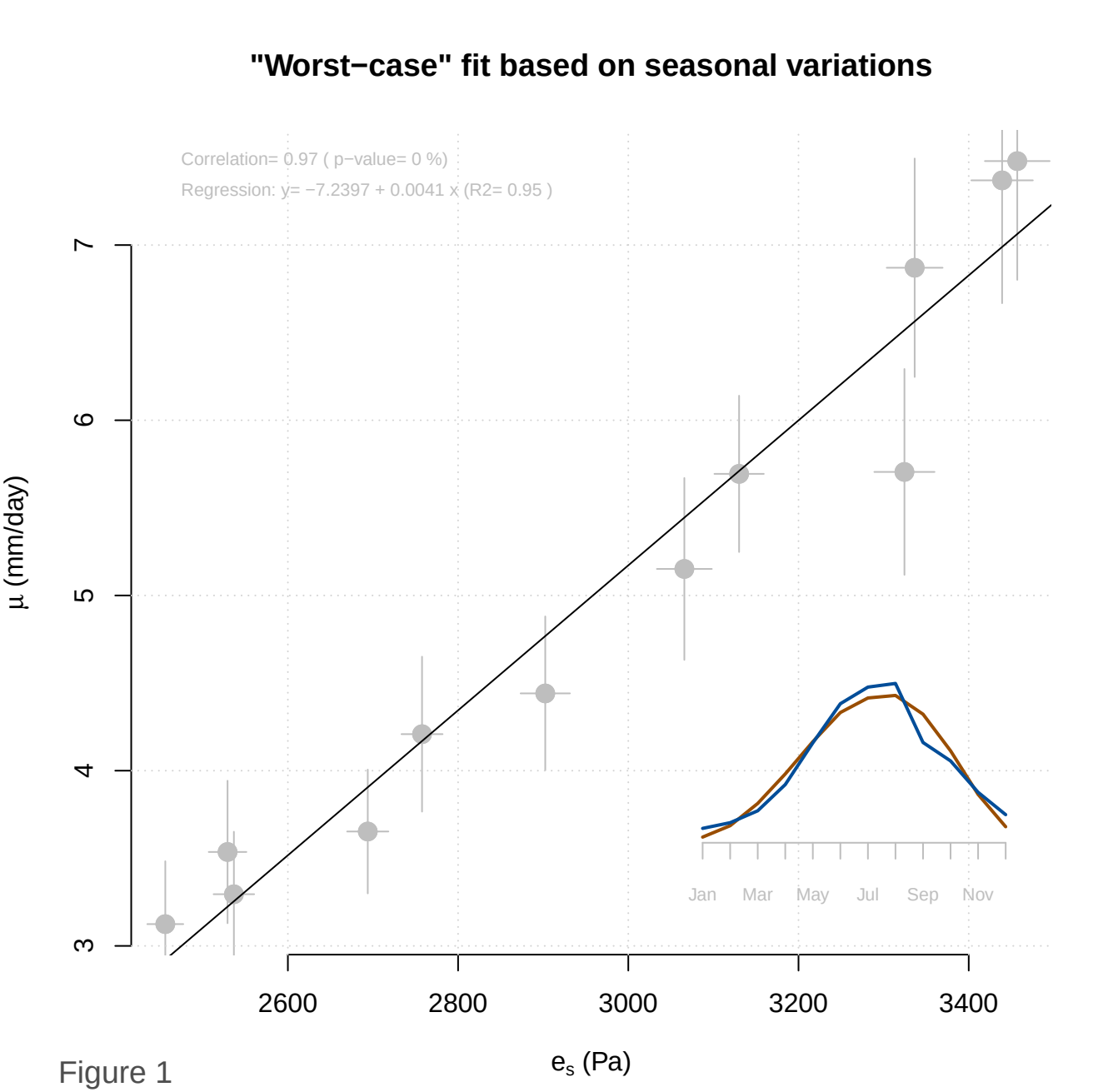


Figure 1

VELIKIE LUKI (30.62E/56.35N; 97m.a.s.l.)

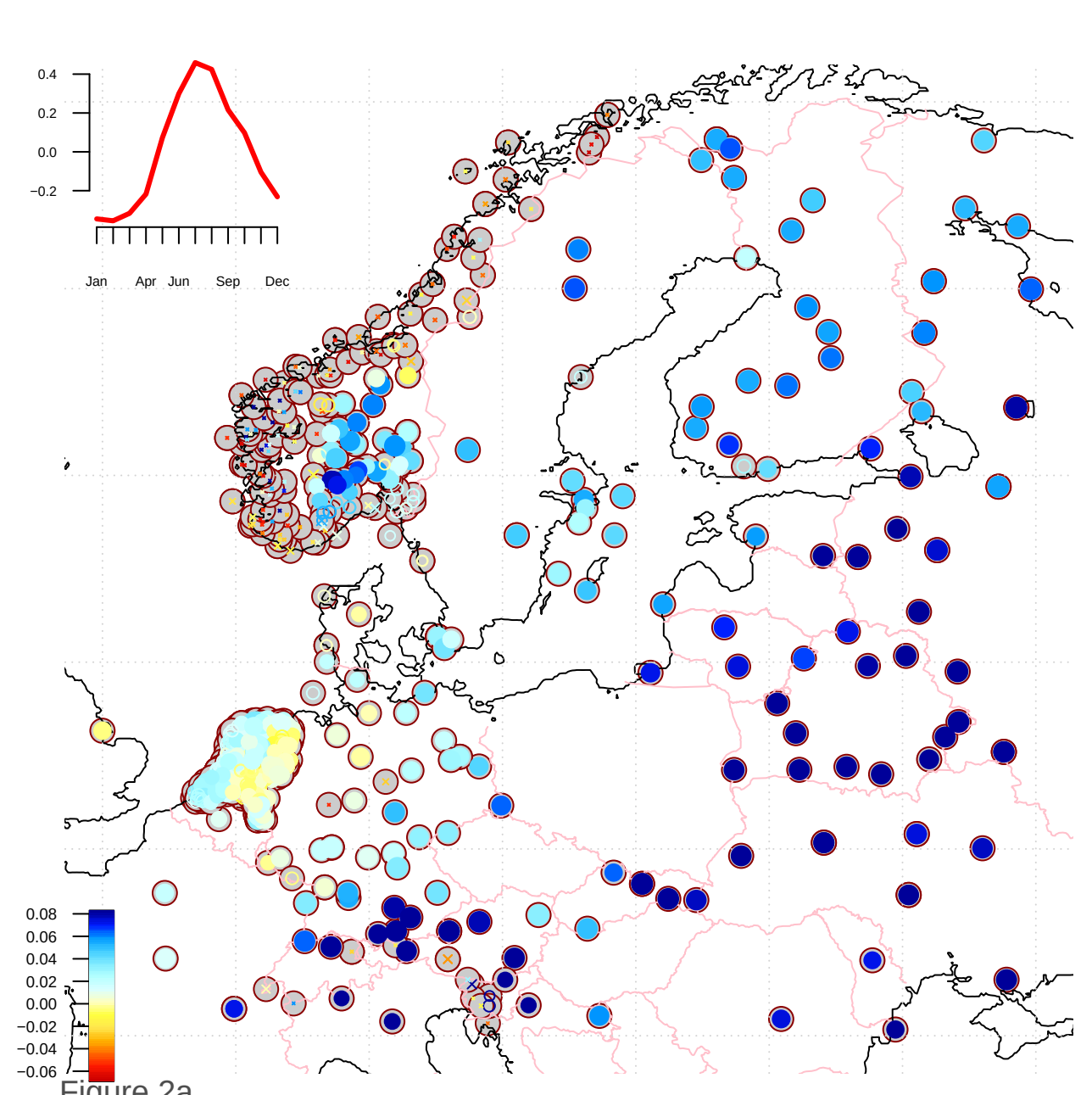


Figure 2a

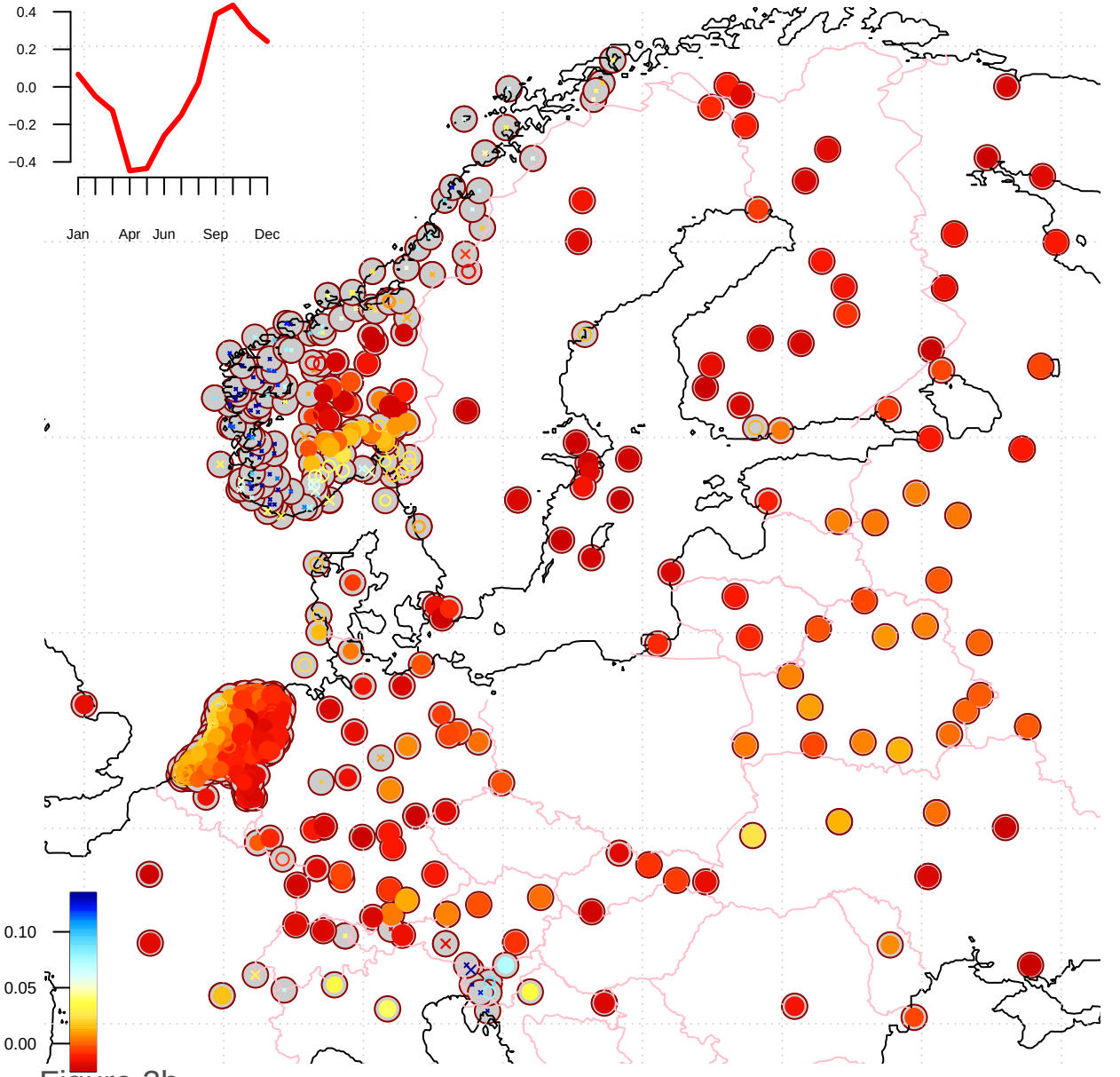


Figure 2b

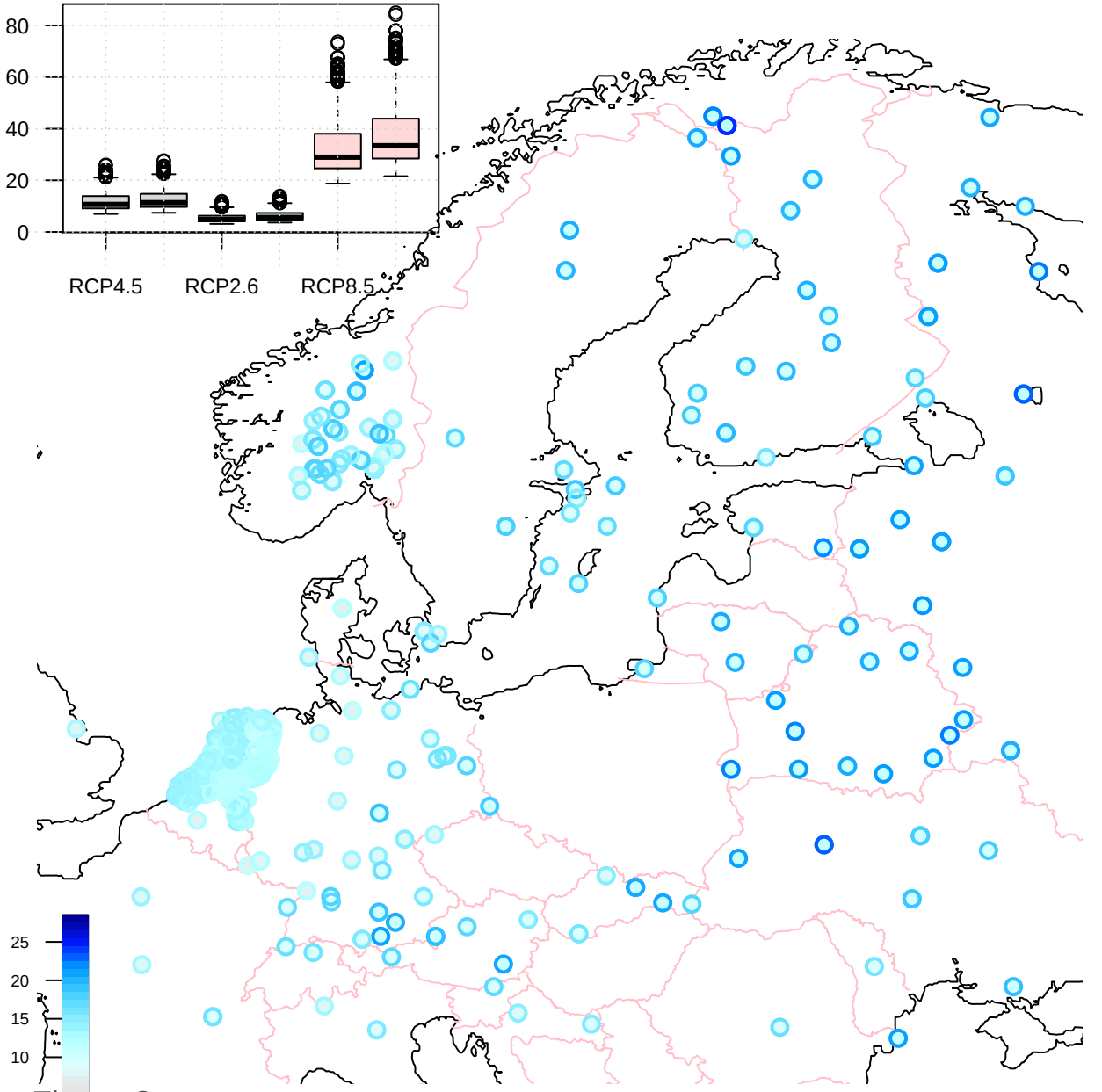


Figure 3

Supporting figures

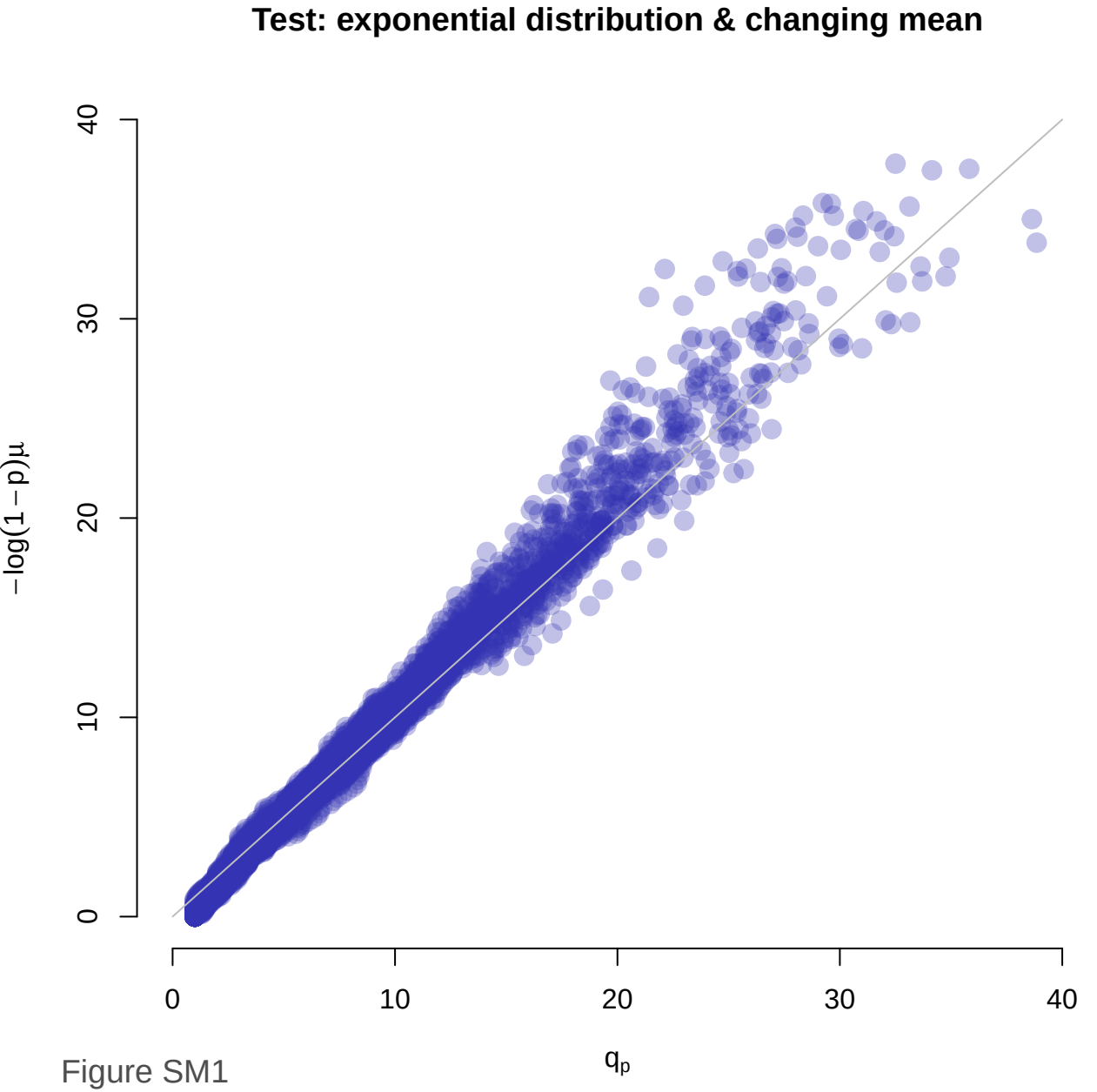

Test: exponential distribution & changing mean
−log(1 − p)μ
0
10
20
30
40
0
10
20
30
40
qp

Figure SM1

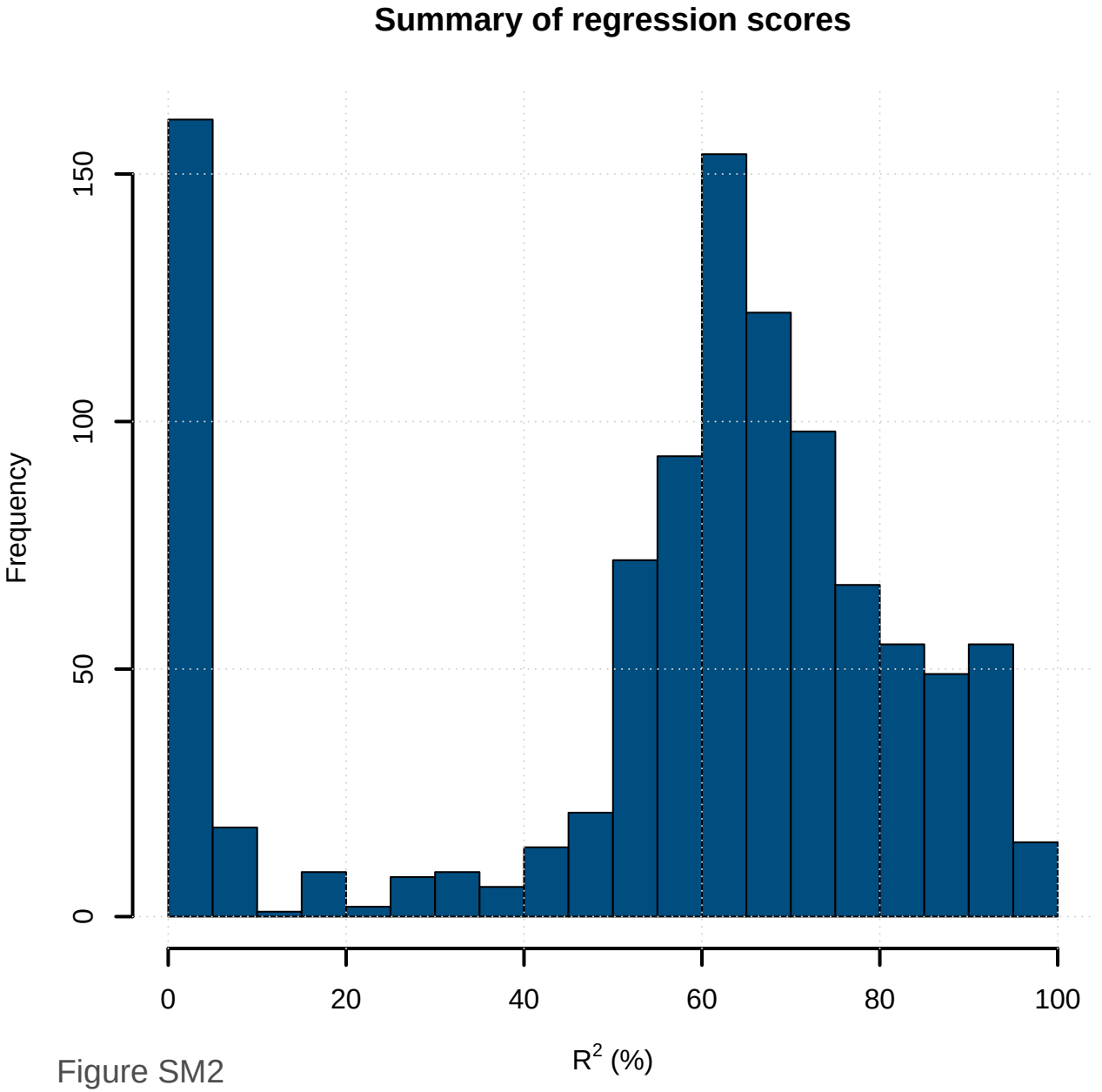

Summary of regression scores
Frequency
0
50
100
150
0
20
40
60
80
100
R2 (%)

Figure SM2

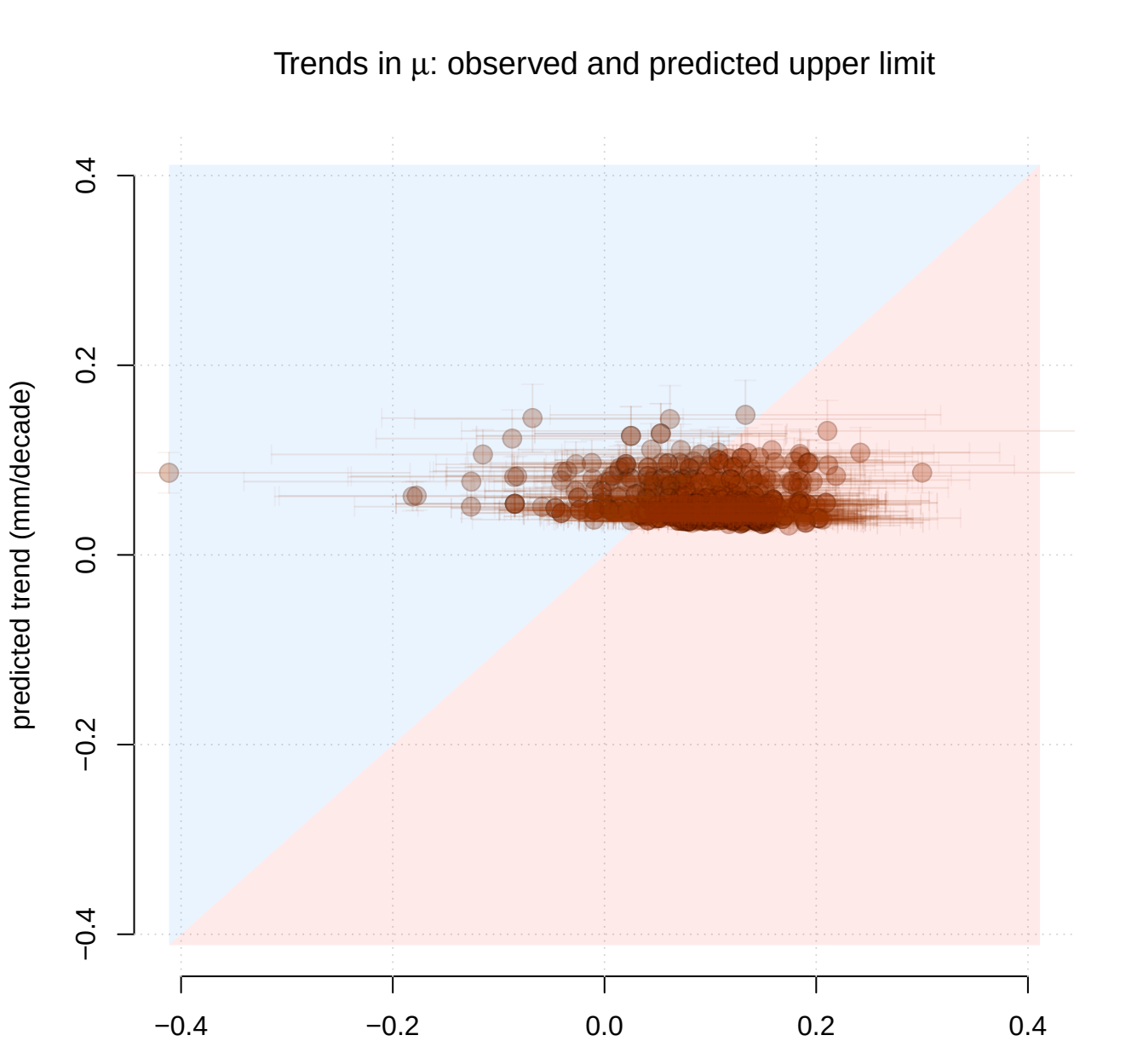
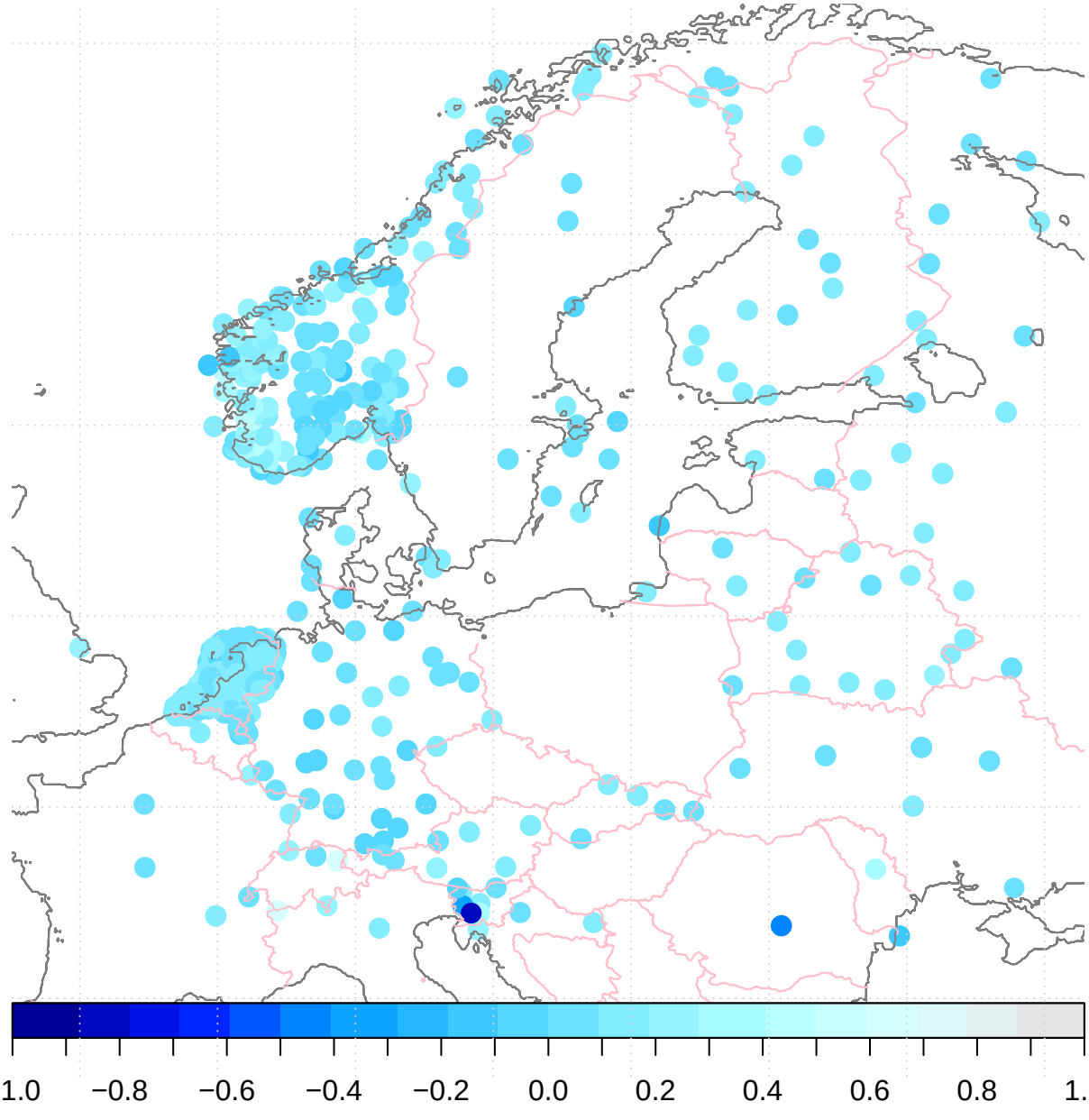


Figure SM3

Mean correlation for local year−to−year variations over t=[1961,2014] is 0.2 (−0.04, 0.41)

Figure SM4



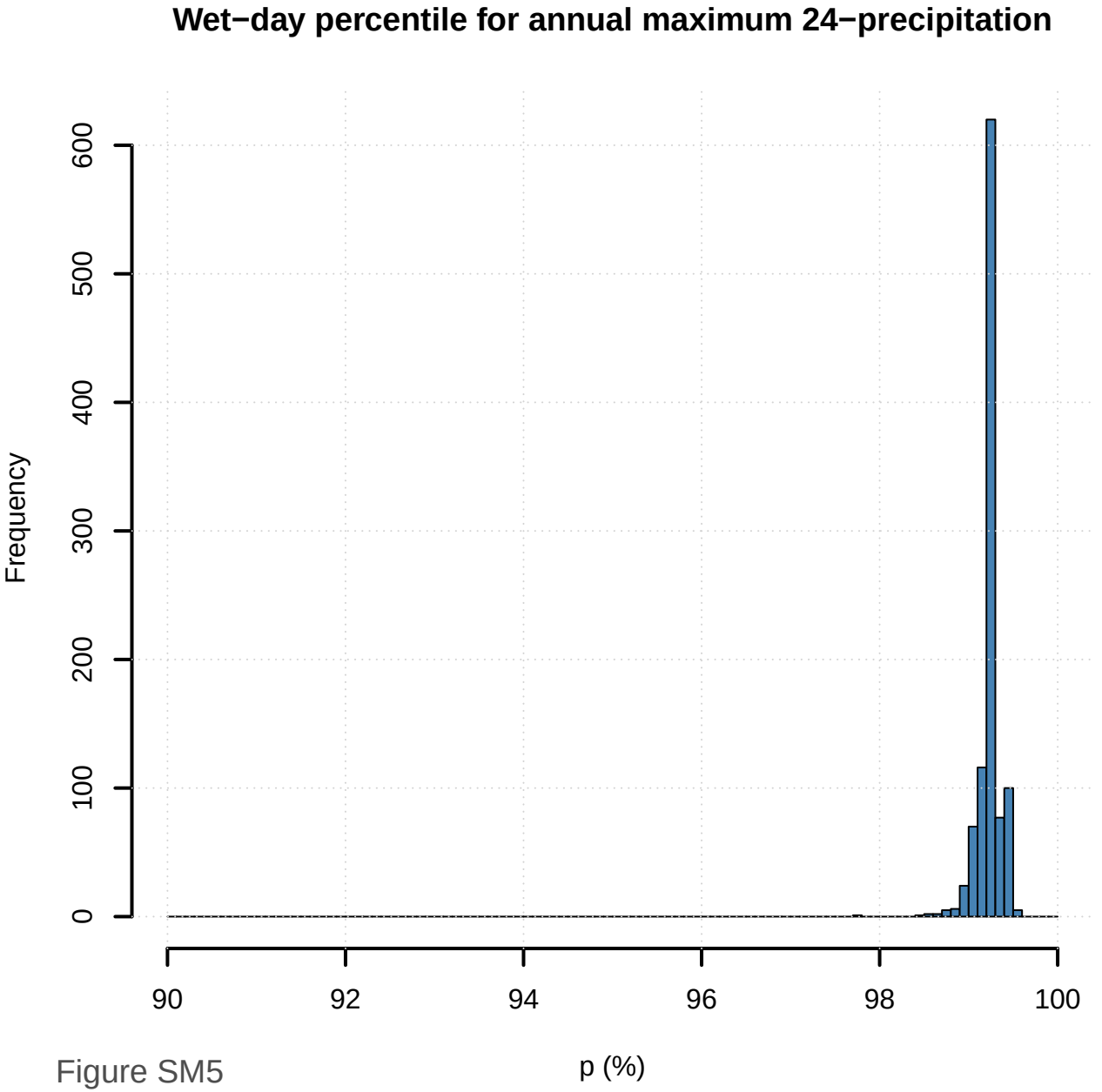

Wet−day percentile for annual maximum 24−precipitation
Frequency
0
100
200
300
400
500
600
90
92
94
96
98
100
p (%)

Figure SM5

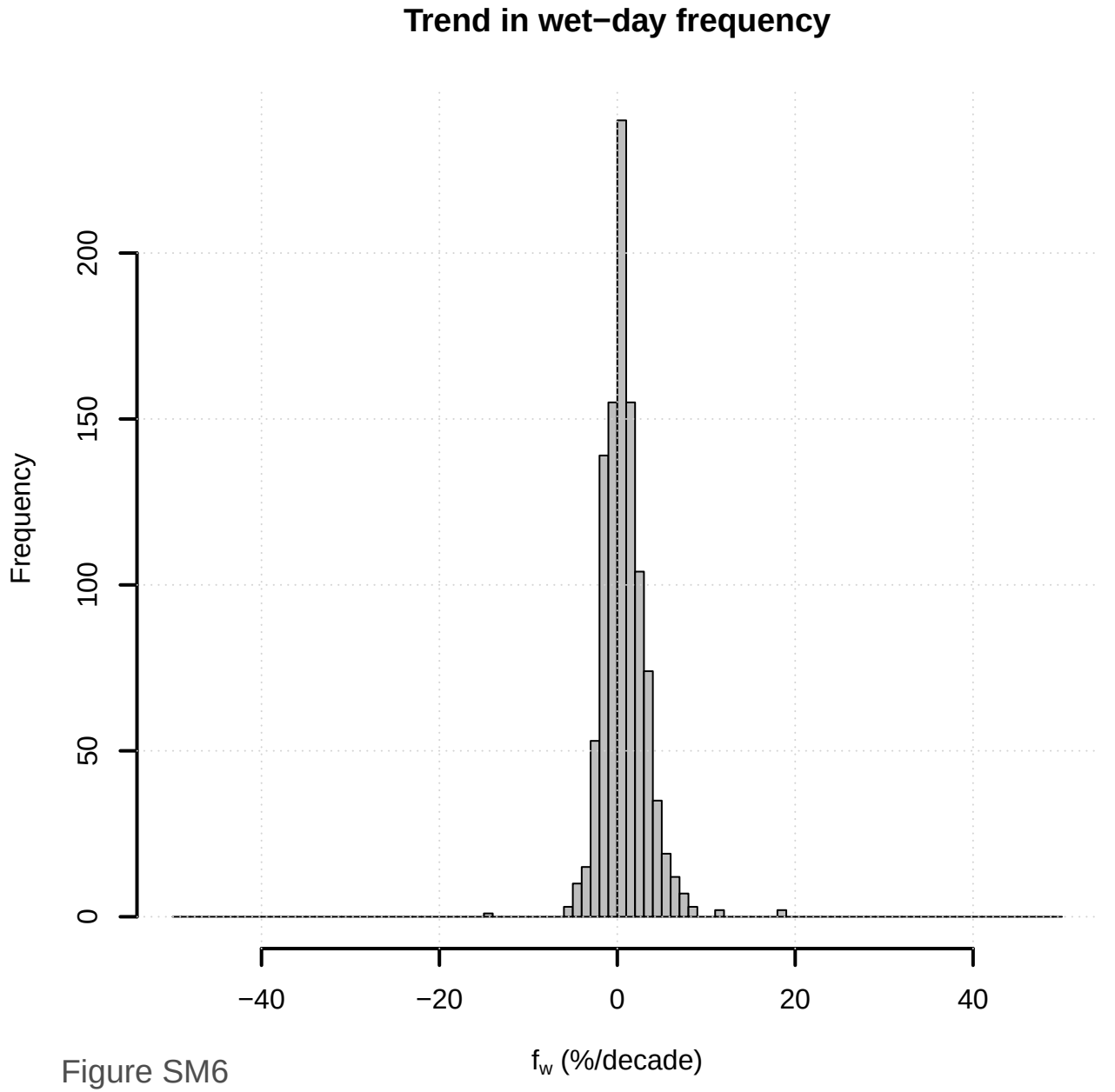
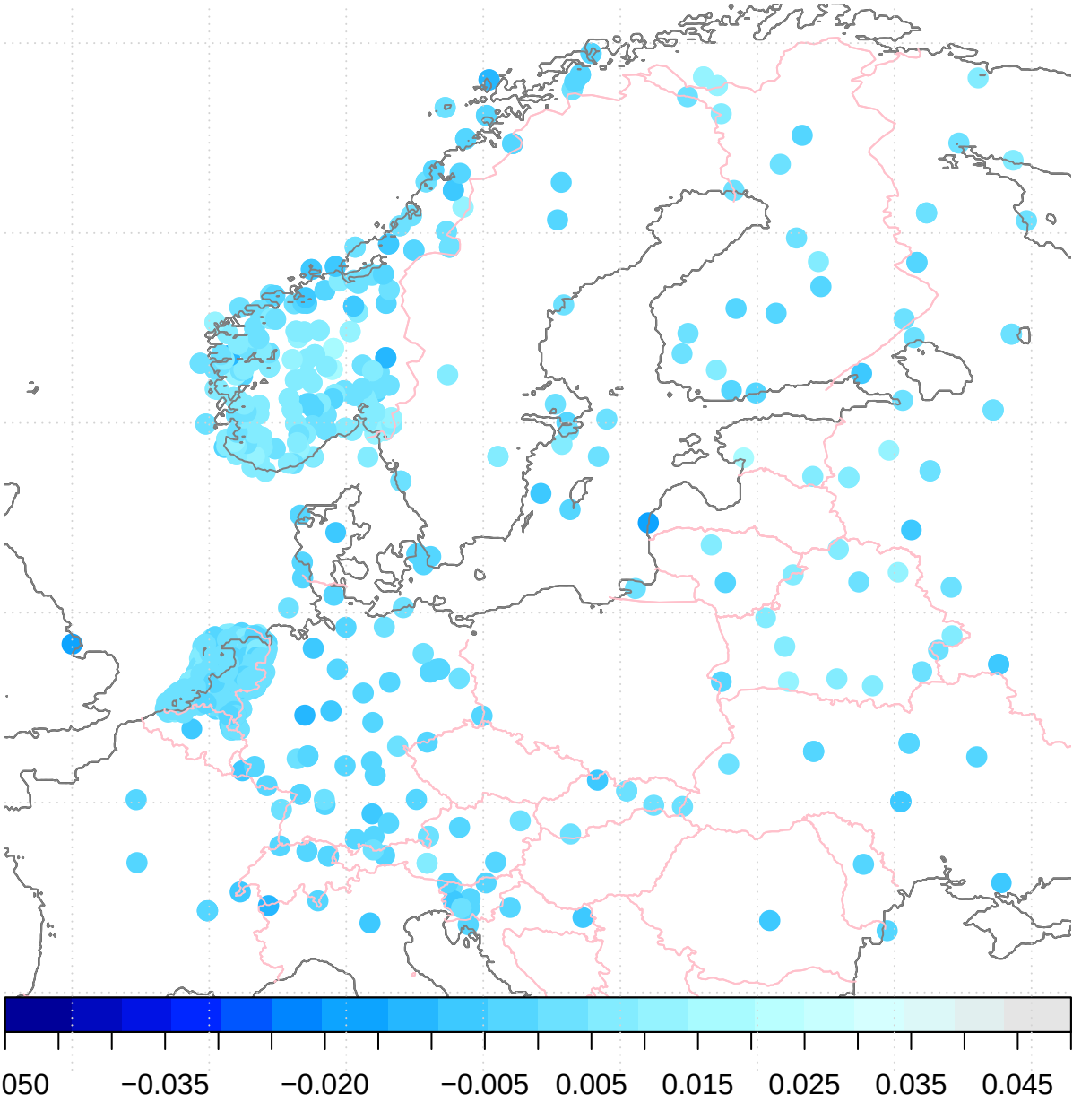

Trend in wet−day frequency
Frequency
0
50
100
150
200
−40
−20
0
20
40
f_w (%/decade)

Figure SM6

Figure SM7


Trend in f_w (fraction per decade)
−0.050
−0.035
−0.020
−0.005
0.005
0.015
0.025
0.035
0.045

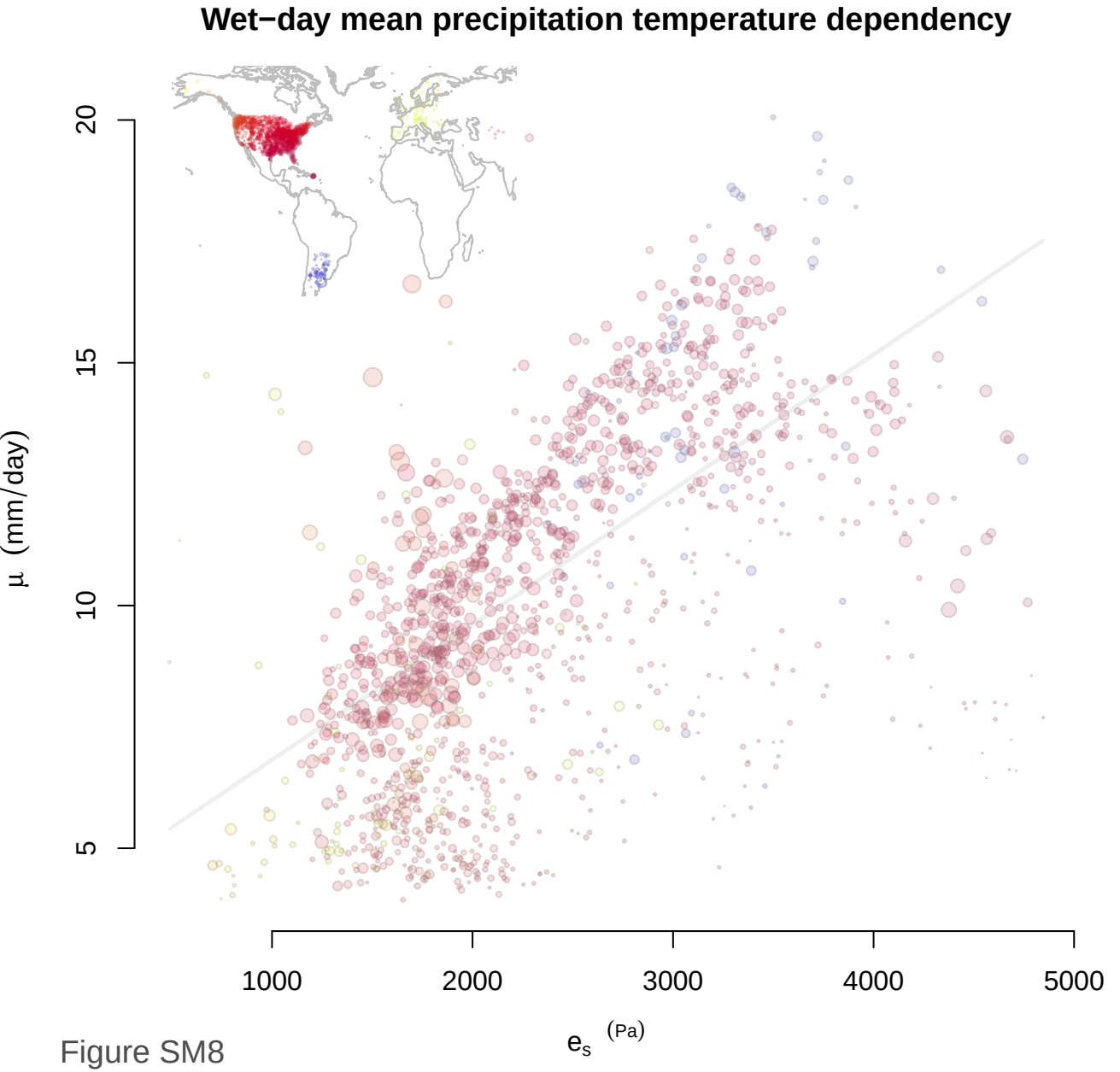

Wet−day mean precipitation temperature dependency
μ (mm/day)
5
10
15
20
1000
2000
3000
4000
5000
e_s (Pa)

Figure SM8

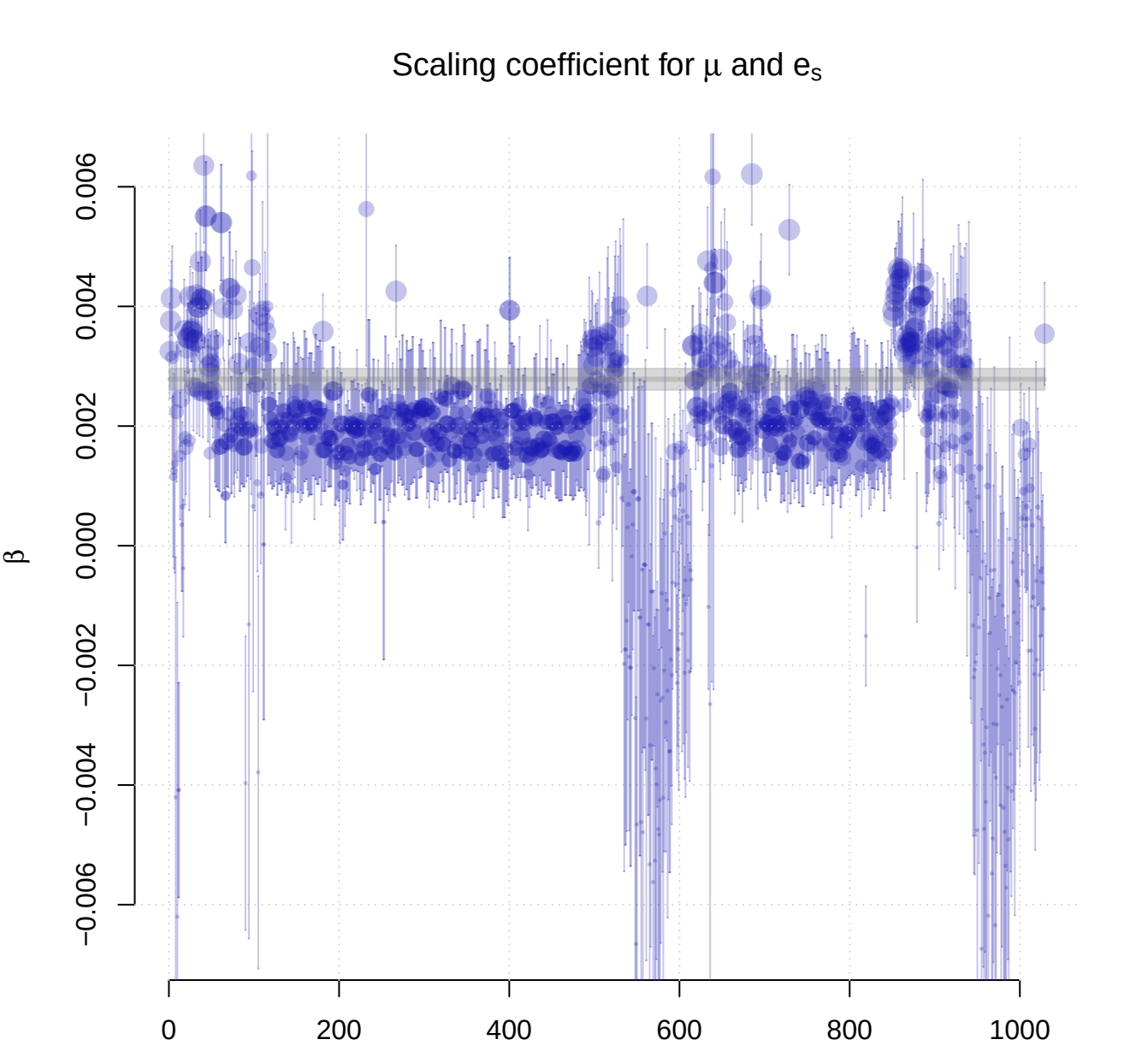
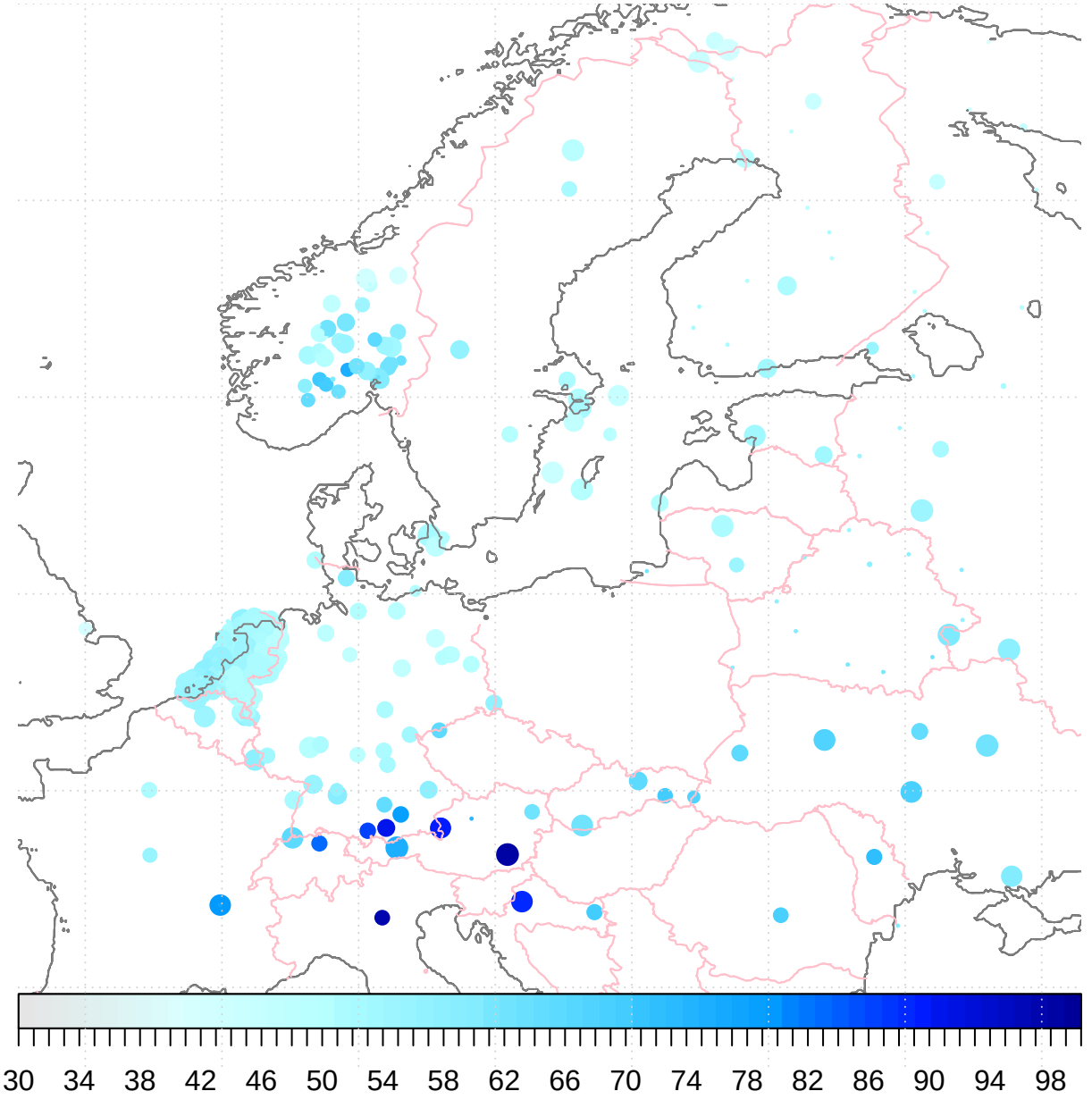

Scaling coefficient for μ and e_s
β
0.006
0.004
0.002
0.000
−0.002
−0.004
−0.006
0
200
400
600
800
1000

Figure SM9

Figure SM10 Return values for 2100 assuming RCP4.5



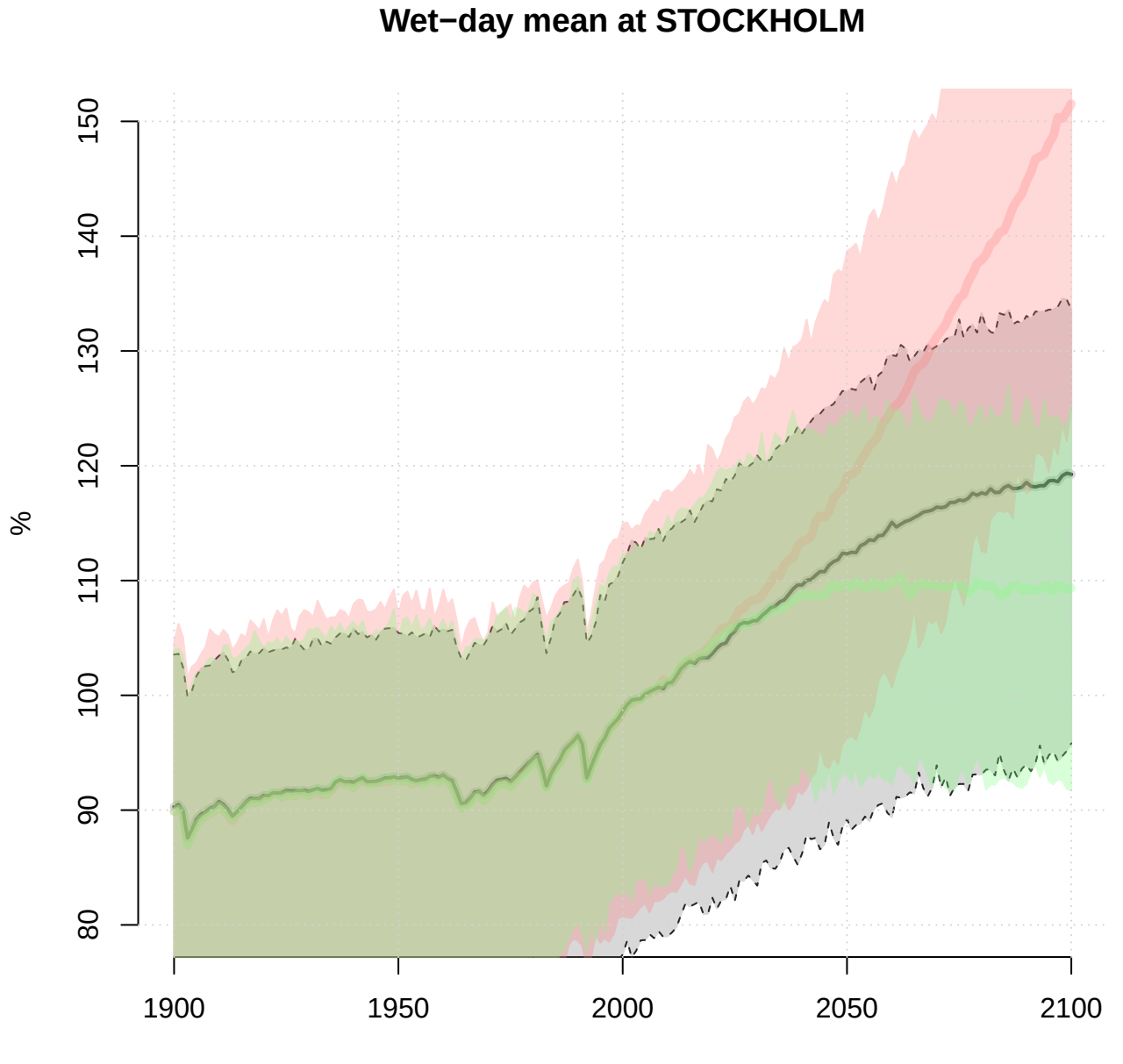
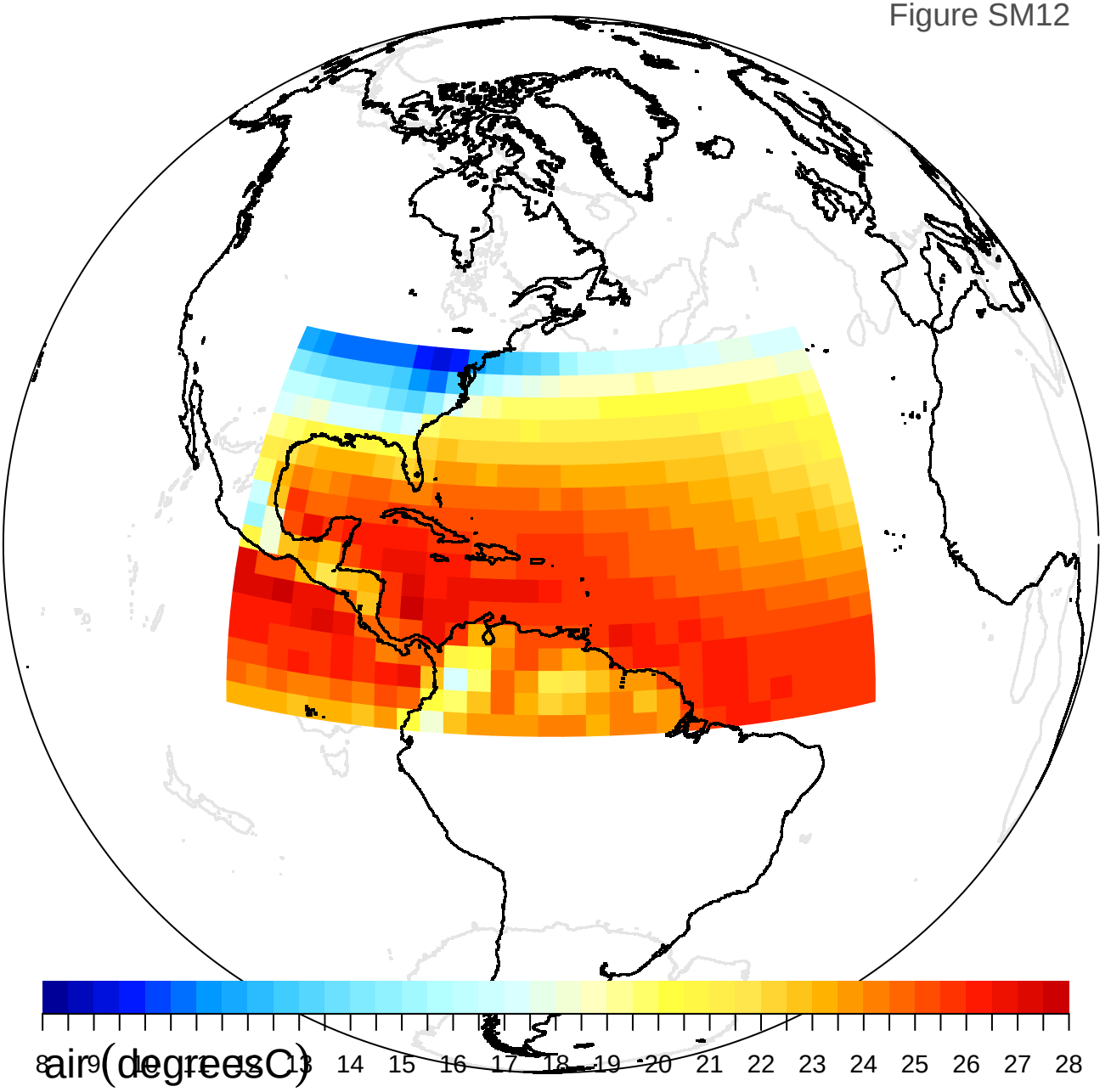

Wet−day mean at STOCKHOLM
%
80
90
100
110
120
130
140
150
1900
1950
2000
2050
2100
Index

Figure SM11

Figure SM12


air (degrees C)
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28

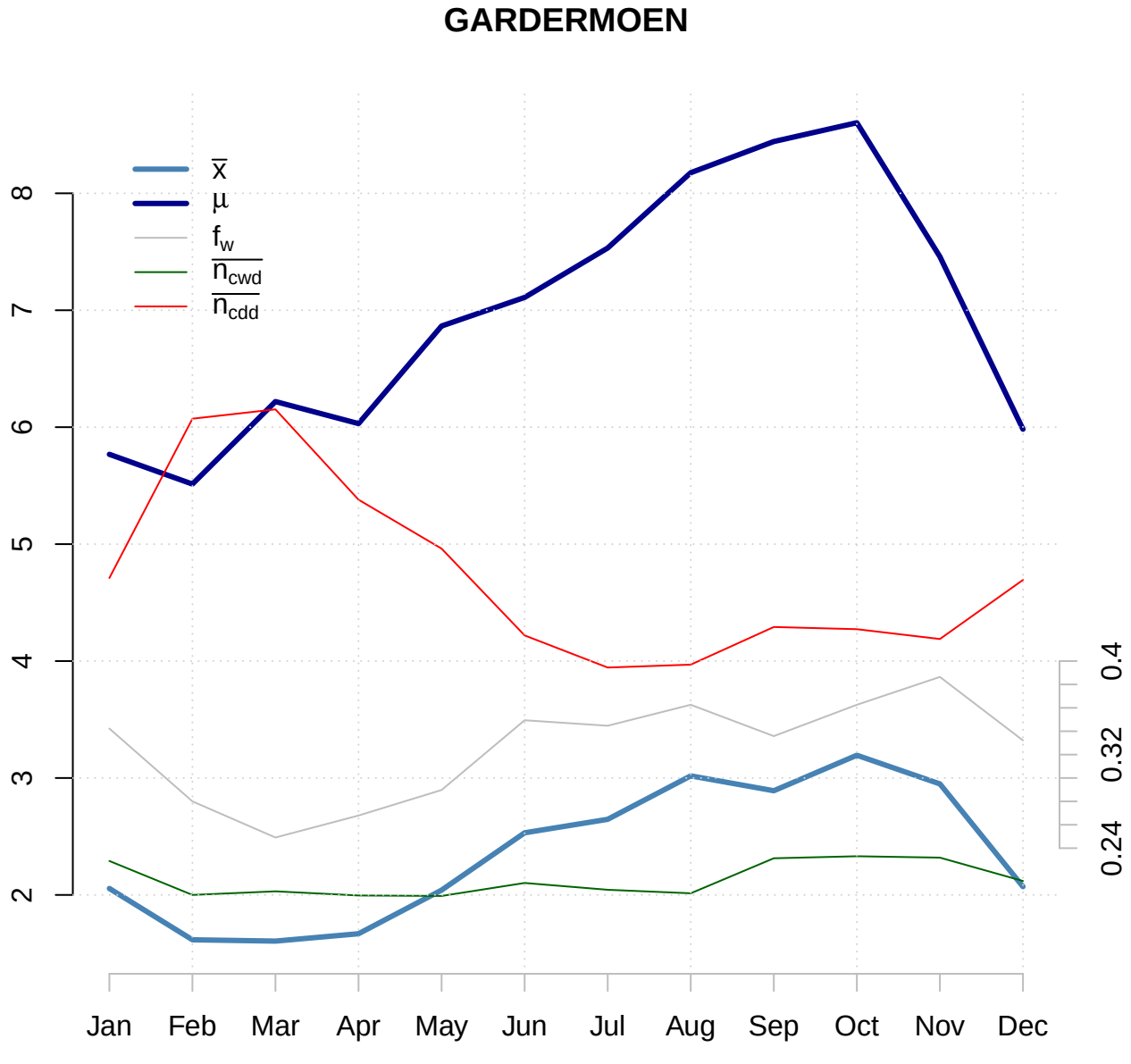

GARDERMOEN
x̄
μ
f_w
n_cwd
n_cdd
2
3
4
5
6
7
8
0.24
0.32
0.4
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Calendar month

Figure SM13