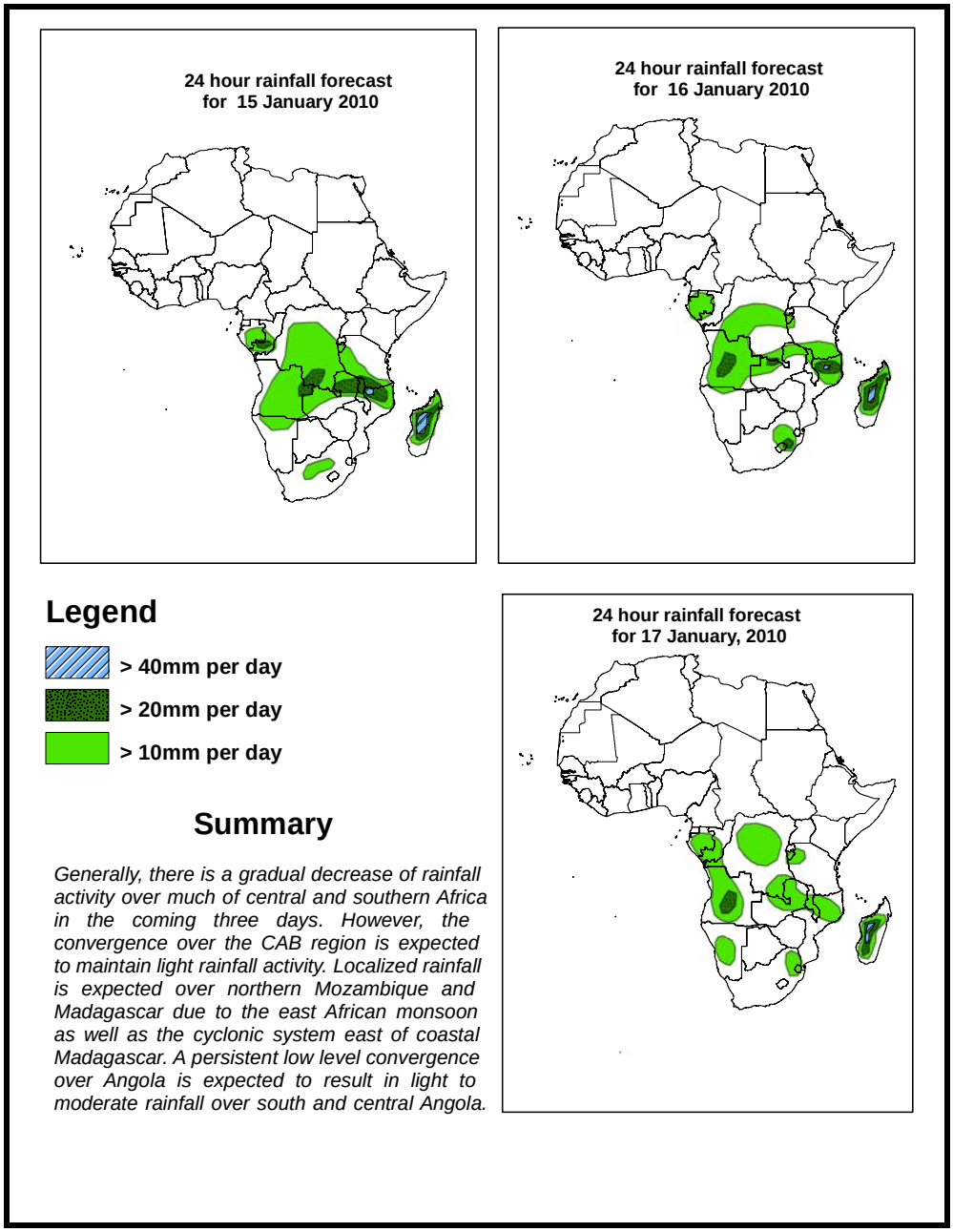
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid, 06Z of 15 January –06Z of 17 January 2010, (Issued at 14:00EST of 14 January 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 15 January 2010

The meager of Saharan high and the Arabian high is expected to weaken allowing the mid latitude low pressure system to extend through 24 to 72hrs. A north south stretch of low pressure zone is expected to run from northern Egypt to southern Sudan with an east west span of 20^0 on an axis of 25^0 E through 48 to 72hrs. Relatively high pressure zone will develop over much of equatorial Africa extending south to 20^0 S. The low pressure system over eastern coastal Madagascar will deepen through 24 to 72 hrs, attaining pressure values of 997mb. A low pressure system over the southwest of Africa is expected to build up in 24 to 72 hrs, while a ridge from the Mascarene high in the southern hemisphere will shift northwards extending up to the southeastern South Africa. All the models show similar forecasts with the only difference being that the ECMWF model seems to underestimate the strength of the tropical depression over east coastal Madagascar.

At 850mb level, the Anticyclonic system over the extreme northwest Africa is expected to strengthen, while maintaining its position. Its peripheral winds are expected to dominate flow over western Africa through 24 to 72 hrs. The Arabian anticyclone is expected to be positioned over the Arabian Peninsula slightly strengthening and slightly moving northwest through 24 to 72hrs. An anticyclonic circulation over northeast Madagascar is expected to move in a northwest direction towards coastal Kenya inducing an easterly flow over the east African coast through 24 to 72 hrs. The mid latitude low pressure system is expected to attain a wavy pattern with a trough building up and extending up to central Chad, through 24 to 72 hrs. Easterly flow, from the east African monsoon, and westerly flow from the Atlantic Ocean is expected to converge over the CAB region and much of equatorial Africa through 24 to 48 hrs. The convergence will persist over the DRC and equatorial Africa through 48 to 72 hrs. Localized convergence over Angola, Namibia, Botswana and South Africa is also expected through 24 to 72 hrs.

At 500mb level, a feeble trough in the westerlies is expected to dominate the flow over northern Africa in 24 hrs. This system will move eastwards while deepening with a north-south oriented trough extending south reaching 10^0 N over the Central African Republic, through 48 to 72 hrs. the center of the its cyclonic circulation will be located over the central Mediterranean sea through 48 to 72hrs.

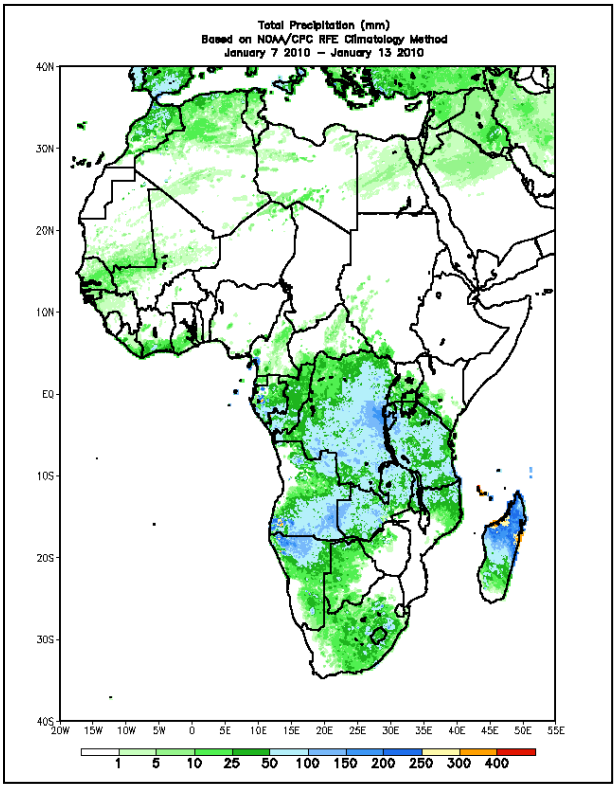
At 200mb, a mid latitude westerly weak wave is expected in 24 hrs becoming wavy through 48 to 72 hrs. Jets with southeast-northwest and southwest-northeast orientation with speed exceeding 150 are expected through 24 to 72 hrs.

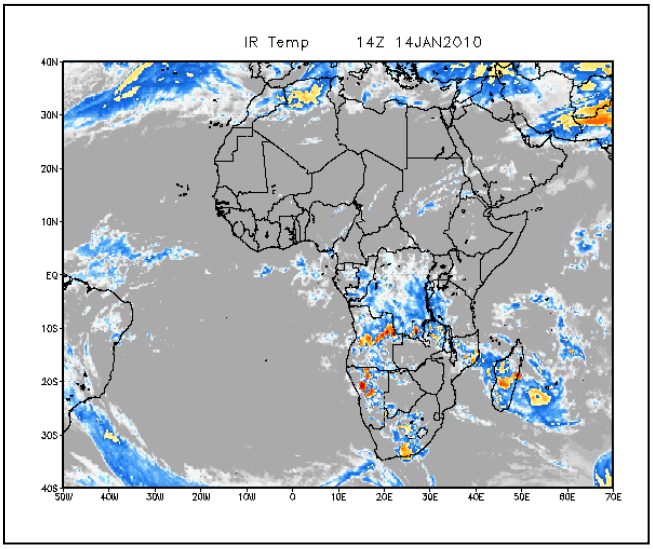
Generally, there is a gradual decrease of rainfall activity over much of central and southern Africa in the coming three days. However, the convergence over the CAB region is expected to maintain light rainfall activity. Localized rainfall is expected over northern Mozambique and Madagascar due to the east African monsoon as well as the cyclonic system east of coastal Madagascar. A persistent low level convergence over Angola is expected to result in light to moderate rainfall over south and central Angola.

2. 0. Previous and Current Day Weather Discussion over Africa (11 –12 January 2010)

2.1. Weather assessment for the previous day (13 January 2010): During the previous day, moderate to light rainfall events were observed over the DRC, Congo, Gabon, Great lakes Region, Tanzania, Zambia, northern Mozambique, Angola, Uganda, South Africa Namibia Botswana Malawi and the CAB region Madagascar.

2.2. Weather assessment for the current day (14 January 2010): Clouds are observed over northern Zambia, western Tanzania, and Great lakes region, DRC, parts of Angola, Botswana, Mozambique, South Africa and Namibia. Intense clouds are also observed over Madagascar.





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

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