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THE STATE OF CLIMATE OF AFRICA IN 2018



MARCH 2019

The State of Climate of Africa in 2018

This publication is a summary of the main weather and climate events that occurred in Africa during the year 2018. The conventional dataset used is that produced by the US National Oceanic and Atmospheric Administration (NOAA). The major weather and climate events are documented using information obtained from Meteo France, various UN agencies, newspapers and reports from National Meteorological and Hydrological Services across the African continent.

Various international organizations contributed to this publication at different levels, including the World Meteorological Organization (WMO), United States Agency for International Development (USAID) and Norwegian Refugee Council (NRC).

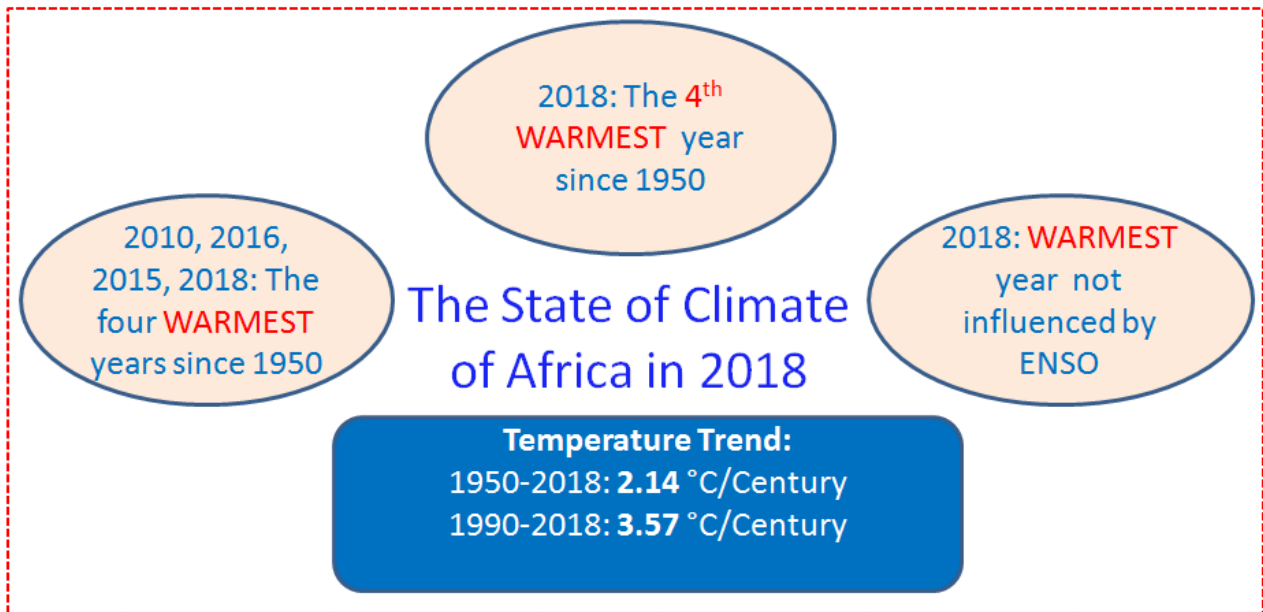
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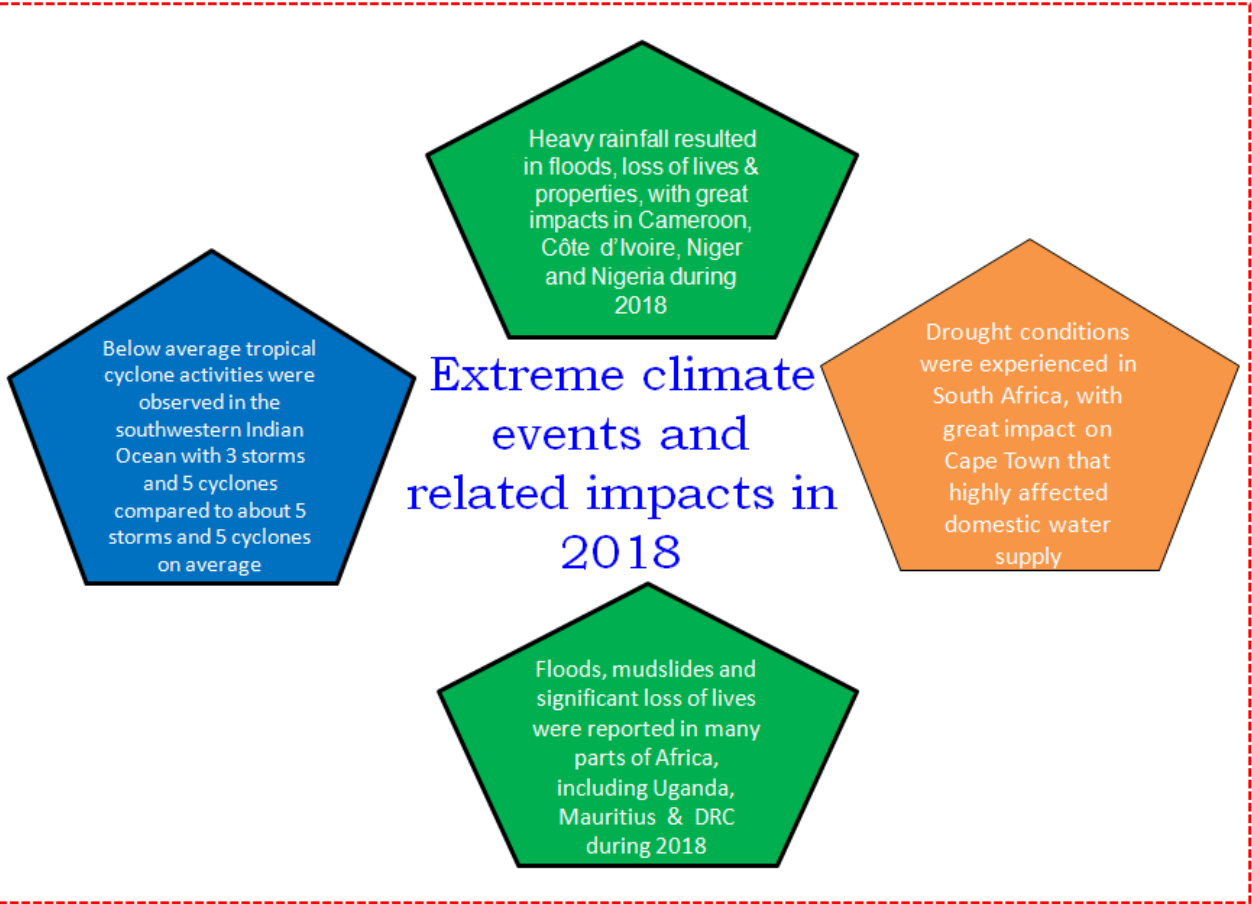


Table of Contents

Executive summary.....	1
Key climate indicators.....	2
Temperature in 2018.....	2
Precipitation in 2018.....	7
Precipitation trend over Africa during 1981-2018.....	9
Major drivers of interannual climate variability in Africa in 2018.....	10
EL Niño Southern Oscillation (ENSO).....	10
Tropical North Atlantic.....	10
Tropical South Atlantic.....	11
Tropical Atlantic.....	11
Indian Ocean Dipole.....	12
Tropical cyclones in the Southwest Indian Basin.....	13
Climate Risks and related impacts.....	13
References.....	17

Executive summary

The global mean temperature in 2018 was the 4th on record since 1950, with a warming level $1.1\text{ °C} \pm 0.1\text{ °C}$ above pre-industrial levels. It was 0.46 °C above the 1981-2010 reference levels. Whilst 2017 was a cooler year than the record setting 2016, it was still one of the three warmest years on record, and the warmest not influenced by an El Niño event. The average global temperature for 2013–2017 is close to 1 °C above that for 1850–1900 and is also the highest five-year average on record. The world also continued to see rising sea levels, with some acceleration, and increasing concentrations of greenhouse gases. The cryosphere continued its contraction, with Arctic and Antarctic sea ice shrinking.

Over the African continent, year 2018 was the fourth warmest on record since 1950 (Table 1). The warming level in 2018 was 0.70 °C higher than the value during the reference period (1981-2010). The year was the warmest of the 'neutral' years on record over Africa since 1950. Positive temperature anomalies were generally observed over most parts of Africa, with extremely warm conditions of at least 3 °C were recorded over the Horn of Africa. Negative anomalies (less warming situation) were recorded over Madagascar, eastern Kenya and Tanzania, northern Mauritania and Morocco.

During the year 2018, several weather and climate related extreme events were experienced over the African continent. Well above average precipitation with floods were recorded over most parts of Africa, such as southern Mauritania, Mali, Niger, Kenya, Côte d'Ivoire, Cameroon, Lesotho, Somalia, Uganda, and southern Sudan, among others. It resulted in mudslides, significant loss of lives and properties over the continent.

Below average precipitation conditions were recorded over northern Somalia, Eritrea, Djibouti, Gabon, southwestern Madagascar and northern Namibia. These regions experienced drought conditions which affected livestock, food production and power generation. In South Africa for example, due to the precipitation deficit, there was a declaration of a "national disaster" over the drought that ravaged parts of the country and threatened to leave the city of Cape Town without domestic tap water.

The information documented in this publication is sourced from several institutions, including Meteo France for tropical cyclones activities, National Oceanic and Atmospheric Administration (NOAA) for temperature and precipitation datasets, various UN agencies, newspapers and reports

from National Meteorological and Hydrological Services across the African continent for extreme weather and climate events and the associated impacts.

Table 1: Observed mean surface temperature anomalies

<i>Region</i>	<i>Year</i>	<i>Value (°C)</i>	<i>Ranking</i>
Africa	2018	+0.70	4th
Northern Africa	2018	+0.84	3rd
Southern Africa	2018	+ 0.86	3rd
Western Africa	2018	+ 0.52	7th
Eastern Africa	2018	+ 0.70	5th
Central Africa	2018	+0.82	3rd
Madagascar	2018	-0.29	35th

Key climate indicators

Temperature in 2018

The year 2018 was the fourth warmest on record over the African land mass. The warming level in 2018 was 0.70°C higher than the value during the reference period (1981-2010), falling behind the years 2010, 2016 and 2015 which are the leading three warmest years over Africa on record since 1950, with warming levels of 0.90, 0.83 and 0.71°C, respectively. The year was the warmest of the neutral years (years NOT influenced by ENSO) on record over Africa since 1950.

The northeastern region of the continent, particularly the Horn of Africa, was anomalously warm, with temperature anomalies reaching more than 2°C above average. On the other hand, temperatures in some parts of Southern Africa were a little cooler than average, especially over Madagascar which had a warming level of 0.29°C below the long term average value.

Temperature Anomaly in Africa

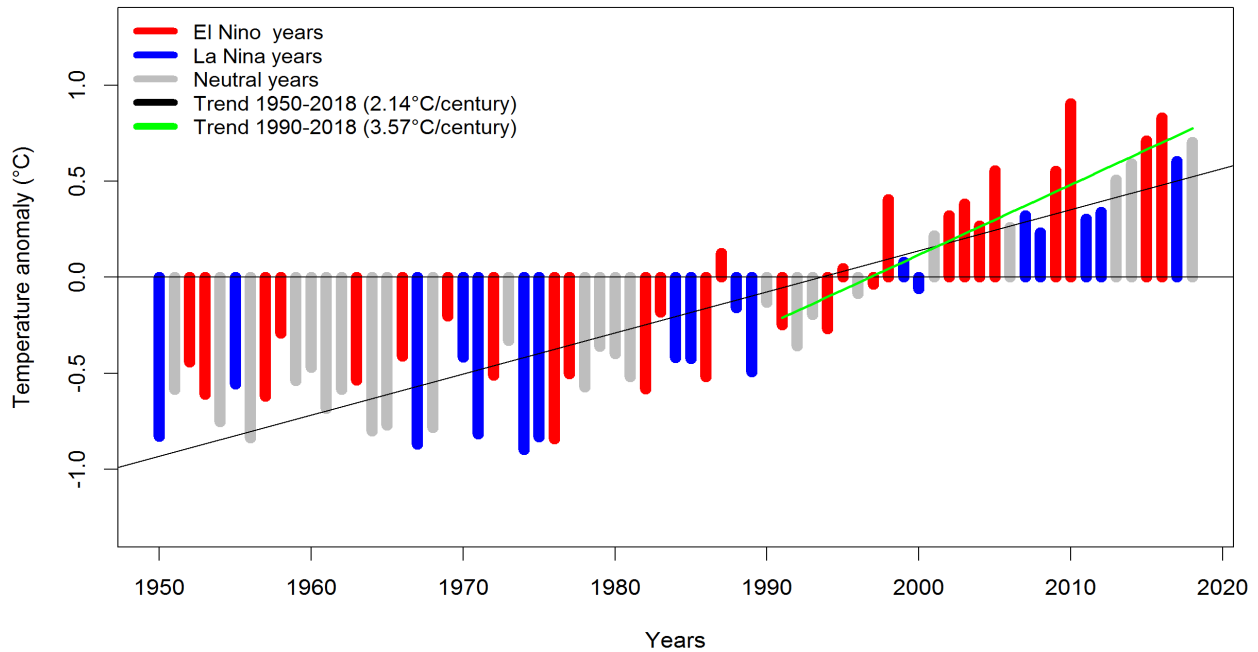


Figure 1. Trends in the mean annual temperature anomalies (°C) over Africa for 1950-2018 period.

Data source: http://iridl.ldeo.columbia.edu/SOURCES/.NOAA/.NCEP/.CPC/.GHCN_CAMS/.gridded/.deg0p5/.temp/

There is a general warming trend at the continental level. For example, of the 10 warmest years on record in Africa, 9 warmest years have been observed in the last 10 years (Table 2). Based on NOAA data, the warming rate over the past 69 years is about **2.14°C/century**. Considering the past 28 years, the warming rate is **3.57°C/century**. With this warming trend, Africa may reach 2°C warming above the 1981-2010 average in the next few decades.

Table 2: The warmest years on record over Africa

<i>Year</i>	<i>Anomaly with respect to 1981-2010 average (°C)</i>
2010	+0.90
2016	+0.83
2015	+0.71
2018	+0.70
2017	+0.60
2014	+0.59
2005	+0.56
2009	+0.55
2013	+0.51
1998	+0.41

The months of February, March, October, November and December of 2018 were warmer than the same months in the previous year (2017) over the continent (Figure 3), with values of about

0.77, 0.96, 0.79, 0.89°C and 0.75, respectively above the 1981-2010 average. The warmest months recorded in 2018 over the African continent were May and September (Figure 3(b) & (c), respectively).

During the warmest months of 2018, unusually warm conditions were recorded over northeastern Africa, particularly over Egypt, Sudan, Eritrea and Ethiopia during May and September 2018 with temperature anomalies reaching above +3°C. Below average temperature anomalies were observed over northwestern Africa, including parts of Morocco, Algeria and Mauritania, as well as over Angola in southern Africa.

The seasonal temperature anomalies over Africa reveals that March-April-May (MAM) season was characterized by higher temperature anomalies over Libya, Egypt, Sudan, Eritrea and Ethiopia, with temperature anomalies reaching +3°C. The rest of the continent experienced near normal conditions during this season. However, below average temperature anomalies were observed over northwestern region, Madagascar and East Africa during MAM season. The season was warmer than the long term mean value by 0.71°C. During July-August-September (JAS) 2018 season, most regions exhibited near normal conditions, except the Horn of Africa which was typically warmer than the rest of the regions. This season was warmer than its climatology by about 0.66°C. OND season was similarly warmer than its climatological value over Africa by about 0.81°C.

During year 2018, temperature anomalies exhibited varying warming levels over the different sub-regions of Africa. Over Northern Africa, the average temperature anomaly was 0.84°C warmer than the long term mean. As such, year 2018 was ranked as the 3rd warmest year on record over this region since 1950. The rate at which temperature has been increasing in this region over the period; 1950-2018 and 1990-2018 was found to be 2.3°C and 4.29 °C per century, respectively.

Year 2018 was ranked as the seventh warmest year on record, with temperature anomaly of 0.52°C above average over the West African region, well behind the warmest year 2010 which had temperature anomaly of 1.03°C over this region.

Over Central Africa, year 2018 was noted as the 3rd warmest year on record since 1950, exhibiting temperature of 0.82°C above average. The warmest year over this region is year 2016, with a warming level of 0.97°C.

Over Eastern Africa, 2018 was ranked as the 5th warmest year on record over this region, with temperature anomaly of 0.70°C above average, and 2010 remains the warmest year on record over this area since 1950 with temperature anomaly of 0.98°C .

Over the Southern Africa region, 2018 was the 3rd warmest year on record, exhibiting a temperature anomaly of 0.86°C above average. The warmest year on record is still year 2015 which was 1.36°C warmer than the long term mean. On the other hand, temperatures in 2018 were mild over the island countries in the Indian Ocean. For example over Madagascar, 2018 had temperature anomaly of 0.29°C below average. It was ranked as the 35th warmest year over Madagascar, well below the warmest year (2006, with temperature anomaly of 0.48°C) on record since 1950. The lowest rate of temperature rise was noted over Southern Africa, with a rate of rise of $2.82^{\circ}\text{C}/\text{century}$. On the other hand, in the same period (1990-2018), there is a degreasing trend in temperature over Madagascar, with a rate of decrease of $1.57^{\circ}\text{C}/\text{century}$ (Table 3).

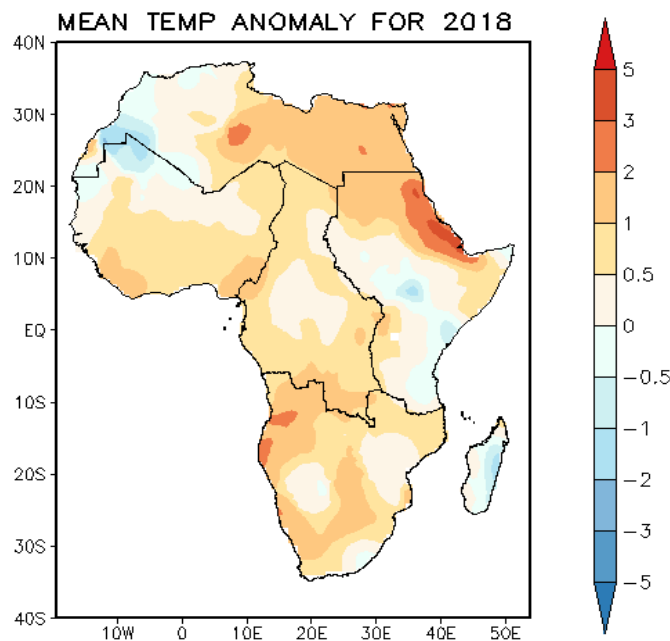


Figure 2: Mean annual temperature anomalies ($^{\circ}\text{C}$) over Africa in 2018, relative to 1981-2010 reference Period. Data source; http://iridl.ldeo.columbia.edu/SOURCES/NOAA/NCEP/CPC/GHCN_CAMS/gridded/deg0p5/.temp/

Table 3: Rate of temperature change over the African continent

<i>Region</i>	<i>Rate of temperature change (°C/century): 1950-2018</i>	<i>Rate of temperature change (°C/century): 1990-2018</i>
Africa	2.14	3.57
Northern Africa	2.30	4.29
West Africa	2.27	3.88
Central Africa	2.33	3.65
Eastern Africa	2.24	3.72
Southern Africa	1.91	2.82
Madagascar	1.23	-1.57

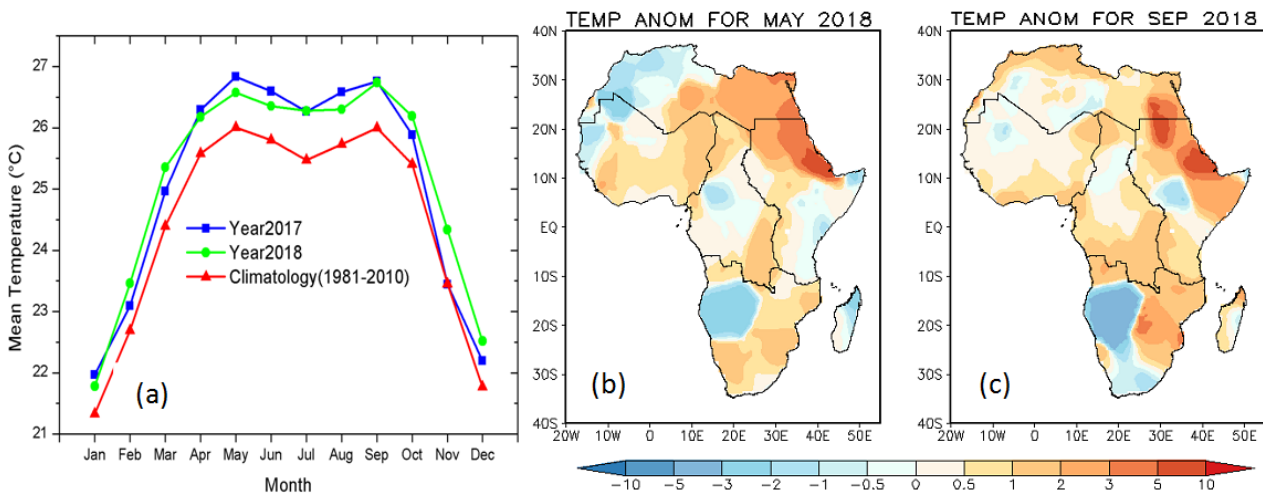


Figure 3: (a) Mean annual cycle of temperature (°C) during 2017, 2018 and the climatology based on the period: 1981-2010. The mean temperature anomalies for the warmest months of 2018: (b) May and (c) September. Data source: http://iridl.ldeo.columbia.edu/SOURCES/NOAA/NCEP/CPC/GHCN_CAMS/gridded_deg0p5/temp/

The sub-regional temperature analysis over the periods: 1950-2018 and 1990-2018 reveals that the sub-regions exhibit varying rates of temperature rise (Figure 4), as well as warming levels in 2018. For example, over **North Africa**, 2018 was the 3rd warmest year on record since 1950, and the rate of increase in temp was 2.30⁰C for the period 1950-2018 and 4.29 ⁰C for 1990-2018 per century.

Over **West Africa**, 2018 was the 7th warmest year on record. The rate of increase in temp was 2.27⁰C (1950-2018) and 3.88 ⁰C (1990-2018) per century.

Year 2018 was the 5th warmest year over **Eastern Africa**, with a rate of increase in temp of 2.24⁰C (1950-2018) and 3.72⁰C (1990-2018) per century.

Over **Central Africa**, 2018 was the 3rd warmest year on record since 1950. The rate of increase in temp was 2.33⁰C (1950-2018) and 3.65⁰C (1990-2018) per century.

Considering **Southern Africa**, 2018 was the 3rd warmest year on record. The rate of increase in temp was 1.91^oC (1950-2018) and 2.82^oC (1990-2018) per century.

Over the Islands (e.g. **Madagascar**), 2018 was the 35th warmest year on record. The rate of increase in temp was 1.23^oC (1950-2018) and rate of **decrease** was 1.57^oC (1990-2018) per century.

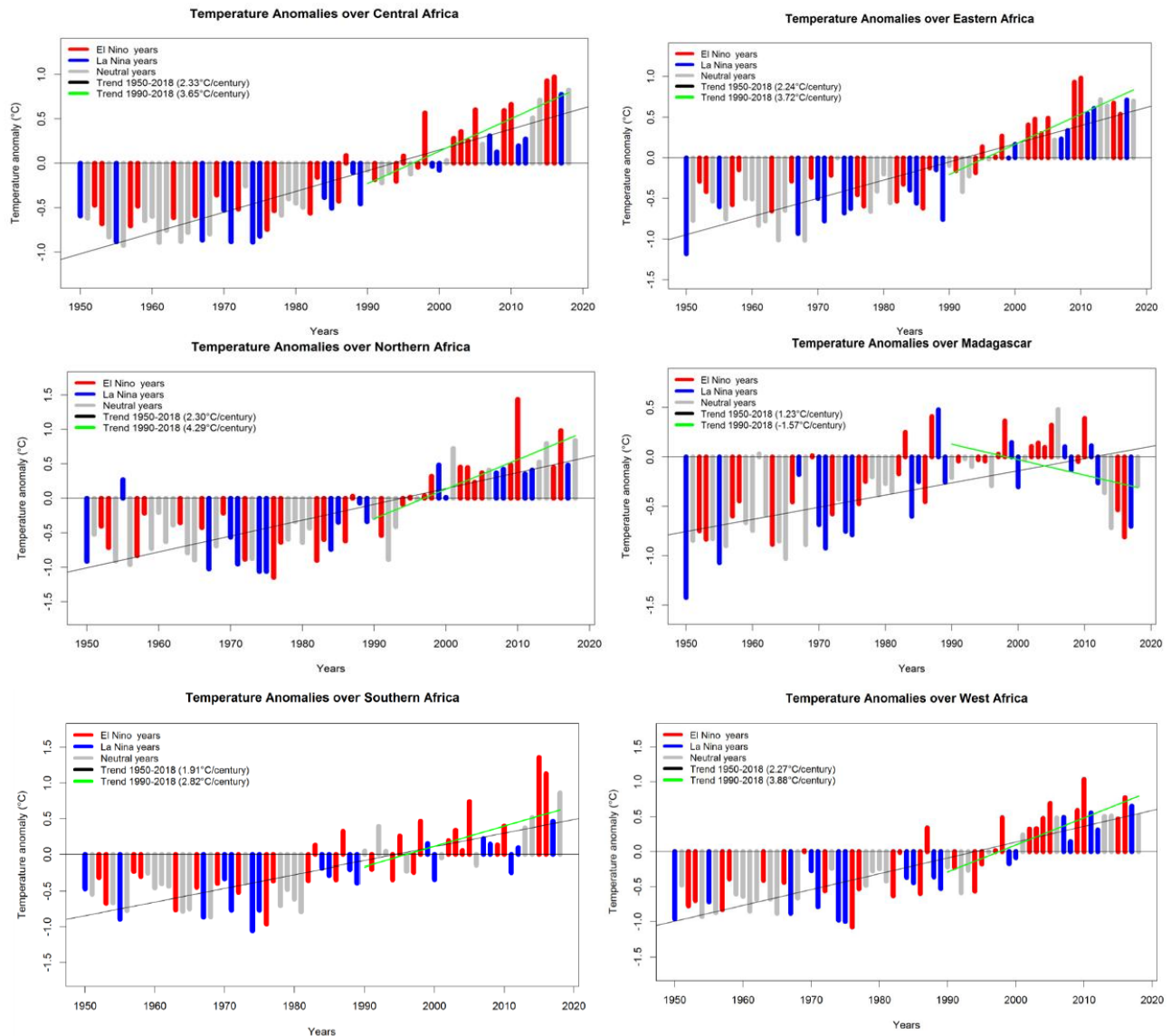


Figure 4: Trends in the mean annual temperature anomalies (°C) for the African sub-regions over the periods:1950 to 2018 and 1990 to 2018 Data source: http://iridl.ldeo.columbia.edu/SOURCES/NOAA/NCEP/CPC/GHCN_CAMS/gridded/deg0p5/temp/

Precipitation in 2018

The mean annual precipitation in percent of average over Africa in the year 2018 is presented in Figure 5. Compared to the reference period, well above average precipitation was mainly observed over central Tanzania and the Sahel, including southern Mauritania, Mali, Niger and

southern Sudan. This resulted in several cases of floods and mudslides occurrence over these regions. Well below average precipitation amounts were recorded over northern Somalia, Eritrea, Djibouti, Gabon, southwestern Madagascar and northern Namibia. Seasonal rainfall deficits were recorded over several regions, exhibiting devastating impacts, for example in South Africa, there was a declaration of a "national disaster" over the drought that ravaged parts of the country and threatened to leave the city of Cape Town without domestic tap water due to precipitation deficit.

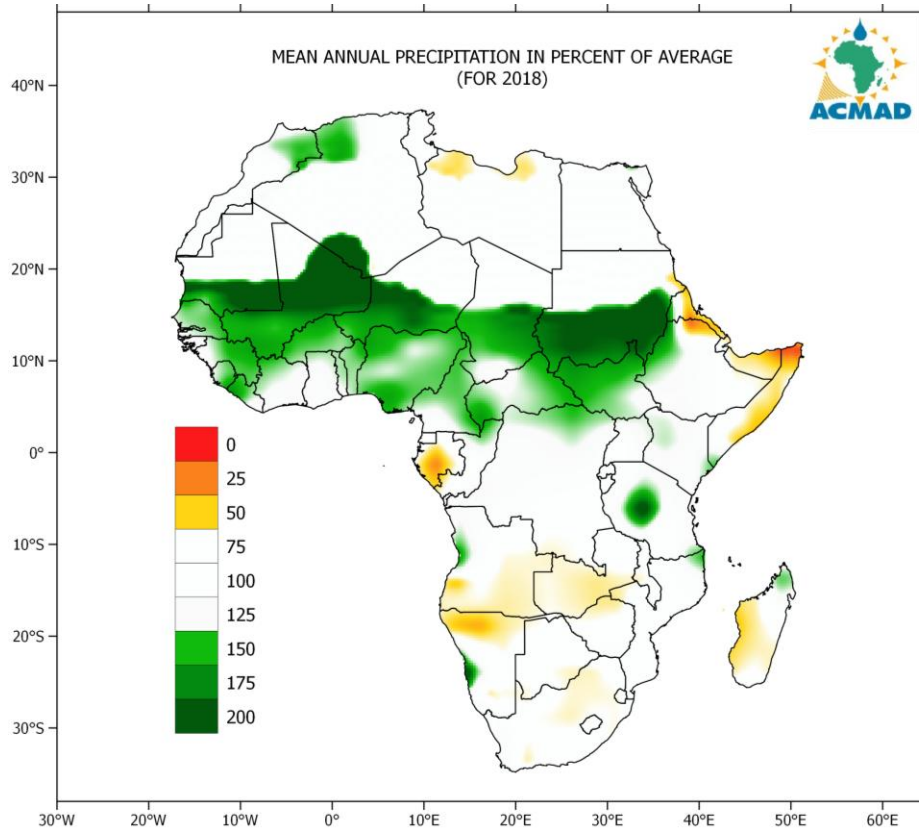


Figure 5: Mean annual precipitation in percent of average in 2018 over Africa, relative to the 1981-2010 period. Data source: http://iridl.ldeo.columbia.edu/SOURCES/.NOAA/.NCEP/.CPC/.CAMS_OPI.v0208/.mean/.prcp/

The seasonal precipitation over Africa in 2018 is provided in Figure 6a. The Figure reveals that during March-April-May (MAM) season, dry conditions were experienced over Somalia, Djibouti and parts of Gabon, Sierra Leone and Guinea. Above average precipitation was observed over most parts of South Sudan, Kenya, Tanzania, as well as parts of southern Africa during this period. During July-August-September (JAS) season, wet conditions were mainly observed over the Sahel. October-November-December (OND) season was characterized by dry conditions over southern Africa, with wet conditions observed over Tanzania.

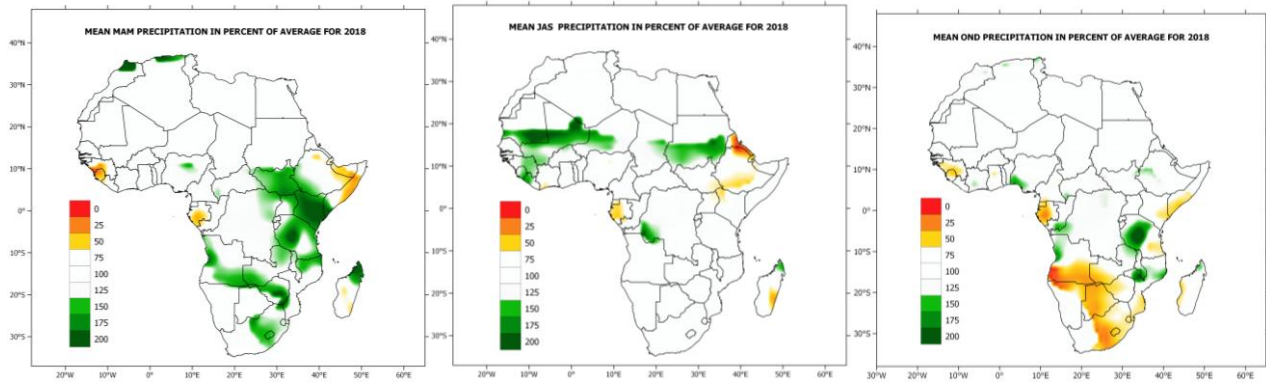


Figure 6a: Mean seasonal precipitation in percent of average in 2018 over Africa for the seasons: MAM, JAS and OND, relative to 1981-2010 base period. Data source: http://iridl.ldeo.columbia.edu/SOURCES/.NOAA/.NCEP/.CPC/.CAMS_OPI/.v0208/.mean/.prcp/

Precipitation trend over Africa during 1981-2018

Analysis of the precipitation trend over the African continent (Figure 6b) reveals that there is a significant increasing trend of the annual precipitation over most parts of West Africa.

On the other hand, significantly decreasing trends are exhibited over parts of the Horn of Africa, central Madagascar and Sierra Leone.

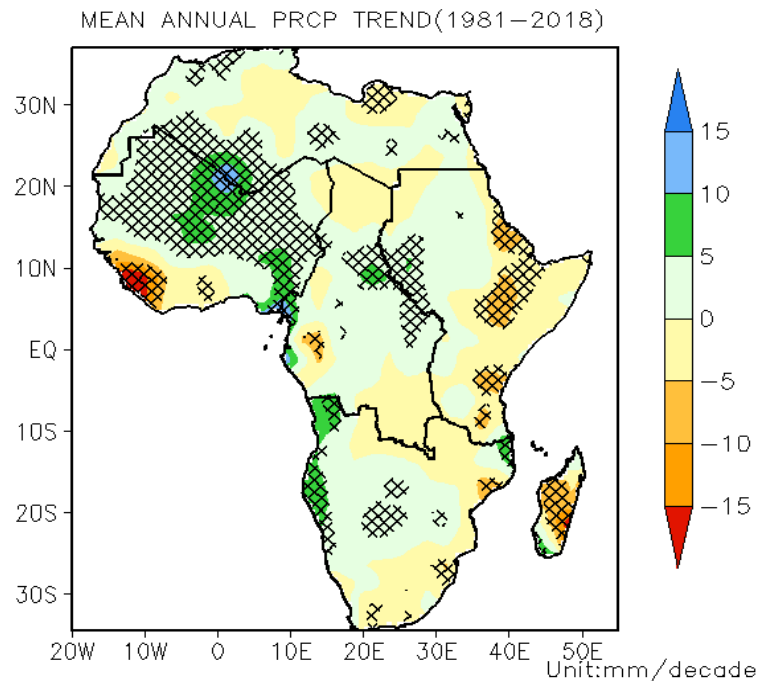


Figure 6b: Annual precipitation trend over Africa for the period from 1981-2018. Hatched areas show significant increase (positive) or decrease (negative) at 95% level of confidence. Data source: https://iridl.ldeo.columbia.edu/SOURCES/.NOAA/.NCEP/.CPC/.CAMS_OPI/.v0208/.mean/.prcp/

Major drivers of interannual climate variability in Africa in 2018

EL Niño Southern Oscillation (ENSO)

These are large scale changes in the atmosphere or ocean that influence climate conditions over many regions in the world on seasonal to interannual timescales. The links that connect these large changes with regional or localized hazards are referred to as teleconnections. At the global level, El Niño Southern Oscillation (ENSO) is one of the best known major driver of interannual variability. In Africa, strong El Niño is usually connected to droughts over southern Africa (e.g 2015/16) and above average rainfall and/or floods during the last quarter of the year over Eastern Africa.

ENSO neutral conditions were generally observed during year 2018, with negative anomalies dominating the Niño 3.4 region from January to May, thereafter, the region was characterized by positive anomalies.

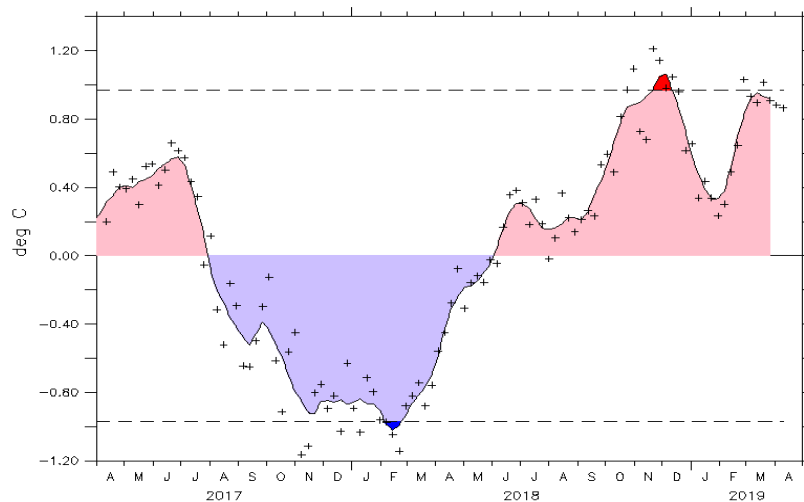


Figure 7: Observed SST anomaly time series from the Ocean Observations Panel for Climate. Data source: <https://stateoftheocean.osmc.noaa.gov/sur/pac/nino34.php>

Tropical North Atlantic

The Tropical North Atlantic (TNA) variability is related to monsoon rainfall over the Sahel. Positive TNA is usually favorable for active monsoon rainfall over the Sahel and particularly its westernmost part during summer. In 2018 (Figure 8), negative phase dominated the region throughout the year, except during August to October. This resulted in the observed JAS 2018 rainfall (Figure 6a).

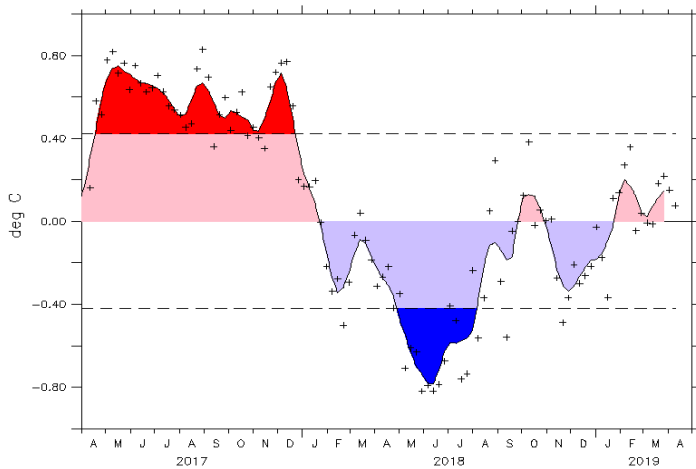


Figure 8: Observed Tropical North Atlantic sea surface temperature (SST) anomaly time series from the Ocean Observations Panel for Climate. Data source: <https://stateoftheocean.osmc.noaa.gov/sur/atl/tna.php>

Tropical South Atlantic

The Tropical south Atlantic (TSA) SST variability affects the Sahel, the Gulf of Guinea and the tropical eastern Atlantic coasts of Africa. This pattern was near average during the year 2018, with weak negative anomalies in the first quarter, weak positive anomalies during the second quarter, the third and fourth quarters were dominated by weak negative and positive anomalies, respectively. Seasonal precipitation patterns during the year indicate near to below average precipitation along the southern Atlantic coastal areas of Africa during MAM season (Figure 6a), near to above average precipitation during JAS season and near to below average precipitation during OND season.

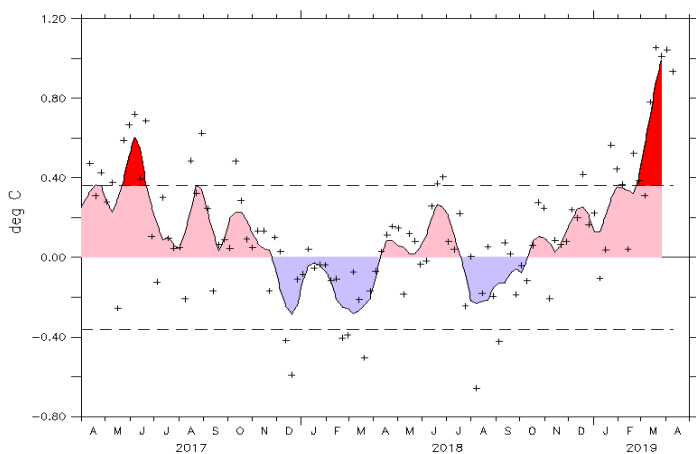


Figure 9: Observed Tropical south Atlantic SST anomaly time series from the Ocean Observations Panel for Climate. Data source: <https://stateoftheocean.osmc.noaa.gov/sur/atl/tsa.php>

Tropical Atlantic

The Tropical Atlantic SST index (TASI) represent an important mode of SST variability in the Atlantic Ocean. Positive index is favorable for active African monsoon. Figure 10 indicates that this

positive phase was dominant during January to March and between September and October. The rest of the year was characterized by negative phase of TASI. Figure 6a shows the precipitation that resulted from the TASI anomalies during 2018.

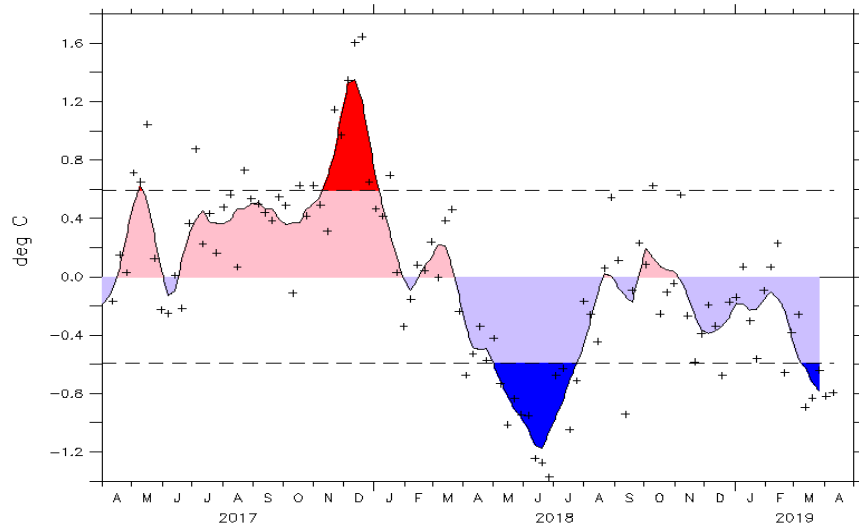


Figure 10: Observed Tropical Atlantic SST index (TASI) time series from the Ocean Observations Panel for Climate. Data source: <https://stateoftheocean.osmc.noaa.gov/sur/atl/tasi.php>

Indian Ocean Dipole

The Indian Ocean Dipole describes the variability between the western and Eastern part of this ocean. Its positive phase is favorable for more precipitation during the last quarter of the year in Eastern Africa. Reverse is the case during negative phase. Figure 11 indicates that in 2018, this index was mostly near to above average during year 2018. Above average precipitation was dominant in Tanzania, with near normal precipitation recorded over Uganda and Kenya during OND 2018 (Figure 6a). Below normal precipitation was recorded over parts of coastal Eastern Africa during this period.

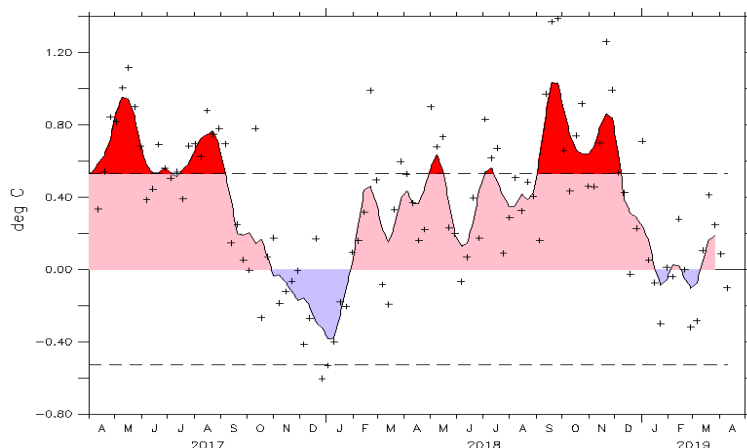


Figure 11: Indian Ocean Dipole mode Index time series from the Ocean Observations Panel for Climate. Data source: <https://stateoftheocean.osmc.noaa.gov/sur/ind/dmi.php>

Tropical cyclones in the Southwest Indian Basin

The 2017-2018 tropical cyclone season over the southwest Indian Ocean basin recorded 3 tropical storms and 5 cyclones (Figure 12). The recorded storms were below the long term mean occurrence in the region.

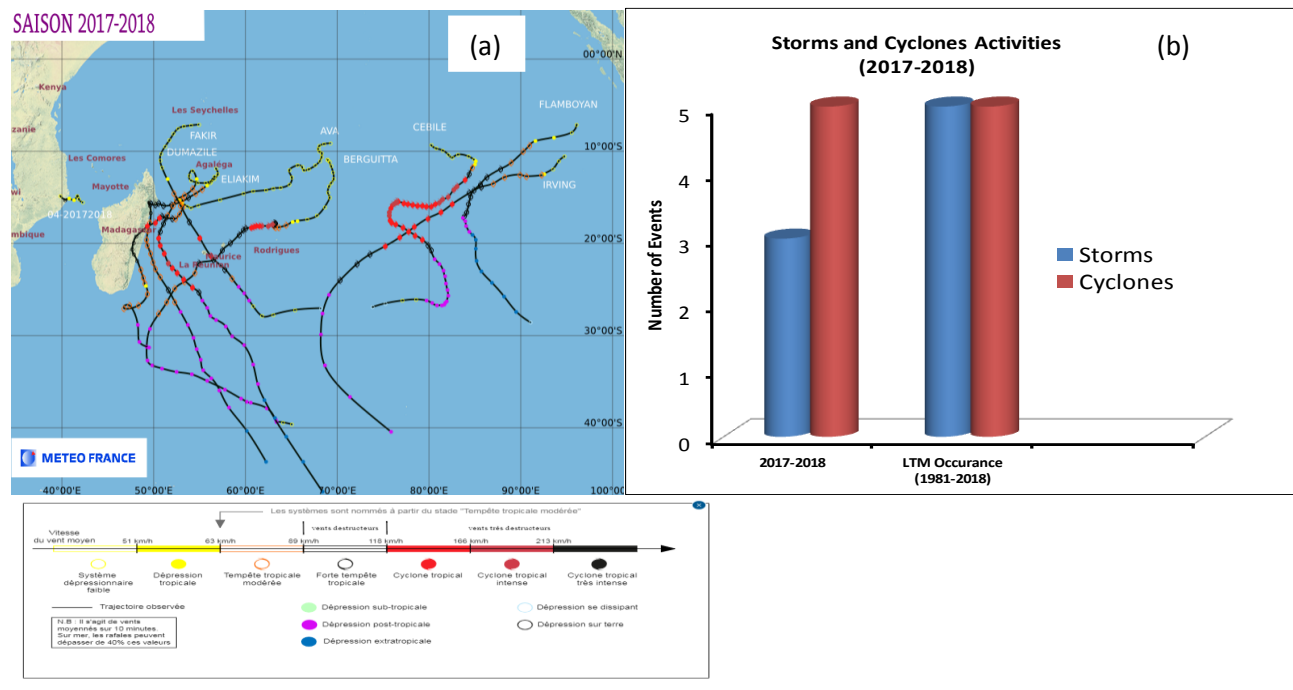


Figure 12: (a) South-west Indian Ocean tropical cyclone 2017-2018 season (b) Number of storm and cyclone occurrence compared with the respective long term mean (LTM) occurrences. Data source: <http://www.meteofrance.re/>

Climate Risks and related impacts

During the year 2018, several weather and climate related extreme events were experienced over the African continent (Figure 13). Well above average precipitation with floods and mudslides were recorded over West Africa (e.g. in Nigeria, Niger and Ghana, among others), Eastern Africa (e.g., Uganda, Kenya, Tanzania and Ethiopia), Central Africa (e.g. DRC) and Southern Africa (e.g. Lesotho), among others. On the other hand, precipitation deficit led to drought conditions over several regions as the year progressed. A severe drought conditions was recorded over parts of Southern Africa, where a declaration of a "national disaster" was made over the drought that ravaged parts of the country and threatened to leave the city of Cape Town without domestic tap water due to precipita-

tion deficit. Table 5 provides a detailed information on selected significant weather and climate events observed in Africa during the year 2018.

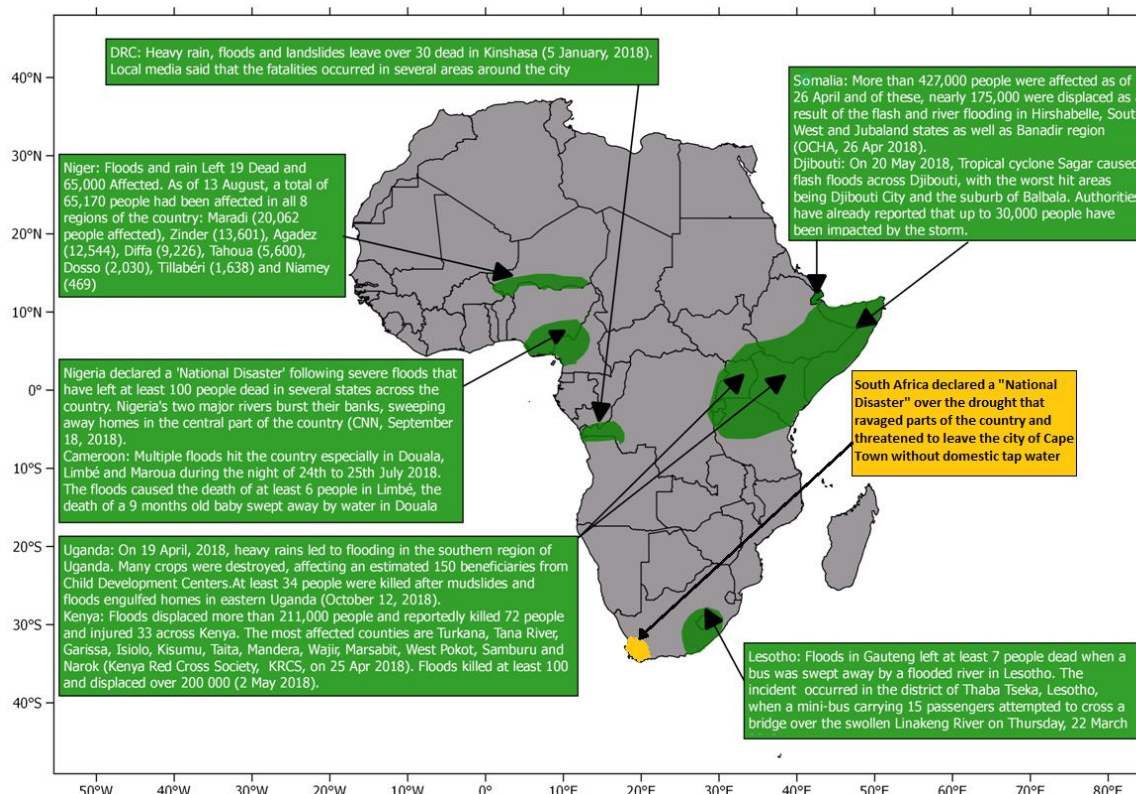


Figure 13: Selected extreme weather and climate events experienced in the year 2018 in Africa

Table 5: Detailed information of sampled significant events, hazards and impacts per region and country.

Eastern Africa	
Uganda (Oct 12, 2018)	At least 34 people were killed after mudslides and floods engulfed homes in eastern Uganda. At least six villages in Bududa district, located on the border with Kenya were affected (October 12, 2018, CNN-Kampala, Uganda). https://edition.cnn.com/2018/10/12/africa/uganda-mudslides-40-dead/index.html
Kenya (25 Apr 2018; 2 May 2018)	Floods displaced more than 211,000 people and reportedly killed 72 people and injured 33 across Kenya. The most affected counties are Turkana, Tana River, Garissa, Isiolo, Kisumu, Taita, Manderu, Wajir, Marsabit, West Pokot, Samburu and Narok (Kenya Red Cross Society, KRCS). The floods disrupted livelihoods, with at least 8,450 acres of farmland submerged in water and more than 6,000 livestock killed, destroyed houses and damaged infrastructure, such as roads and health facilities (OCHA, 25 Apr 2018). https://reliefweb.int/report/kenya/ocha-flash-update-1-floods-kenya-25-april-2018 Floods killed at least 100 and displaced over 200 000 (2 May 2018). https://www.news24.com/Africa/News/pics-kenya-floods-kill-at-least-100-displace-over-200-000-20180502
Djibouti (20 May 2018)	20 May 2018, Tropical cyclone Sagar caused flash floods across Djibouti, with the worst hit areas being Djibouti City and the suburb of Balbala. Authorities have already reported that up to 30,000 people have been impacted by the storm. https://disasterscharter.org/en/web/guest/activations/-/article/flood-in-djibouti-activation-572-
Sudan (During June, Jul and early November, 2018)	During Jul 2018, floods affected over 45,000 people, led to 23 human deaths and 61 injuries. In addition, more than 8,900 families were rendered homeless. Over 200,000 people in 15 of Sudan's 18 states were affected by heavy rains and flash floods between June and early November, according to the Government's Humanitarian Aid Com-

	mission (HAC). This is almost double the 122,500 people affected by floods the same time last year. The worst affected states are Kassala (47,500 people), Sennar (33,800 people) and West Kordofan (33,200 people). (OCHA, 4 Nov 2018). https://reliefweb.int/disaster/fl-2018-000128-sdn
Somalia (26 April , 2018)	More than 427,000 people were affected as of 26 April and of these, nearly 175,000 were displaced as a result of the flash and river flooding in Hirshabelle, South West and Jubaland states as well as Banadir region (OCHA, 26 Apr 2018). https://reliefweb.int/disaster/ff-2018-000041-som
Burundi (04 May, 2018)	Severe flooding in Gatumba on 04 May affected 12,956 people and 2,133 houses in 9 locations. Red Cross said that the flooding resulted from a period of heavy rain causing the overflow of two rivers, Rusizi 1 and 2, which are tributaries of Lake Tanganyika crossing Gatumba area from Kivu. http://floodlist.com/africa/burundi-buterefloods-april-may-2018-in
West Africa	
Nigeria (September 18, 2018; October 9, 2018)	Nigeria declared a 'national disaster' following severe floods that have left at least 100 people dead in several states across the country. Nigeria's two major rivers burst their banks, sweeping away homes in the central part of the country (CNN, September 18, 2018). https://edition.cnn.com/2018/09/18/africa/nigeria-flood-national-disaster/index.html By October 9, 2018, a total of 103 Local Government areas across 10 states in Nigeria, were impacted by severe flooding with an estimated 1.9 million people affected.
Niger (13 August, 2018)	Floods and rain Left 19 Dead and 65,000 Affected. As of 13 August, a total of 65,170 people had been affected in all 8 regions of the country: Maradi (20,062 people affected), Zinder (13,601), Agadez (12,544), Diffa (9,226), Tahoua (5,600), Dosso (2,030), Tillabéri (1,638) and Niamey (469). http://floodlist.com/africa/niger-floods-july-august-2018
Southern Africa	
Lesotho (22 March 2018)	Floods in Gauteng left at least 7 people dead when a bus was swept away by a flooded river in Lesotho. The incident occurred in the district of Thaba Tseka, Lesotho, when a mini-bus carrying 15 passengers attempted to cross a bridge over the swollen Linakeng River on Thursday, 22 March 2018. Put this text in tabular format. http://floodlist.com/tag/south-africa
South Africa (13 February 2018)	South Africa declared a "national disaster" over a drought that ravaged parts of the country and threatened to leave the city of Cape Town without domestic tap water . https://phys.org/news/2018-06-safrica-state-disaster-drought.html#jCp (The City of Cape Town said on its web site that Day Zero had been "pushed out to 2019." Residents had to live with stringent consumption restrictions, which stood at 50 litres per person per day)
Mauritius (24 April, 2018)	Mauritius experienced heavy rain from tropical cyclone Fakir that Triggered deadly landslide on 24 April, 2018. http://floodlist.com/africa/reunion-mauritius-cyclone-fakir-april-2018
Central Africa	
DRC (5 January, 2018)	Heavy rain, floods and landslides leave over 30 dead in Kinshasa (5 January, 2018). At least 37 people are thought to have died, and it is feared that this figure could rise as further assessments are carried out. Local media said that the fatalities occurred in several areas around the city, including in Ngaliema, Selembao, Bandalungwa, Limete and Barumbu. http://floodlist.com/africa/drc-floods-landslides-kinshasa-january-2018
Côte d'Ivoire (18 June 2018)	The Country's National Civil Protection Office (ONPC) said that heavy rainfall on 18 June 2018 resulted in flooding that caused at least 18 deaths in Abidjan and severe material damage. As of 19 June, 115 people had been rescued from the floods and provided with shelter by authorities. http://floodlist.com/africa/ivory-coast-abidjan-floods-june-2018
Cameroon (24th & 25th July 2018)	Multiple floods hit the country especially in Douala, Limbé and Maroua during the night of 24th to 25th July 2018. The floods caused the death of at least 6 people in Limbé, the death of a 9 months old baby swept away by water in Douala and important material damages estimated in several hundred millions FCFA francs in Limbé as well as in

	Douala and the destruction of 700 houses in Maroua, that consequently left thousands homeless and concerns on the economic activities in the whole region. http://www.africanews.com/2018/07/25/cameroon-cities-of-douala-limbe-hit-by-heavy-flooding/ (Africa News; GardaWorld Crisi24 News Alerts; Tebopost news, ...)
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