Colombia

In this section explore the latest projections about climate change

What is Colombia's climate like?

- Colombia lies between 4°S and 12°N and has a tropical climate with wet weather through the year
- The low coastal areas have high temperatures (25-30°C) with little seasonality. Rainfall is heaviest on the coast and in the Andes – with up to 5000mm each year
- The country has 3 climate zones: tropical zone (tierra caliente) from sea level to 1000m with mean annual temperature 24-27°C, temperate zone (tierra templada) between 1000-2000m with mean annual temperature 18°C and cold zone (tierra fría) above 3000m with mean annual temperature 13-17°C
- Northern areas have one long rainy season from May to October, with 1070mm of rainfall
- In central Colombia, rainfall is governed by the movement of the InterTropical Convergence Zone. Rainfall peaks in April-May and October-November
- The eastern lowlands receive 2000mm of rainfall with one long rainy season from May to October
- Colombia is strongly influenced by the El Niño Southern Oscillation. El Niño episodes bring warmer, drier weather during the late wet season and La Niña episodes bring colder, wetter weather

Graph one: How did Colombia'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
- There has not been a significant change in Colombia's temperature since 1960
- 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
- Colombia is expected to warm by 1.1-2.5°C by the 2060s and 1.5-5.4°C by the 2090s.

Graphs two to four: How will Colombia'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
- 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

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- Most of Colombia will have seen between 3-5°C of warming by the 2090s

Graphs five to seven: How will Colombia'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

Graphs eight to 10: How will Colombia'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 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

Graphs 11 to 13: How will Colombia'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 JJA 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 JJA season will see the greatest increase in temperature by the 2090s in Colombia

Graphs 14 to 16: How will Colombia'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
- The number in the centre of each grid box is the average SON 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

Graphs 17 to 18: How will Colombia'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)

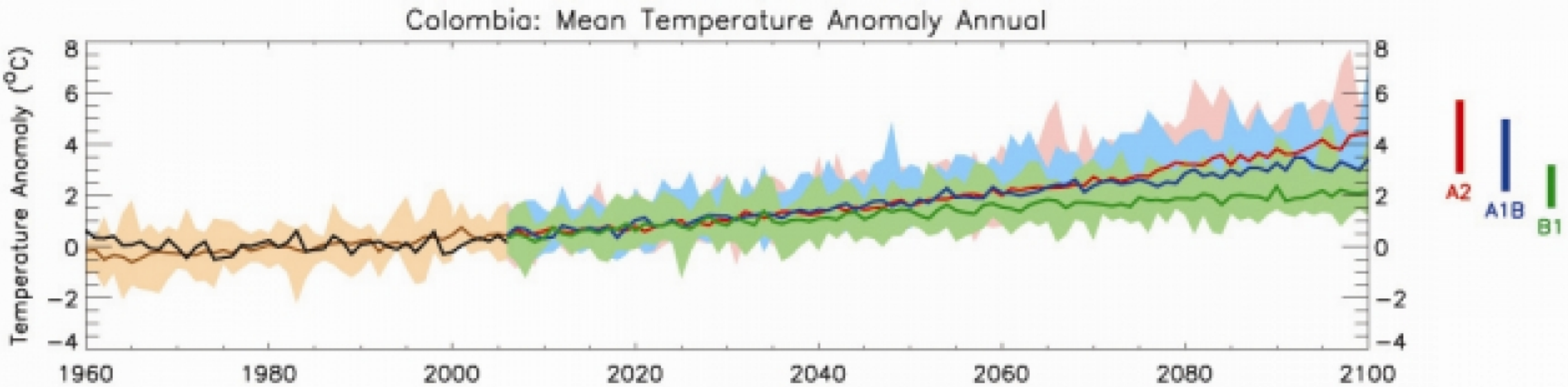
- A hot day is defined by the temperature exceeded on 10% of days in 1970-1999. So, in 1970 – 1999, you would have expected 1 in 10 days to be hot. If the map shading indicates that more than 10% of days are hot, then there has been an increase in the number of hot days
- In areas shaded deep red, every 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
- Hot days will happen on 21-44% of days by the 2060s and 25-70% of days by the 2090s

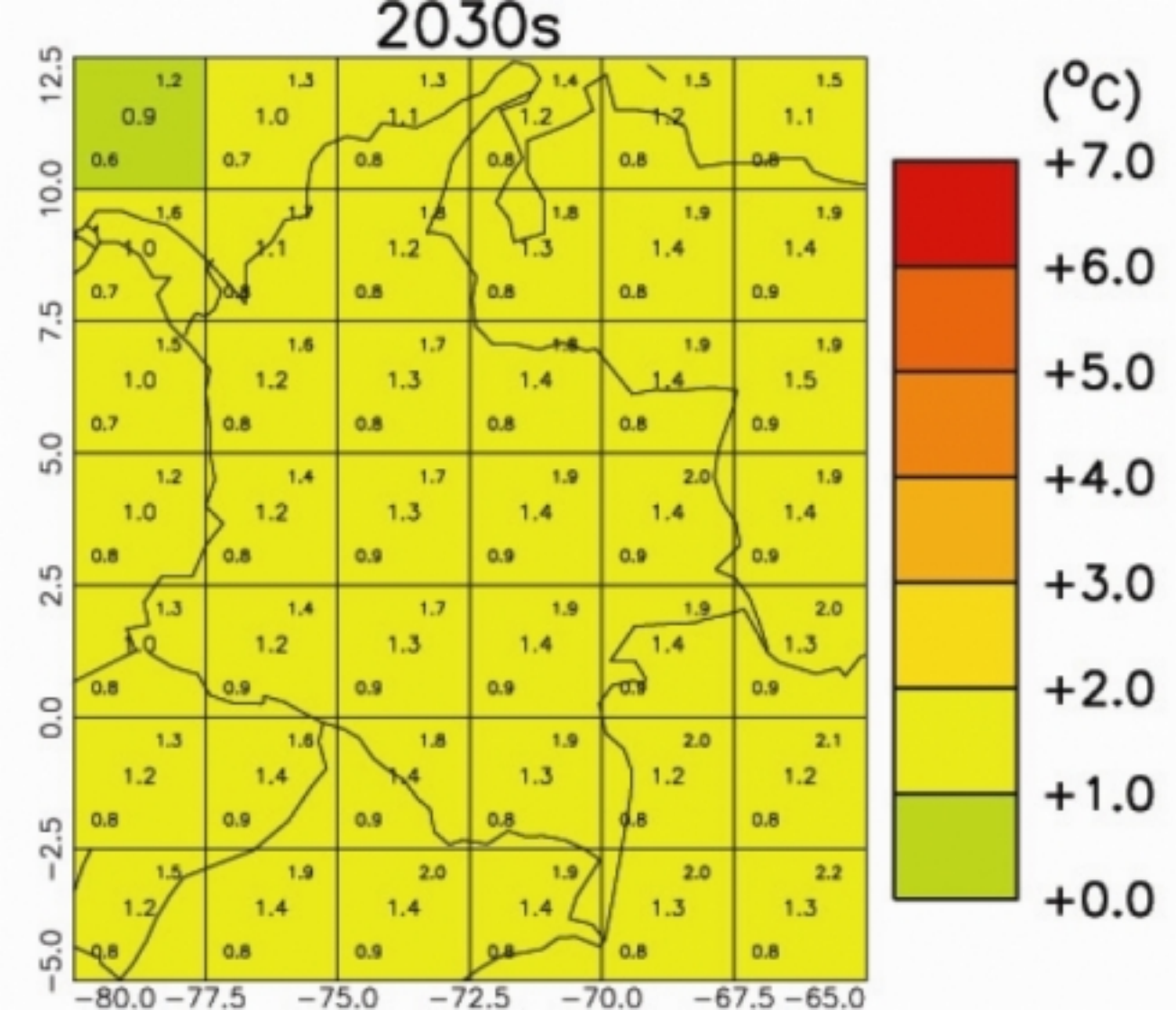
Graphs 19 to 20: How will Colombia's frequency of hot nights change?

- 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 expected on 34-89% of nights by the 2060s and 37-97 of nights by the 2090s

Graph 21: How will Colombia'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
- Since 1960, Colombia has been getting wetter in MAM (6.8mm per month) and drier in JJA (3.1mm per month)
- In the future, Colombia is expected to get wetter, with variations between seasons and regions


Colombia: Mean Temperature Anomaly Annual
Temperature Anomaly (°C)
8
6
4
2
0
−2
−4
1960
1980
2000
2020
2040
2060
2080
2100
A2
A1B
B1


2030s
(°C)
+7.0
+6.0
+5.0
+4.0
+3.0
+2.0
+1.0
+0.0
12.5
10.0
7.5
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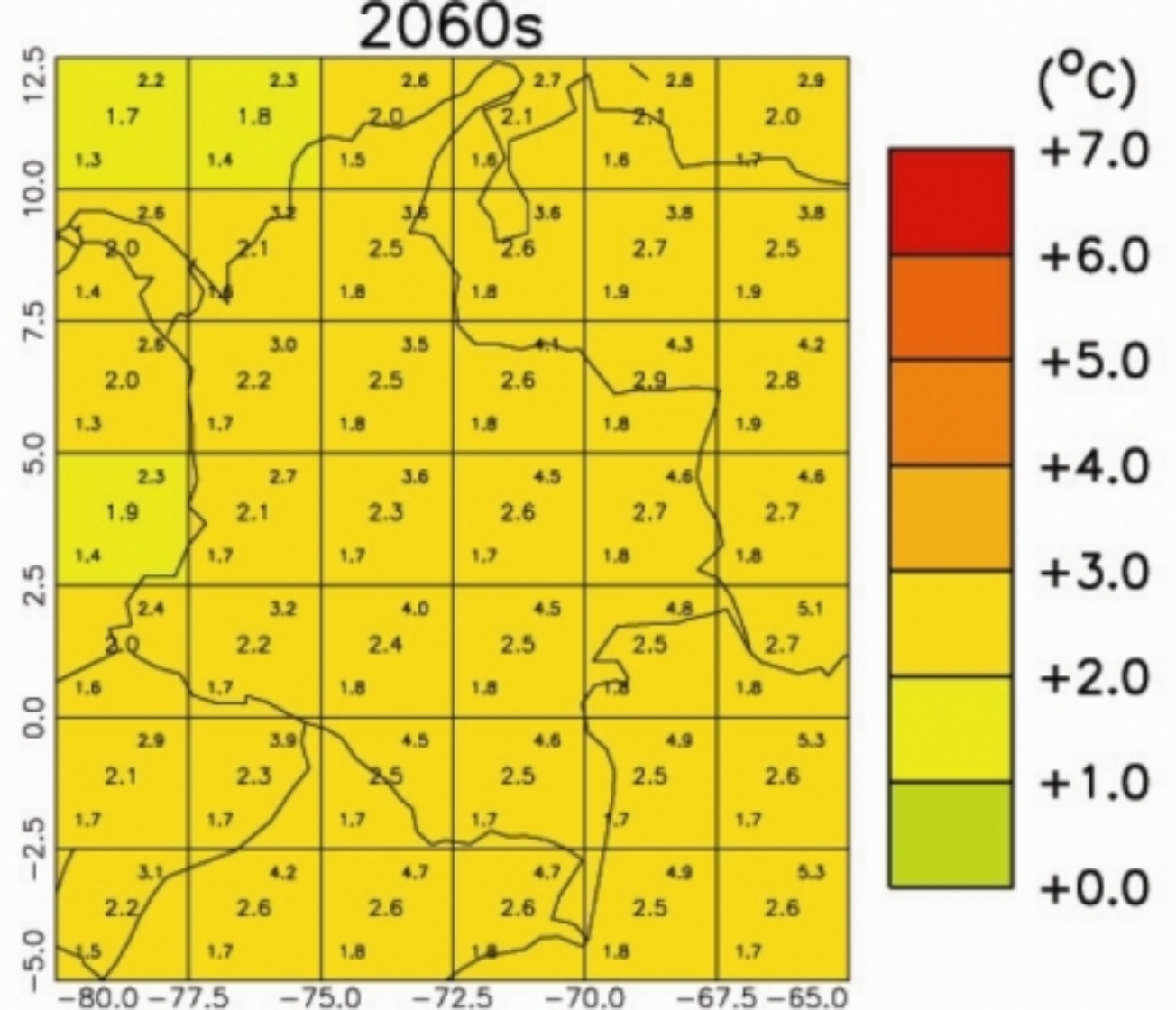
2060s
(°C)
+7.0
+6.0
+5.0
+4.0
+3.0
+2.0
+1.0
+0.0
12.5
10.0
7.5
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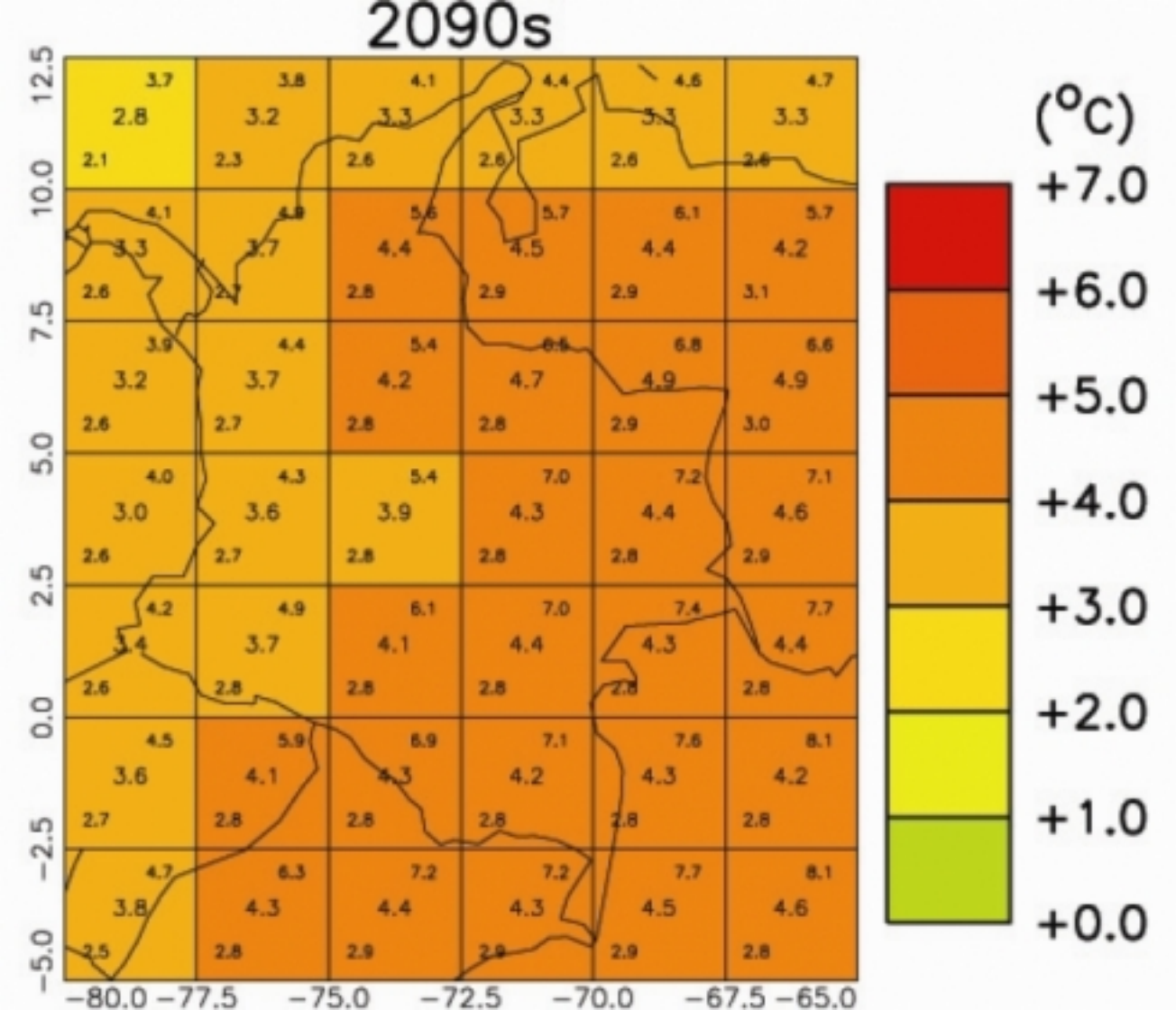
2090s
(°C)
+7.0
+6.0
+5.0
+4.0
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12.5
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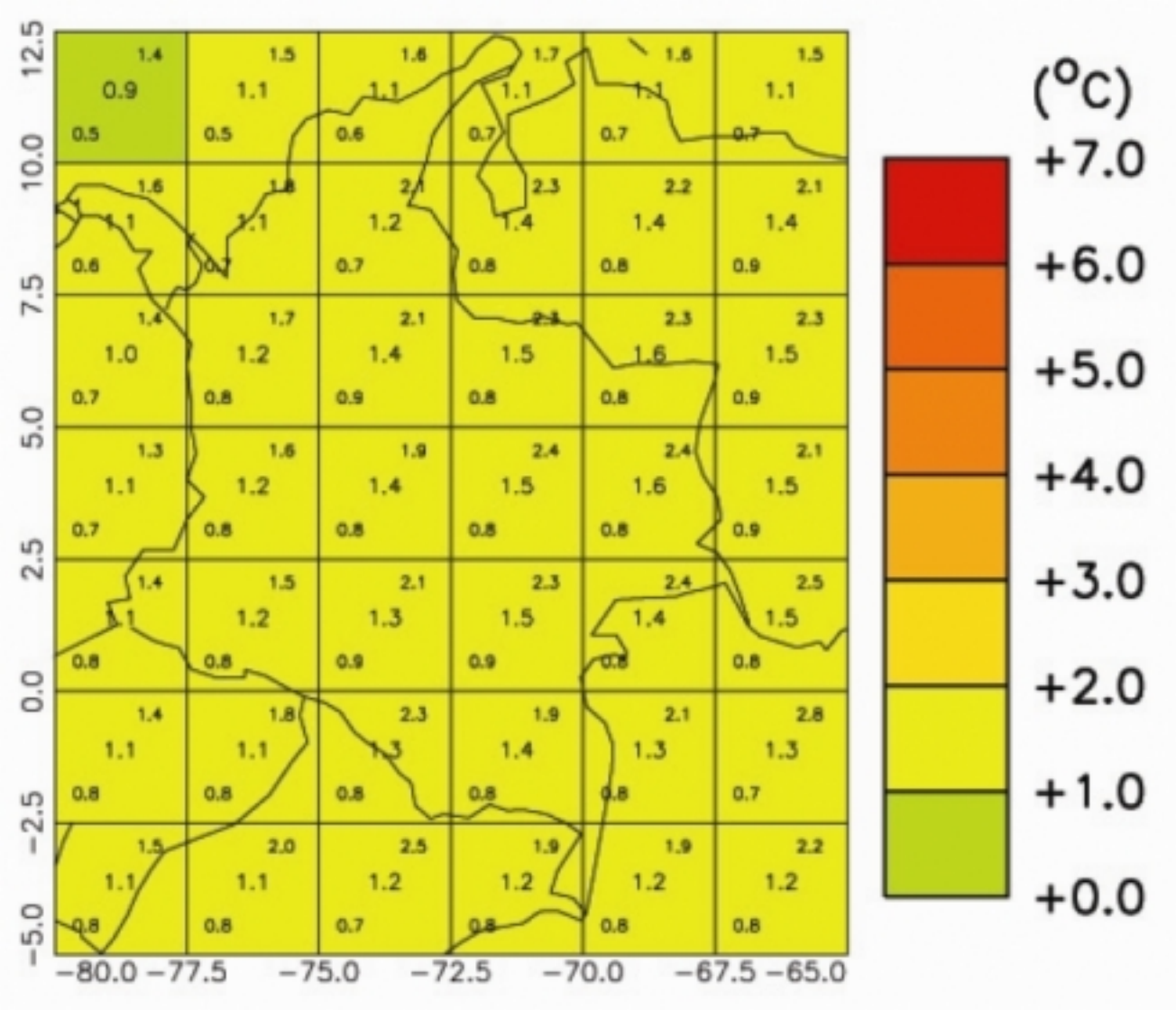
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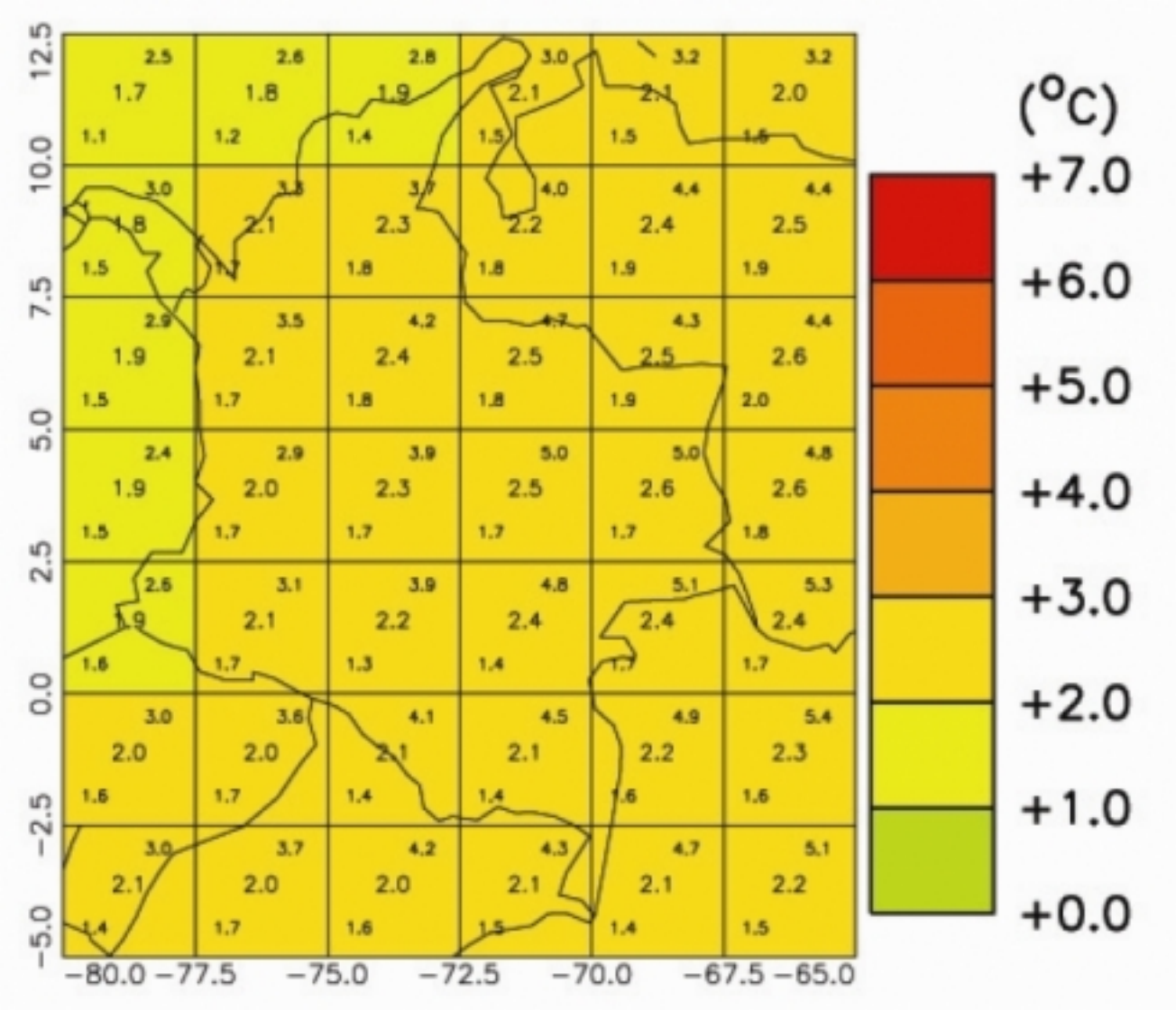
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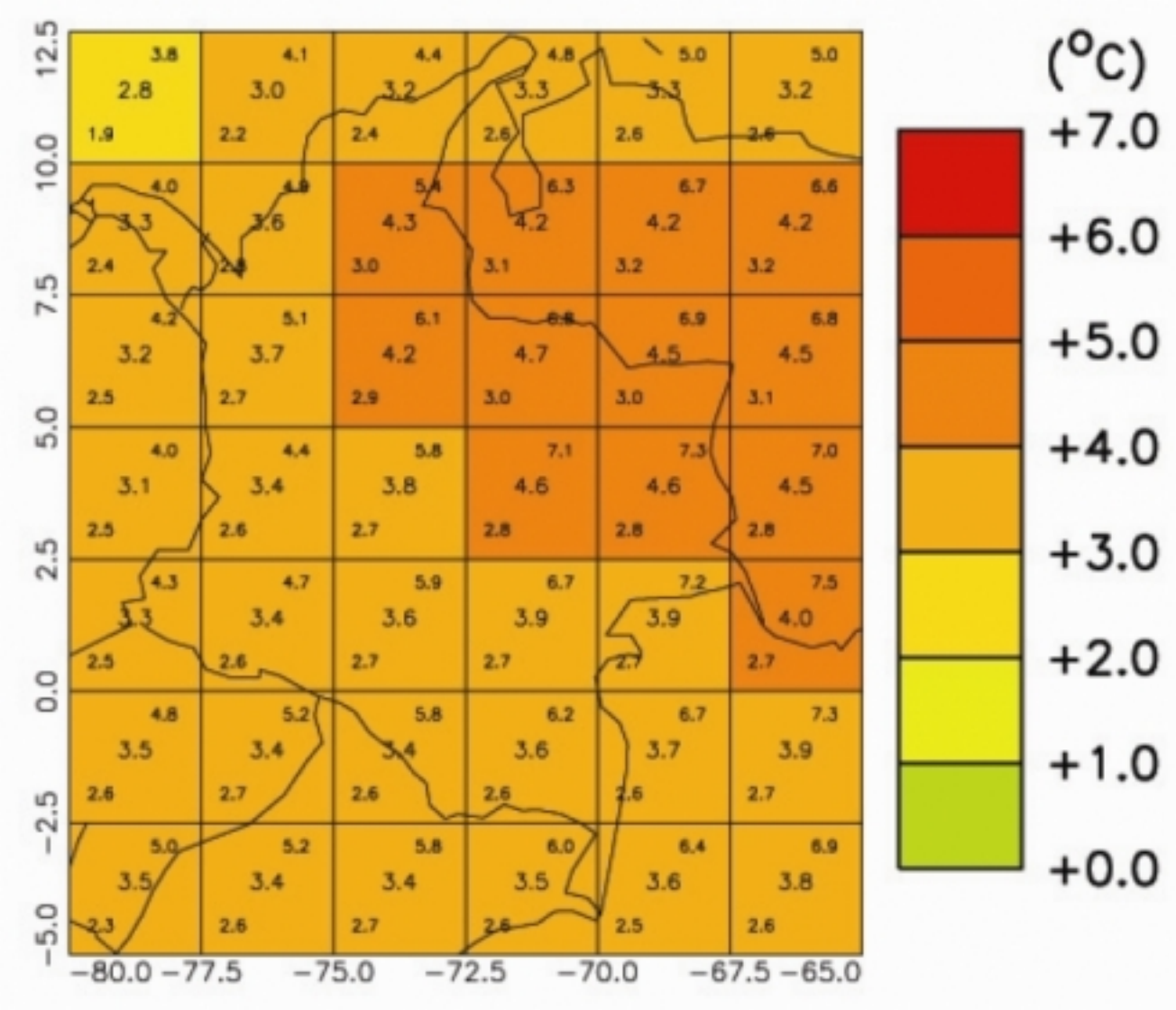
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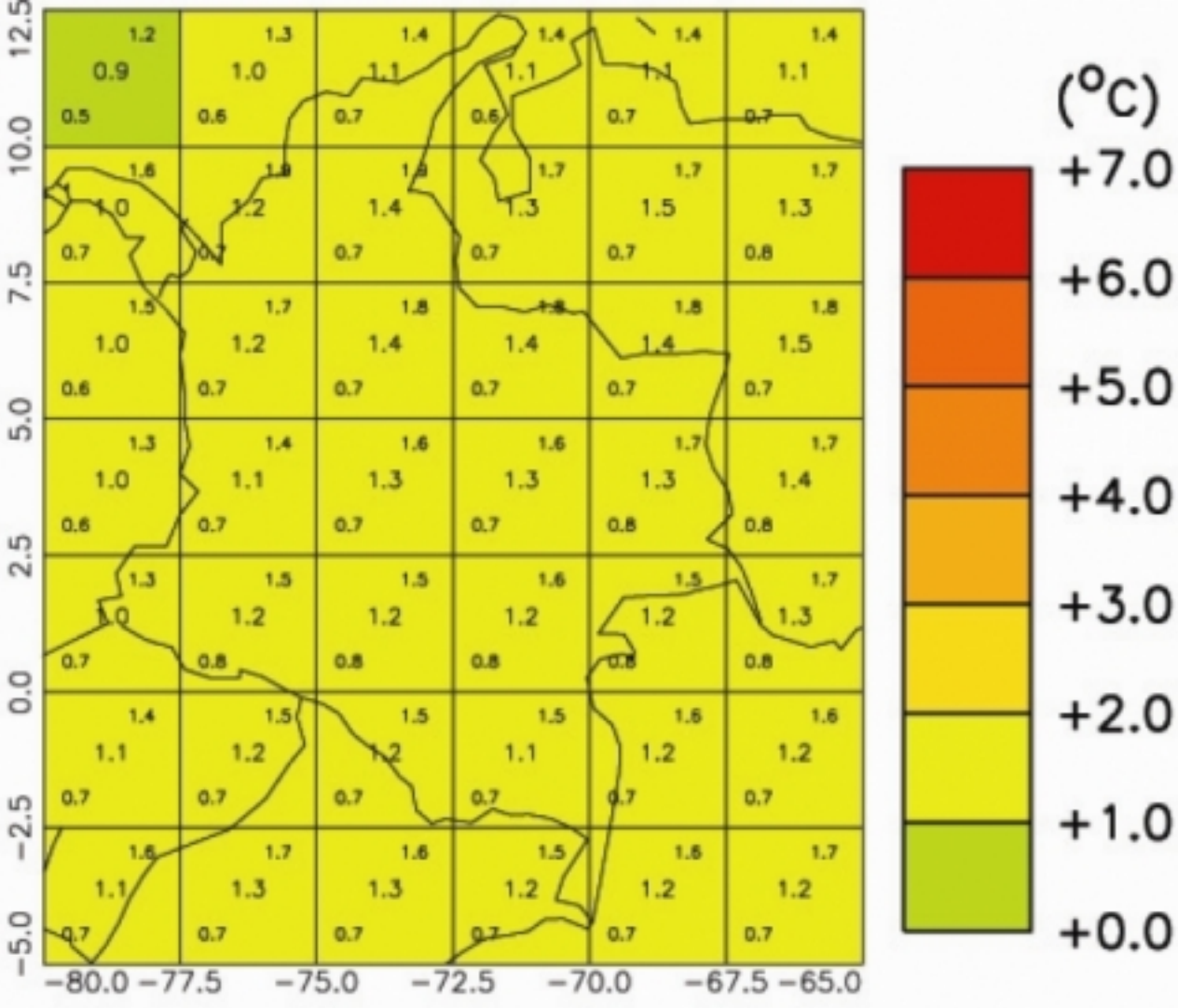
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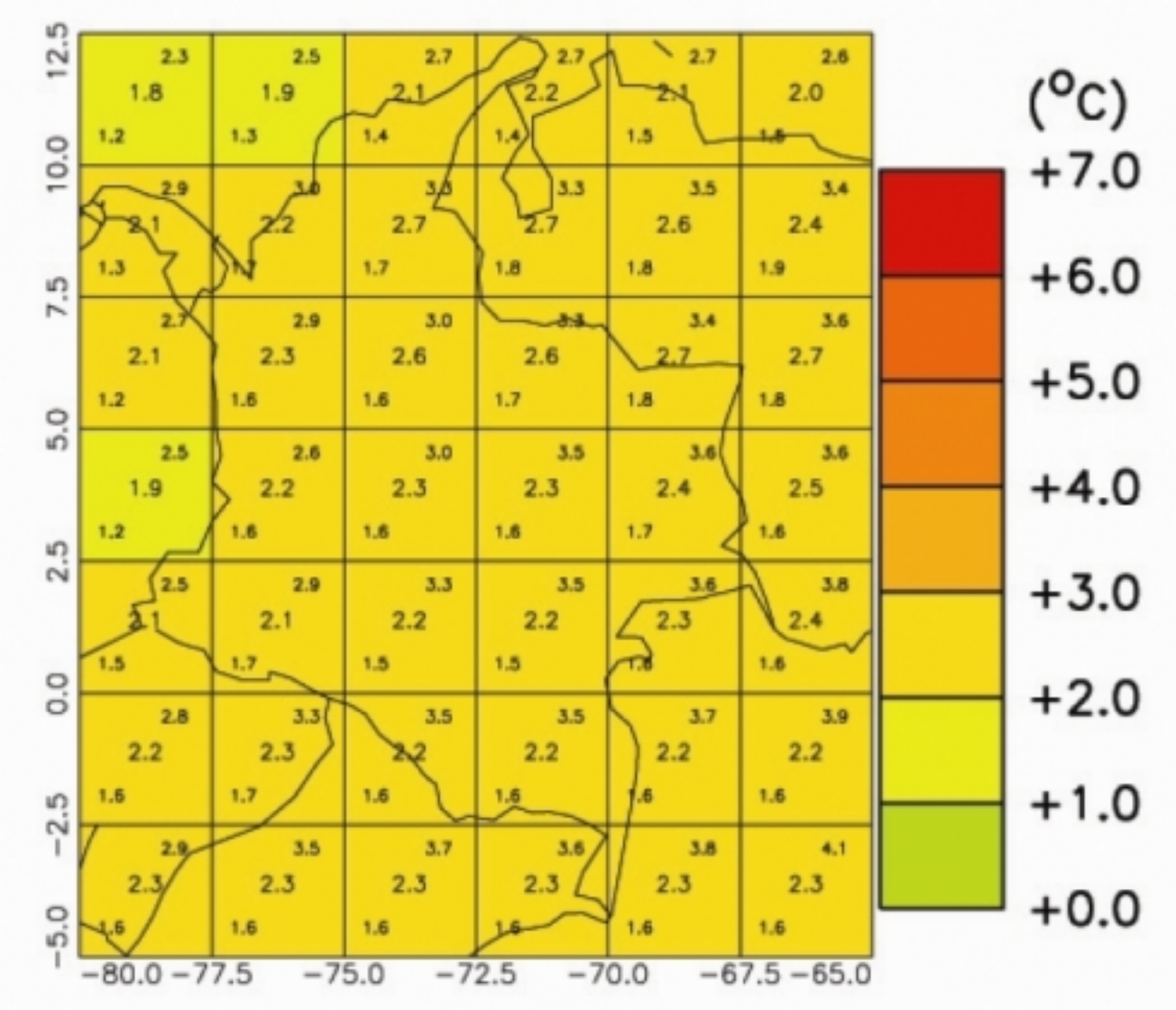
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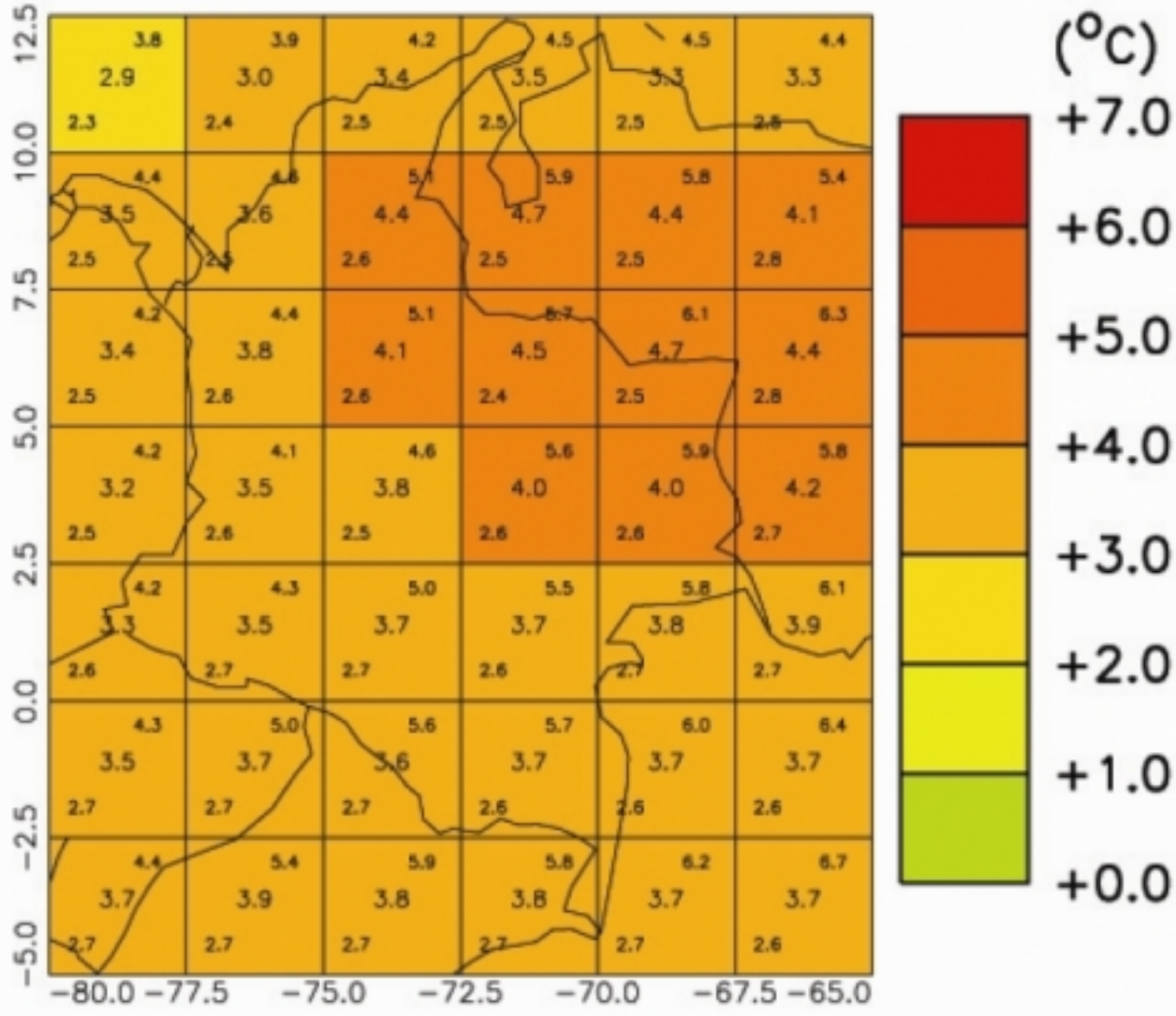
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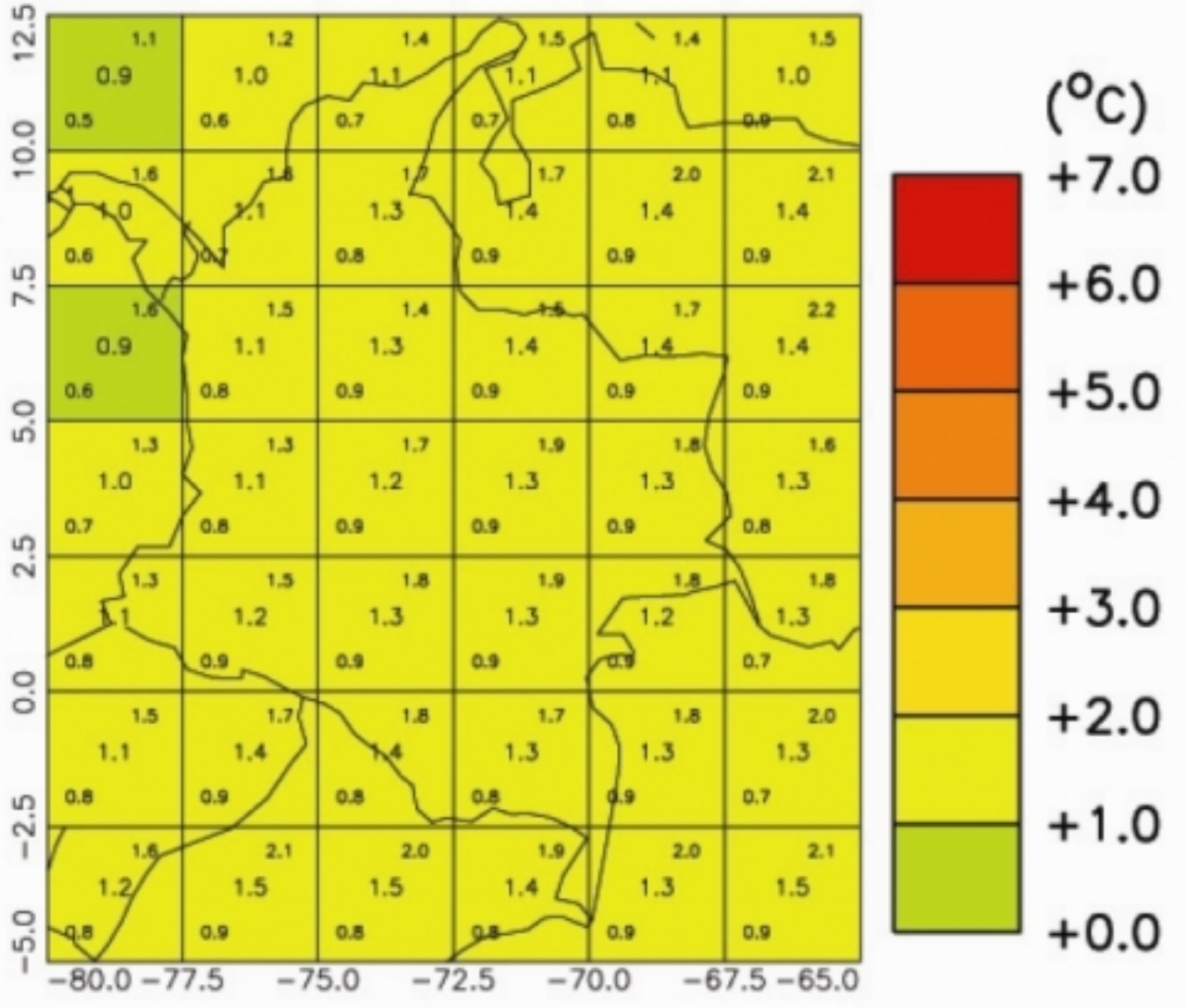
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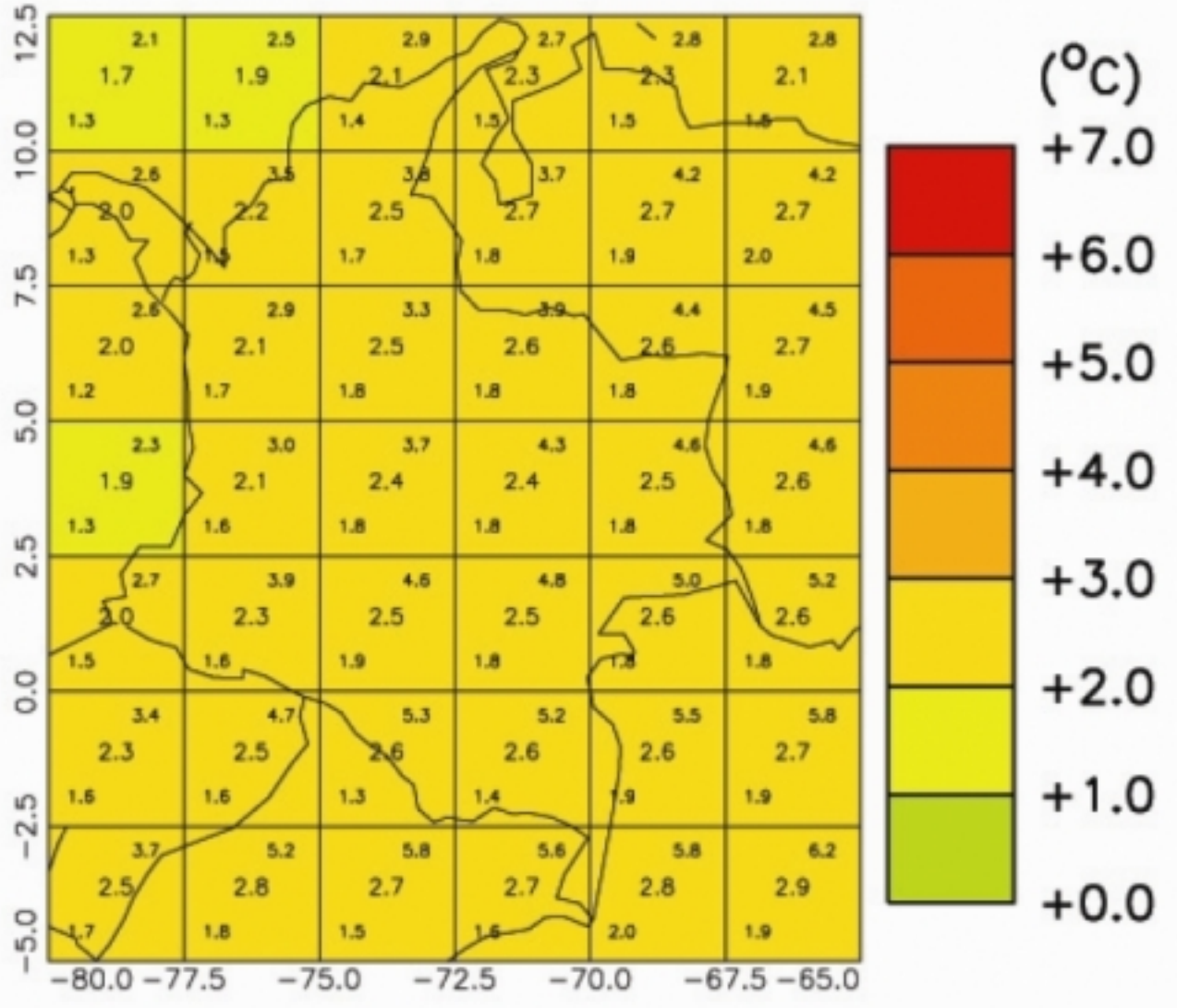
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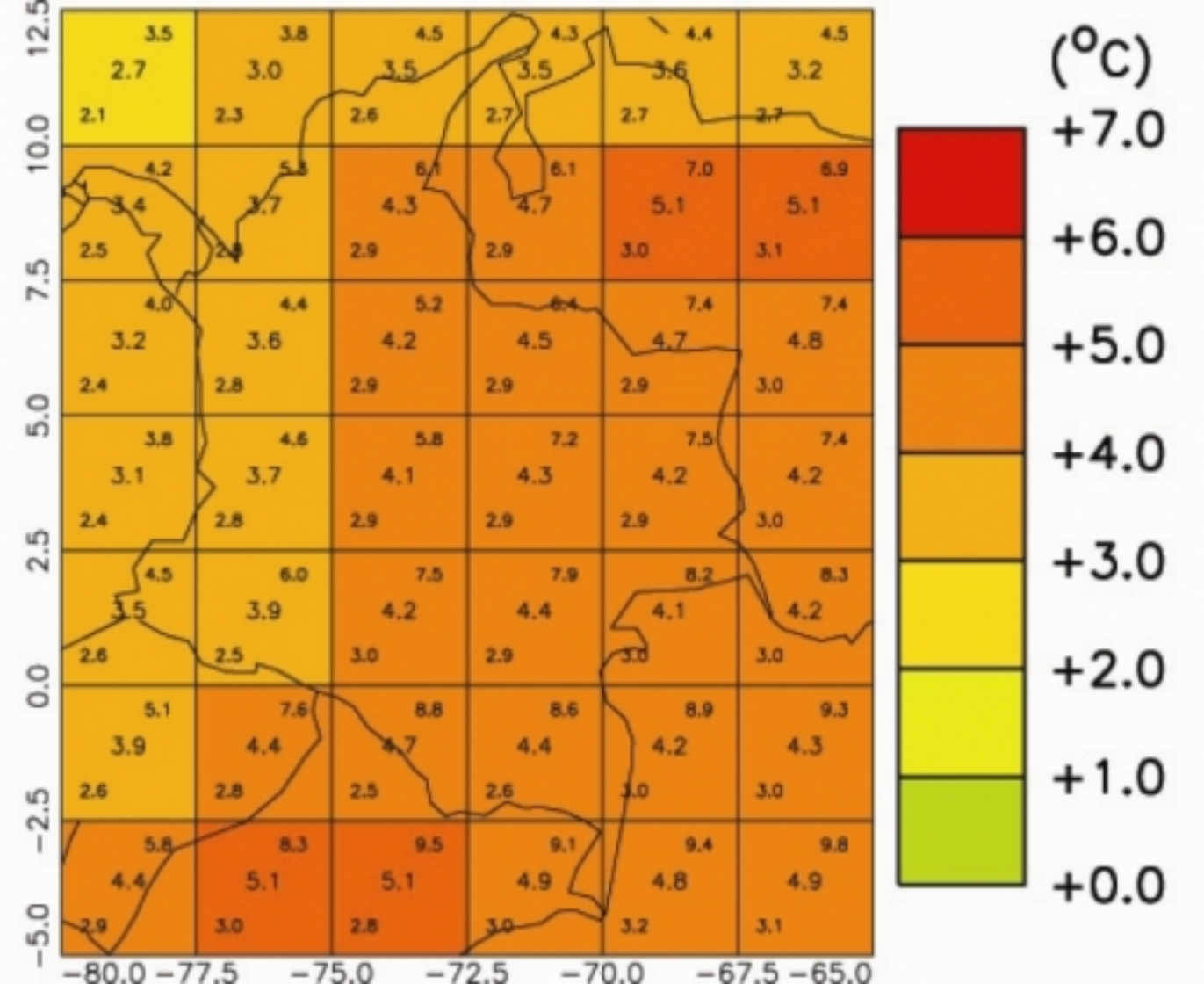
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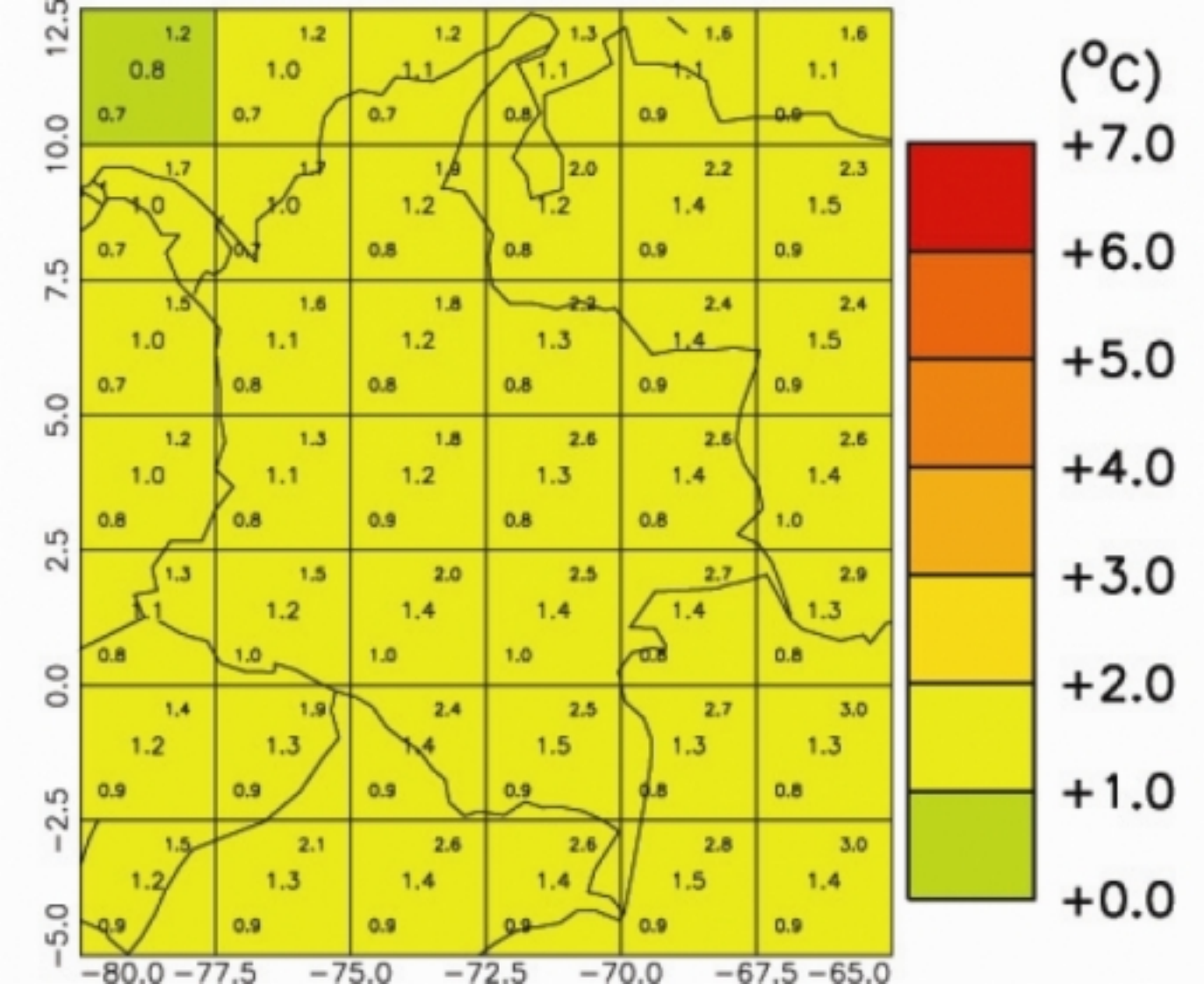
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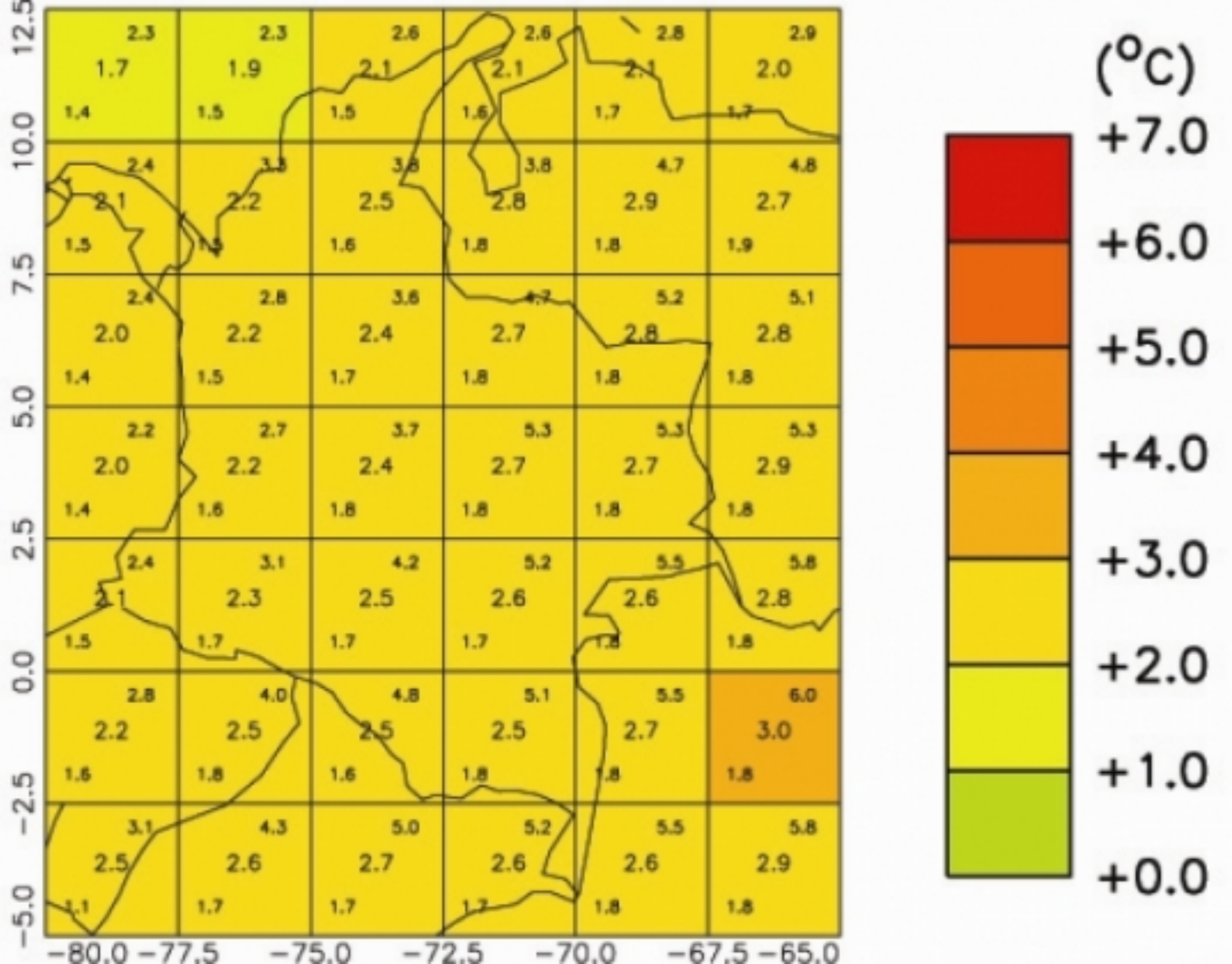
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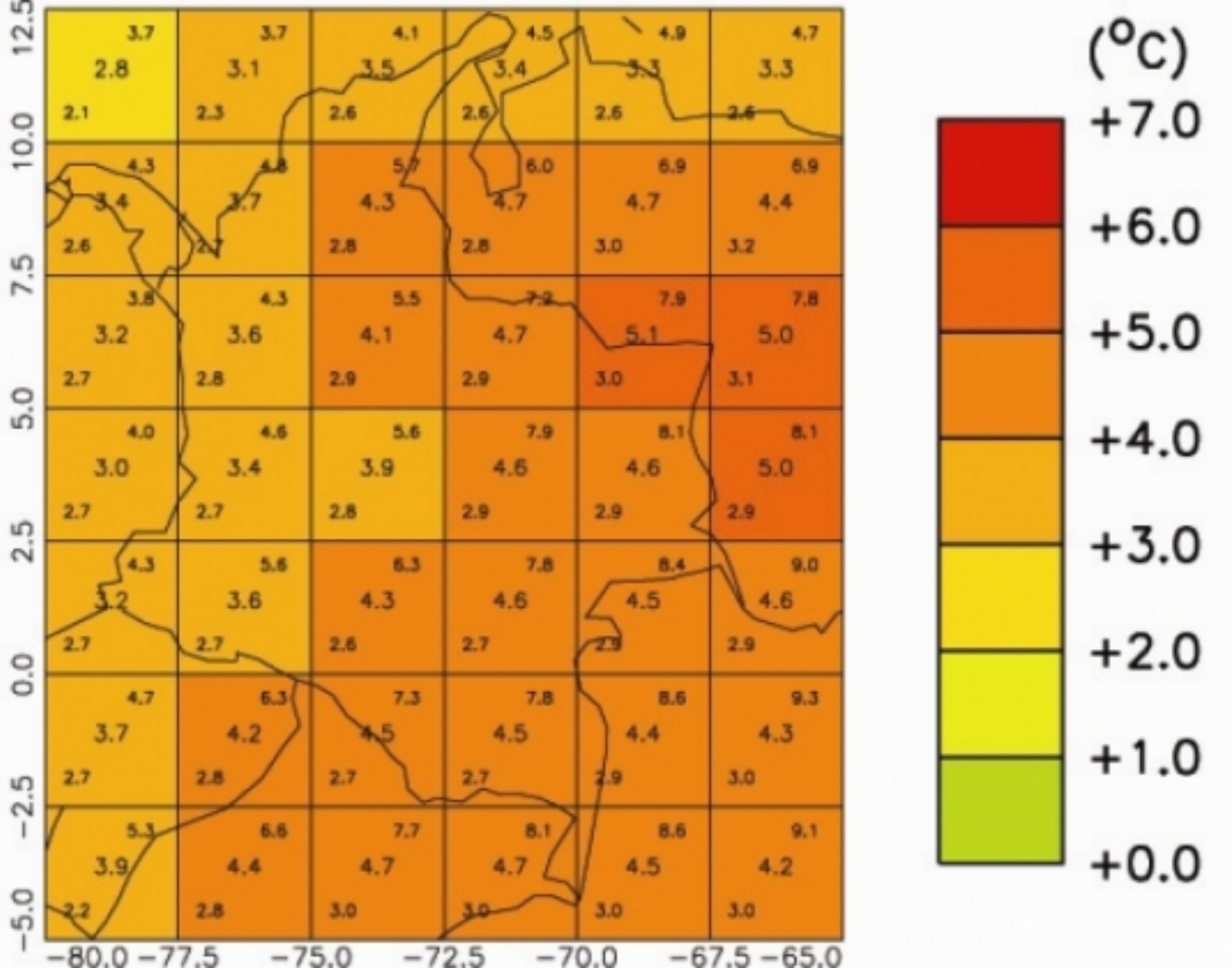
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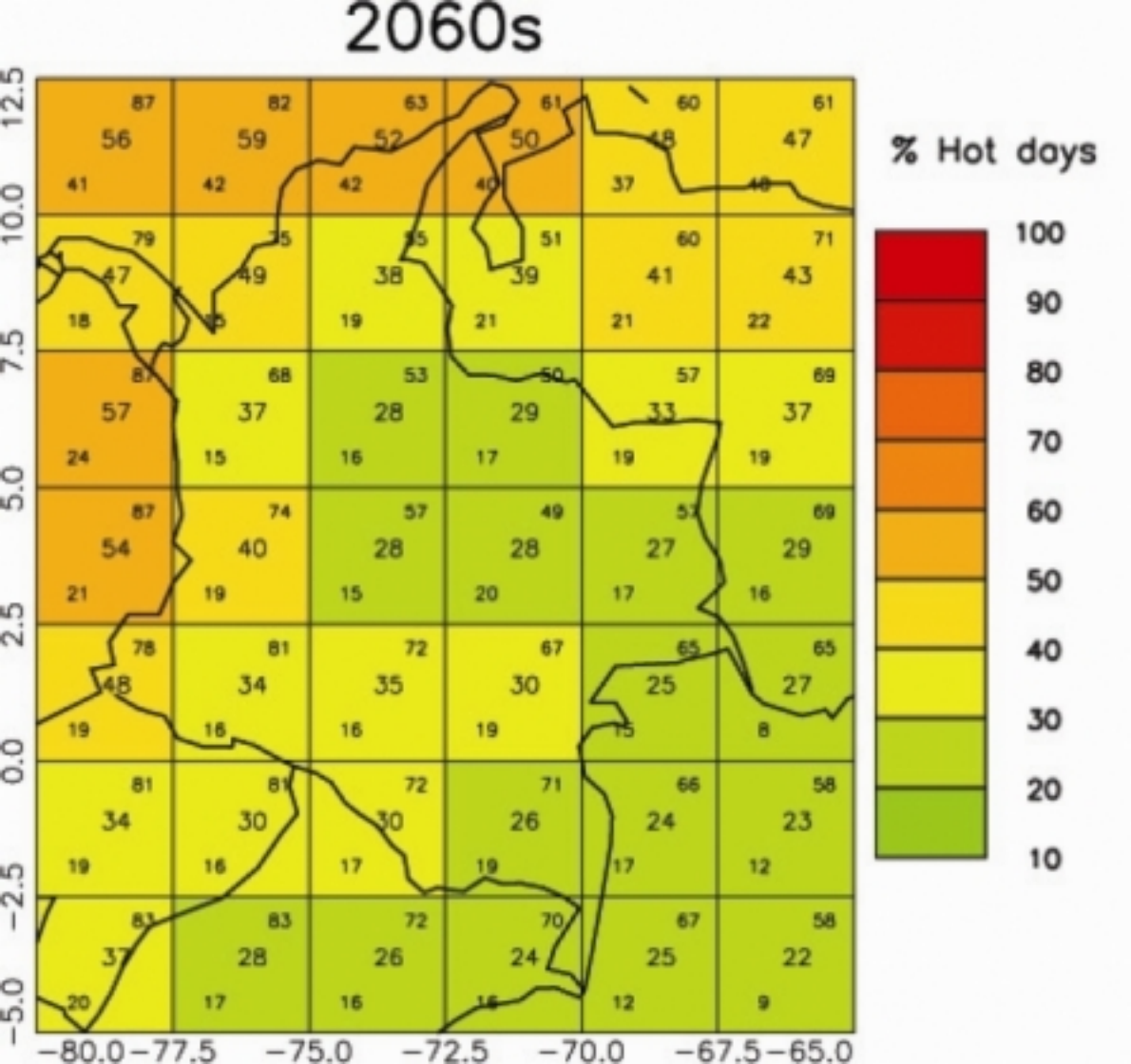
2060s
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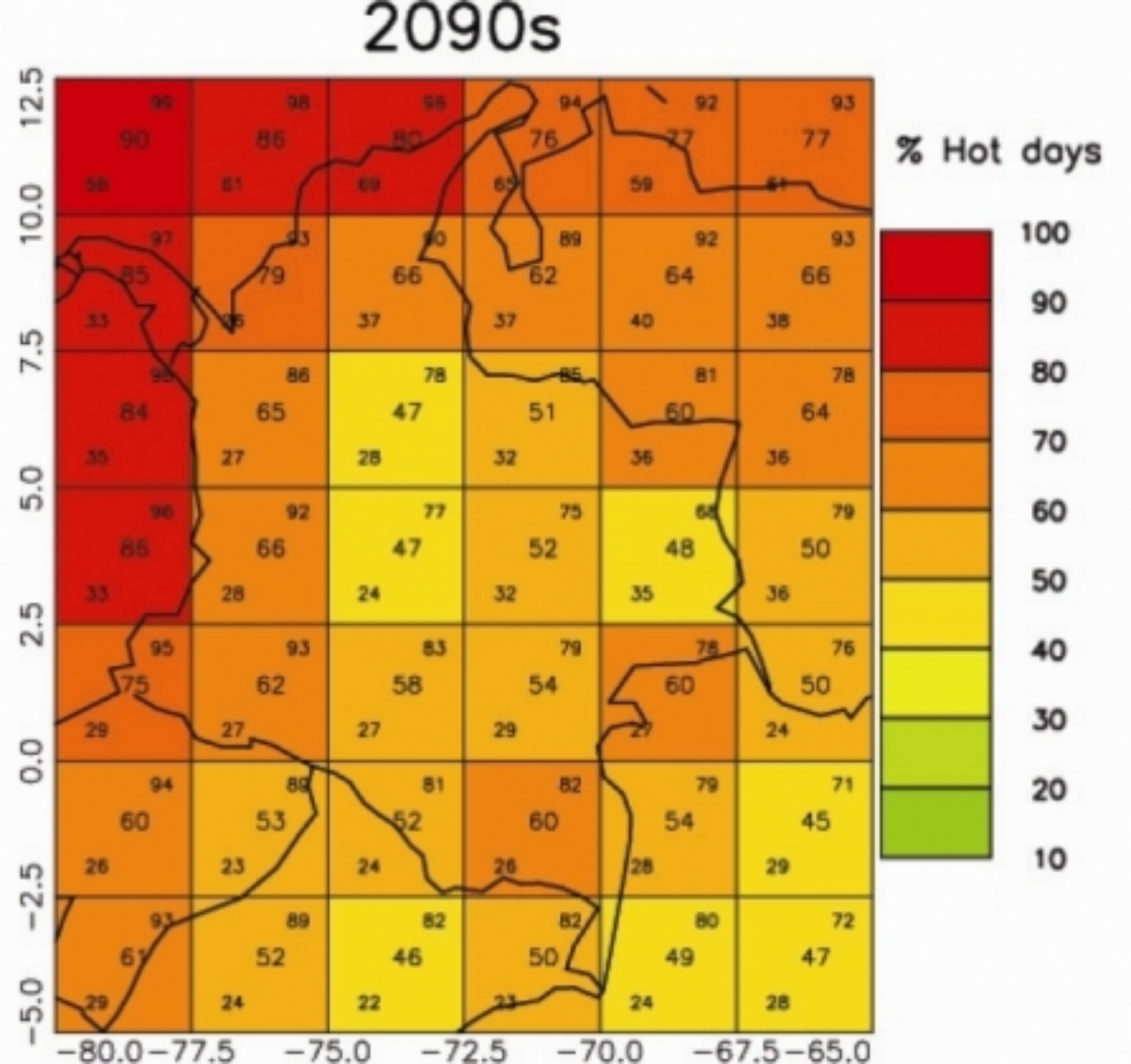
2090s
% Hot days
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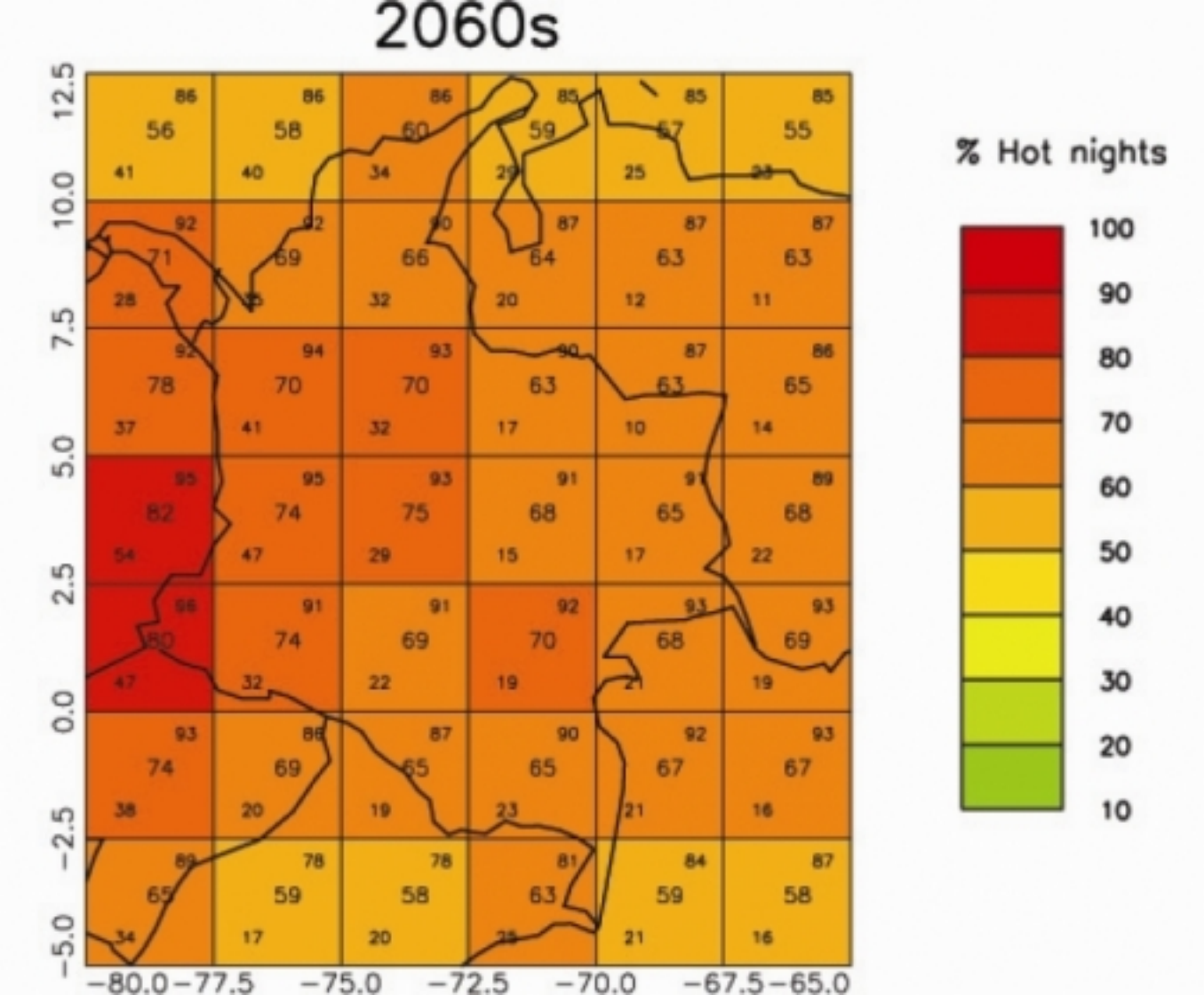
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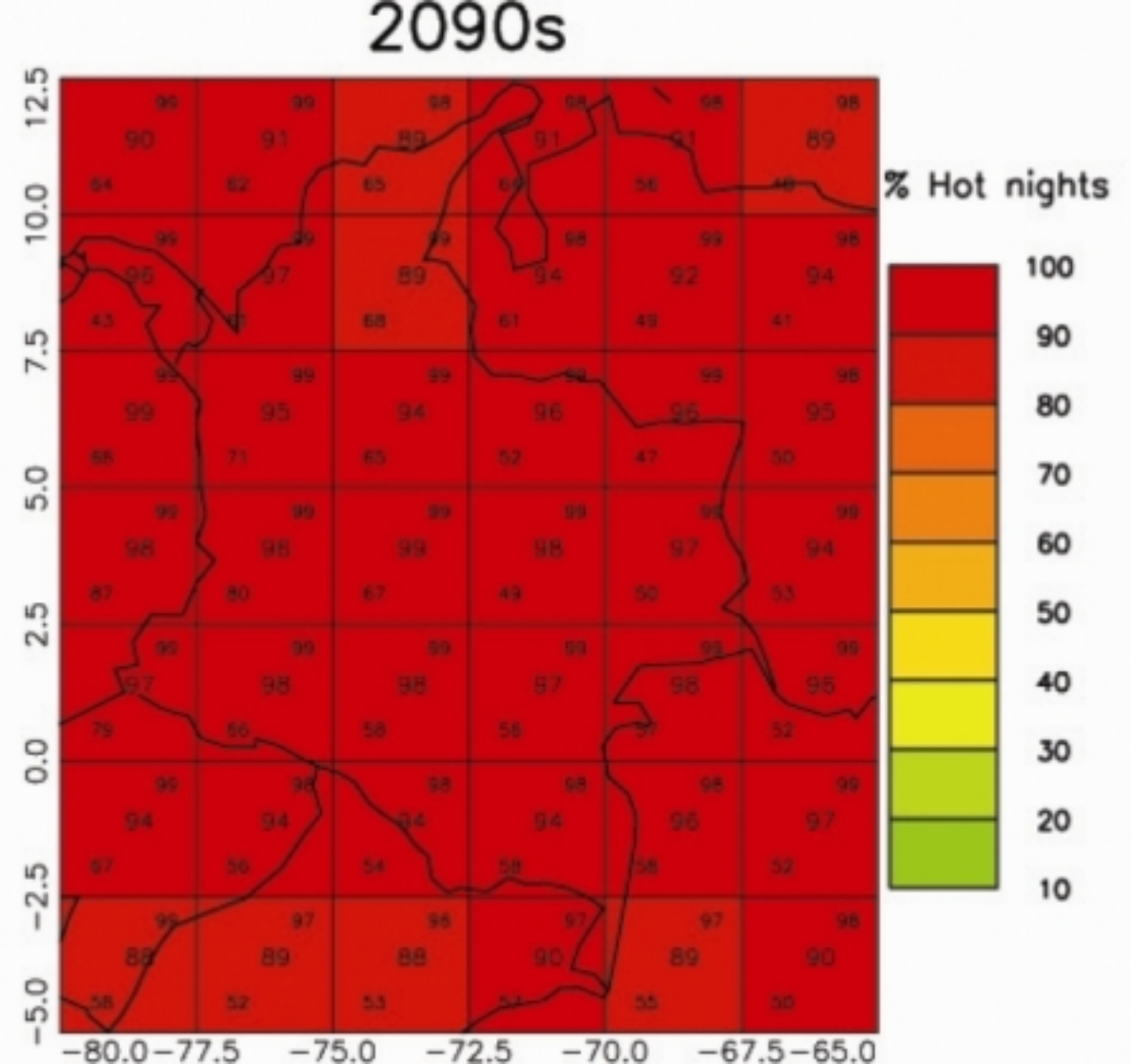
2090s
% Hot nights
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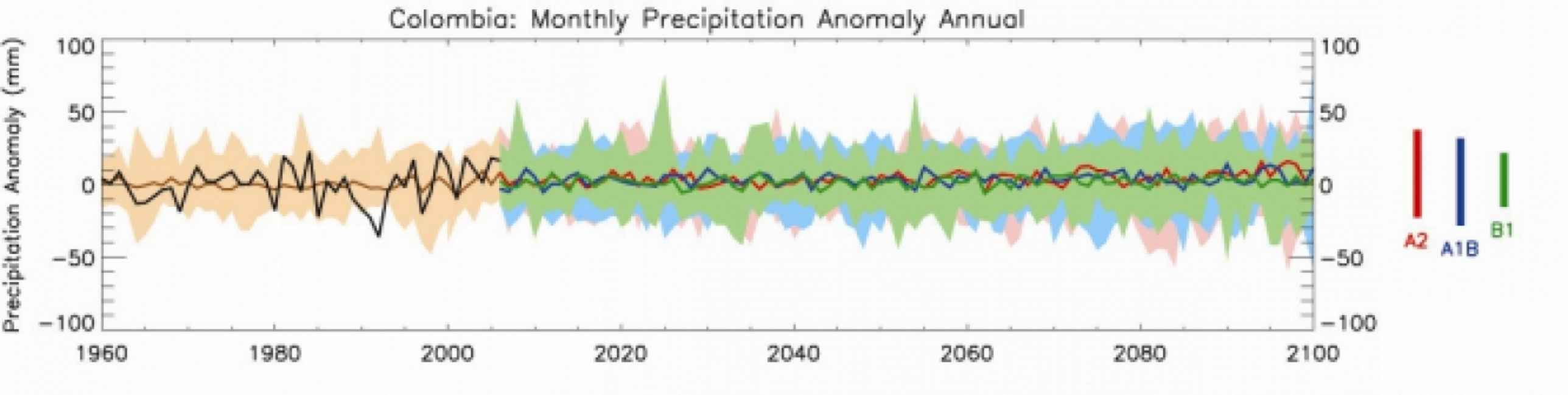
Colombia: Monthly Precipitation Anomaly Annual
Precipitation Anomaly (mm)
100
50
0
−50
−100
1960
1980
2000
2020
2040
2060
2080
2100
A2
A1B
B1