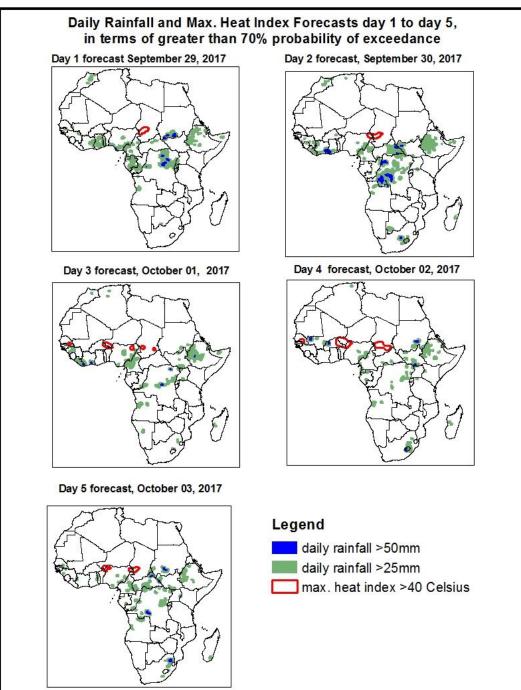
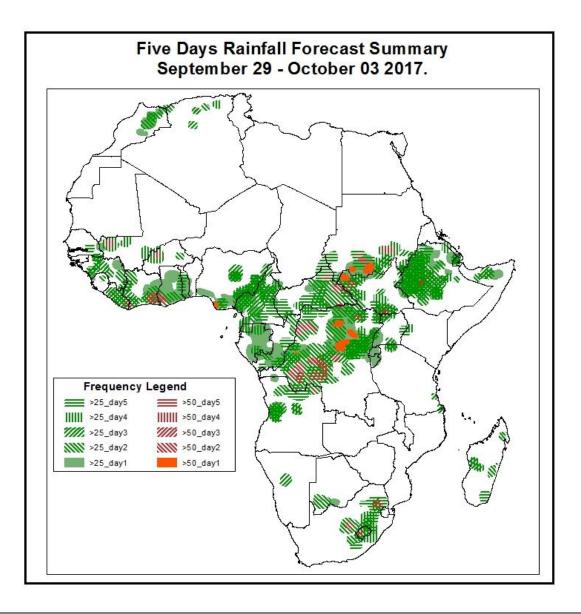
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

- 1. Rainfall, Heat Index and Dust Concentration Forecasts, (Issued on Sept. 28, 2017)
- 1.1. Daily Rainfall and Maximum Heat Index Forecasts (valid: Sept., 29 October 03, 2017)

The forecasts are expressed in terms of high probability of precipitation (POP) and high probability of maximum heat index, based on the NCEP/GFS, ECMWF and the NCEP Global Ensemble Forecasts System (GEFS) and expert assessment.

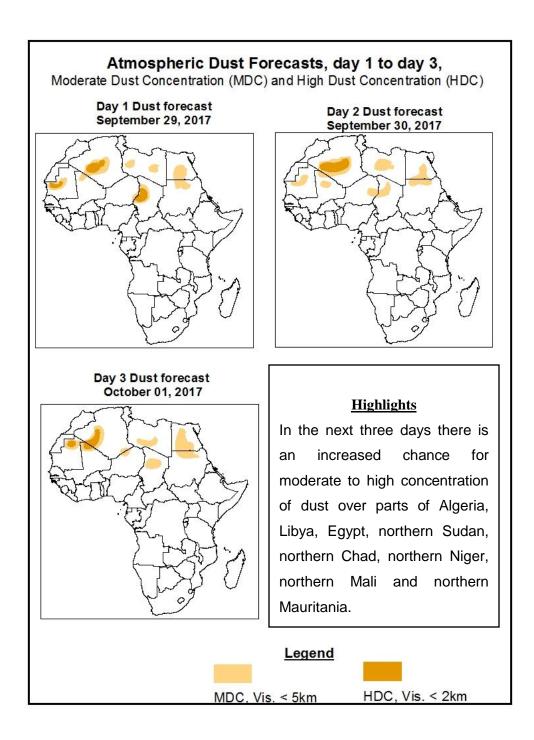




# <u>Highlights</u>

In the next five days, a monsoon flow from the Atlantic Ocean across West and Central Africa combined with a lower-level cyclonic circulation propagating across the Sahel countries coupled with upper level divergence is expected to enhance rainfall over many places in West and Central African countries. Active lower-level convergence over Angola to DRC and traversing through Uganda then to the South Sudan is also expected to enhance rainfall in the region. As a result, there is an increased chance for two or more days of moderate to heavy rainfall over many places in Guinea, Sierra Leone, Liberia, southern Cote D'Ivoire, southern Mali, northern Morocco, western Burkina Faso, southern (Ghana and Togo), Benin, parts of Nigeria, Cameroon, Equatorial Guinea, Gabon, eastern Congo, CAR, DRC, southern Sudan, South Sudan, northern Angola, Lesotho, parts of South Africa, Ethiopia and northern Somalia.

**1.2. Atmospheric Dust Concentration Forecasts (***valid:* Sept.,29 - Oct.,01 2017**)** The forecasts are expressed in terms of high probability of dust concentration, based on the Navy Aerosol Analysis and Prediction System, NCEP/GFS lower-level wind forecasts and expert assessment.



#### 1.3. Model Discussion, Valid: September 29 - October 03 2017.

The Azores High Pressure system over the North Atlantic Ocean is expected to gradually intensify from its central pressure value of 1026hpa to 1028hpa in the next 72hours and then slightly weaken to 1027hpa towards the end of the forecast period.

The St. Helena High Pressure system over the Southeast Atlantic Ocean is expected to weaken from its central pressure value of 1029hpa to 1024hpa in the next 48hours and then later gradually intensifies to 1027hpa towards the end of the forecast period.

The Mascarene High Pressure system over the Southwest Indian Ocean is expected to gradually weaken from its central pressure value of 1032hpa to 1030hpa towards the end of the forecast period.

The heat low over western Sahel is expected to deepen from its value of 1010hpa in the next 48hours to 1007hpa and then maintain this value towards the end of the forecast period.

Over the central Sahel, the heat low is expected to slightly fill up from its value of 1008hpa in the next 48hours to 1009hpa and then thereafter gradually deepen again to 1006hpa towards the end of the forecast period.

Over the Sudan area, the heat low is expected to fill up from its value of 1006hpa in the next 72hours to 1009hpa and then later slightly deepen to 1008hpa towards the end of the forecast period.

At 925hPa, there is a convergence over West Africa and the Sudan area with vortices developing and spreading over the regions which are dominated by the continental winds and are moving westward towards the end of the forecast period.

Another convergence is established over the Angola traversing through the DRC to South Sudan which remains quasi-stationary towards the end of the forecast period.

The dry north easterlies to easterly winds propagating from the subtropical high pressure system over North Africa sustained the spreading and transportation of the Saharan dust over Algeria, Libya, Egypt, northern Sudan, northern Chad, northern Niger, northern Mali and northern Mauritania. At 850hPa, there is a convergence flow over West Africa and the Sudan area with pockets of vortices spreading over the regions which are dominated by the continental winds and are in continuous development with a westward propagation to the end of the forecast period. There is another strong convergence over Angola to the DRC which traverse and extends to Burundi, Rwanda, Uganda and then to the South Sudan and moves slightly to east direction towards the end of the forecast period. Also, another low pressure system is established over southern Malawi to Swaziland with propagation towards the southwest direction to the end of the forecast period.

At 700hPa, there is the divergence of a northeasterly to easterly flow from the subtropical high pressure system over the north and West Africa to its coasts towards the end of the forecast period.

Divergence over central, eastern and the southern part of Africa predominate and persist over the regions towards the end of the forecast period.

In the next five days, a monsoon flow from the Atlantic Ocean across West and Central Africa combined with a lower-level cyclonic circulation propagating across the Sahel countries coupled with upper level divergence is expected to enhance rainfall over many places in West and Central African countries. Active lower-level convergence over Angola to DRC and traversing through Uganda then to the South Sudan is also expected to enhance rainfall in the region. As a result, there is an increased chance for two or more days of moderate to heavy rainfall over many places in Guinea, Sierra Leone, Liberia, southern Cote D'Ivoire, southern Mali, northern Morocco, western Burkina Faso, southern (Ghana and Togo), Benin, parts of Nigeria, Cameroon, Equatorial Guinea, Gabon, eastern Congo, CAR, DRC, southern Sudan, South Sudan, northern Angola, Lesotho, parts of South Africa, Ethiopia and northern Somalia.

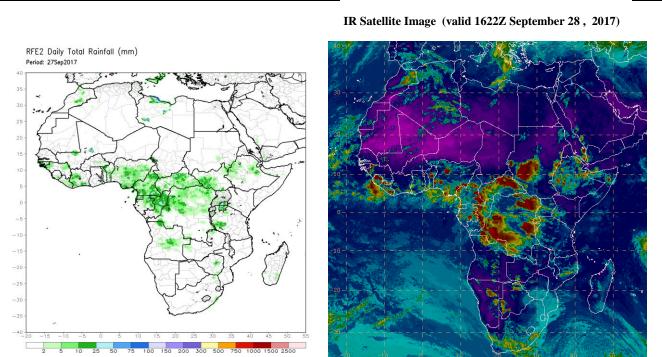
## 2.0. Previous and Current Day Weather over Africa

## 2.1. Weather assessment for the previous day (September 27, 2017)

Moderate to locally heavy rainfall was observed over northwestern Guinea, Guinea Bissau, Sierra Leone, Liberia, Cote D`Ivoire, Benin, Nigeria, Cameroon, Equatorial Guinea, northeastern Gabon, Congo, CAR, some parts of DRC, Angola, southwestern Tanzania and Ethiopia.

### 2.2. Weather assessment for the current day (September 28, 2017)

Intense convective clouds are observed over portions of West, Central and East Africa.



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

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