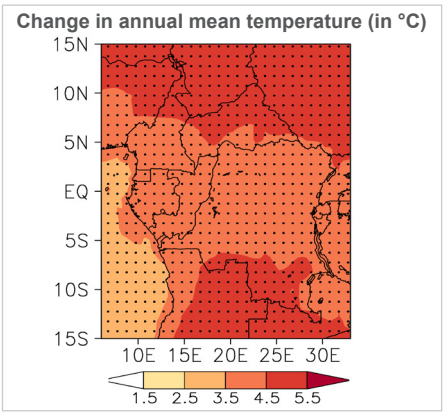
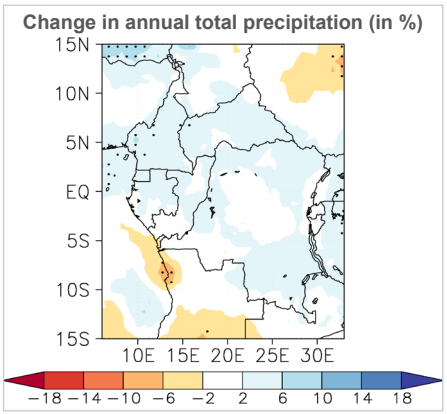
Fact-Sheet - Climate - Democratic Republic of the Congo (DRC)- Zone 3

Maps of projected changes

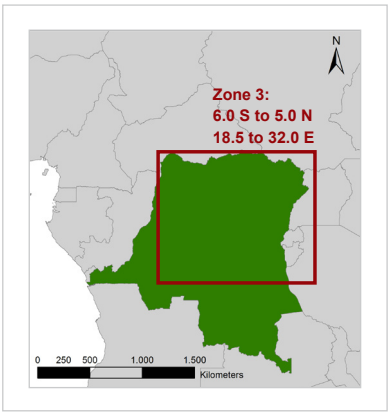
- Maps show the median projection of change for mid of the century (mean of the period 2036-2065 compared to the mean of 1961-1990) under the "**High**" emission scenario and for all available projections combined. The stippled areas indicate more robust regions where the majority of models agree in the direction of change.





Definition of Zone 3

- The map below indicates the position of Zone 3 (red rectangle), representing the central regions with the mainly tropical rainforest climates and mainly a bimodal rain-regime. All values presented in this fact-sheet are changes spatially averaged over the whole zone. As the northern and central parts of DRC fall within Zone 3, projected changes for this zone are assumed to be representative for these parts of the country.



List of projected changes

- Tables show only the "**likely range**" (centered around the median) of projected changes. 66 percent of all projected changes are within this range. Bold values in the table represent values averaged over the whole year.

Observed mean values and projected changes of temperature based variables (Note: if below two units are mentioned the 1st refers to the observations and the 2nd to the changes)	Observed	Projected changes			
		Low emission scenario		High emission scenario	
	1961-1990	2036-2065	2071-2100	2036-2065	2071-2100
Surface air temperature (in °C) YEAR	**24.1**	**+1.4 to +2.1**	**+1.5 to +2.7**	**+1.8 to +2.7**	**+3.6 to +5.1**
DJF	24.1	+1.4 to +2.0	+1.5 to +2.6	+1.9 to +2.5	+3.6 to +4.8
MAM	24.6	+1.4 to +2.2	+1.6 to +2.8	+1.9 to +2.7	+3.7 to +5.4
JJA	23.4	+1.4 to +2.3	+1.7 to +3.0	+2.0 to +2.9	+3.8 to +5.6
SON	24.1	+1.4 to +2.0	+1.5 to +2.5	+1.7 to +2.4	+3.6 to +4.6
Cold nights (in %)	-	**-9 to -8**	**-10 to -8**	**-10 to -9**	**~ -10**
Cold days (in %)	-	**-8 to -5**	**-9 to -6**	**-9 to -6**	**-10 to -9**
Hot nights (in %)	-	**+31 to +52**	**+33 to +67**	**+47 to +64**	**+75 to +86**
Hot days (in %)	-	**+12 to +23**	**+13 to +31**	**+17 to +31**	**+33 to +58**

Observed mean values and projected changes of precipitation based variables (Note: if below two units are mentioned the 1st refers to the observations and the 2nd to the changes)	Observed	Projected changes			
		Low emission scenario		High emission scenario	
	1961-1990	2036-2065	2071-2100	2036-2065	2071-2100
Total precipitation (in mm and %) YEAR	**1716**	**0 to +6**	**-1 to +8**	**-1 to +6**	**0 to +11**
DJF	336	-5 to +14	-4 to +16	-5 to +9	-7 to +26
MAM	489	-2 to +8	-3 to +8	-3 to +6	-1 to +13
JJA	339	-10 to +11	-10 to +14	-9 to +11	-10 to +13
SON	549	-2 to +6	-3 to +9	-1 to +7	-1 to +17
Rainfall during rainy season (in mm and %)	**1086**	**-1 to +6**	**-2 to +8**	**-4 to +8**	**-4 to +15**
Dry spells during rainy season (number and %)	**2.4**	**-2 to +61**	**0 to +66**	**+5 to +78**	**+10 to +108**
Duration of rainy season (in days and %)	**159**	**-3 to +1**	**-4 to +2**	**-4 to +2**	**-6 to +1**
Intensity of heavy rain events (in mm/d and %)	**31**	**+3 to +10**	**+3 to +14**	**+4 to +13**	**+6 to +27**
Frequency of heavy rain events (in % of all days)	**1.9**	**0 to +1**	**0 to +2**	**0 to +2**	**+1 to +3**
Maximum 10day rainfall sum (in mm/10d and %)	**278**	**0 to +12**	**+4 to +18**	**+3 to +14**	**+12 to +36**

Data and method

- The projected climate change signals are based on a large ensemble of different global and regional climate change projections. For each scenario projections from the CMIP3 dataset (basis of the 4th IPCC assessment report - IPCC-AR4), projections from the CMIP5 dataset (basis of the 5th IPCC report), bias-corrected projections of global models and finally projections of regional models have been analyzed together; making it 31 projections for the "**High**" and 46 projections for the "**Low**" scenario. As it is scientifically questionable to provide only one value for projected changes (e.g. the mean) a "**likely range**" was defined. According to IPCC-AR4, this is the range, which consist 66 percent of all projected changes. For the fact-sheet the central 66 percent were taken, to exclude extreme outliers from the analysis. Projected changes in the climate are assessed for two different greenhouse gas emission scenarios: the "**Low**" scenario combines the SRES B1 (IPCC-AR4) and RCP2.6 and 4.5 (IPCC-AR5) scenarios; the "**High**" scenario combines the SRES A2 (IPCC-AR4) and RCP8.5 (IPCC-AR5) scenarios.

Key findings- Zone 3:

- Mean temperature is projected to substantially increase in the future independent of the scenario, with a stronger increase under the high emission scenario.
- Not only mean temperatures are projected to increase but also extremes. Therefore number of cold days and nights are projected to decrease and number of hot days and nights are projected to increase,
- Only a very moderate change in total precipitation is projected to occur in the future for both scenarios, with a clear tendency for a precipitation increase. This is also true for the rainfall during the rainy season
- Rains are likely to be less uniformly distributed in the future, as dry spells in the rainy season are projected to substantially increase.
- The intensity of rainfall extremes is projected to increase, but almost no change in their frequency is projected.

Further details can be found in the "**Climate Report**" in the report section of the final project document - also available online under www.giz.de and www.comifac.org

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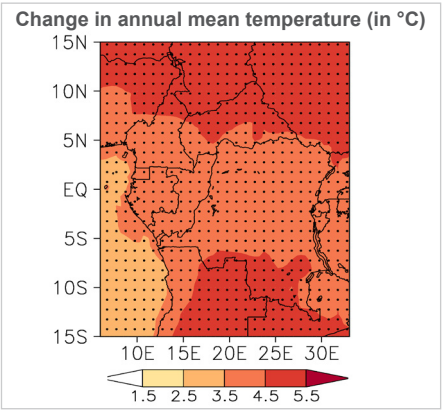
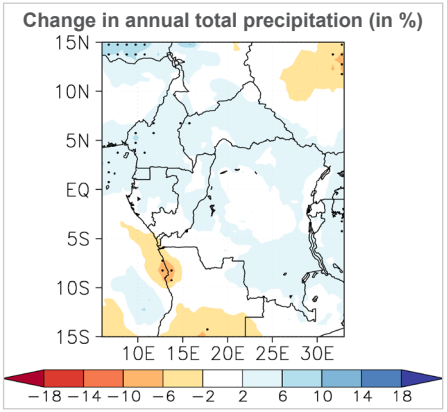
Fact-Sheet - Climate - Democratic Republic of the Congo (DRC)- Zone 4

Maps of projected changes

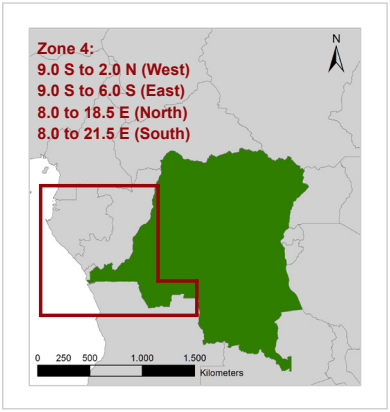
Maps show the median projection of change for mid of the century (mean of the period 2036-2065 compared to the mean of 1961-1990) under the "**High**" emission scenario and for all available projections combined. The stippled areas indicate more robust regions where the majority of models agree in the direction of change.





Definition of Zone 4

The map below indicates the position of Zone 4 (red rectangle), representing the regions north of the equator with predominantly tropical wet and dry climates with a dedicated rainy season. All values presented in this fact-sheet are changes spatially averaged over the whole zone. As the western part of DRC falls within Zone 4, projected changes for this zone are assumed to be representative for this part of the country.



List of projected changes

Tables show only the "**likely range**" (centered around the median) of projected changes. 66 percent of all projected changes are within this range. Bold values in the table represent values averaged over the whole year.

Observed mean values and projected changes of temperature based variables (Note: if below two units are mentioned the 1st refers to the observations and the 2nd to the changes)	Observed	Projected changes			
		Low emission scenario		High emission scenario	
	1961-1990	2036-2065	2071-2100	2036-2065	2071-2100
Surface air temperature (in °C) YEAR	**24.6**	**+1.4 to +2.0**	**+1.5 to +2.6**	**+1.8 to +2.5**	**+3.6 to +4.7**
DJF	25.2	+1.3 to +1.9	+1.4 to +2.4	+1.8 to +2.3	+3.7 to +4.4
MAM	25.5	+1.3 to +2.1	+1.5 to +2.7	+1.8 to +2.5	+3.5 to +4.7
JJA	22.9	+1.5 to +2.1	+1.5 to +2.8	+1.9 to +2.6	+3.7 to +5.1
SON	24.7	+1.4 to +2.1	+1.4 to +2.6	+1.8 to +2.5	+3.6 to +4.6
Cold nights (in %)	-	**-9 to -8**	**-10 to -8**	**-10 to -9**	**~ -10**
Cold days (in %)	-	**-9 to -6**	**-9 to -6**	**-9 to -7**	**-10 to -9**
Hot nights (in %)	-	**+36 to +58**	**+40 to +69**	**+52 to +67**	**+78 to +87**
Hot days (in %)	-	**+17 to +31**	**+19 to +40**	**+24 to +39**	**+46 to +69**

Observed mean values and projected changes of precipitation based variables (Note: if below two units are mentioned the 1st refers to the observations and the 2nd to the changes)	Observed	Projected changes			
		Low emission scenario		High emission scenario	
	1961-1990	2036-2065	2071-2100	2036-2065	2071-2100
Total precipitation (in mm and %) YEAR	**2100**	**-3 to +6**	**-3 to +6**	**-5 to +7**	**-8 to +10**
DJF	567	-5 to +7	-6 to +11	-7 to +7	-9 to +15
MAM	696	-2 to +5	-3 to +7	-3 to +8	-2 to +12
JJA	114	-14 to +9	-14 to +8	-17 to +16	-27 to +3
SON	720	-4 to +8	-4 to +6	-8 to +11	-10 to +12
Rainfall during rainy season (in mm and %)	**1507**	**-3 to +7**	**-3 to +10**	**-5 to +11**	**-9 to +17**
Dry spells during rainy season (number and %)	**3.3**	**0 to +71**	**+1 to +74**	**-6 to +77**	**0 to +126**
Duration of rainy season (in days and %)	**165**	**-2 to +2**	**-4 to +3**	**-4 to +3**	**-7 to +1**
Intensity of heavy rain events (in mm/d and %)	**46**	**+2 to +10**	**+4 to +14**	**+2 to +13**	**+5 to +25**
Frequency of heavy rain events (in % of all days)	**1.6**	**0 to +1**	**0 to +2**	**0 to +2**	**0 to +3**
Maximum 10day rainfall sum (in mm/10d and %)	**363**	**-2 to +14**	**+2 to +18**	**+1 to +17**	**+9 to +27**

Data and method

The projected climate change signals are based on a large ensemble of different global and regional climate change projections. For each scenario projections from the CMIP3 dataset (basis of the 4th IPCC assessment report - IPCC-AR4), projections from the CMIP5 dataset (basis of the 5th IPCC report), bias-corrected projections of global models and finally projections of regional models have been analyzed together; making it 31 projections for the "**High**" and 46 projections for the "**Low**" scenario. As it is scientifically questionable to provide only one value for projected changes (e.g. the mean) a "**likely range**" was defined. According to IPCC-AR4, this is the range, which consist 66 percent of all projected changes. For the fact-sheet the central 66 percent were taken, to exclude extreme outliers from the analysis. Projected changes in the climate are assessed for two different greenhouse gas emission scenarios: the "**Low**" scenario combines the SRES B1 (IPCC-AR4) and RCP2.6 and 4.5 (IPCC-AR5) scenarios; the "**High**" scenario combines the SRES A2 (IPCC-AR4) and RCP8.5 (IPCC-AR5) scenarios.

Key findings- Zone 4:

- Mean temperature is projected to substantially increase in the future independent of the scenario, with a stronger increase under the high emission scenario.
- Not only mean temperatures are projected to increase but also extremes. Therefore number of cold days and nights are projected to decrease and number of hot days and nights are projected to increase,
- Only a very moderate change in total precipitation is projected to occur in the future for both scenarios, with a slight tendency for a precipitation increase. This is also true for the rainfall during the rainy season
- Rains are likely to be less uniformly distributed in the future, as dry spells in the rainy season are projected to substantially increase.
- The intensity of rainfall extremes is projected to increase, but almost no change in their frequency is projected.

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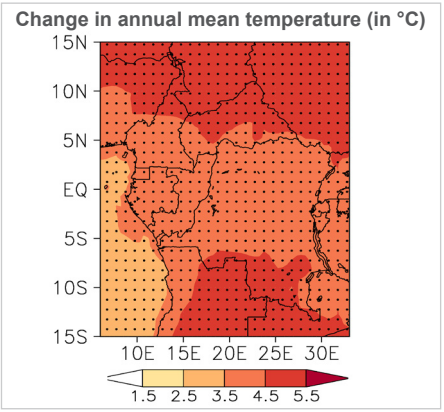
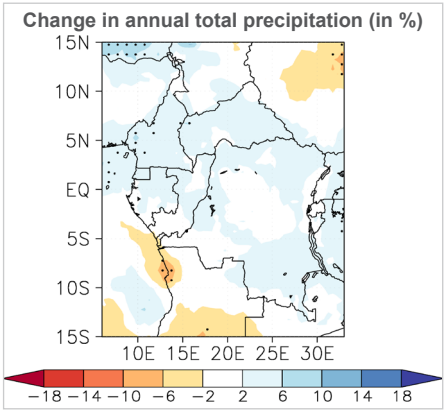
Fact-Sheet - Climate - Democratic Republic of the Congo (DRC)- Zone 5

Maps of projected changes

- Maps show the median projection of change for mid of the century (mean of the period 2036-2065 compared to the mean of 1961-1990) under the "**High**" emission scenario and for all available projections combined. The stippled areas indicate more robust regions where the majority of models agree in the direction of change.

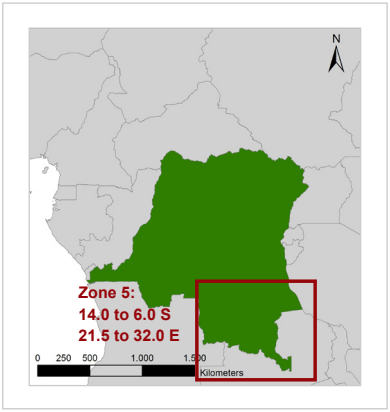




Definition of Zone 5

- The map below indicates the position of Zone 5 (red rectangle), representing the subtropical regions in the south of central Africa. All values presented in this fact-sheet are changes spatially averaged over the whole zone.

As the southern part of DRC falls within Zone 5, projected changes for this zone are assumed to be representative for this part of the country.



List of projected changes

- Tables show only the "**likely range**" (centered around the median) of projected changes. 66 percent of all projected changes are within this range. Bold values in the table represent values averaged over the whole year.

Observed mean values and projected changes of temperature based variables (Note: if below two units are mentioned the 1st refers to the observations and the 2nd to the changes)	Observed	Projected changes			
		Low emission scenario		High emission scenario	
	1961-1990	2036-2065	2071-2100	2036-2065	2071-2100
Surface air temperature (in °C) YEAR	**21.9**	**+1.5 to +2.2**	**+1.7 to +2.9**	**+1.9 to +2.7**	**+3.9 to +5.2**
DJF	22.7	+1.3 to +1.9	+1.5 to +2.6	+1.7 to +2.5	+3.5 to +4.9
MAM	22.1	+1.4 to +2.3	+1.6 to +2.9	+1.8 to +2.7	+3.7 to +5.3
JJA	19.6	+1.6 to +2.4	+1.7 to +2.9	+2.1 to +2.9	+4.2 to +5.4
SON	23.3	+1.7 to +2.3	+1.7 to +3.1	+2.1 to +3.0	+4.3 to +5.7
Cold nights (in %)	-	**-9 to -7**	**-10 to -8**	**-10 to -8**	**~ -10**
Cold days (in %)	-	**-8 to -5**	**-9 to -6**	**-8 to -6**	**-10 to -9**
Hot nights (in %)	-	**+23 to +36**	**+25 to +46**	**+29 to +46**	**+54 to +71**
Hot days (in %)	-	**+9 to +15**	**+10 to +23**	**+12 to +21**	**+27 to +51**

Observed mean values and projected changes of precipitation based variables (Note: if below two units are mentioned the 1st refers to the observations and the 2nd to the changes)	Observed	Projected changes			
		Low emission scenario		High emission scenario	
	1961-1990	2036-2065	2071-2100	2036-2065	2071-2100
Total precipitation (in mm and %) YEAR	**1284**	**-4 to +5**	**-4 to +7**	**-3 to +7**	**-3 to +10**
DJF	660	-1 to +6	0 to +7	+1 to +6	0 to +14
MAM	333	-6 to +11	-7 to +15	-3 to +17	-1 to +27
JJA	9	-36 to +20	-35 to +42	-29 to +20	-53 to +33
SON	285	-12 to +2	-12 to -1	-11 to +2	-18 to +2
Rainfall during rainy season (in mm and %)	**1137**	**-4 to +3**	**-4 to +5**	**-3 to +5**	**-4 to +11**
Dry spells during rainy season (number and %)	**1.8**	**-11 to +64**	**-14 to +60**	**-19 to +68**	**-15 to +123**
Duration of rainy season (in days and %)	**154**	**-4 to -2**	**-5 to -1**	**-4 to 0**	**-6 to -1**
Intensity of heavy rain events (in mm/d and %)	**29**	**+3 to +10**	**+3 to +11**	**+5 to +12**	**+9 to +24**
Frequency of heavy rain events (in % of all days)	**1.5**	**0 to +1**	**0 to +1**	**0 to +1**	**+1 to +2**
Maximum 10day rainfall sum (in mm/10d and %)	**264**	**+1 to +11**	**+2 to +16**	**+3 to +17**	**+12 to +38**

Data and method

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Key findings- Zone 5:

- Mean temperature is projected to substantially increase in the future independent of the scenario, with a stronger increase under the high emission scenario.
- Not only mean temperatures are projected to increase but also extremes. Therefore number of cold days and nights are projected to decrease and number of hot days and nights are projected to increase,
- Only a very moderate change in total precipitation is projected to occur in the future for both scenarios, with a slight tendency for a precipitation increase. This is also true for the rainfall during the rainy season
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