6th GEN



bombers
Generalitat de Catalunya



- Continuity



- Rate of spread



- Intensity



- WUI

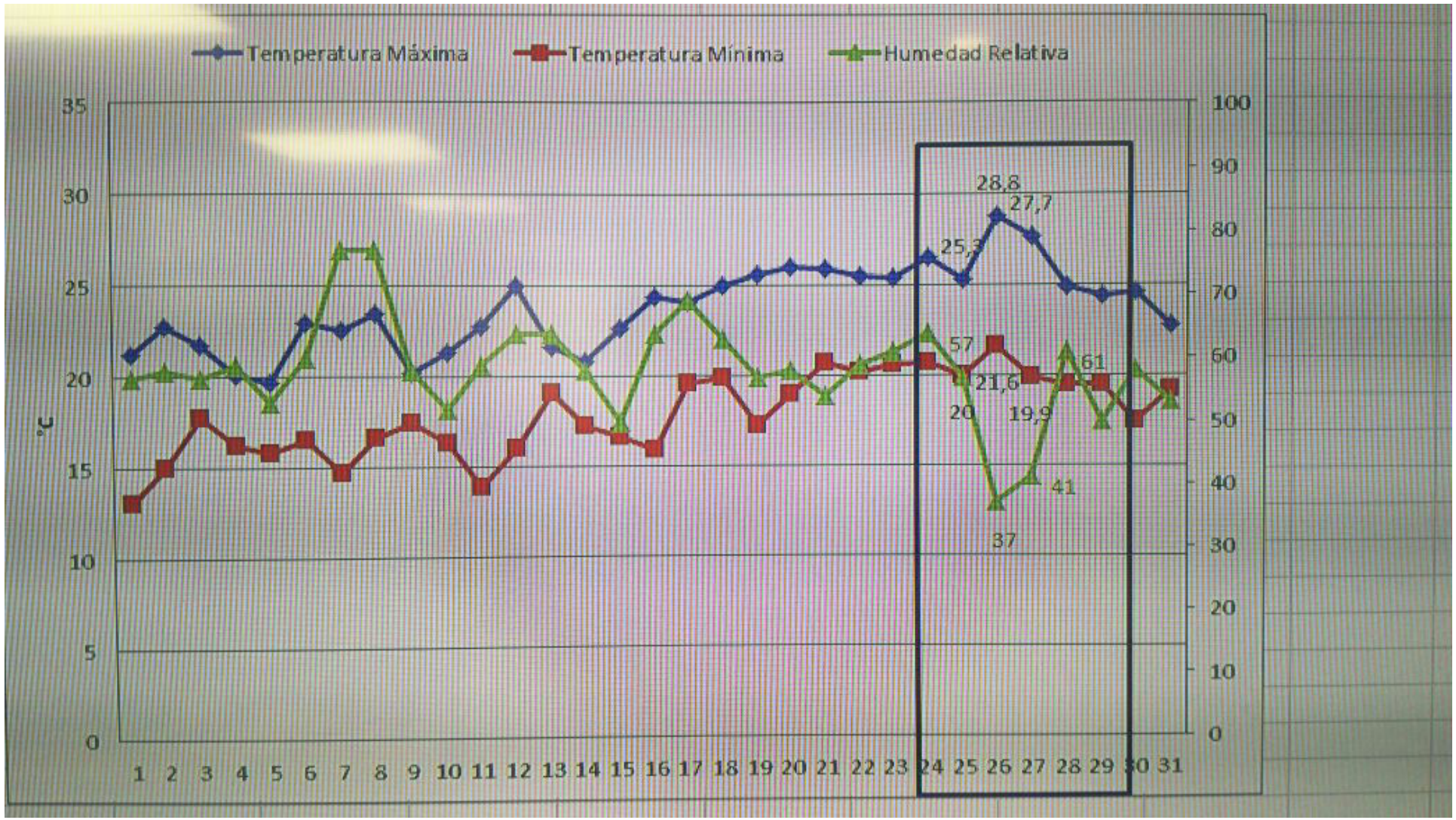


- Simultaneity

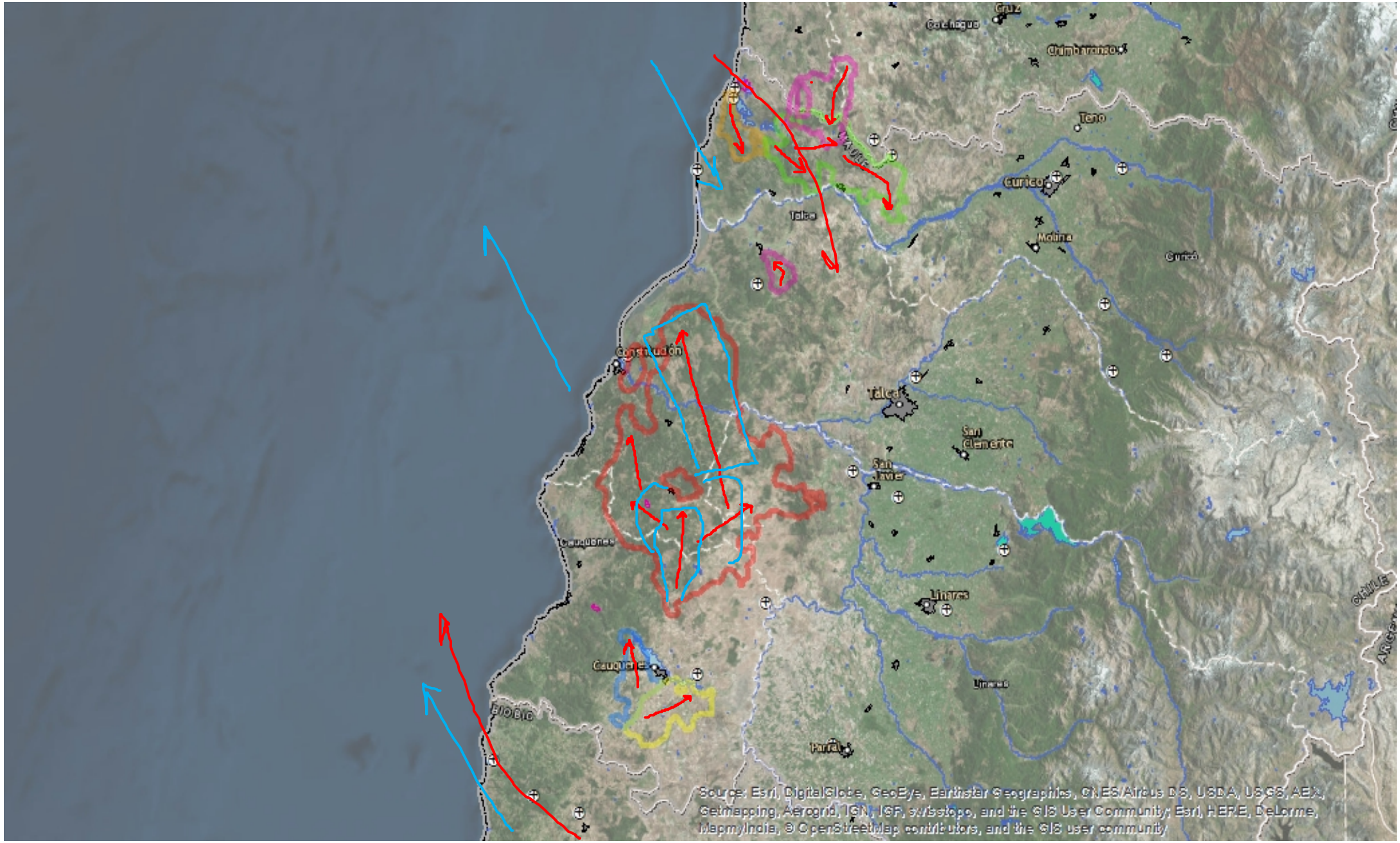


- Climate Change



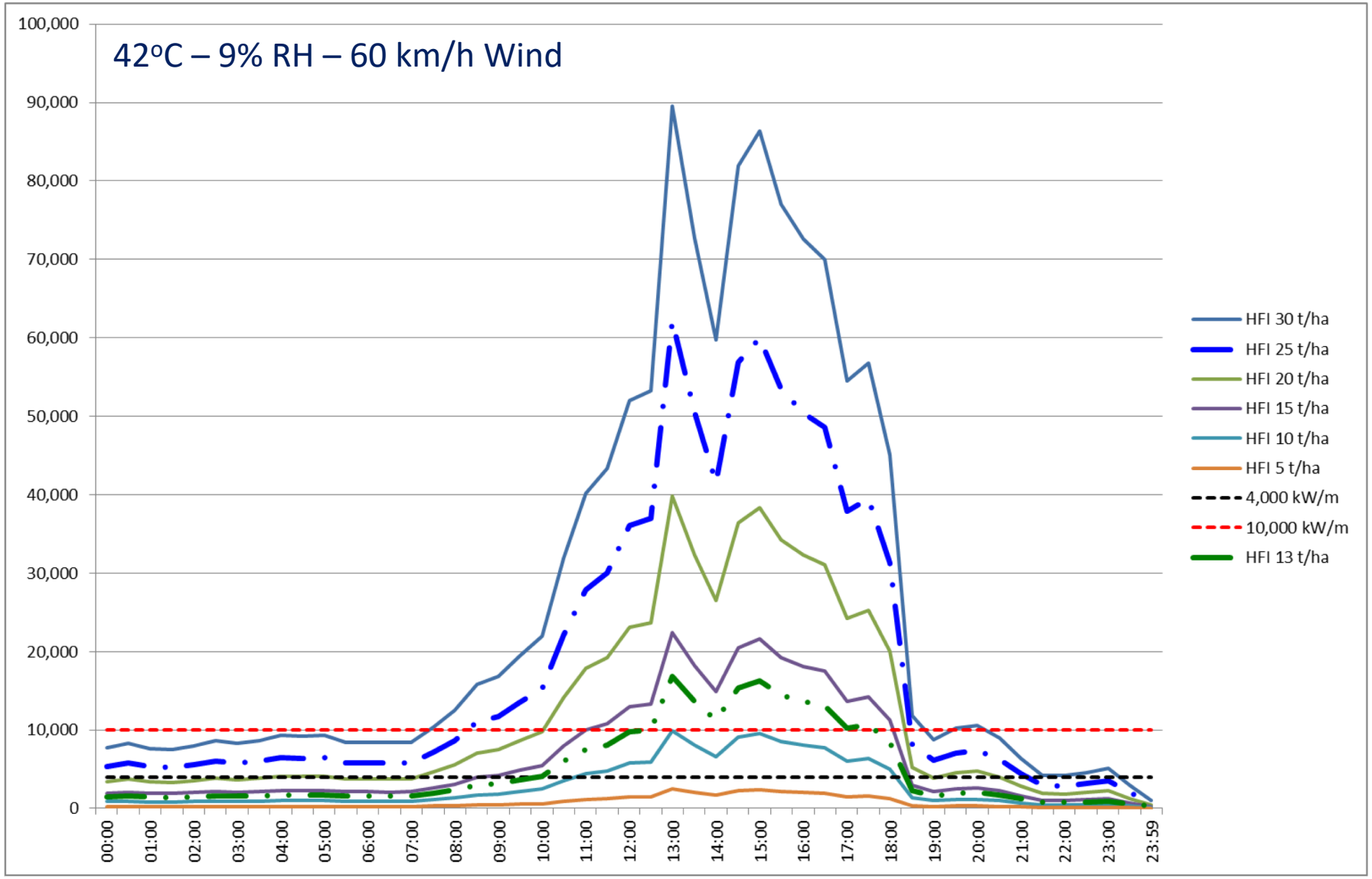

Temperatura Máxima
Temperatura Mínima
Humedad Relativa
°C
35
30
25
20
15
10
5
0
100
90
80
70
60
50
40
30
20
10
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
28,8
27,7
25,3
57
61
21,6
20
19,9
41
37

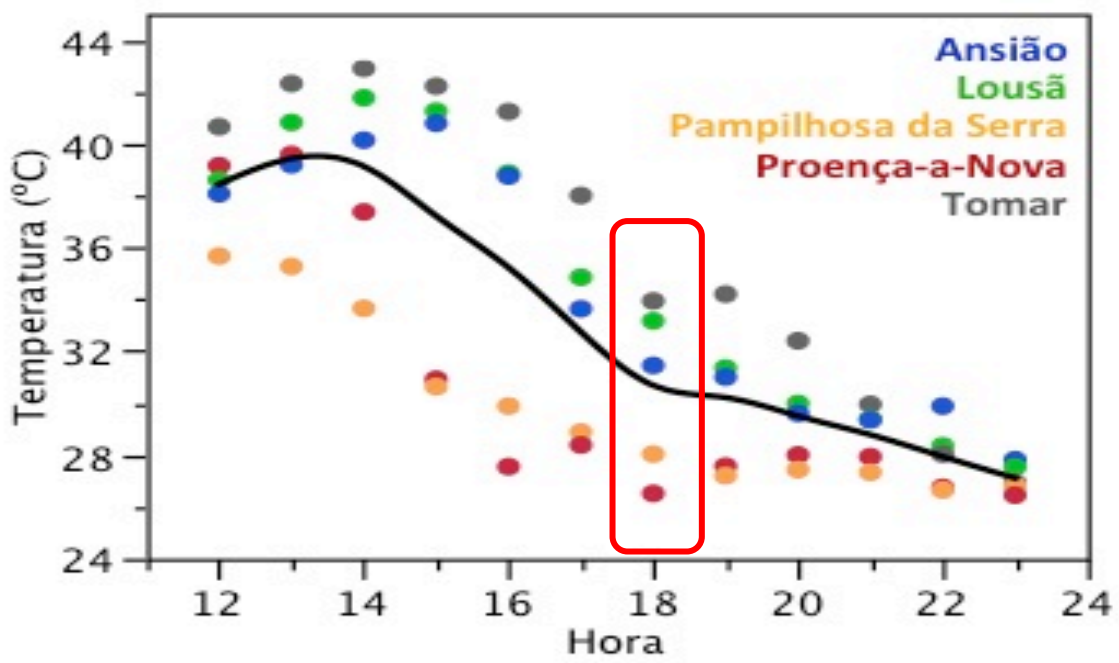


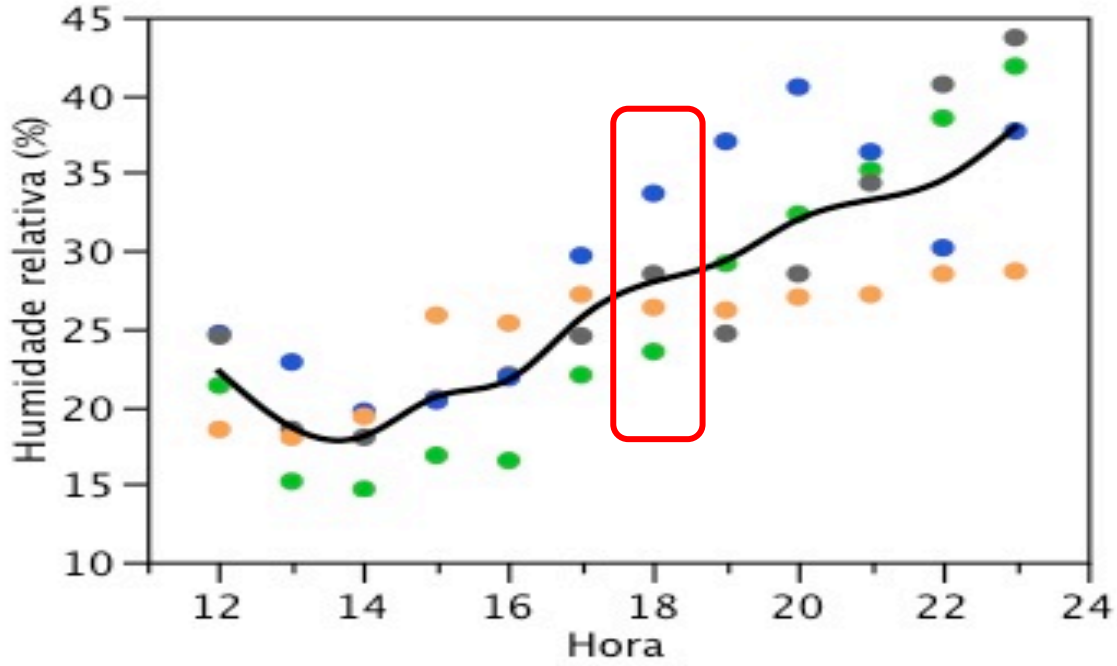

Curicó
Talca
Constitución
Cauquenes
Linares
Parral
Molina
San Clemente
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community; Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS user community

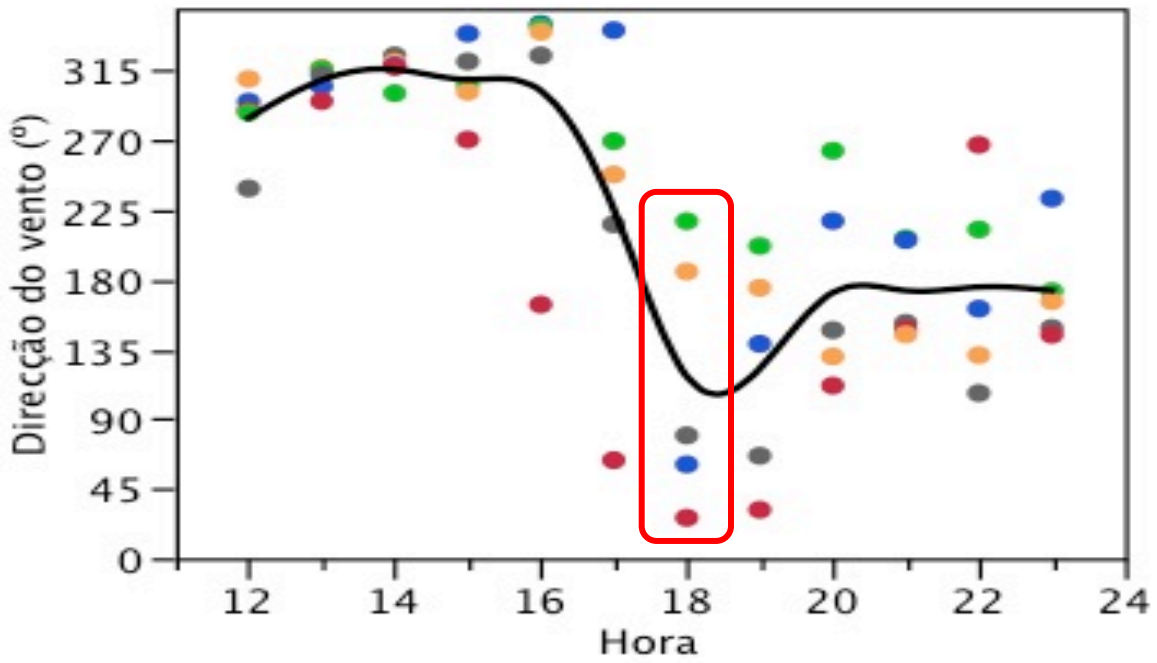
Diurnal Head Fire Intensity

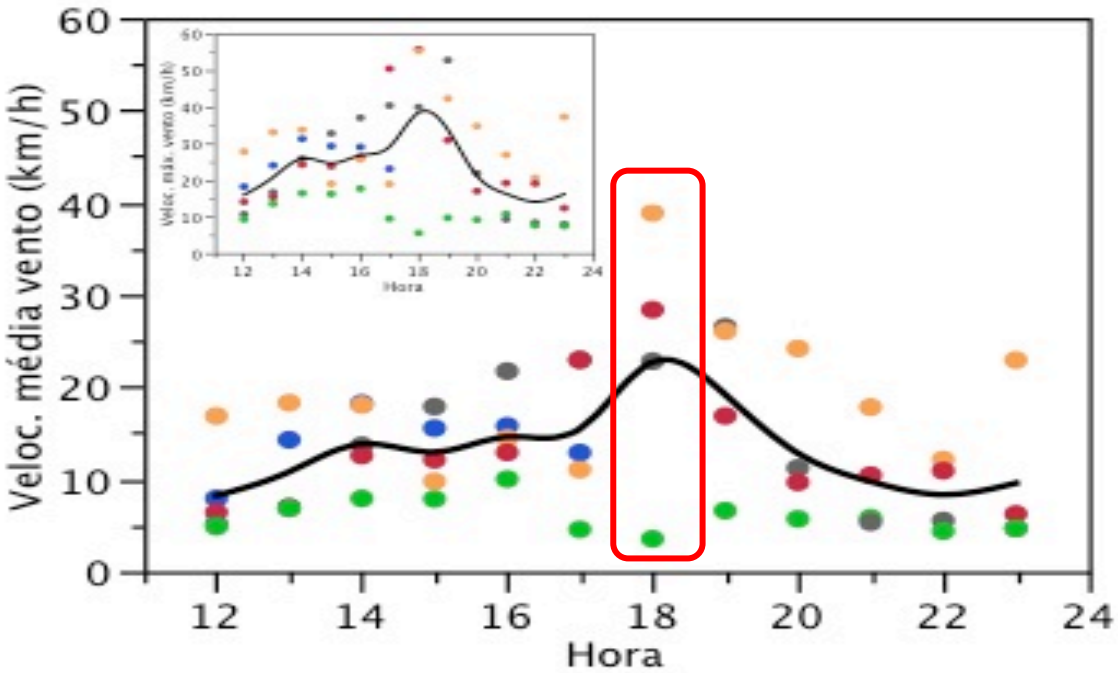
(Kilmore Gap Weather Station, 7 February 2009)



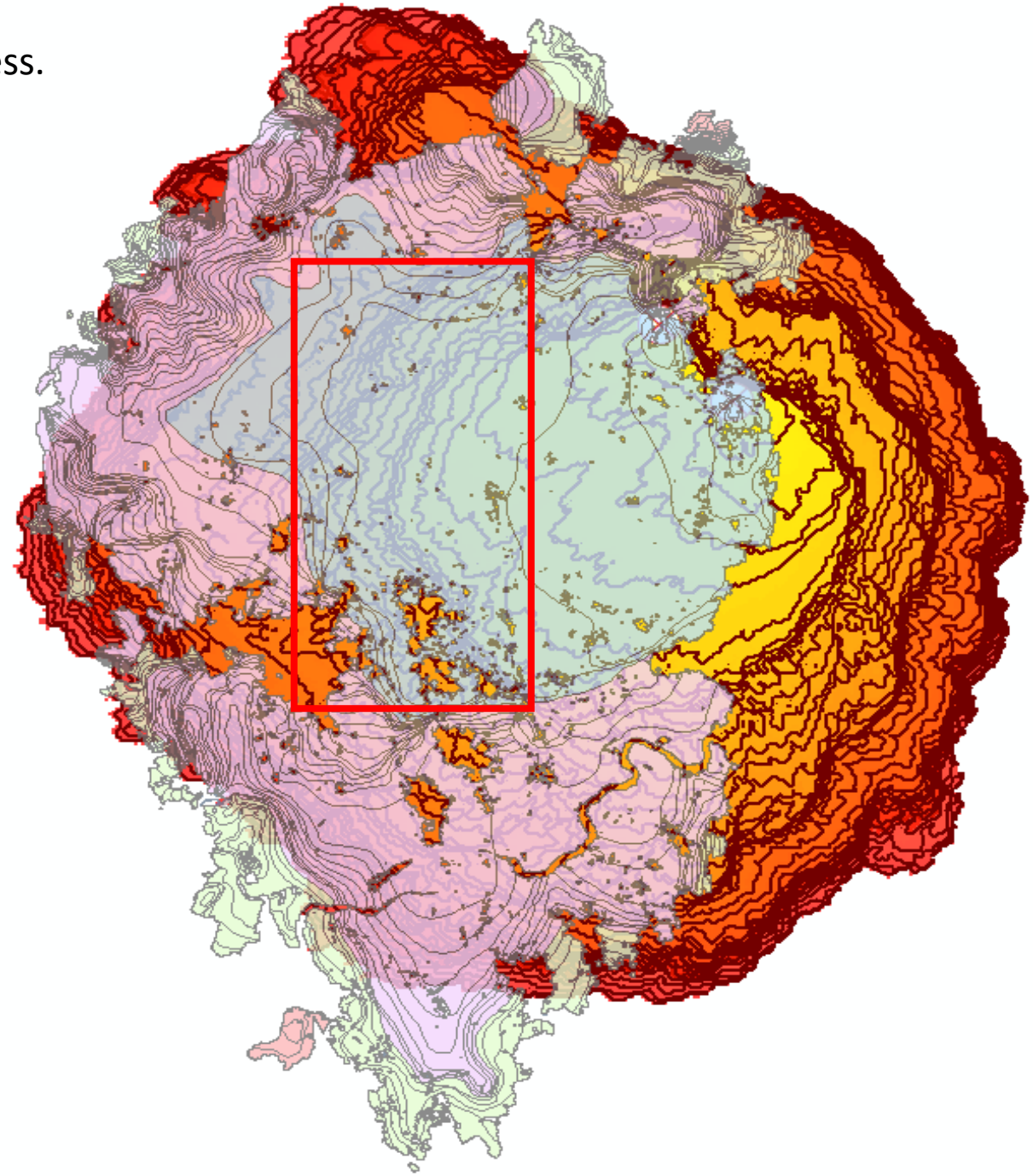

Ansião
Lousã
Pampilhosa da Serra
Proença-a-Nova
Tomar
Temperatura (ºC)
Hora


Humidade relativa (%)
Hora

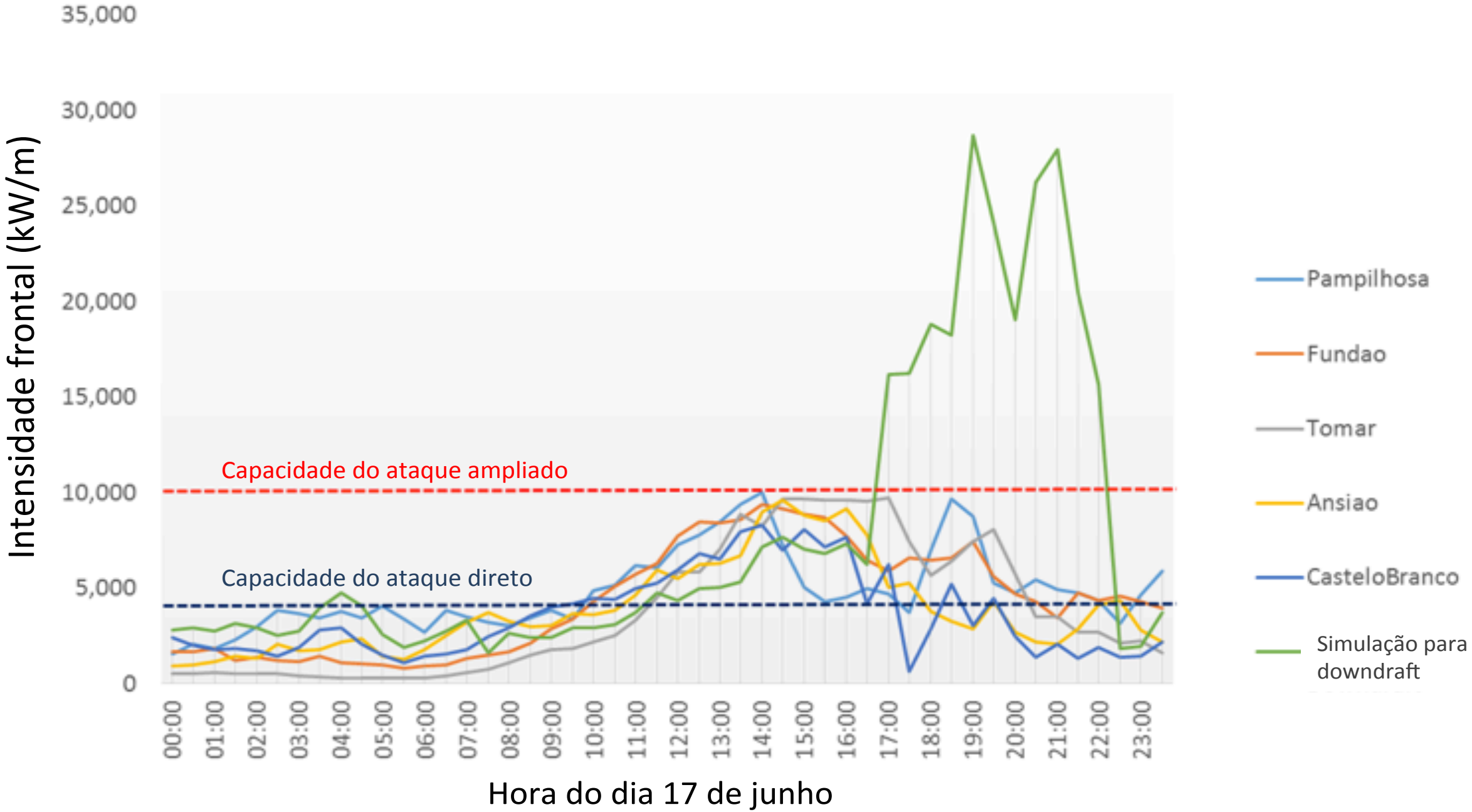

Direcção do vento (º)
Hora

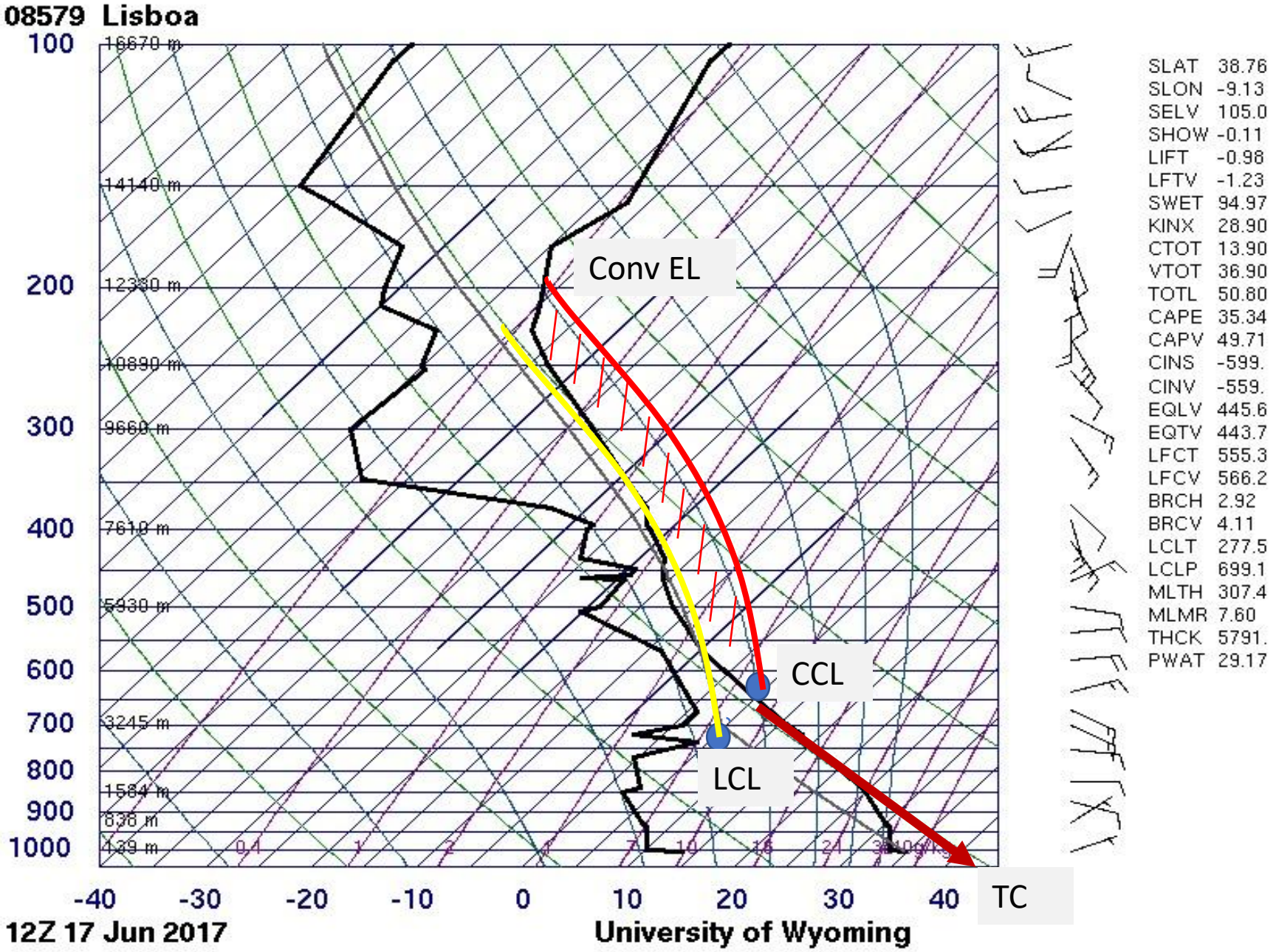

Veloc. média vento (km/h)
Hora

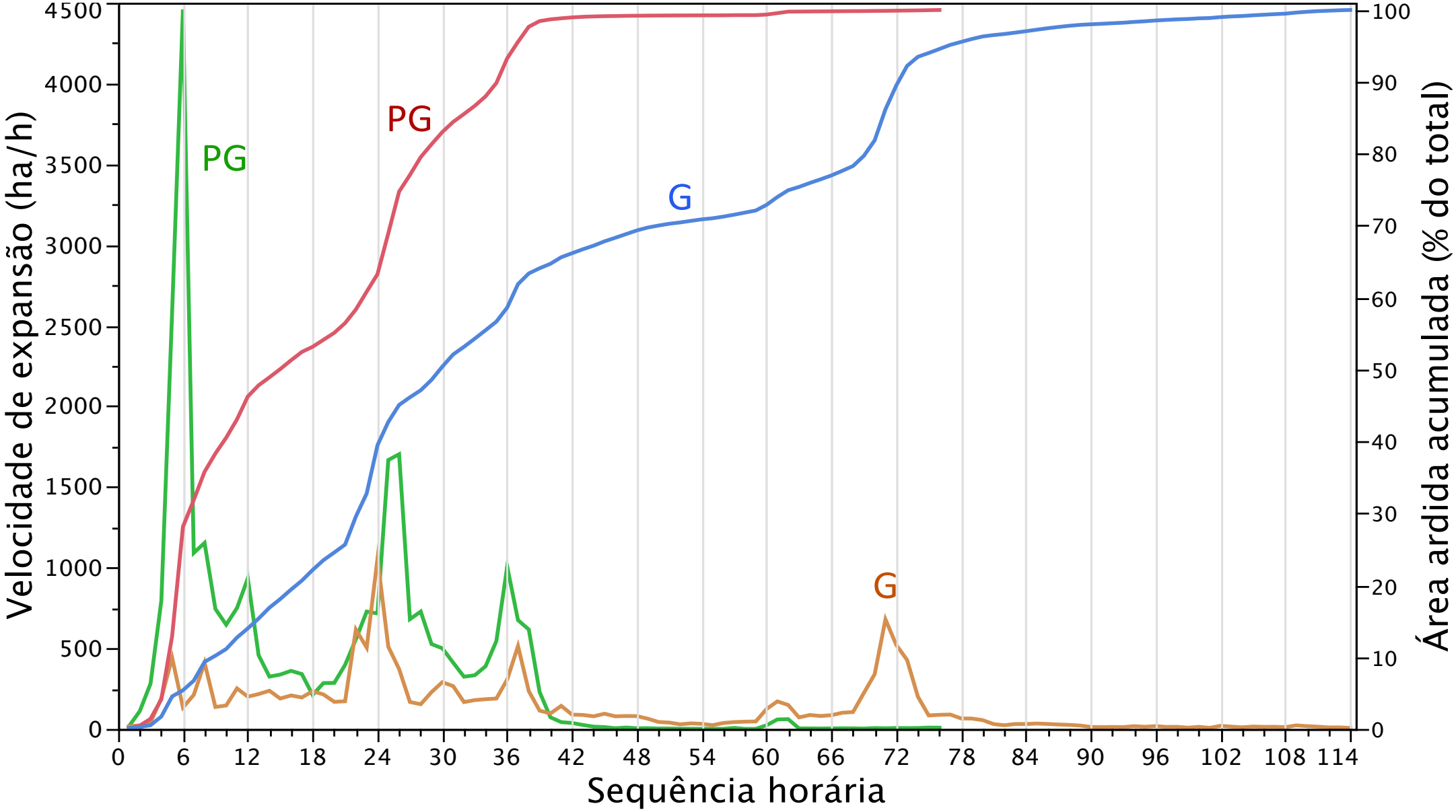
In 6th generation fires fire simulators are useless.
Fire is unpredictable.



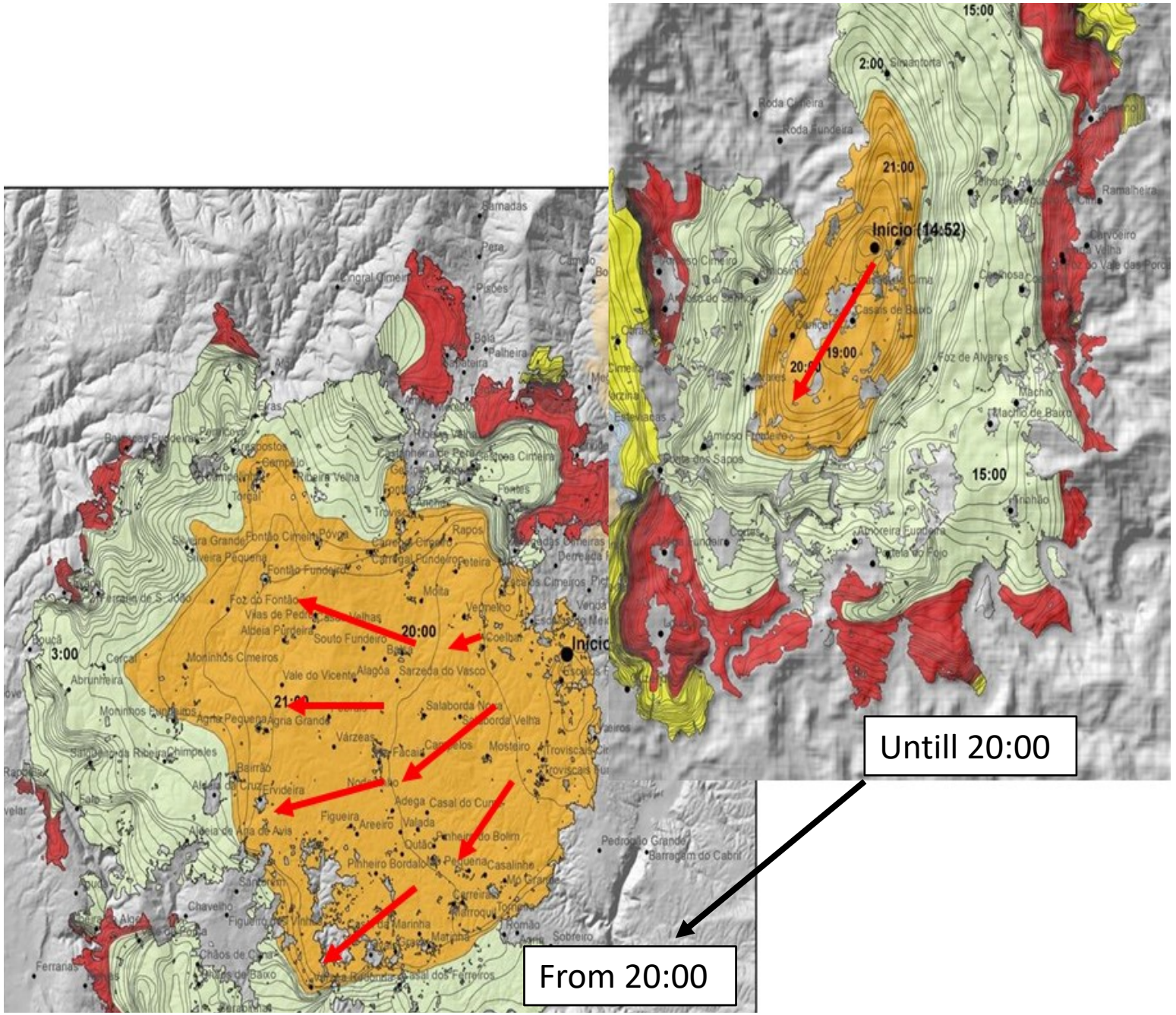

raio2

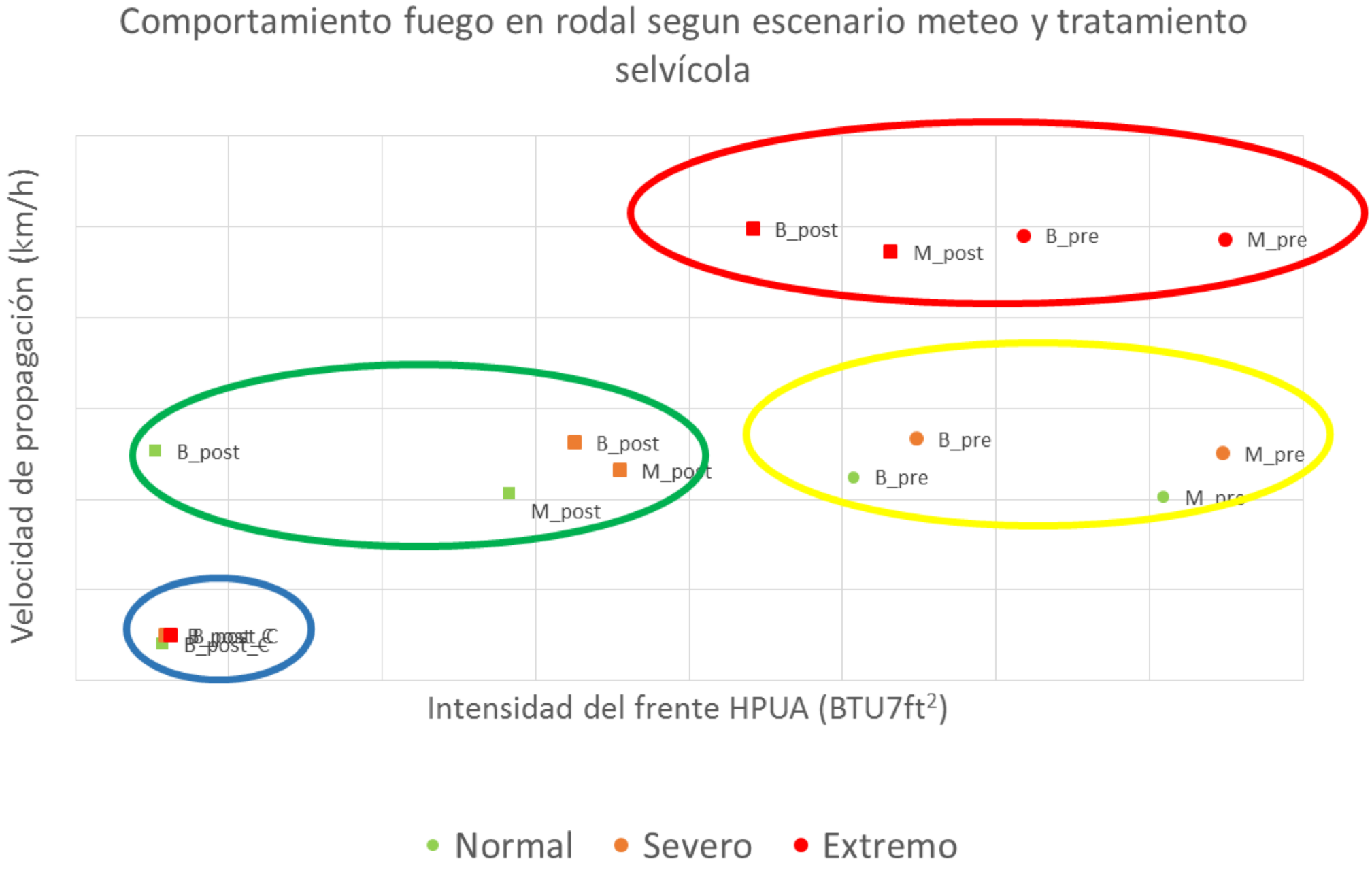

Intensidade frontal (kW/m)
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
Capacidade do ataque ampliado
Capacidade do ataque direto
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
Hora do dia 17 de junho
Pampilhosa
Fundao
Tomar
Ansiao
CasteloBranco
Simulação para downdraft

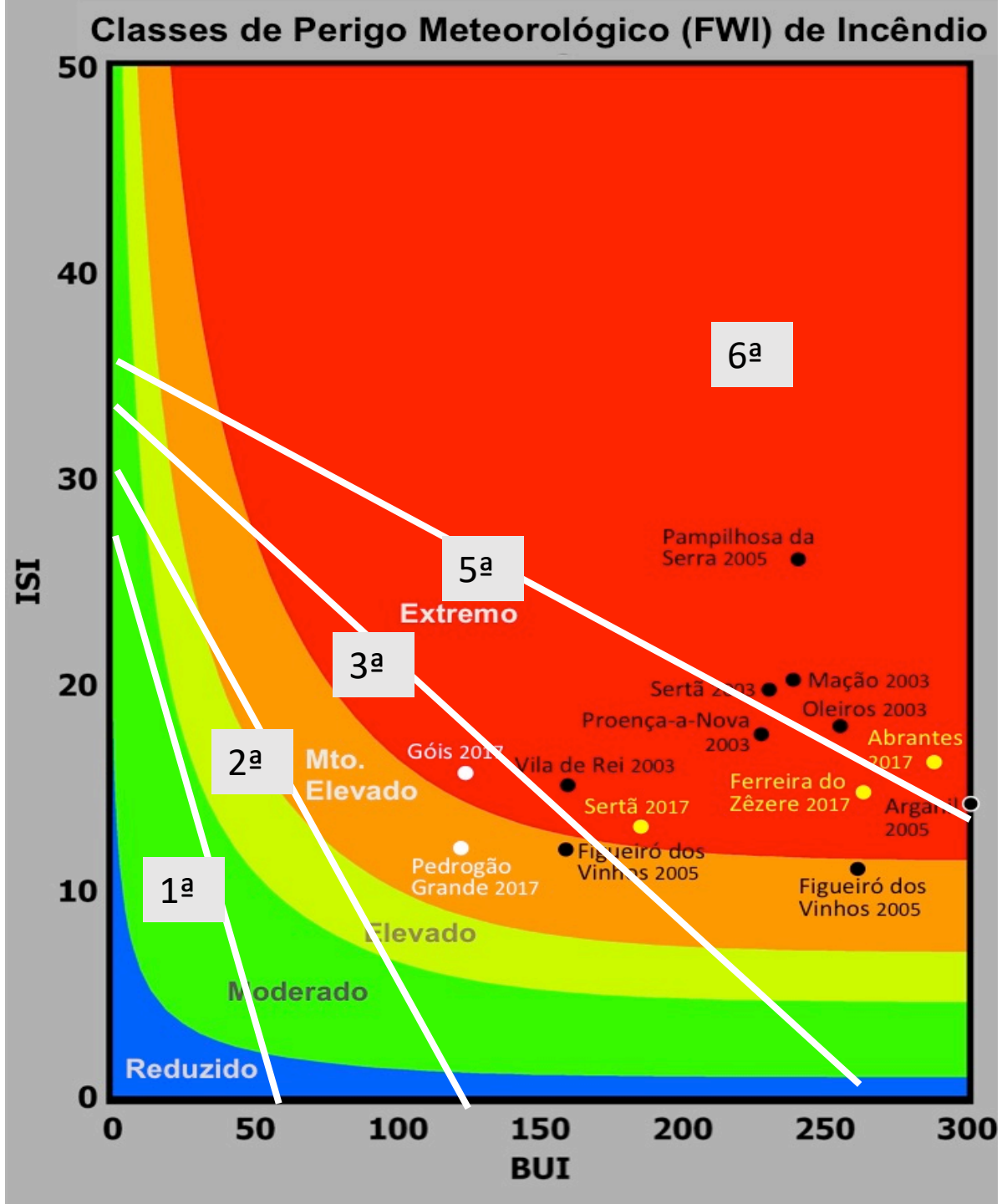

08579 Lisboa
100
200
300
400
500
600
700
800
900
1000
16670 m
14140 m
12330 m
10890 m
9660 m
7610 m
5930 m
3245 m
1584 m
838 m
439 m
Conv EL
CCL
LCL
TC
-40
-30
-20
-10
0
10
20
30
40
12Z 17 Jun 2017
University of Wyoming
SLAT 38.76
SLON -9.13
SELV 105.0
SHOW -0.11
LIFT -0.98
LFTV -1.23
SWET 94.97
KINX 28.90
CTOT 13.90
VTOT 36.90
TOTL 50.80
CAPE 35.34
CAPV 49.71
CINS -599.
CINV -559.
EQLV 445.6
EQTV 443.7
LFCT 555.3
LFCV 566.2
BRCH 2.92
BRCV 4.11
LCLT 277.5
LCLP 699.1
MLTH 307.4
MLMR 7.60
THCK 5791.
PWAT 29.17


Velocidade de expansão (ha/h)
Área ardida acumulada (% do total)
Sequência horária
PG
PG
G
G
0
500
1000
1500
2000
2500
3000
3500
4000
4500
0
10
20
30
40
50
60
70
80
90
100
0
6
12
18
24
30
36
42
48
54
60
66
72
78
84
90
96
102
108
114

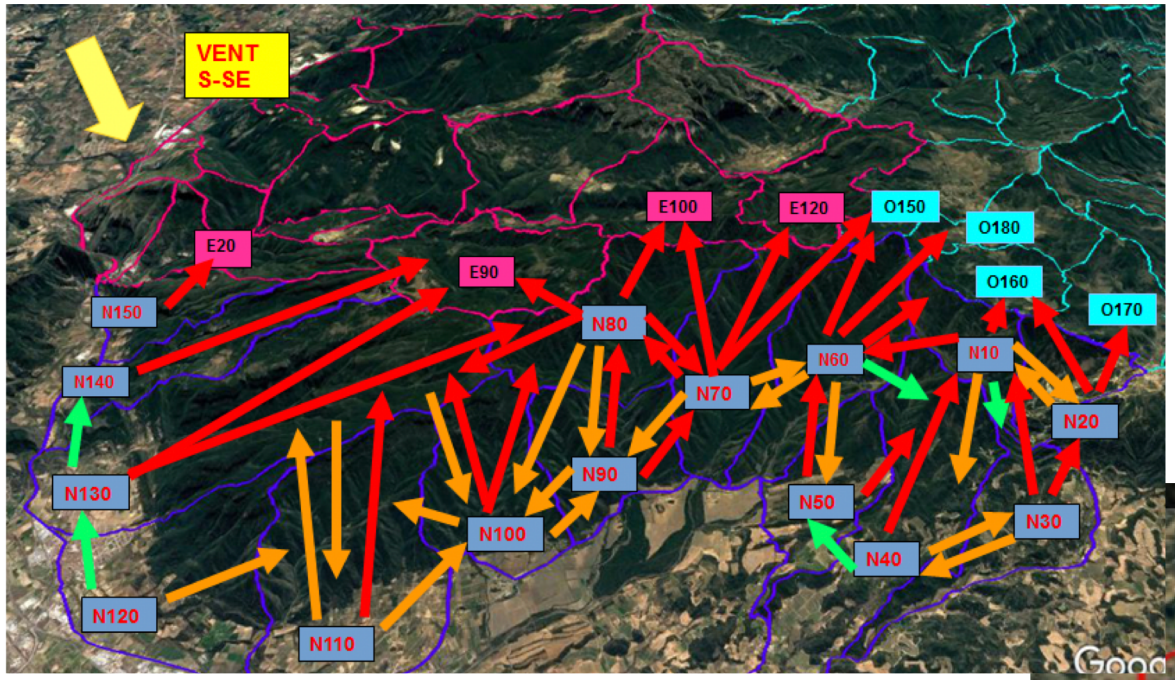
Período	Ataque ampliado	Ataque inicial
14:30-16:00	1,31	2,61
16:00-17:00	2,61	5,22
17:00-18:00	3,46	6,92
18:00-19:00	5,67	11,35
19:00-20:00	10,57	21,14
20:00-21:00	11,51	23,03
21:00-3:00	1,68	3,37
3:00-8:00	0,60	1,19
8:00-11:00	0,41	0,82
11:00-13:00	0,73	1,45
13:00-15:00	1,06	2,13
15:00-17:00	2,33	4,67
17:00-19:00	0,92	1,84
19:00-2:00	0,54	1,08
2:00-5:00	0,91	1,82
5:00-10:00	0,09	0,19
10:00-19:00	0,01	0,02


15:00
2:00
21:00
Início (14:52)
19:00
20:00
15:00
Untill 20:00
From 20:00
Início
20:00
3:00
21:00

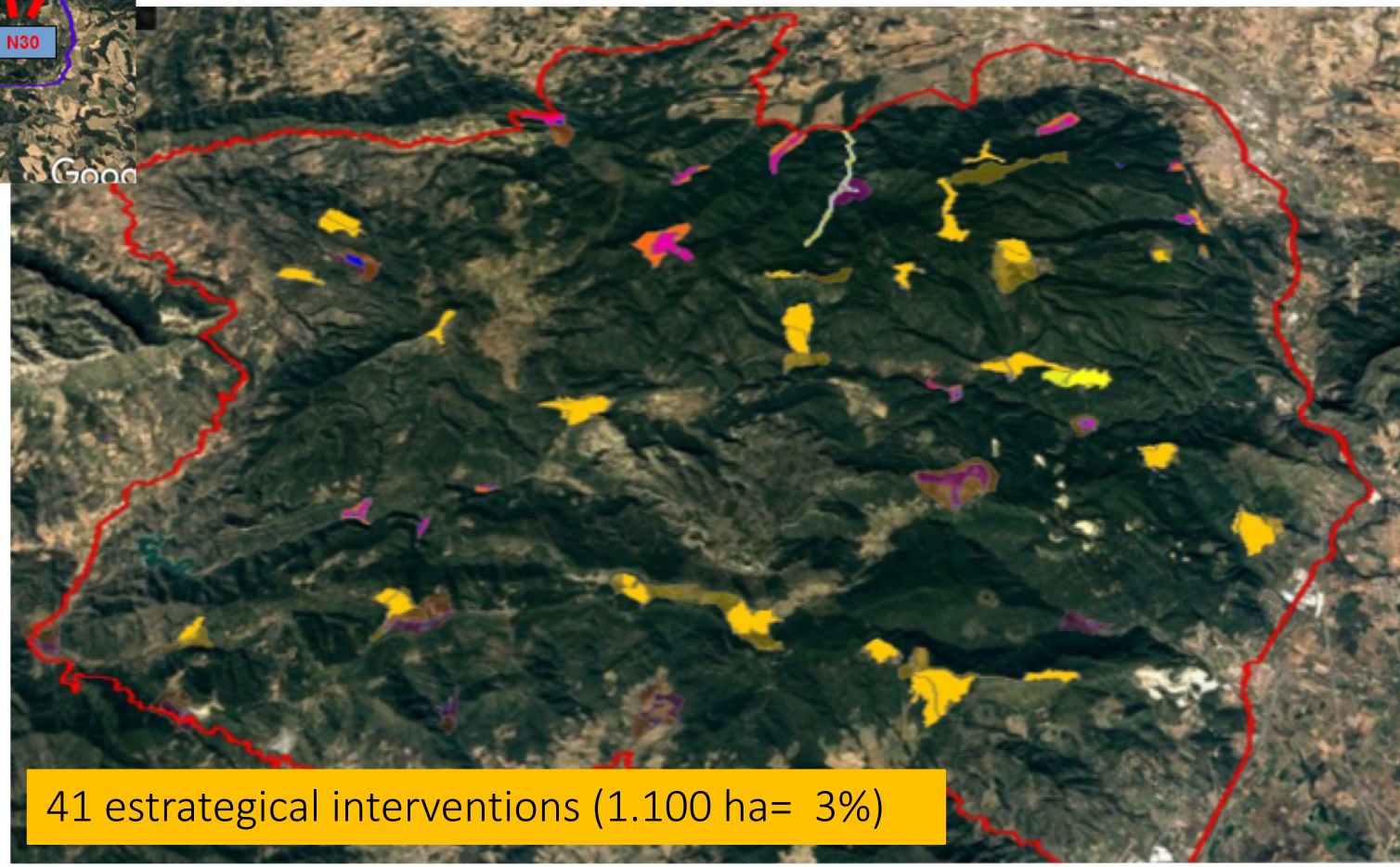

Comportamiento fuego en rodal segun escenario meteo y tratamiento selvícola
Velocidad de propagación (km/h)
Intensidad del frente HPUA (BTU7ft2)
B_post
M_post
B_pre
M_pre
B_post
B_post
M_post
M_post
B_pre
B_pre
M_pre
Normal
Severo
Extremo


Classes de Perigo Meteorológico (FWI) de Incêndio
ISI
BUI
0
10
20
30
40
50
0
50
100
150
200
250
300
6ª
5ª
Extremo
3ª
2ª
Mto.
Elevado
1ª
Elevado
Moderado
Reduzido
Pampilhosa da
Serra 2005
Mação 2003
Oleiros 2003
Proença-a-Nova
2003
Abrantes
2017
Góis 2017
Vila de Rei 2003
Ferreira do
Zêzere 2017
Sertã 2017
2005
Pedrogão
Grande 2017
Figueiró dos
Vinhos 2005
Figueiró dos
Vinhos 2005





Fire spread analysis in Mountains of Prades (40.000 ha)



Thank you for your attention

bombers
Generalitat de Catalunya

- Andreu Palacios, GRAF- Catalan Fire Service