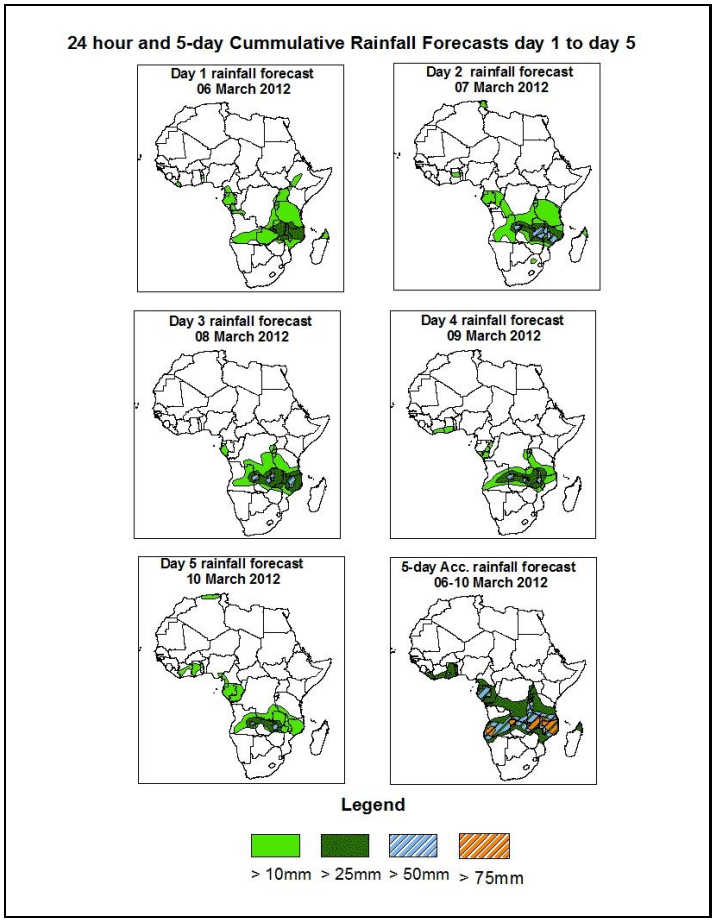
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 06 March – 06Z of 10 March 2012, (Issued at 18:00Z of 05 March 2012)

1.1. Twenty Four Hour Cumulative Rainfall Forecasts

The forecasts are expressed in terms of 75% probability of precipitation (POP) exceeded, based on the NCEP outputs, the NCEP global ensemble forecasts system (GEFS) and expert assessment.



Summary

In the next five days, low level tropospheric wind convergences from the Gulf of Guinea to western Uganda passing through Equatorial Guinea, Gabon, Congo, southern Cameroun and northern DRC, the low level convergence in the vicinity of eastern DRC, western Uganda, Rwanda, Burundi and western Tanzania associated with the meridional arm of the ITCZ, the zonal arm of the ITCZ over eastern Angola running across Zambia up to western Malawi, cyclonic circulations associated with tropical cyclone Irina along the eastern coast of South Africa and Localized winds convergences associated with a mid-latitude trough running along central Angola and Namibia are expected to enhance rainfall in their respective regions. Hence, there is an increased chance for heavy rainfall over Equatorial Guinea, Gabon, southern Congo, southern and eastern Angola, Zambia, southern DRC, northern Mozambique, Malawi, Rwanda, Burundi and Tanzania.

1.2. Model Discussion-Valid from 00Z of 05 March, 2012

The GFS model indicates series of lows and their associated trough across central and the South African countries. **A** low will form in the vicinity of northern DRC and CAR with a central MSLP of 1010mb at the beginning of the forecast period. It tends to deepen with its central MSLP value decreasing to 1005mb towards the end of the forecast period. **A**nother low will form in the vicinity of the Republic of Southern Sudan with a central MSLP value of 1010mb at the beginning of the forecast period. It tends to deepen with its central MSLP value decreasing to 1005mb towards the end of the forecast period. **A** low will form in the vicinity of northern Nigeria with a central MSLP value of 1010mb at the beginning of the forecast period. It tends to deepen with its central MSLP value decreasing to 1005mb through 24 to 72 hours. It tends to shift southeastwards to central Cameroun towards the end of the forecast period.

The tropical cyclone **'Irina'** will be located off the eastern coast of South Africa with a central MSLP value of 1000mb at the beginning of the forecast period. It tends to deepen progressively and propagate southwestwards towards the coast of eastern SA with a central MSLP value of 990mb towards the end of the forecast period.

The St. Helena High pressure system over southeast Atlantic Ocean with a central MSLP value of 1025mb at the beginning of the forecast period tends to weaken with its central MSLP value decreasing to 1020mb towards the end of the forecast period. **T**he model locates the Mascarene high pressure system over southwestern Indian Ocean with a central MSLP of 1020mb at the beginning of the forecast period. It tends propagate eastwards and strengthen progressively to a central MSLP value of 1025mb towards the end of the forecast period.

At the 850hpa level, a lower tropospheric wind convergence is expected to be active from the Gulf of Guinea to western Uganda passing through Equatorial Guinea, Gabon, Congo, southern Cameroun and northern DRC throughout the forecast period. A low level convergence zone is expected to form in the vicinity of eastern DRC, western Uganda, Rwanda, Burundi and western Tanzania associated with the meridional arm of the ITCZ. It tends to remain stationary throughout the forecast period. Another convergence zone associated with the zonal arm of the ITCZ will be located over eastern Angola running across Zambia up to western Malawi throughout the forecast

period. Localized winds convergences associated with a mid-latitude trough are also expected to dominate the flow over central Angola and Namibia throughout the forecast period. Cyclonic circulations associated with tropical cyclone **Irina** are expected to dominate the flow near the eastern coast of South Africa throughout the forecast period.

At 500hpa, an eastward propagating mid latitude trough is expected to dominate the flow over central Algeria with the low geo-potential value of 5760gpm at the beginning of forecast period. The northeast-southwest oriented trough is expected to be quasi-stationary but the geo-potential value will decrease to 5560gpm towards the end of the forecast period.

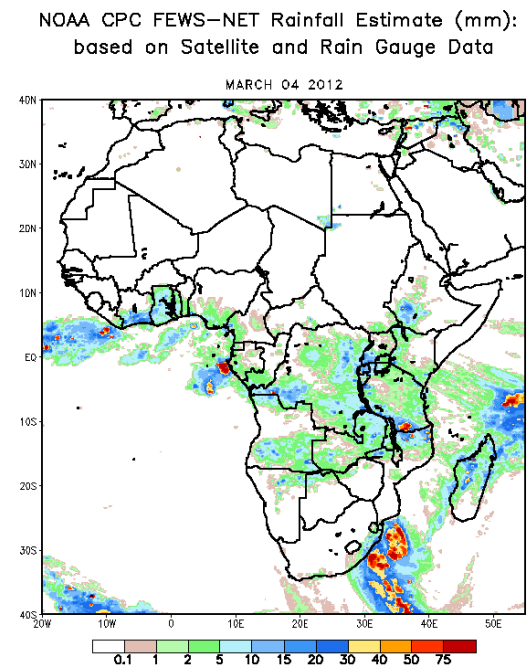
At 200mb, strong winds associated with Sub-Tropical Westerly Jet are expected to dominate the flow from northeastern Atlantic Ocean across northern Africa to Persian Gulf during the forecast period. The intensity of the jet is expected to exceed 130kts while moving to the east with its core values occasionally increasing to more than 150kts throughout the forecast period.

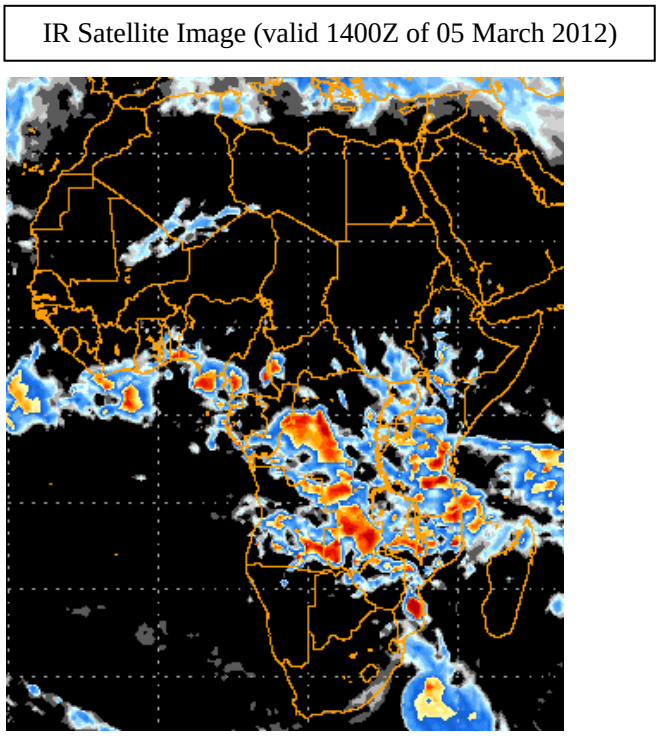
In the next five days, low level tropospheric wind convergences from the Gulf of Guinea to western Uganda passing through Equatorial Guinea, Gabon, Congo, southern Cameroun and northern DRC, the low level convergence in the vicinity of eastern DRC, western Uganda, Rwanda, Burundi and western Tanzania associated with the meridional arm of the ITCZ, the zonal arm of the ITCZ over eastern Angola running across Zambia up to western Malawi, cyclonic circulations associated with tropical cyclone Irina along the eastern coast of South Africa and Localized winds convergences associated with a mid-latitude trough running along central Angola and Namibia are expected to enhance rainfall in their respective regions. Hence, there is an increased chance for heavy rainfall over Equatorial Guinea, Gabon, southern Congo, southern and eastern Angola, Zambia, southern DRC, northern Mozambique, Malawi, Rwanda, Burundi and Tanzania.

2.0. Previous and Current Day Weather Discussion over Africa (04 March – 05 March 2011)

2.1. Weather assessment for the previous day (*04 March* 2012): During the previous day, moderate to locally heavy rainfall was observed over southern Tanzania, northern Mozambique, western and eastern DRC, western Uganda, Rwanda, Burundi, Cote D'Ivoire, Ghana and eastern Madagascar.

2.2. Weather assessment for the current day (*05 March 2011*): Intense clouds are observed over southern and western DRC, eastern Congo, western Uganda, Zambia, Malawi, Tanzania, Mozambique, western Kenya, south eastern Nigeria southern Benin western Cameroun and western CAR.





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

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