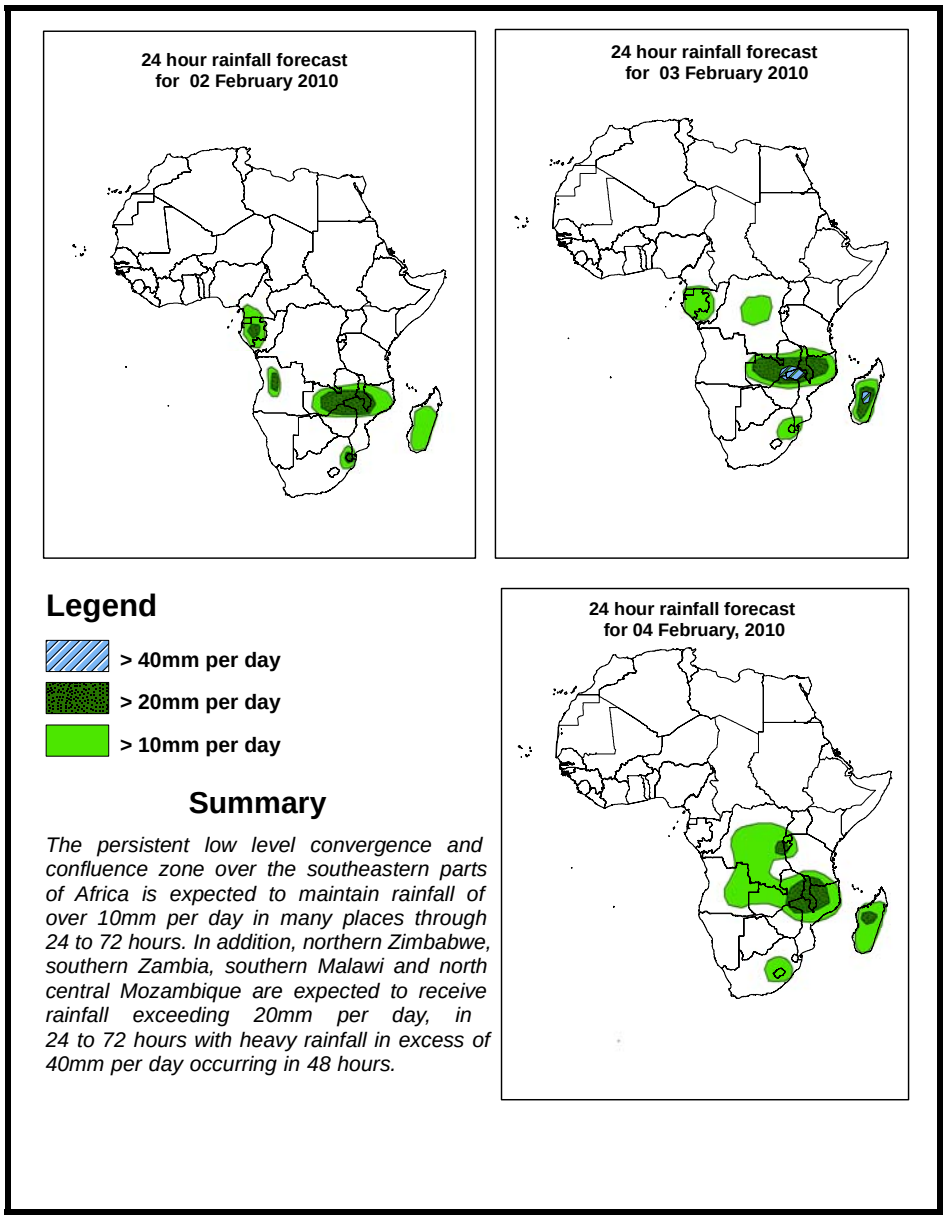
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid, 06Z of 02 February –06Z of 04 February 2010, (Issued at 14:00EST of 01 February 2010)

1.1. Twenty Four Hour Cumulative Rainfall Forecasts

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



1.2. Models Comparison and Discussion - Valid from 00Z of 02 February 2010

A ridge from a high pressure system over southwestern Europe is expected to cut off and form the Saharan high centered over Libya, in 24 to 72 hours, with a southeast directed ridge extending southwards up to central Sudan. On the other hand, a low pressure system over the Mediterranean see is expected to deepen while moving eastwards towards the Middle East, with its north-south oriented trough pushing the Arabian high eastwards resulting in a low pressure zone over the Arabian Peninsula in 24 to 72 hours.

In 24 to 72 hours, places covered by the equatorial trough are expected to assume central pressure values of 1009mb over the Gulf of Guinea, 1010mb over Central Africa Republic, northern DRC, southern Sudan and southern Chad. In addition, places over southern Africa are expected to reach pressure values of 1009mb over Botswana, Zimbabwe and South Zambia, while the Mozambique Channel and a low pressure system over east coast Madagascar will reach central pressure values of 1005mb and 1001mb respectively. A ridge from St. Helena high is expected to penetrate the east coast of South Africa extending northwards towards the Zimbabwe border in 24 to 72 hours.

At 850mb level, a cyclonic system off the coast of morocco is expected to shift northeastwards with centre over southern Europe in 24 to 72 hours. Following the cyclonic circulation, an anticyclonic system is expected, with centre over the Mauritania Mali border in 24 hours. This system is expected to move northeastwards up to central Libya in 24 to 72 hours. Furthermore, a mid-latitude trough extending southwards and covering northern Egypt, northern Libya and northern red sea, in 24 hours, is expected to move eastwards while covering up to central Arabian Peninsula in 48 to 72 hours.

Generally, the seasonal convergence over much of the CAB region is expected persist in 24 to 72 hours. However, a slight weakening over western DRC is expected in 48 to 72 hours. Moreover, the strong convergence of the northeasterly to easterly flow, from the east African monsoon, and westerly flow from the Atlantic Ocean is expected over most parts of east central and southern Africa through 24 to 72 hours. Localized convergence is expected to persist over southern Angola and Namibia through 24 to 72 hours.

At 500mb level, much of North Africa is expected to assume a weak wavy flow in the westerly in 24 to 48 hours, tending to be zonal in 48 to 72 hours. On the other hand, the southern hemisphere is expected to have a wavy pattern in the sub tropical areas through 24 to 72 hrs.

At 200mb, much of North Africa will experience a mid-latitude zonal flow with wind speeds of up to 110 knots, while small potions stretching from western Algeria to central Libya and a narrow zone over central Algeria are expected to reach 130 knots and 150

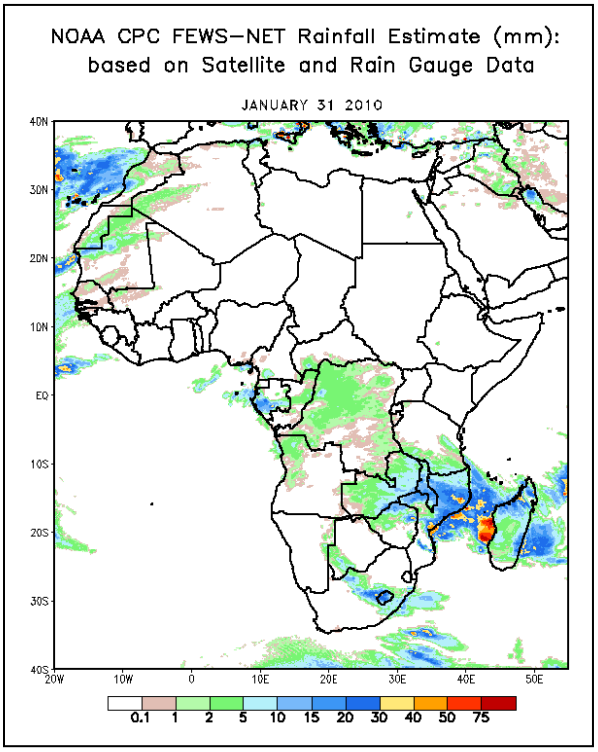
knots, respectively, in 24 to 48 hours. In 48 to 72 hours, the flow is expected to attain a weak wavy pattern assuming wind speed of up to 110knots with a narrow potion from eastern Libya to the north of the Arabian Peninsula reaching wind speed values of 130 knots.

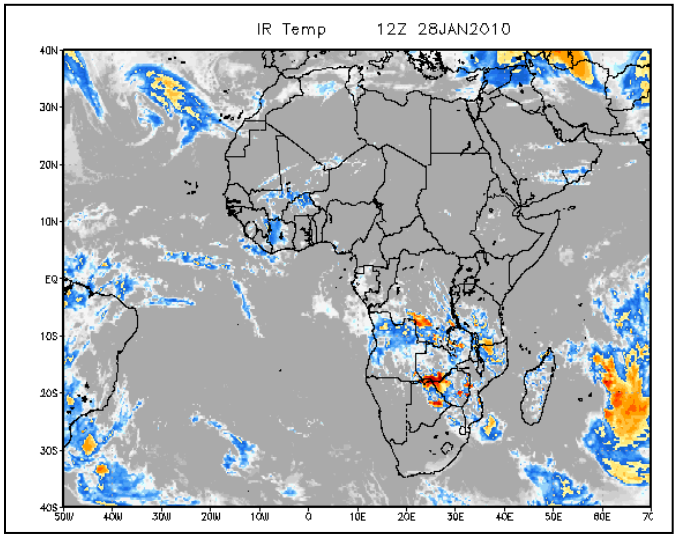
The persistent low level convergence and confluence zone over the southeastern parts of Africa is expected to maintain rainfall of over 10mm per day in many places through 24 to 72 hours. In addition, northern Zimbabwe, southern Zambia, southern Malawi and north central Mozambique are expected to receive rainfall exceeding 20mm per day, in 24 to 72 hours with heavy rainfall in excess of 40mm per day occurring in 48 hours.

2. 0. Previous and Current Day Weather Discussion over Africa (28 –29 January 2010)

2.1. Weather assessment for the previous day (31 January 2010): During the previous day, moderate to heavy rainfall events were observed over north central Mozambique and over Lesotho.

2.2. Weather assessment for the current day (01 February 2010): Intense cloud patches are observed over parts of Zambia, Zimbabwe, DRC, Mozambique and Angola.





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

Author(s): *Edson Nkonde (Zambia Meteorological Department / CPC-African Desk)*
