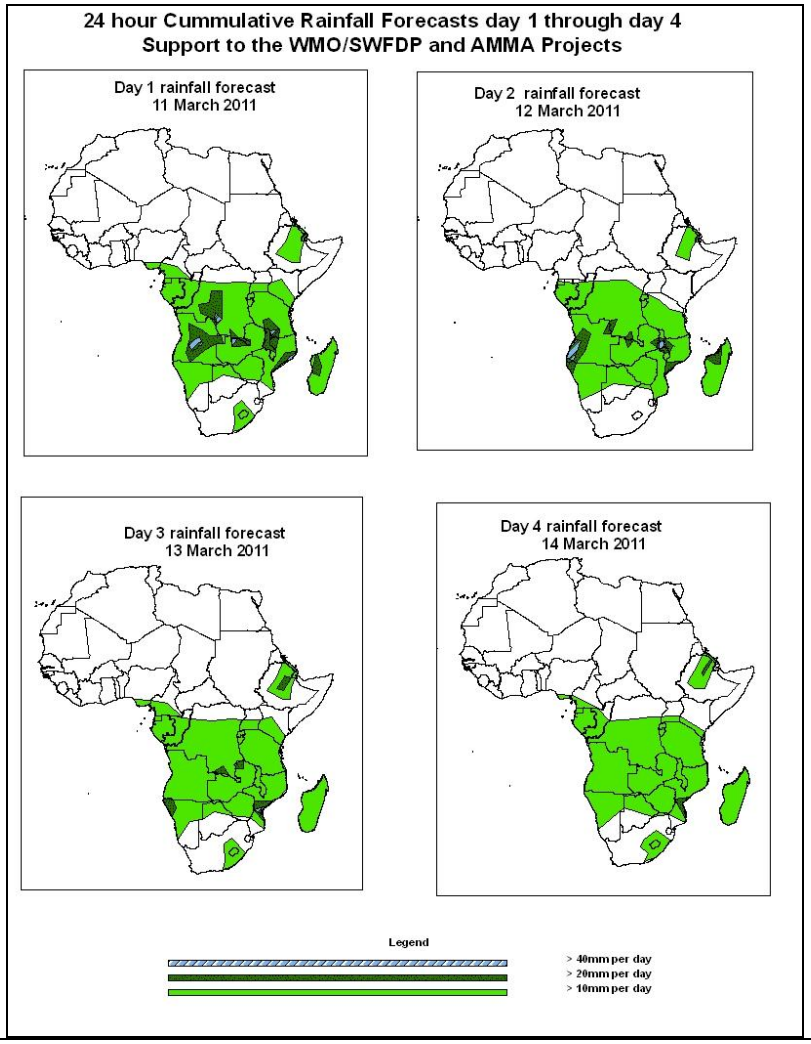
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid, 06Z of 11 March – 06Z of 14 March 2011, (Issued at 12:00Z of 10 March 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

We expect a gradual reduction in rainfall intensity over Madagascar within the next 96 hour period, as the tropical low pressure system over the Mozambique Channel moves south westerly on shore Mozambique leaving a ridge over the Channel. This will enhance heavy rainfall over Mozambique – Malawi axis. Moderate rainfall will continue over southern Africa as a result of strong lower level convergence over this region. Hence, there is an increased chance for rainfall to exceed 20mm per day over Mozambique, Madagascar, Zambia, DRC, Namibia, Angola, Ethiopia, Malawi and Tanzania.

1.2. Models Comparison and Discussion-Valid from 00Z of 11 March 2011

A series of cut off lows over the southern parts of the Gulf of Guinea, parts of central African region and southern Sudan, forming an east-west oriented trough is expected to persist through the next four days as shown by the GFS, ECMWF and UKMET models. Along its eastern end (mainly over Central African Republic / Sudan region), a central pressure value between 1003 – 1004hpa is expected and a central value between 1004 - 1005hpa along its western end. The lows associated with the meridional arm of the ITCZ are active by 24 and 48 hours but weak by 72 and 96 hours. A low pressure system in the vicinity of Mozambique Channel and Madagascar is expected to persist through 24 to 48 hours, and to fill up by 72 to 96 hours. In general, there appears to be some level of similarity in pressure patterns as depicted by the GFS, ECMWF and UKMO models.

The St. Helena High pressure system over southeast Atlantic as presented by the GFS, ECMWF and UKMET models is expected to remain quasi-stationary with a central pressure value of 1024hpa all through. The Mascarene high pressure system over southwest Indian Ocean on the other hand is absent from its climatological position by 24 and 48 hours, but present by 72 and 96 hours with a central value of 1020hpa.

An east-west oriented convergence line in the region between the coastal areas of the Gulf of Guinea and northeast DRC as shown by the GFS model at the 850hpa level is expected to persist but shallow. The north-south oriented convergence line is present but not very active. Convergence lines over Angola region and the Mozambique Channel are equally expected to persist but to weaken from 72 to 96 hour period.

Mostly northeasterly to easterly winds dominate across western and central African countries at 700hPa level. A strong lower tropospheric convergence is expected to dominate the flow over Angola, Zambia, Mozambique, Malawi, Zimbabwe, Namibia, southern DRC and the vicinity of the Greater Horn of Africa. The cyclonic circulation in the Mozambique Channel is expected to propagate in a southwesterly direction.

A zone of strong wind (>130Kts) at 200hPa associated with the Sub Tropical westerly Jet in the sub-tropical region of northwest Africa and the Atlantic is expected to attain a wavy pattern all through and strengthen (>150Kts) by 72 and 96 hours.

Similarly, strong winds (>90Kts) associated with the Sub-Tropical Westerly Jet in the Sub Tropical region of southern Africa is expected to be zonal and over the Atlantic ocean and the tip of South Africa.

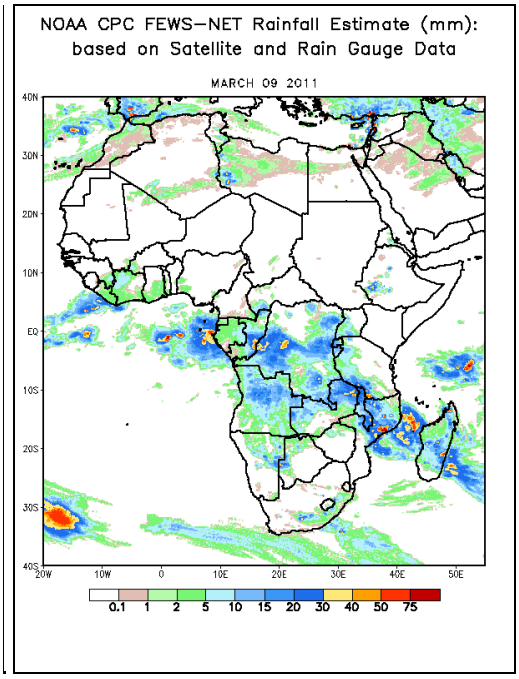
We expect a gradual reduction in rainfall intensity over Madagascar within the next 96 hour period, as the tropical low pressure system over the Mozambique Channel moves south westerly on shore Mozambique leaving a ridge over the Channel. This will enhance heavy rainfall over Mozambique – Malawi axis. Moderate rainfall will continue over southern Africa as a result of strong lower level convergence over this region. Hence, there is an increased chance for rainfall to exceed 20mm per day over Mozambique, Madagascar, Zambia, DRC, Namibia, Angola, Ethiopia, Malawi and Tanzania.

2.0. Previous and Current Day Weather Discussion over Africa (09 March – 10 March 2011)

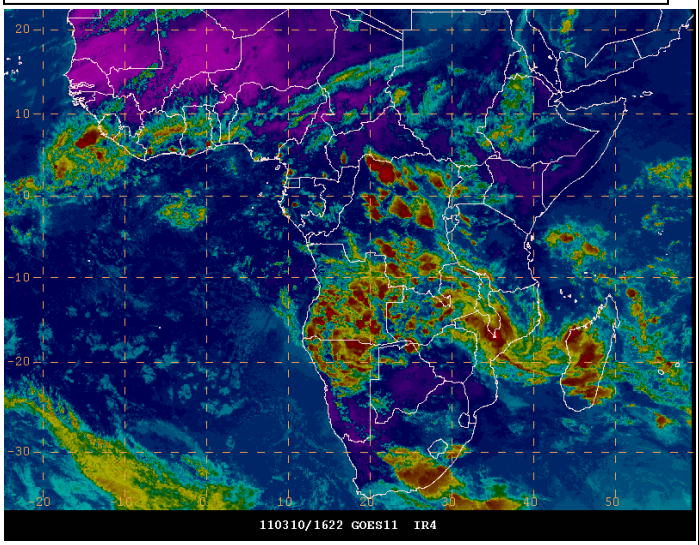
2.1. Weather assessment for the previous day (09 March 2011):

During the previous day, a combination of moderate and heavy rainfall was observed over Congo, DRC, Angola, Namibia, Botswana, Zambia, South Africa, Tanzania, Mozambique, Madagascar, Ethiopia, Malawi and Rwanda.

2.2. Weather assessment for the current day (10 March 2011): Intense clouds are observed over the coast of Gulf of Guinea, CAR, DRC, Angola, Zambia, Malawi, Mozambique, Madagascar, South Africa, Namibia and Botswana.



IR Satellite Image, Valid 1622Z, March 10, 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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