

Nigeria

In this section explore the latest projections about climate change

What is Nigeria's climate like?

- Nigeria, a country in West Africa, lies within the tropical zone and enjoys a truly tropical humid climate, dominated by the West African monsoon system, linked to the movement of the Inter-Tropical Convergence Zone (ITCZ) north and south of the equator
- Nigeria experiences two seasons: a wet season from April to October and a dry season from November to March. In the wet season, moisture-laden south westerly wind from the Atlantic brings cloudy and rainy weather, whereas in the dry season, the dry north easterly wind from the Sahara (Harmattan) brings dust and fair weather
- Seasonal mean temperatures throughout Nigeria are consistently over 20°C. Diurnal variations are more pronounced than seasonal ones
- In general, temperatures are lower in the wet season than in the dry season, and vary little from the coast to inland areas
- Topography (altitude) has a local impact on temperatures
- The wettest month in Nigeria is June and the wettest area is the east coast, parts of which receive over 4000 mm rainfall annually. Regions along the coast in western Nigeria receive about 1800 mm rainfall annually. Central and northern Nigeria receive about 500-1000 mm

Graph one: How did Nigeria's temperature change between 1960 and 2009?

- The black line shows the actual temperature anomaly for each year from 1960 to 2000. This is the difference in temperature between the year's recorded temperature and the average of all years between 1970 and 1999. If the anomaly is positive, that year was warmer than the 1970-1999 average. If it is negative, that year was colder than the 1970-1999 average
- The brown line shows past temperature anomalies as produced by a computer model with the brown shading showing the range of temperatures produced by the model
- The mean annual temperature averaged over Nigeria has increased by around 0.8°C between 1960 and 2006, at an average rate of 0.18°C per decade
- The green, blue and red lines show projected future temperatures from 2006 to 2100, according to three different emission scenarios – green (low), blue (medium) and red (high). The shading around each line shows the range of temperature that might be possible with each emission scenario
- The mean annual temperature is projected to increase by 1.1 to 2.5°C by the 2060s, and 1.4 to 4.6°C by the 2090s

Graphs two to four: How will Nigeria's annual temperature change during the 2030s, 60s and 90s?

- These 3 maps show projected temperatures in the 2030s, 60s and 90s (according to a high carbon dioxide emissions scenario, A2)
- All values are anomalies– the difference in temperature to the average of 1970 to 1999 temperatures
- Areas shaded deep orange will be 6°C hotter than average temperatures from 1970 to 1999, whereas areas shaded green will be the same as the 1970-1999 average

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- The numbers in the centre of each grid box is the average projected temperature; numbers in the upper and lower corners give the highest and lowest possible annual mean temperature
- The mean annual temperature is projected to increase by 1.1 to 2.5°C by the 2060s, and 1.4 to 4.6°C by the 2090s. Warming is higher in northern Nigeria compared to the southern parts of the country

Graphs five to seven: How will Nigeria's temperature change seasonally? – December, January, February

- These 3 maps show projected December, January and February (DJF) temperatures in the 2030s, 60s and 90s (according to a high carbon dioxide emissions scenario, A2)
- All values are anomalies– the difference in temperature to the average of 1970 to 1999 temperatures
- Areas shaded red will be 6-7°C hotter than average temperatures from 1970 to 1999, whereas areas shaded green will be the same as the 1970-1999 average
- The number in the centre of each grid box is the average projected temperature; numbers in the upper and lower corners give the highest and lowest possible DJF mean temperature. The projected rate of warming is similar throughout the year

Graphs eight to 10: How will Nigeria's temperature change seasonally? – March, April, May

- These 3 maps show projected March, April and May (MAM) temperatures in the 2030s, 60s and 90s (according to a high carbon dioxide emissions scenario, A2)
- All values are anomalies– the difference in temperature to the average of 1970 to 1999 temperatures
- Areas shaded red will be 6-7°C hotter than average temperatures from 1970 to 1999, whereas areas shaded green will be about the same as the 1970-1999 average
- The number in the centre of each grid box is the average temperature anomaly we expect having had high carbon dioxide emissions; the smaller numbers in the upper and lower corners give the range of average temperature anomalies that might occur
- The projected rate of warming is similar throughout the year

Graphs 11 to 13: How will Nigeria's temperature change seasonally? – June, July, August

- These 3 maps show projected June, July and August (JJA) temperatures in the 2030s, 60s and 90s (according to a high carbon dioxide emissions scenario, A2)
- All values are anomalies– the difference in temperature to the average of 1970 to 1999 temperatures
- Areas shaded red will be 6-7°C hotter than average temperatures from 1970 to 1999, whereas areas shaded green will be about the same as the 1970-1999 average
- The number in the centre of each grid box is the average temperature anomaly we expect having had high carbon dioxide emissions; the smaller numbers in the upper and lower corners give the range of average temperature anomalies that might occur
- The projected rate of warming is similar throughout the year

Graphs 14 to 16: How will Nigeria's temperature change seasonally? – September, October, November

- These 3 maps show projected September, October and November (SON) temperatures in the 2030s, 60s and 90s (according to a high carbon dioxide emissions scenario, A2)
- All values are anomalies– the difference in temperature to the average of 1970 to 1999 temperatures
- Areas shaded red will be 6-7°C hotter than average temperatures from 1970 to 1999, whereas areas shaded green will be about the same as the 1970-1999 average

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- The number in the centre of each grid box is the average temperature anomaly we expect having had high carbon dioxide emissions; the smaller numbers in the upper and lower corners give the range of average temperature anomalies that might occur
- The projected rate of warming is similar throughout the year

Graphs 17 to 18: How will Nigeria's frequency of hot days change?

- These two maps show the percentage of hot days expected during the 2060s and 2090s given high carbon dioxide emissions through the century (scenario A2)
- A hot day is defined by the temperature exceeded on 10% of days in 1970-1999. So, in 1970-1999, you would have expected 1 in 10 days to be hot. If the map shading indicates that more than 10% of days are hot, then there has been an increase in the number of hot days
- In areas shaded deep red, every day will be a hot day. Yellow areas will have 30% hot days
- The number in the centre of each grid box is the number of hot days we expect; the smaller numbers in the upper and lower corners give the range of numbers of hot days that might occur
- Annually, the frequency of 'hot' days will increase from about 11% during the period 1970-1999 to 18-49% of days by the 2060s, and 23-73% of days by the 2090s. Hot days are projected to increase most rapidly in June - August with up to 98% of days being hot by the 2090s

Graphs 19 to 20: How will Nigeria's frequency of hot nights change?

- These two maps show the percentage of hot nights expected during the 2060s and 2090s given high carbon dioxide emissions through the century (scenario A2)
- A hot night is defined by the temperature exceeded on 10% of nights in 1970-1999. So, in 1970-1999, you would have expected 1 in 10 nights to be hot. If the map shading indicates that more than 10% of nights are hot, then there has been an increase in the number of hot nights
- In areas shaded deep red, every night will be a hot night. Yellow areas will have 30% hot nights
- The number in the centre of each grid box is the number of hot nights we expect; the smaller numbers in the upper and lower corners give the range of numbers of hot nights that might occur
- Hot nights are projected to increase from about 11% to 32-60% of nights by the 2060s and 37-74% of nights by the 2090s. By the 2090s, up to 99% of nights in June - August will be hot.

Graph 21: How will Nigeria's precipitation change?

- This graph shows the 'precipitation anomaly' – the difference in rain or snowfall to the 1970-1999 average. If the graph shows a positive number, then it is wetter than the 1970-1999 average. If the graph shows a negative number, then it is drier
- The black line shows the actual precipitation anomaly for each year from 1960 to 2006. This is the difference in rain/ snowfall between the year's recorded precipitation and the average of all years between 1970 and 1999
- The brown line shows past precipitation anomalies as produced by a computer model with the brown shading showing the range produced by the model
- The green, blue and red lines show projected future precipitation from 2006 to 2100, according to three different carbon dioxide emission scenarios – green (low), blue (medium) and red (high). The shading around each line shows the range of precipitation that might be possible with each emission scenario
- Mean rainfall over Nigeria shows a statistically decreasing trend of 3.5 mm per month (1.8%) per decade between 1960 and 2006
- In the future, there will probably be small increases in rainfall in Nigeria. June-November will receive more rain. There will probably be an increase in the proportion of the rain that falls in 'heavy' events

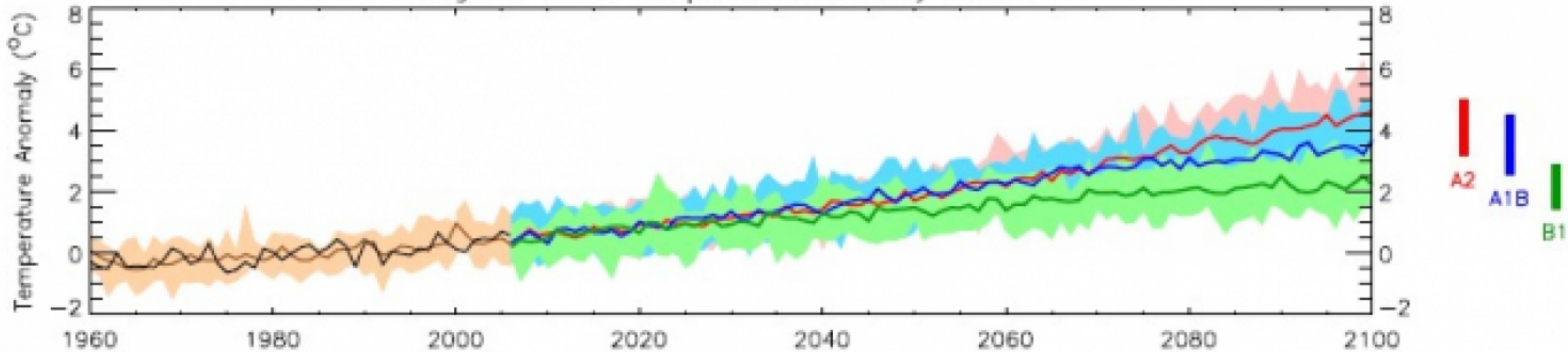
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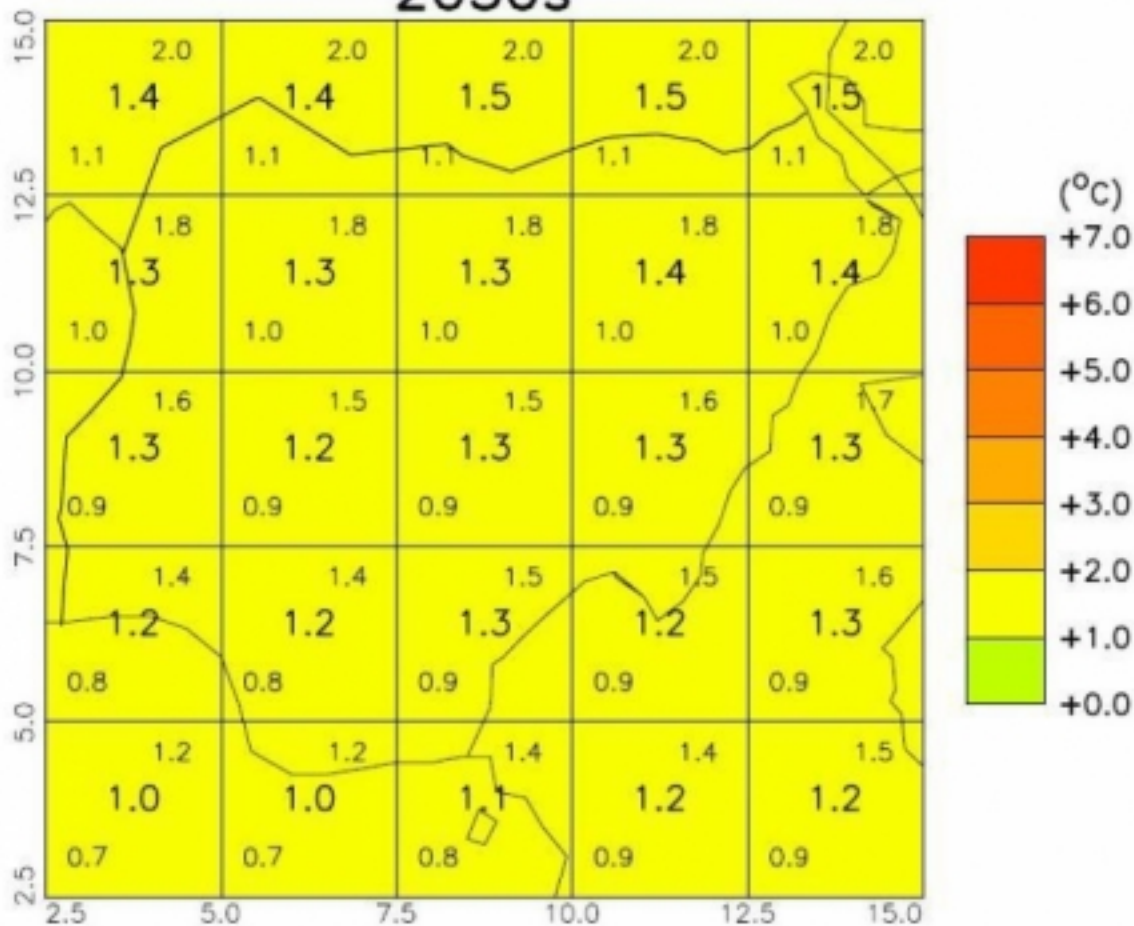
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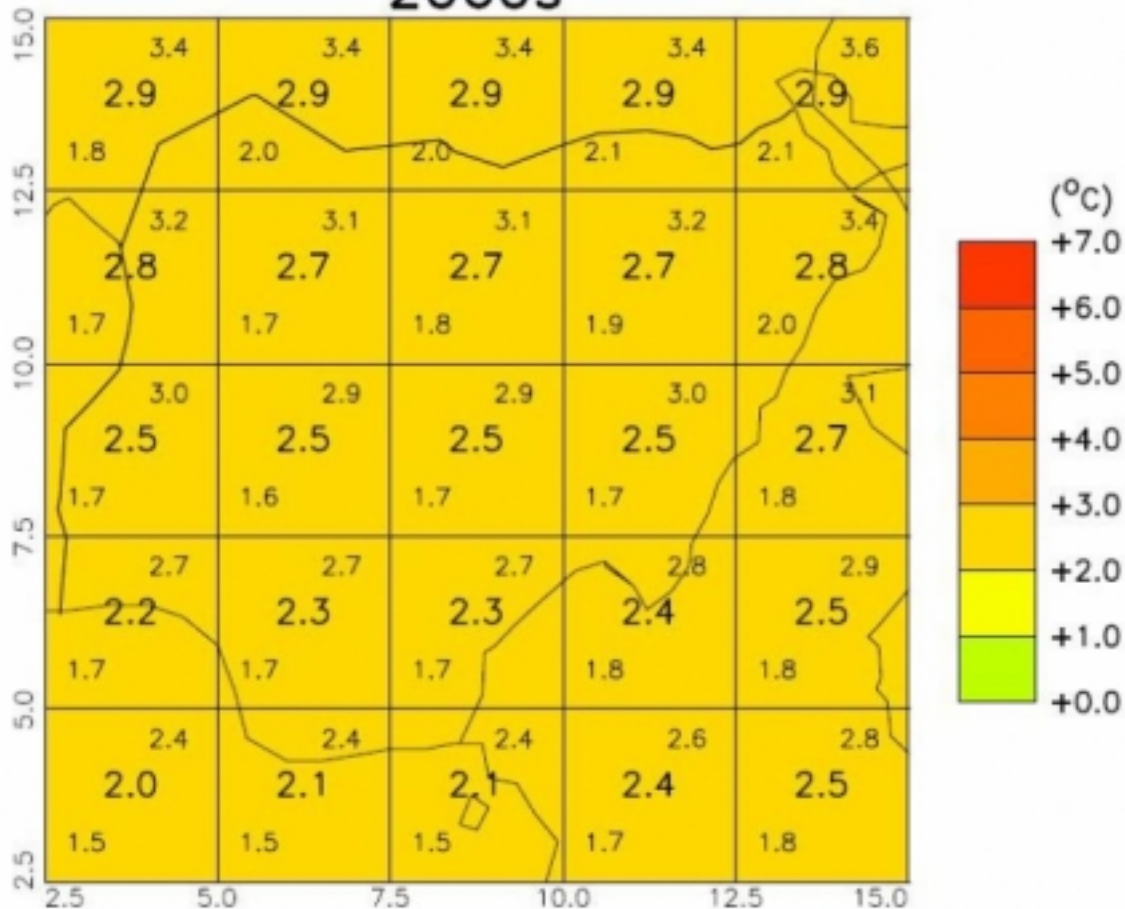
Nigeria: Mean Temperature Anomaly Annual



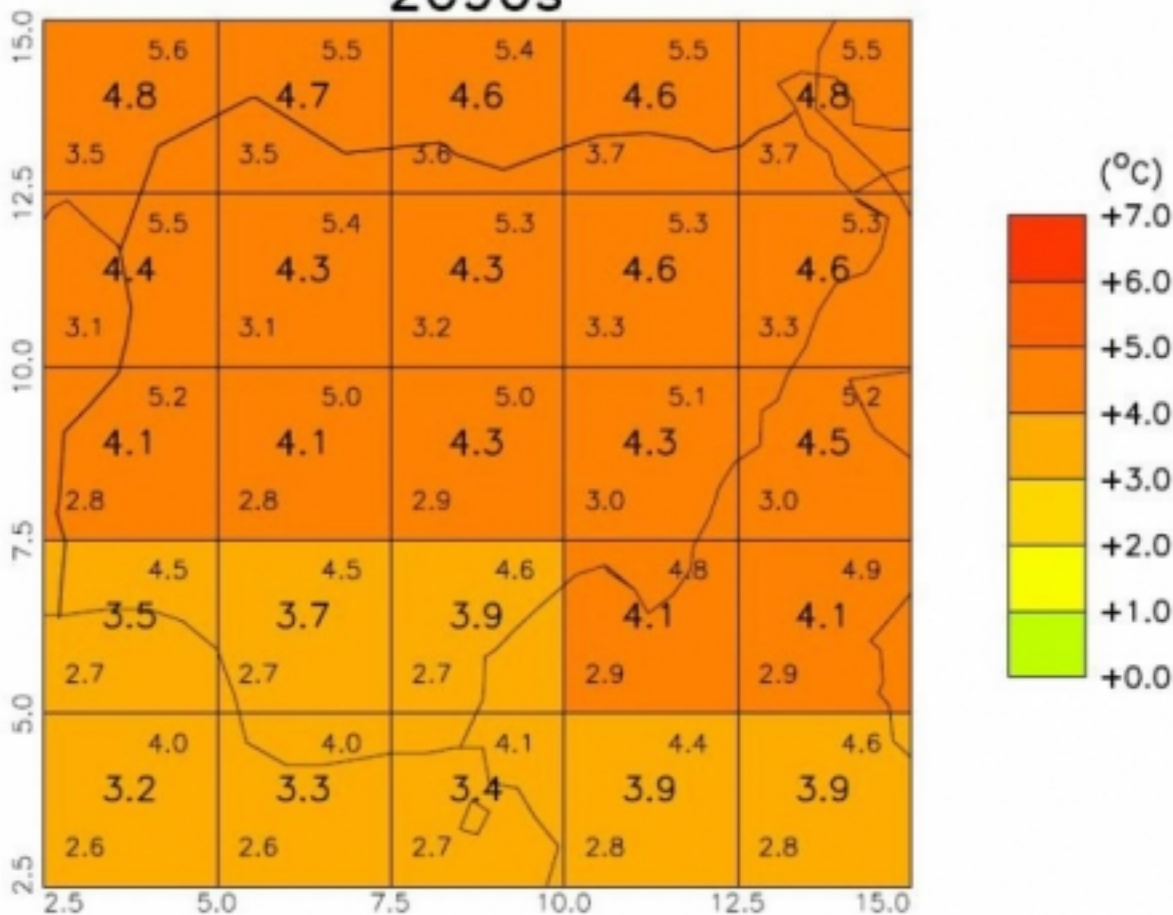
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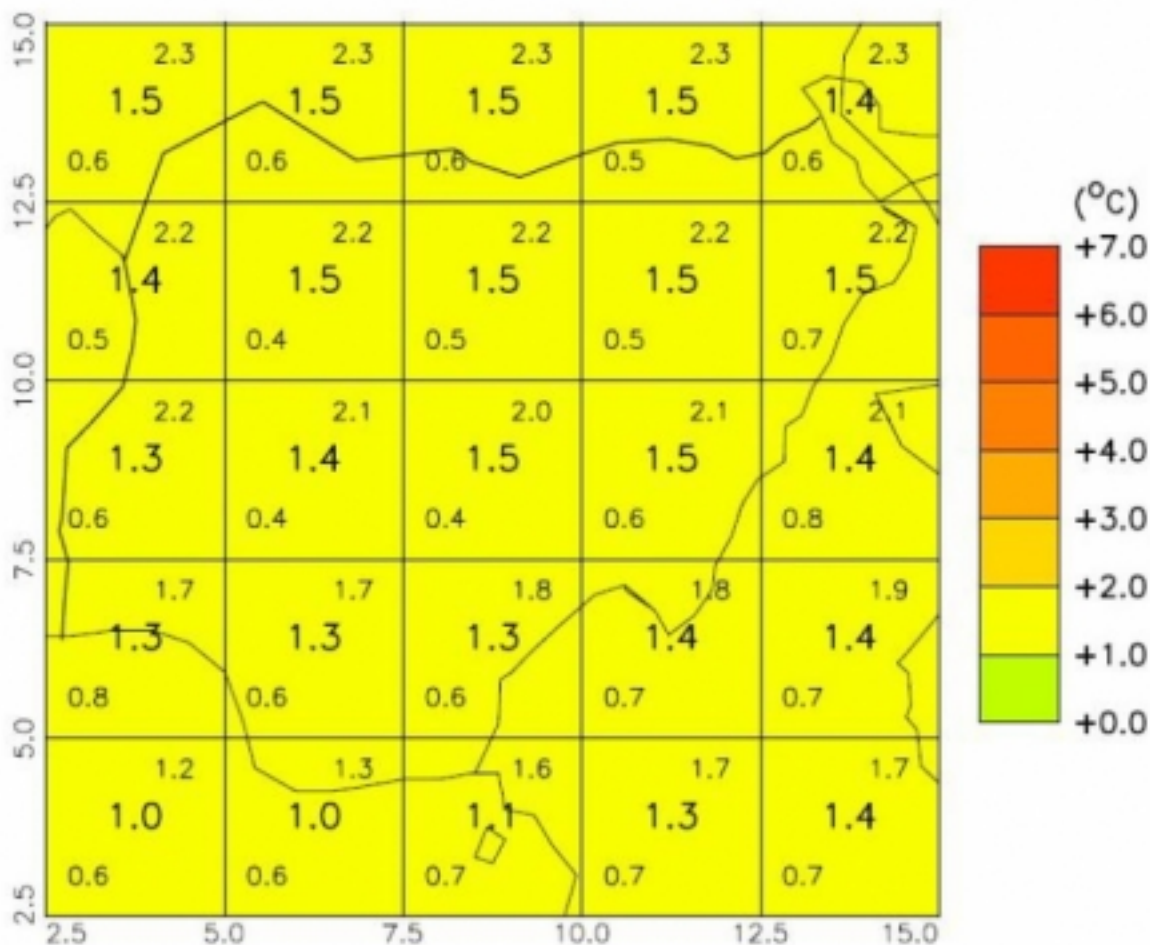


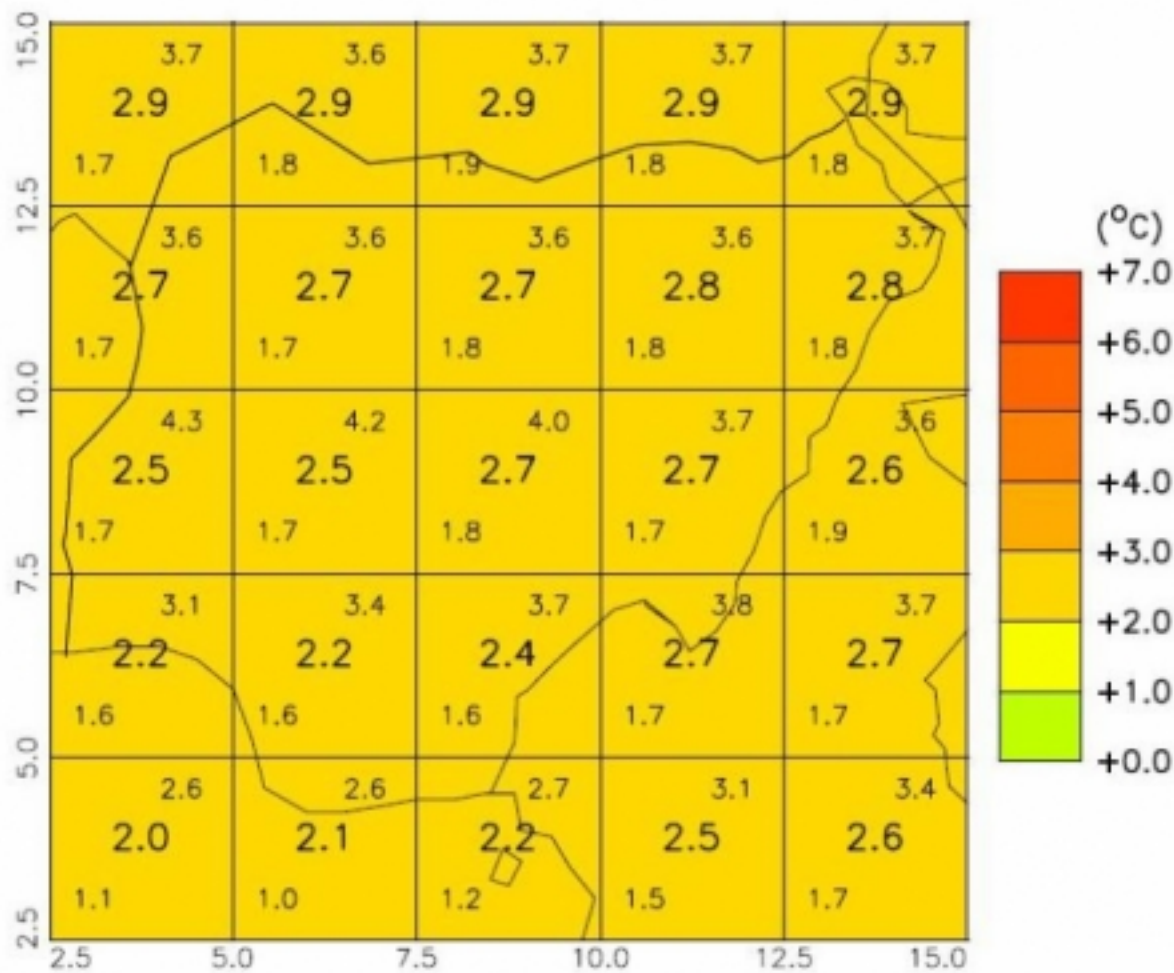
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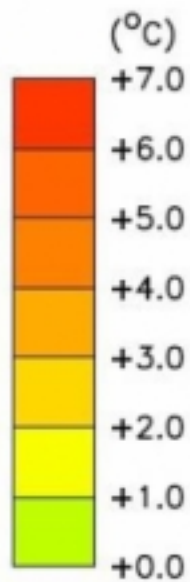
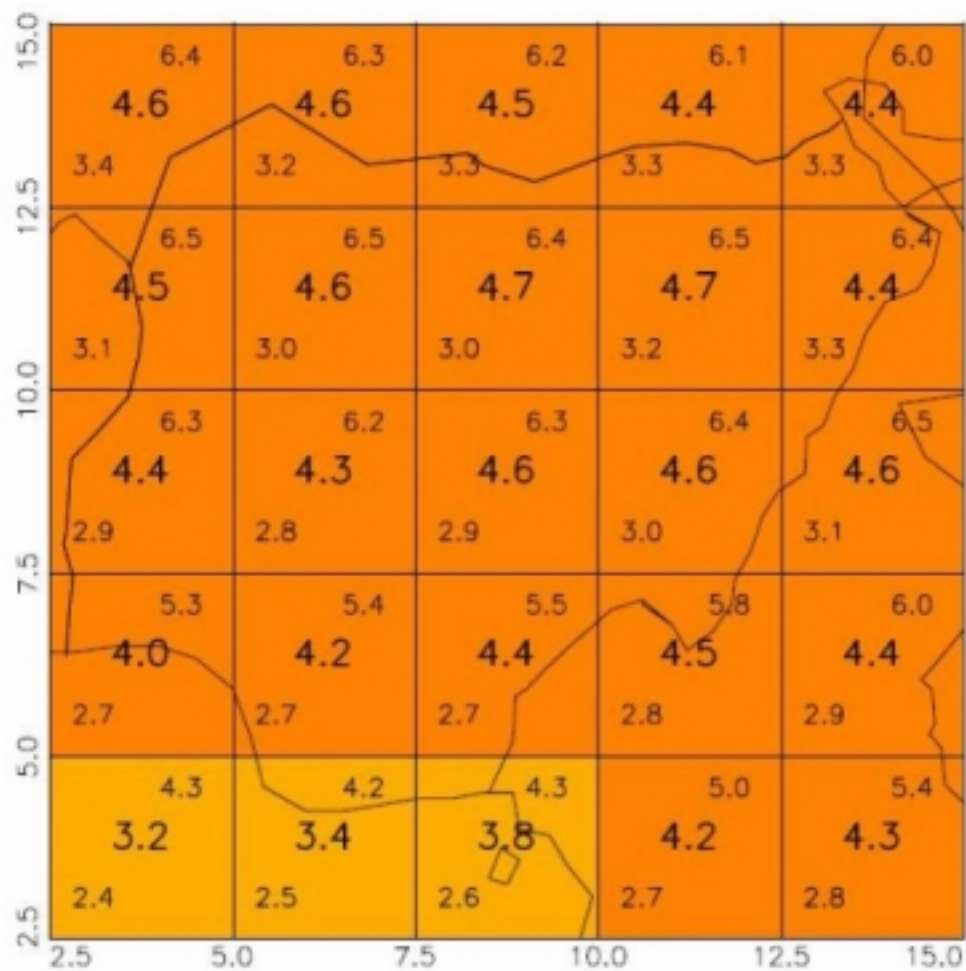


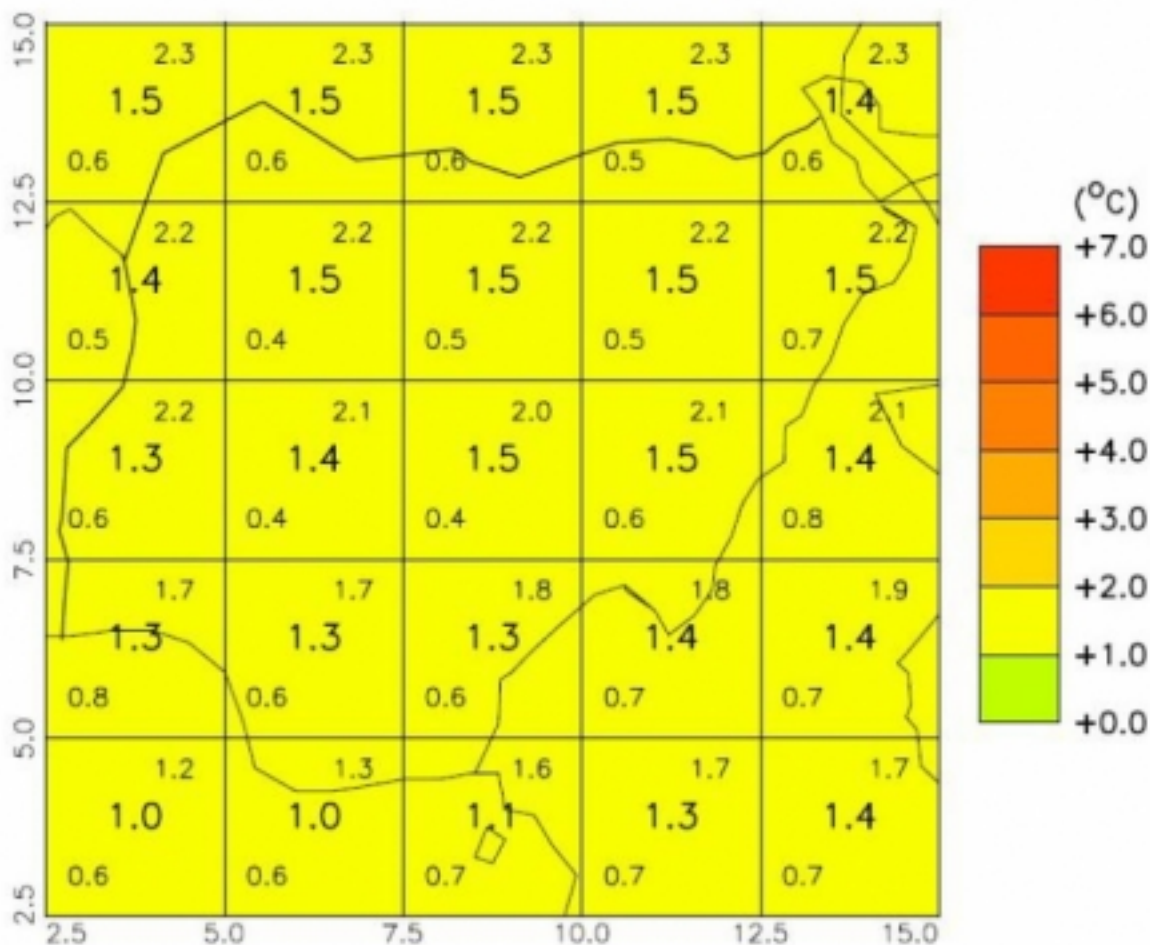
2090s

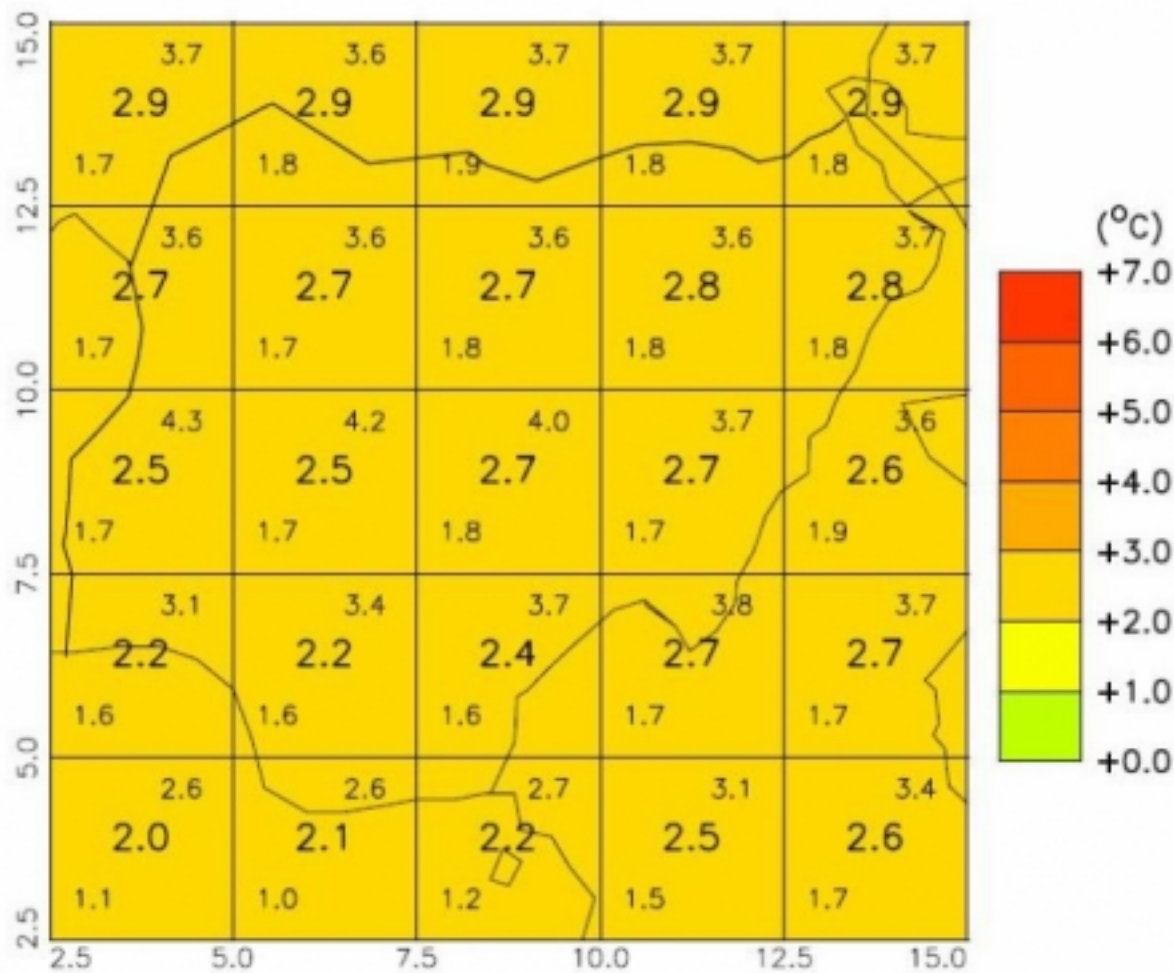


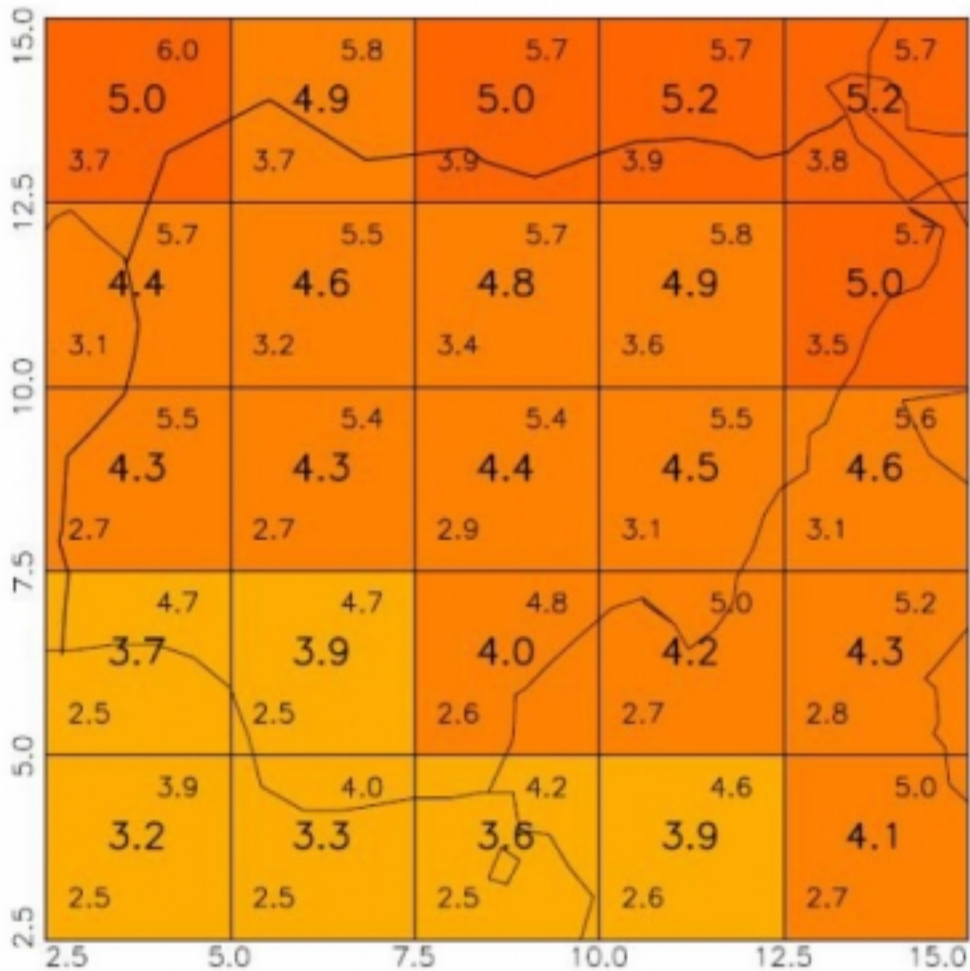


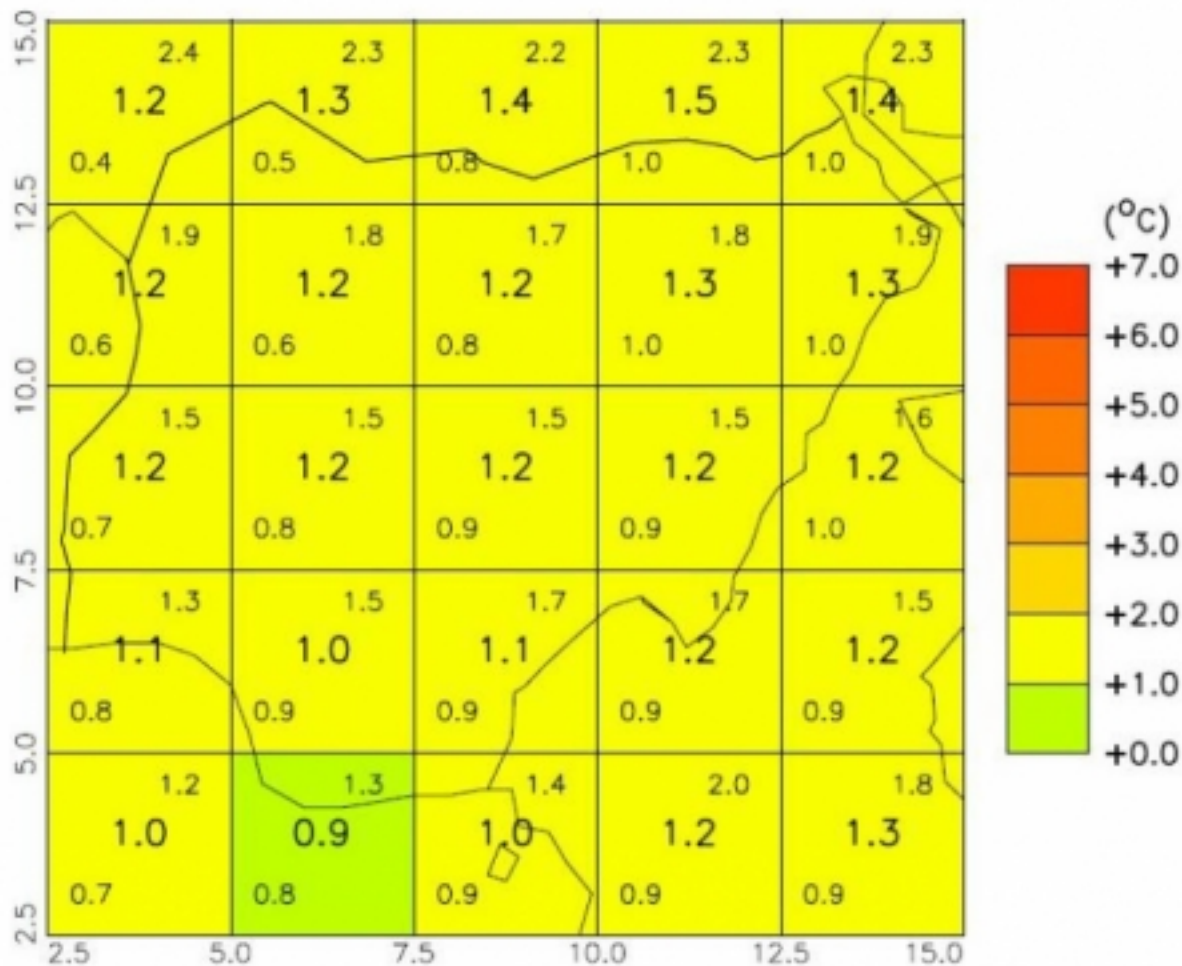


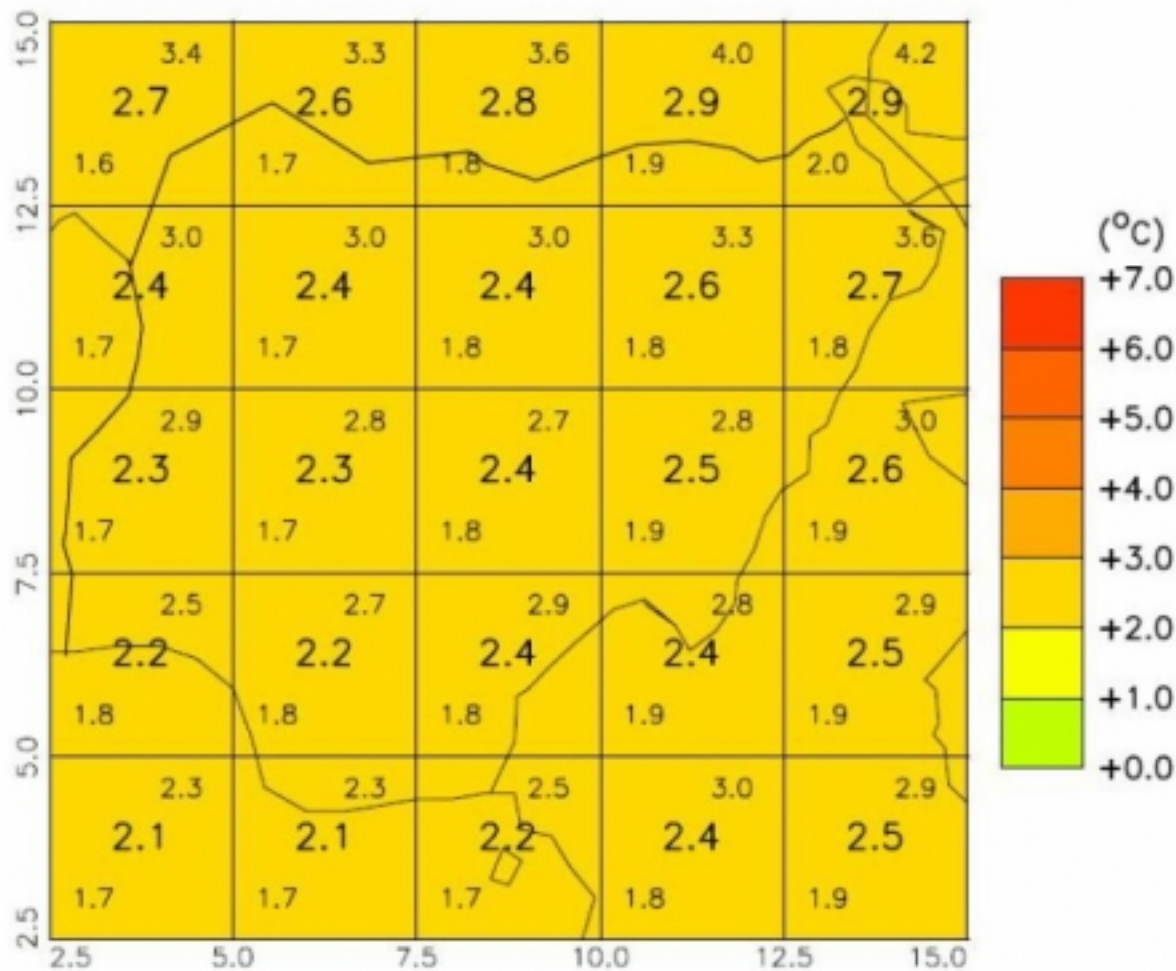


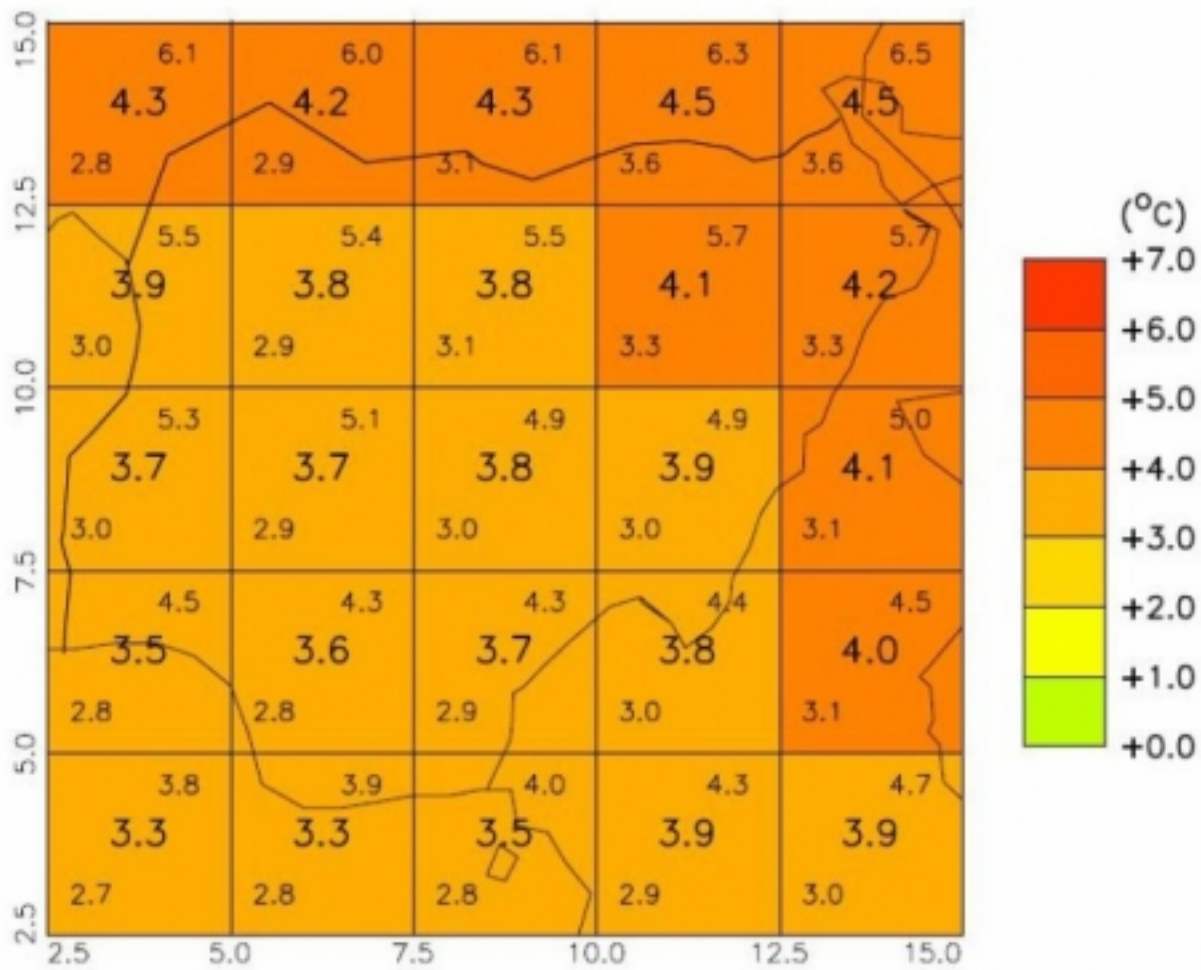


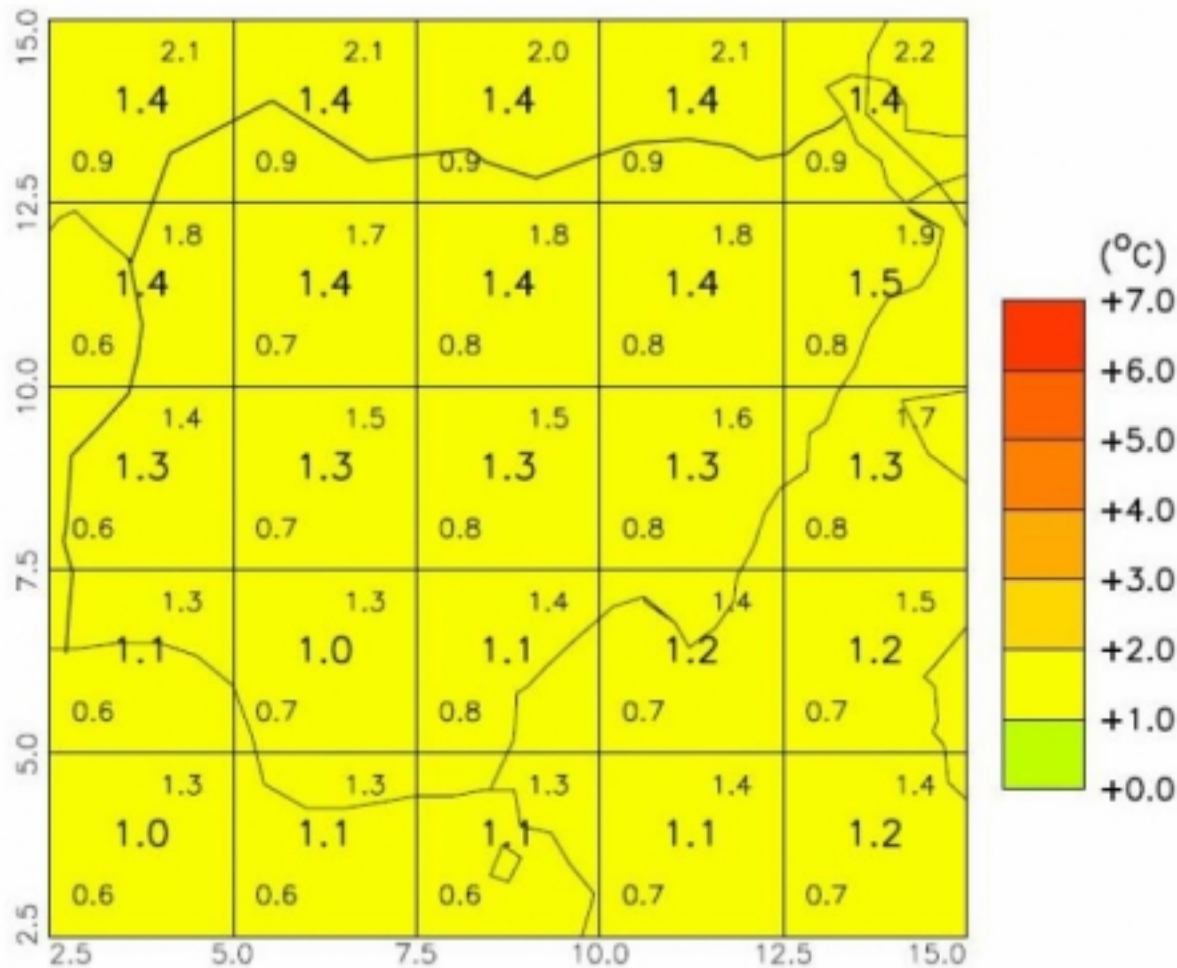


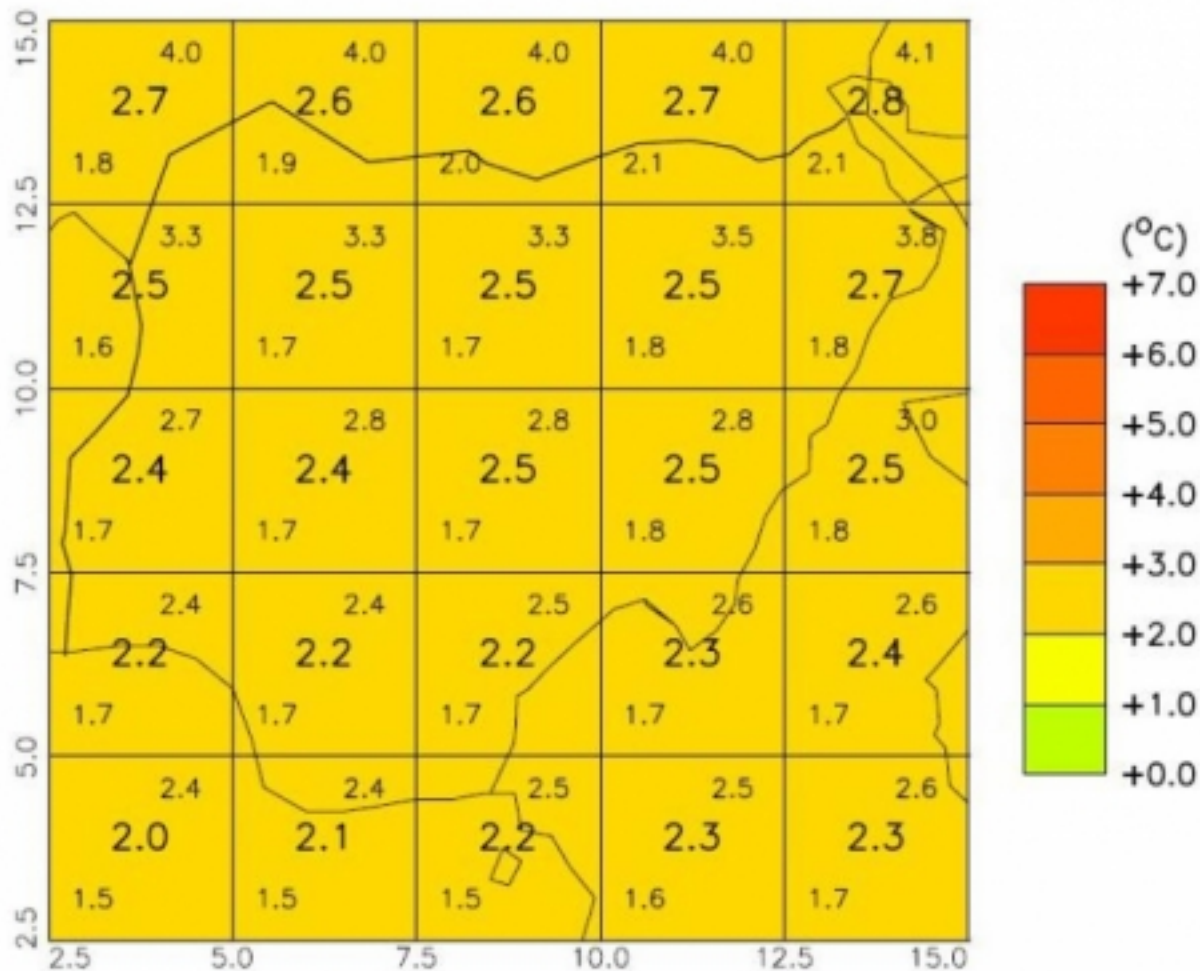


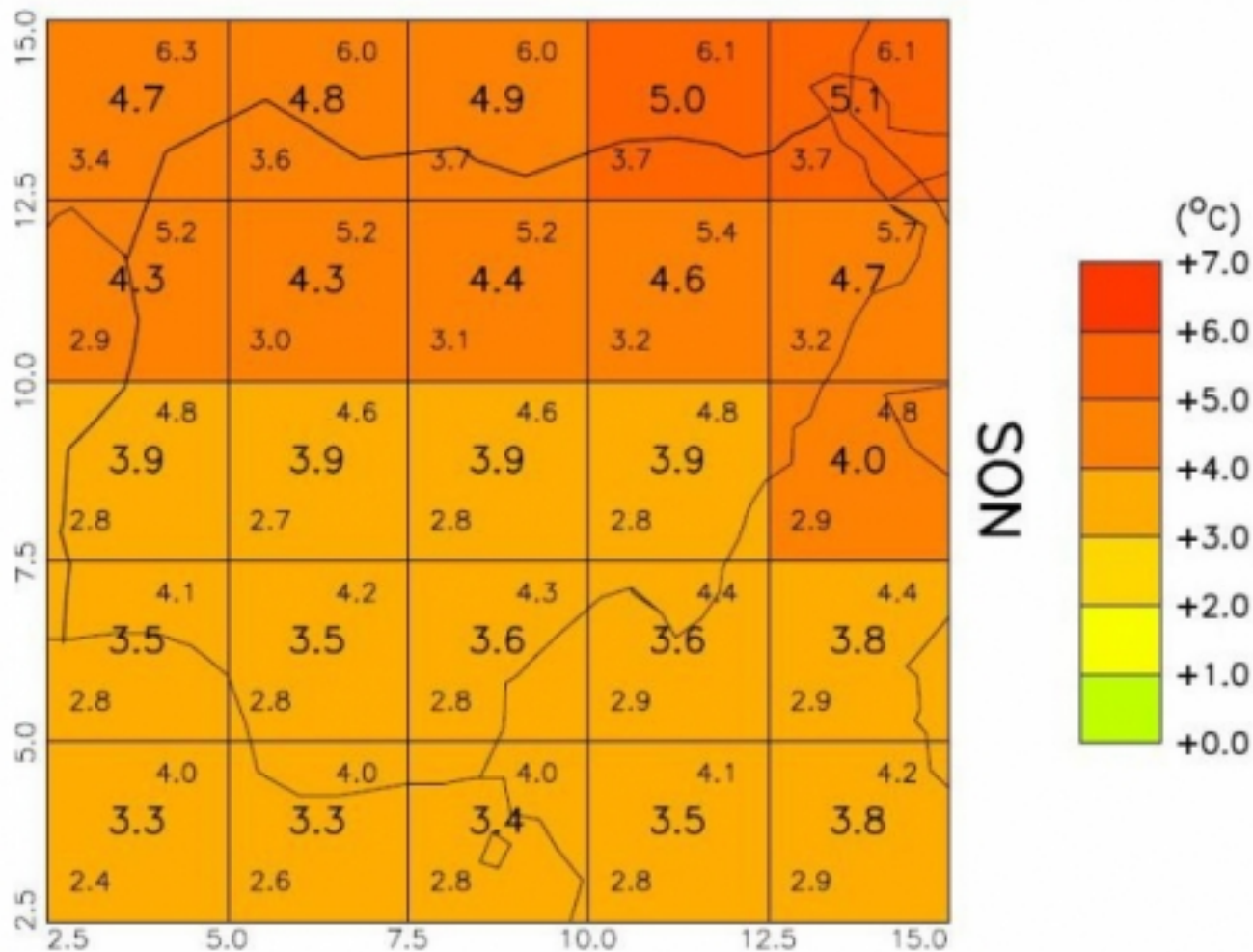




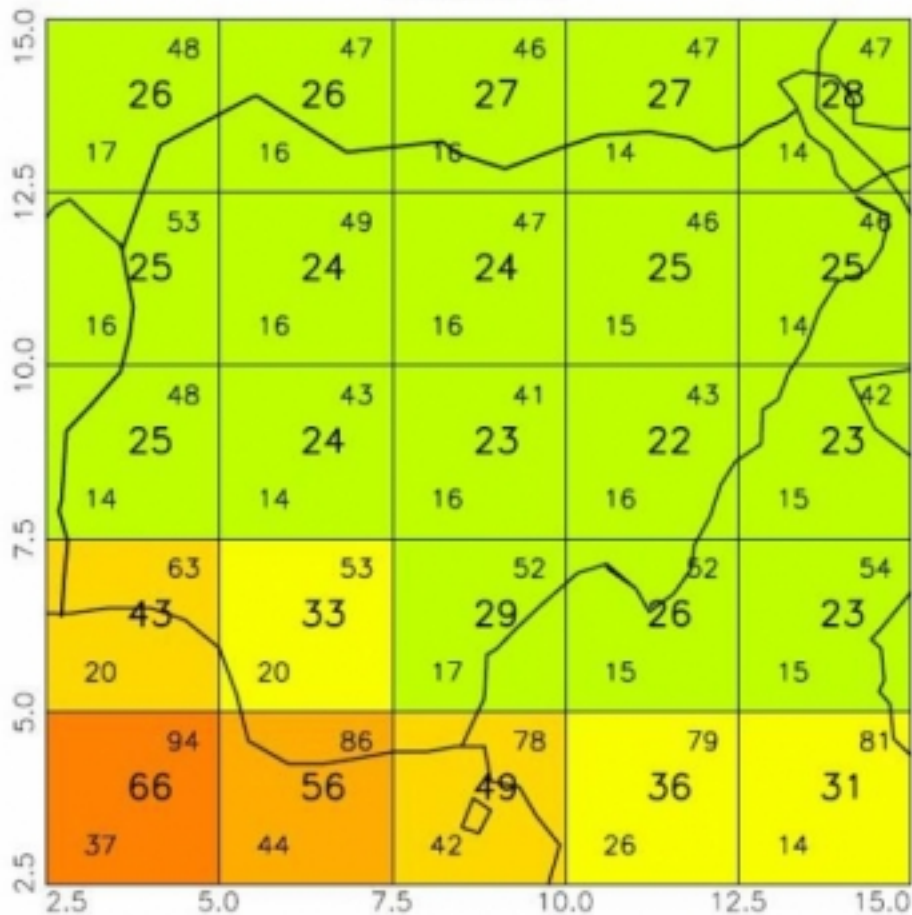




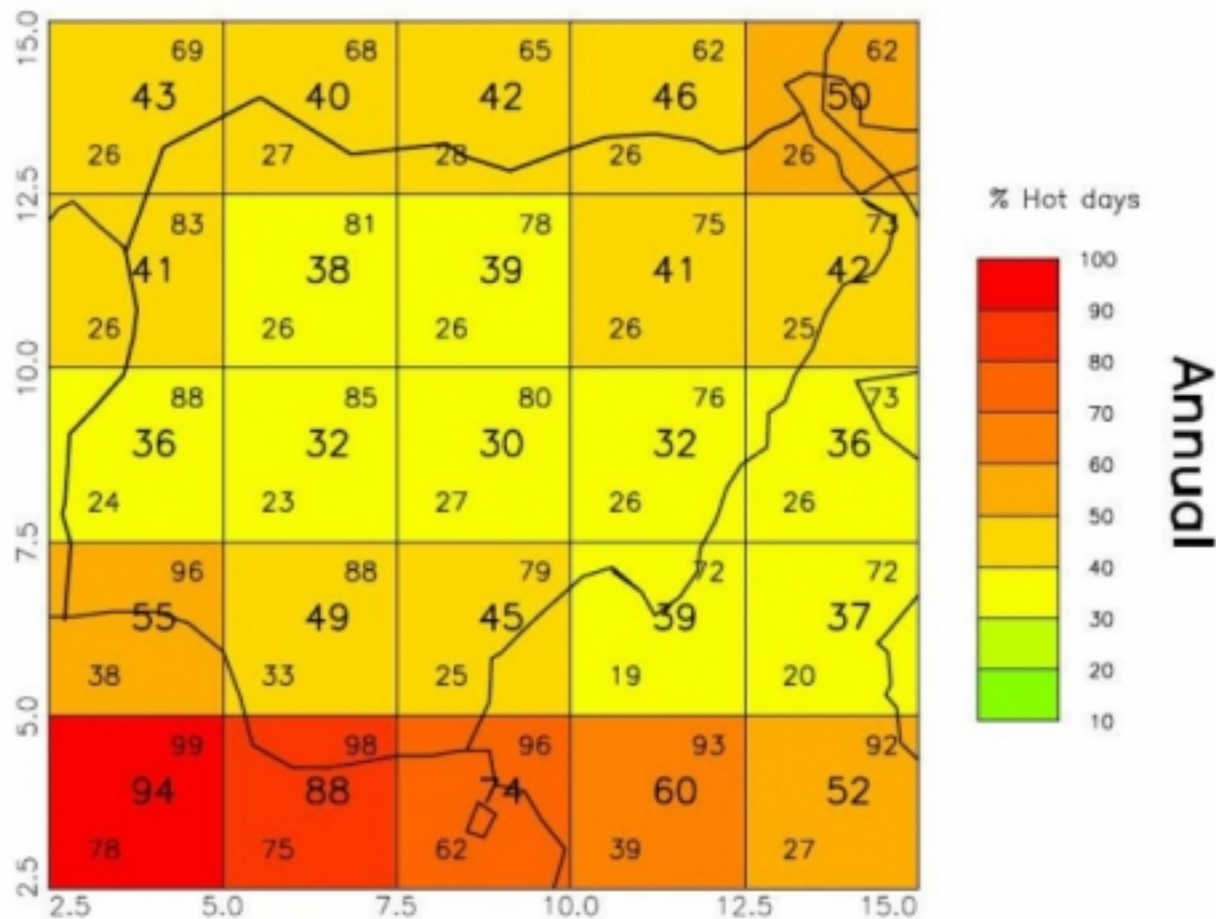




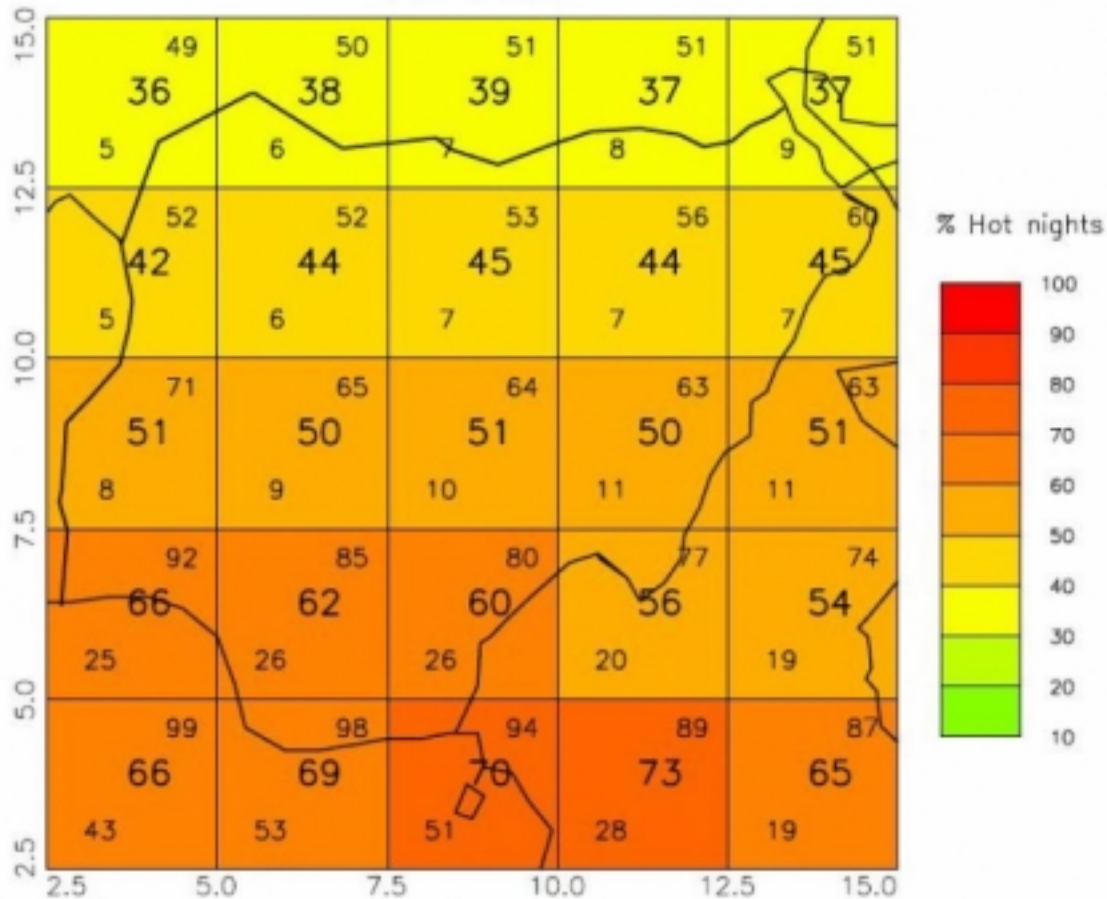
2060s



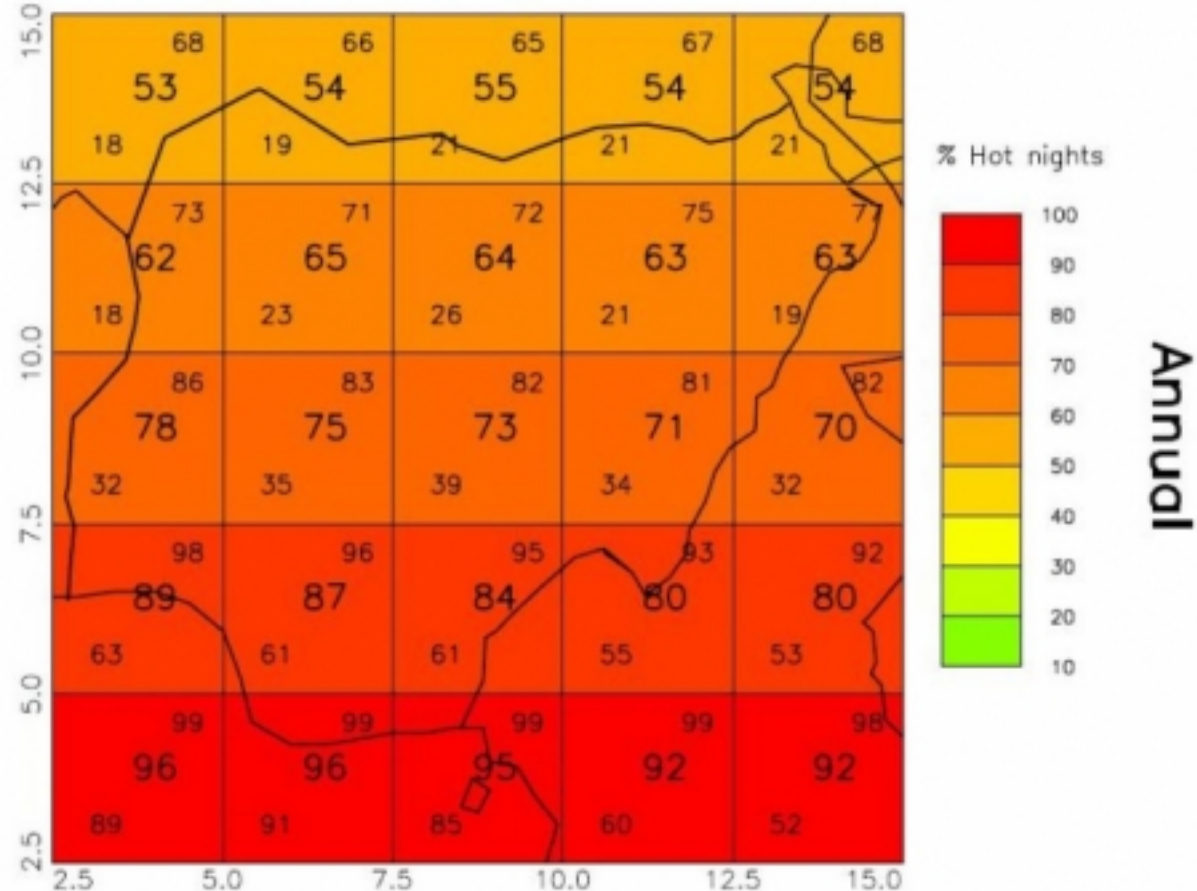
2090s



2060s



2090s



Nigeria: Monthly Precipitation Anomaly Annual

