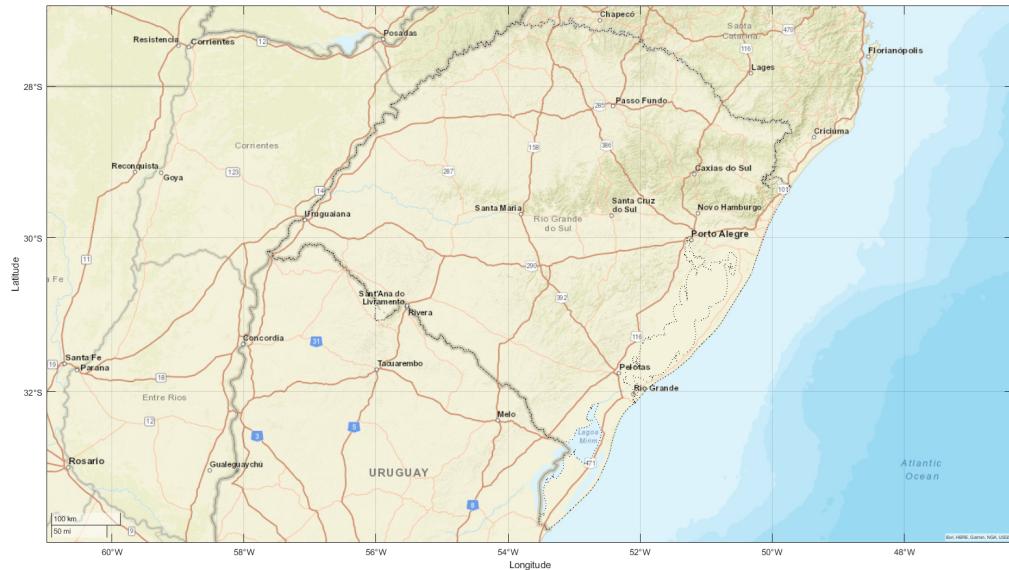


Performance based Climatic zoning

Rio_Grande_do_Sul



Automatically generated by Simzoning

18-Dec-2022

Index

<u>Chapter 1.</u>	Climatic zoning results	1
1.1.	Clustering results.....	1
<u>Chapter 2.</u>	Alternative methods for comparison	5
2.1.	Alternative methods for comparison	5
<u>Chapter 3.</u>	MPMA results.....	7
3.1.	MPMA results using centroids method	7
<u>Chapter 4.</u>	Interpolation using ANN method	9
4.1.	Grid used for interpolation.....	9
4.2.	Interpolated performance maps	9
<u>Chapter 5.</u>	Performance maps	12
5.1.	Performance maps for quality control.....	12
<u>Chapter 6.</u>	Synthesis of climatic boundary conditions	15
6.1.	Weather data used in this study.....	15

Chapter 1. Climatic zoning results

1.1. Clustering results

This report presents a performance-based approach for climatic zoning relying on the intensive use of archetypes, building performance simulation, and GIS. The document was automatically generated by a MATLAB-based Climatic Zoning Tool. Further details regarding the principles adopted in this study can be found in (Walsh, Cóstola, & Labaki, 2018)(Walsh, Cóstola, & Labaki, 2019). This chapter contains a graphical representation of climatic zoning results considering a set of zoning numbers defined by the user.

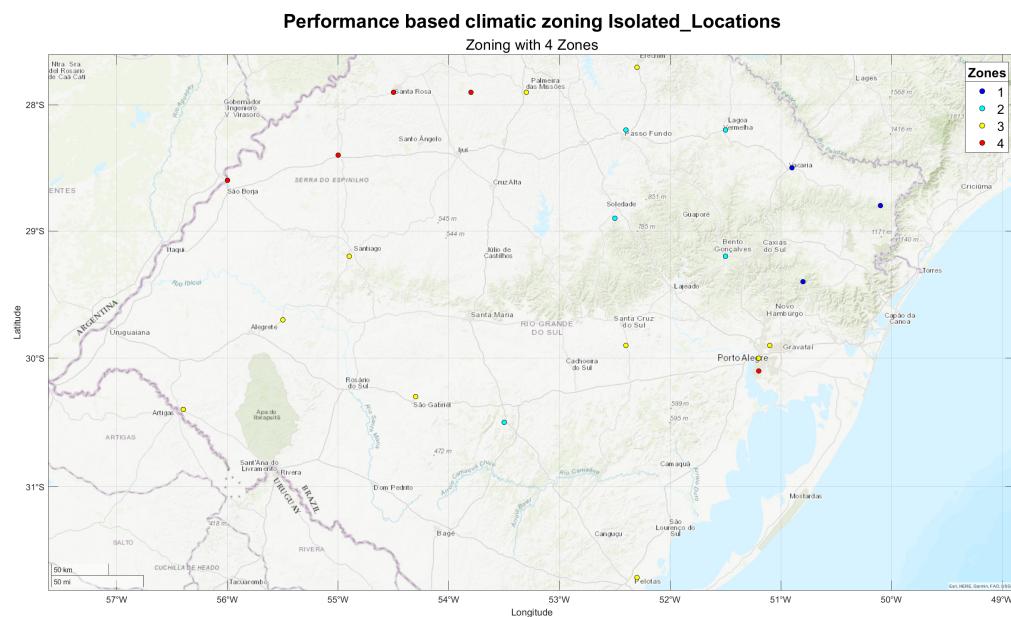


Figure 1.1. Isolated_Locations zoning

Chapter 1. Climatic zoning results

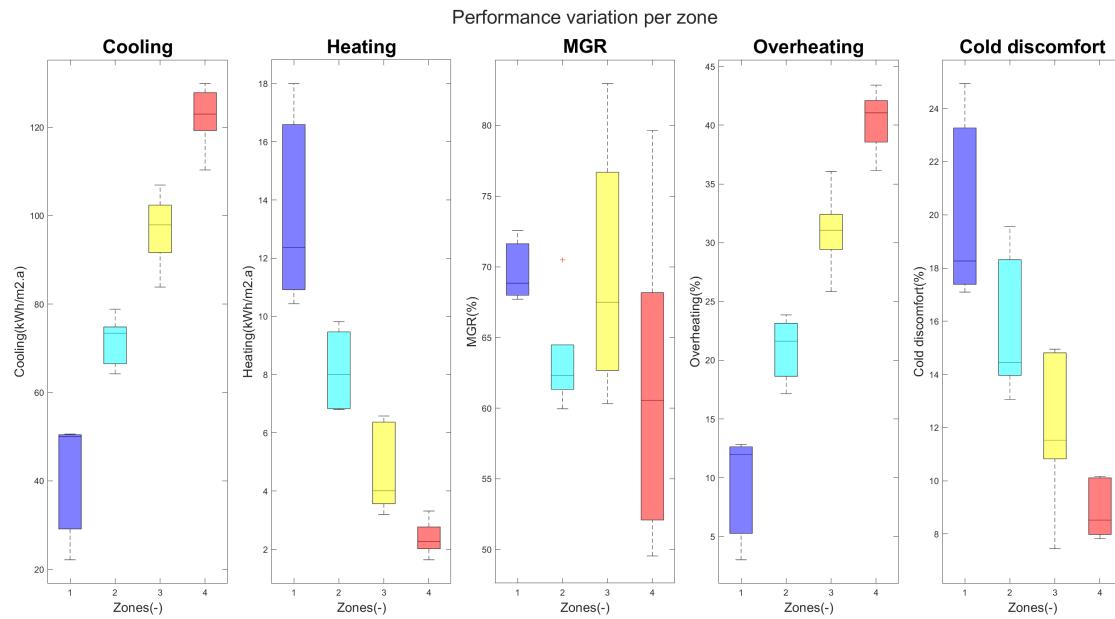


Figure 1.2. Isolated_Locations zoning boxplot

Performance based climatic zoning Municipalities

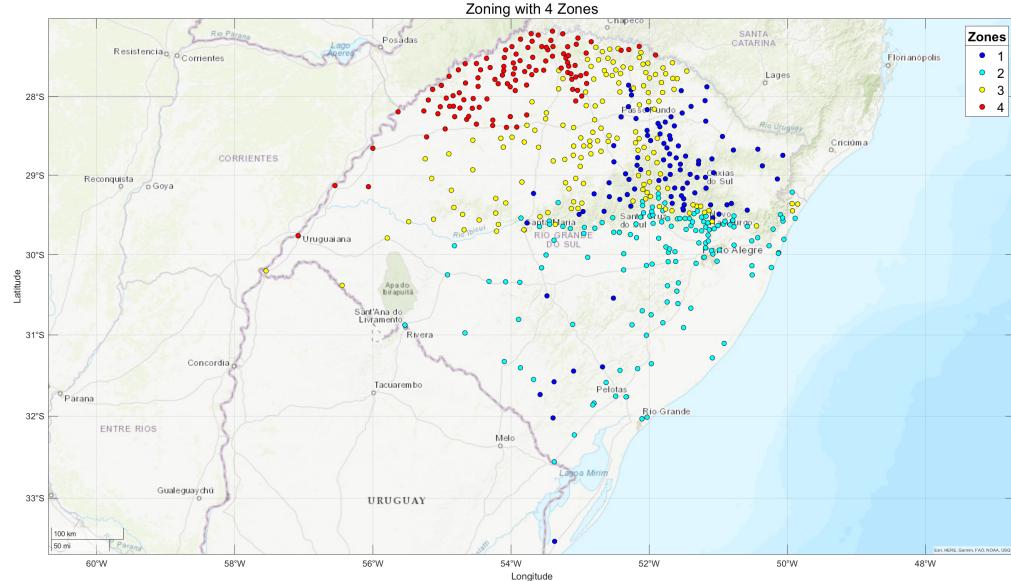


Figure 1.3. Municipalities zoning

Chapter 1. Climatic zoning results

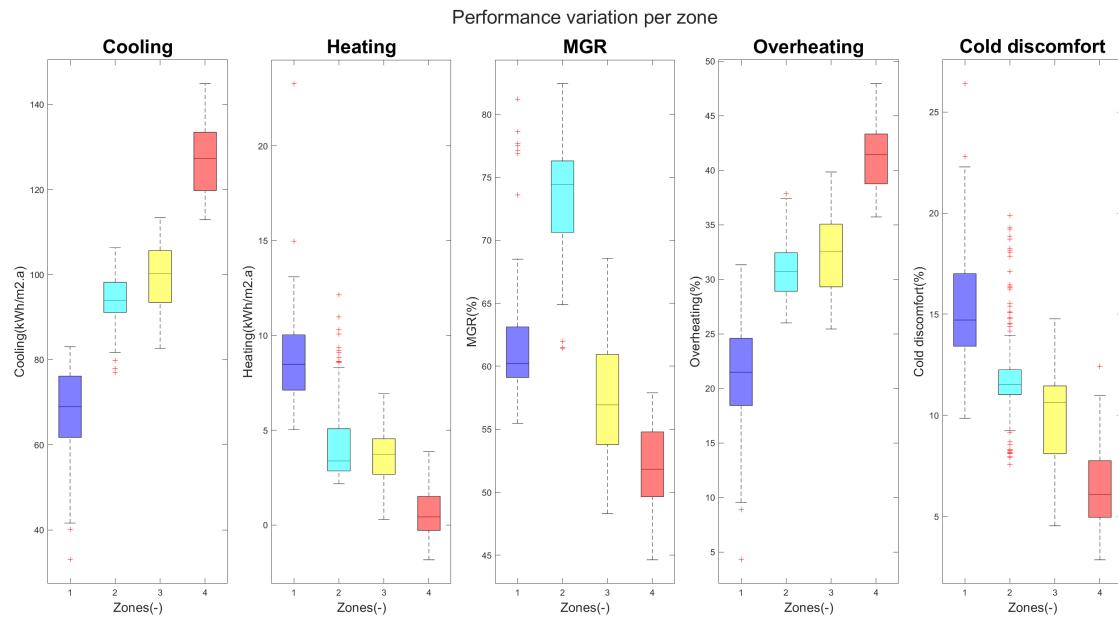


Figure 1.4. Municipalities zoning boxplot

Performance based climatic zoning Regular_Grid

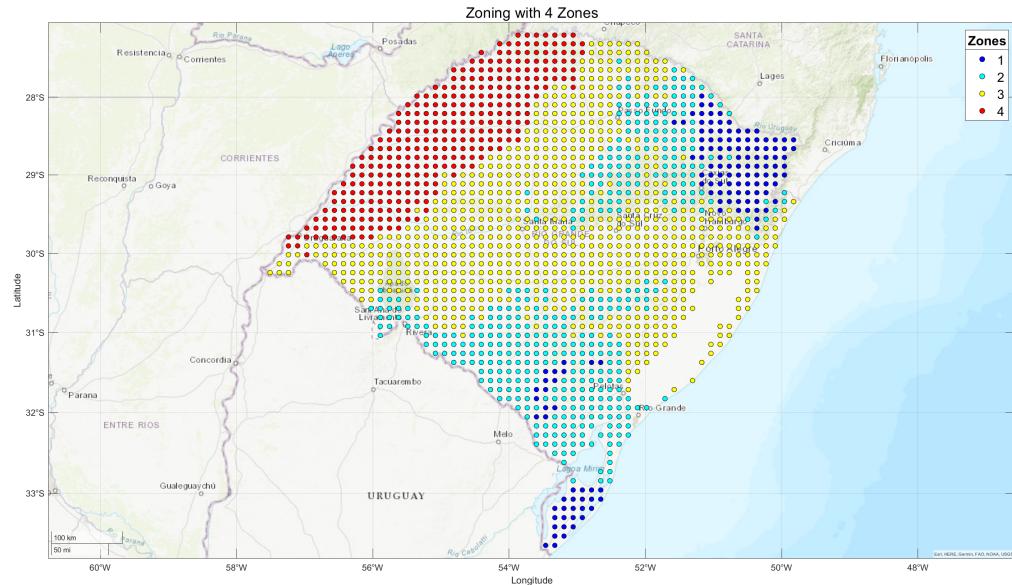


Figure 1.5. Regular_Grid zoning

Chapter 1. Climatic zoning results

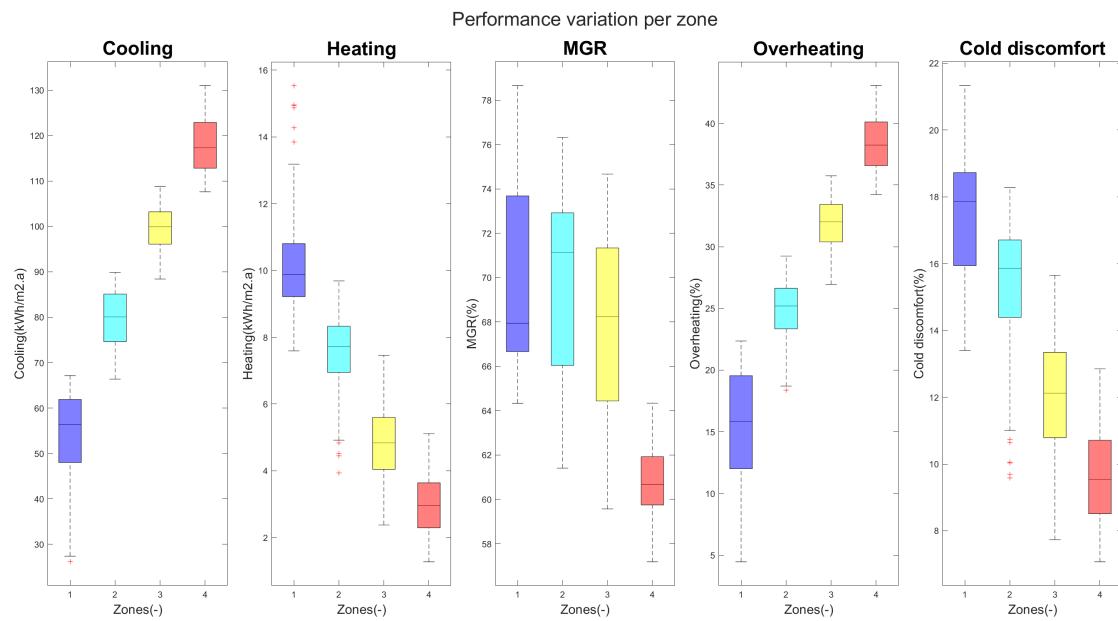


Figure 1.6. Regular_Grid zoning boxplot

Chapter 2. Alternative methods for comparison

2.1. Alternative methods for comparison

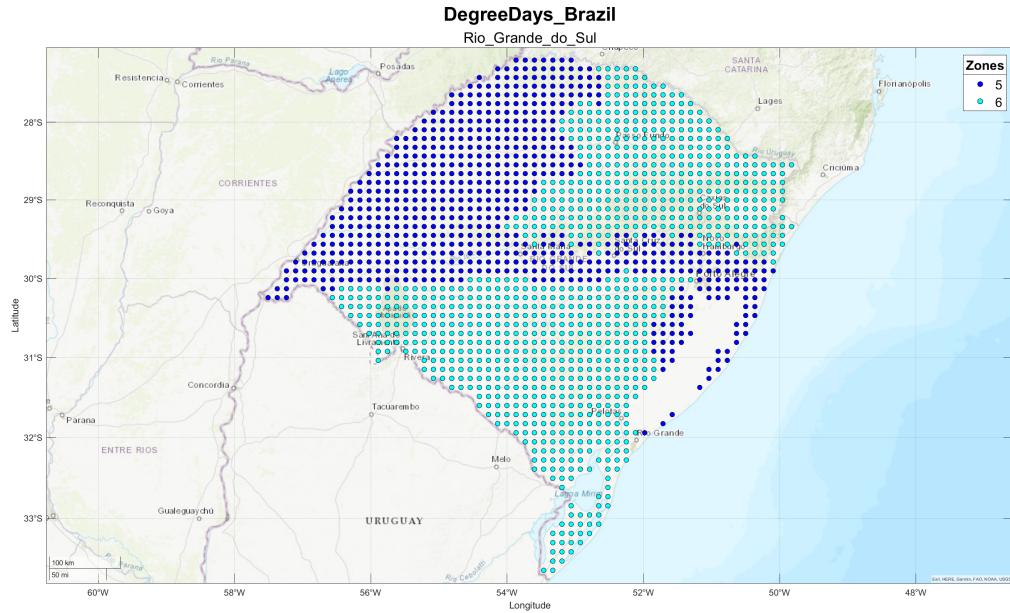


Figure 2.1. DegreeDays_Brazil

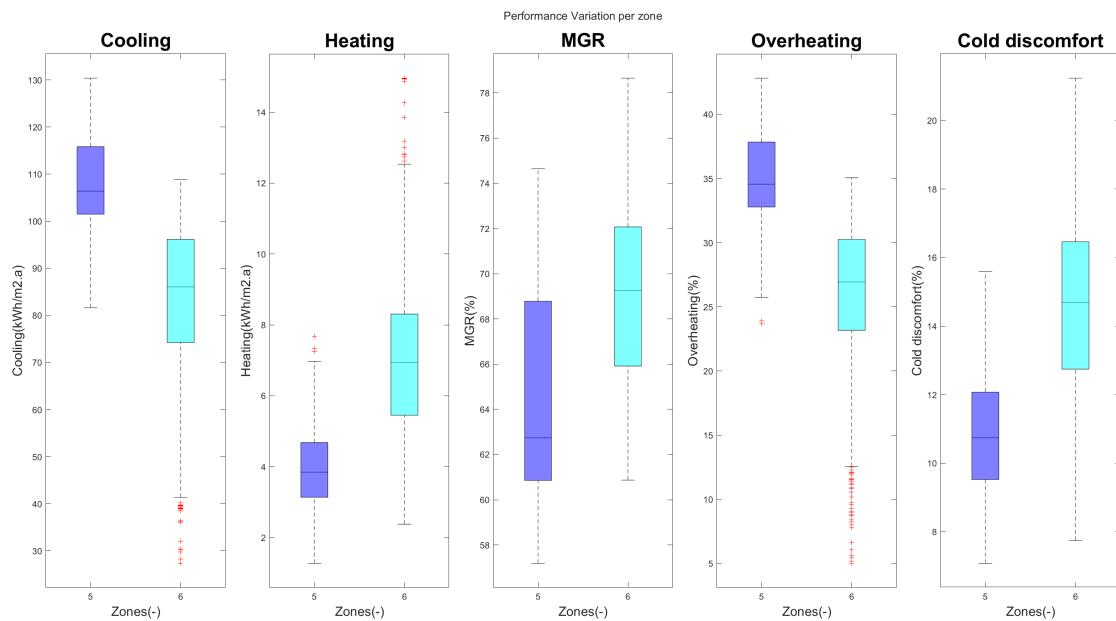


Figure 2.2. DegreeDays_Brazil zoning boxplot

Chapter 2. Alternative methods for comparison

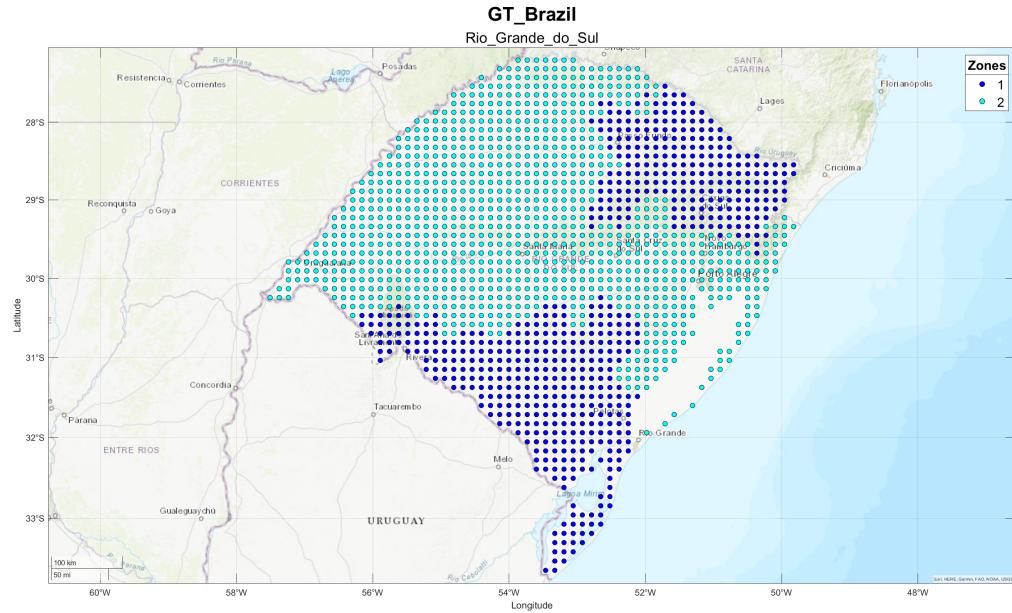


Figure 2.3. GT_Brazil

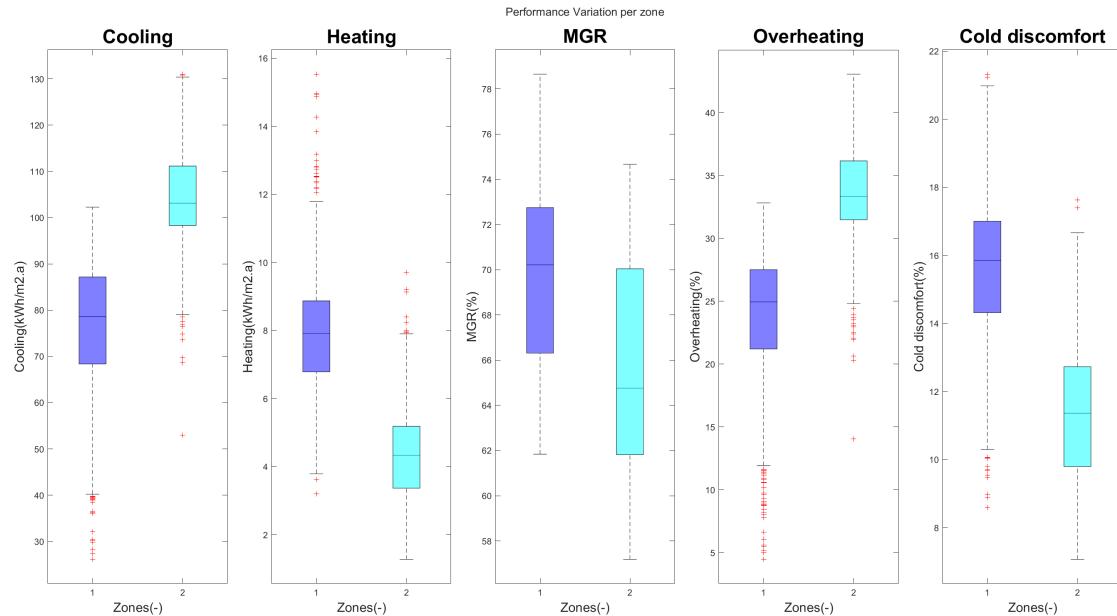


Figure 2.4. GT_Brazil zoning boxplot

Chapter 3. MPMA results

3.1. MPMA results using centroids method

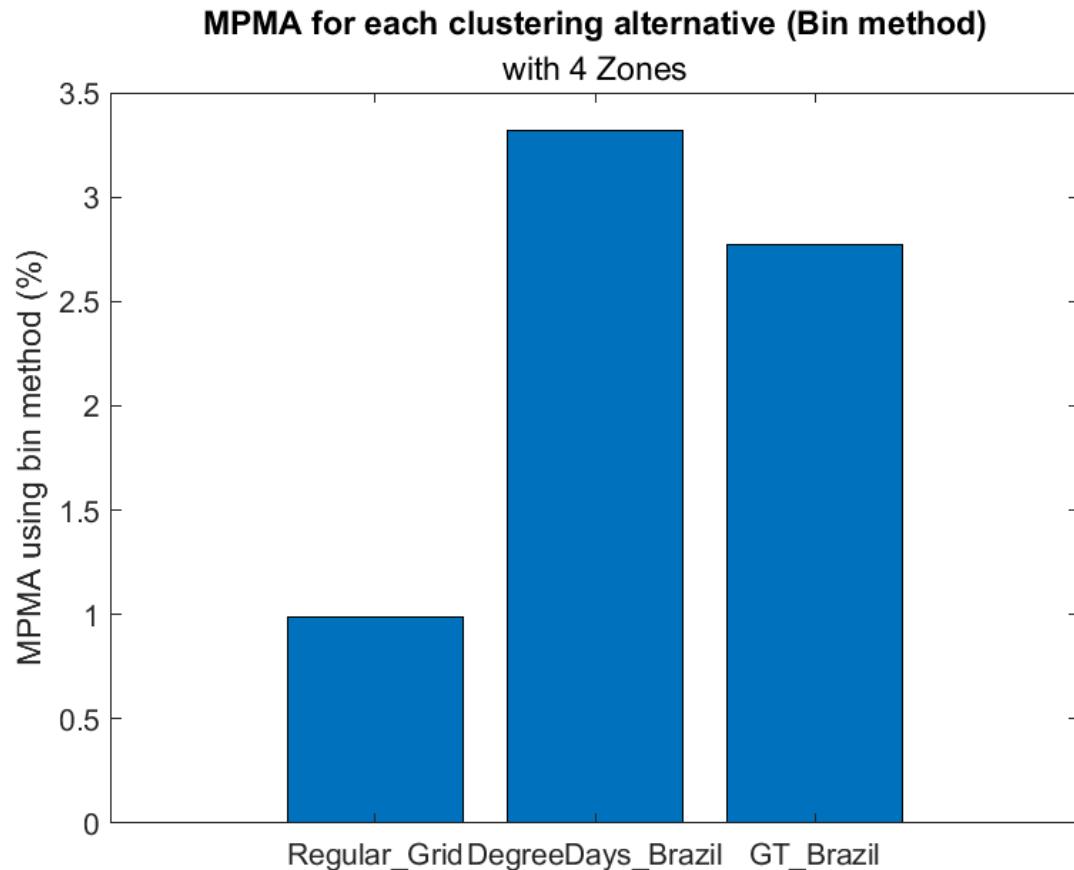


Figure 3.1. MPMA for each clustering alternative Bin method

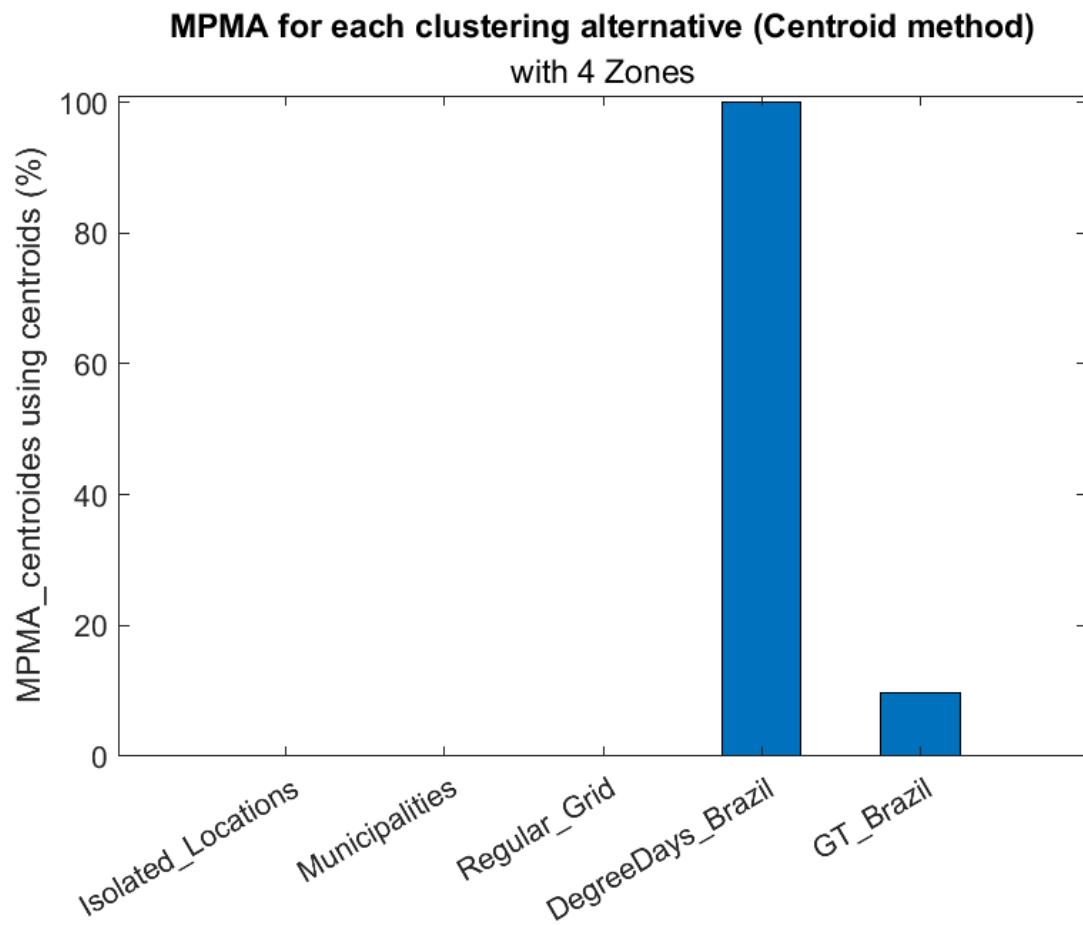


Figure 3.2. MPMA_centroids for each clustering alternative

Chapter 4. Interpolation using ANN method

4.1. Grid used for interpolation

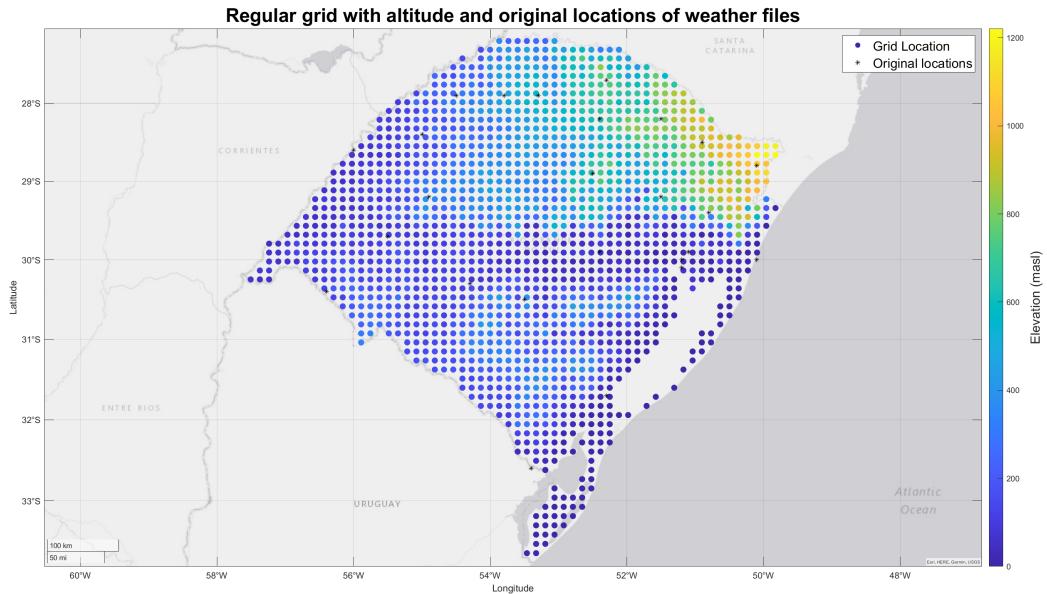


Figure 4.1. Regular grid_elevation

4.2. Interpolated performance maps

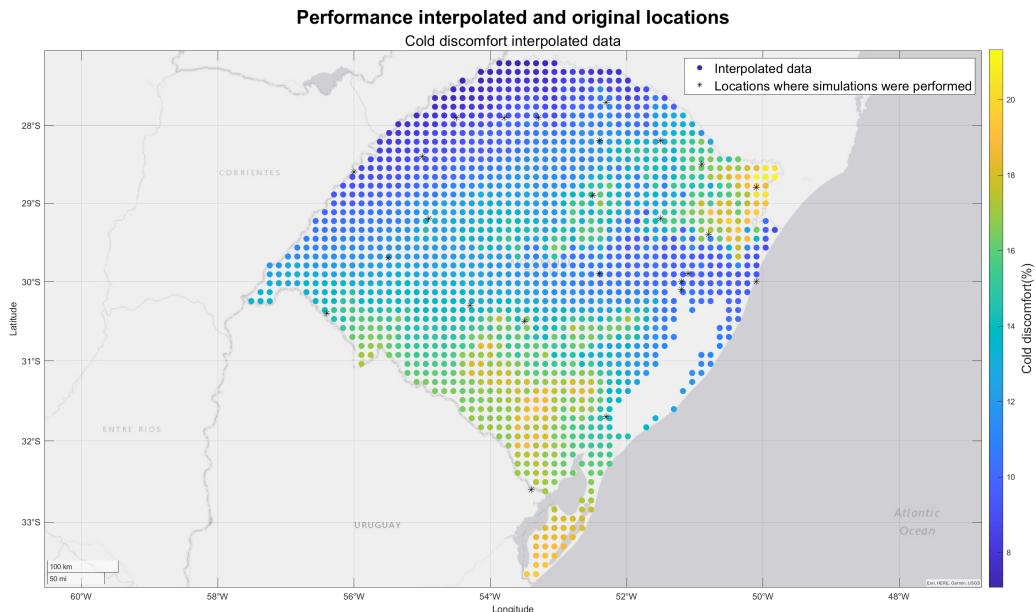


Figure 4.2. Cold discomfort Performance mapRegular_Grid

Chapter 4. Interpolation using ANN method

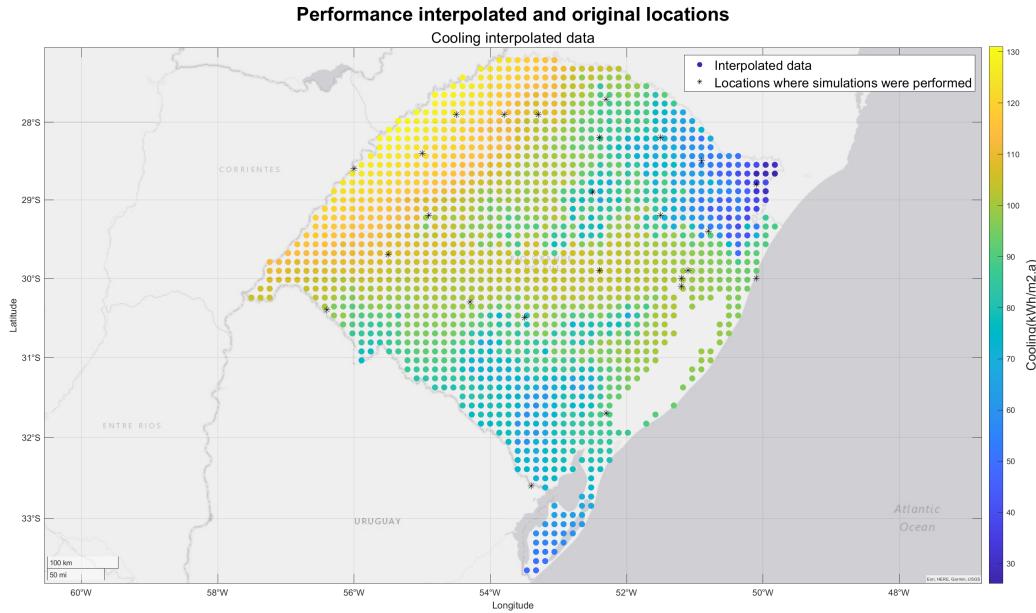


Figure 4.3. Cooling Performance mapRegular_Grid

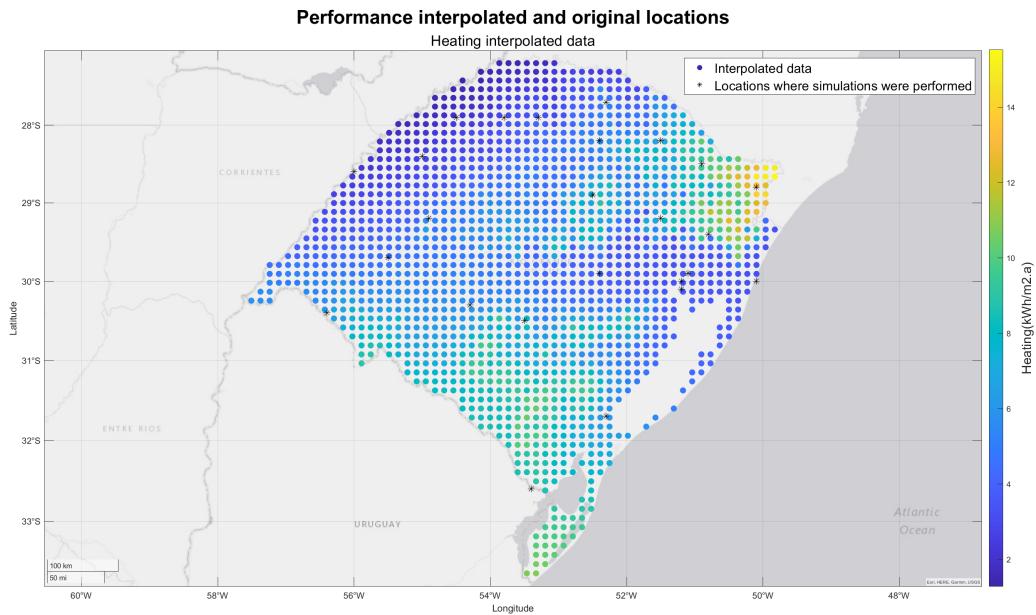


Figure 4.4. Heating Performance mapRegular_Grid

Chapter 4. Interpolation using ANN method

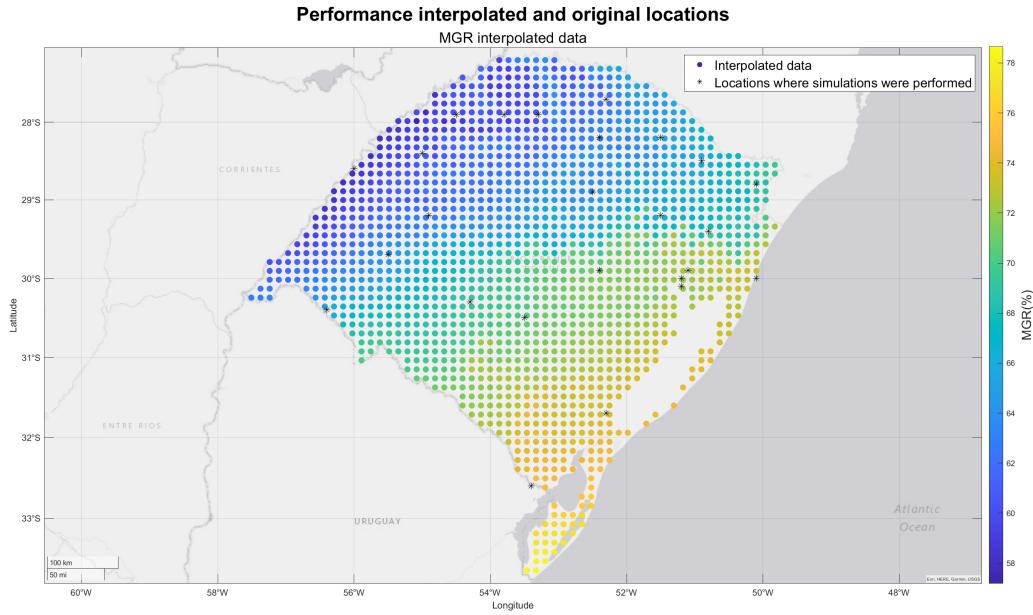


Figure 4.5. MGR Performance mapRegular_Grid

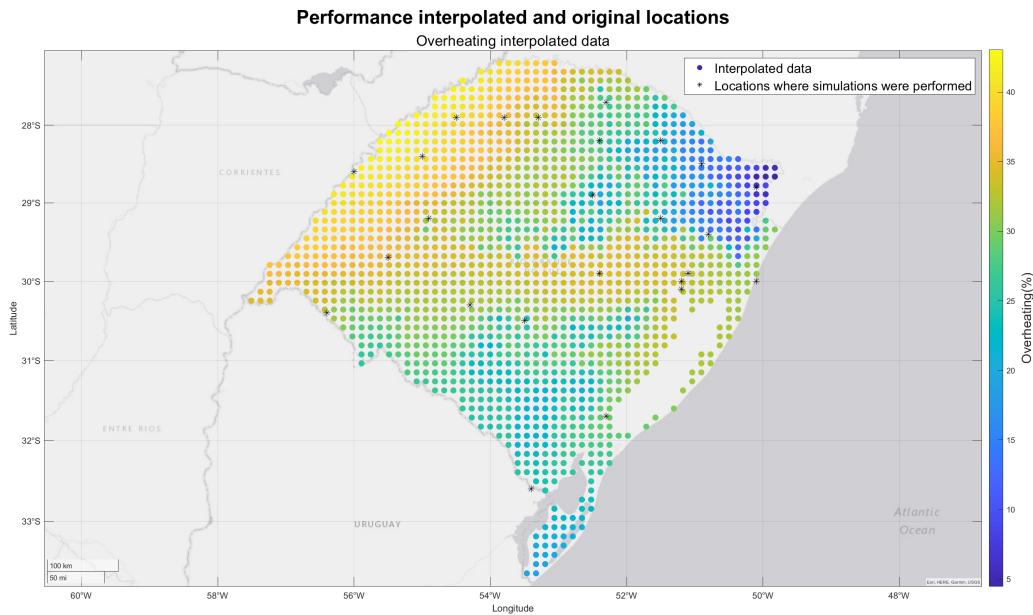


Figure 4.6. Overheating Performance mapRegular_Grid

Chapter 5. Performance maps

5.1. Performance maps for quality control

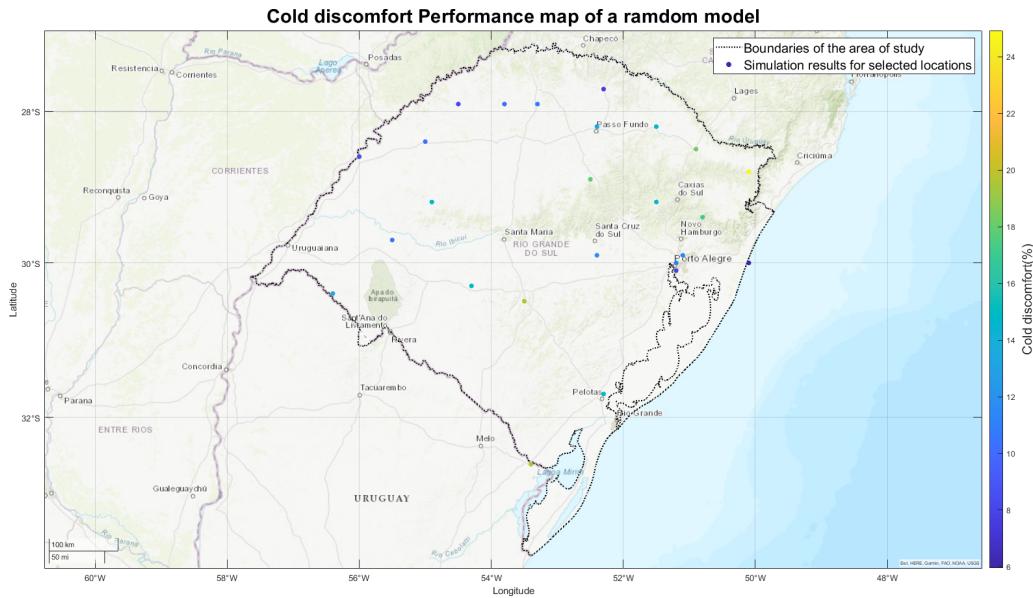


Figure 5.1. Cold discomfort Performance map of a ramdom model

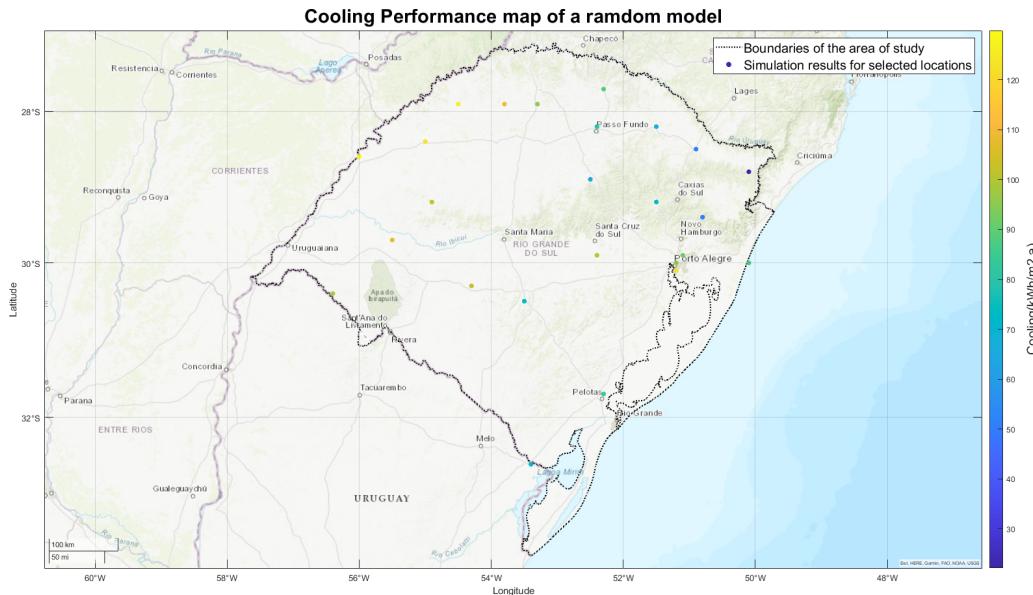


Figure 5.2. Cooling Performance map of a ramdom model

Chapter 5. Performance maps

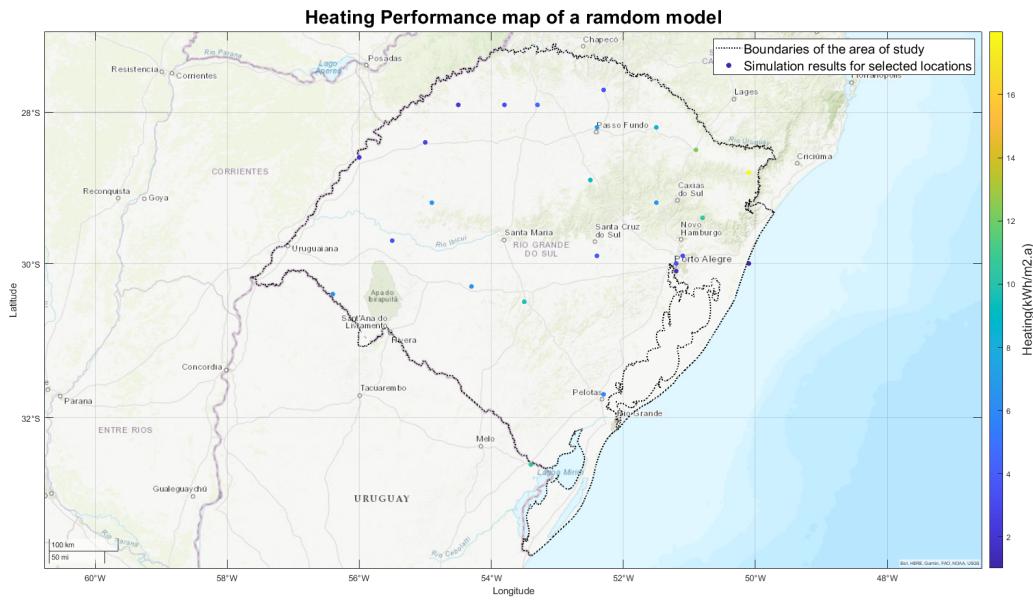


Figure 5.3. Heating Performance map of a random model

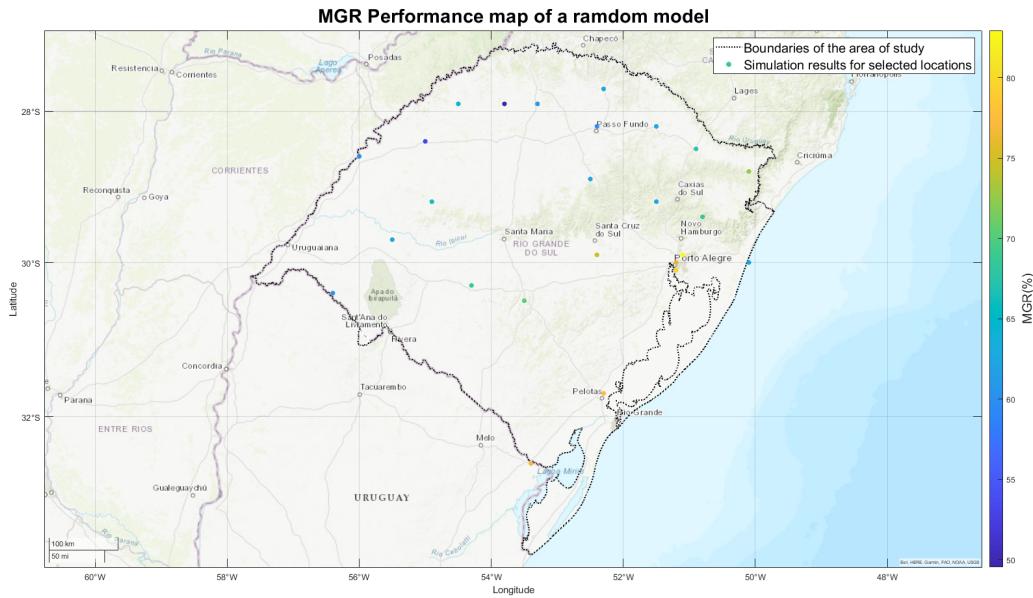


Figure 5.4. MGR Performance map of a random model

Chapter 5. Performance maps

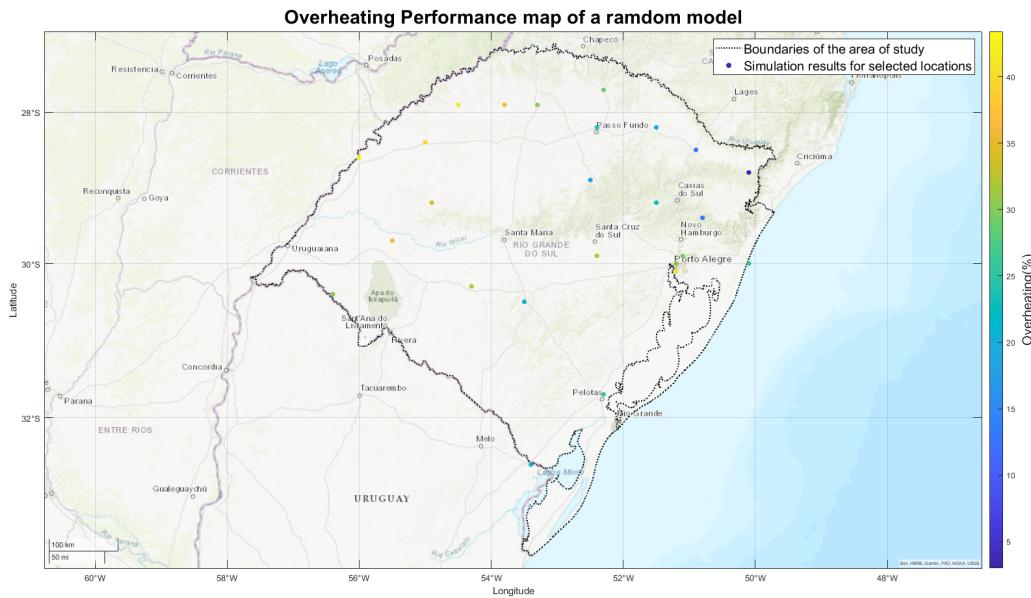


Figure 5.5. Overheating Performance map of a ramdom model

Chapter 6. Synthesis of climatic boundary conditions

6.1. Weather data used in this study

Weather data summary:

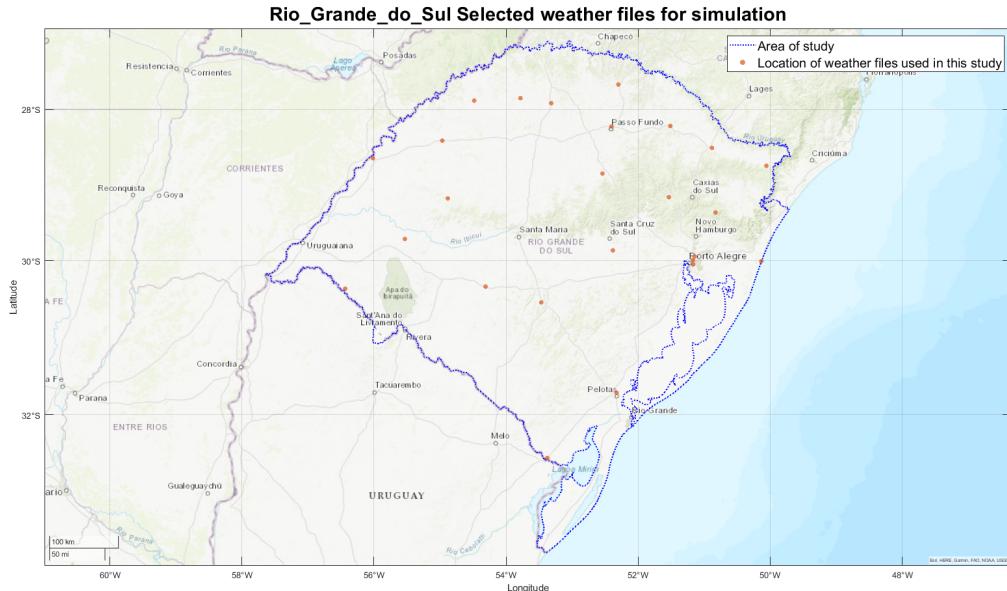


Figure 6.1. Weather data included in this study

This table contains a list of weather files used in this study. Data is displayed in alphabetical order

ID	ListofEPW	LAT	LON
1	Alegrete RS BRA SRC-TMYx WMO#=869750	-29.700	-55.500
2	Bento.Goncalves RS BRA SRC-TMYx WMO#=869790	-29.200	-51.500
3	Cacapava.do.Sul RS BRA SRC-TMYx WMO#=869860	-30.500	-53.500
4	Canela RS BRA SRC-TMYx WMO#=869800	-29.400	-50.800
5	Erechim RS BRA SRC-TMYx WMO#=869540	-27.700	-52.300
6	Jaguarao RS BRA SRC-TMYx WMO#=869960	-32.600	-53.400
7	Lagoa.Vermelha RS BRA SRC-TMYx WMO#=869650	-28.200	-51.500
8	Palmeira.das.Missoes RS BRA SRC-TMYx WMO#=869530	-27.900	-53.300
9	Passo.Fundo RS BRA SRC-TMYx WMO#=869630	-28.200	-52.400
10	Pelotas-Lopes.Neto.Intl.AP RS BRA SRC-TMYx WMO#=839850	-31.700	-52.300
11	Porto.Alegre-Canoas.AB RS BRA SRC-TMYx WMO#=839670	-29.900	-51.100
12	Porto.Alegre-Salgado.Filho.Intl.AP RS BRA SRC-TMYx WMO#=839710	-30.000	-51.200
13	Porto.Alegre RS BRA SRC-TMYx WMO#=869880	-30.100	-51.200
14	Quarai RS BRA SRC-TMYx WMO#=869820	-30.400	-56.400
15	Rio.Pardo RS BRA SRC-TMYx WMO#=869780	-29.900	-52.400
16	Santa.Rosa RS BRA SRC-TMYx WMO#=869500	-27.900	-54.500
17	Santiago RS BRA SRC-TMYx WMO#=869760	-29.200	-54.900
18	Santo.Augusto RS BRA SRC-TMYx WMO#=869520	-27.900	-53.800
19	Sao.Borja RS BRA SRC-TMYx WMO#=869600	-28.600	-56.000
20	Sao.Gabriel RS BRA SRC-TMYx WMO#=869840	-30.300	-54.300
21	Sao.Jose.dos.Ausentes RS BRA SRC-TMYx WMO#=869670	-28.800	-50.100

Chapter 6. Synthesis of climatic boundary conditions

ID	ListofEPW	LAT	LON
22	Sao.Luiz.Gonzaga RS BRA SRC-TMYx WMO#=869610	-28.400	-55.000
23	Soledade RS BRA SRC-TMYx WMO#=869640	-28.900	-52.500
24	Tramandai RS BRA SRC-TMYx WMO#=869900	-30.000	-50.100
25	Vacaria RS BRA SRC-TMYx WMO#=869660	-28.500	-50.900