Regional fact sheet - Africa

Common regional changes

Mean temperatures and hot extremes have emerged above natural variability, relative to 1850–1900, in all land regions in Africa (*high confidence*).

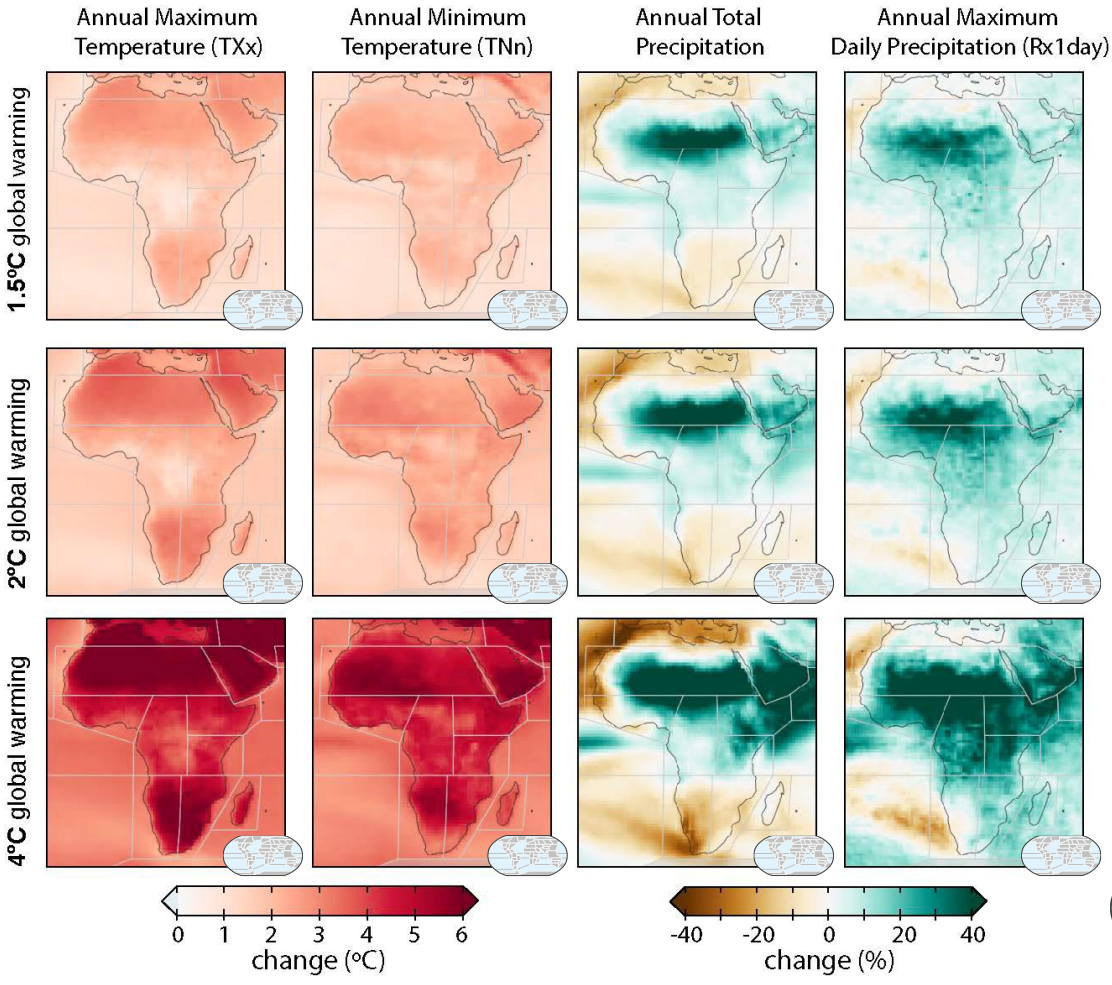
The rate of surface temperature increase has generally been more rapid in Africa than the global average, with human-induced climate change being the dominant driver (*high confidence*).

Observed increases in hot extremes (including heatwaves) and decreases in cold extremes (including cold waves) are projected to continue throughout the 21st century with additional global warming (*high confidence*).

Marine heatwaves have become more frequent since the 20th century and are projected to increase around Africa (*high confidence*).

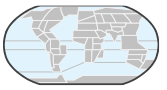
Relative sea level has increased at a higher rate than global mean sea level around Africa over the last 3 decades. Relative sea level rise is *likely to virtually certain* to continue around Africa, contributing to increases in the frequency and severity of coastal flooding in low-lying areas and to coastal erosion and along most sandy coasts (*high confidence*).

The frequency and intensity of heavy precipitation events are projected to increase almost everywhere in Africa with additional global warming (*high confidence*).



With additional increases in global warming, changes in hot and cold temperature extremes, mean and maximum one-day precipitation get larger.

Projected changes in annual maximum temperature (TXx), annual minimum temperature (TNn), annual mean precipitation and annual maximum daily precipitation (RX1day) at 1.5°C, 2°C, and 4°C of global warming (in rows) compared to 1851–1900. Results are based on simulations from the CMIP6 multi-model ensemble mean.



Results expanded in the Interactive Atlas (active links)

Links for further details

Common regional change: TS.4.3, Figure TS.23, Atlas 4.2, 12.4.1; Table TS.5
Regions-specific changes: TS.4.3.2.1, 8.3.2.4.3, Box TS.13, 11.9, Tables 11.4-11.6,12.4.1, Atlas.4,
TXx and TNn: 11.3.5, Figure 11.11
Total Precipitation: 4.6.1.2, Figure 4.32, TS.1.3.2, Figure TS.5
RX1day: 11.4.5, Figure 11.16

Changes are presented for the mid- 21st century for a global warming of at least 2ºC because the signal emerges from natural variability for a wider range of climatic impact-drivers at this higher warming level. All statements are related to changes with least *medium* and *high confidence*.

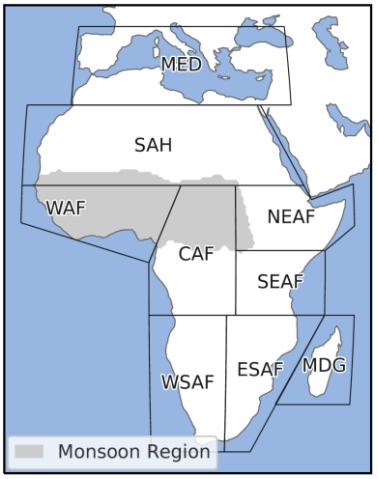
Mediterranean (North Africa)
- Projected decreases in mean precipitation, increases in fire weather conditions and decreases in mean wind speed;
- Observed and projected increases in aridity, meteorological, hydrological and agricultural and ecological droughts.

West Africa (WAF)
- Observed increase in river flooding;
- Observed increase in drying and agricultural and ecological droughts;
- Projected increase in meteorological droughts at 4° GWL, mostly in seasonal timescales;
- Projected increases in mean wind speed; increase in heavy precipitation and pluvial flooding.

Central Africa (CAF)
- Observed decreases in mean precipitation;
- Observed decrease in standardized precipitation index (i.e., deficit of precipitation);
- Observed increase in agricultural and ecological droughts;
- Projected increases in heavy precipitation and pluvial flooding;
- increases in river flooding.

West Southern Africa (WSAF)
- Observed decrease in mean precipitation;
- Observed increase in heavy precipitation and pluvial flooding;
- Observed and projected increase in aridity, agricultural and ecological droughts;
- Projected increase in dryness from 1.5°C, higher confidence with increasing global warming;
- Projected increases in mean wind speed; increases in fire weather conditions.

Sahara including parts of the Sahel (SAH)
- Projected increases in heavy precipitation and pluvial flooding.



North Eastern Africa (NEAF)
- Observed decreases in mean precipitation;
- Observed and projected decreases in snow and glaciers;
- Projected increases in heavy precipitation and pluvial flooding;
- Projected decrease in meteorological drought at 4°C global warming.

South Eastern Africa (SEAF)
- Projected increases in frequency and/or the intensity of heavy precipitation and pluvial flooding;
- Observed and projected decreases in snow and glaciers;
- Projected increase of average tropical cyclone wind speeds and associated heavy precipitation and of the proportion of Category 4-5 tropical cyclones.

East Southern Africa (ESAF)
- Observed decreases in mean precipitation;
- Observed and projected increases in heavy precipitation and pluvial flooding;
- Observed and projected increase in aridity, agricultural and ecological droughts;
- Observed increase in meteorological drought, projected increase in meteorological droughts from 1.5°C, higher confidence at higher GWLs;
- Projected increases in fire weather conditions; increases in mean wind speed; increase of average tropical cyclone wind speeds and associated heavy precipitation and of the proportion of category 4-5 tropical cyclones.

Madagascar (MDG)
- Observed increases in aridity;
- Projected increase in meteorological droughts from 1.5°C, higher confidence at higher GWLs; increases in agricultural and ecological droughts types particularly at higher warming levels;
- Projected increases in heavy precipitation and pluvial flooding;
- Projected increase in average tropical cyclone wind speeds and associated heavy precipitation and in the proportion of Category 4-5 tropical cyclones.

West African Monsoon (WAfriM)
- Monsoon precipitation is projected to increase over the Central Sahel and decrease over the far western Sahel. The monsoon season is projected to have a delayed onset and a delayed retreat.
- Observed increase in monsoon precipitation during the 20th century due to warming from greenhouse gas emissions masked by the decrease due to cooling from human-caused aerosol emissions (*high confidence*). Observed increases since the 1980s are partly due to the growing influence of greenhouse gases and reductions in the cooling effect of human-caused aerosol emissions over Europe and North America.