



*AFRICAN REGIONAL CLIMATE CENTRE*

**DEMONSTRATION PHASE**

ACMAD CONTRIBUTION TO THE WMO STATEMENT  
ON THE STATUS OF GLOBAL CLIMATE IN 2013

## PRECIPITATION

Northern Mali recorded above to well above average precipitation and floods in 2013. Above average precipitation was observed over coastal western Algeria, Guinea, Sierra Leone and parts of Liberia, the coast of Gabon, Central Somalia, southern tip of Madagascar, coastal part of northern Mozambique and the border between Mozambique, South Africa and Zimbabwe.

Below average precipitation was recorded in Central Tanzania, northern tip of Madagascar, southwestern Nigeria, Central Morocco, southernmost part of Sudan and Eritrea, northern Somalia, southern Angola, much of Namibia and border areas between South Africa, Namibia and Botswana. Well below average precipitation and severe drought hit Namibia with total precipitation at or below 50 of annual average over parts of the country (figure 1 annual precipitation for 2013).

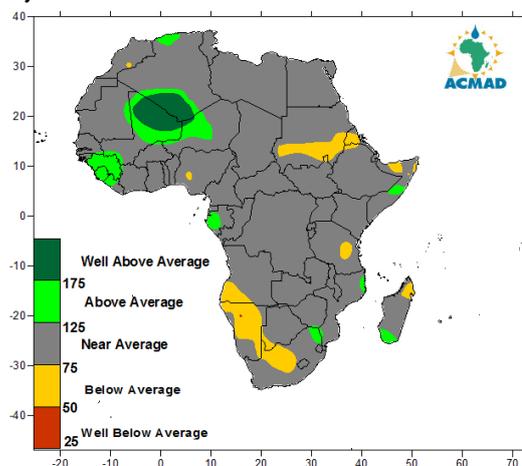


Figure 1: African precipitation in percent of annual average for 2013 for African land areas; gridded data based on precipitation estimates from rain gauge and satellite data analysis as percentages of average focusing on the 1981-2010 base period. (Source: NOAA/NCEP/CPC/CAMS-OPI).

At seasonal timescales, precipitation patterns show that above to well above average conditions characterized Mali, Senegal, much of Guinea and Sierra Leone from July to September. Above average precipitation was observed from May to September in Guinea, from August to December in Gabon, from September to December over the southern tip of Madagascar. Below average precipitation was observed from September to December over southern Somalia, eastern half of Kenya and coastal parts of Tanzania, from June to September along the coast of the Gulf Guinea from Liberia to Nigeria (Figures 2a and b). Long range forecasts are indicating below average precipitation more likely parts of the Greater Horn of Africa during the coming three to four months.

(a)

(b)

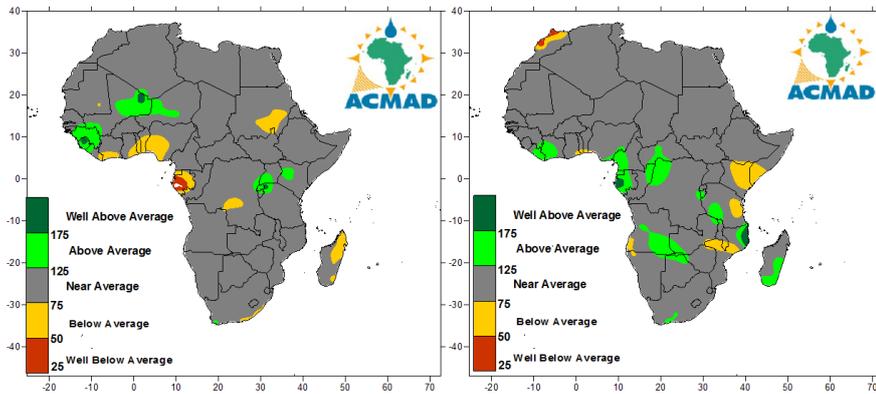


Figure 2: African precipitation in percent of average for July-August-September(left) and October-November-December(right) 2013 for African land areas; gridded data based on precipitation estimates from rain gauge and satellite data analysis as percentages of average focusing on the 1981-2010 base period. (Source: NOAA/NCEP/CPC/CAMS-OPI)

January 2013 recorded well above average precipitation over the coastal part of Egypt, coastal Nigeria, parts of southern Cameroon, Equatorial Guinea, Gabon, Central Africa, Congo and DRC, Mozambique, Zimbabwe and South Africa. January 2013 was characterized by flows over the southern Africa.

Precipitation well below average was observed over Morocco, Coastal Tanzania and central part of Mozambique in December 2013. Severe drought that devastated Namibia was alleviated with above to well above average precipitation over much of southern Africa region in December 2013. Long range forecasts are favorable for above average precipitation over the area during the coming months until April 2014.

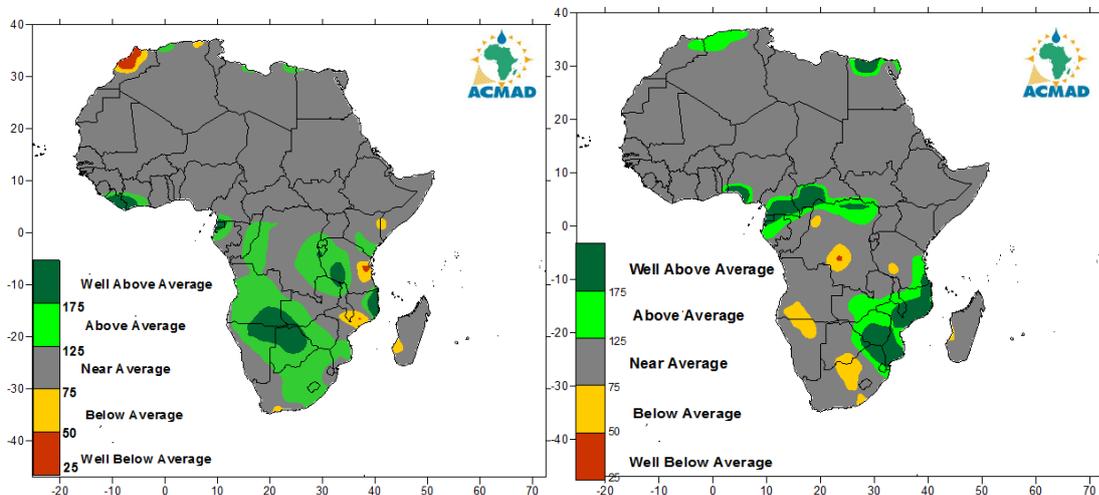


Figure 3: African precipitation in percent of average for December(left) and January(right) 2013 for African land areas; gridded data based on precipitation estimates from rain gauge and satellite data analysis as percentages of average focusing on the 1981-2010 base period. (Source: NOAA/NCEP/CPC/CAMS-OPI)

## TEMPERATURES

2010 was the warmest year for all Africa since 1990 with temperature anomaly estimated to be 1.46°C above the 1961-1990 average. 2013 was the second warmest year since 1990 (figure4). 2013 was the second warmest year since 1990 with temperature anomaly estimated to be 1.04 above the 1961-1990 average.

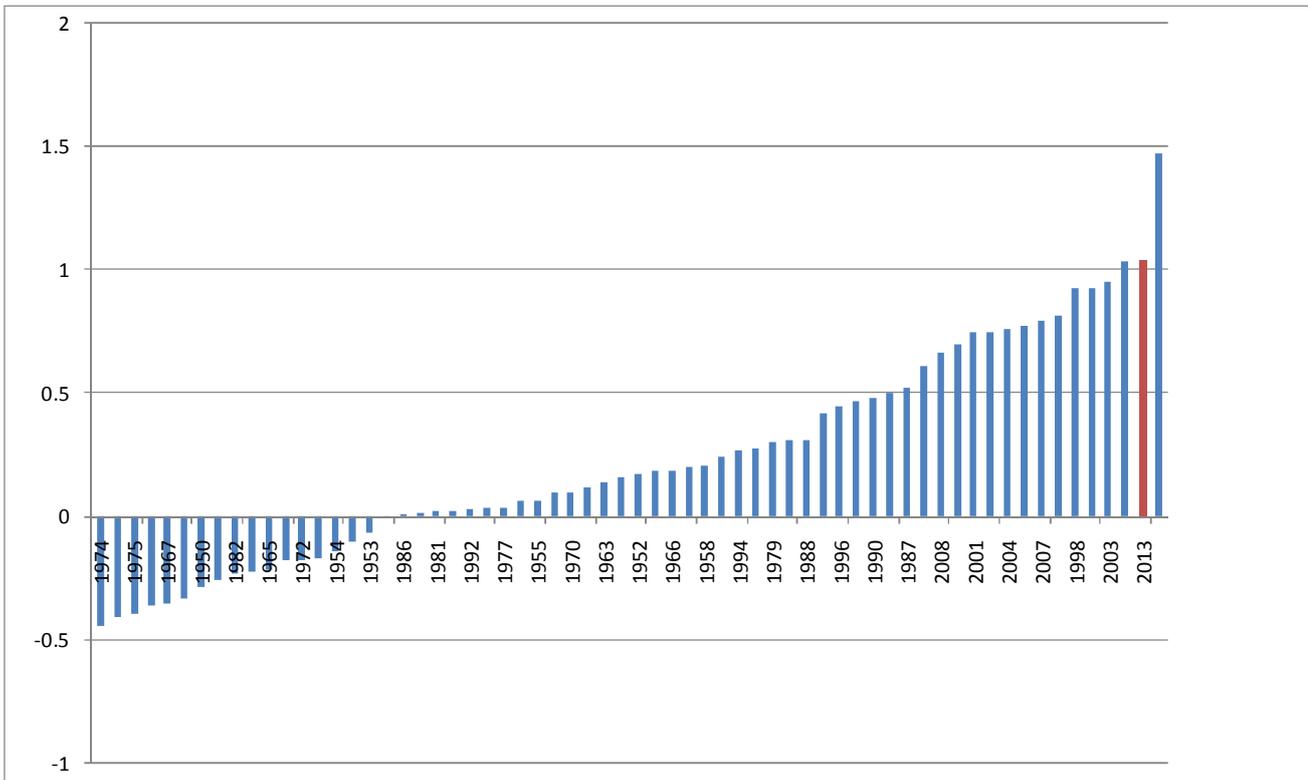


Figure 4: Ranked surface temperatures difference (°C) from 1961-1990 average since 1950 for all Africa. (Source: NOAA/NCEP/CPC/GHCN\_CAMS)

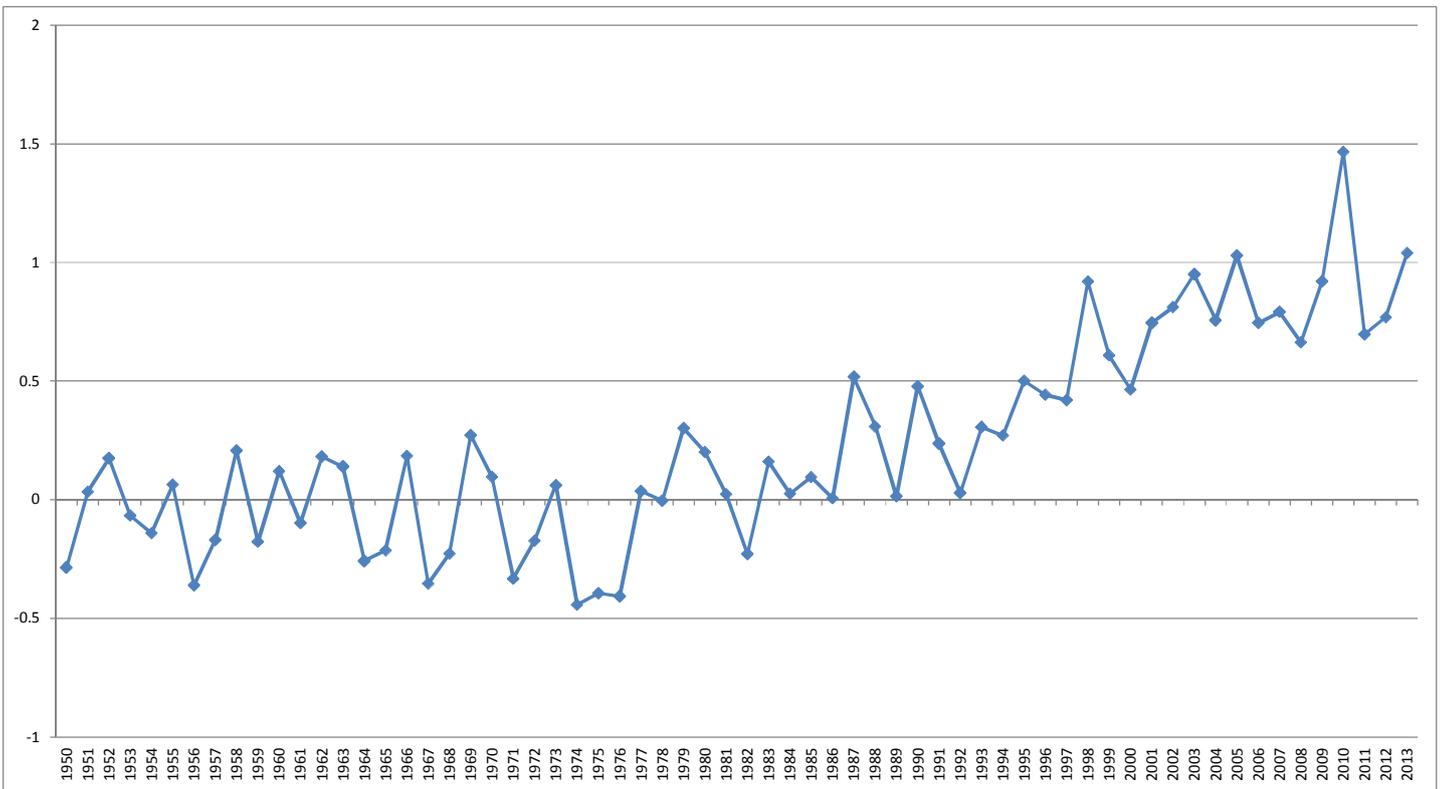
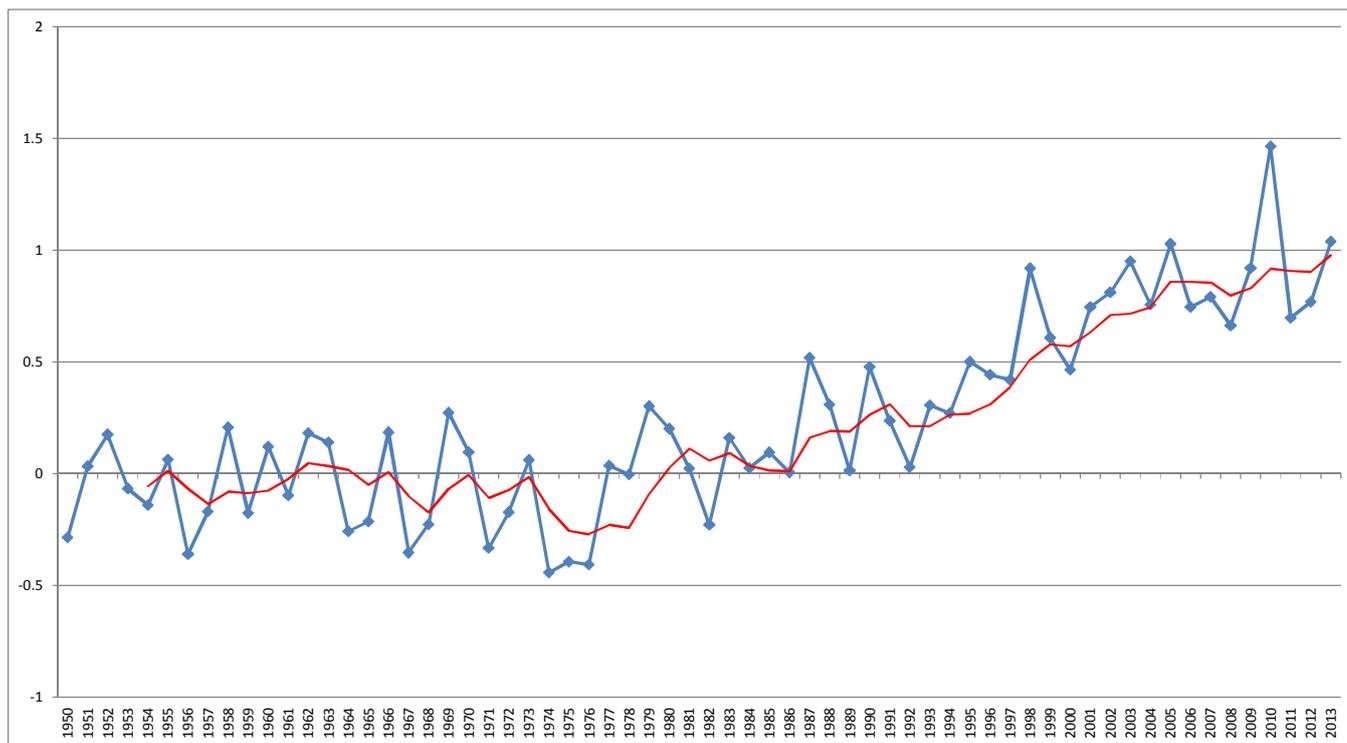


Figure 5: Annual African temperature anomalies (relative to 1961-1990) from 1950 to 2013. (Source: NOAA/NCEP/CPC/GHCN\_CAMS)

January-December 2013 over much of Africa recorded near average temperatures. However, hot spots with temperature anomalies close to or above 2.5°C were recorded over Namibia. Southern Angola, Ethiopia-Somalia border, Botswana. Very high annual temperature anomalies ( +3.5°C or above) were recorded in Namibia. The month to month variability shows areas in Africa with land temperature anomalies above +3°C.

Very high temperature anomalies (+3.5°C or above) were recorded over Tunisia and coastal parts of Algeria in October, Central Namibia in February, northwestern Libya in April, part of central Niger in March, coastal Mauritania and adjacent areas in Morocco in May. Very low temperature anomalies (-3°C) were recorded in South Africa in June.



(Source: NOAA/NCEP/CPC/GHCN\_CAMS)

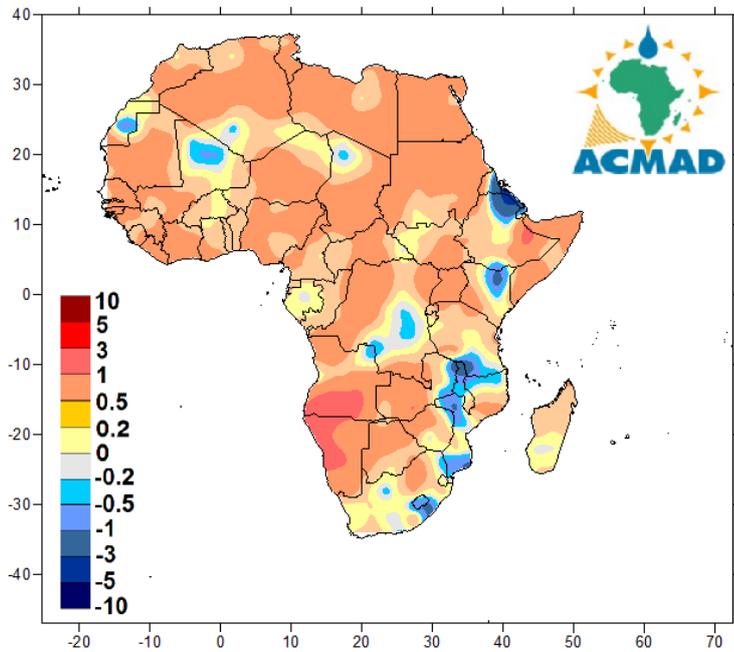


Figure 6: Temperature anomalies (°C) for Africa from January to December 2013 relative to 1961-1990 based period; gridded data based on station observations. Very high temperature anomalies were recorded in Namibia, southern Angola, Ethiopia-Somalia border, Botswana, Mauritania, Niger, Libya, Nigeria and Egypt. (Source: NOAA/NCEP/CPC/GHCN\_CAMS)

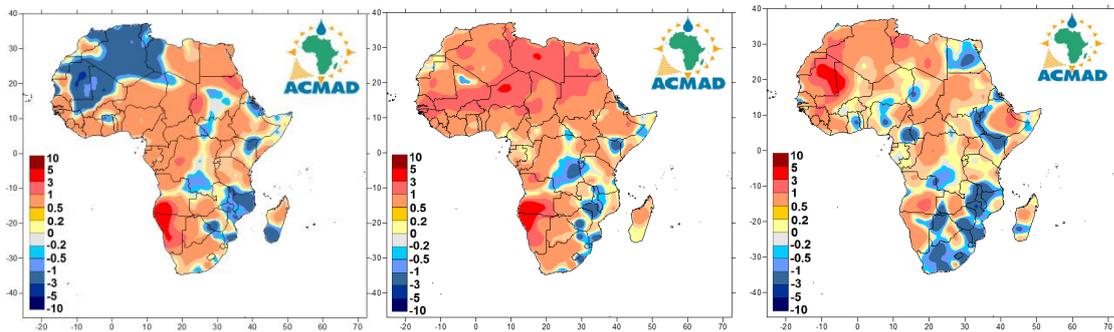


Figure 7: Temperature anomalies (°C) for February (left), March (middle) and April (right) 2013 relative to 1971-2000 based period; gridded data based on station observations. Very high temperature anomalies (+3.5°C or above) were recorded in Namibia. (Source: NOAA/NCEP/CPC/GHCN\_CAMS)

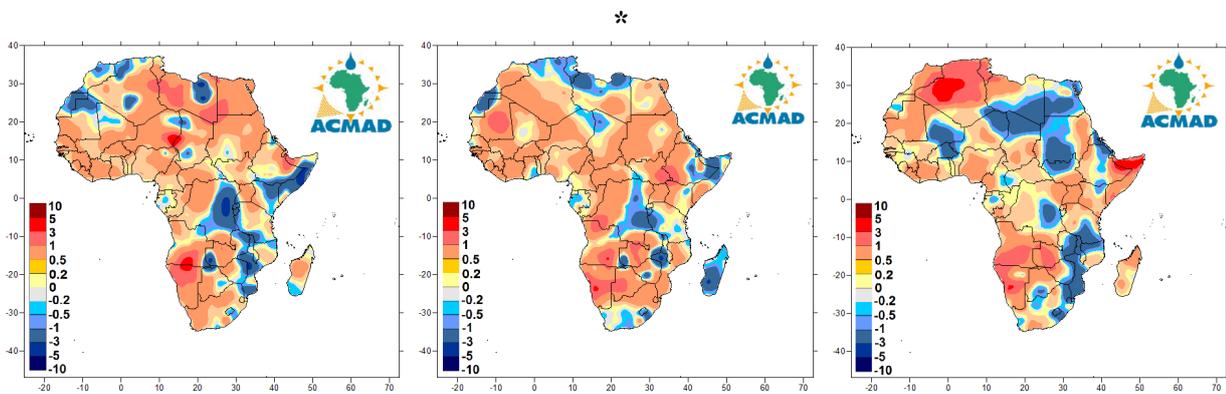


Figure 8: Temperature anomalies (°C) for May (left), June (middle) and October (right) 2013 relative to 1971-2000 based period; gridded data based on station observations. Very high temperature anomalies (+3.5°C or above in May and in October) were recorded in Mauritania and Tunisia respectively. Low temperature anomalies (-2°C or below in June) was recorded in South Africa. (Source: NOAA/NCEP/CPC/GHCN\_CAMS)

## EXTREME EVENTS AND IMPACTS

### Drought

Severe drought hit Namibia from January to August. Drought was reported in Kenya, Tanzania, southwestern Nigeria, southernmost part of Sudan and much of Eritrea. Almost half of Namibians faced food insecurity in 2013 as drought devastated the country. A state of emergency was declared in May and more than US\$30 millions were requested for response. More than one million people in neighboring areas in Angola were affected. Related low corn production in southern Africa had raised prices and food insecurity in Zimbabwe and Malawi.

### Heavy precipitation and floods

Heavy precipitation and floods were recorded January in Mozambique. In July and August, floods were reported in Niger, Nigeria, Mali and Sudan with a total of more than 140 deaths. Heavy precipitation and prolonged precipitation season was reported in coastal parts of Central Africa from Cameroon to DRC.

#### Niger

Heavy rains and floods were reported over parts of Niger between mid-July and the first half of August. More than 20 people deaths and above ten thousands homes damaged or destroyed.

#### Sudan

Heavy rains felt throughout much of Sudan between the 1st and 4<sup>th</sup> of August, spawning significant flooding. At least 73 people were killed and dozens of others were injured. Overall economic impacts and relief costs were estimated at about US\$7.0 million.

#### Nigeria

Heavy rains prompted flash flooding throughout parts of northern Nigeria on the 9<sup>th</sup> August in the state of Kano with more than a thousand homes destroyed.

#### Mali

Heavy rains and floods were reported in Bamako- Mali on the 28<sup>th</sup> of August. At least 55 deaths, cars and homes destroyed after the Niger River burst its banks.