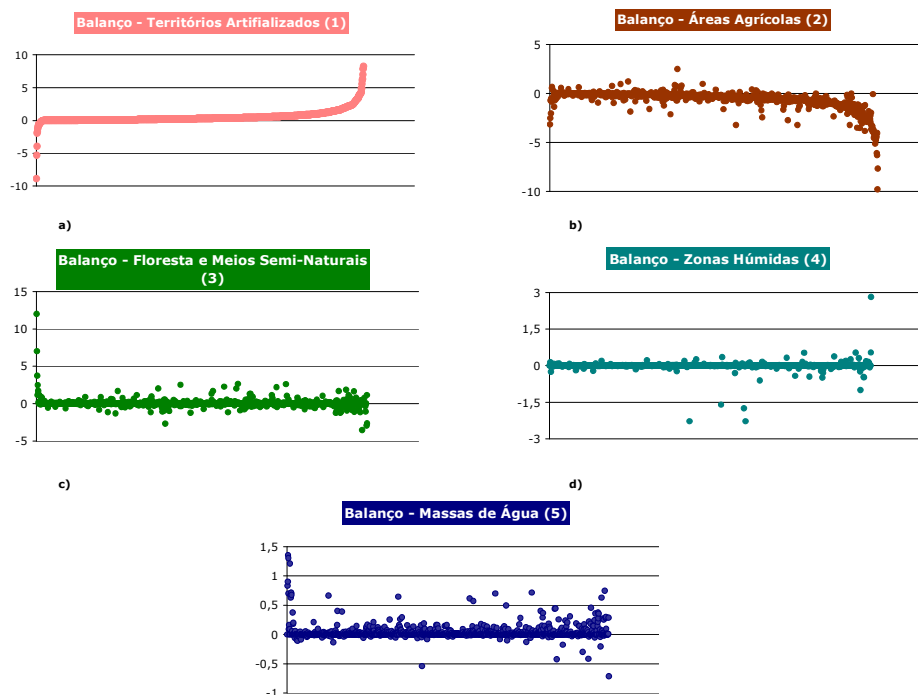
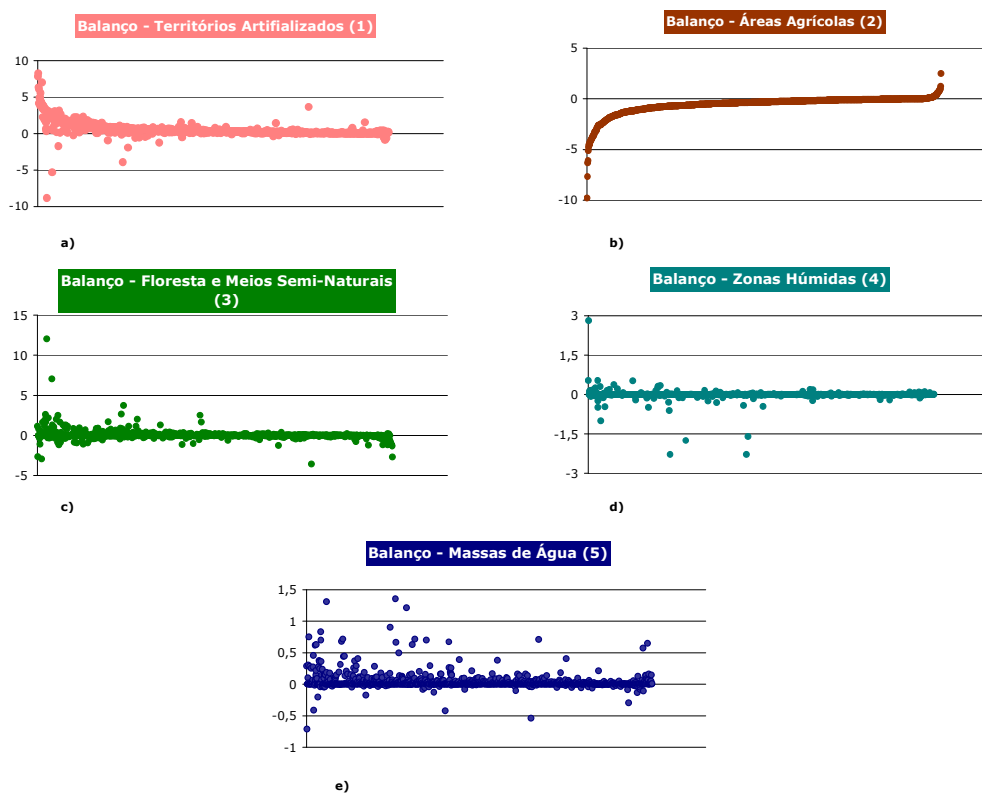

ANEXOS

ANEXO 4.1

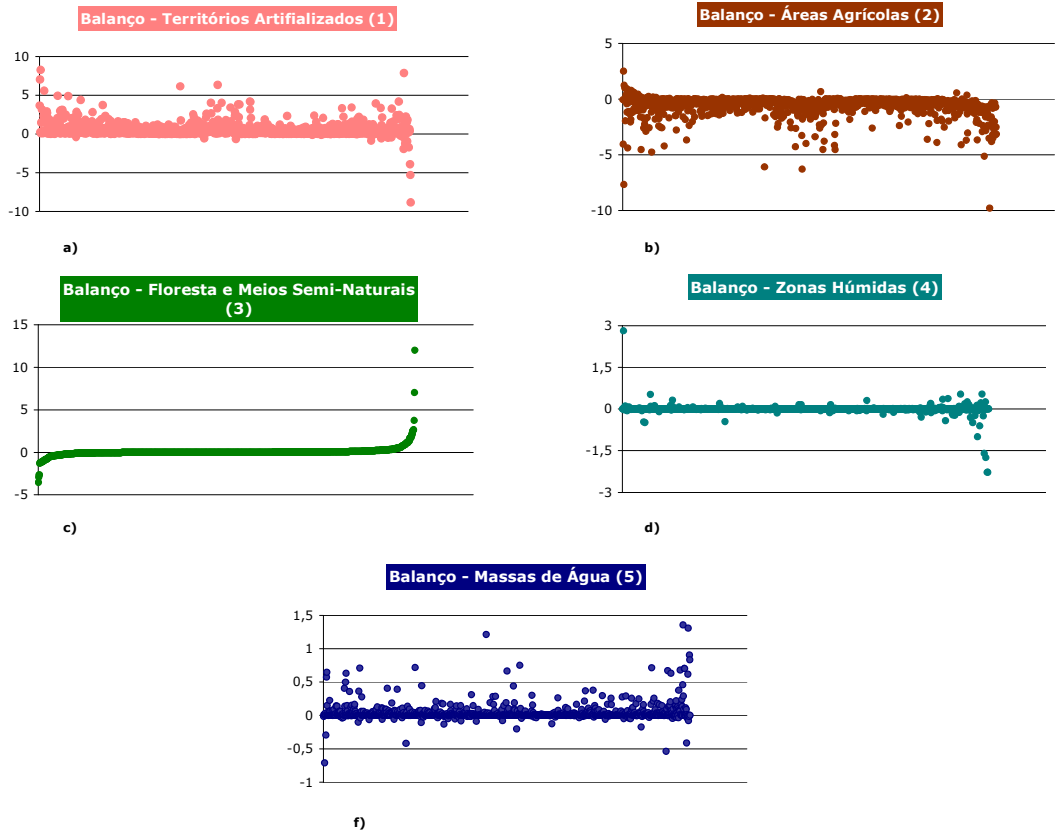
Anexo 4.1.1 - Balanços ordenados por Balanço de Territórios Artificiais



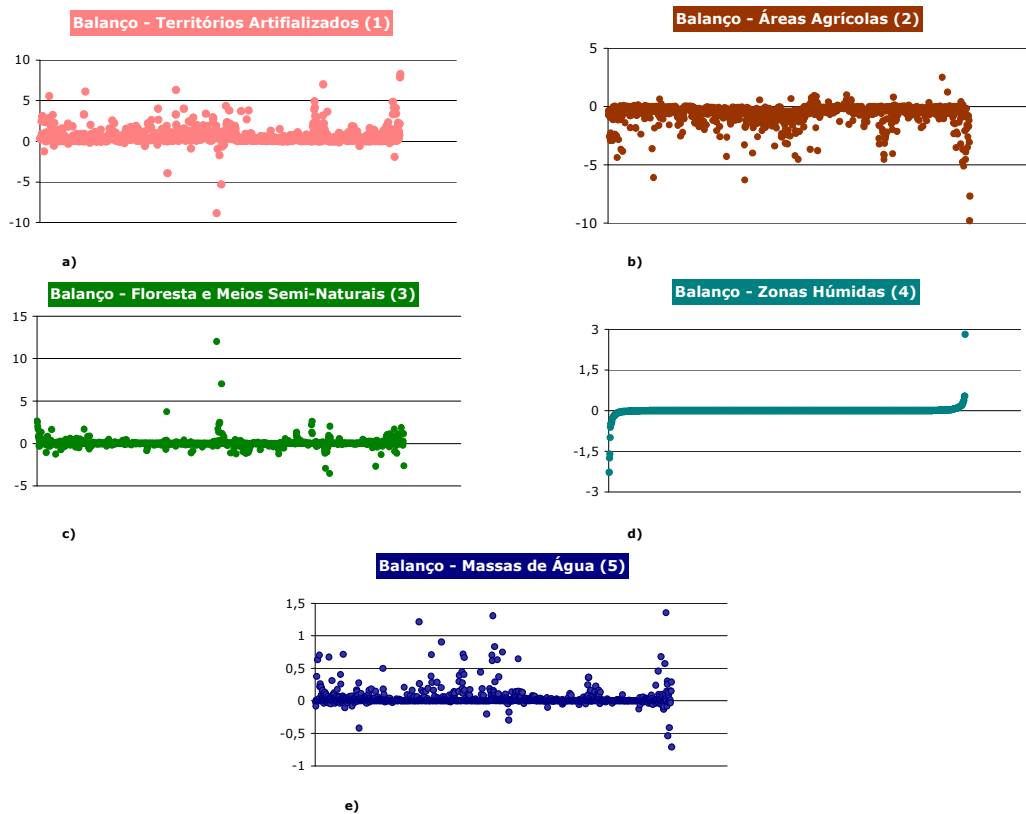
Anexo 4.1.2 - Balanços ordenados por Balanço de Áreas Agrícolas



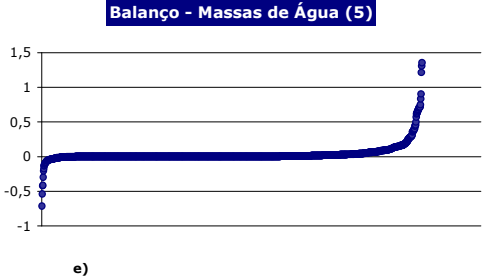
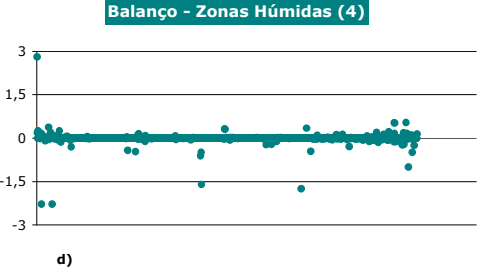
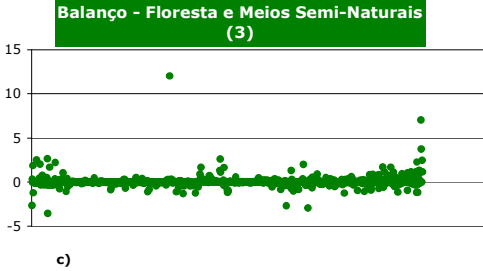
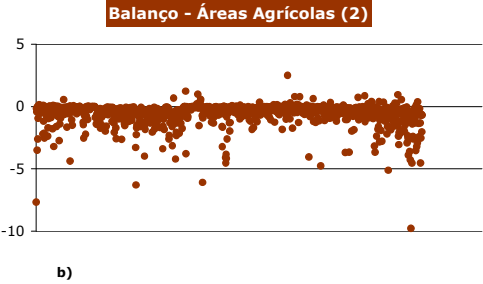
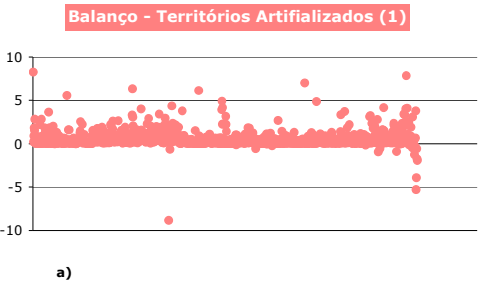
Anexo 4.1.3 - Balanços ordenados por Balanço de Floresta e Meios Semi-Naturais



Anexo 4.1.4 - Balanços ordenados por Balanço de Zonas Húmidas

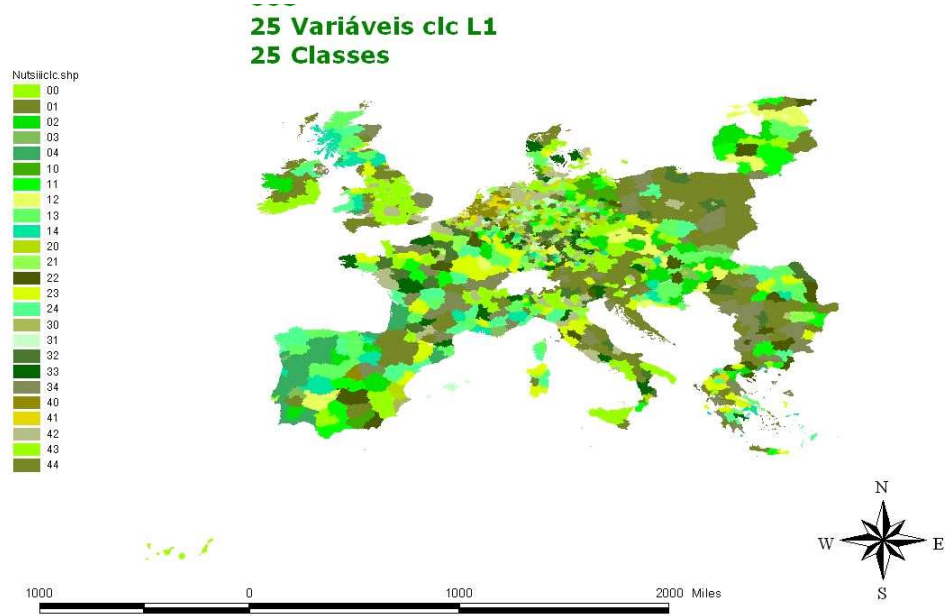
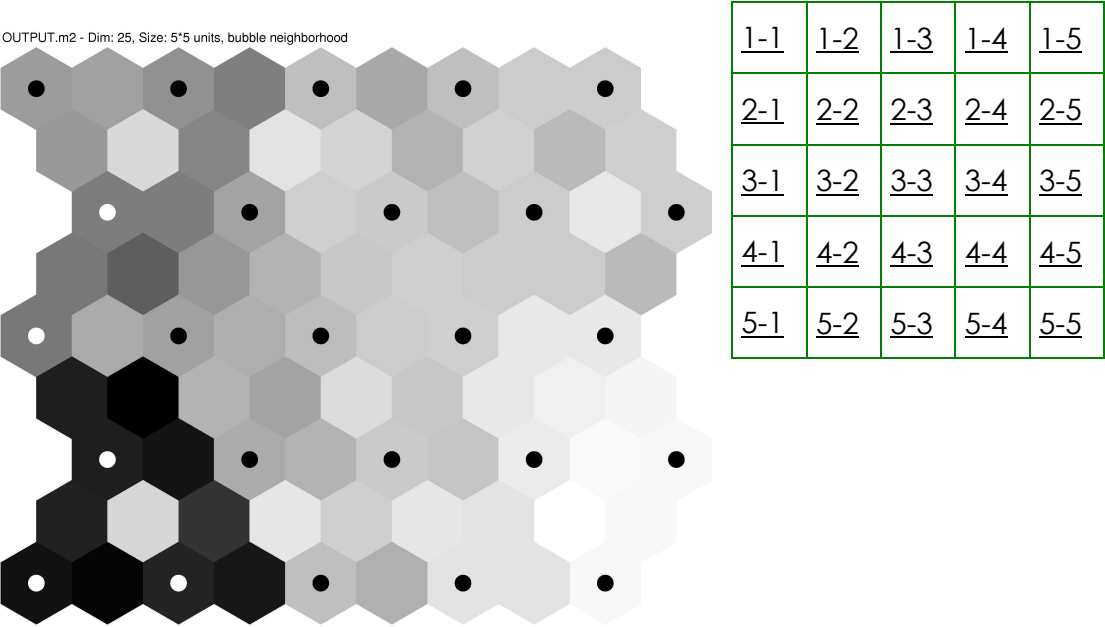


Anexo 4.1.5 - Balanços ordenados por Balanço de Massas de Água

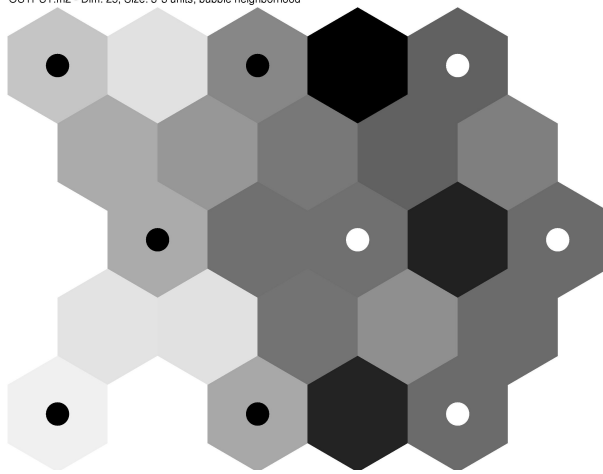


ANEXO 4.2

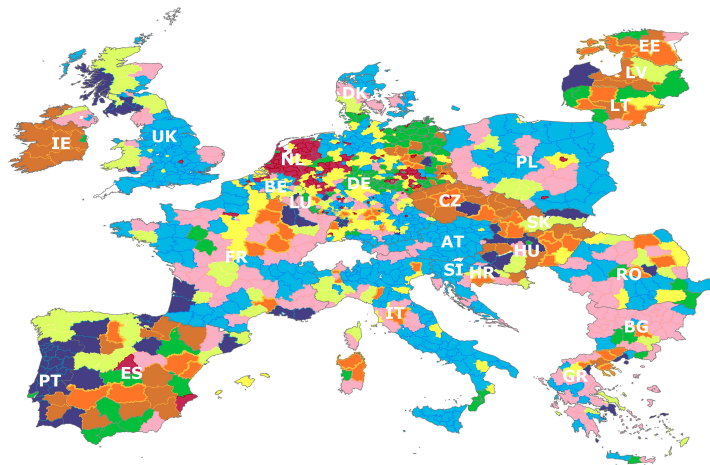
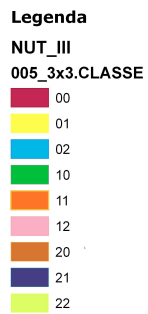
Anexo 4.2.1 – Teste A) 25 VARIÁVEIS – ALTERAÇÕES CLC NÍVEL 1



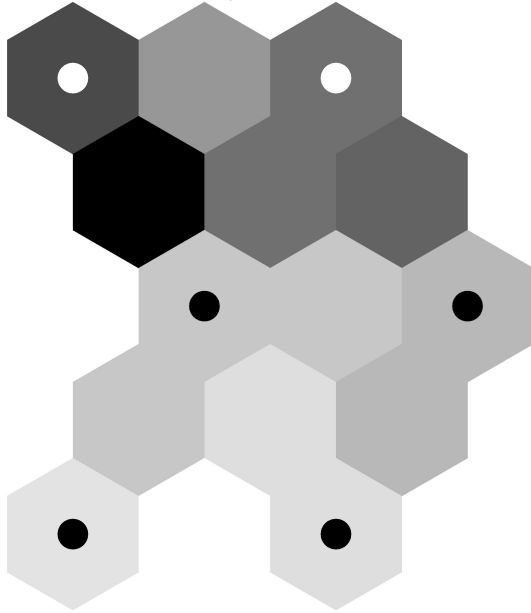
OUTPUT.m2 - Dim: 25, Size: 3*3 units, bubble neighborhood



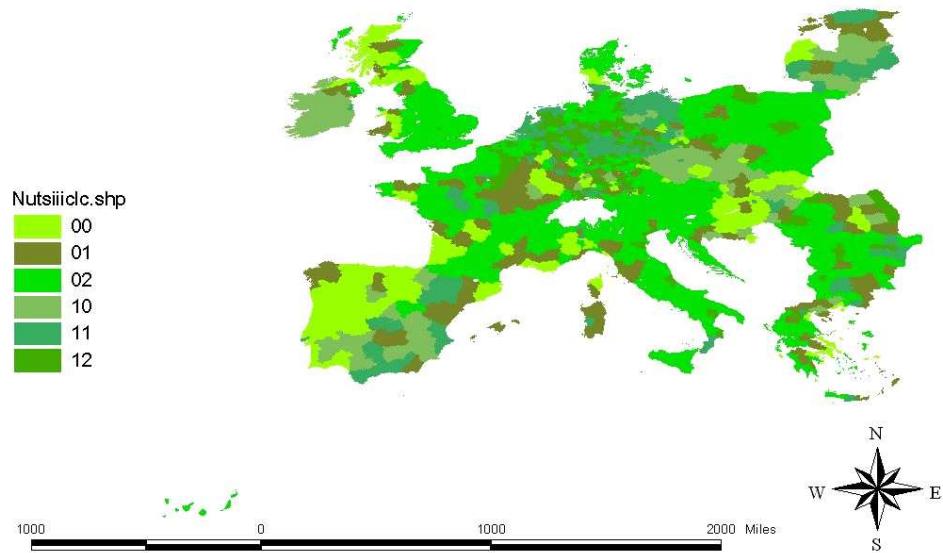
25 Variáveis CH L1 9 Classes



NUT_III_L1.m2 - Dim: 25, Size: 2*3 units, bubble neighborhood



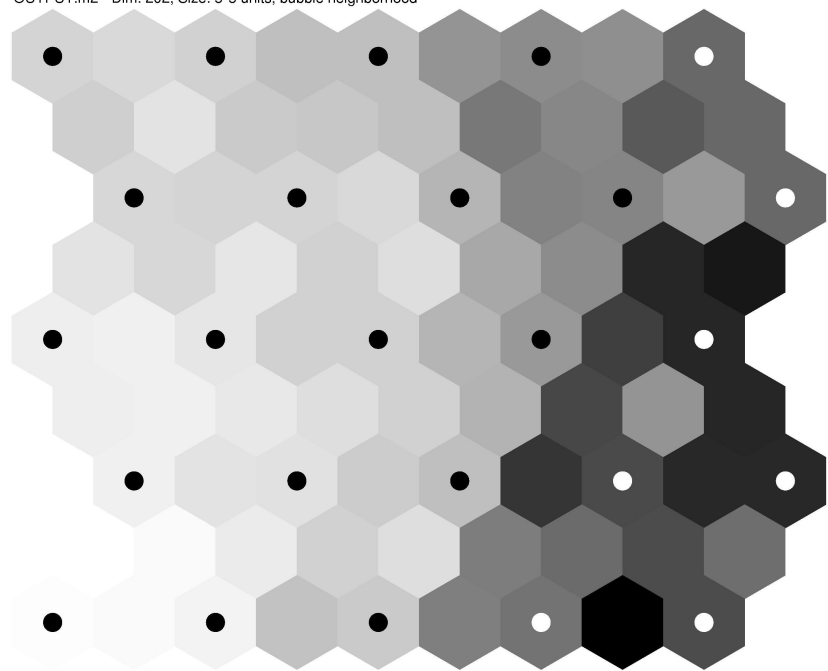
25 Variáveis clc change L1 6 Classes



Anexo 4.2.2 – Teste B) 202 Variáveis - alterações clc nível 2

<u>11-11</u>	<u>11-12</u>	<u>11-13</u>	<u>11-14</u>	<u>11-21</u>	<u>11-22</u>	<u>11-23</u>	<u>11-24</u>	<u>11-31</u>	<u>11-32</u>	<u>11-41</u>	<u>11-51</u>			
<u>12-11</u>	<u>12-12</u>	<u>12-13</u>	<u>12-14</u>	<u>12-21</u>	<u>12-22</u>	<u>12-23</u>	<u>12-24</u>	<u>12-31</u>	<u>12-32</u>	<u>12-33</u>	<u>12-41</u>	<u>12-42</u>	<u>12-51</u>	<u>12-52</u>
<u>13-11</u>	<u>13-12</u>	<u>13-13</u>	<u>13-14</u>	<u>13-21</u>	<u>13-22</u>	<u>13-23</u>	<u>13-24</u>	<u>13-31</u>	<u>13-32</u>	<u>13-33</u>	<u>13-41</u>	<u>13-42</u>	<u>13-51</u>	<u>13-52</u>
<u>14-11</u>	<u>14-12</u>	<u>14-13</u>	<u>14-14</u>	<u>14-21</u>	<u>14-23</u>	<u>14-24</u>	<u>14-31</u>	<u>14-51</u>						
<u>21-11</u>	<u>21-12</u>	<u>21-13</u>	<u>21-14</u>	<u>21-21</u>	<u>21-22</u>	<u>21-23</u>	<u>21-24</u>	<u>21-31</u>	<u>21-32</u>	<u>21-33</u>	<u>21-41</u>	<u>21-42</u>	<u>21-51</u>	<u>21-52</u>
<u>22-11</u>	<u>22-12</u>	<u>22-13</u>	<u>22-14</u>	<u>22-21</u>	<u>22-22</u>	<u>22-23</u>	<u>22-24</u>	<u>22-31</u>	<u>22-32</u>	<u>22-33</u>	<u>22-41</u>	<u>22-51</u>		
<u>23-11</u>	<u>23-12</u>	<u>23-13</u>	<u>23-14</u>	<u>23-21</u>	<u>23-22</u>	<u>23-24</u>	<u>23-31</u>	<u>23-32</u>	<u>23-33</u>	<u>23-41</u>	<u>23-42</u>	<u>23-51</u>		
<u>24-11</u>	<u>24-12</u>	<u>24-13</u>	<u>24-14</u>	<u>24-21</u>	<u>24-22</u>	<u>24-23</u>	<u>24-24</u>	<u>24-31</u>	<u>24-32</u>	<u>24-33</u>	<u>24-41</u>	<u>24-42</u>	<u>24-51</u>	
<u>31-11</u>	<u>31-12</u>	<u>31-13</u>	<u>31-14</u>	<u>31-21</u>	<u>31-22</u>	<u>31-23</u>	<u>31-24</u>	<u>31-31</u>	<u>31-32</u>	<u>31-33</u>	<u>31-41</u>	<u>31-51</u>		
<u>32-11</u>	<u>32-12</u>	<u>32-13</u>	<u>32-14</u>	<u>32-21</u>	<u>32-22</u>	<u>32-23</u>	<u>32-24</u>	<u>32-31</u>	<u>32-32</u>	<u>32-33</u>	<u>32-41</u>	<u>32-42</u>	<u>32-51</u>	<u>32-52</u>
<u>33-11</u>	<u>33-12</u>	<u>33-13</u>	<u>33-14</u>	<u>33-21</u>	<u>33-22</u>	<u>33-23</u>	<u>33-24</u>	<u>33-31</u>	<u>33-32</u>	<u>33-33</u>	<u>33-41</u>	<u>33-42</u>	<u>33-51</u>	<u>33-52</u>
<u>34-31</u>	<u>41-11</u>	<u>41-12</u>	<u>41-13</u>	<u>41-14</u>	<u>41-21</u>	<u>41-22</u>	<u>41-23</u>	<u>41-24</u>	<u>41-31</u>	<u>41-32</u>	<u>41-33</u>	<u>41-41</u>	<u>41-42</u>	<u>41-51</u>
<u>42-11</u>	<u>42-12</u>	<u>42-13</u>	<u>42-14</u>	<u>42-21</u>	<u>42-23</u>	<u>42-24</u>	<u>42-31</u>	<u>42-32</u>	<u>42-33</u>	<u>42-41</u>	<u>42-42</u>	<u>42-51</u>	<u>42-52</u>	
<u>51-11</u>	<u>51-12</u>	<u>51-13</u>	<u>51-14</u>	<u>51-21</u>	<u>51-22</u>	<u>51-23</u>	<u>51-24</u>	<u>51-31</u>	<u>51-32</u>	<u>51-33</u>	<u>51-41</u>	<u>51-51</u>	<u>51-52</u>	
<u>52-11</u>	<u>52-12</u>	<u>52-13</u>	<u>52-14</u>	<u>52-32</u>	<u>52-33</u>	<u>52-42</u>	<u>52-51</u>	<u>52-52</u>						

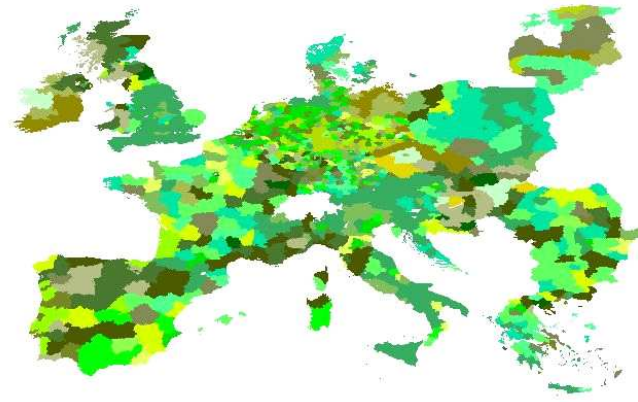
OUTPUT.m2 - Dim: 202, Size: 5*5 units, bubble neighborhood



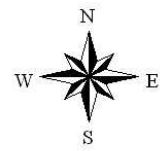
NutsIIc/c.shp

00
01
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03
04
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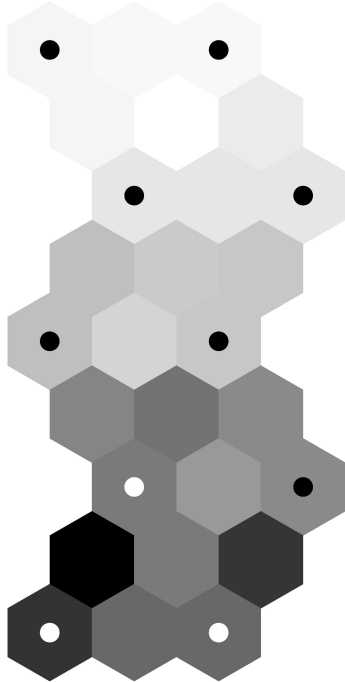
202 Variáveis - clc change L2 25 Classes



1000 0 1000 2000 Miles

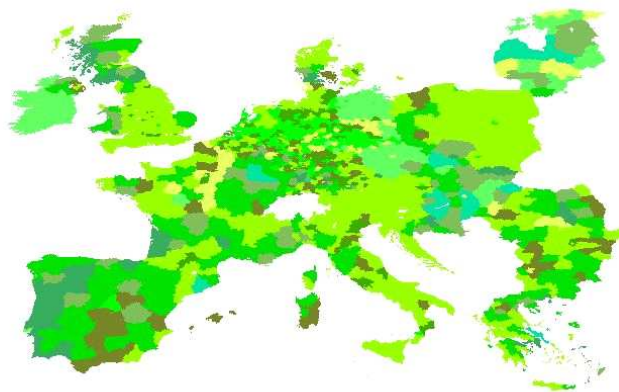
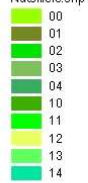


OUTPUT#2 - Dim: 202, Size: 2'S units, bubble neighborhood

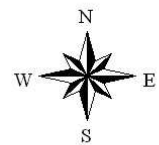


202 Variáveis clc change L2 10 Classes

Nutsiiiclc.shp

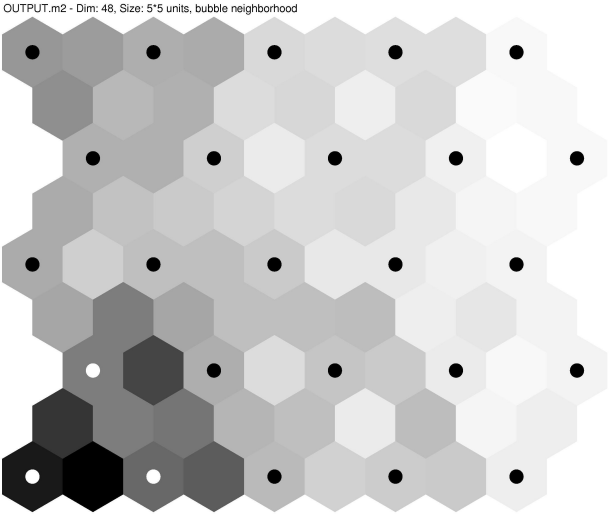


1000 0 1000 2000 Miles



Anexo 4.2.3 – Teste C) 48 Variáveis - alterações clc nível 1 e alterações clc nível 2 para transferências internas particularmente significativas (3-3;2-2)

<u>1-1</u>	<u>1-2</u>	<u>1-3</u>	<u>1-4</u>	<u>1-5</u>										
<u>2-1</u>		<u>2-3</u>		<u>2-4</u>		<u>2-5</u>								
<u>21-21</u>	<u>21-22</u>	<u>21-23</u>	<u>21-24</u>	<u>22-21</u>	<u>22-22</u>	<u>22-23</u>	<u>22-24</u>	<u>23-21</u>	<u>23-22</u>	<u>23-24</u>	<u>24-21</u>	<u>24-22</u>	<u>24-23</u>	<u>24-24</u>
<u>3-1</u>		<u>3-2</u>		<u>3-4</u>		<u>3-5</u>								
<u>31-31</u>	<u>31-32</u>	<u>31-33</u>	<u>32-31</u>	<u>32-32</u>	<u>32-33</u>	<u>33-31</u>	<u>33-32</u>	<u>33-33</u>	<u>34-31</u>					
<u>4-1</u>	<u>4-2</u>	<u>4-3</u>	<u>4-4</u>	<u>4-5</u>										
<u>5-1</u>	<u>5-2</u>	<u>5-3</u>	<u>5-4</u>	<u>5-5</u>	<u>9-9</u>									

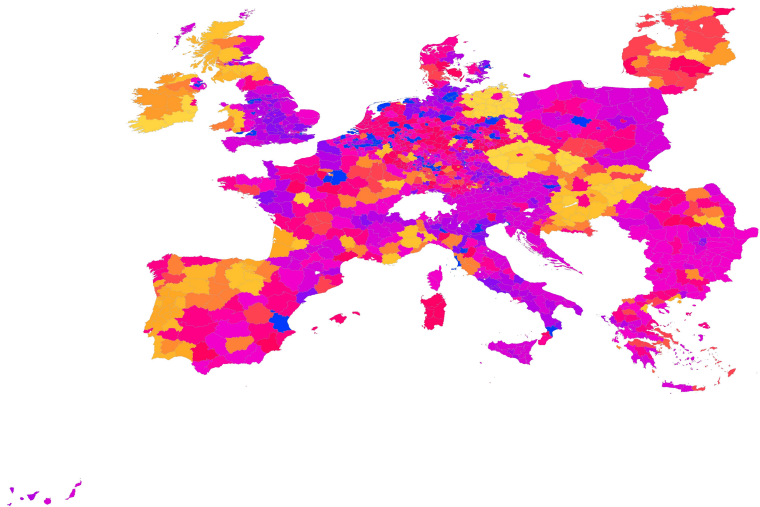


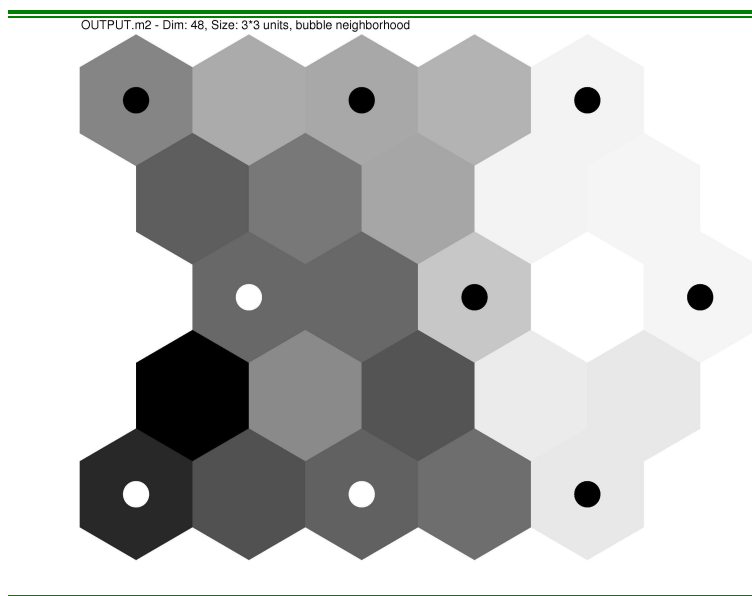
LEGENDA

006.N2

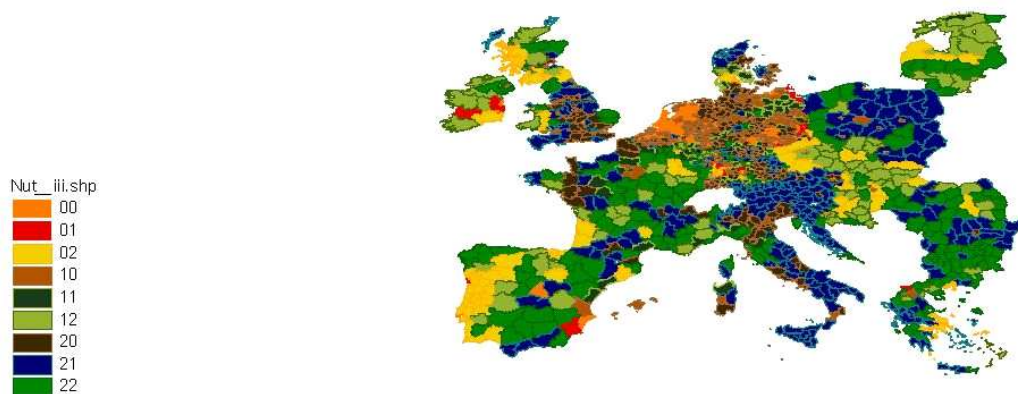


**48 Variáveis clc L1 e L2 (3-3 e 2-2)
25 Classes**

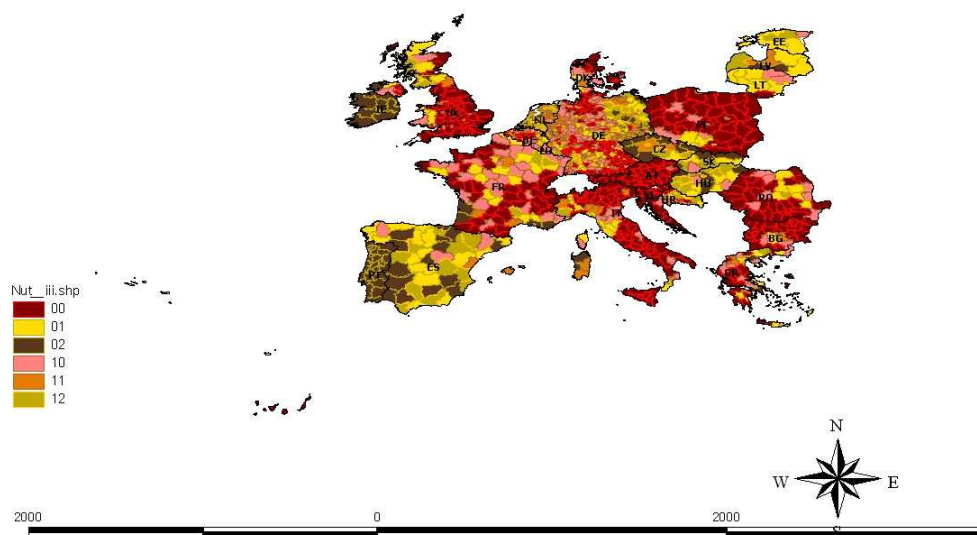
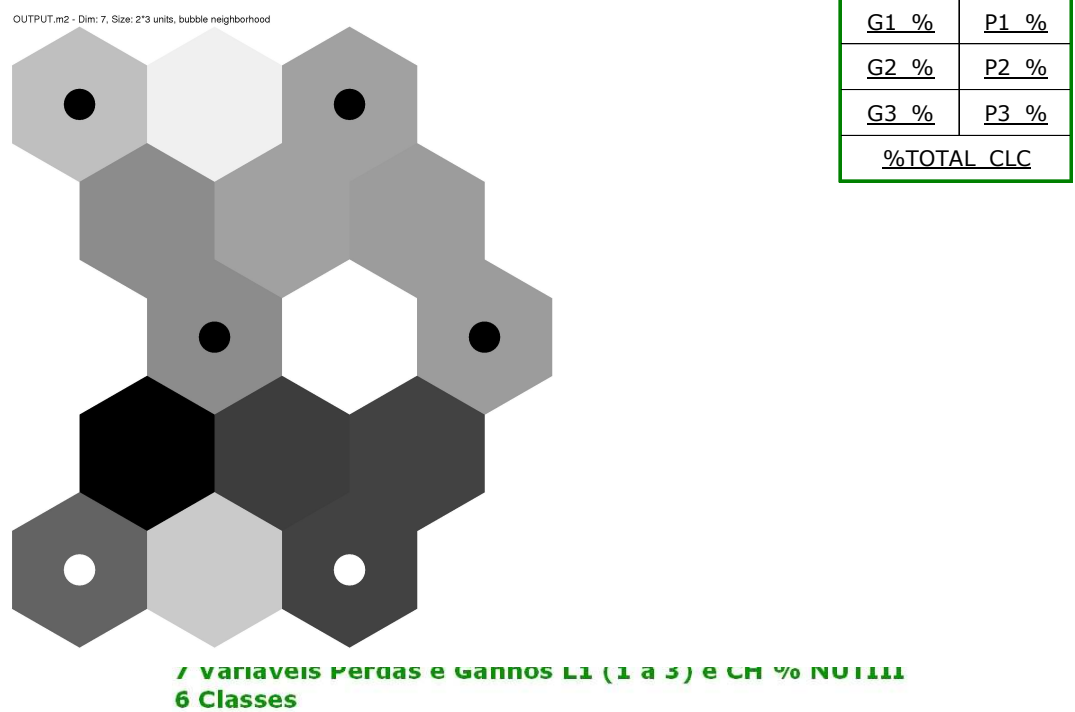




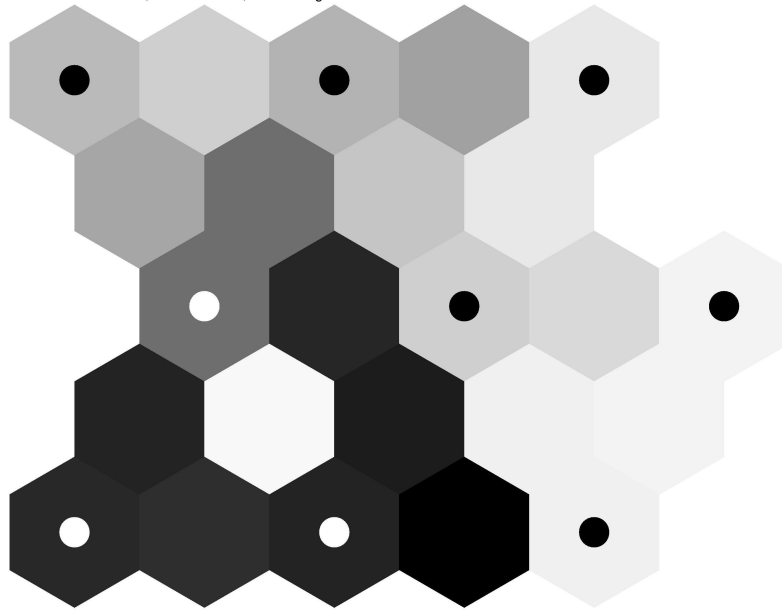
48 Variáveis - clc change L1 e L2 (3-3 e 2-2) 9 Classes



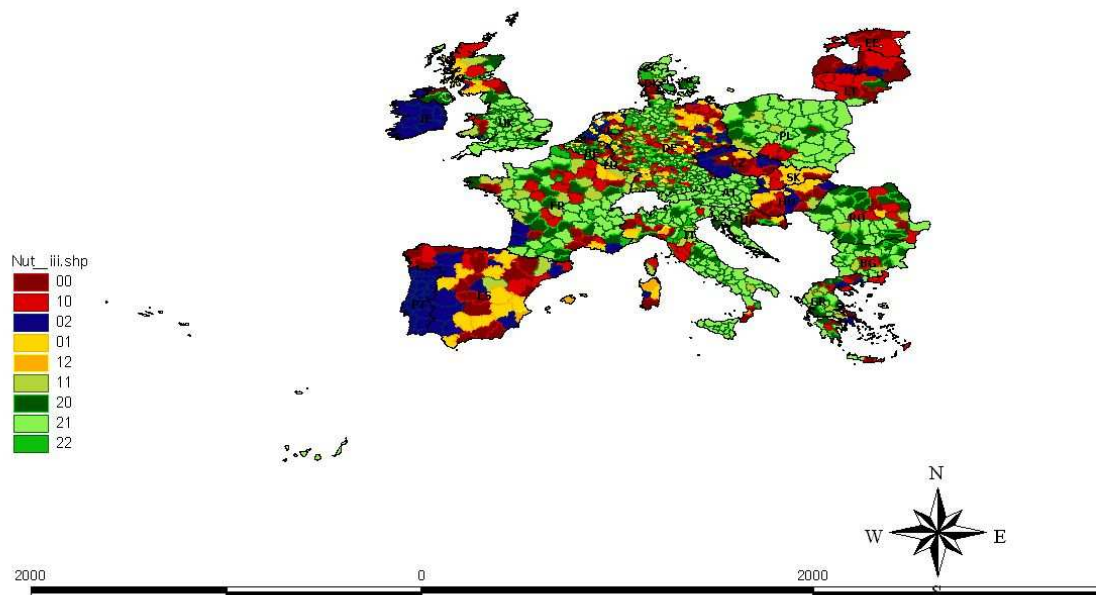
Anexo 4.2.4 – Teste D) 7 Variáveis – Perdas e Ganhos nível 1 das classes mais significativas (1, 2 e 3) e % de área total da NUT III com aCLCn3



OUTPUT.m2 - Dim: 7, Size: 3*3 units, bubble neighborhood

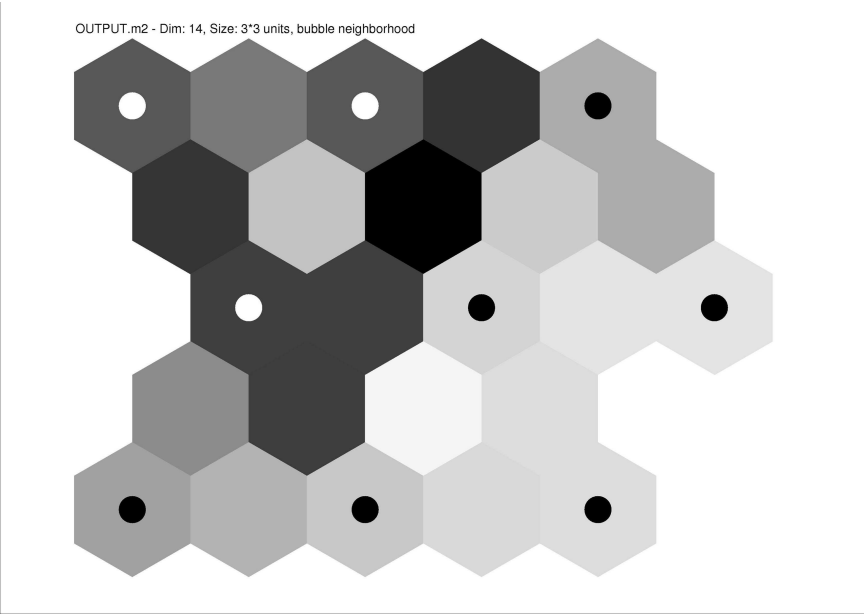


7 Variáveis Perdas e Ganhos L1 (1 a 3) e CH % NUTIII 9 Classes

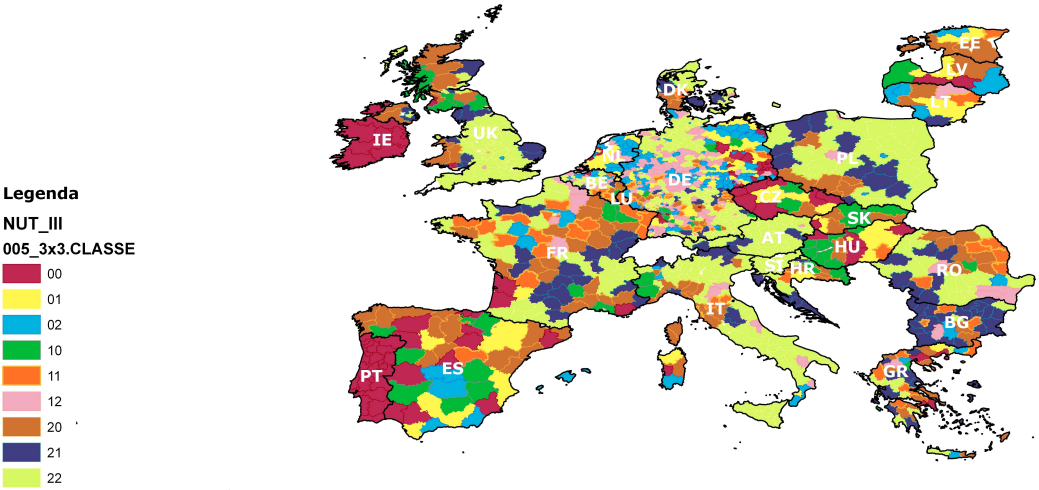


**Anexo 4.2.5 – Teste E) 14 Variáveis – alterações clc nível 1 maiores que 20 000 ha
ou 0.01 % da área total da NUT III e % de área total da NUT III com
aCLCn3**

<u>1-1</u>	<u>1-2</u>	<u>1-3</u>	<u>1-5</u>
<u>2-1</u>	<u>2-2</u>	<u>2-3</u>	<u>2-5</u>
<u>3-1</u>	<u>3-2</u>	<u>3-3</u>	<u>3-5</u>
<u>4-3</u>	<u>%TOTAL CLC</u>		



**14 Variáveis CH L1 (GA) + % CH NUT
9 Classes**



Anexo 4.2.6 – Teste F)

Teste conduzido em duas etapas:

Identificação de NUTs diferenciadas pela % de área total de aCLCn1 na NUT III:

Junção dos clusters obtidos em **D)** dois a dois em função da sua proximidade que revela agrupamentos em função da % de área total com aCLCn1 da NUT III.

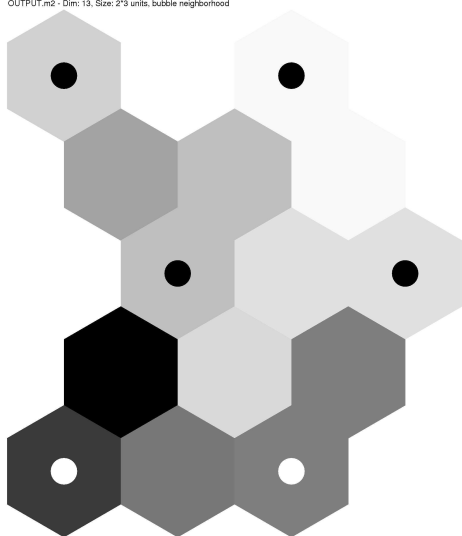
- i) 00 e 10 – Baixas alterações – 711 NUTs
- ii) 01 e 11 – Medias alterações - 271 NUTs
- iii) 02 e 22 – Altas alterações – 250 NUTs

Submissão de cada um destes agrupamentos a um novo clustering:

13 VARIÁVEIS – ALTERAÇÕES CLC NÍVEL 1 MAIORES QUE 20 000 HA OU 0.01% DA ÁREA TOTAL DA NUT III

<u>1-1</u>	<u>1-2</u>	<u>1-3</u>	<u>1-5</u>
<u>2-1</u>	<u>2-2</u>	<u>2-3</u>	<u>2-5</u>
<u>3-1</u>	<u>3-2</u>	<u>3-3</u>	<u>3-5</u>
<u>4-3</u>	-	-	-

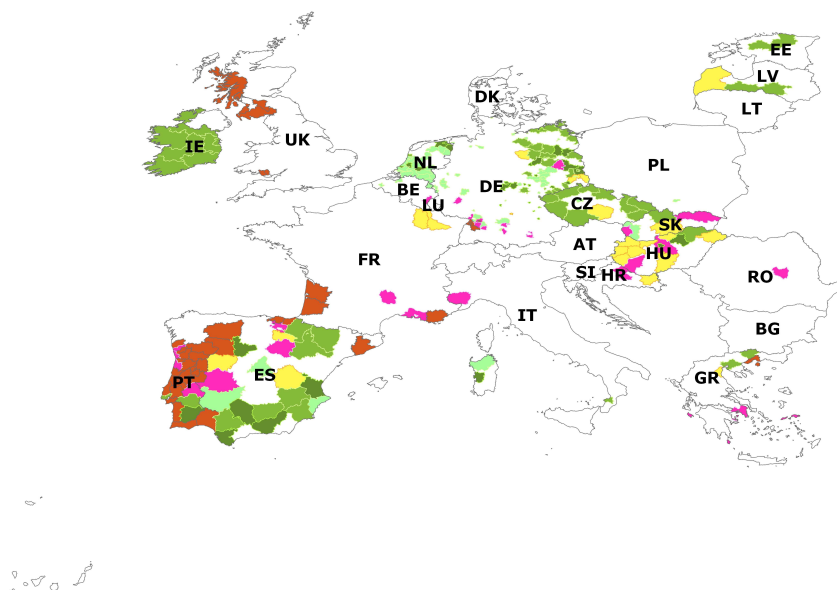
OUTPUT.m2 - Dim: 13, Size: 2*3 units, bubble neighborhood



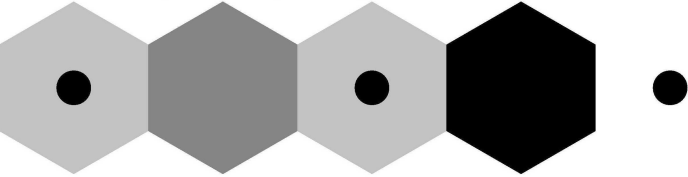
011_CH_ALTA
13 Variáveis CH L1
6 Classes

Legenda
NUT_III
011C0212.CLASSE

00
01
02
10
11
12



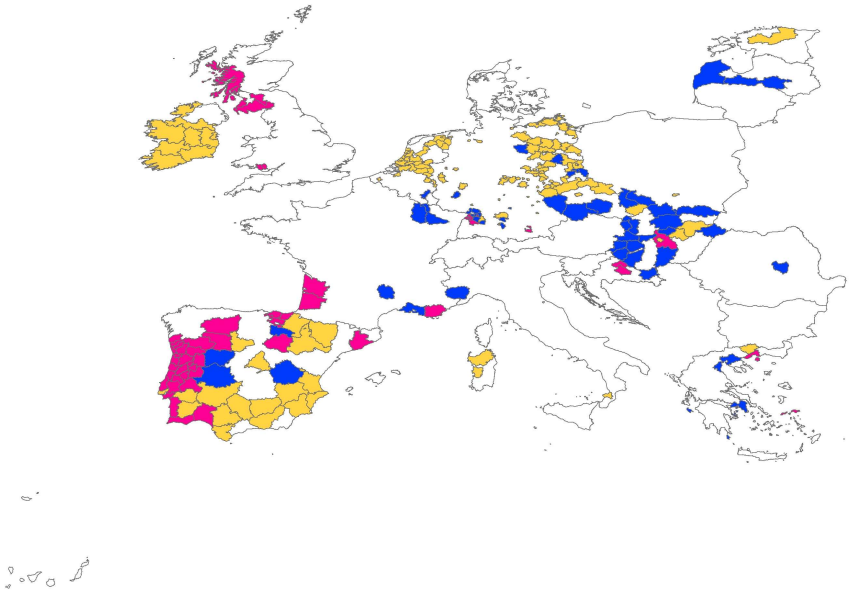
OUTPUT.m2 - Dim: 13, Size: 3*1 units, bubble neighborhood



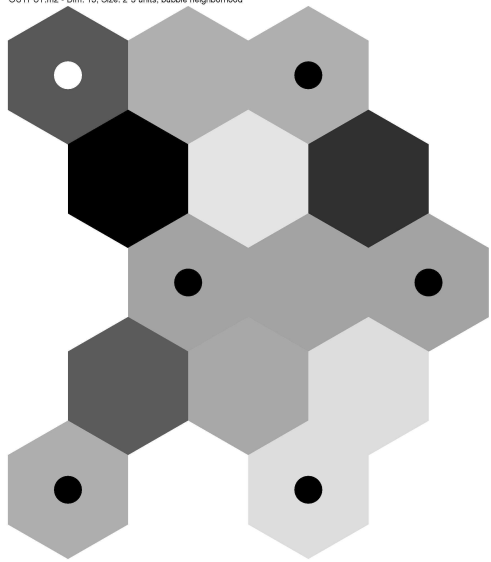
011_CH_ALTA
13 Variáveis CH L1
3 Classes

Legenda
NUT_III
ALTA3X1.CLASSE

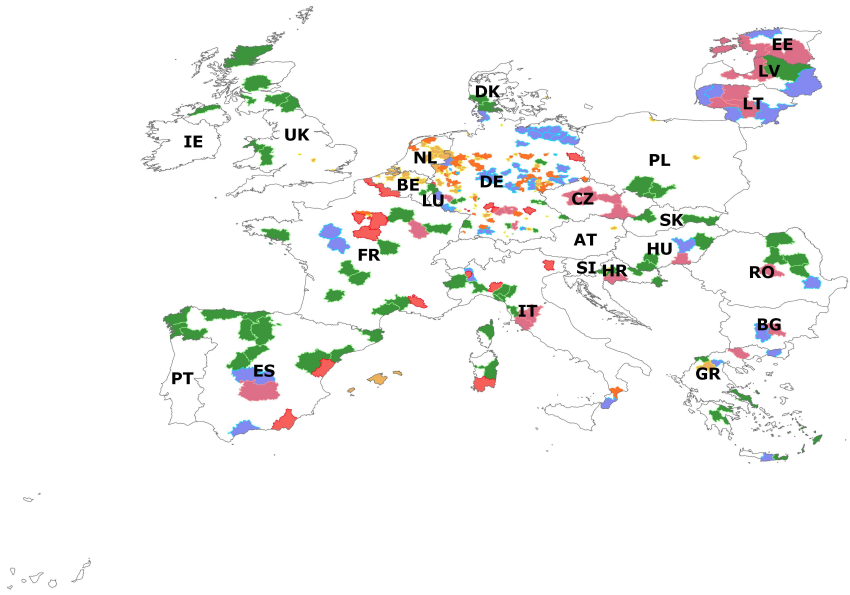
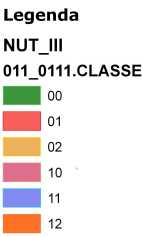
00
10
20



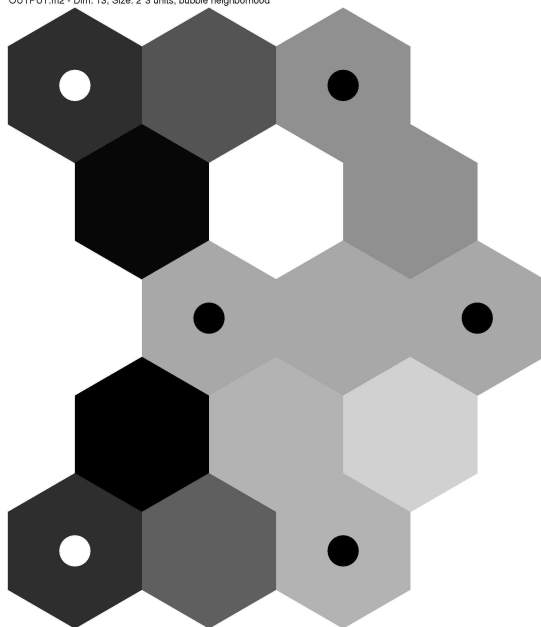
OUTPUT.m2 - Dim: 13, Size: 2'3 units, bubble neighborhood



011_CH_MÉDIA
13 Variáveis CH L1
6 Classes



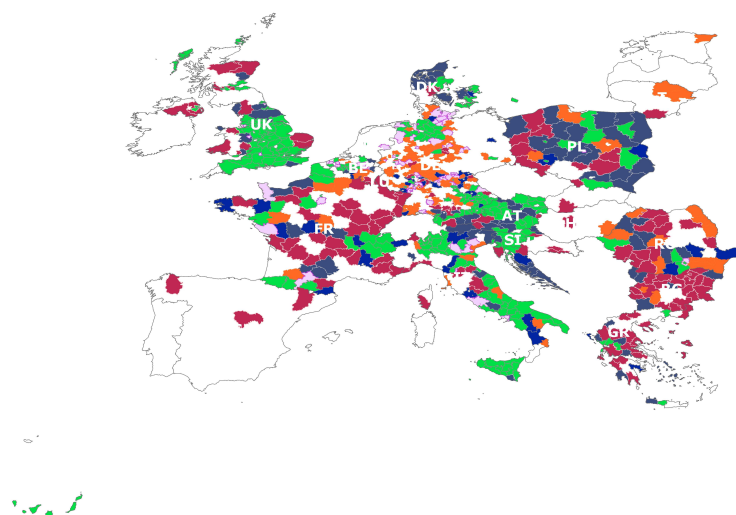
OUTPUT.m2 - Dim: 13, Size: 2³ units, bubble neighborhood



011_CH_BAIXA
14 Variáveis CH L1
6 Classes

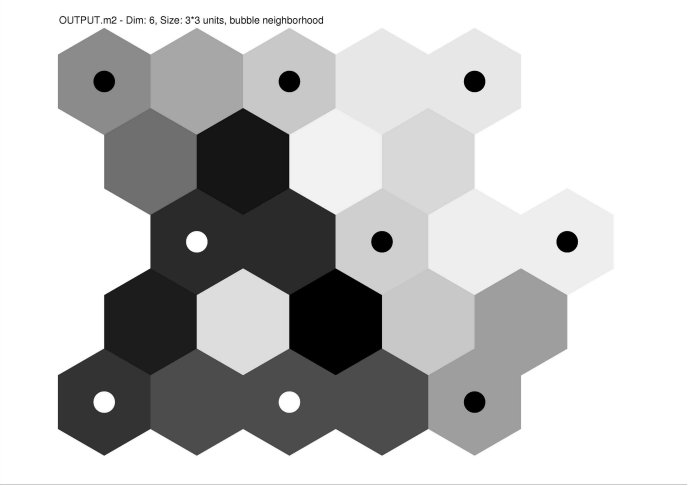
Legenda
NUT_III
0110010.CLASSE

00
01
02
10
11
12

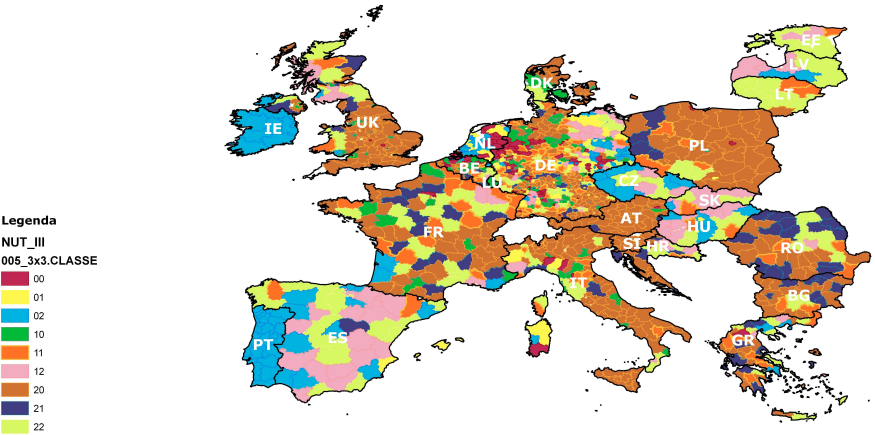


**Anexo 4.2.7 – Teste G) 6 Variáveis –Balanços nível 1 e % de área total da NUT III
com aCLCn3**

<u>B1 %</u>
<u>B2 %</u>
<u>B3 %</u>
<u>B4 %</u>
<u>B5 %</u>
<u>%TOTAL CLC</u>

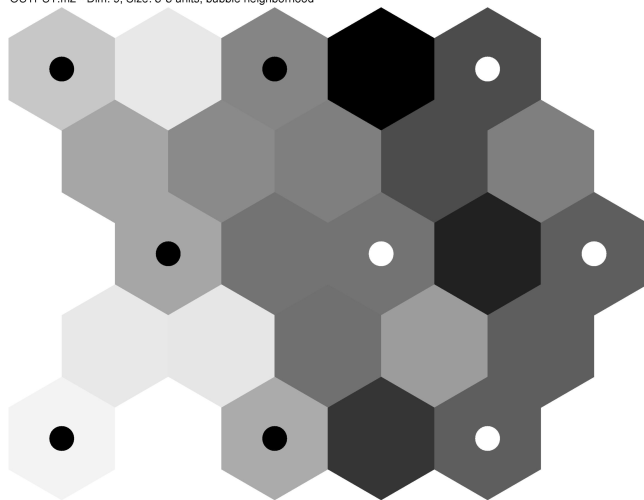


**6 Variáveis BALANÇO L1 + % CH NUT
9 Classes**



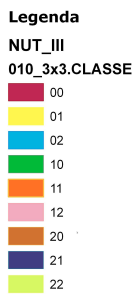
Anexo 4.2.8 – Teste H) 9 Variáveis – Land Cover Flows (variáveis LEAC) nível 1

OUTPUT.m2 - Dim: 9, Size: 3*3 units, bubble neighborhood



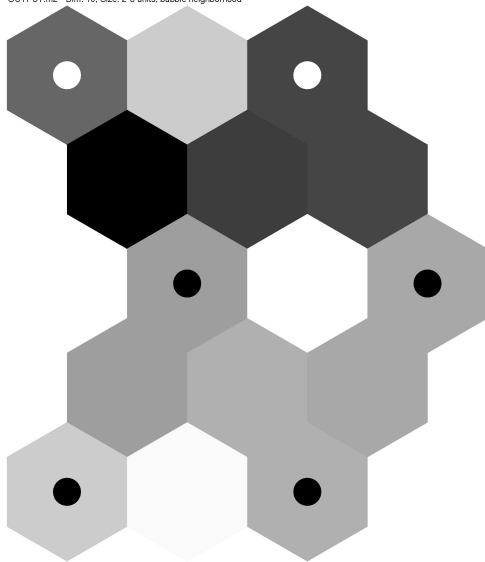
<u>LCF1</u>
<u>LCF2</u>
<u>LCF3</u>
<u>LCF4</u>
<u>LCF5</u>
<u>LCF6</u>
<u>LCF7</u>
<u>LCF8</u>
<u>LCF9</u>

9 Variáveis LCF L1
9 Classes



Anexo 4.2.9 – Teste I) 10 Variáveis – alterações clc change nível 1

OUTPUT.m2 - Dim: 10, Size: 273 units, bubble neighborhood

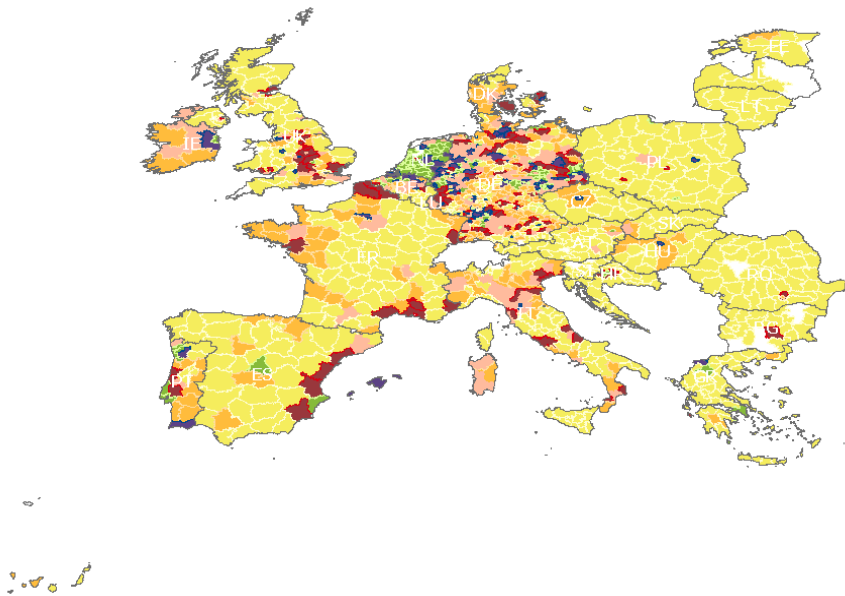


<u>1-2</u>	<u>1-3</u>
<u>2-1</u>	<u>2-3</u>
<u>3-1</u>	<u>3-2</u>
<u>4-Q</u>	<u>Q-4</u>
<u>5-Q</u>	<u>Q-5</u>

10 Variáveis CH L1
6 Classes

Legenda
NUT_III
01210V.CLASSE

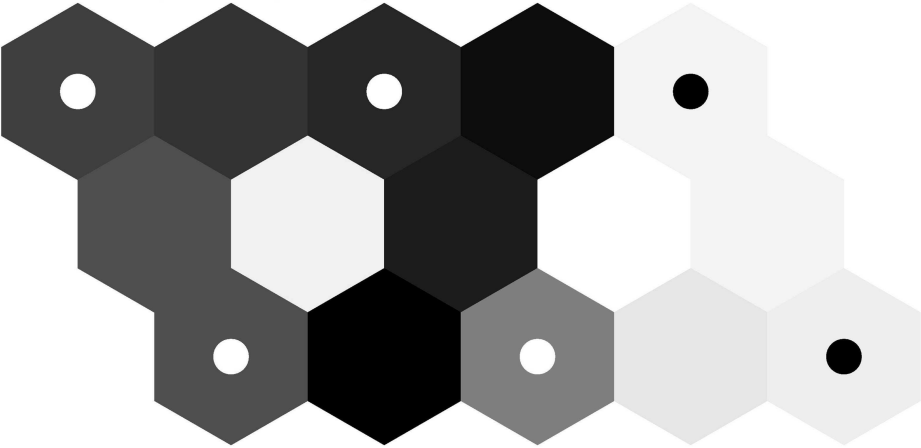
00
10
01
11
02
12



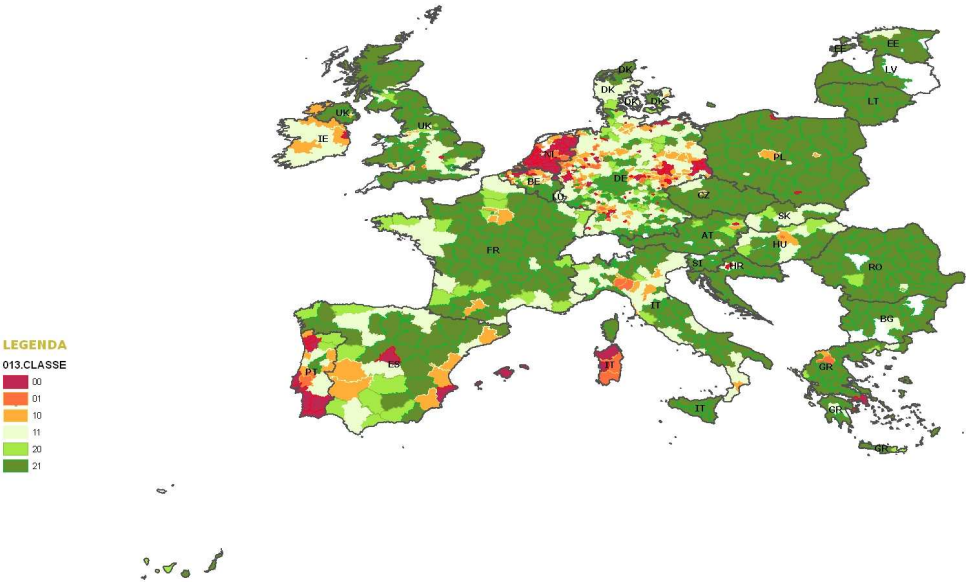
Anexo 4.2.10 – Teste J) 6 Variáveis – Perdas e Ganhos nível 1 (1 a 3)

<u>G1</u> %	<u>P1</u> %
<u>G2</u> %	<u>P2</u> %
<u>G3</u> %	<u>P3</u> %

OUTPUT.m2 - Dim: 6, Size: 3*2 units, bubble neighborhood



U13
6 Variáveis Perdas e Ganhos (1 a 3)
6 Classes



4.3. ANEXOS

Anexo 4.3.1 – Escolha de variáveis - 1212 NUTs III

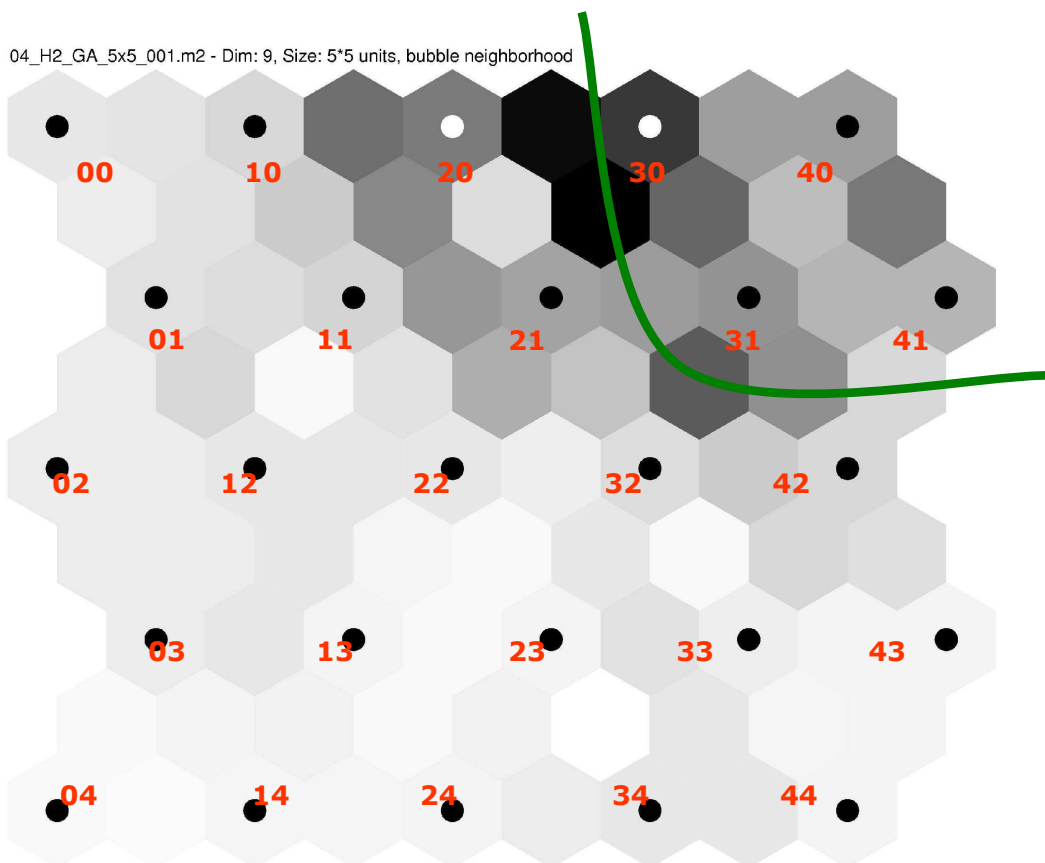
change_L1	area_clc	MédiaDe%_CLC_NUT	Frequência Absoluta	Frequência Relativa	Variáveis que cumprem 2 dos 3 critérios	Variáveis Finais
1-2	27,149	0.07	323	0.26	1-2	1-2
1-3	52,560	0.19	279	0.23	1-3	1-3
1-4	1,206	0.07	9	0.01	1-4	1-5
1-5	21,706	0.09	186	0.15	1-5	2-1
2-1	814,040	0.55	1168	0.95	2-1	2-3
2-3	406,660	0.15	668	0.54	2-3	2-5
2-4	11,001	0.08	101	0.08	2-4	3-1
2-5	51,603	0.05	430	0.35	2-5	3-2
3-1	150,201	0.09	724	0.59	3-1	4-3
3-2	368,341	0.10	507	0.41	3-2	Outras
3-4	5,533	0.03	53	0.04	3-4	
3-5	34,920	0.03	221	0.18	3-5	
4-1	2,281	0.02	60	0.05	4-1	
4-2	9,523	0.04	87	0.07	4-2	
4-3	108,251	0.15	83	0.07	4-3	
4-5	10,461	0.03	96	0.08	4-5	
5-1	2,996	0.02	109	0.09	5-1	
5-2	5,004	0.02	79	0.06	5-2	
5-3	7,073	0.02	95	0.08	5-3	
5-4	5,532	0.04	59	0.05	5-4	

1232

Critério- Média >0,05% aCLCn1
Critério- Área >20 000 ha
Critério- Frequência >20% total NUTs

1212 NUTs III

Anexo 4.3.2 – Matriz U - Grupo Grandes Alterações – 80 NUTs III

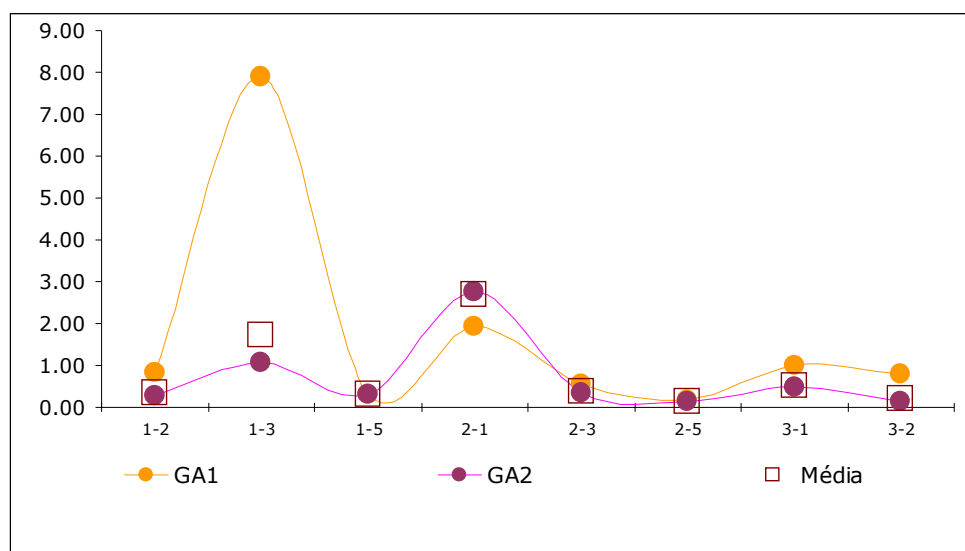


Anexo 4.3.3 – Resultados Variáveis de input - Grupo Grandes Alterações – 80 NUTs

III		1-2	1-3	1-5	2-1	2-3	2-5	3-1	3-2
Classe	N.º de NUT III								
GA1	8	0.82	7.91	0.31	1.94	0.55	0.17	1.00	0.79
GA2	82	0.28	1.06	0.33	2.76	0.35	0.13	0.48	0.13
GA1	8	130%	362%	-4%	-28%	45%	31%	90%	290%
GA2	82	-22%	-38%	1%	2%	-6%	-3%	-8%	-38%
Média	82	0.36	1.71	0.32	2.69	0.38	0.13	0.52	0.20
Valores comparação	1.5	0.54	2.57	0.48	4.04	0.57	0.19	0.78	0.30
	0.5	0.18	0.86	0.16	1.35	0.19	0.06	0.26	0.10

Anexo 4.3.4 – Resultados Variáveis de input - Grupo Grandes Alterações – 80

NUTS III



Anexo 4.3.5 – Resultados Balanços - Grupo Grandes Alterações - Alterações – 80

NUTS III

Classe	N.º de NUT III	B1	B2	B3	B4	B5	% da NUT III com aCLCn1
GA1	8	0.03	-1.58	1.30	-0.01	0.26	5.46
GA2	82	2.39	-2.89	0.27	0.01	0.22	4.25
GA1	8	-99%	43%	255%	-257%	12%	25%
GA2	82	11%	-5%	-27%	28%	-1%	-3%
Média	90	2.16	-2.76	0.37	0.01	0.23	4.36
Valores comparação	1.5	3.24	-1.38	0.55	0.00	0.34	6.55
	0.5	1.08	-4.14	0.18	0.01	0.11	2.18