

Kenya

In this section explore the latest projections about climate change

Graph one: How will Kenya's temperature change between 1960 and 2100?

- 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
- Mean annual temperature has increased by 1.0°C since 1960, an average rate of 0.21°C per decade. This increase in temperature has been most rapid in March-May (0.29°C per decade) and slowest in June - September (0.19°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 1.0 to 2.8°C by the 2060s, and 1.3 to 4.5°C by the 2090s.

Graphs two to four: How will Kenya's temperature change seasonally? January and February

- These 3 maps show projected December and January (DJ) 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 DJ mean temperature
- Kenya will warm by approximately the same amount in all seasons.

Graphs five to seven: How will Kenya's temperature change seasonally? March, April and May

- These 3 maps show projected March, April and May (MAM) temperatures in the 2030s, 60s and 90s (according to a high carbon dioxide emission 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 MAM 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
- Temperature increase is expected to be most rapid in Summer (JJA) at an average rate of 0.22°C per decade
- We use the term MAM rather than spring because most climate change maps are for the whole globe and seasons are reversed in the northern and southern hemispheres.

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Graph eight: How will Kenya's temperature change seasonally? June, July, August and September

Graphs nine to 11: How will Kenya's temperature change seasonally? October, November, December

- These 3 maps show projected October, November and December 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
- Kenya will warm by approximately the same amount in all seasons

Graphs 12 and 13: How will the frequency of Kenya's 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
- The average number of 'hot' days per year in Kenya has increased by 57 between 1960 and 2003. The rate of increase is seen most strongly in March-May when the average number of hot days has increased by 5.8 days per month
- Annually, projections indicate that 'hot' days will occur on 17-45% of days by the 2060s, and 23-75% of days by the 2090s

Graphs 14 and 15: How will the frequency of Kenya's 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
- The average number of 'hot' nights per year increased by 113 between 1960 and 2003. The rate of increase is seen most strongly in September-November when the average number of hot nights has increased by 12 days per month
- Nights that are considered 'hot' for the annual climate of 1970-99 are projected to increase more quickly than hot days, occurring on 32-75% of nights by the 2060s and 40-95% of nights by the 2090s

Graph 16: How will Kenya's precipitation change?

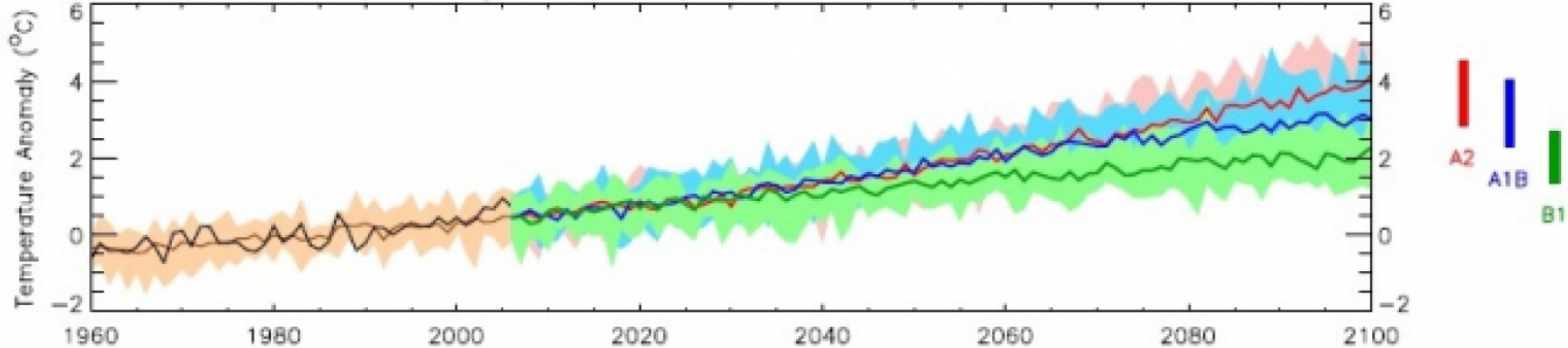
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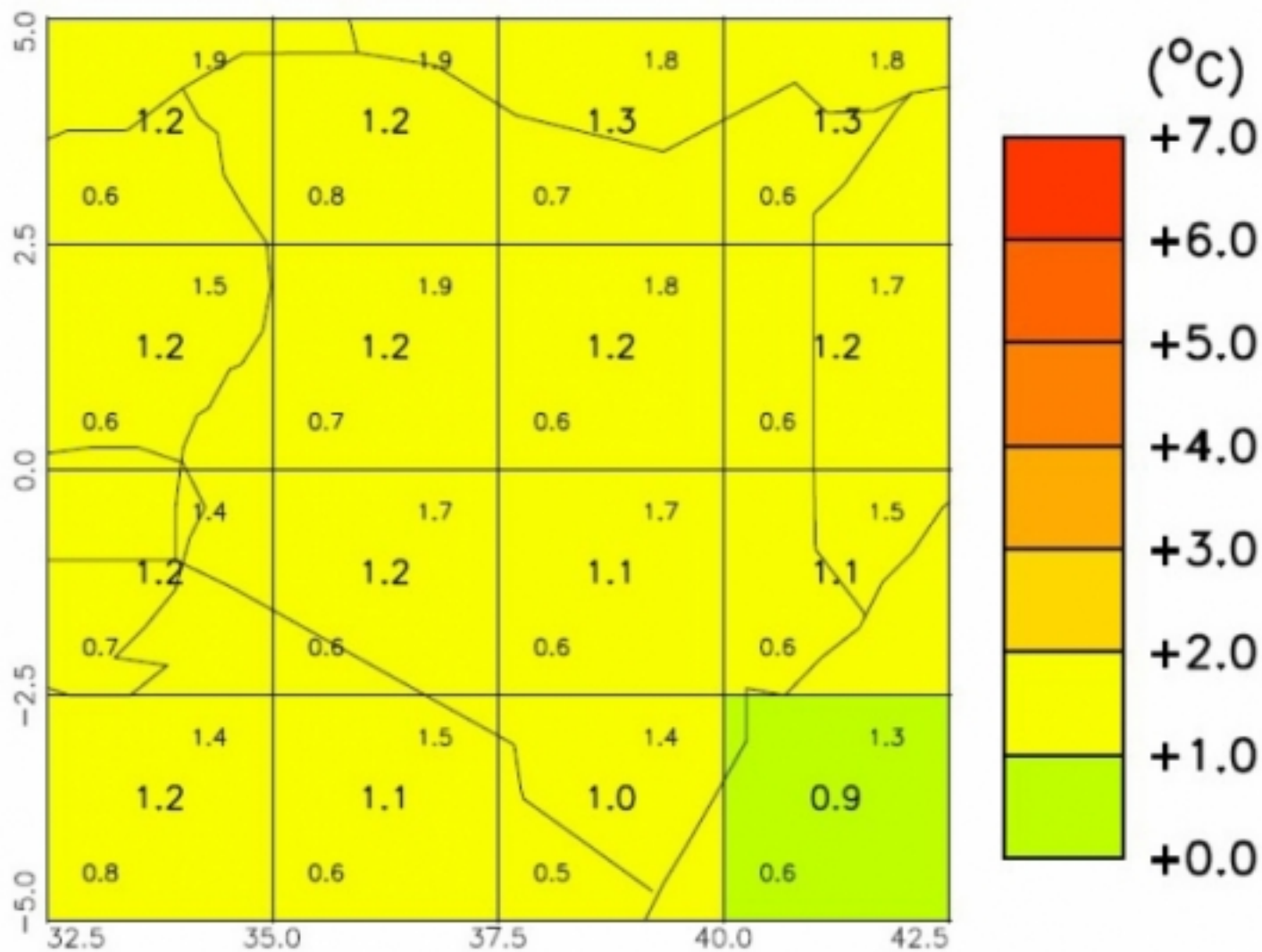
- This graph shows the 'precipitation anomaly' – the difference in rain or snowfall to the 1970-1999 average. If the graph shows a positive number, then it is wetter than the 1970-1999 average. If the graph shows a negative number, then it is drier
- The black line shows the actual precipitation anomaly 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
- Observations of rainfall over Kenya since 1960 do not show statistically significant trends
- Projections of mean rainfall are consistent in indicating increases in annual rainfall in Kenya of up to +48% by the 2090s
- Projected increases in total rainfall are largest in October - December (-3 to +49mm per month), but the proportional changes are largest in JF (-7 to +89%)
- The rain will increasingly fall in heavy events

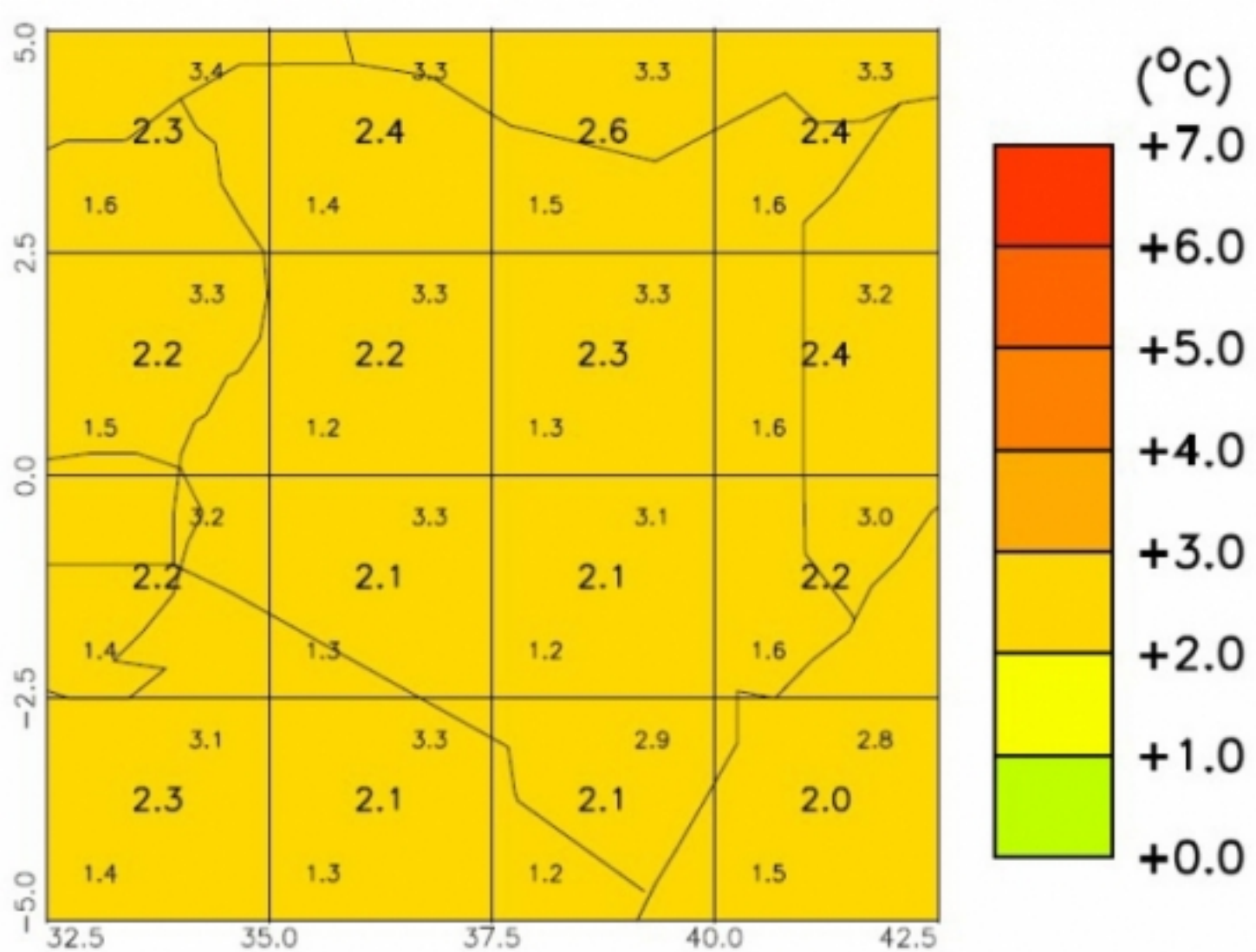
Graphs 17 to 19: How will Kenya's annual temperature change between the 2030s, 2060s and 2090s?

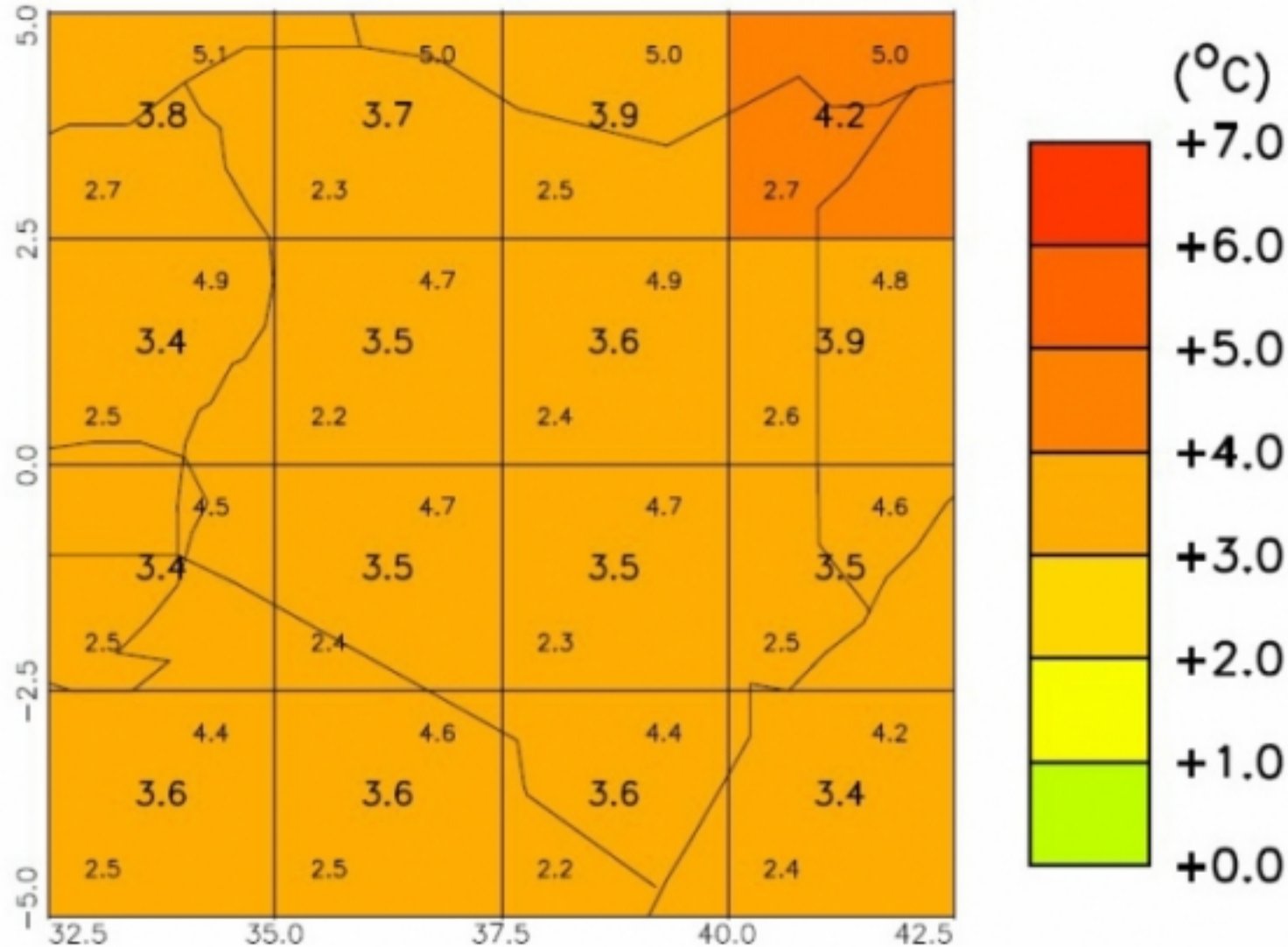
- These 3 maps show projected temperatures in the 2030s, 60s and 90s (according to a high carbon dioxide emissions scenario, A2)
- All values are anomalies – the difference in temperature to the average of 1970 to 1999 temperatures
- Areas shaded deep orange will be 6°C hotter than average temperatures from 1970 to 1999, whereas areas shaded green will be the same as the 1970-1999 average
- 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 1.0 to 2.8°C by the 2060s, and 1.3 to 4.5°C by the 2090s

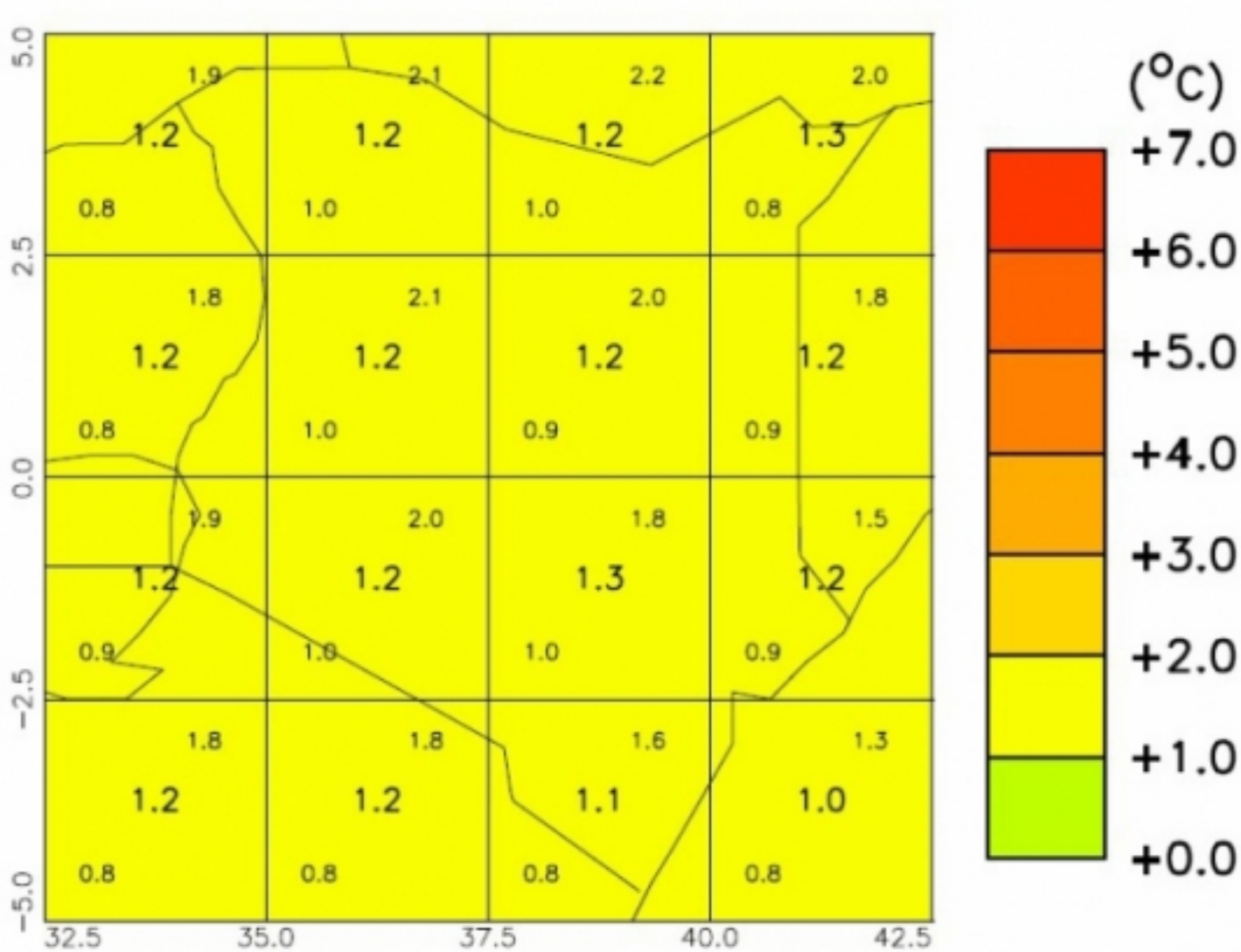
Kenya: Mean Temperature Anomaly Annual

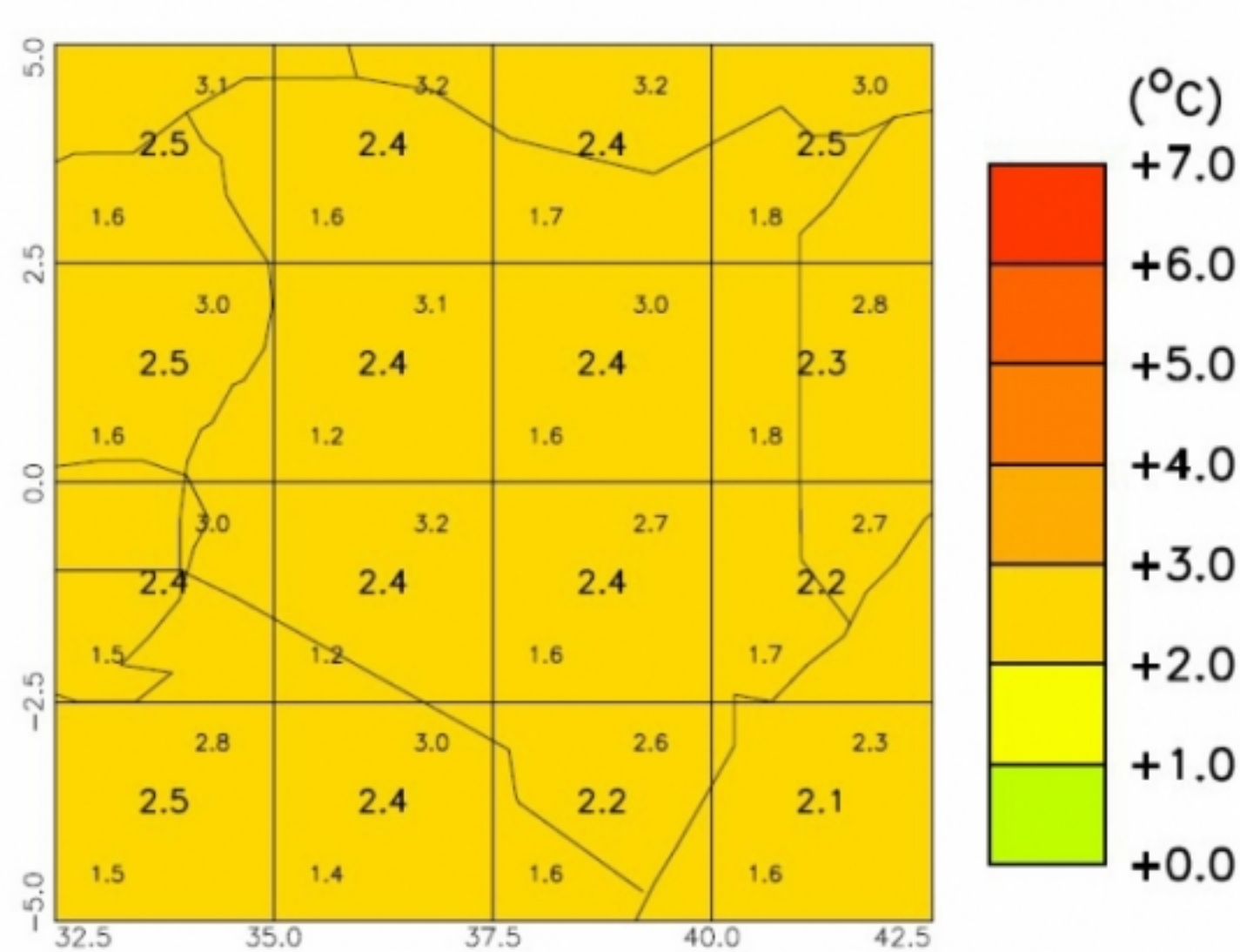


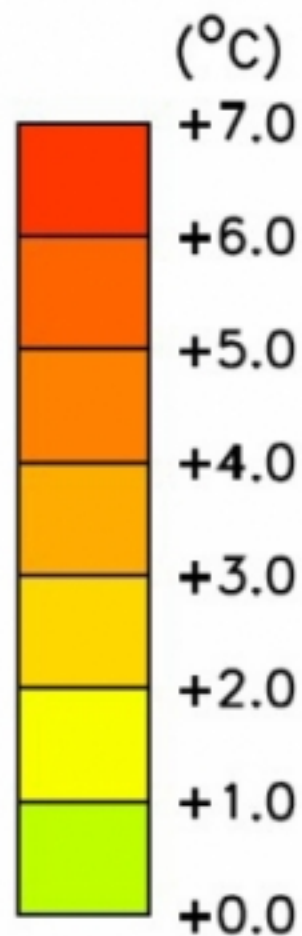
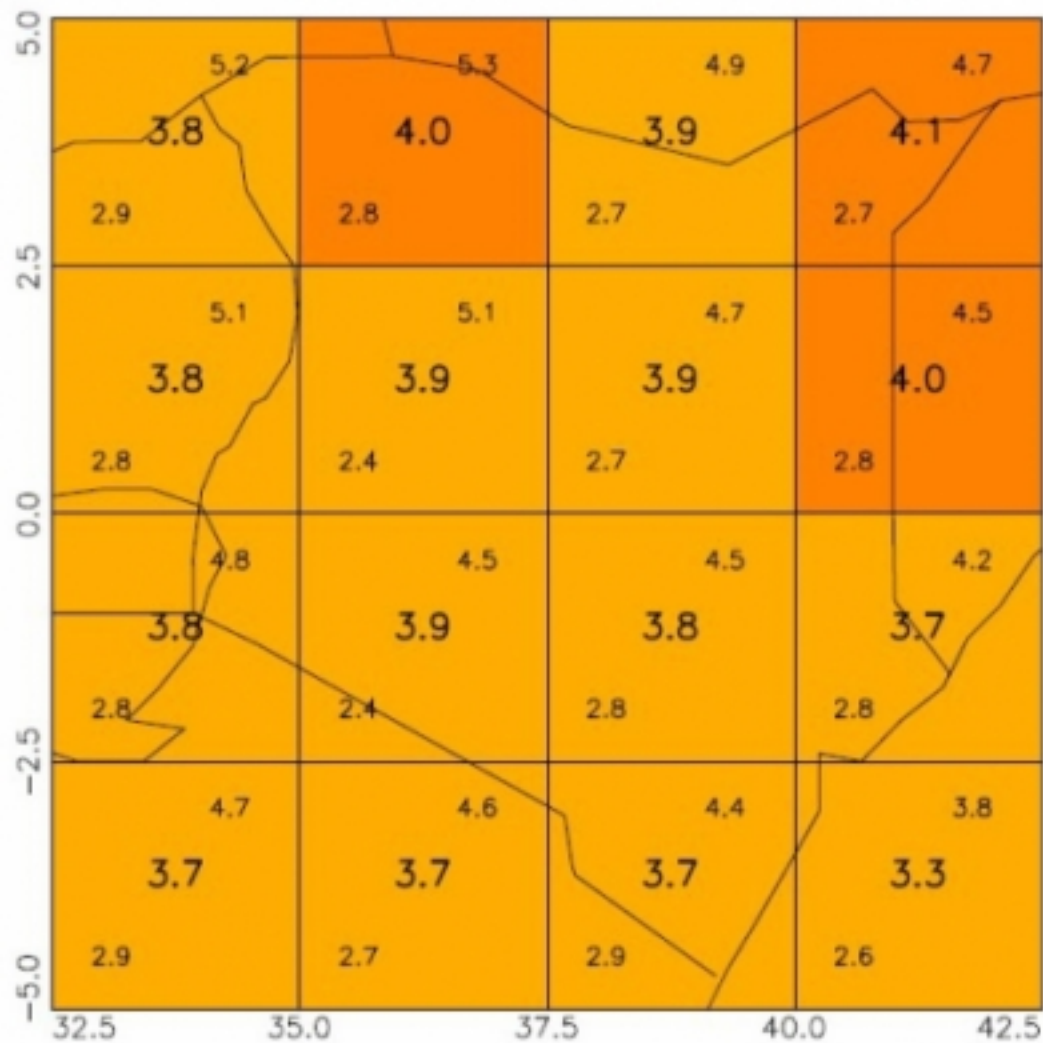


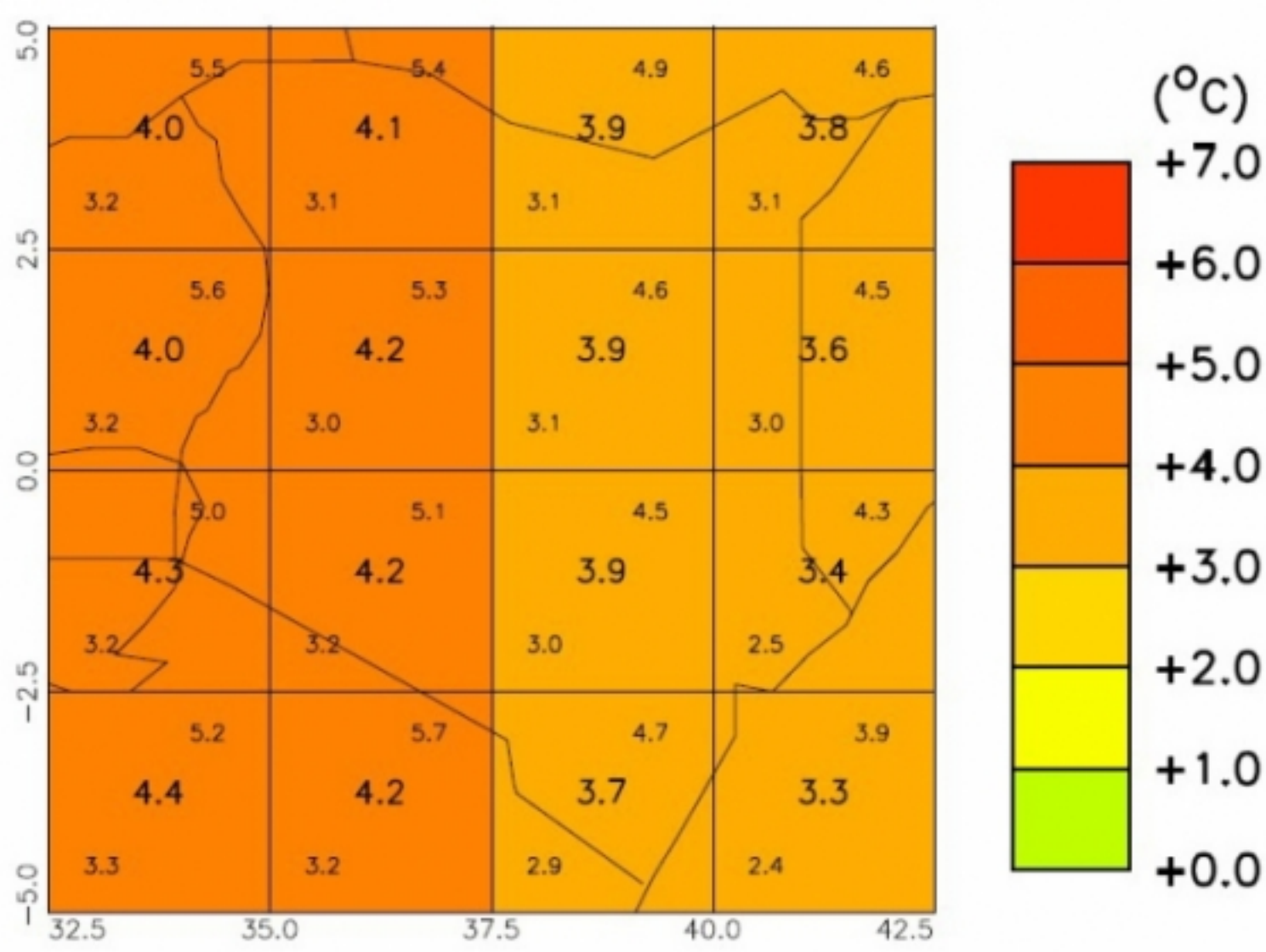




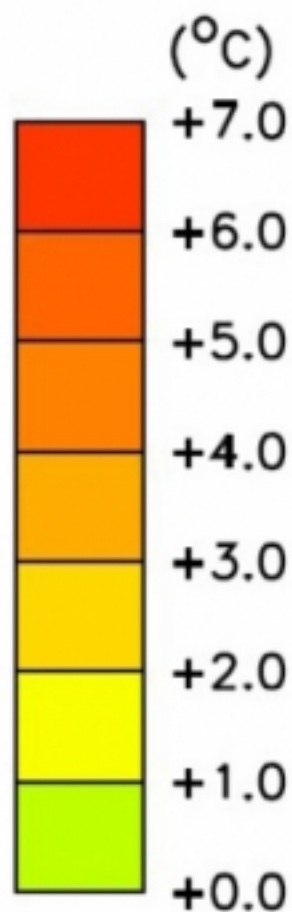
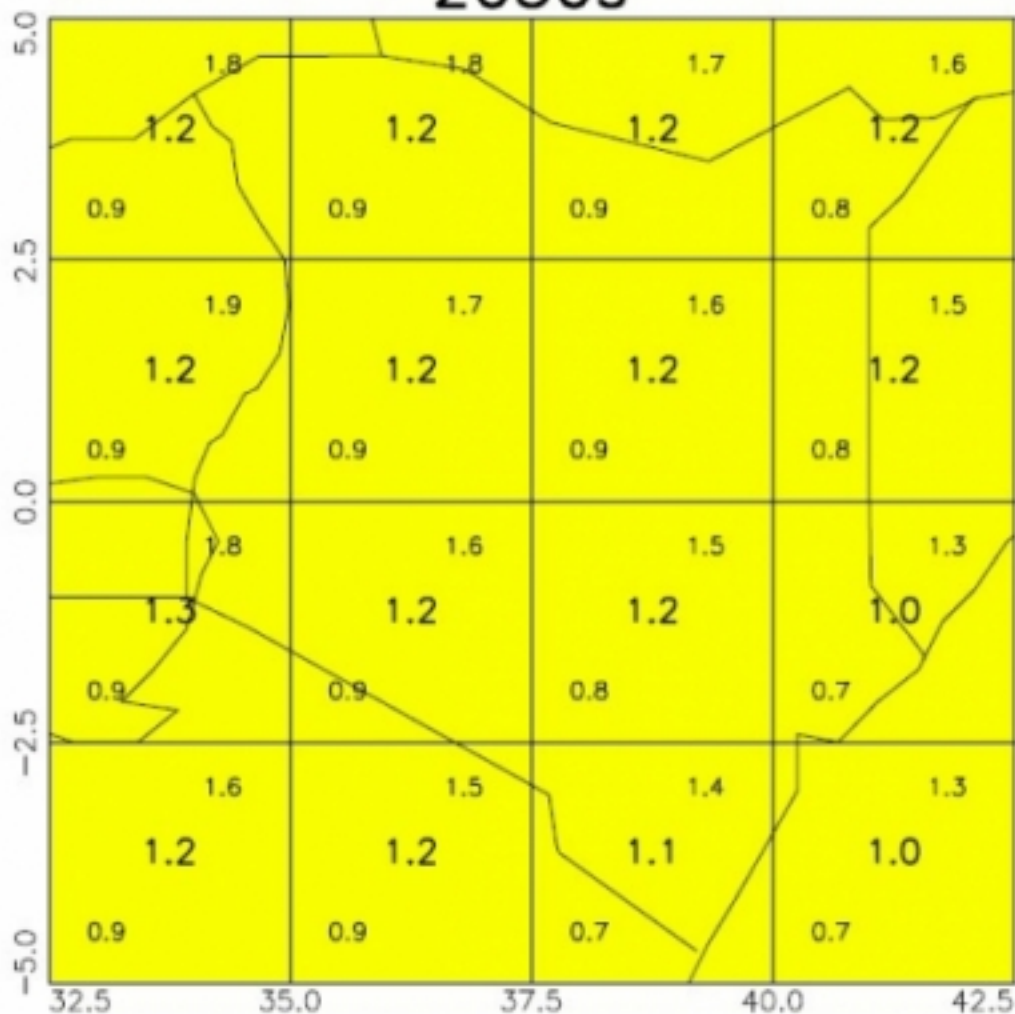


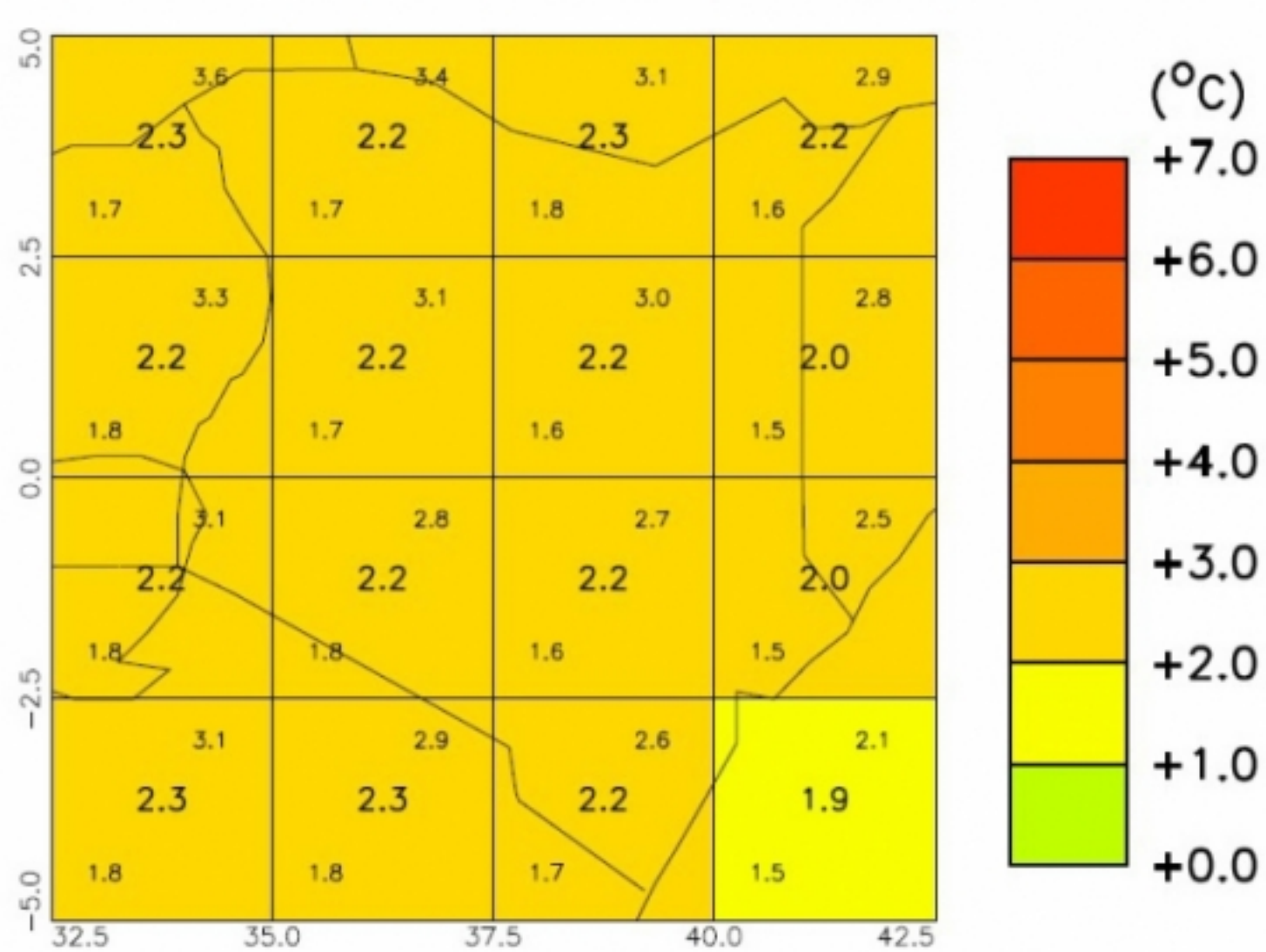


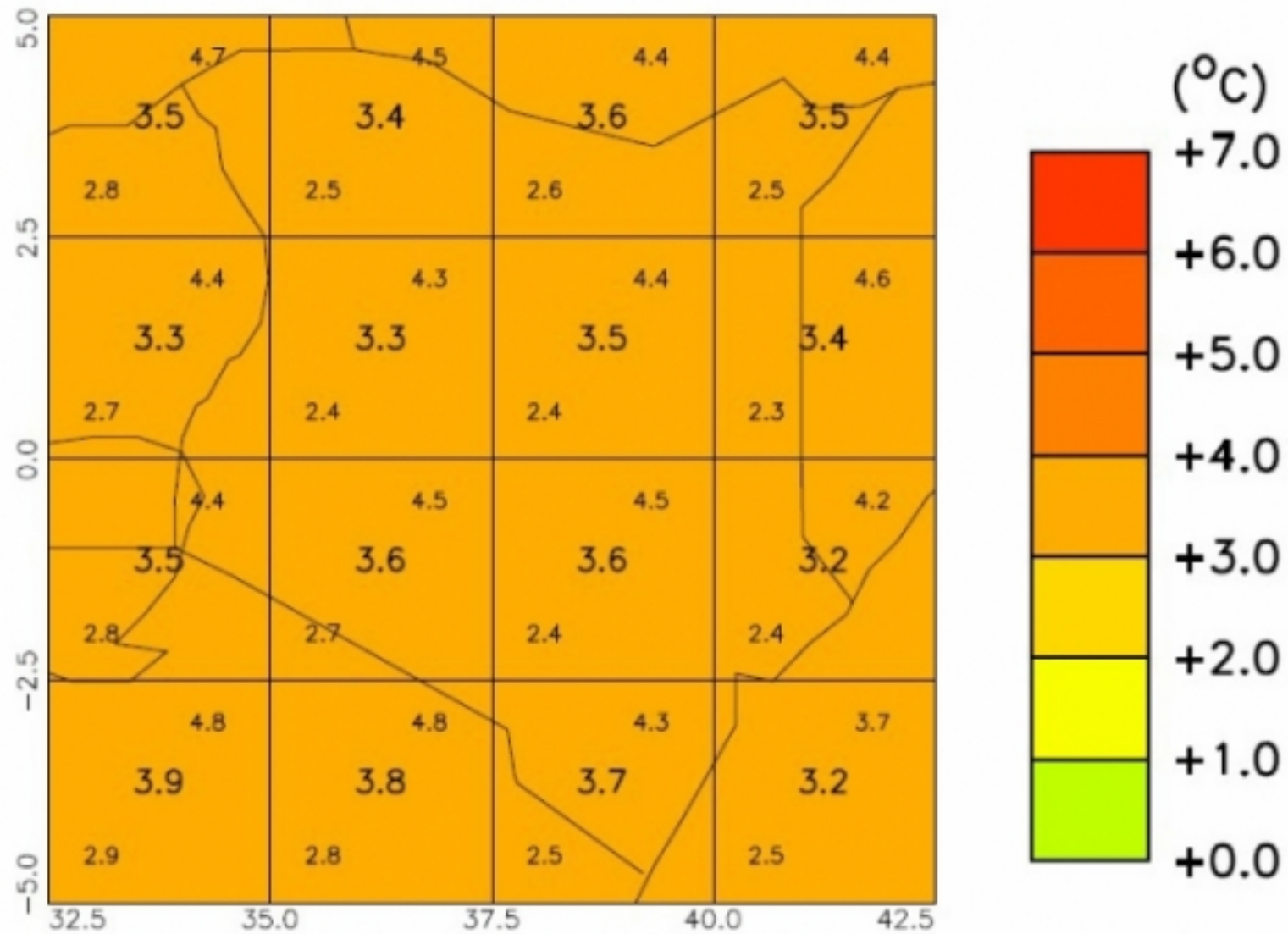




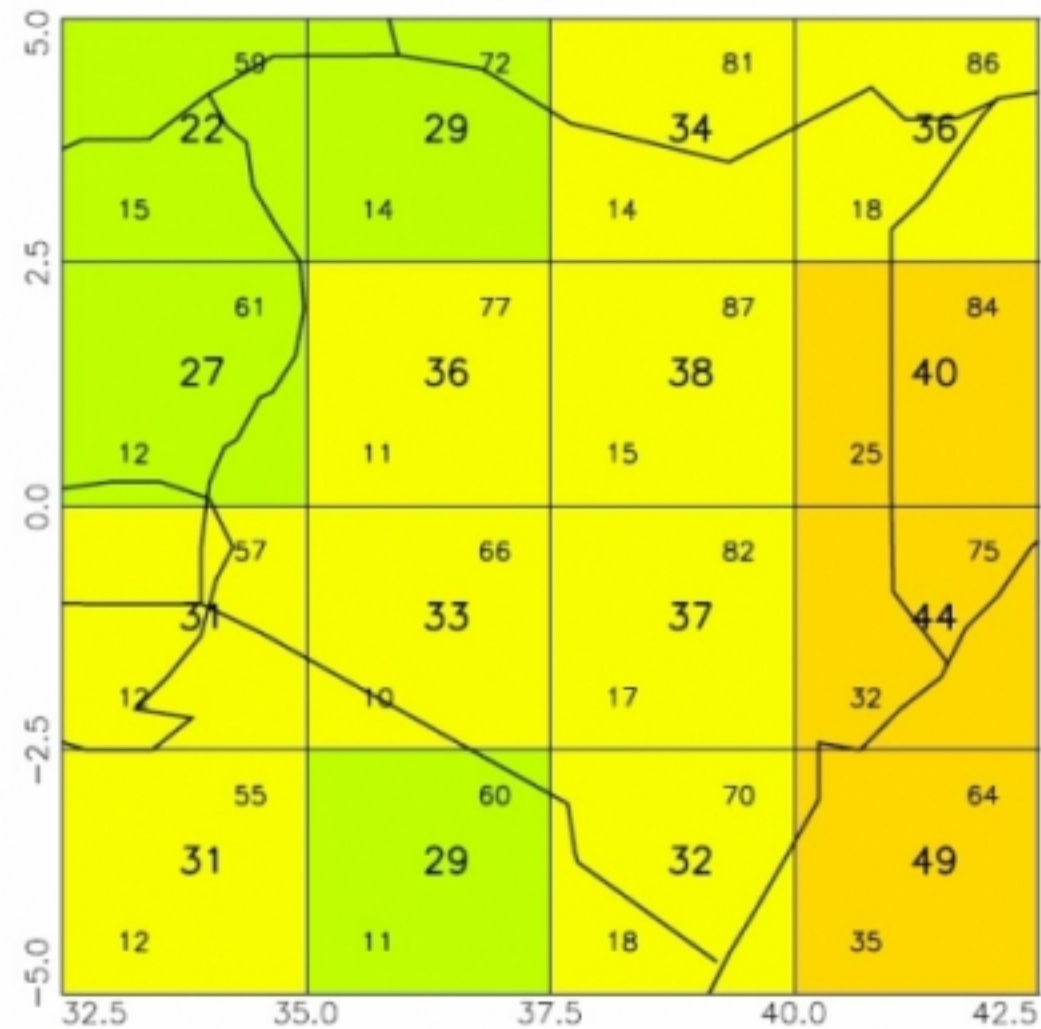
2030s



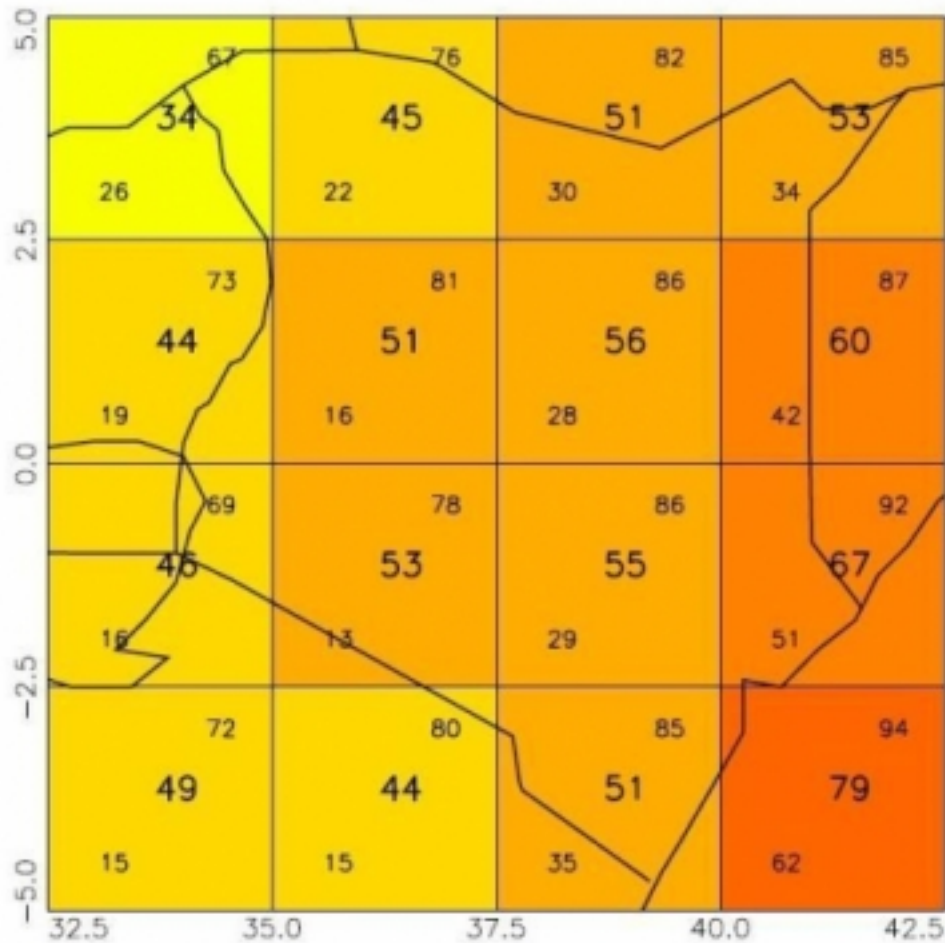




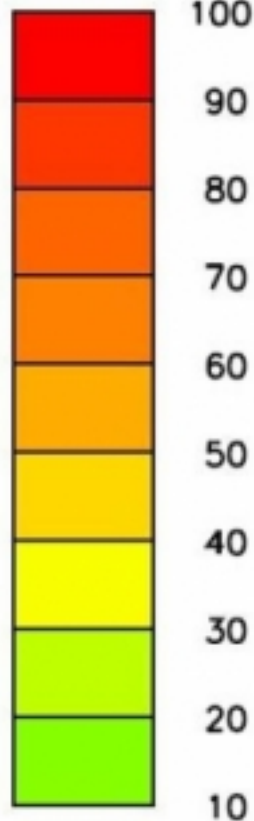
2060s



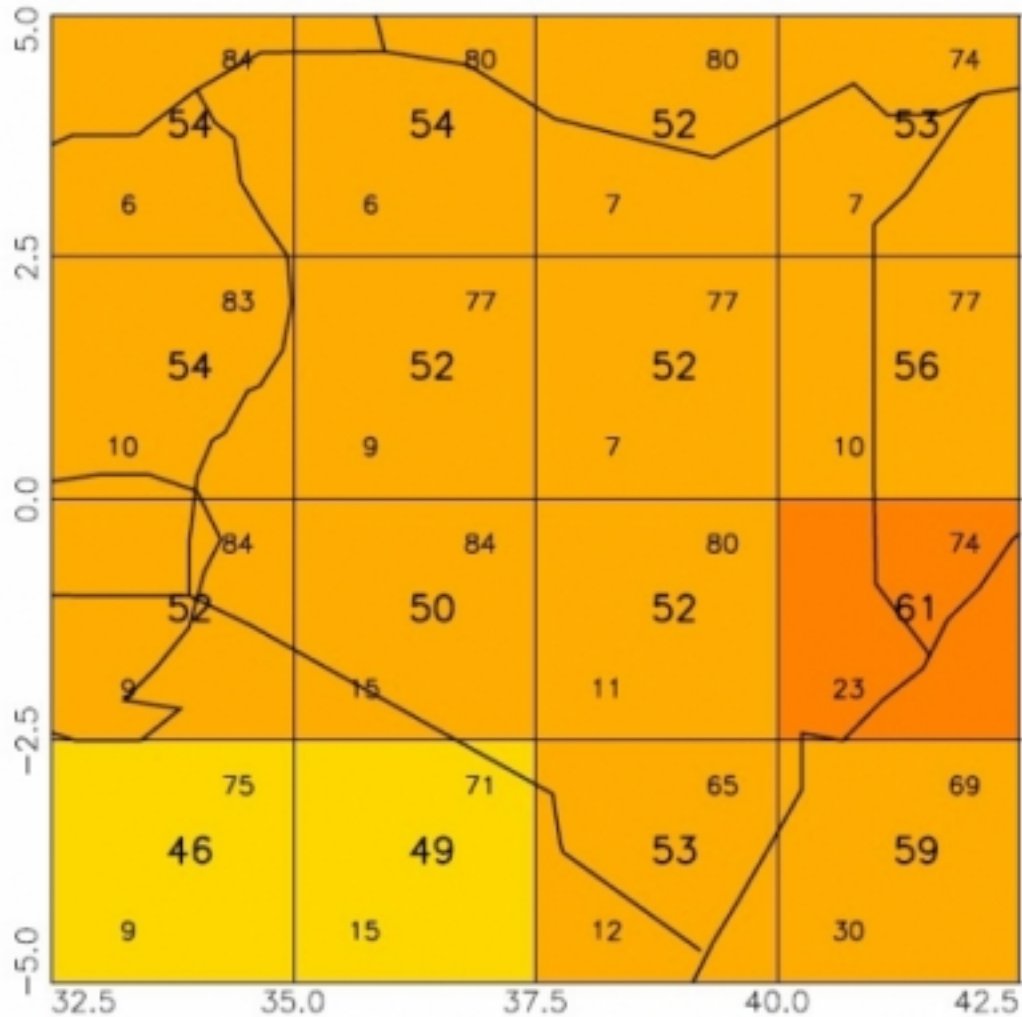
2090s



% Hot nights

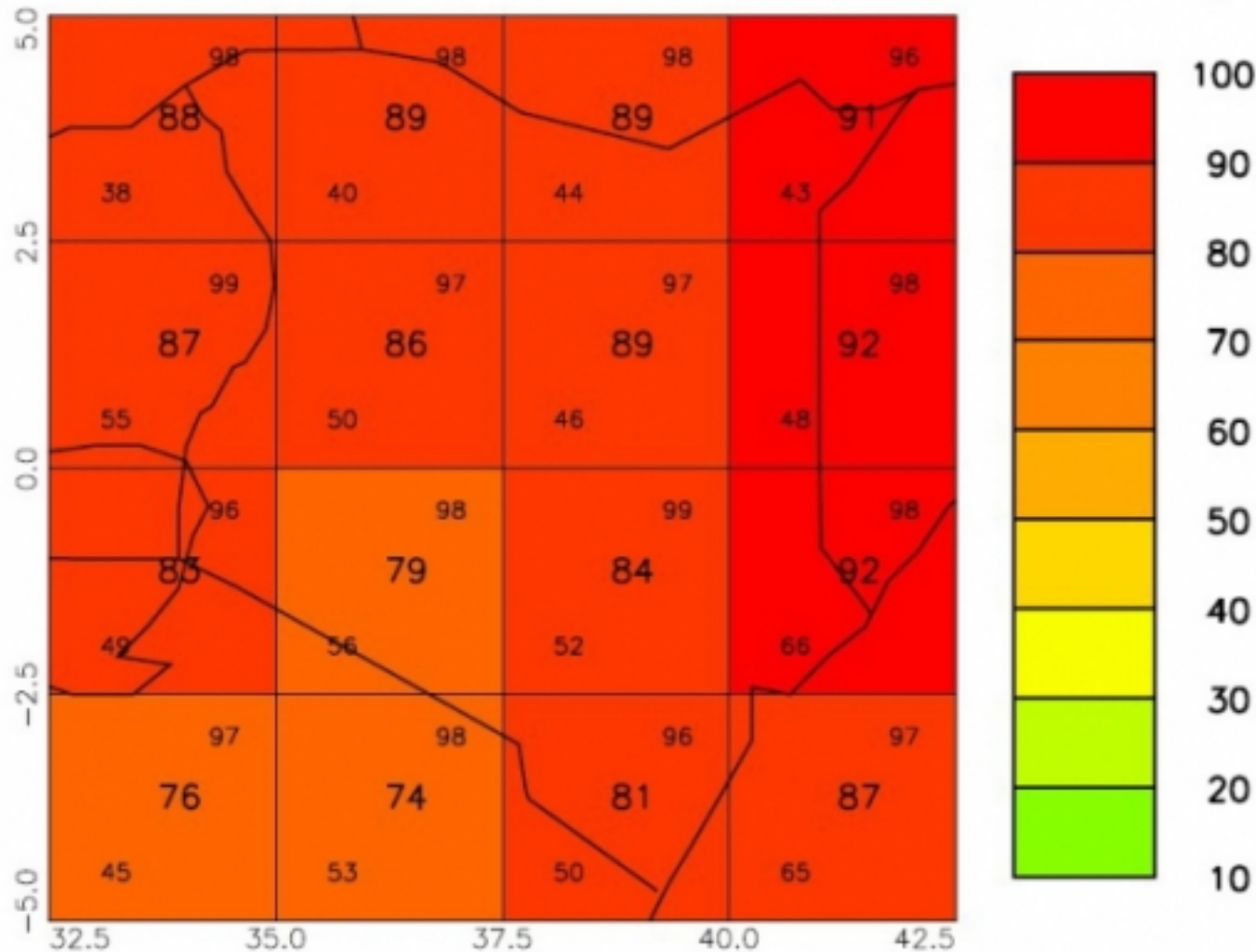


2060s

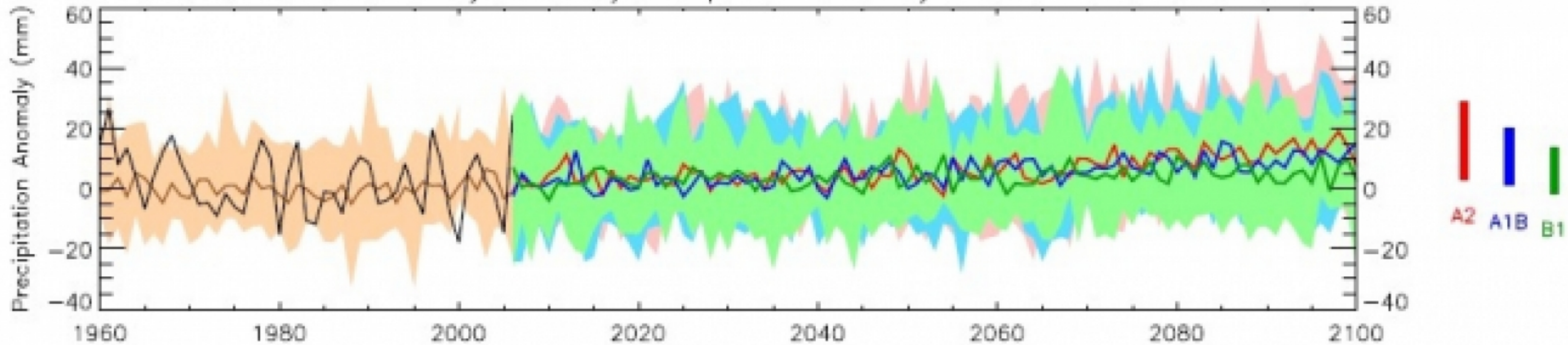


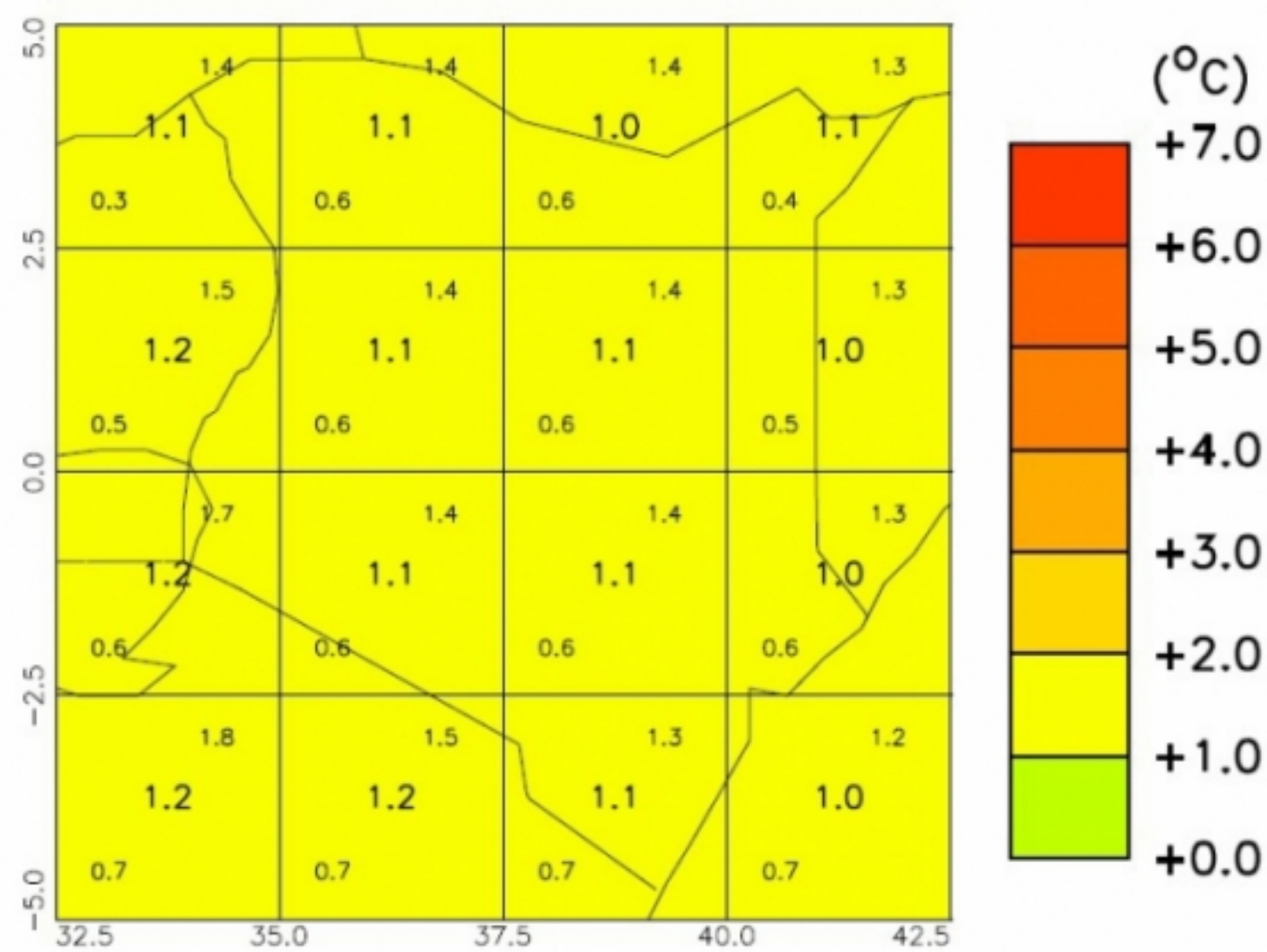
2090s

% Hot nights

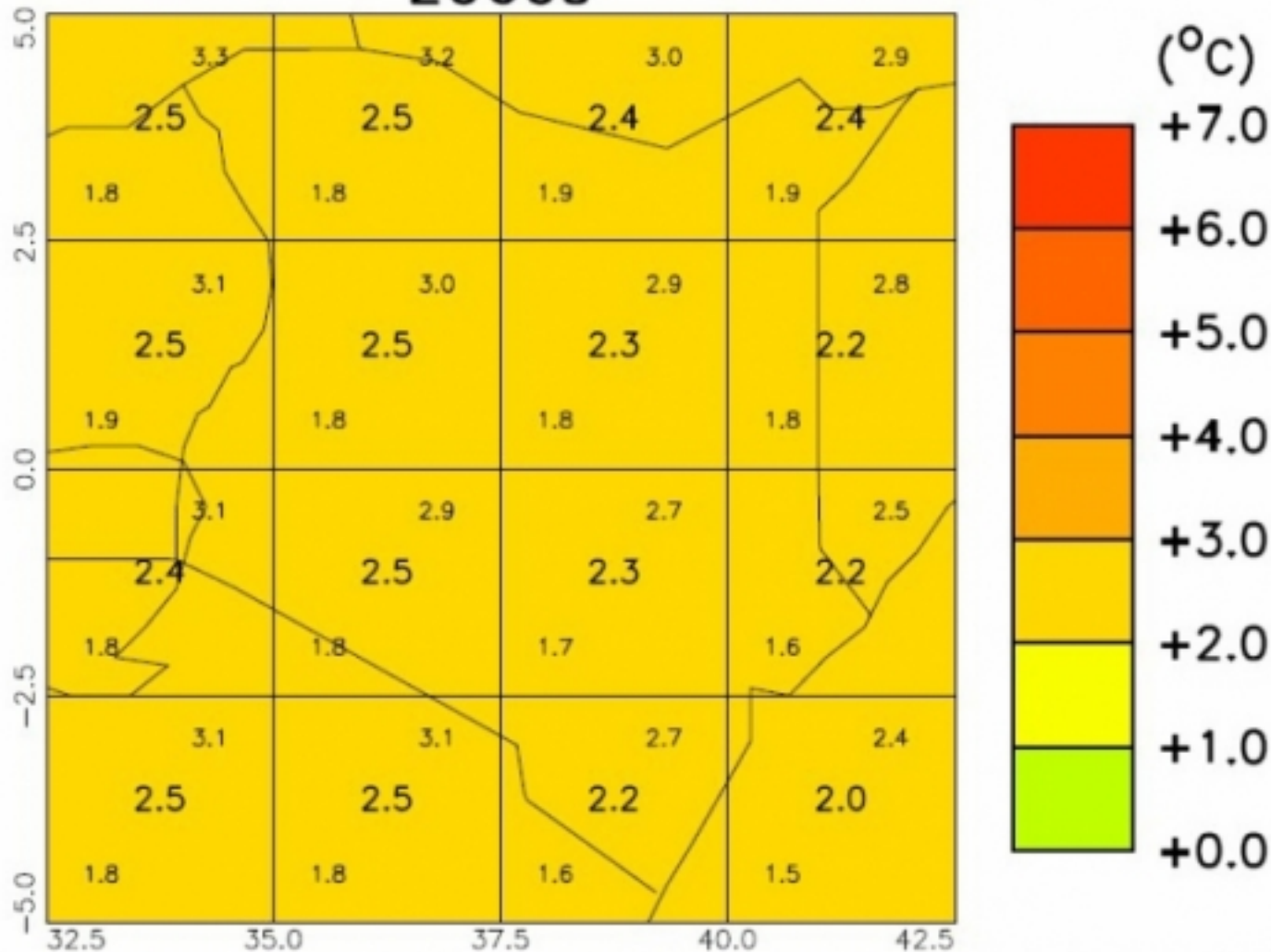


Kenya: Monthly Precipitation Anomaly Annual





2060s



2090s

