

## "Worst-case" fit based on seasonal variations

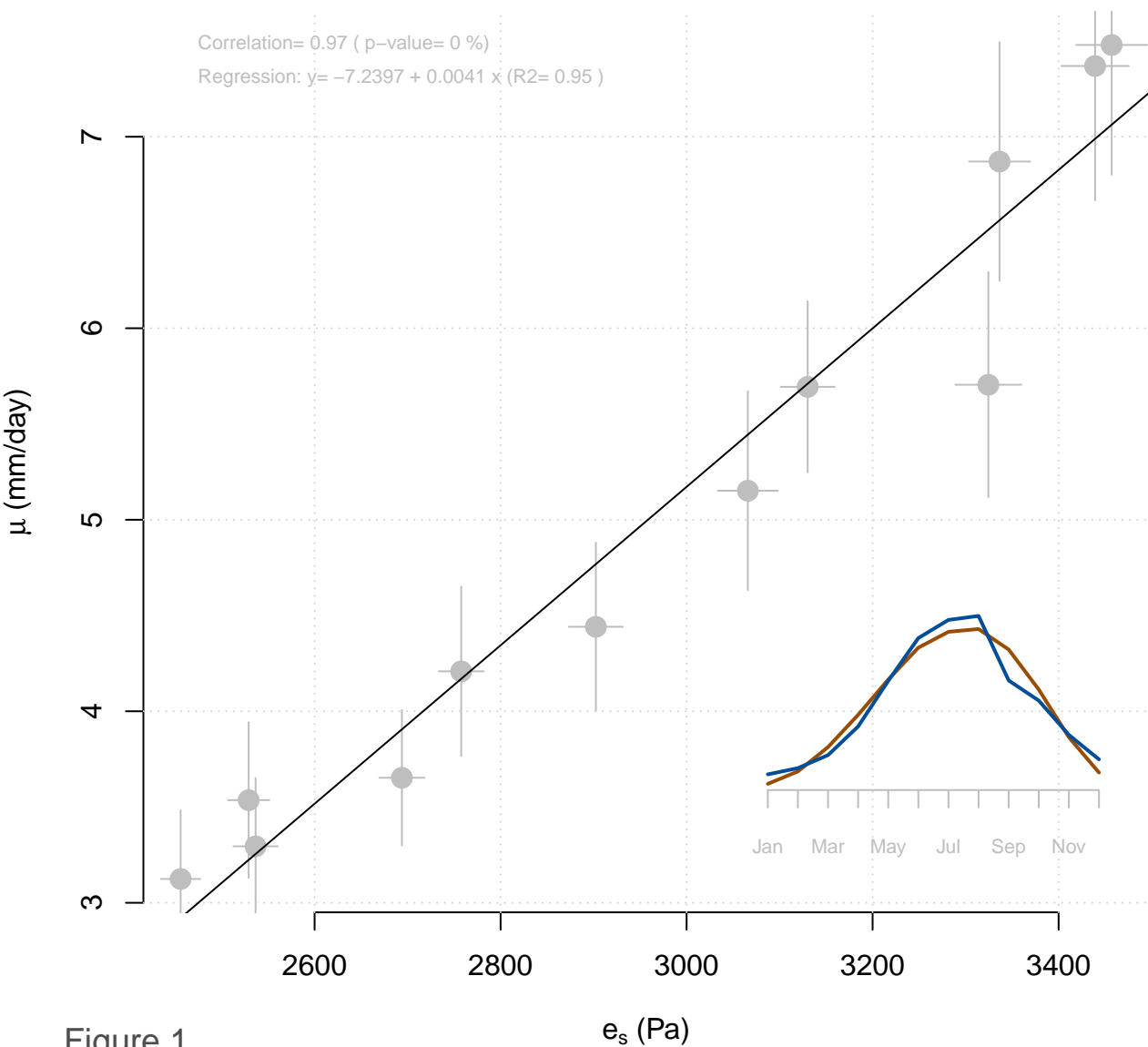
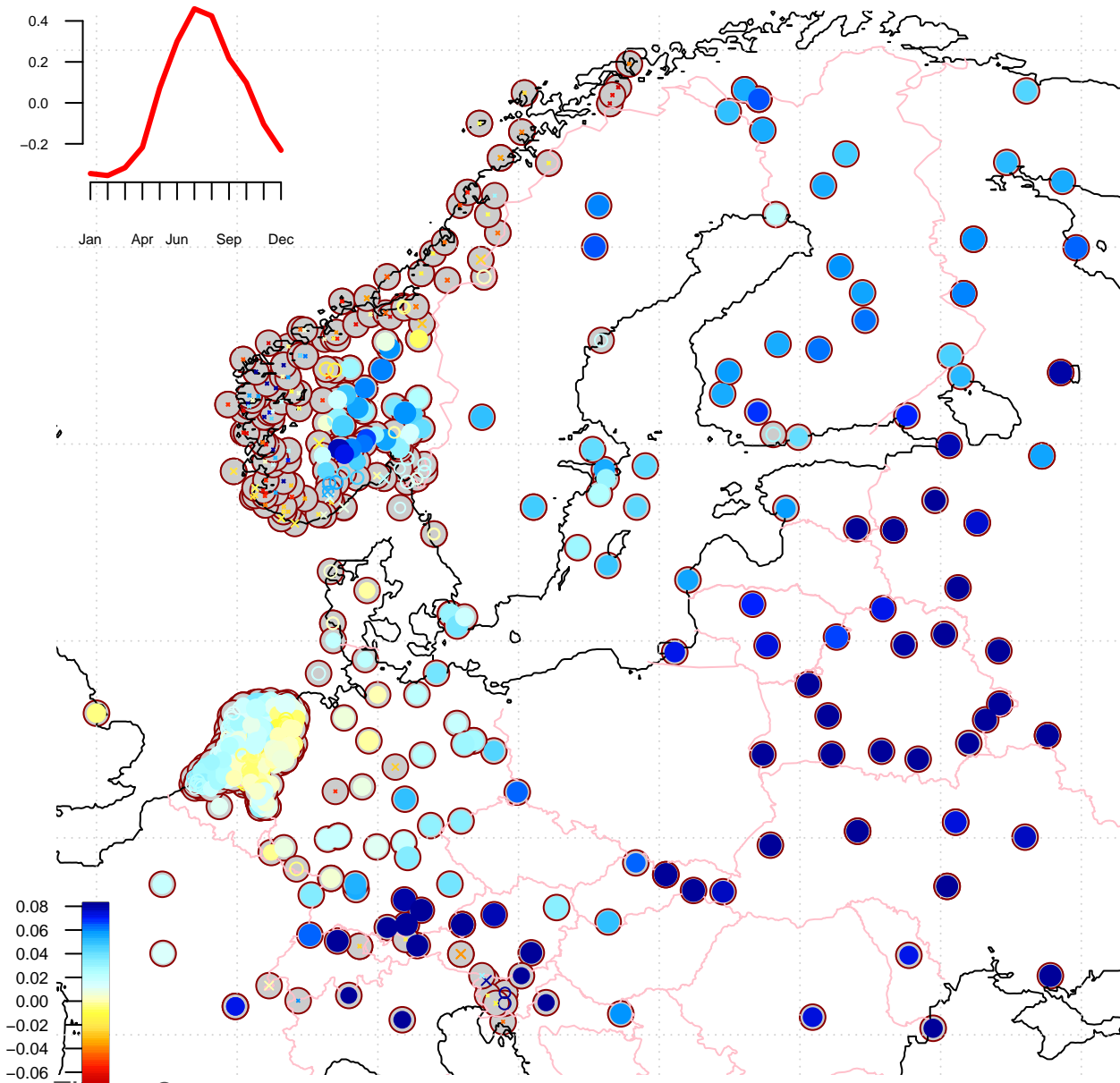
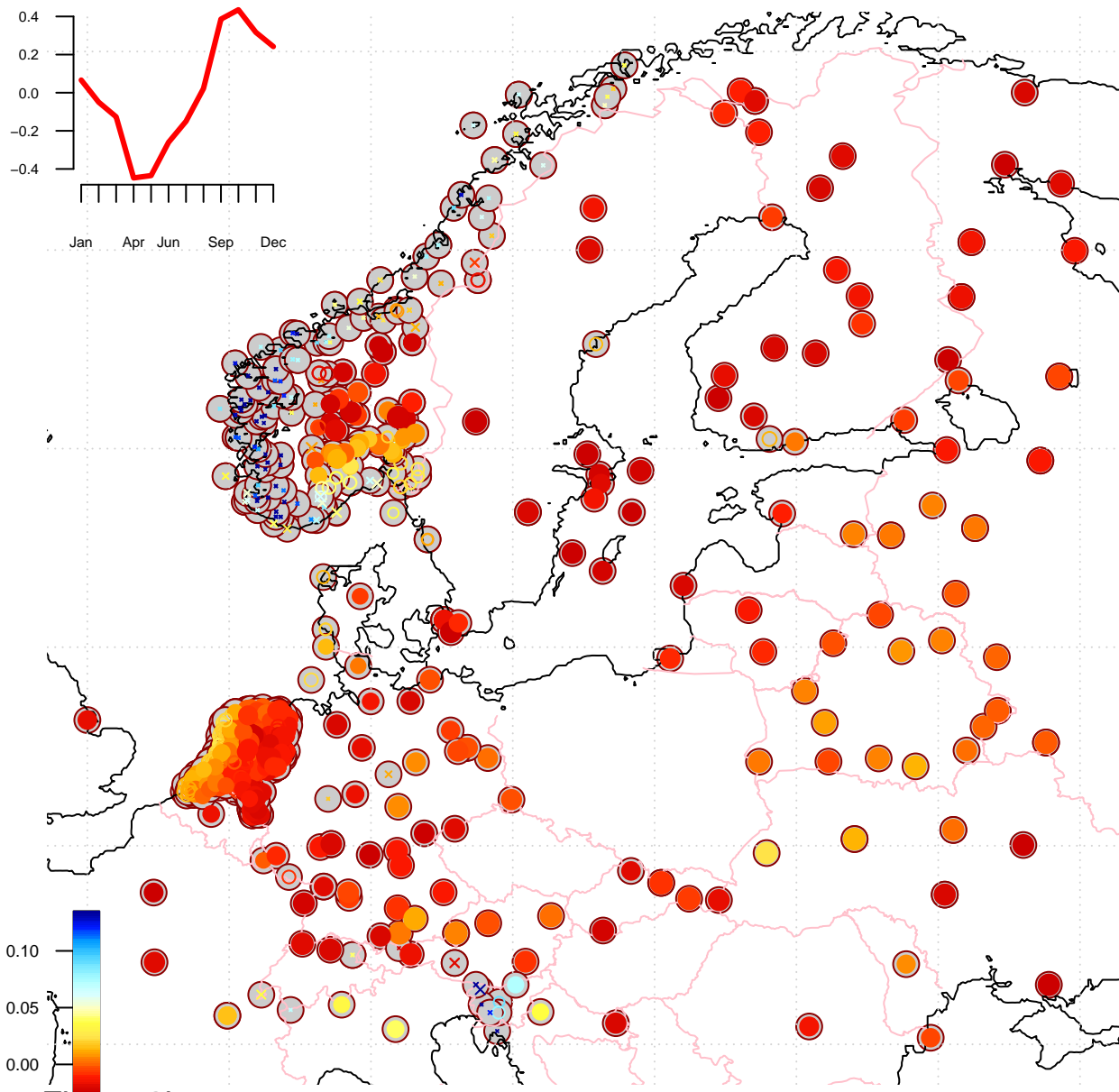


Figure 1

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





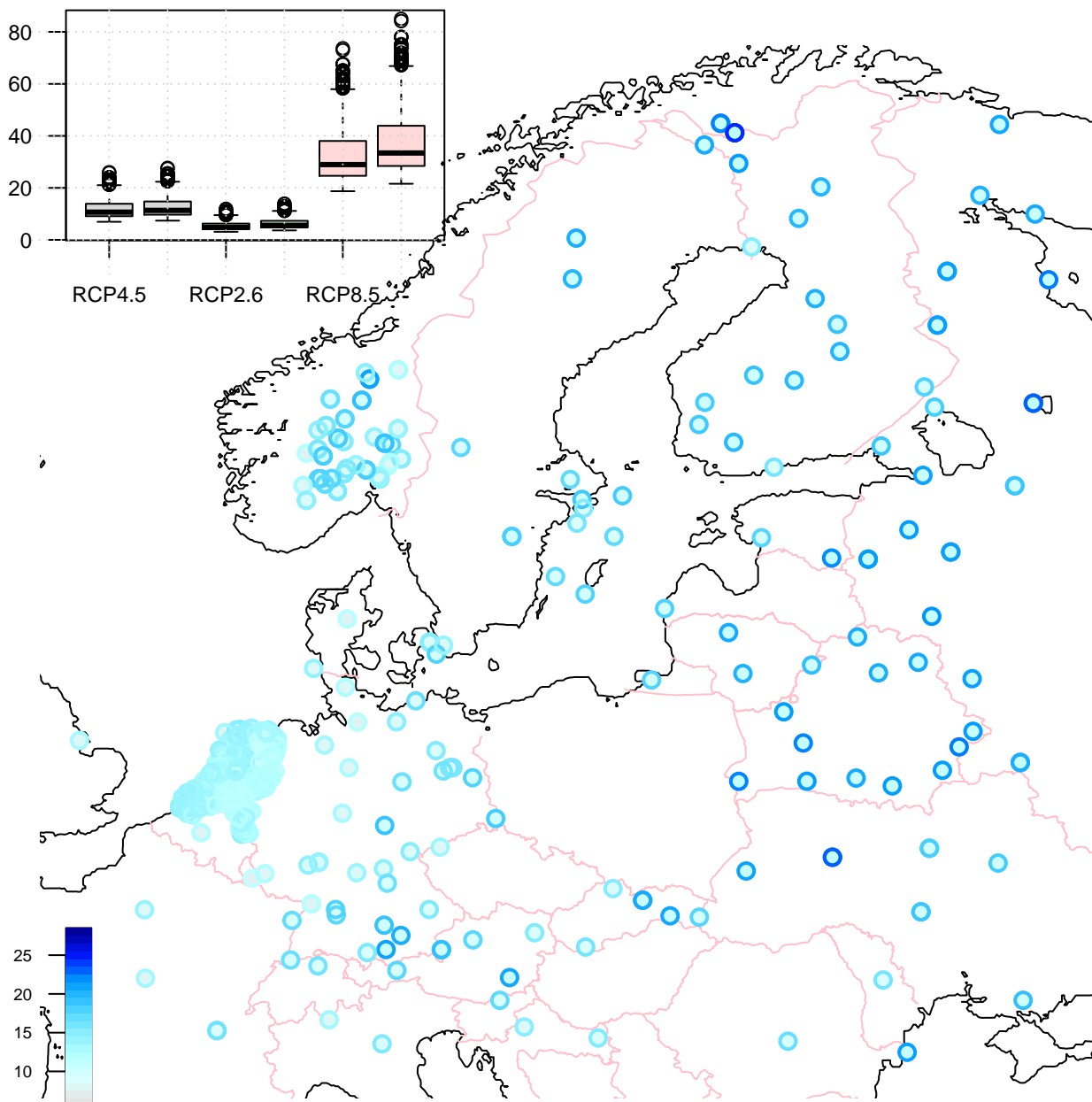


Figure 3

## **Supporting figures**

# Test: exponential distribution & changing mean

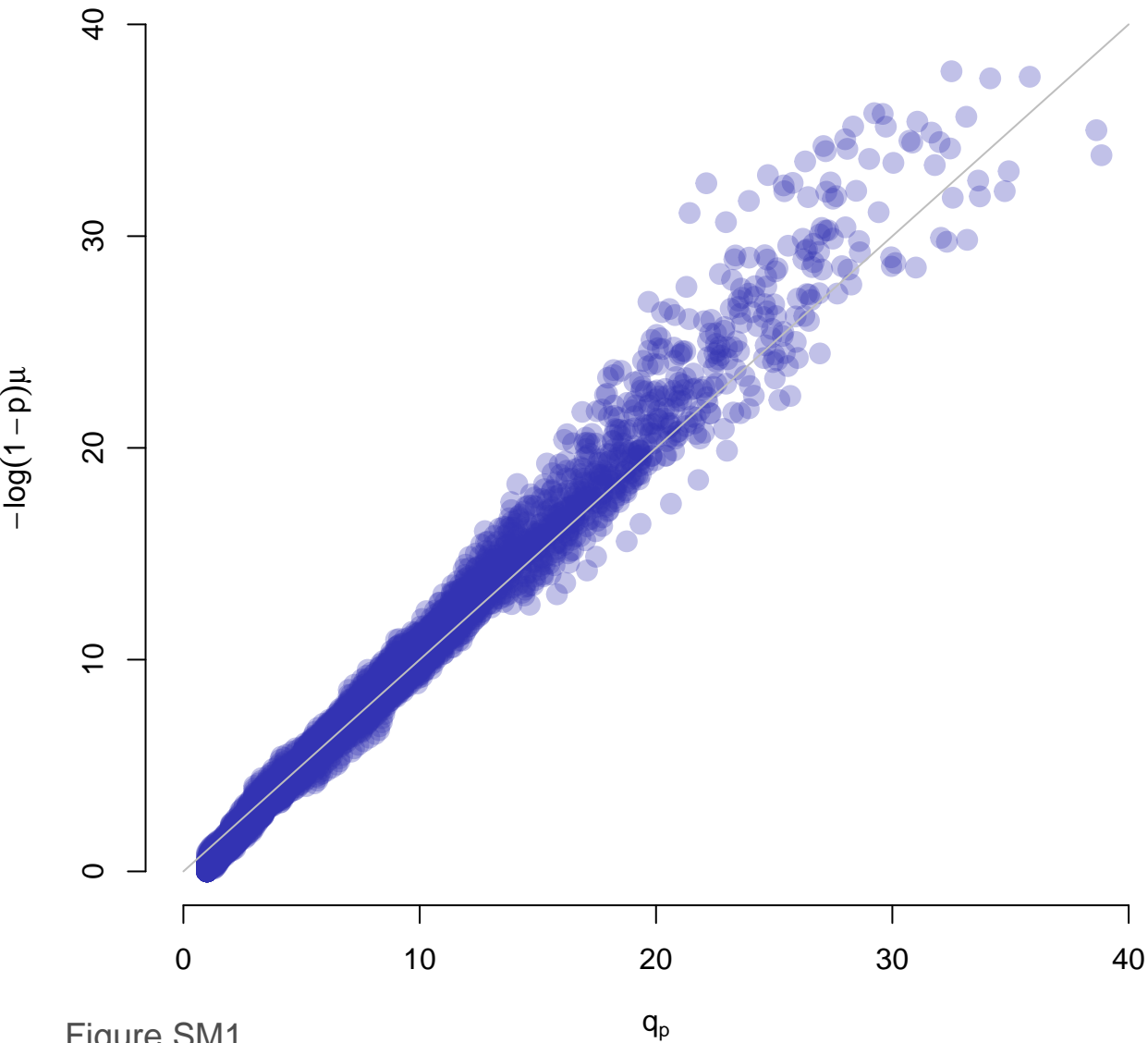


Figure SM1

## Summary of regression scores

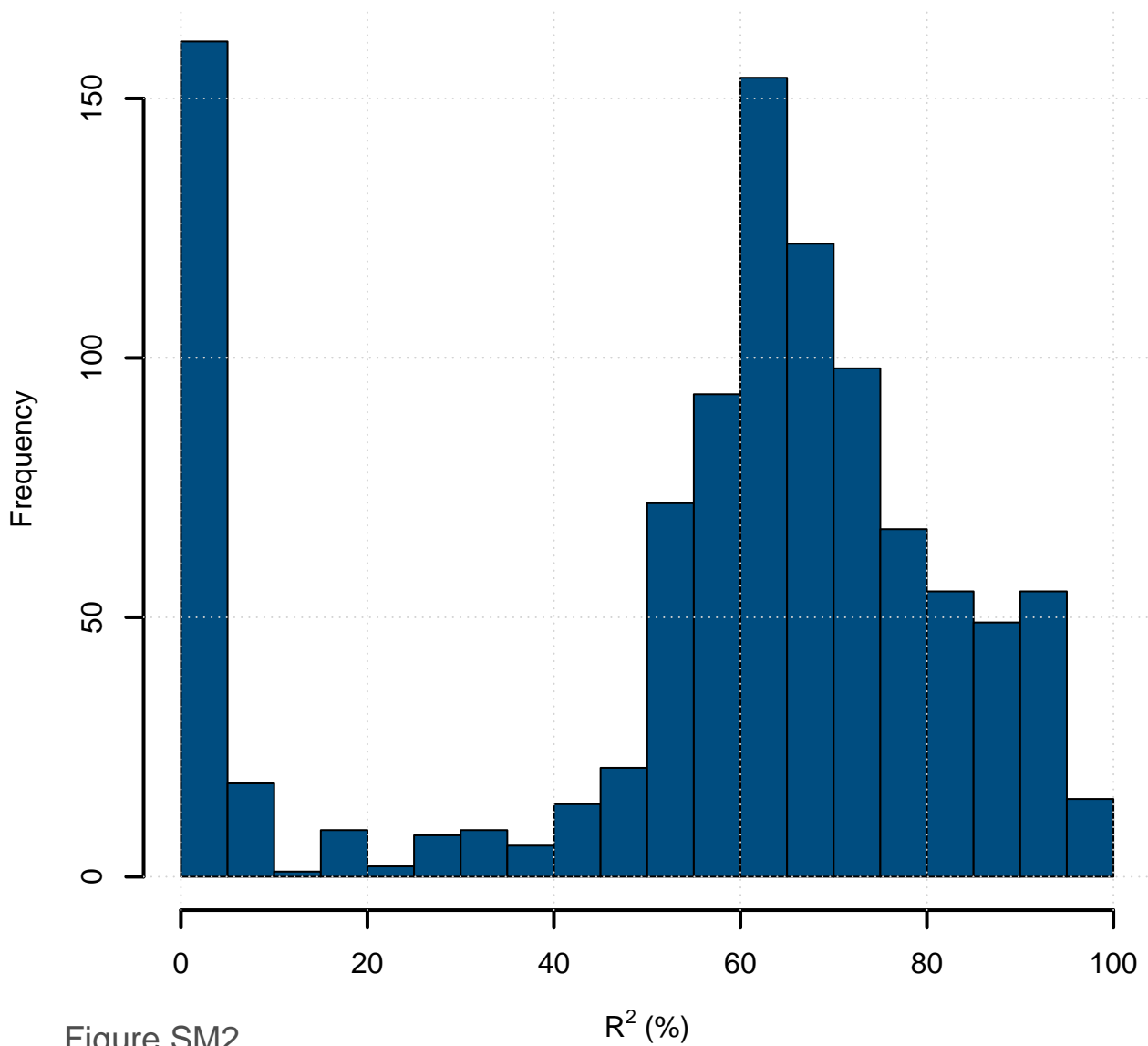


Figure SM2

# Trends in $\mu$ : observed and predicted upper limit

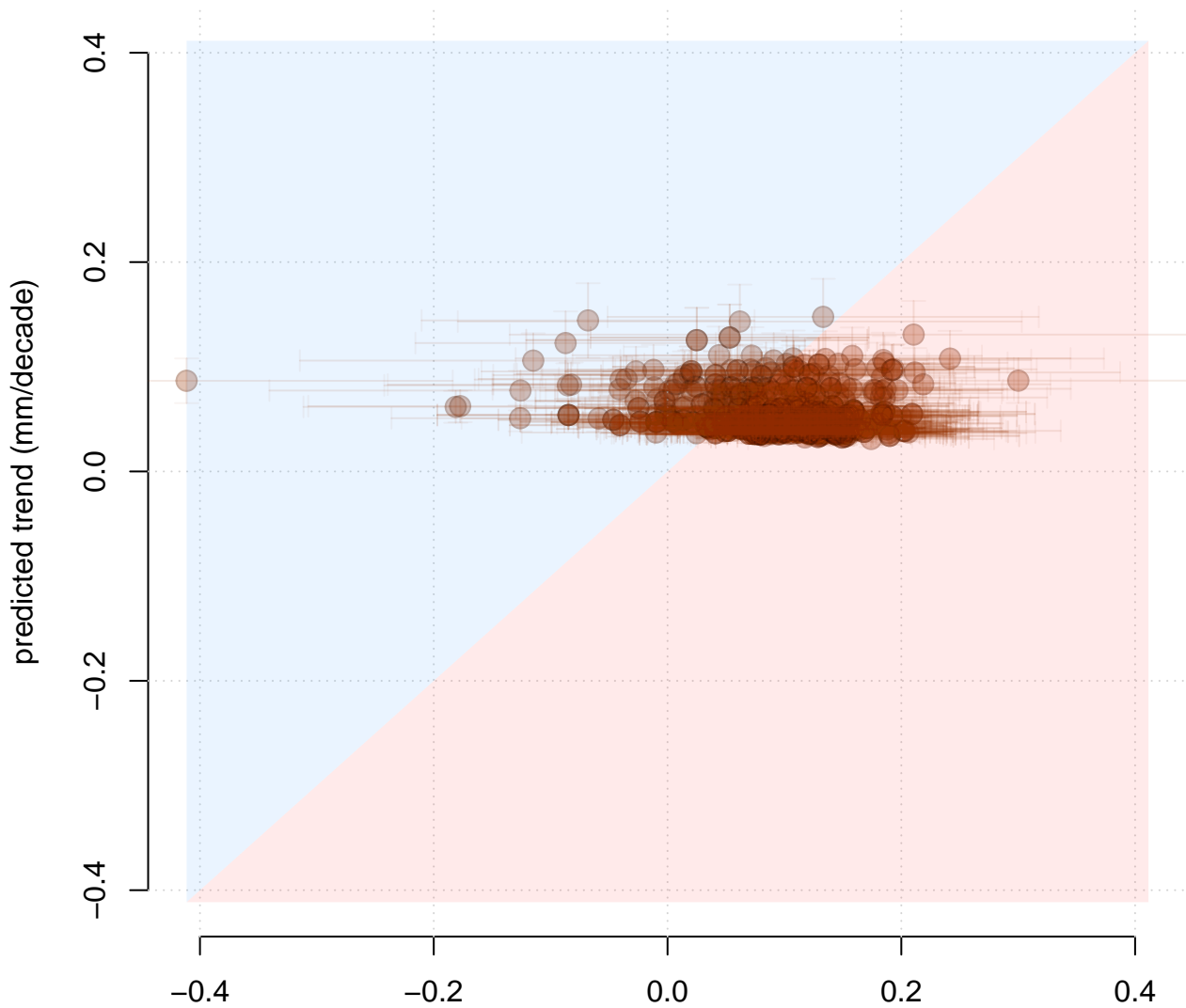


Figure SM3

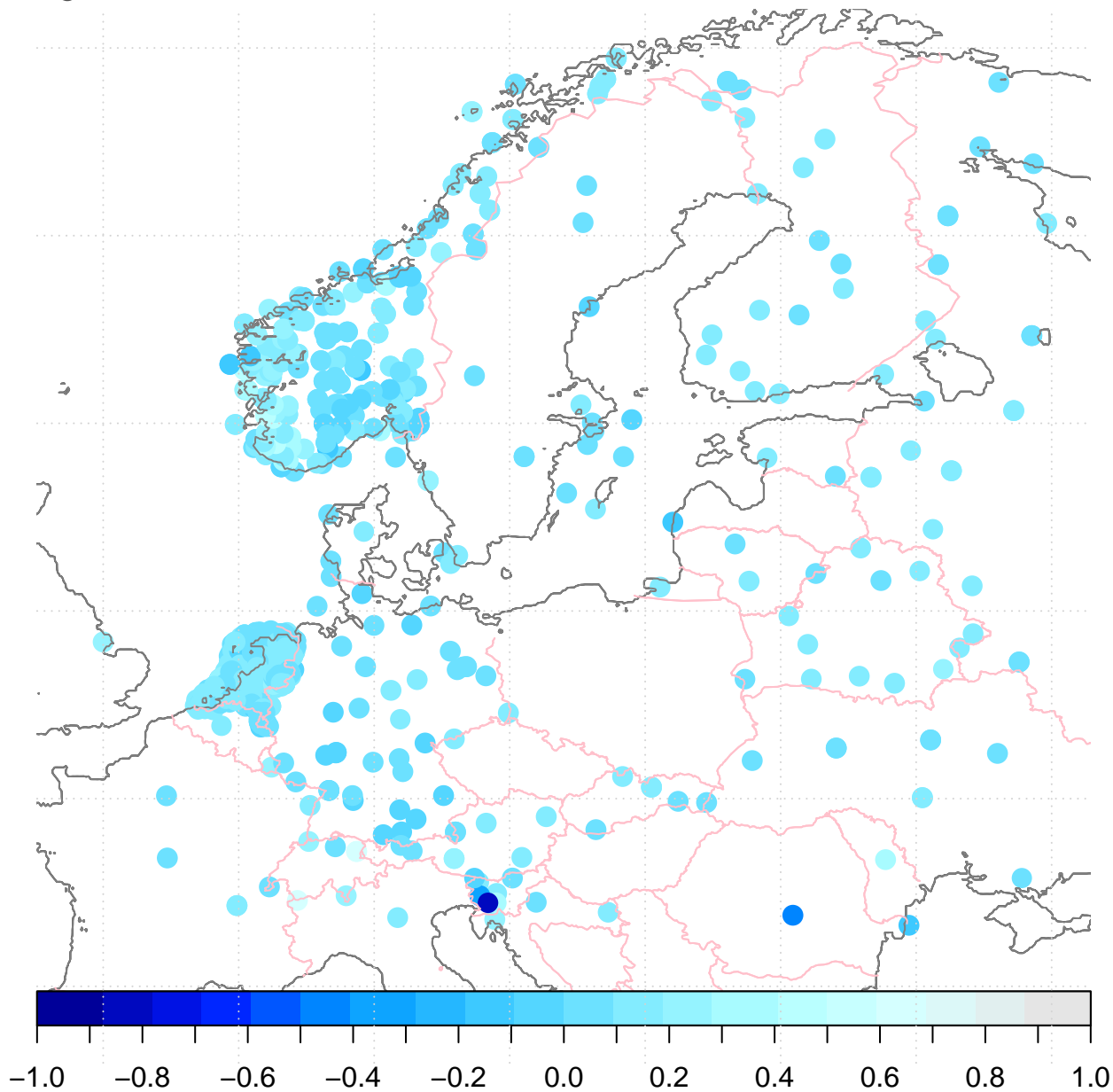
Observed trend (mm/decade)

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



Figure SM4

Trend in  $\mu$  (mm/day per decade)



# Wet-day percentile for annual maximum 24–precipitation

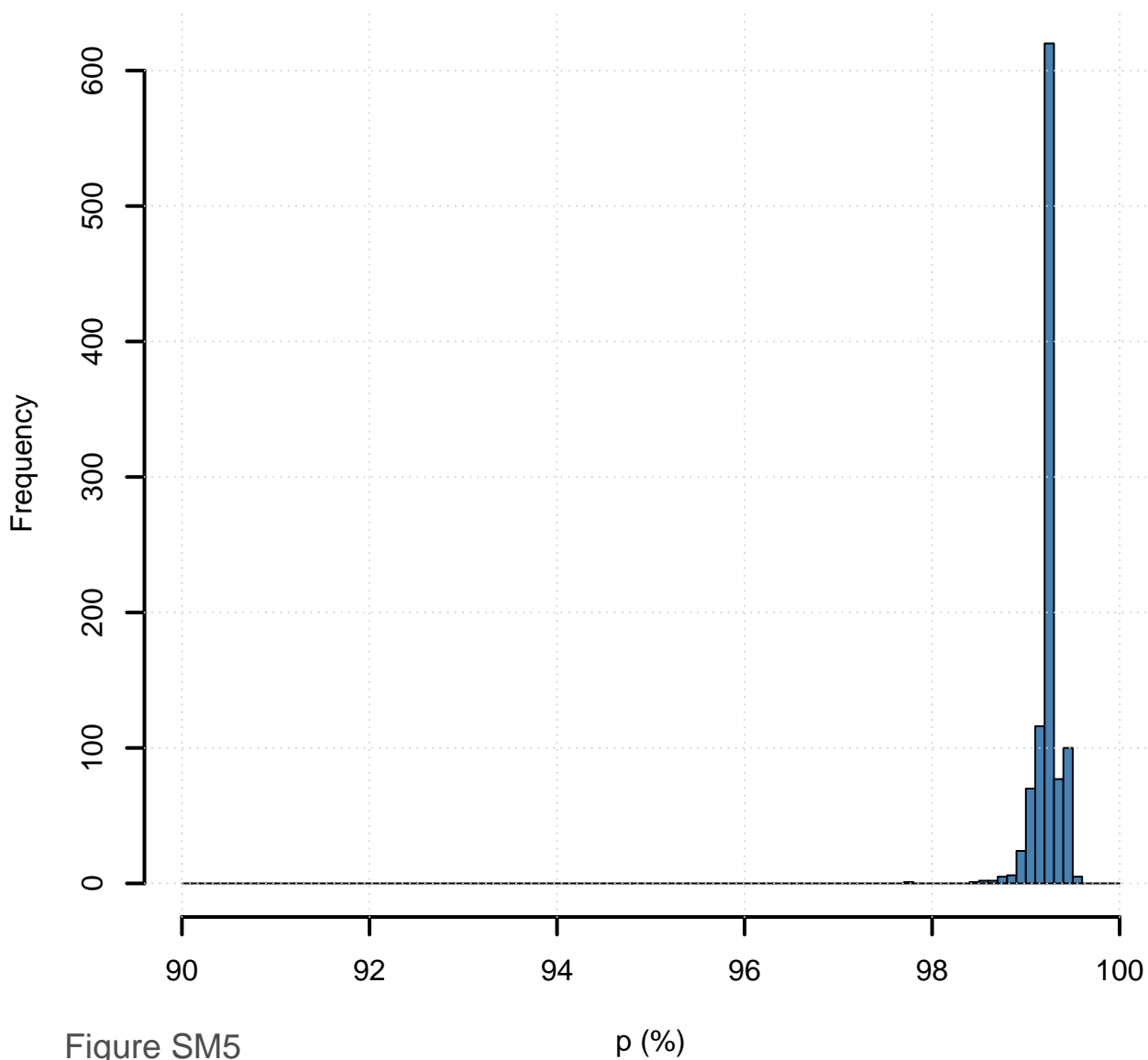


Figure SM5

# Trend in wet-day frequency

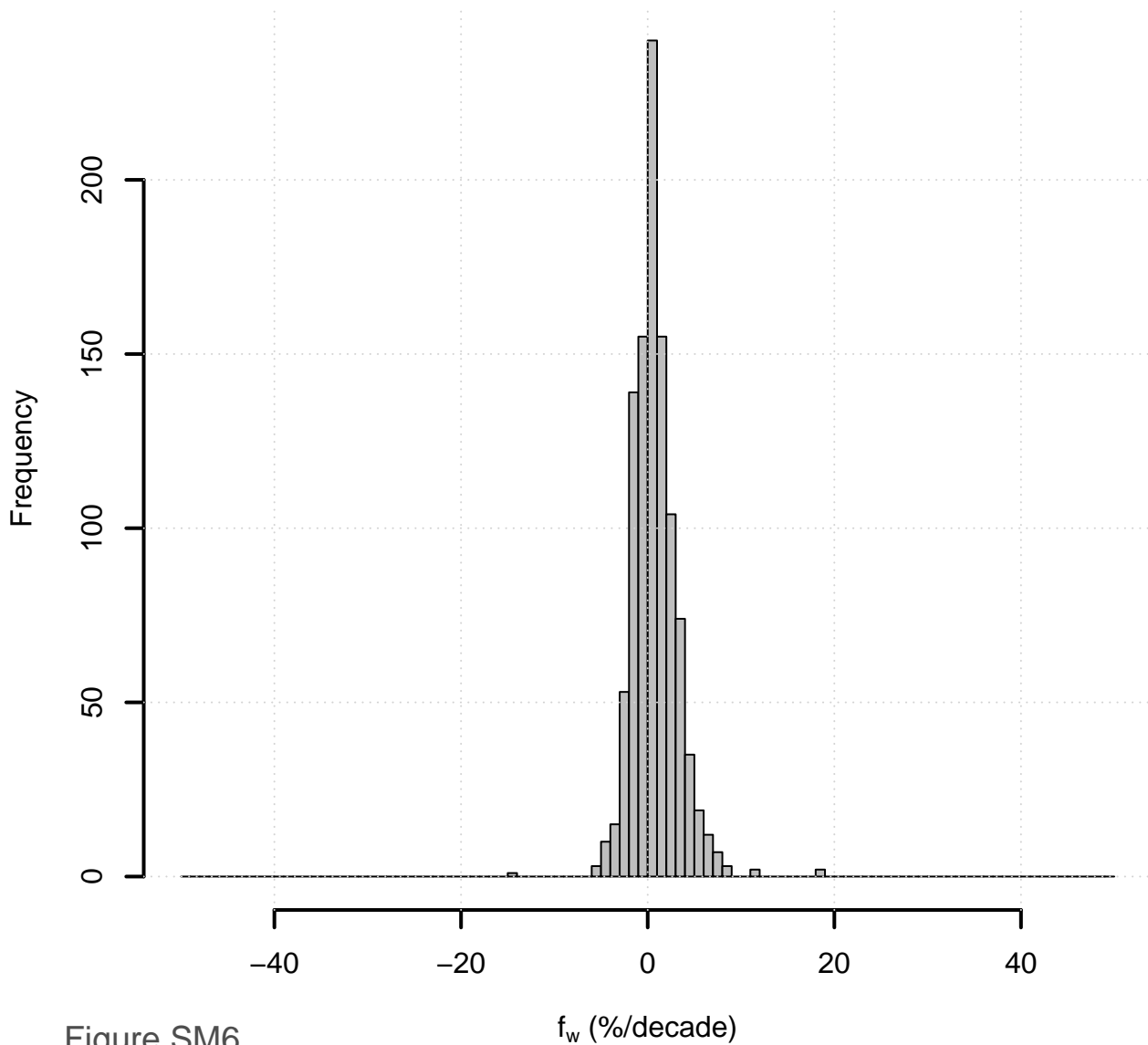
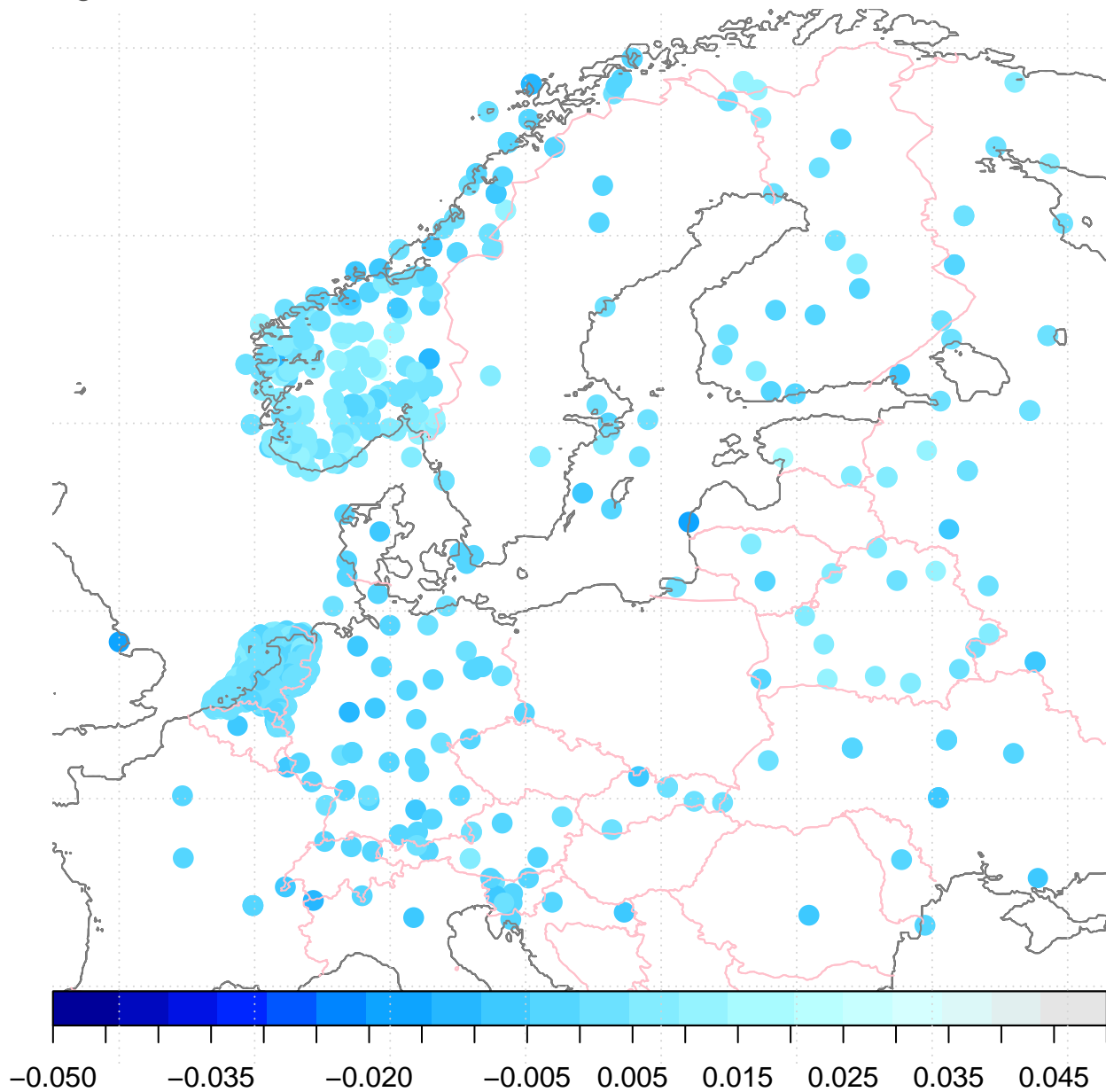


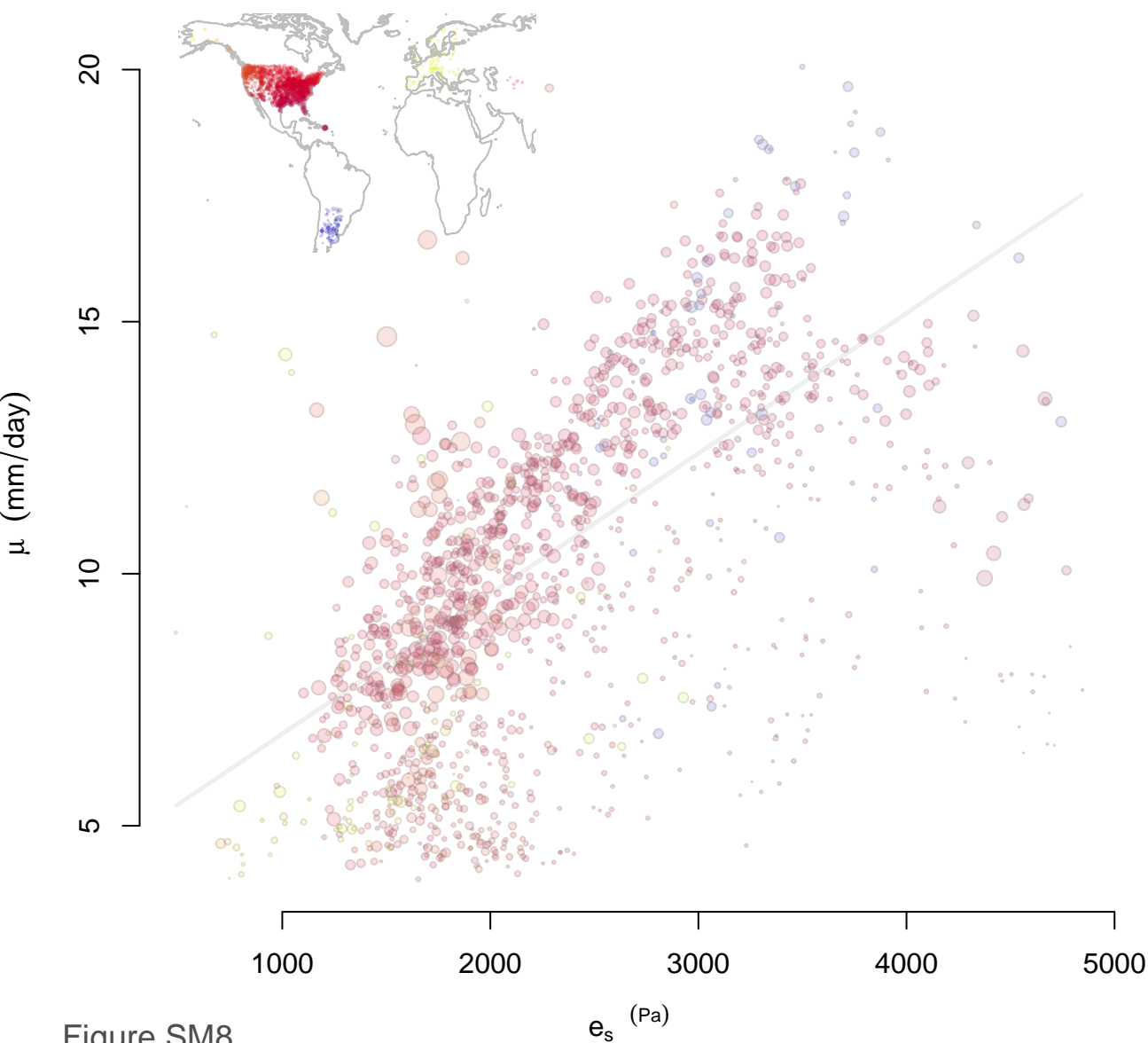
Figure SM6

Figure SM7

Trend in  $f_w$  (fraction per decade)



# Wet-day mean precipitation temperature dependency



# Scaling coefficient for $\mu$ and $e_s$

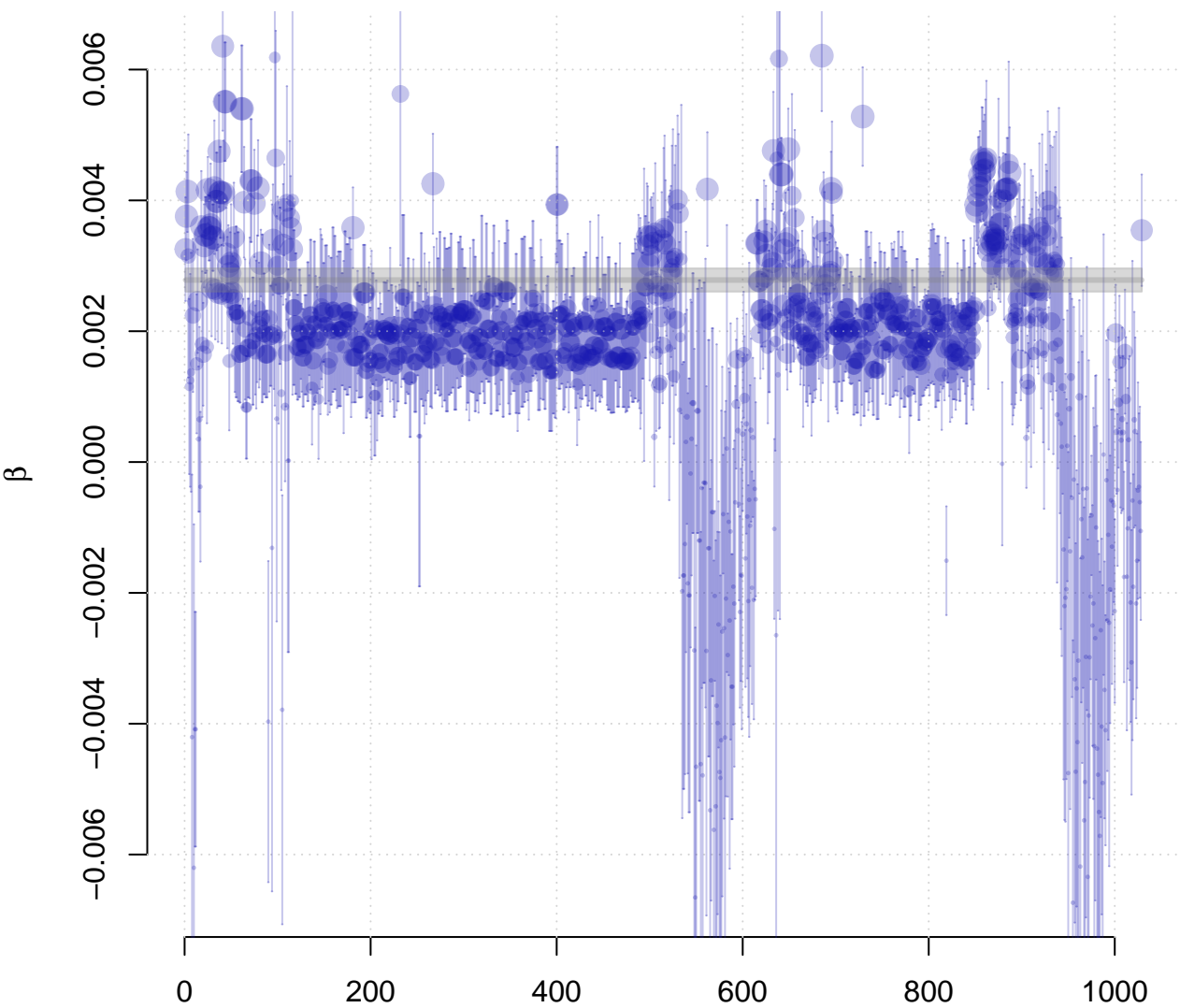
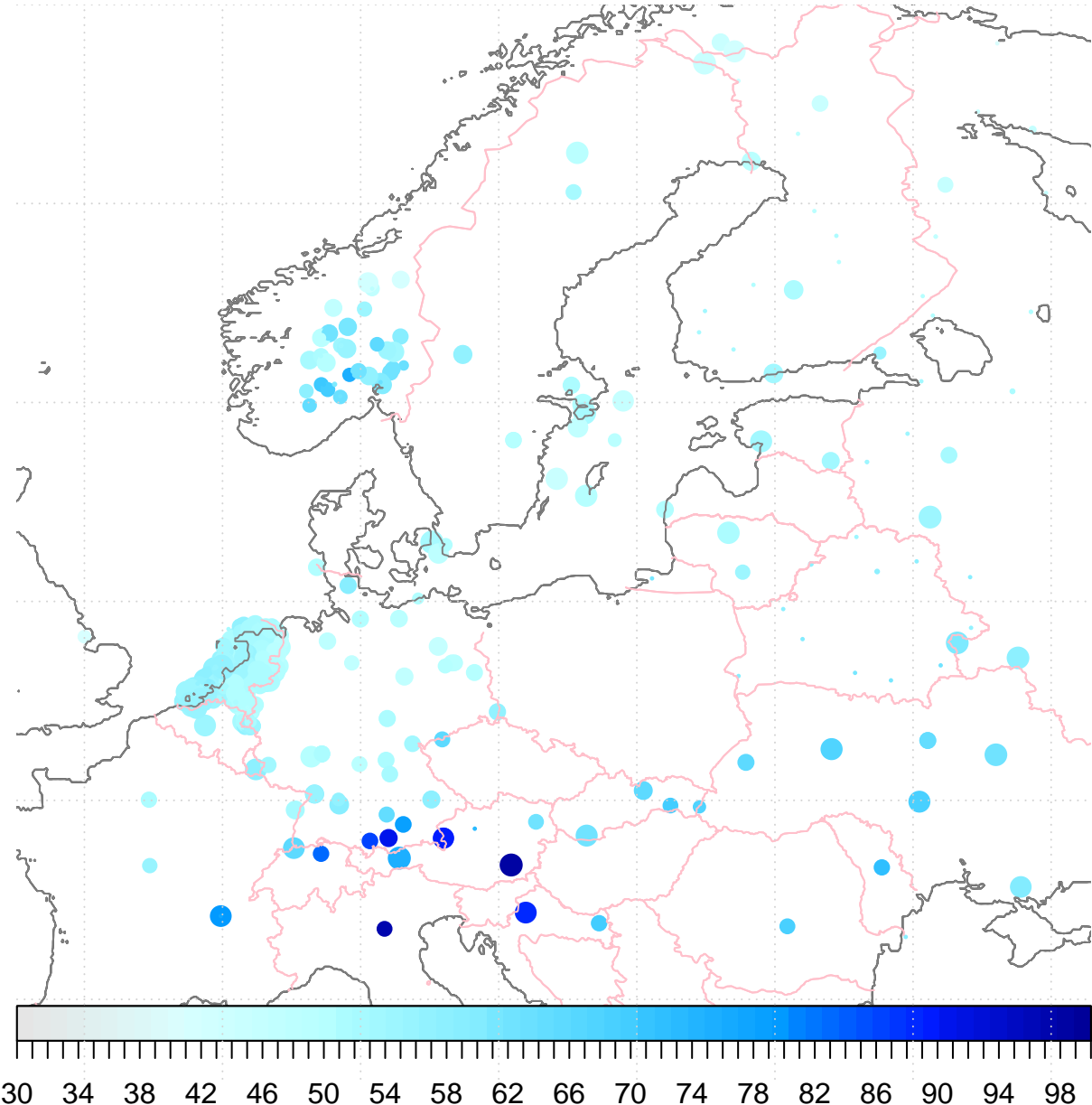


Figure SM9

Figure SM10

Return values for 2100 assuming RCP4.5



# Wet-day mean at STOCKHOLM

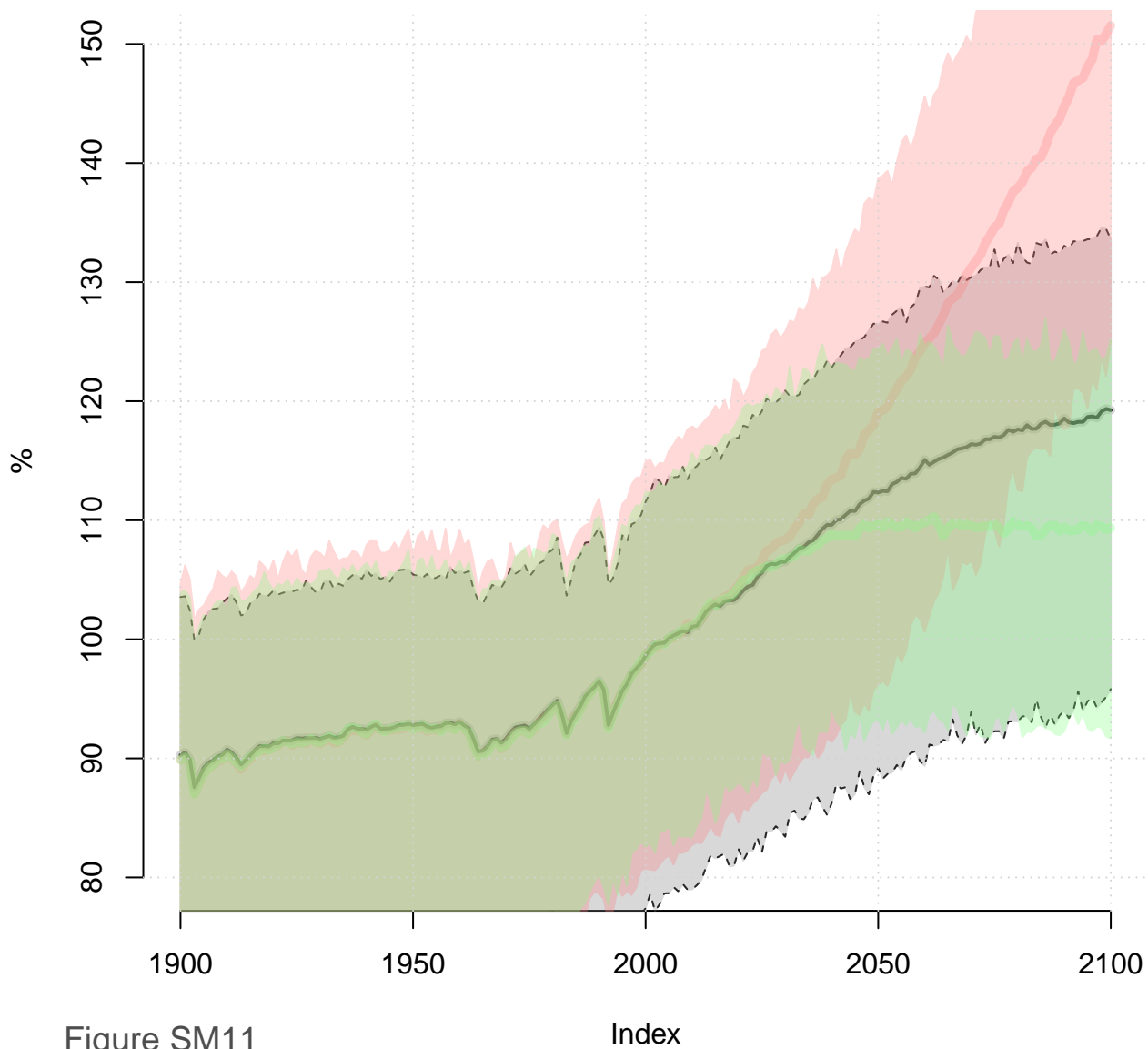
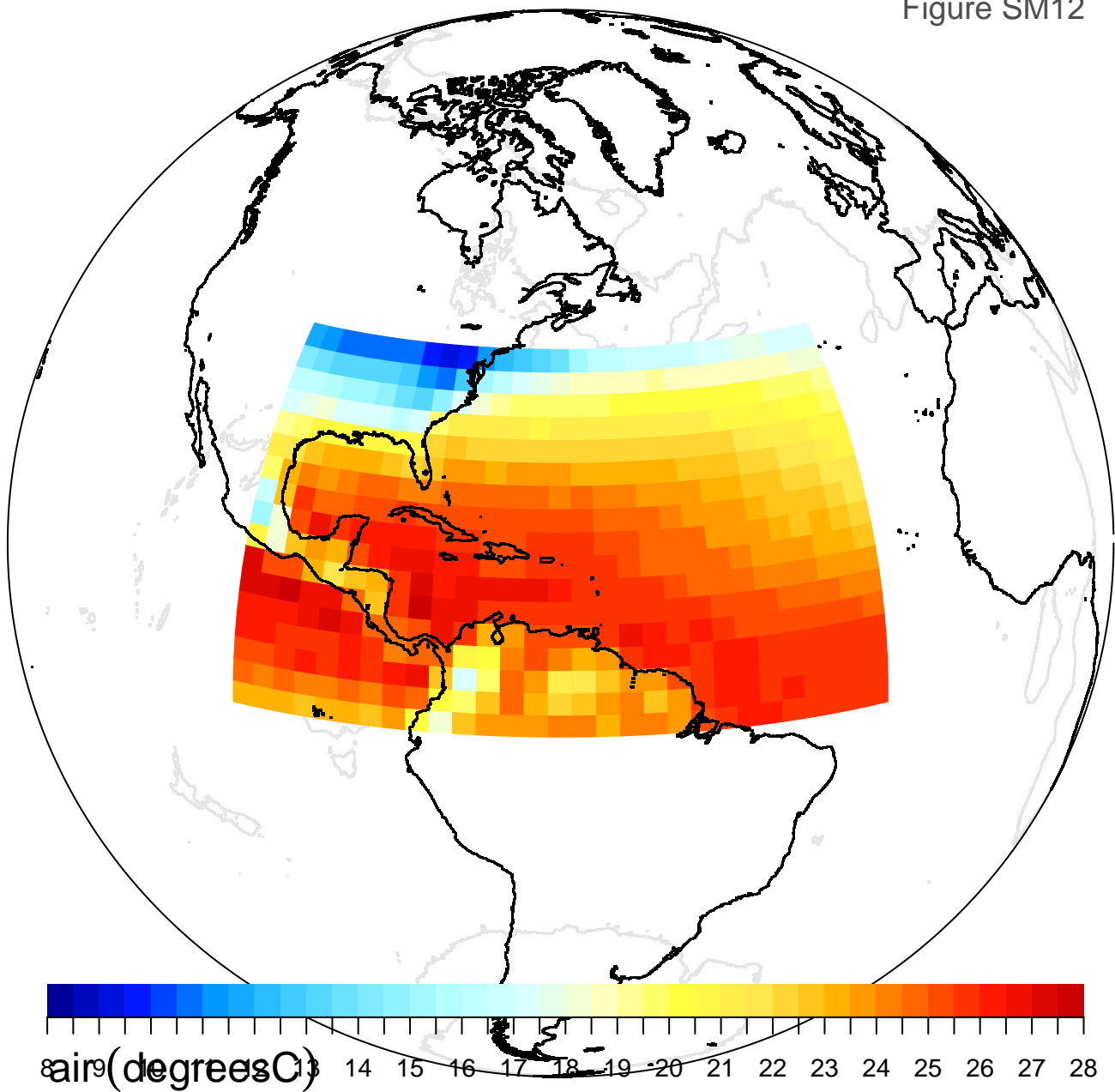


Figure SM11



Figure SM12



# GARDERMOEN

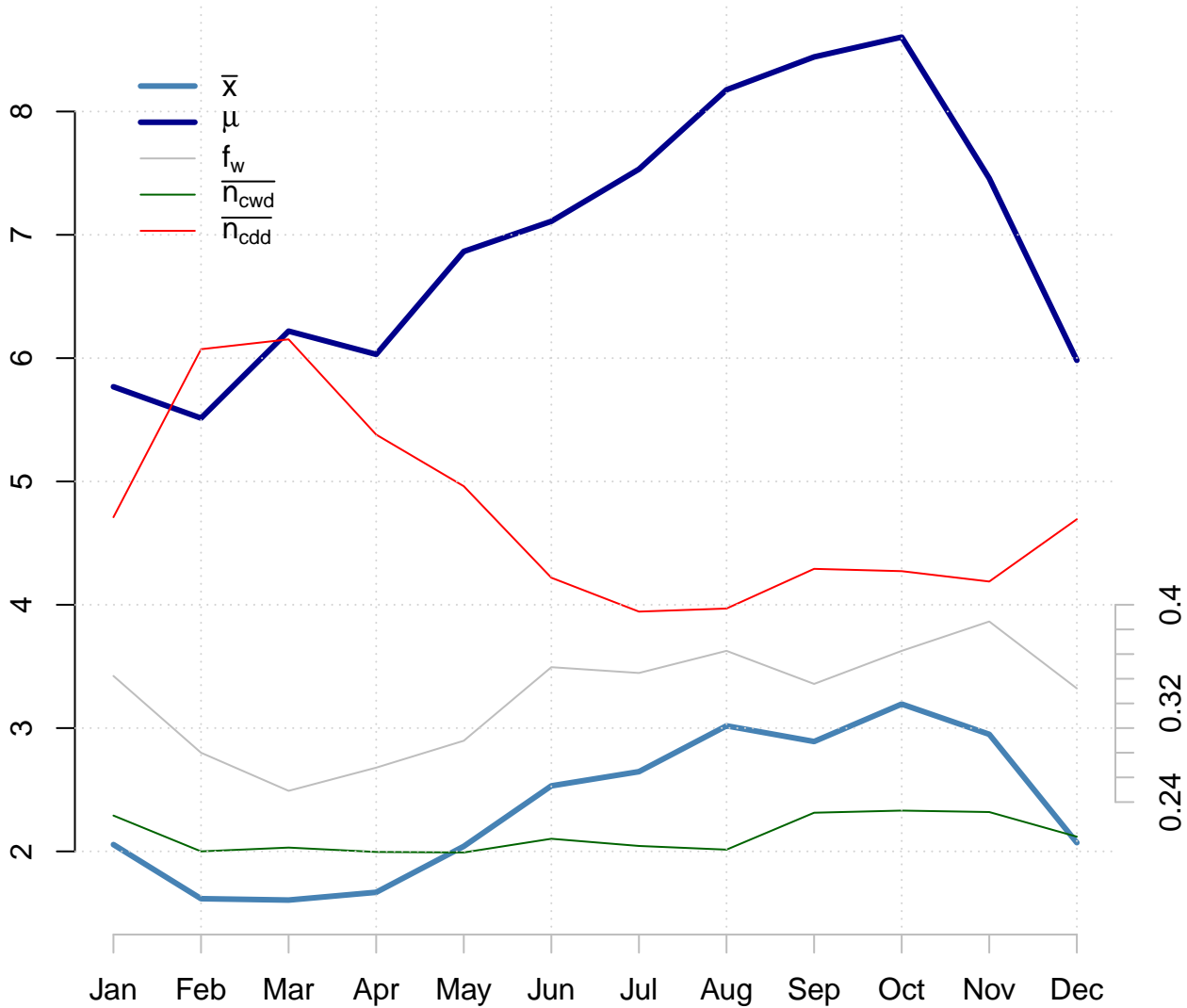


Figure SM13

Calendar month