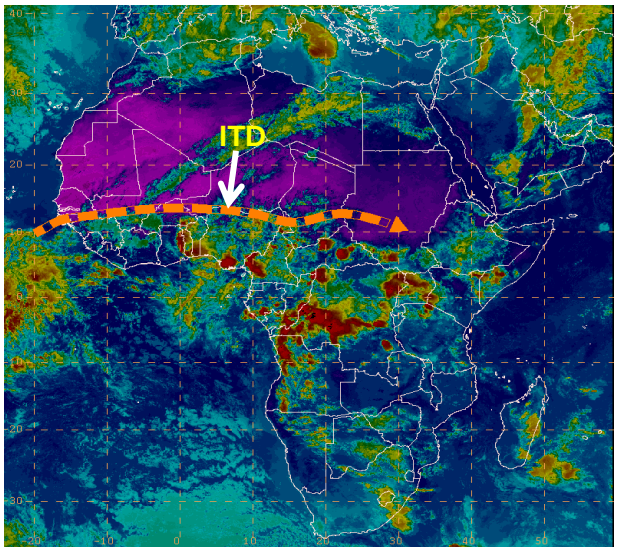
2.1. Weather assessment for the previous day (24 April 2011):

During the previous day, a combination of moderate and heavy rainfall was observed over Southern Cote D'Ivoire, parts of Congo, parts of DRC, parts of Botswana, parts of Madagascar and parts of Tanzania.

2.2. Weather assessment for the current day (25 April 2011): Intense clouds are observed over parts of Nigeria, parts of Ghana, Togo, Benin, Cameroon, Southern Sudan, Parts of DRC, Congo, parts of Angola, Uganda, parts of Gabon and parts of Somalia.



IR Satellite Image (valid 1622Z) and position of ITD, based on 1200Z Surface Analysis; 25 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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