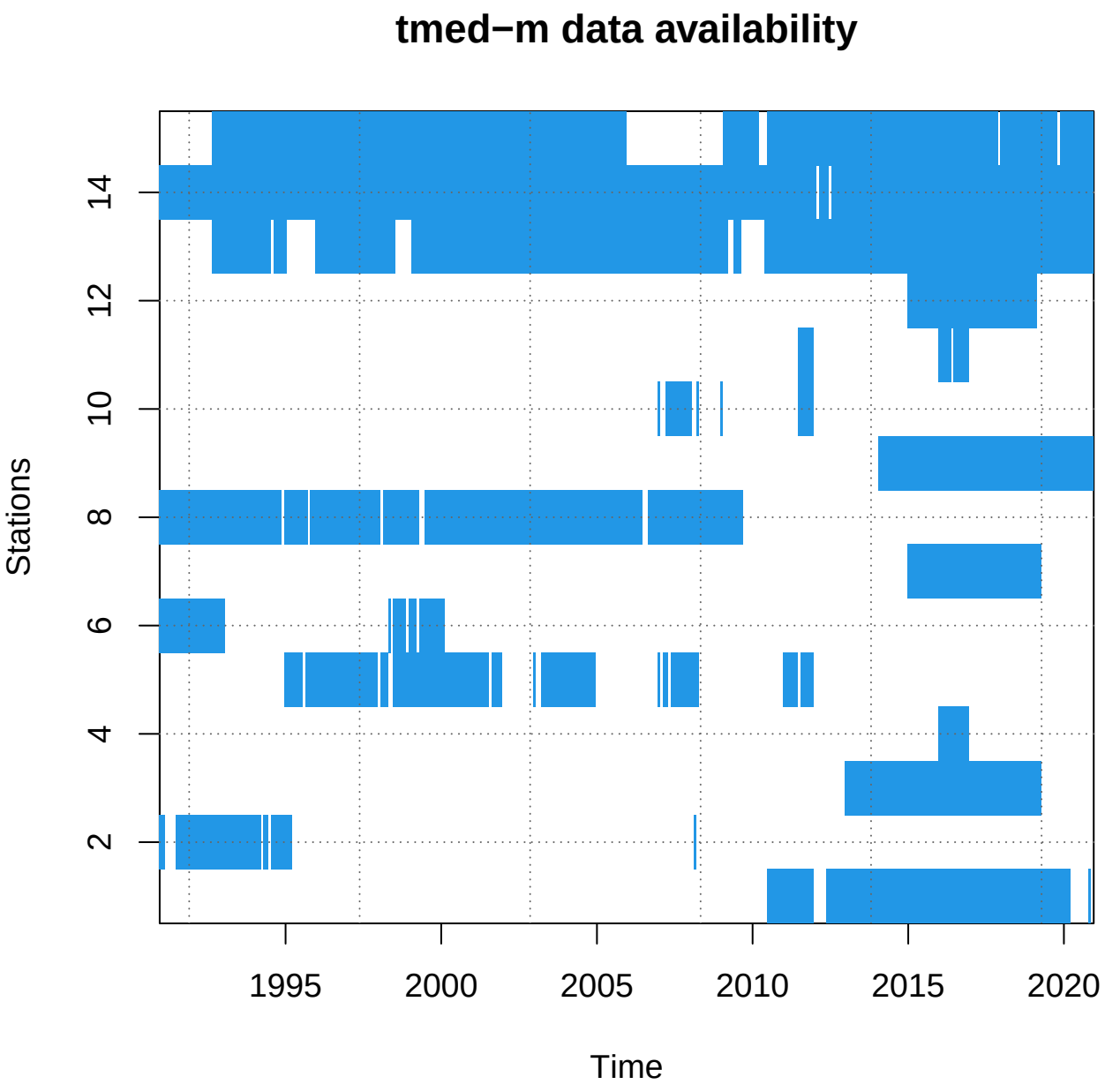
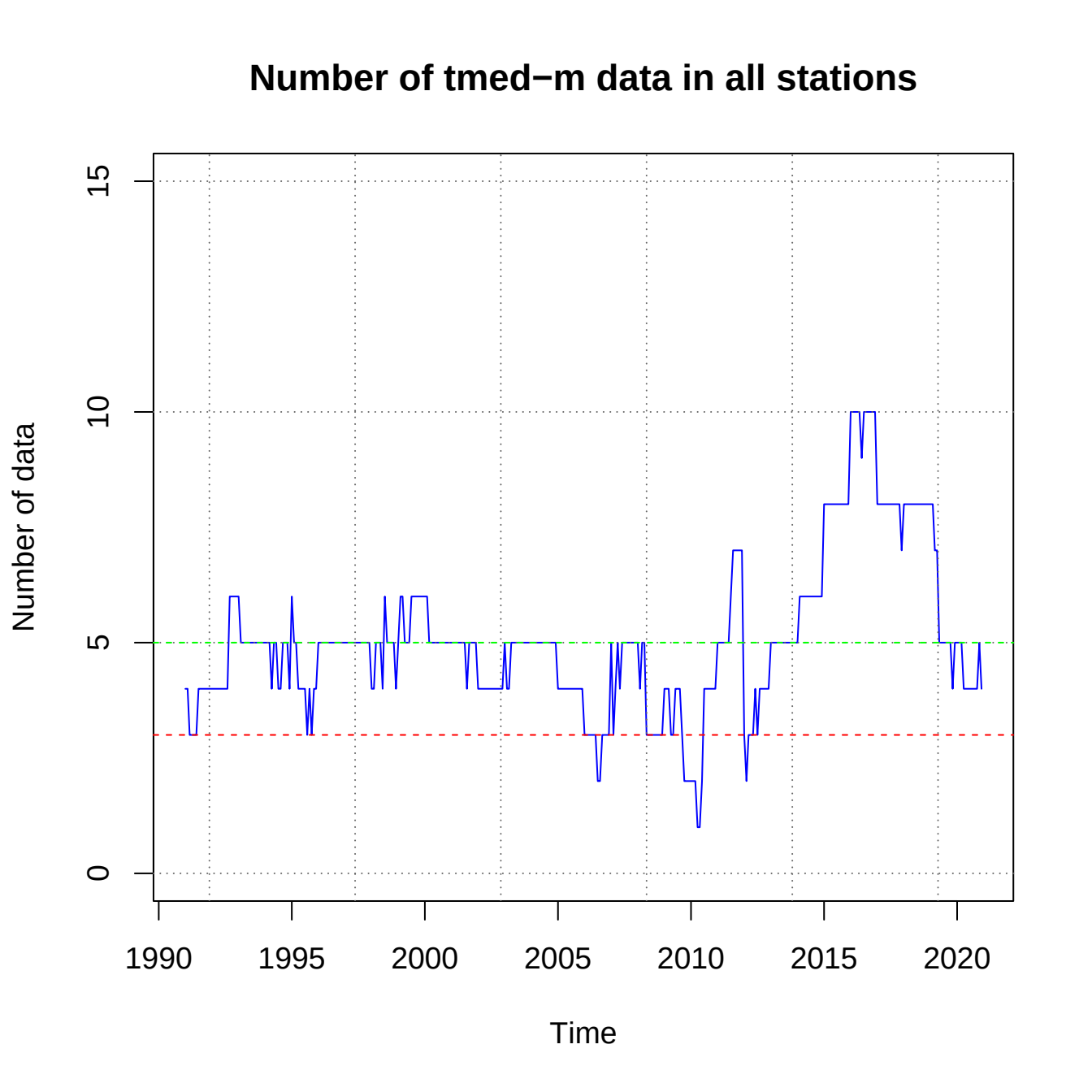
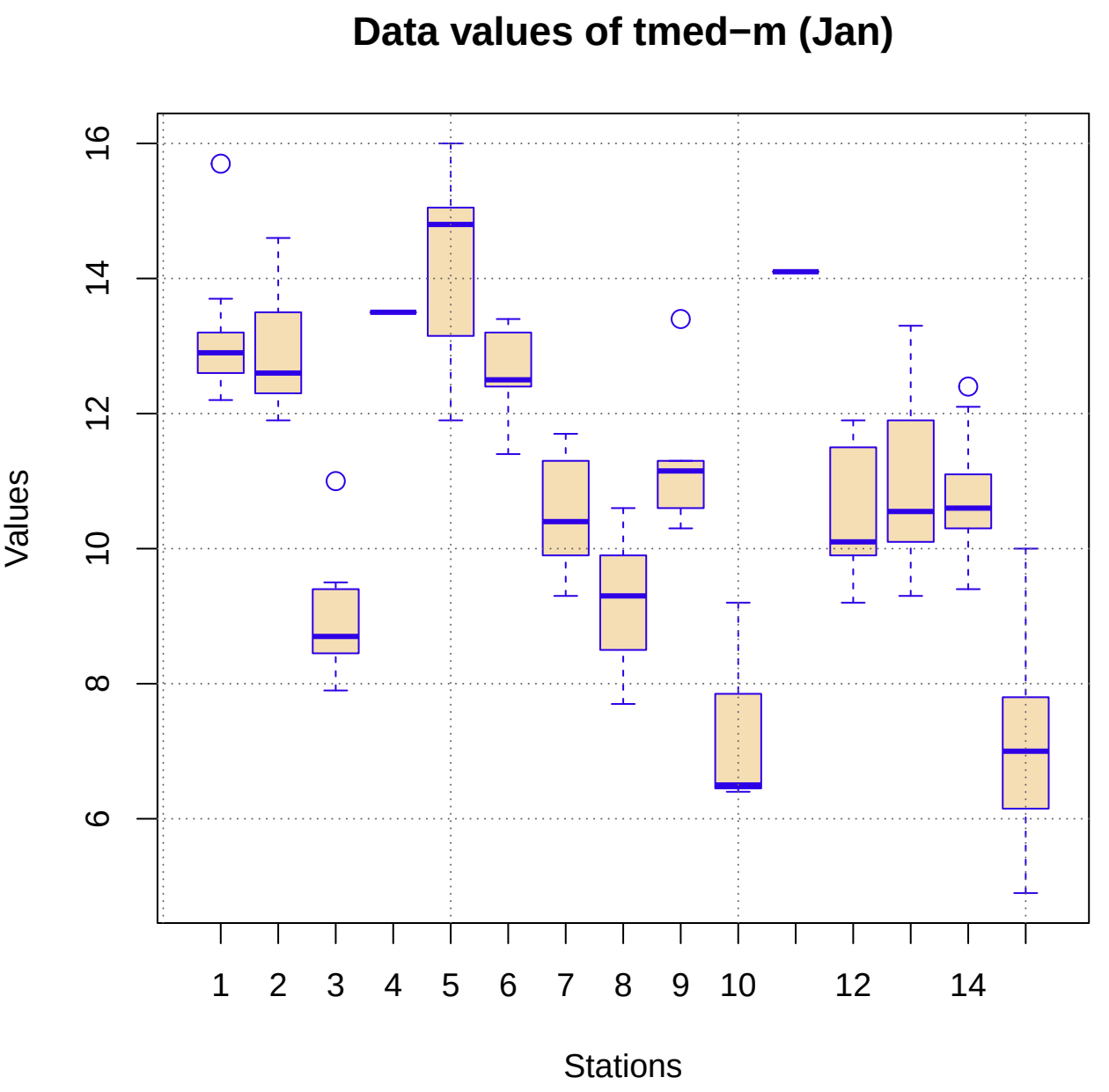
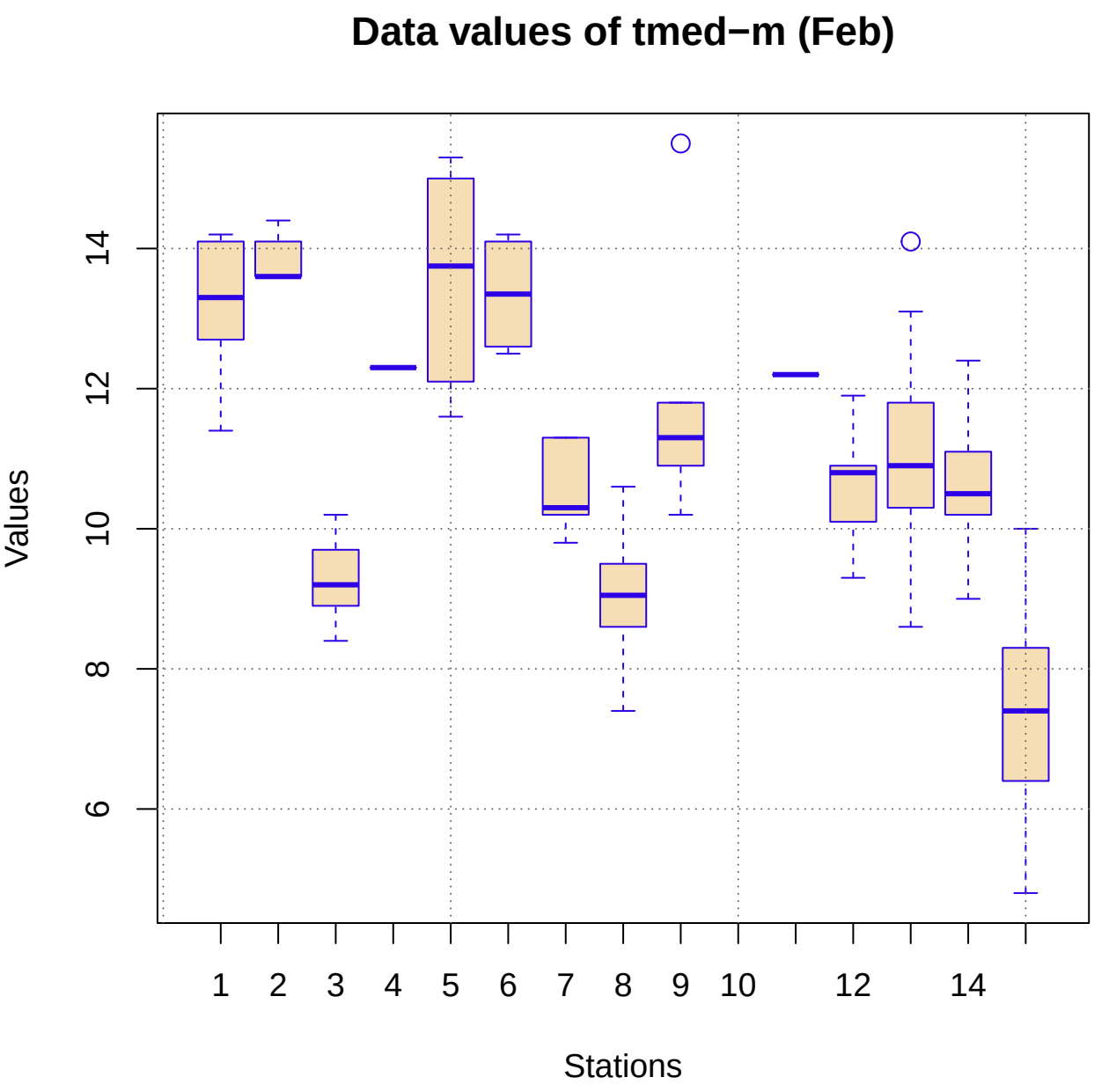
CLIMATOL 3.1.1

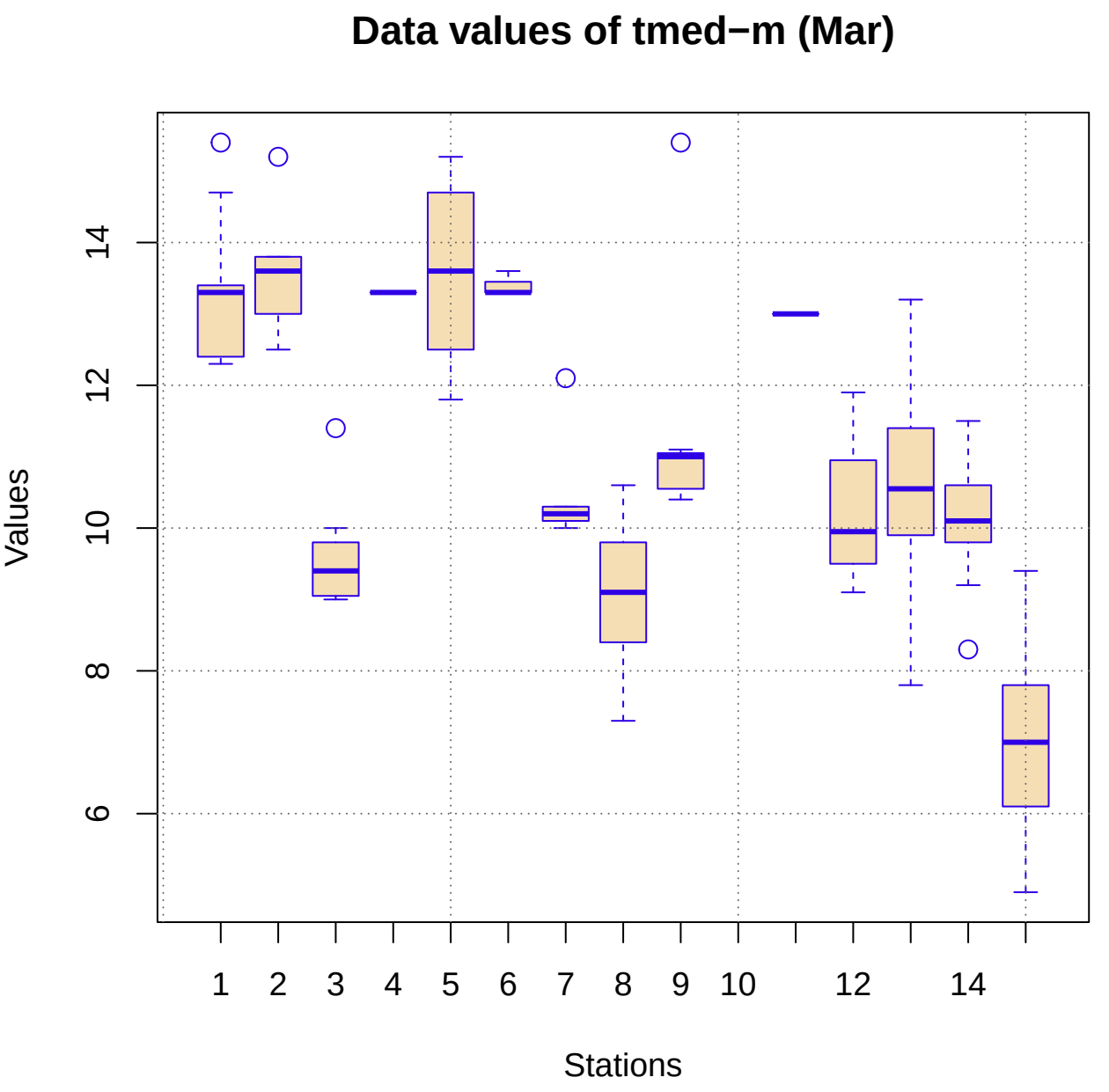
Homogenization
graphic output of
tmed−m
1991−2020

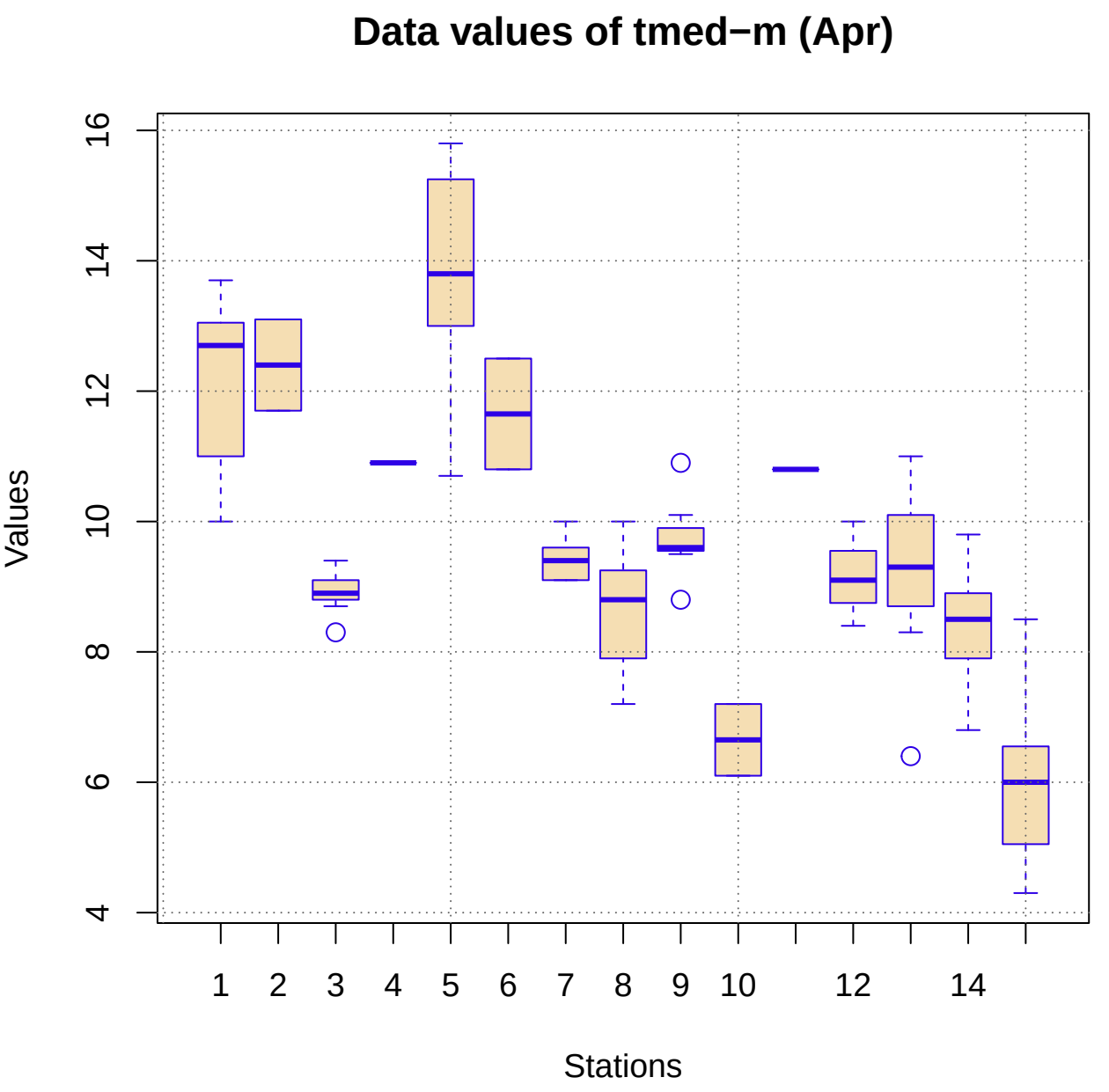

tmed−m data availability
Stations
2
4
6
8
10
12
14
1995
2000
2005
2010
2015
2020
Time

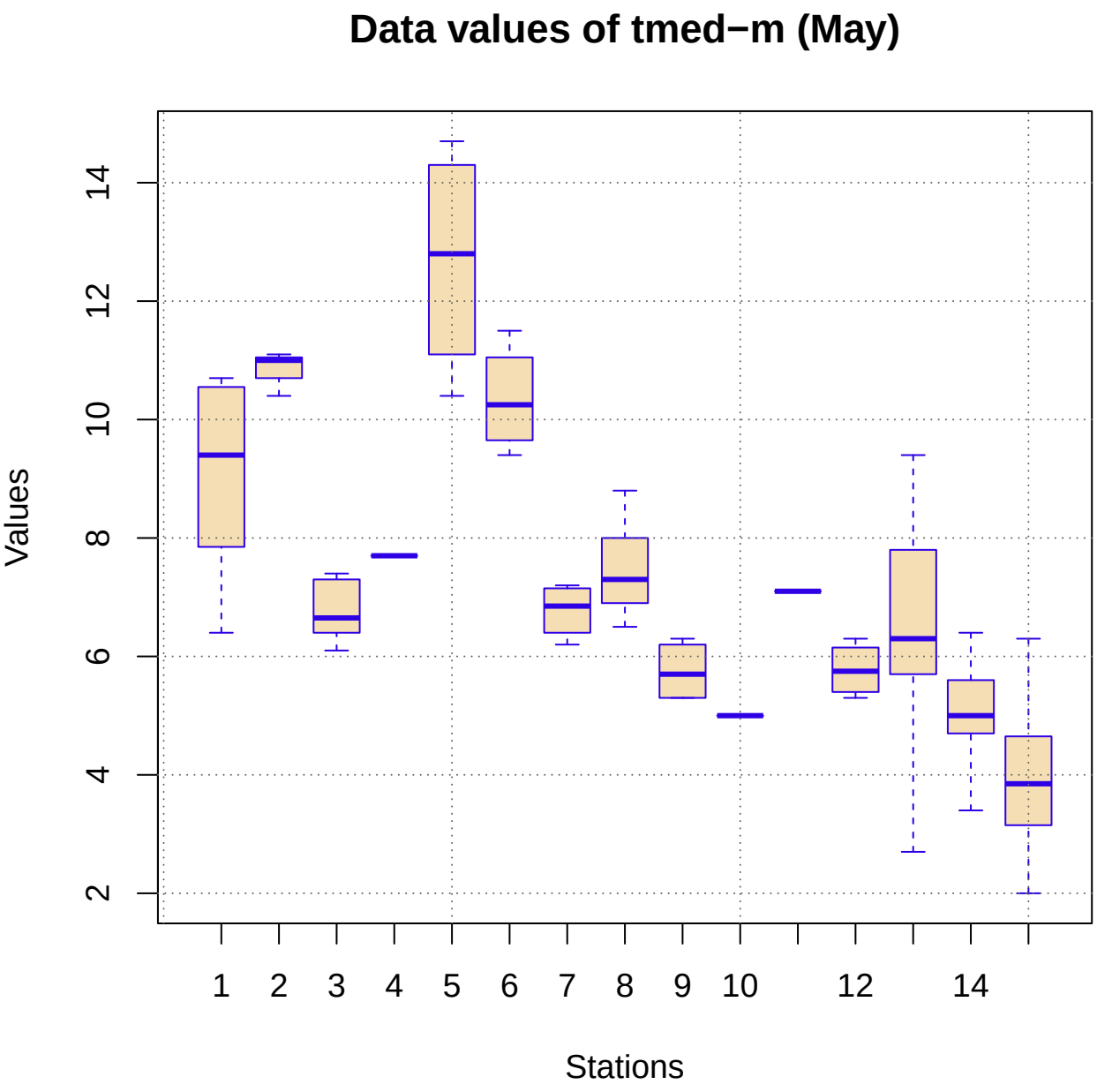

Number of tmed−m data in all stations
Number of data
0
5
10
15
1990
1995
2000
2005
2010
2015
2020
Time

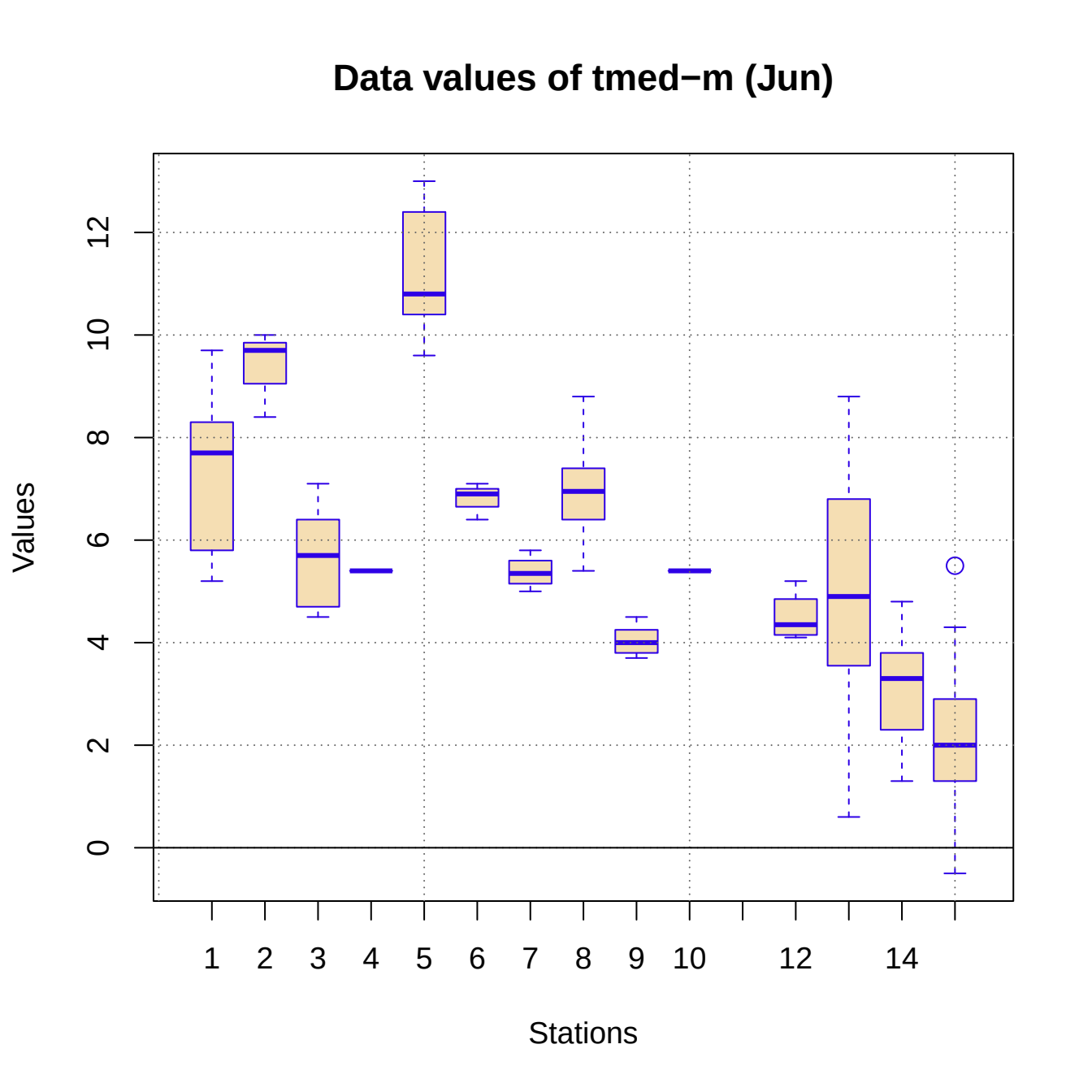

Data values of tmed−m (Jan)
Values
16
14
12
10
8
6
1
2
3
4
5
6
7
8
9
10
12
14
Stations

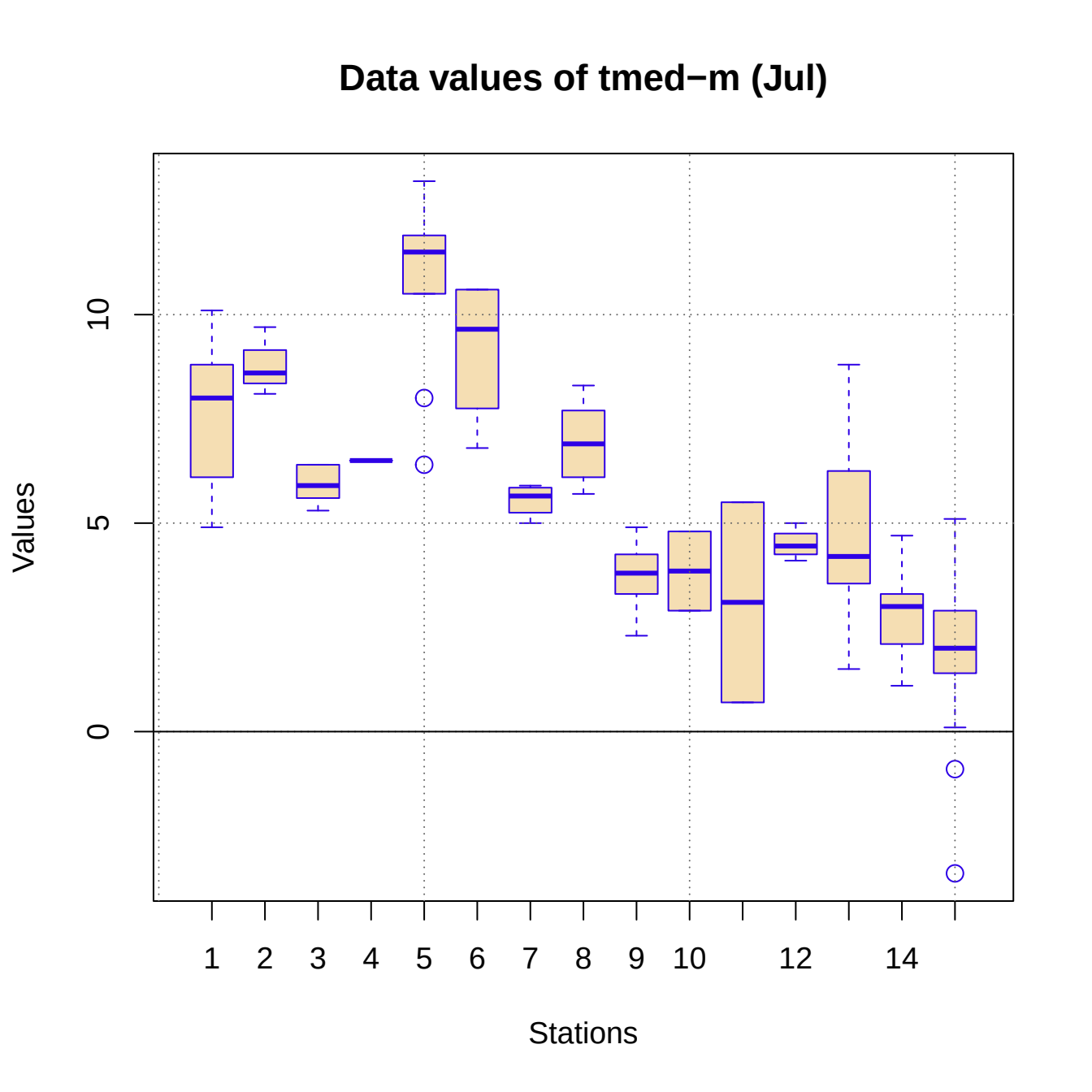

Data values of tmed−m (Feb)
Values
6
8
10
12
14
1
2
3
4
5
6
7
8
9
10
12
14
Stations

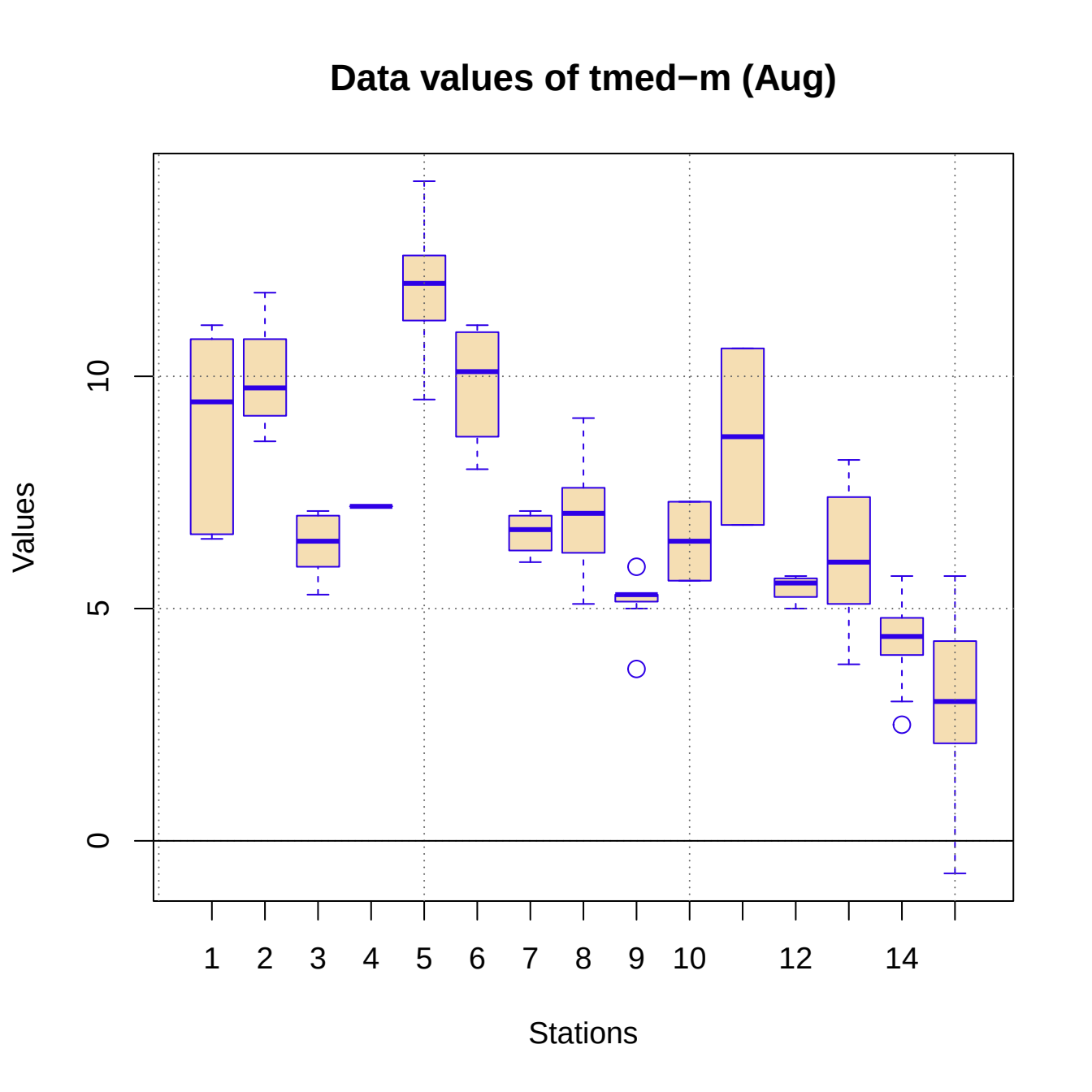

Data values of tmed−m (Mar)
Values
6
8
10
12
14
1
2
3
4
5
6
7
8
9
10
12
14
Stations

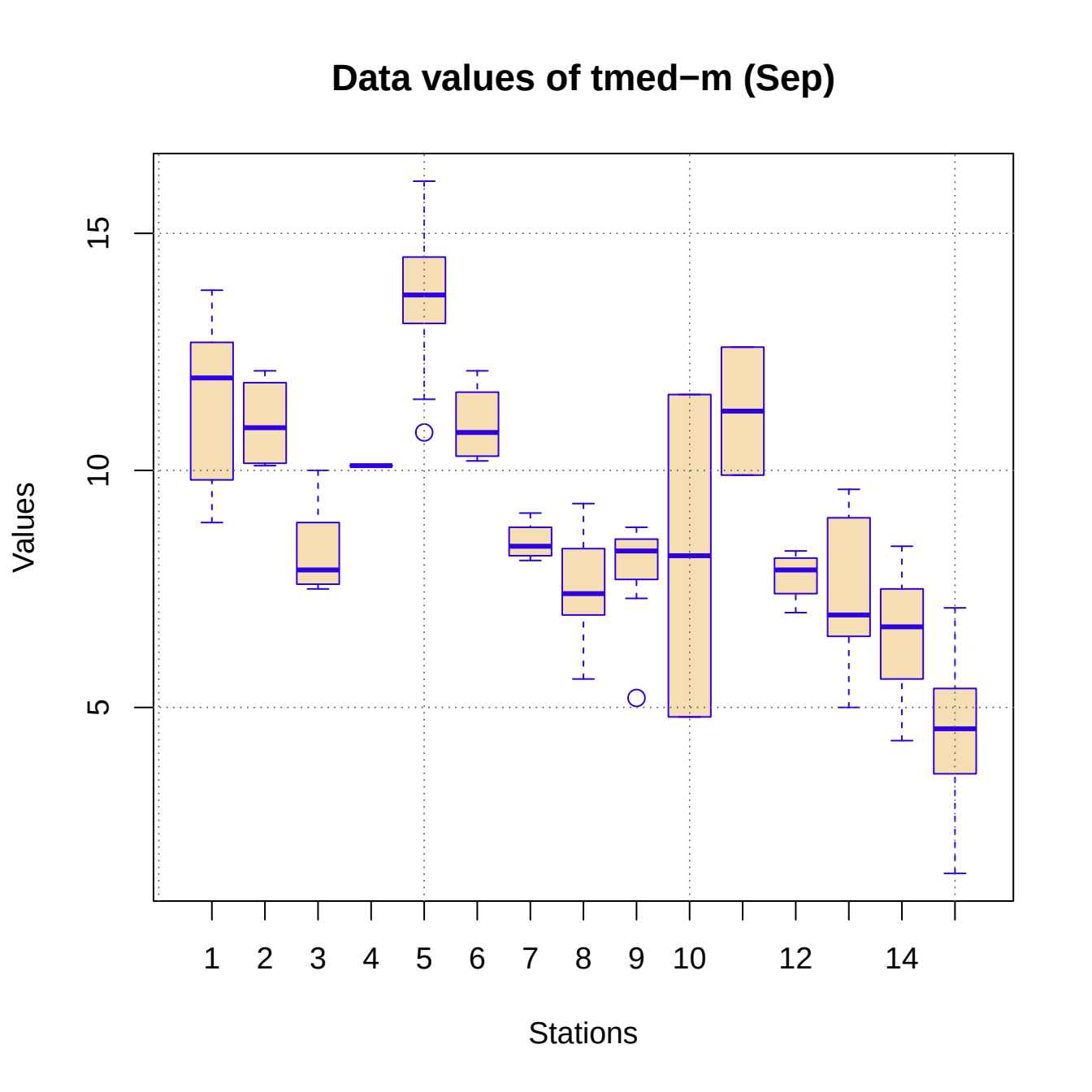

Data values of tmed−m (Apr)
Values
Stations
4
6
8
10
12
14
16
1
2
3
4
5
6
7
8
9
10
12
14

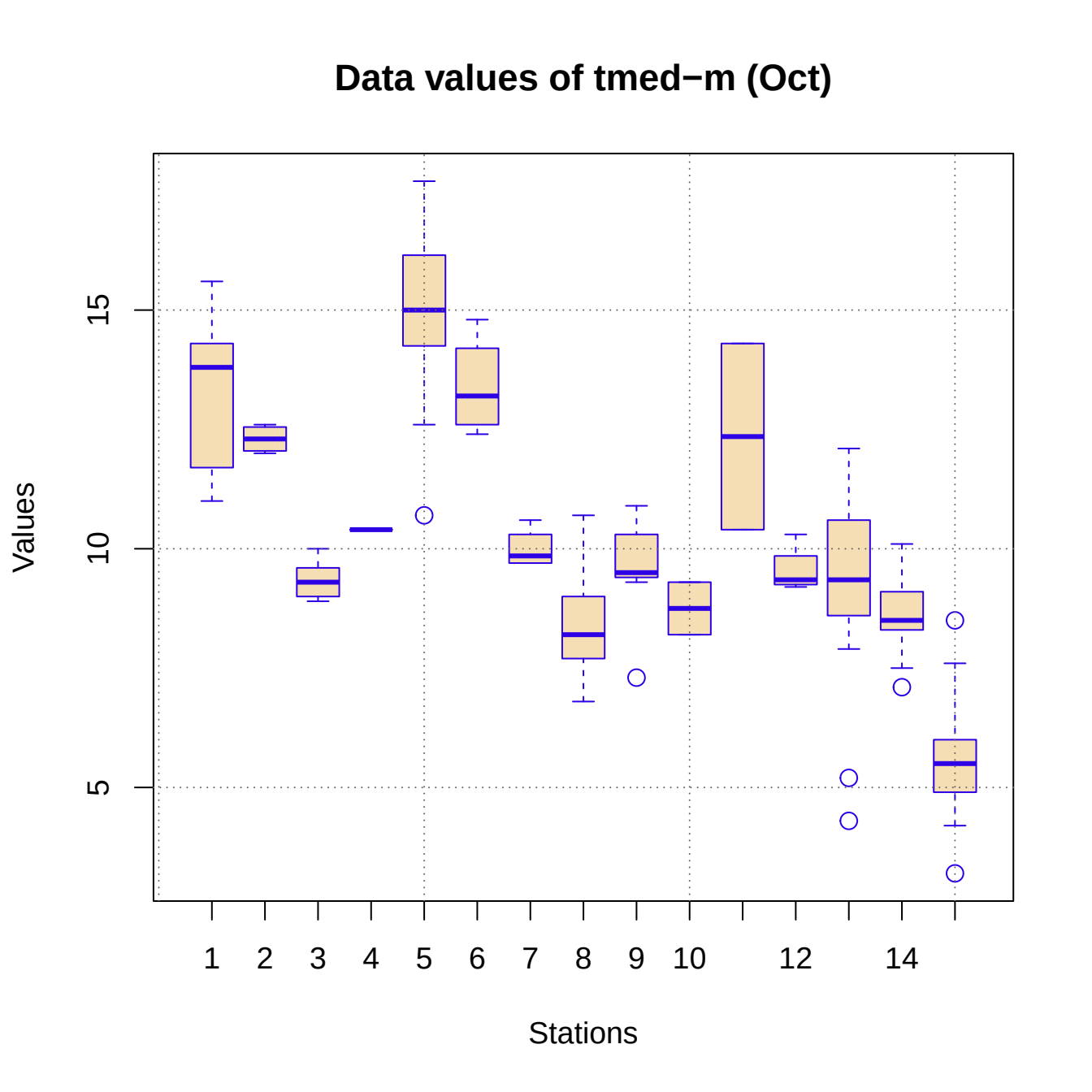

Data values of tmed−m (May)
Values
2
4
6
8
10
12
14
1
2
3
4
5
6
7
8
9
10
12
14
Stations

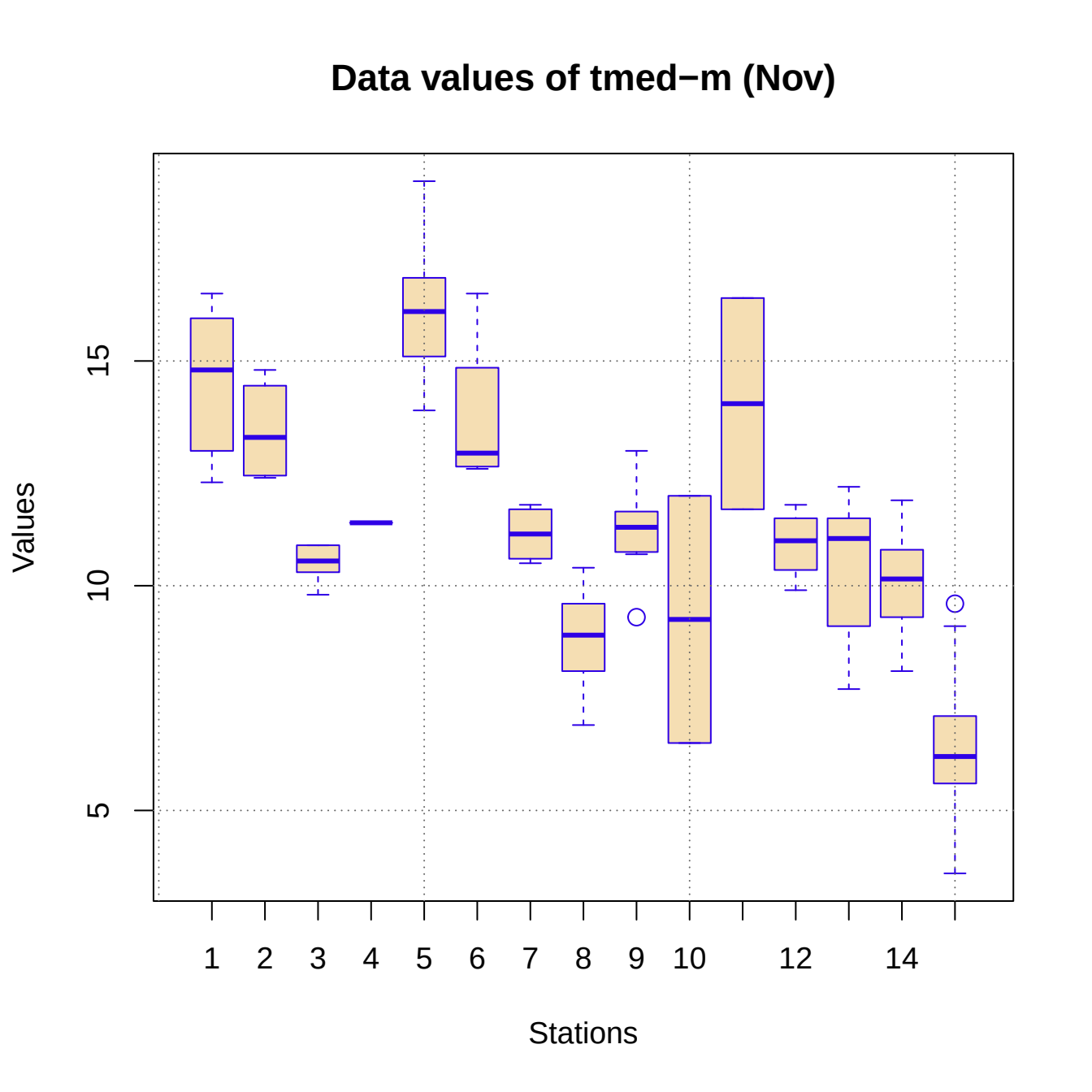

Data values of tmed−m (Jun)
Values
0
2
4
6
8
10
12
1
2
3
4
5
6
7
8
9
10
12
14
Stations

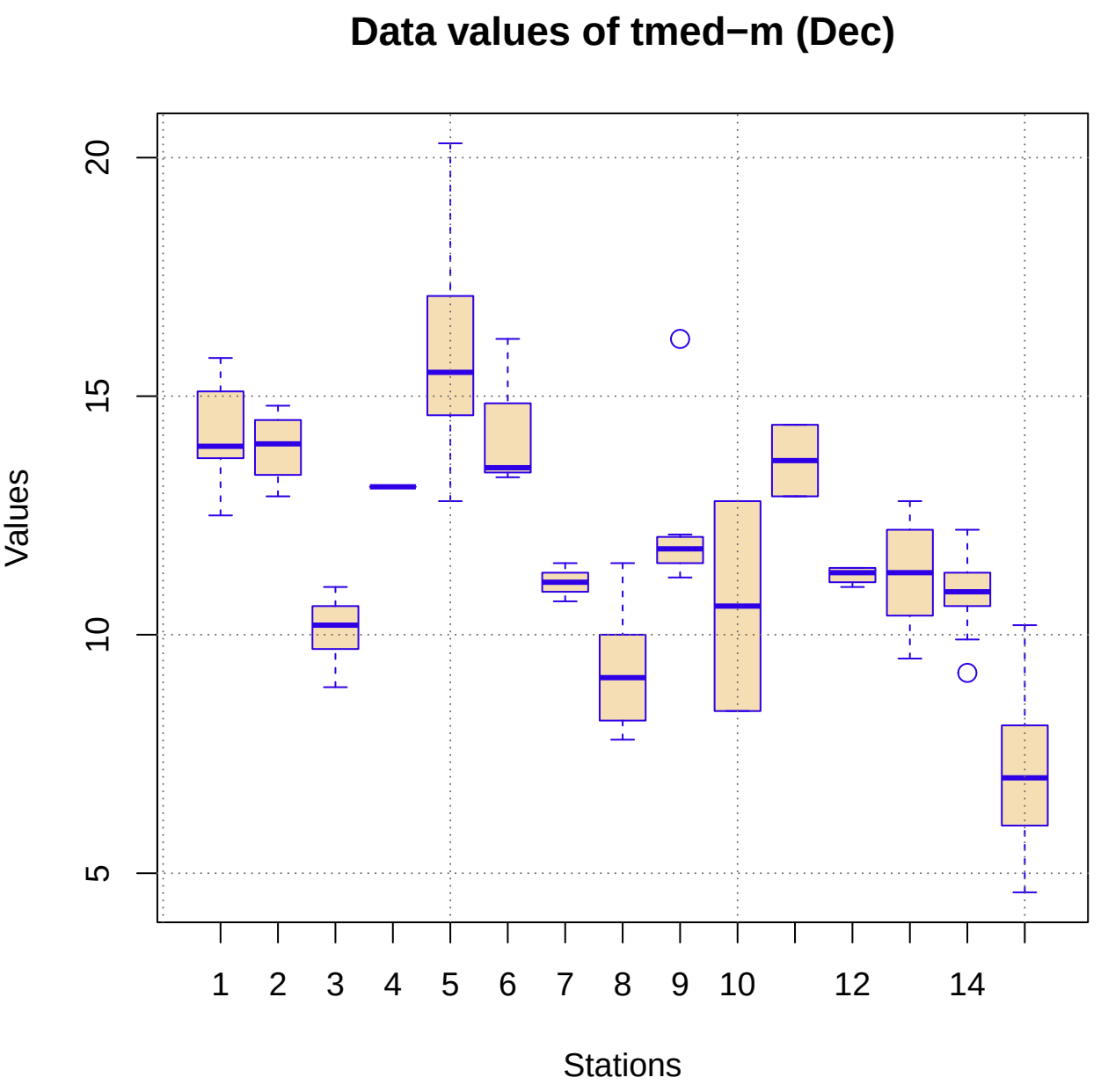

Data values of tmed−m (Jul)
Values
0
5
10
1
2
3
4
5
6
7
8
9
10
12
14
Stations

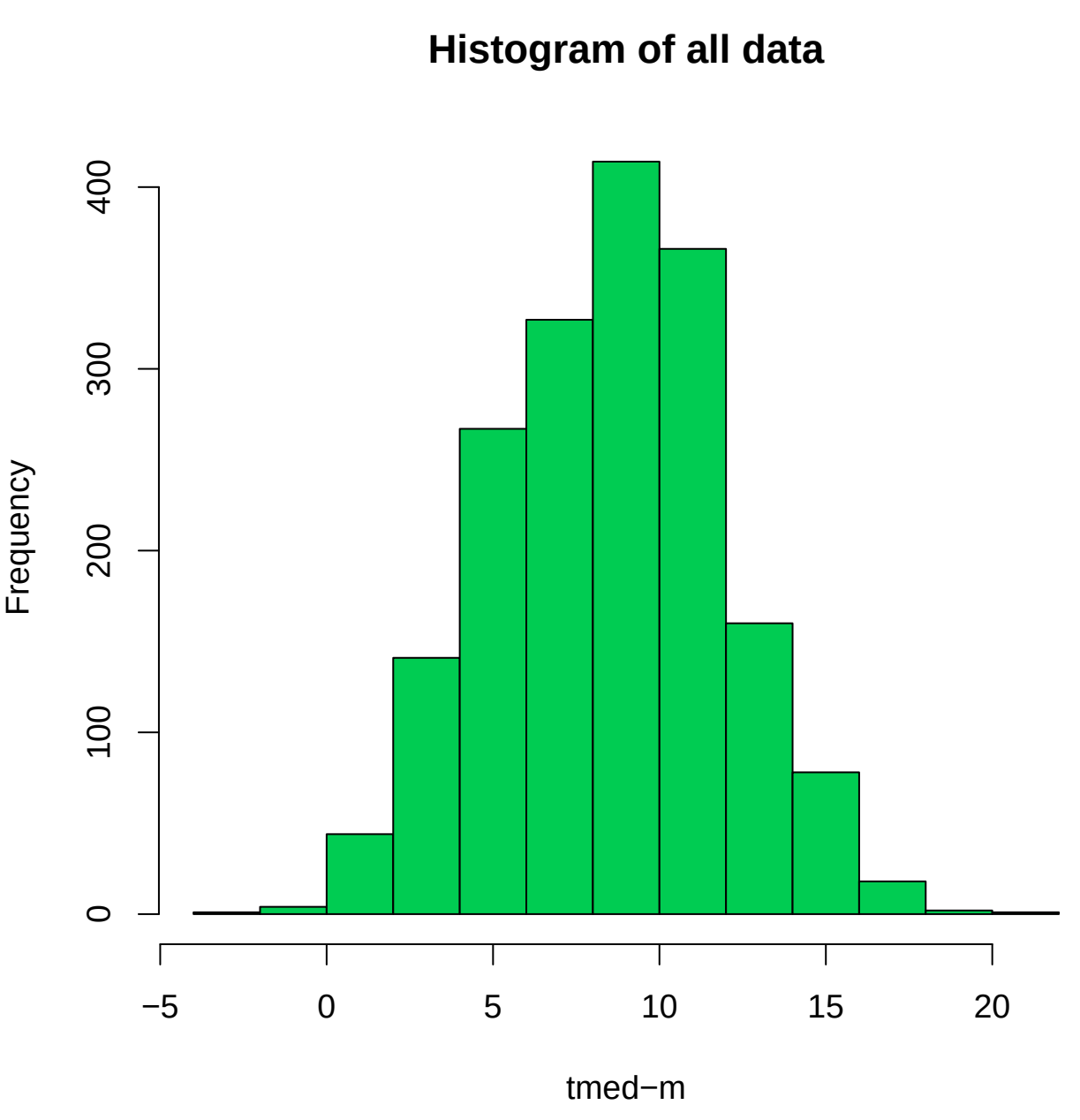

Data values of tmed−m (Aug)
Values
0
5
10
1
2
3
4
5
6
7
8
9
10
12
14
Stations

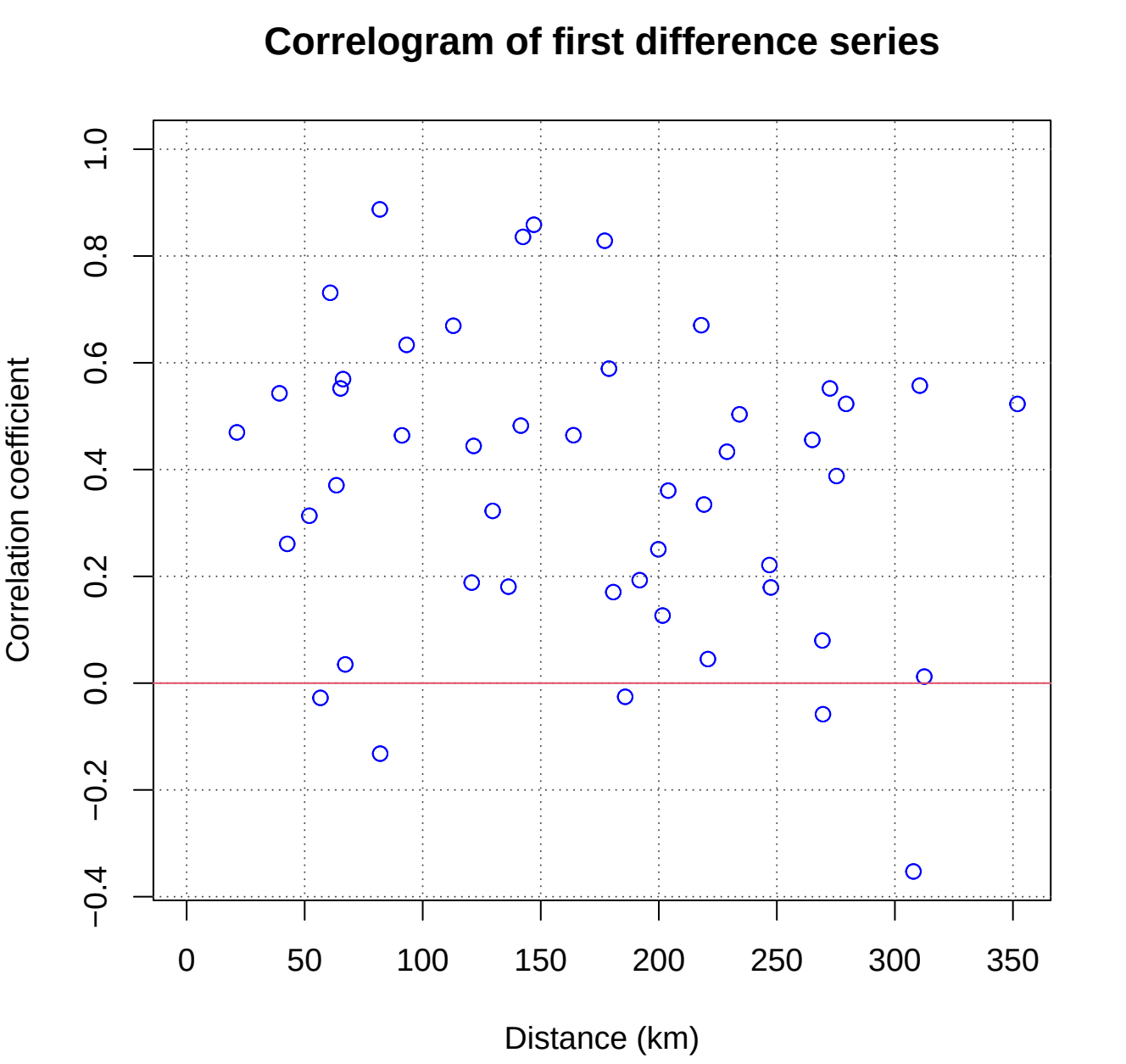

Data values of tmed−m (Sep)
Values
15
10
5
1
2
3
4
5
6
7
8
9
10
12
14
Stations

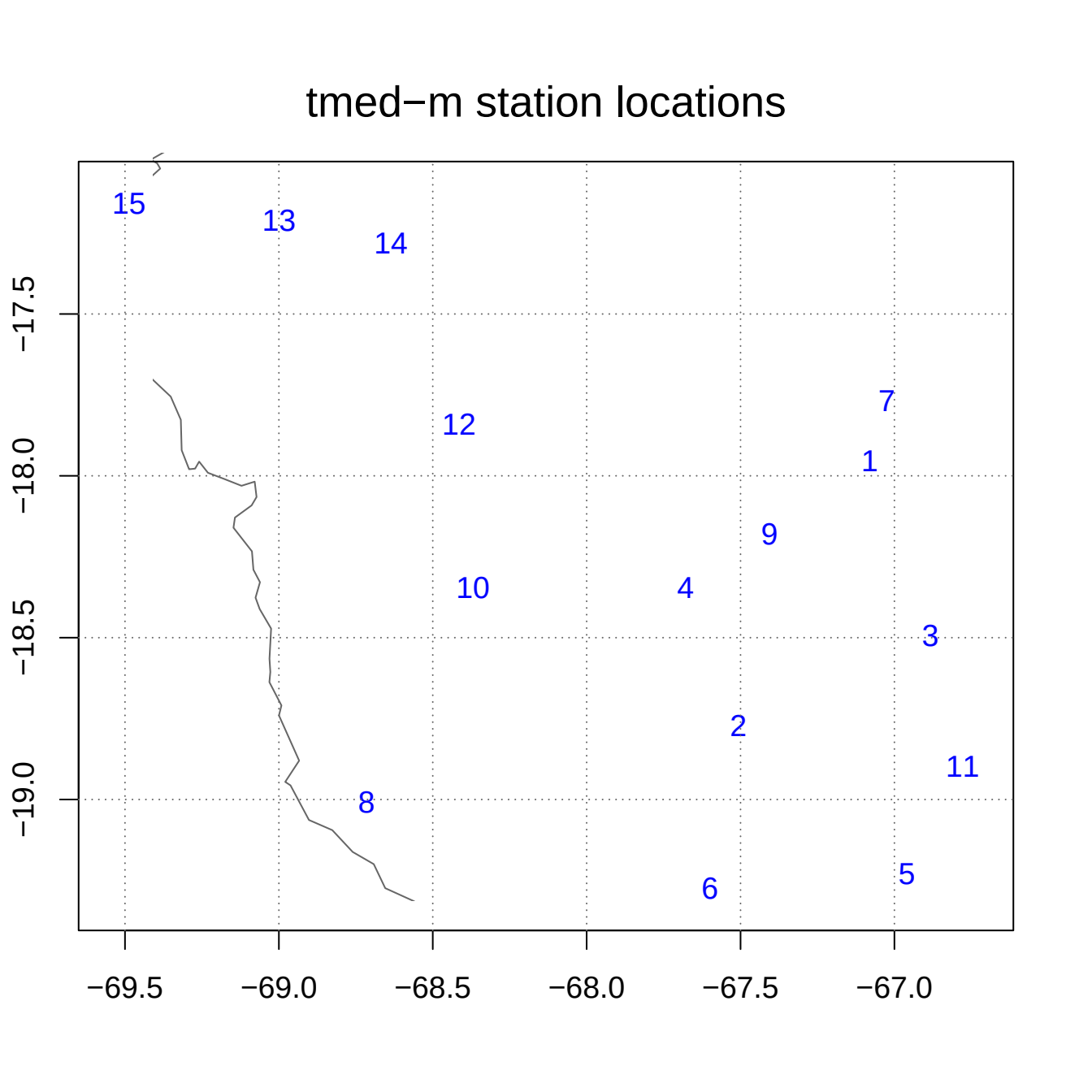

Data values of tmed−m (Oct)
Values
5
10
15
1
2
3
4
5
6
7
8
9
10
12
14
Stations


Data values of tmed−m (Nov)
Values
5
10
15
1
2
3
4
5
6
7
8
9
10
12
14
Stations


Data values of tmed−m (Dec)
Values
5
10
15
20
1
2
3
4
5
6
7
8
9
10
12
14
Stations

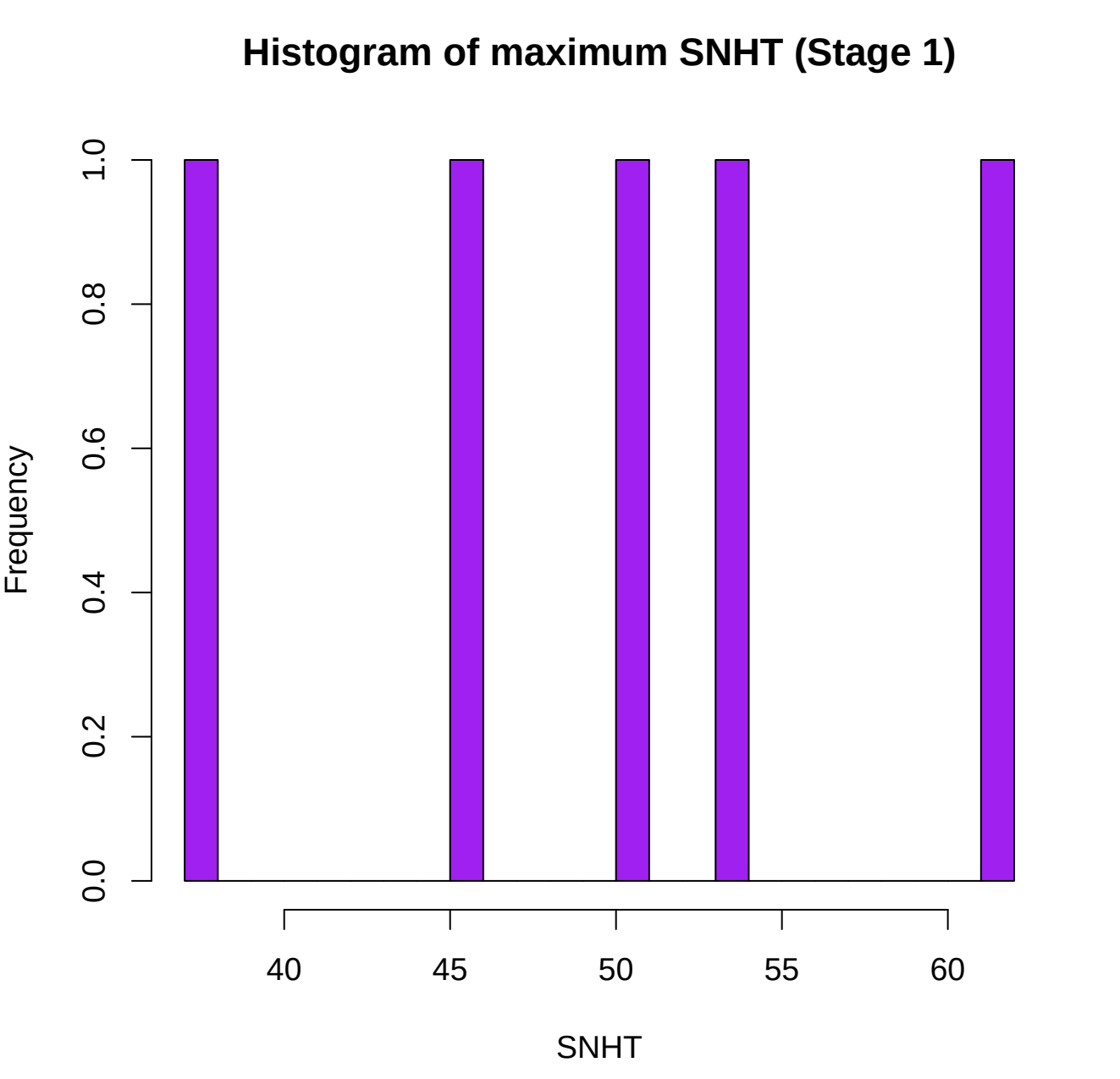

Histogram of all data
Frequency
0
100
200
300
400
−5
0
5
10
15
20
tmed−m


Correlogram of first difference series
Correlation coefficient
1.0
0.8
0.6
0.4
0.2
0.0
−0.2
−0.4
0
50
100
150
200
250
300
350
Distance (km)


tmed−m station locations
15
13
14
12
7
1
9
10
4
3
2
11
8
6
5
−17.5
−18.0
−18.5
−19.0
−69.5
−69.0
−68.5
−68.0
−67.5
−67.0

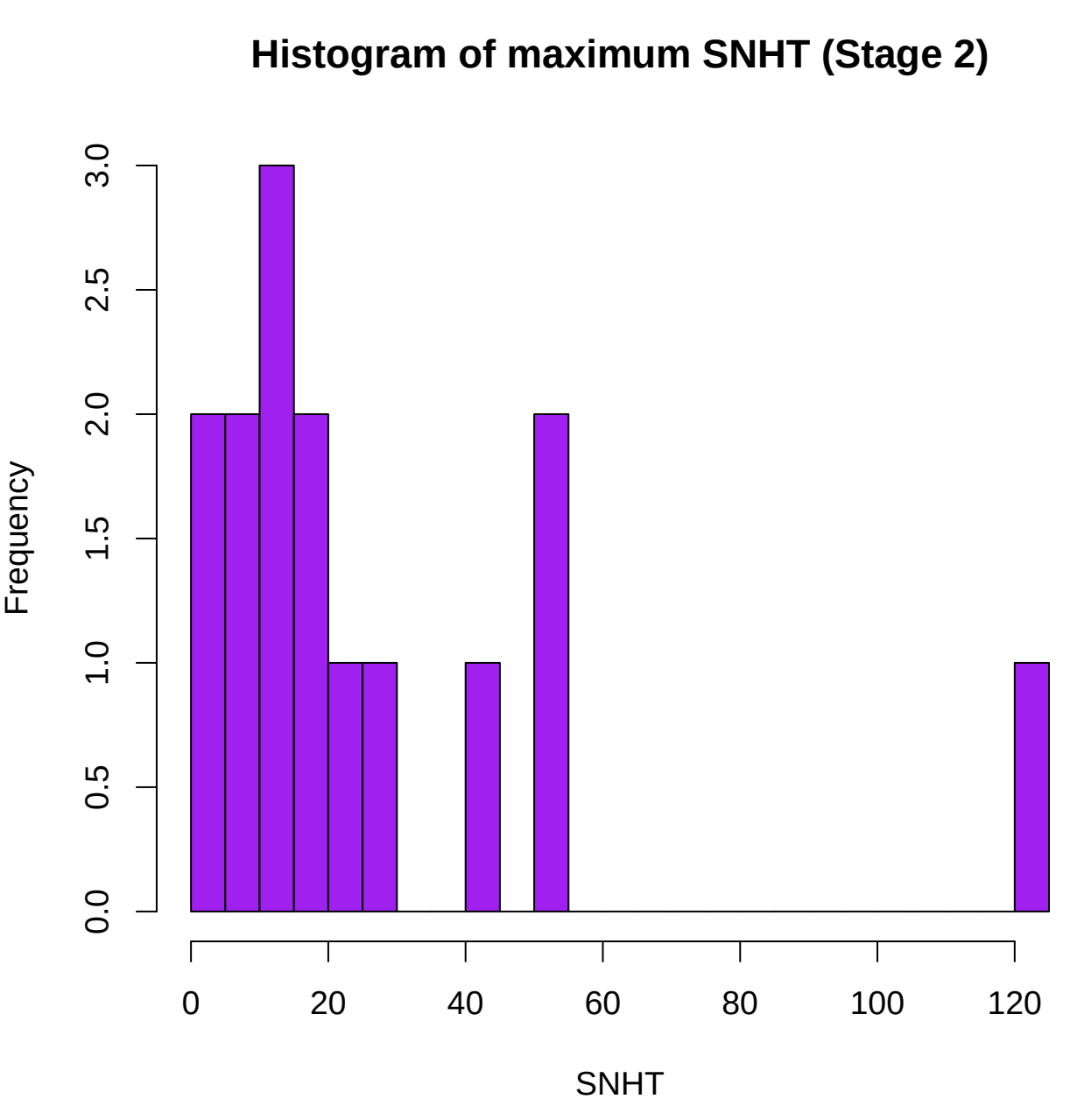
Stage 1

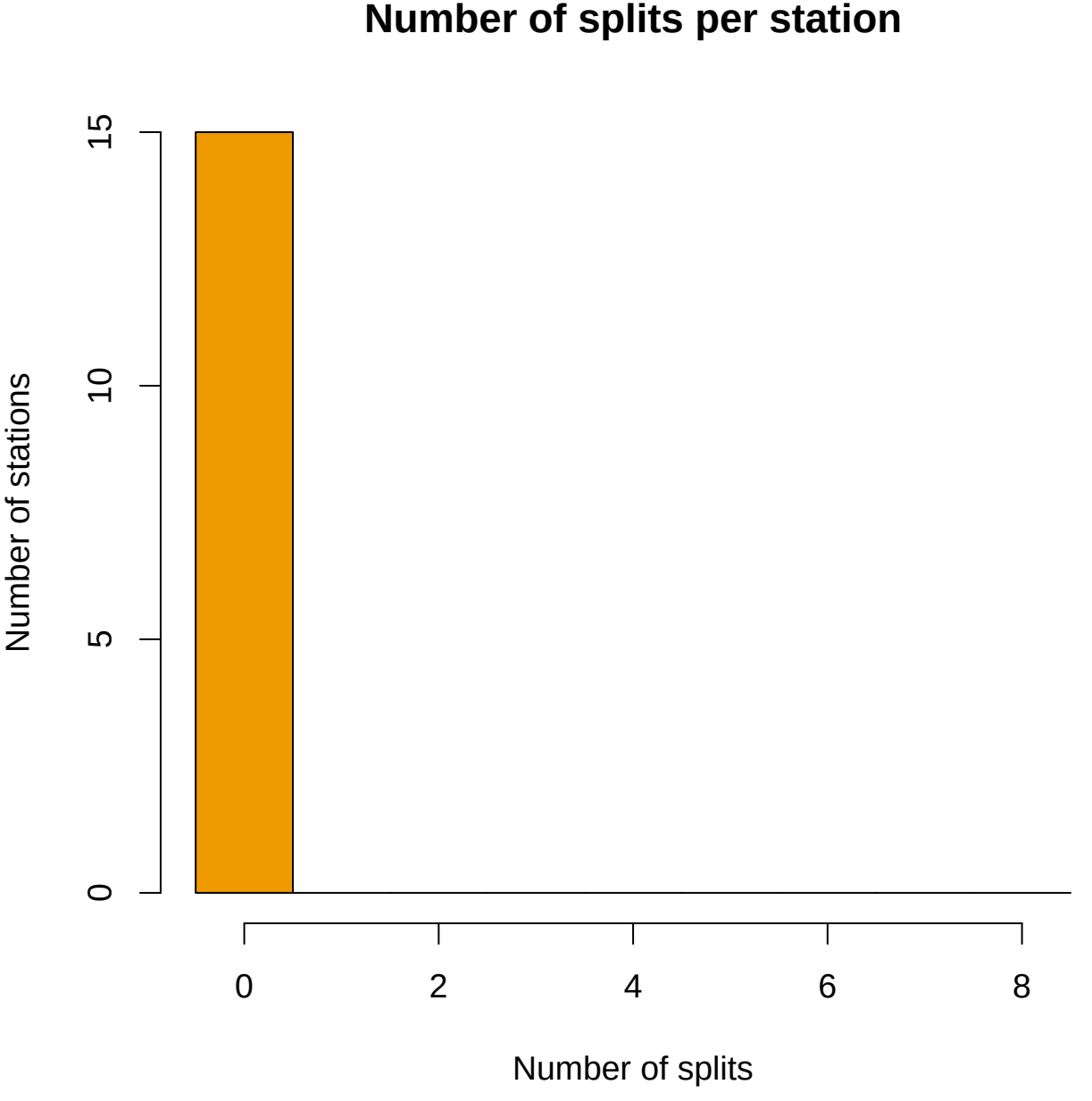
Binary splits on 60 term stepped windows with SNHT > 80 and wd = 0 km

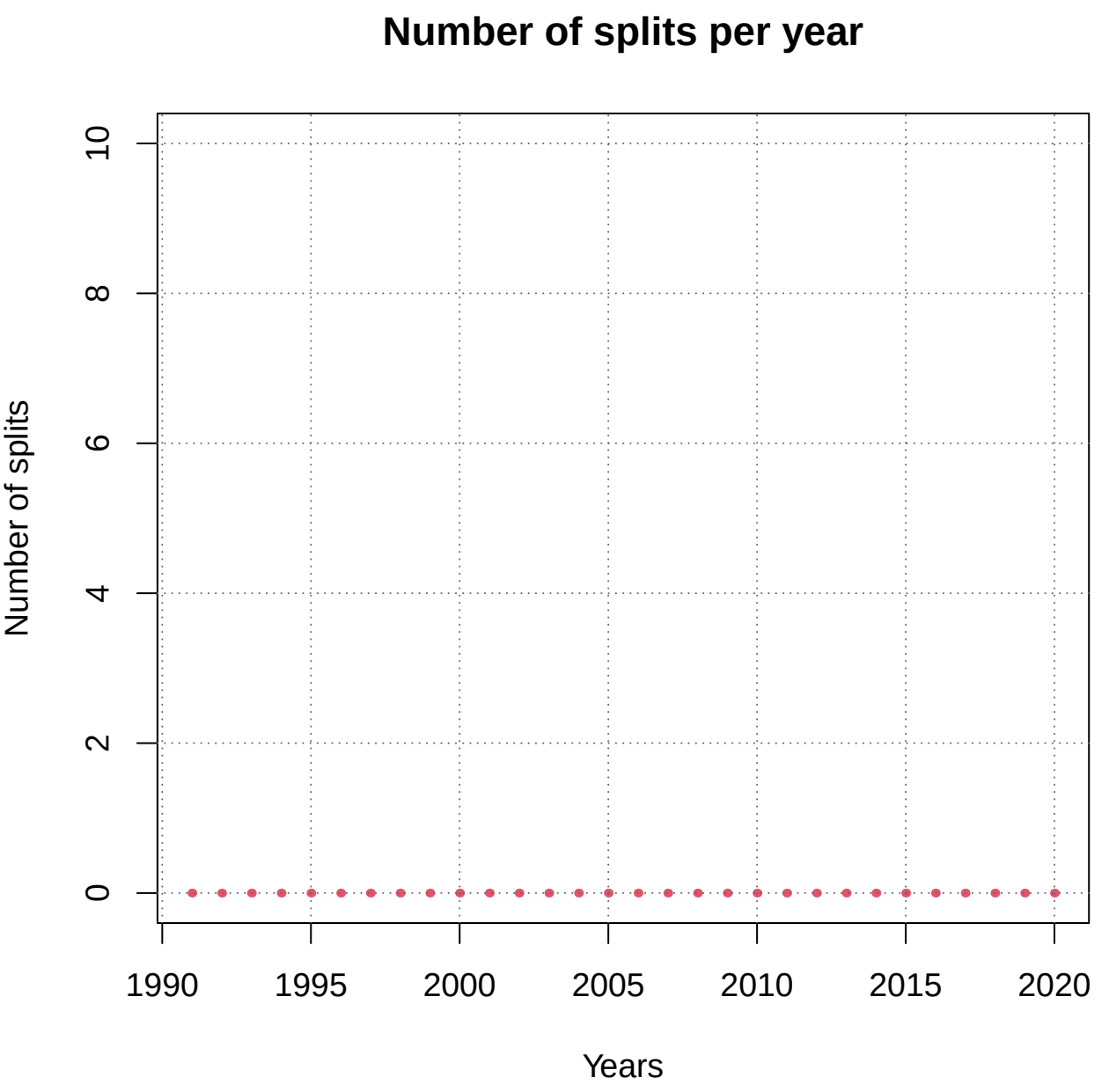

Histogram of maximum SNHT (Stage 1)
Frequency
0.0
0.2
0.4
0.6
0.8
1.0
40
45
50
55
60
SNHT

Stage 2

Binary splits on whole series with SNHT > 170 and wd = 0 km

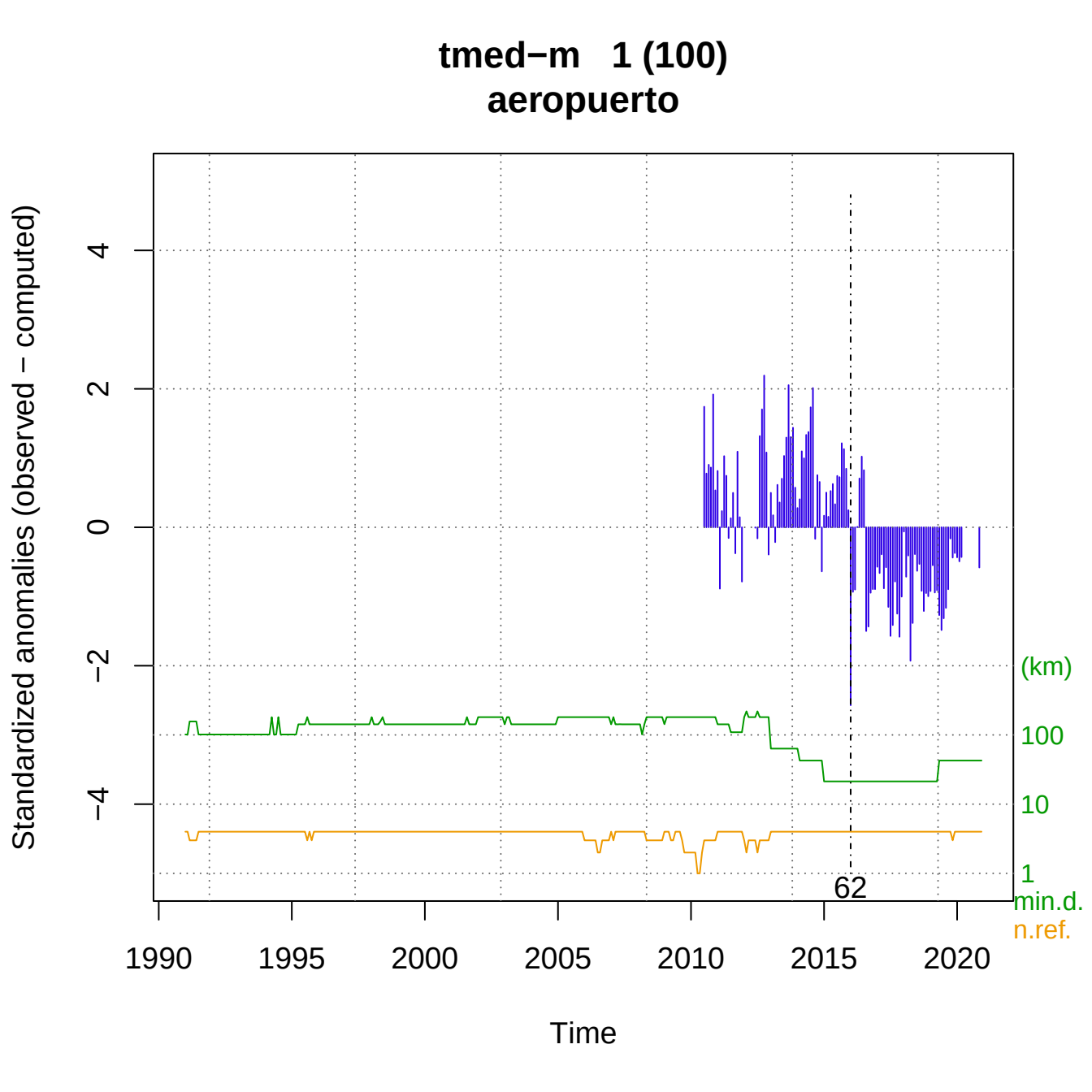

Histogram of maximum SNHT (Stage 2)
Frequency
0.0
0.5
1.0
1.5
2.0
2.5
3.0
0
20
40
60
80
100
120
SNHT

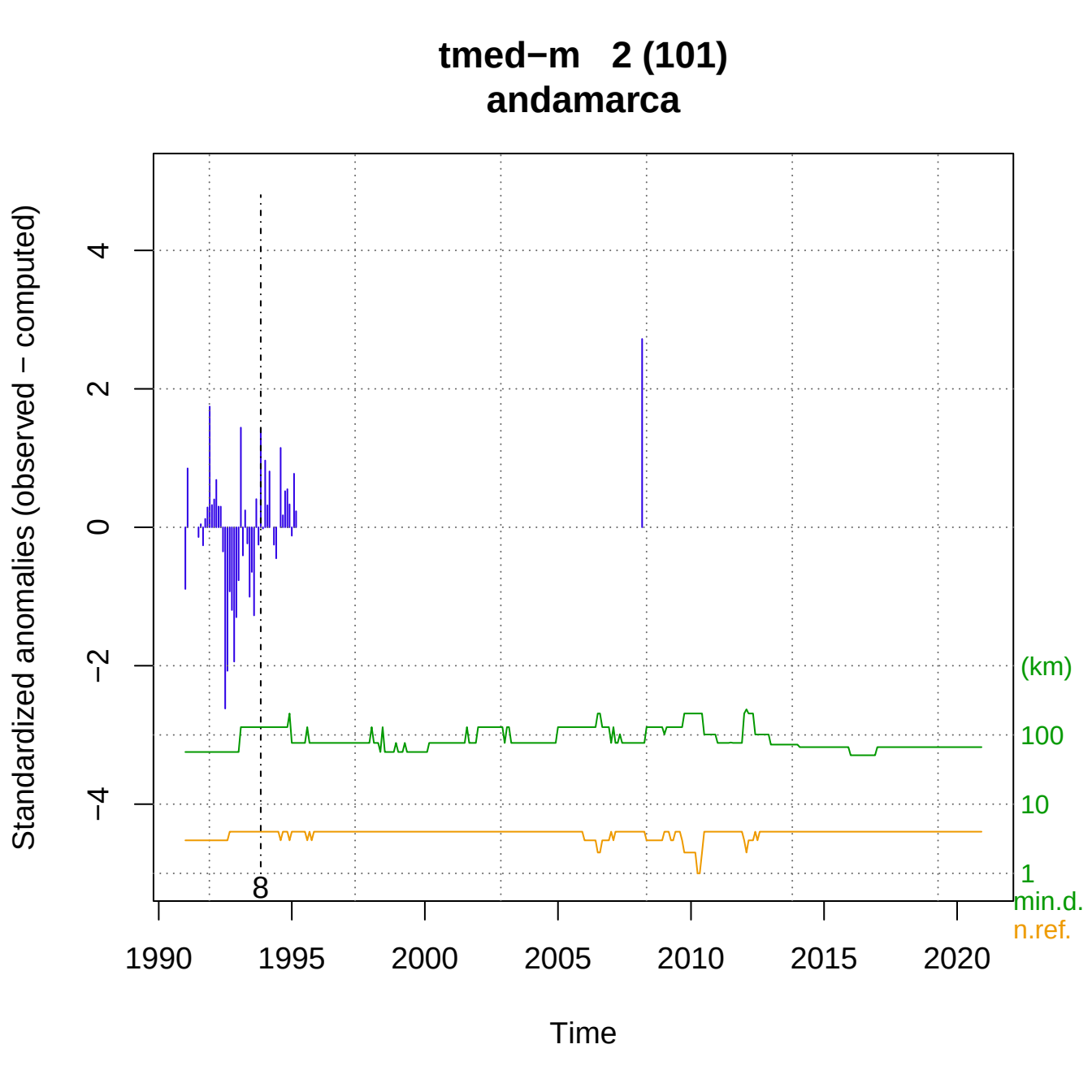

Number of splits per station
Number of stations
0
5
10
15
0
2
4
6
8
Number of splits

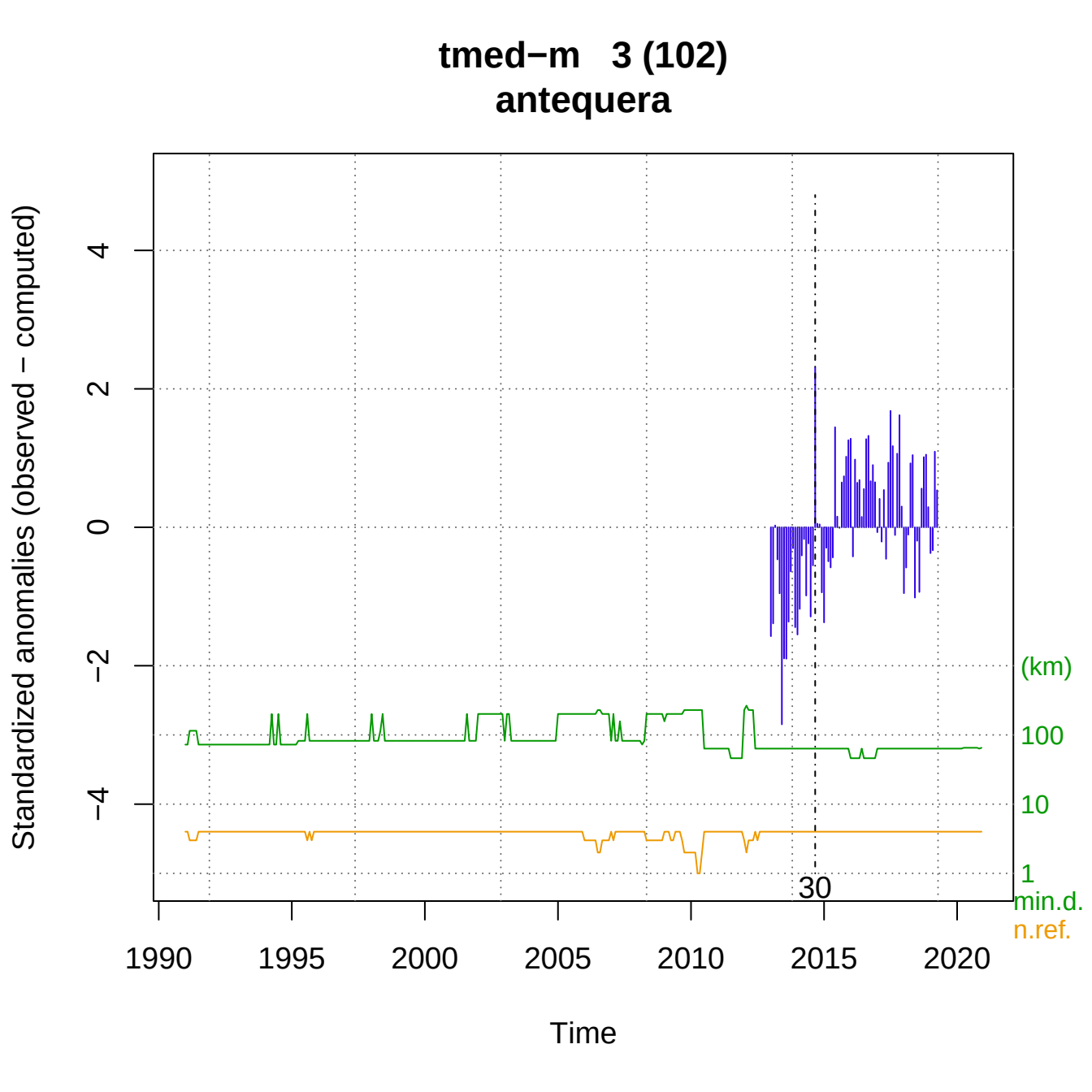

Number of splits per year
Number of splits
0
2
4
6
8
10
1990
1995
2000
2005
2010
2015
2020
Years

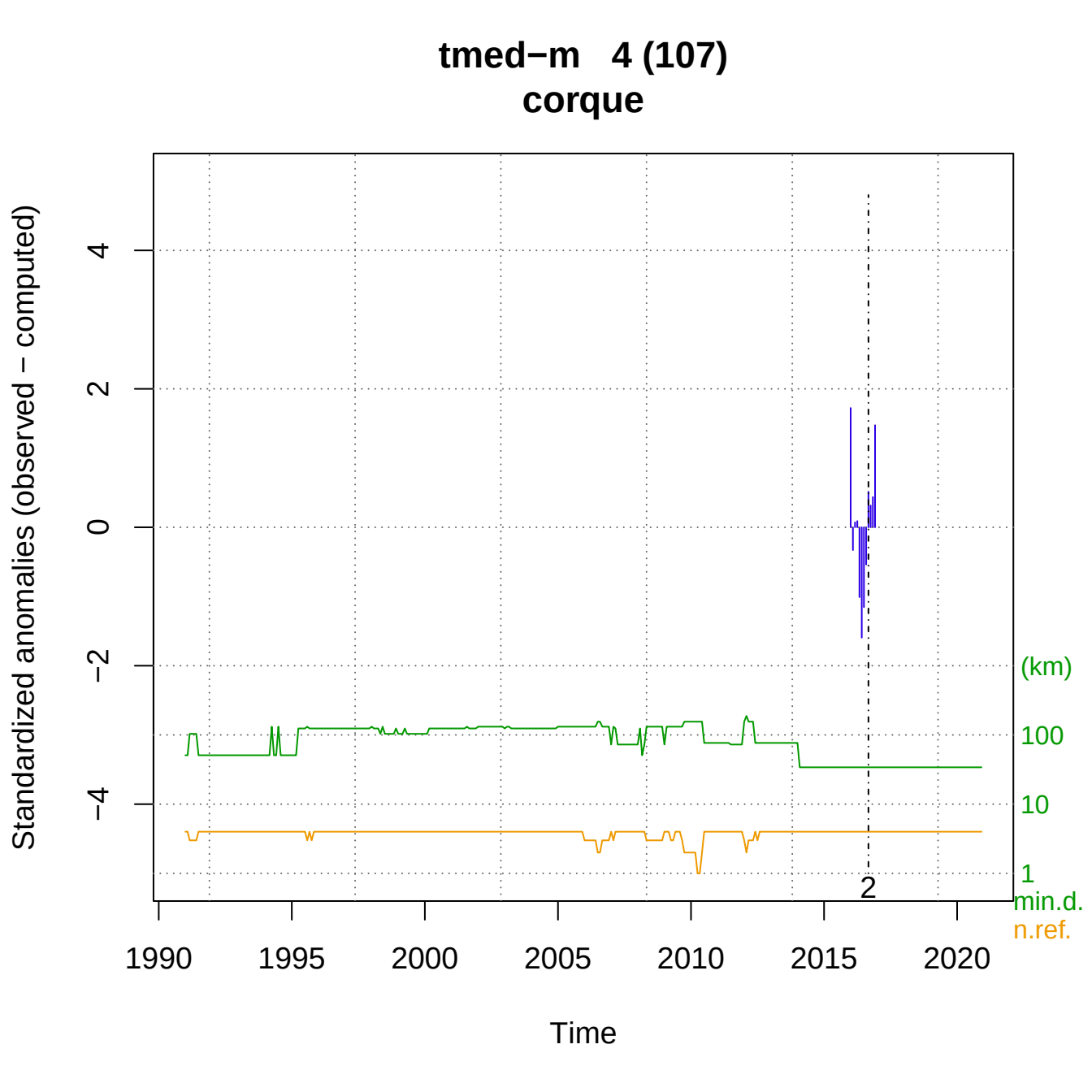
Stage 3

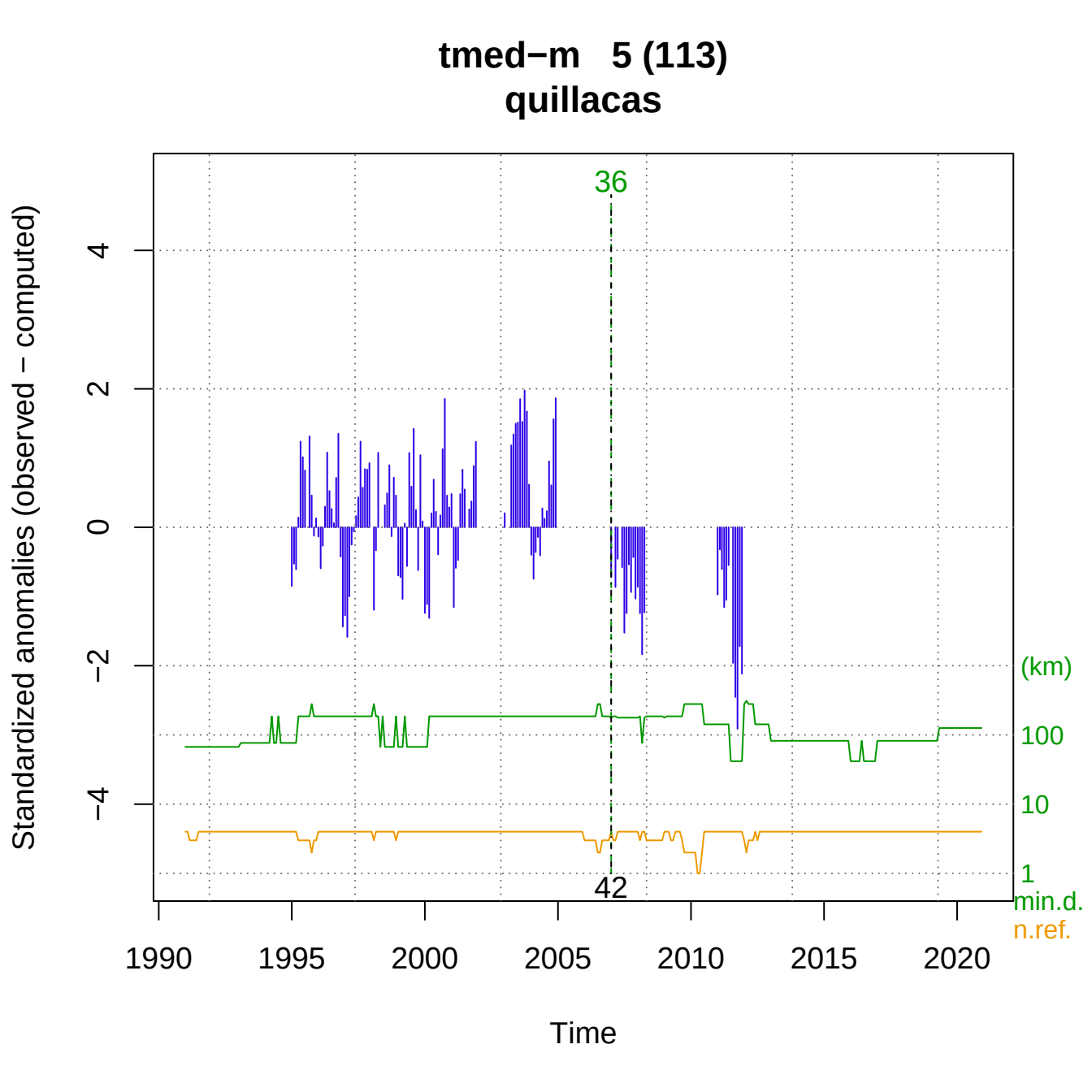
Anomalies after
missing data
recalculation
with wd = 100 km
(swa = 60)

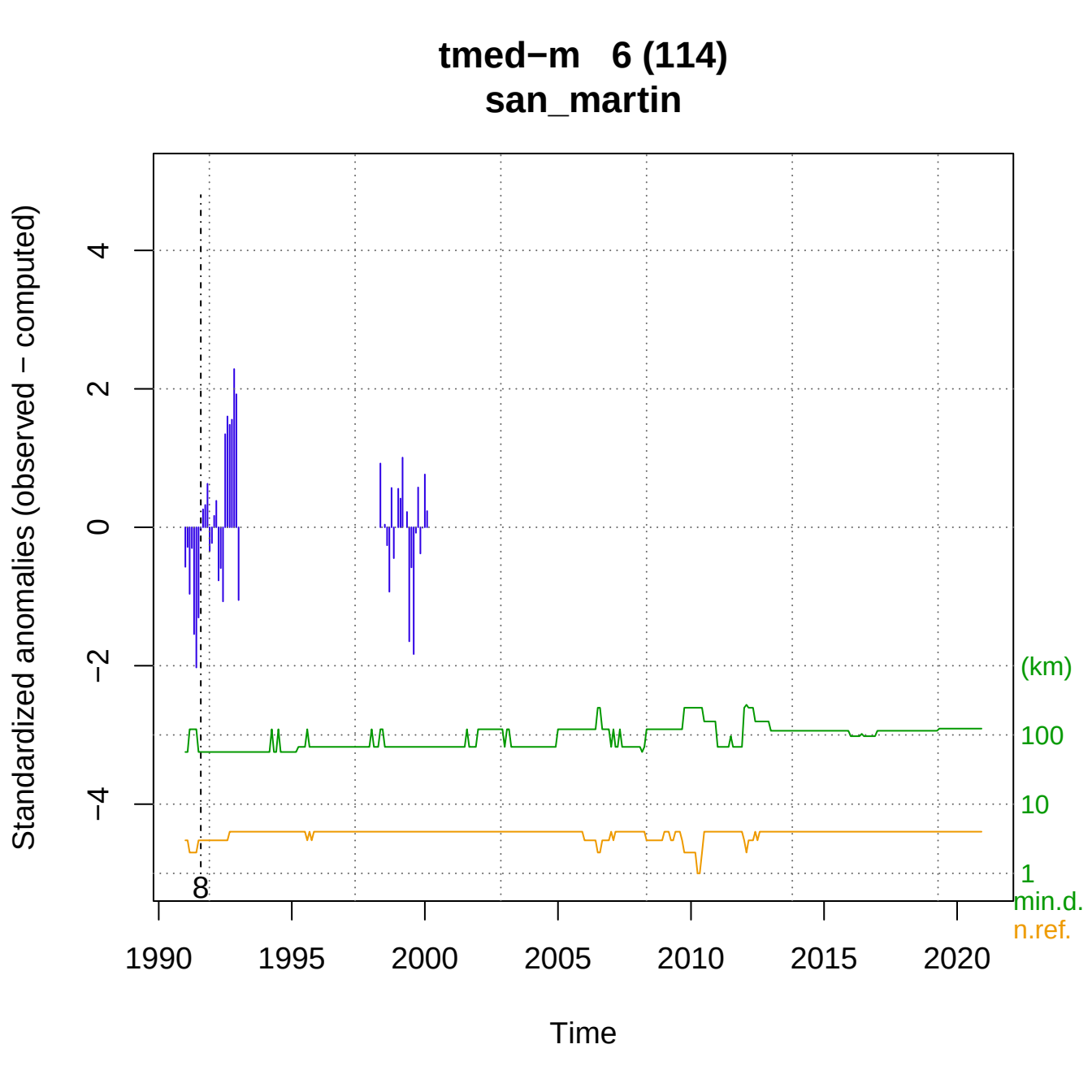

tmed−m 1 (100)
aeropuerto
Standardized anomalies (observed − computed)
4
2
0
−2
−4
(km)
100
10
1
min.d.
n.ref.
62
1990
1995
2000
2005
2010
2015
2020
Time

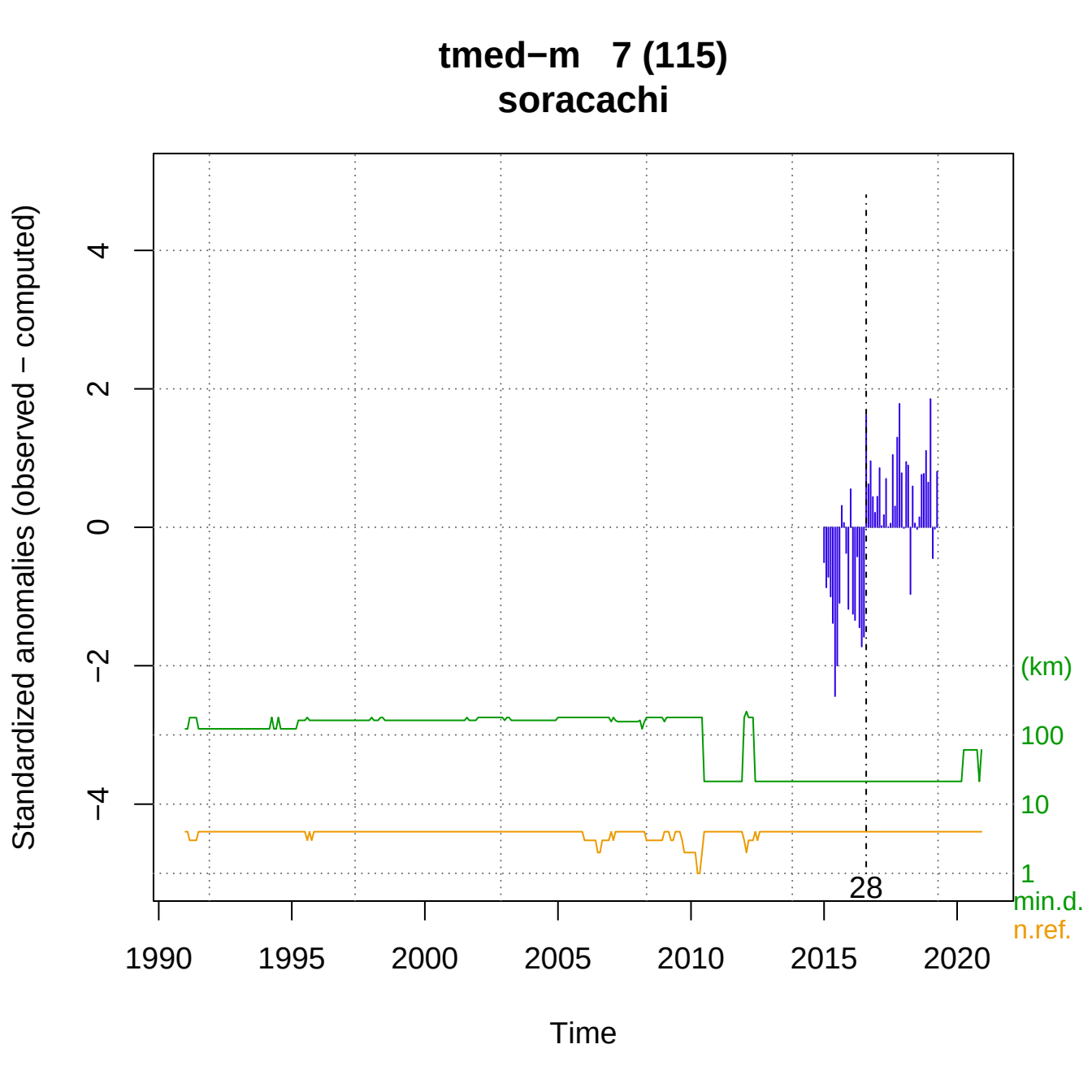

tmed−m 2 (101)
andamarca
Standardized anomalies (observed − computed)
4
2
0
−2
−4
8
1990
1995
2000
2005
2010
2015
2020
Time
(km)
100
10
1
min.d.
n.ref.

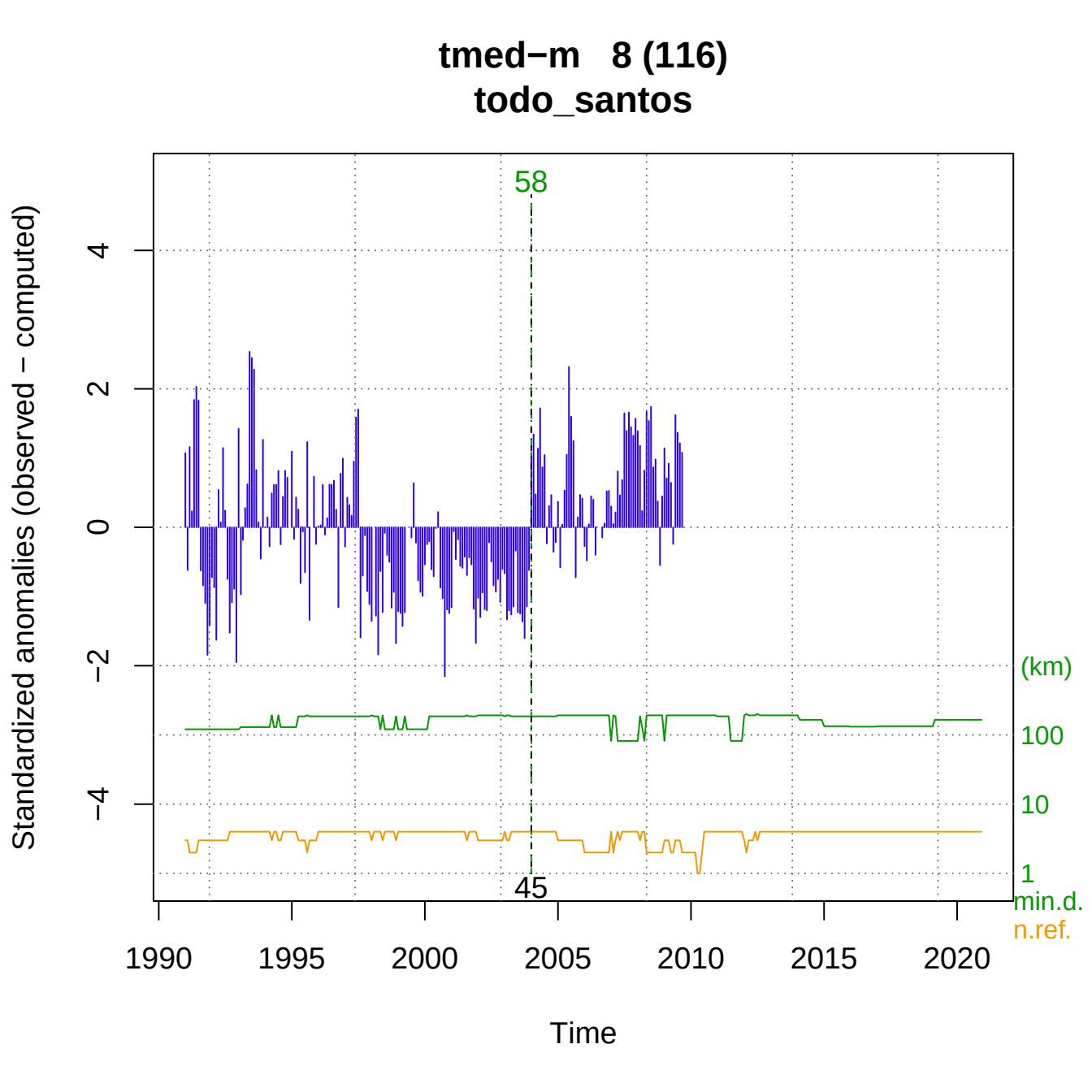

tmed−m 3 (102)
antequera
Standardized anomalies (observed − computed)
4
2
0
−2
−4
(km)
100
10
1
min.d.
n.ref.
30
1990
1995
2000
2005
2010
2015
2020
Time

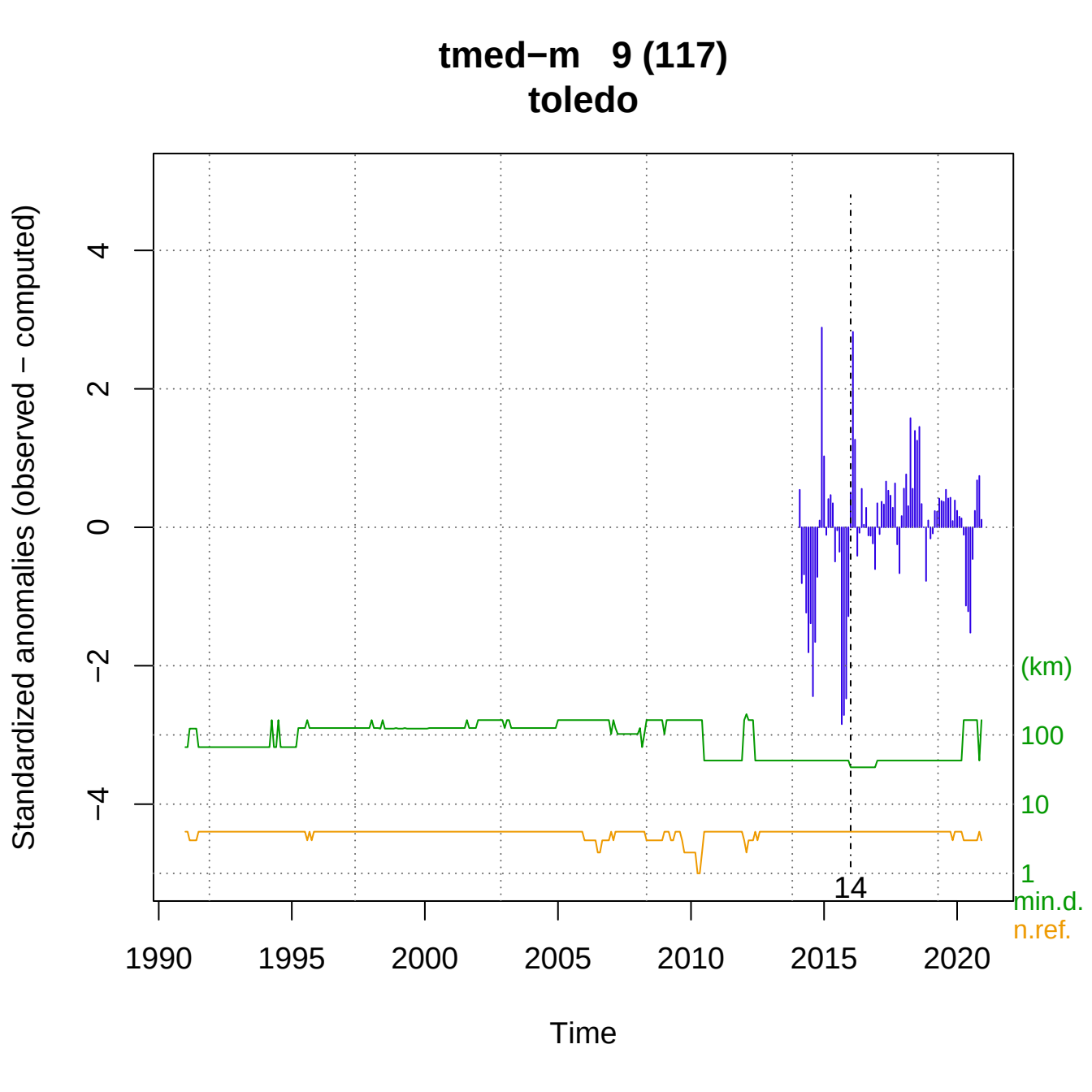

tmed−m 4 (107)
corque
Standardized anomalies (observed − computed)
4
2
0
−2
−4
1990
1995
2000
2005
2010
2015
2020
Time
2
(km)
100
10
1
min.d.
n.ref.

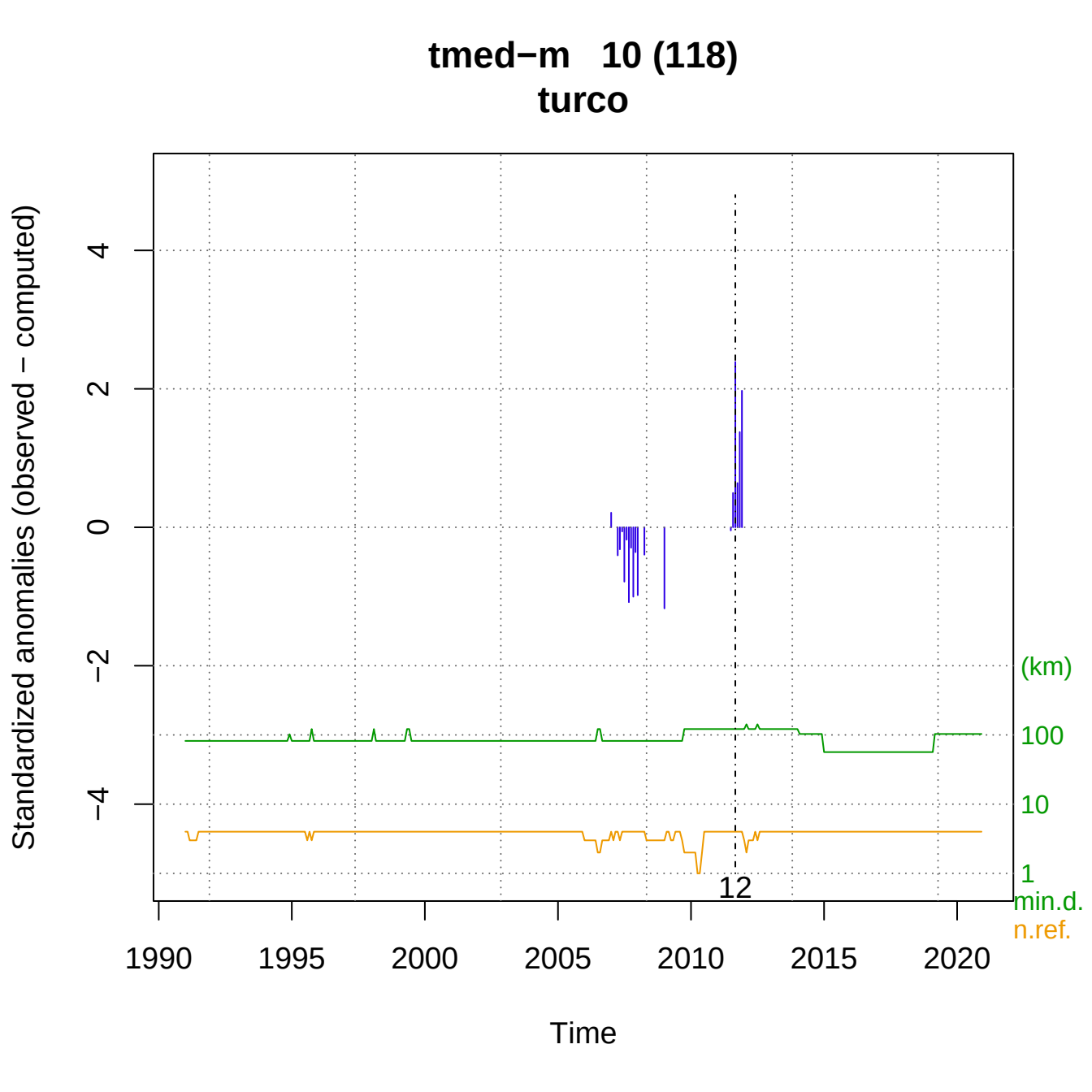

tmed−m 5 (113)
quillacas
36
42
Standardized anomalies (observed − computed)
4
2
0
−2
−4
1990
1995
2000
2005
2010
2015
2020
Time
(km)
100
10
1
min.d.
n.ref.

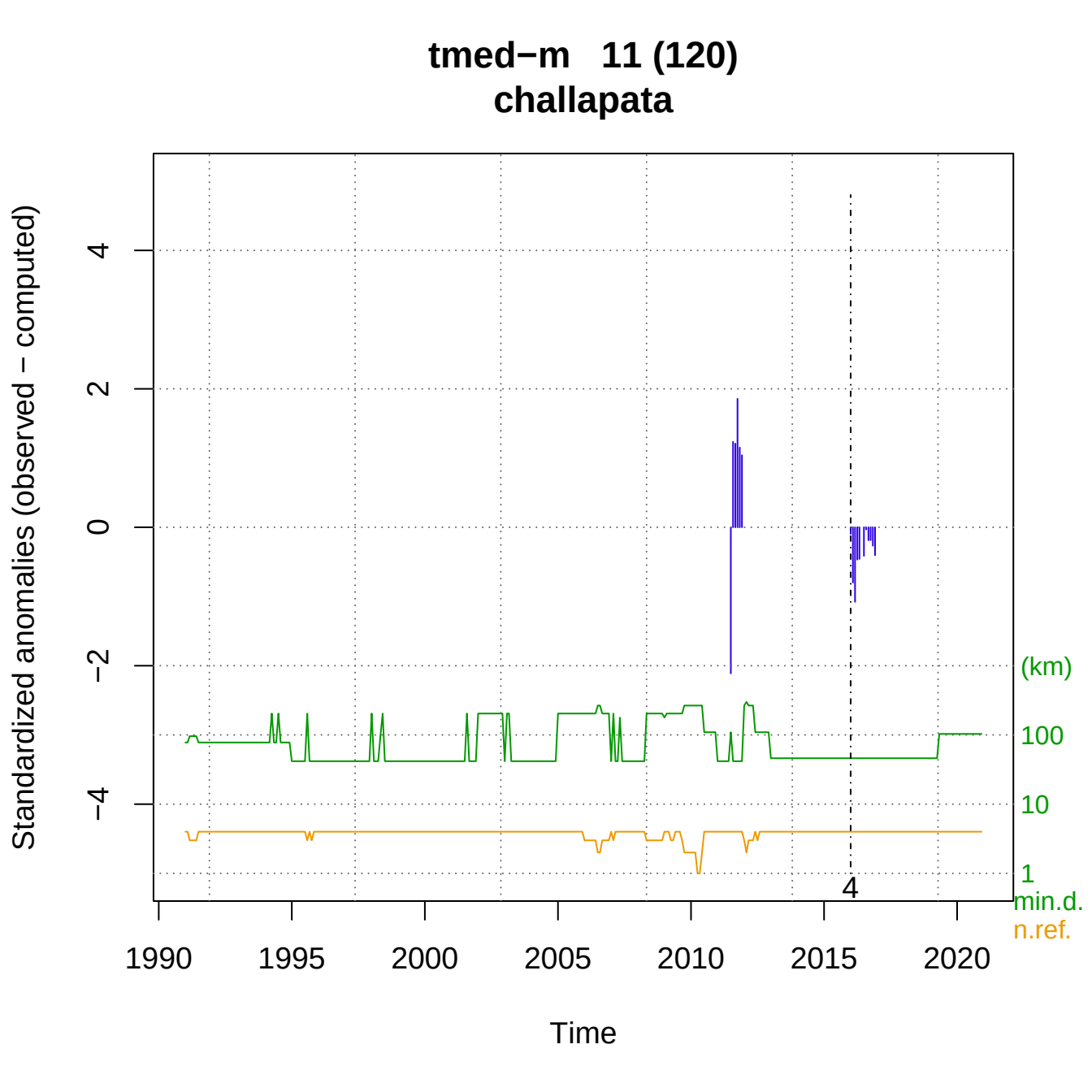

tmed−m 6 (114)
san_martin
Standardized anomalies (observed − computed)
4
2
0
−2
−4
8
1990
1995
2000
2005
2010
2015
2020
Time
(km)
100
10
1
min.d.
n.ref.

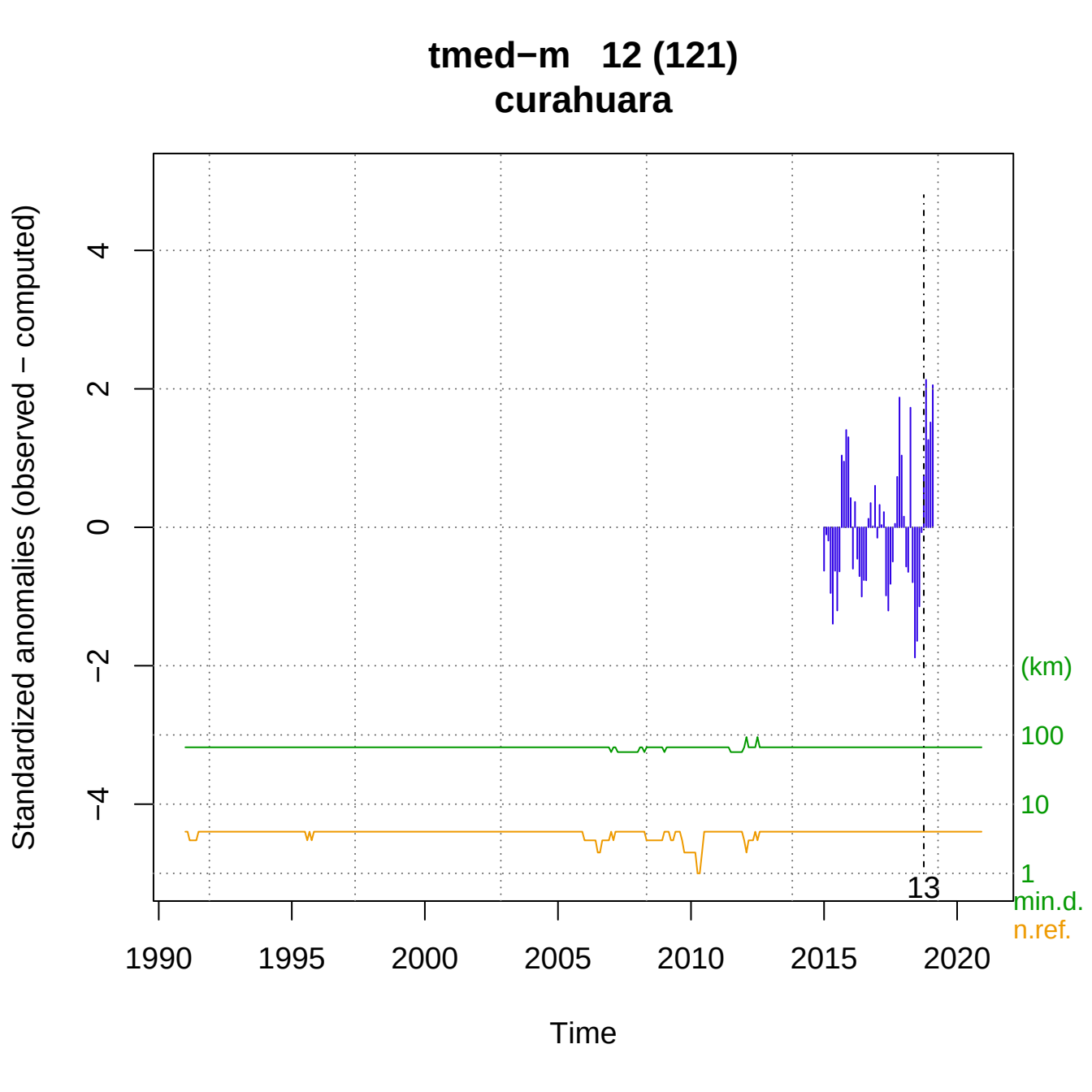

tmed−m 7 (115)
soracachi
Standardized anomalies (observed − computed)
4
2
0
−2
−4
(km)
100
10
1
min.d.
n.ref.
28
1990
1995
2000
2005
2010
2015
2020
Time

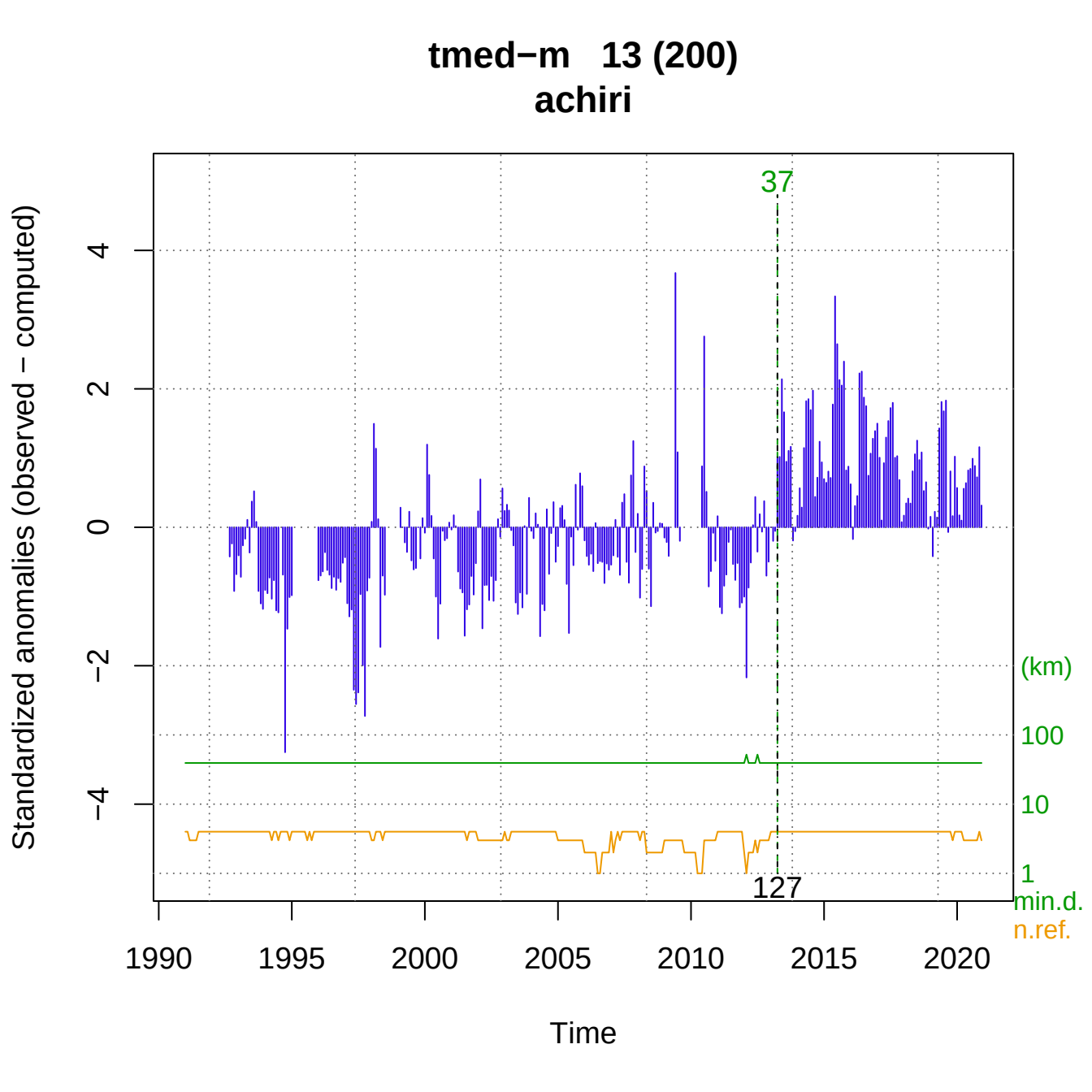

tmed−m 8 (116)
todo_santos
58
45
Standardized anomalies (observed − computed)
4
2
0
−2
−4
1990
1995
2000
2005
2010
2015
2020
Time
(km)
100
10
1
min.d.
n.ref.

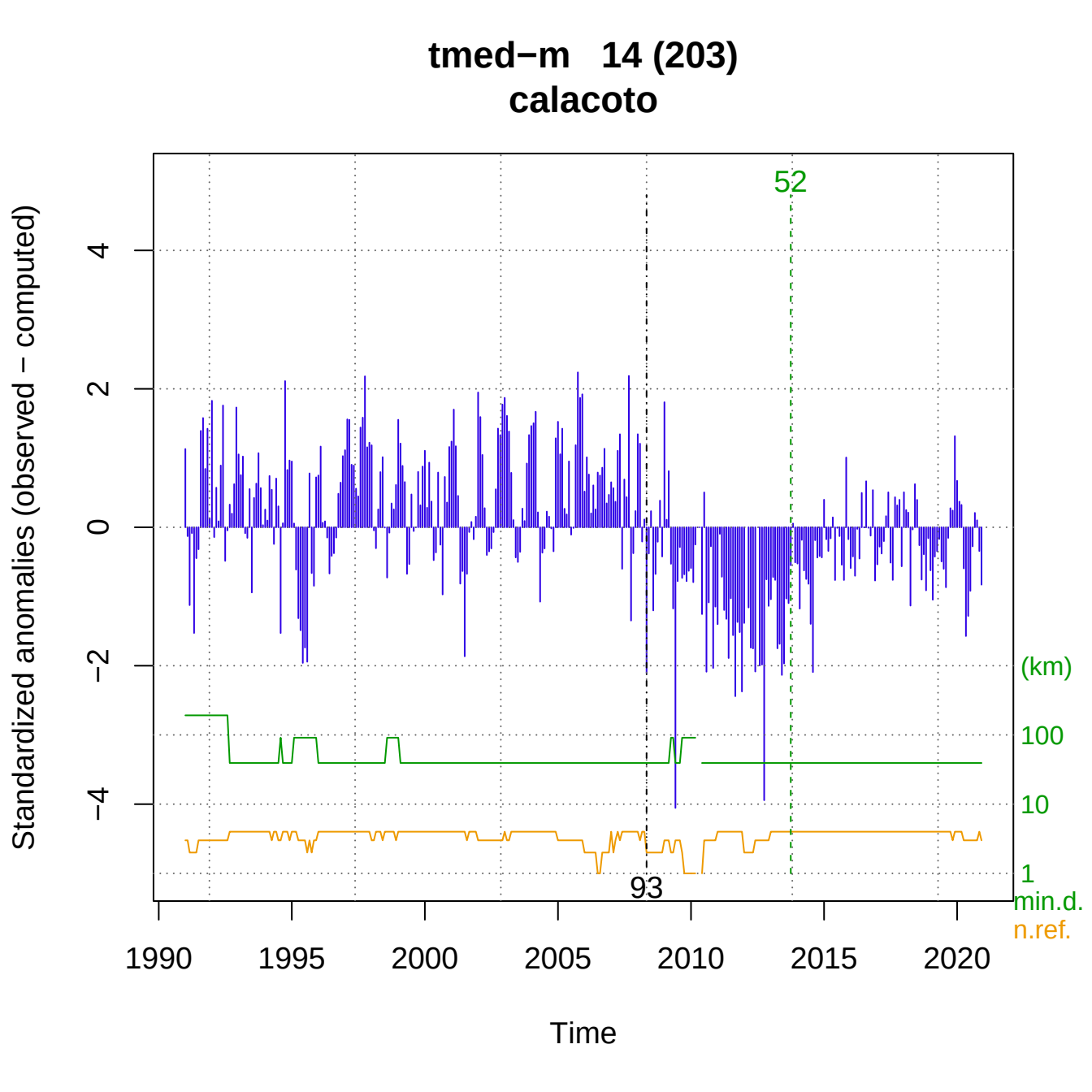

tmed−m 9 (117)
toledo
Standardized anomalies (observed − computed)
4
2
0
−2
−4
(km)
100
10
1
min.d.
n.ref.
14
1990
1995
2000
2005
2010
2015
2020
Time

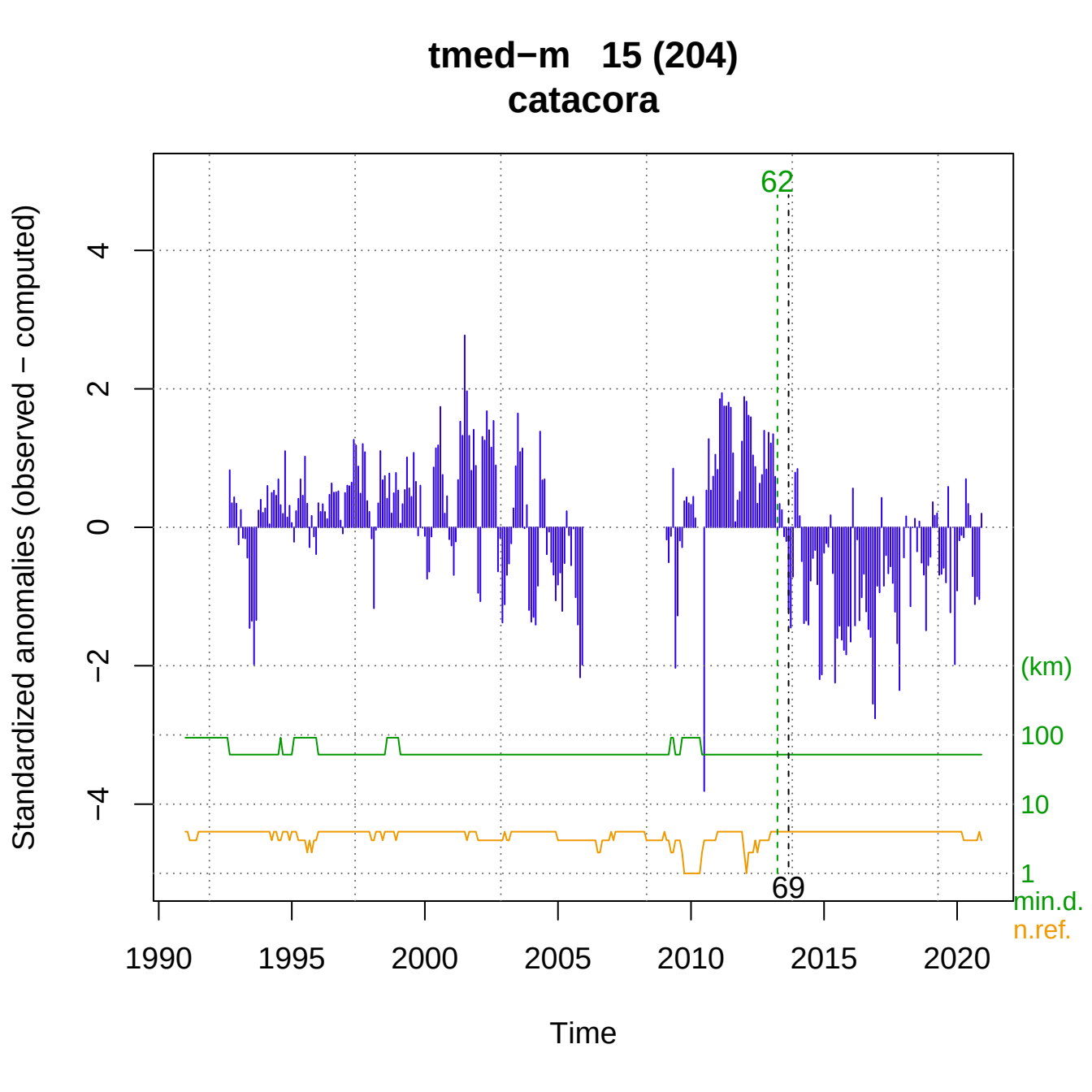

tmed−m 10 (118)
turco
Standardized anomalies (observed − computed)
4
2
0
−2
−4
(km)
100
10
1
min.d.
n.ref.
12
1990
1995
2000
2005
2010
2015
2020
Time


tmed−m 11 (120)
challapata
Standardized anomalies (observed − computed)
4
2
0
−2
−4
1990
1995
2000
2005
2010
2015
2020
Time
4
(km)
100
10
1
min.d.
n.ref.


tmed−m 12 (121)
curahuara
Standardized anomalies (observed − computed)
4
2
0
−2
−4
(km)
100
10
1
min.d.
n.ref.
13
1990
1995
2000
2005
2010
2015
2020
Time

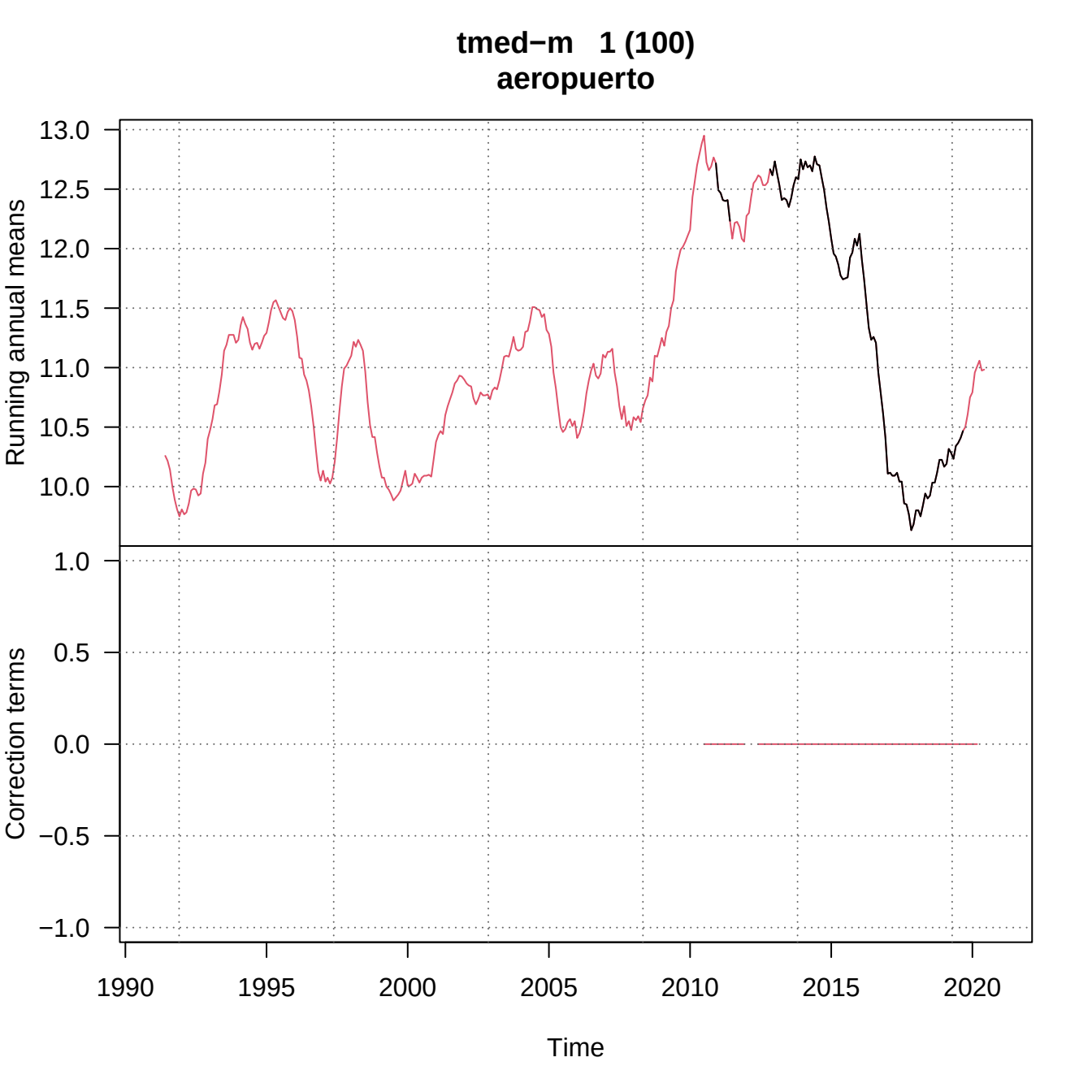

tmed−m 13 (200)
achiri
37
127
Standardized anomalies (observed − computed)
4
2
0
−2
−4
1990
1995
2000
2005
2010
2015
2020
Time
(km)
100
10
1
min.d.
n.ref.

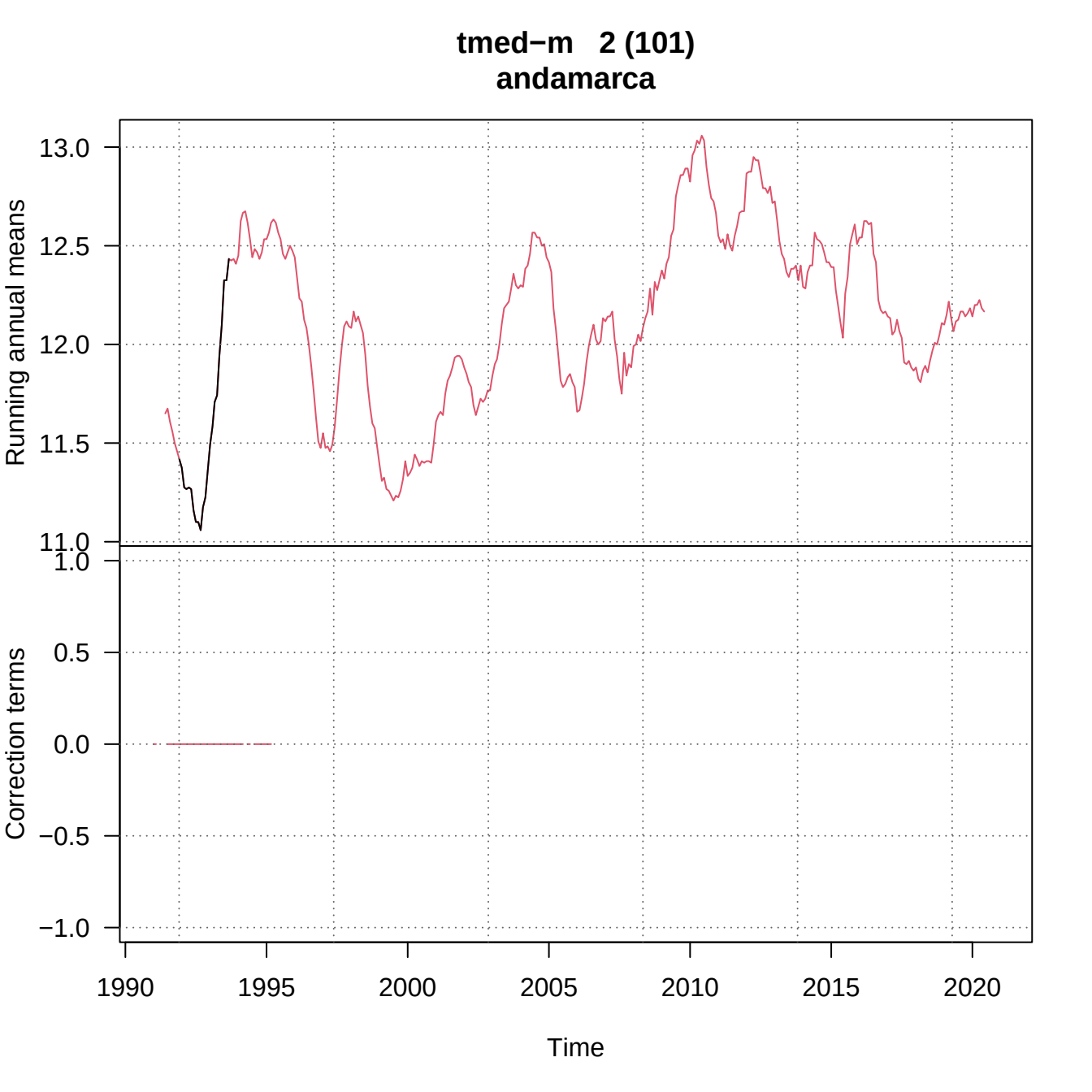

tmed−m 14 (203)
calacoto
52
93
Standardized anomalies (observed − computed)
4
2
0
−2
−4
1990
1995
2000
2005
2010
2015
2020
Time
(km)
100
10
1
min.d.
n.ref.

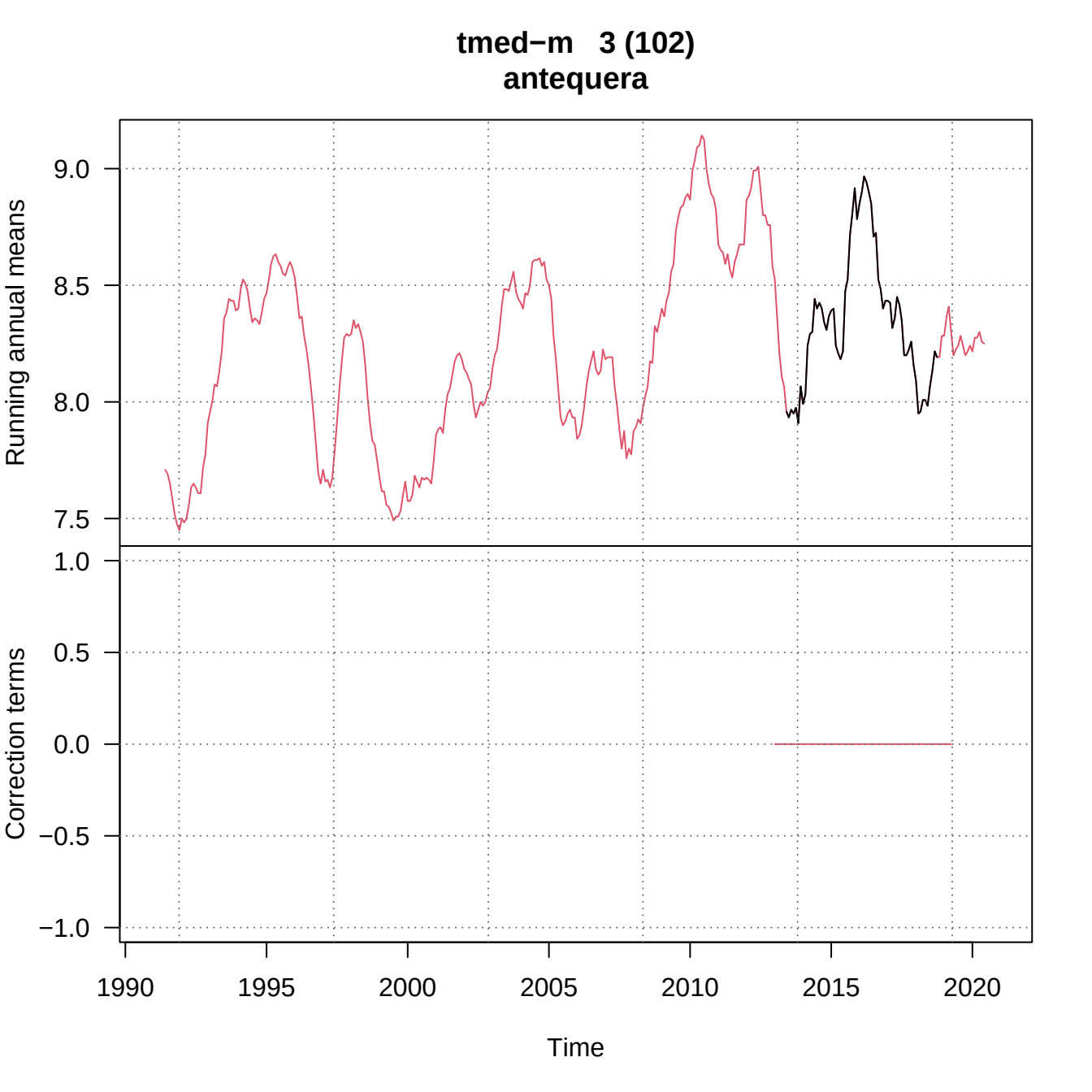

tmed−m 15 (204)
catacora
62
69
Standardized anomalies (observed − computed)
4
2
0
−2
−4
1990
1995
2000
2005
2010
2015
2020
Time
(km)
100
10
1
min.d.
n.ref.

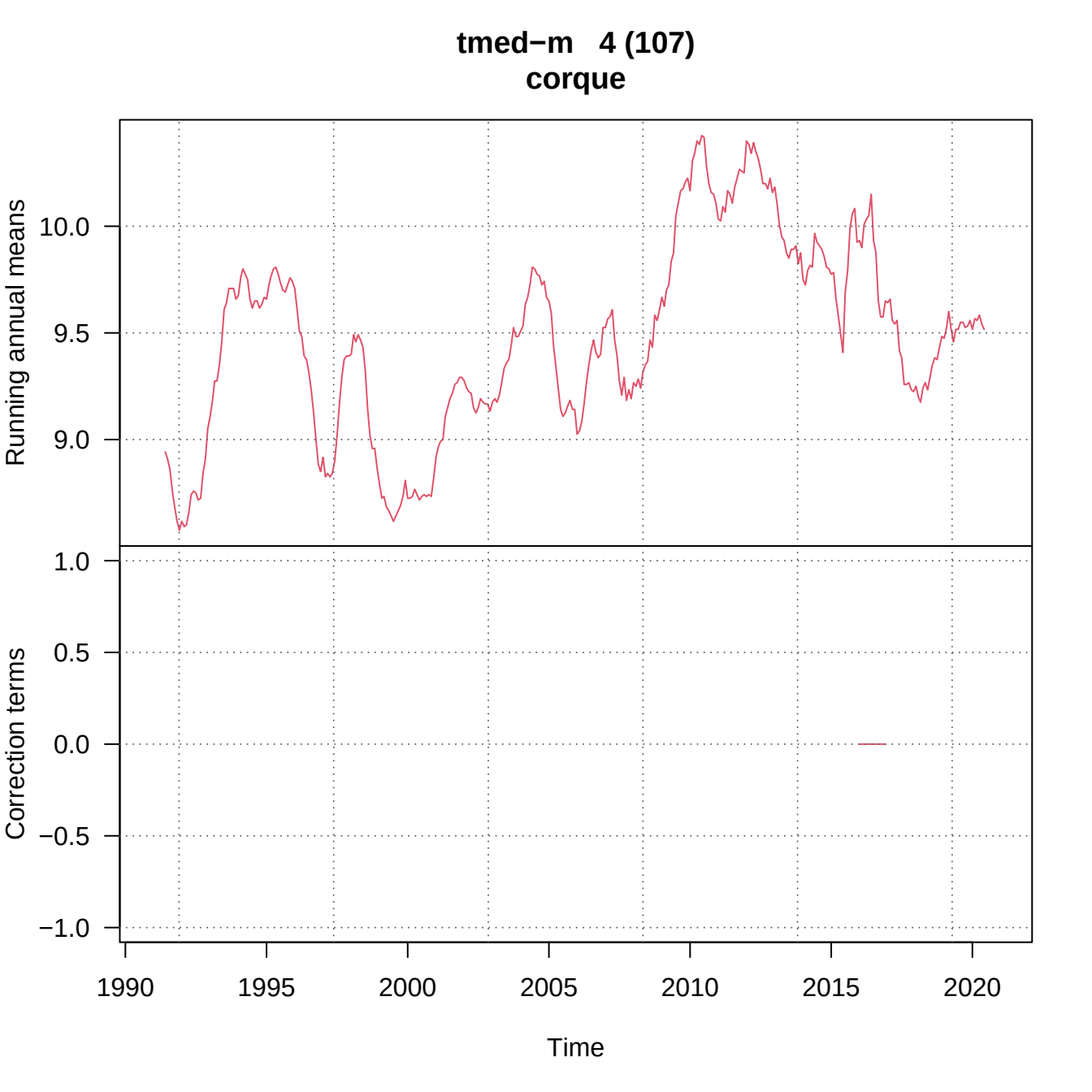
Final graphics

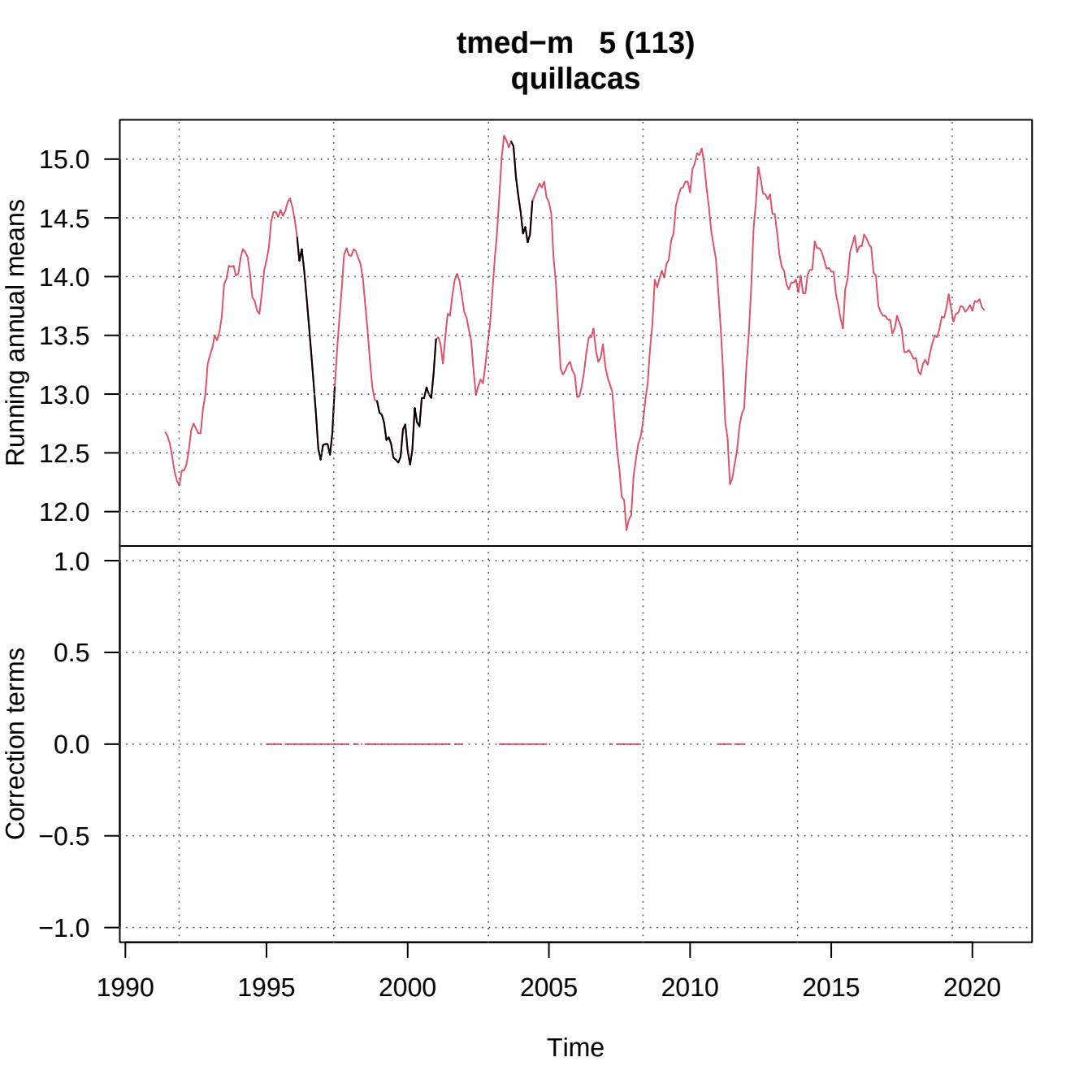
Adjusted series and applied corrections

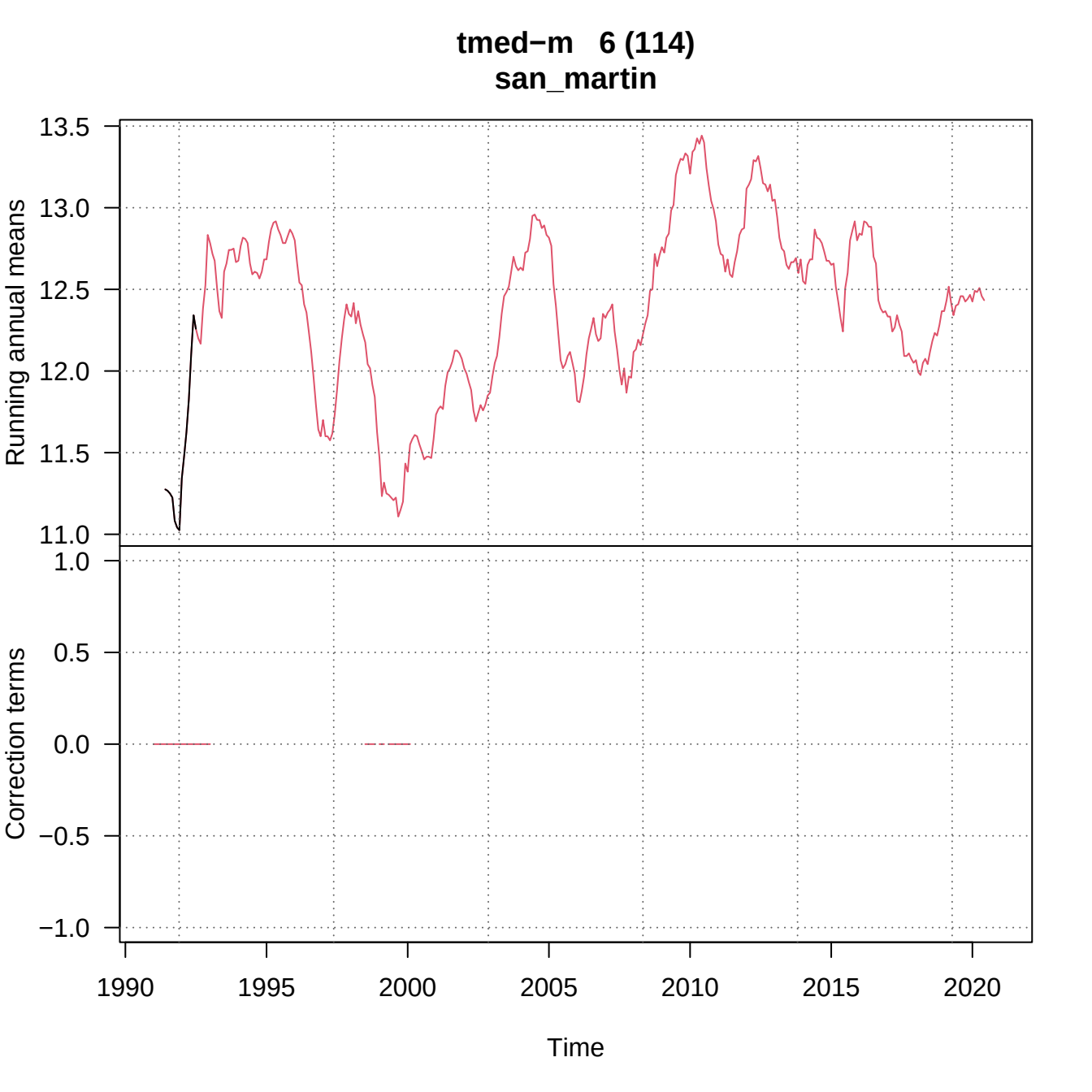

tmed−m 1 (100)
aeropuerto
Running annual means
13.0
12.5
12.0
11.5
11.0
10.5
10.0
Correction terms
1.0
0.5
0.0
−0.5
−1.0
1990
1995
2000
2005
2010
2015
2020
Time

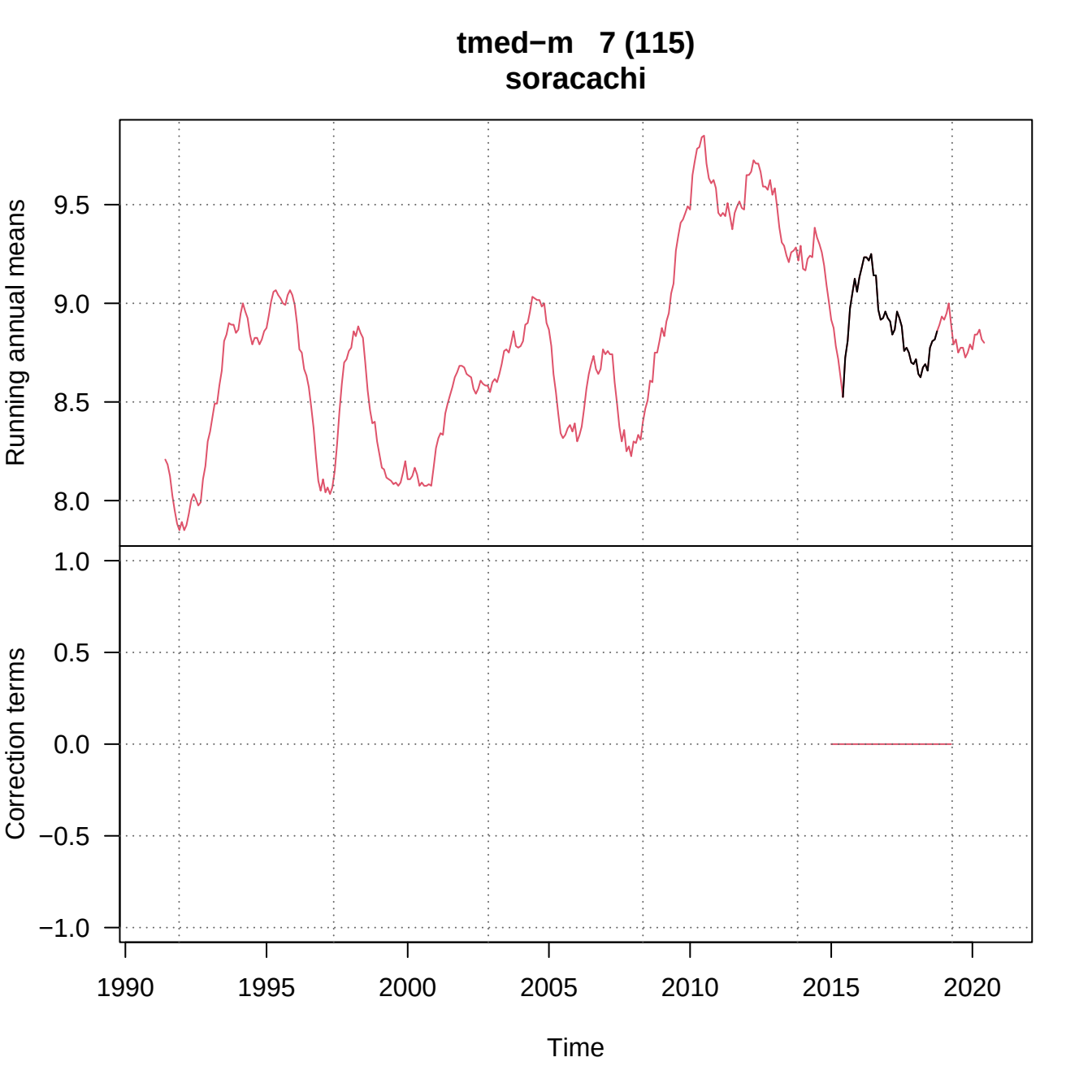

tmed−m 2 (101)
andamarca
Running annual means
13.0
12.5
12.0
11.5
11.0
Correction terms
1.0
0.5
0.0
−0.5
−1.0
1990
1995
2000
2005
2010
2015
2020
Time

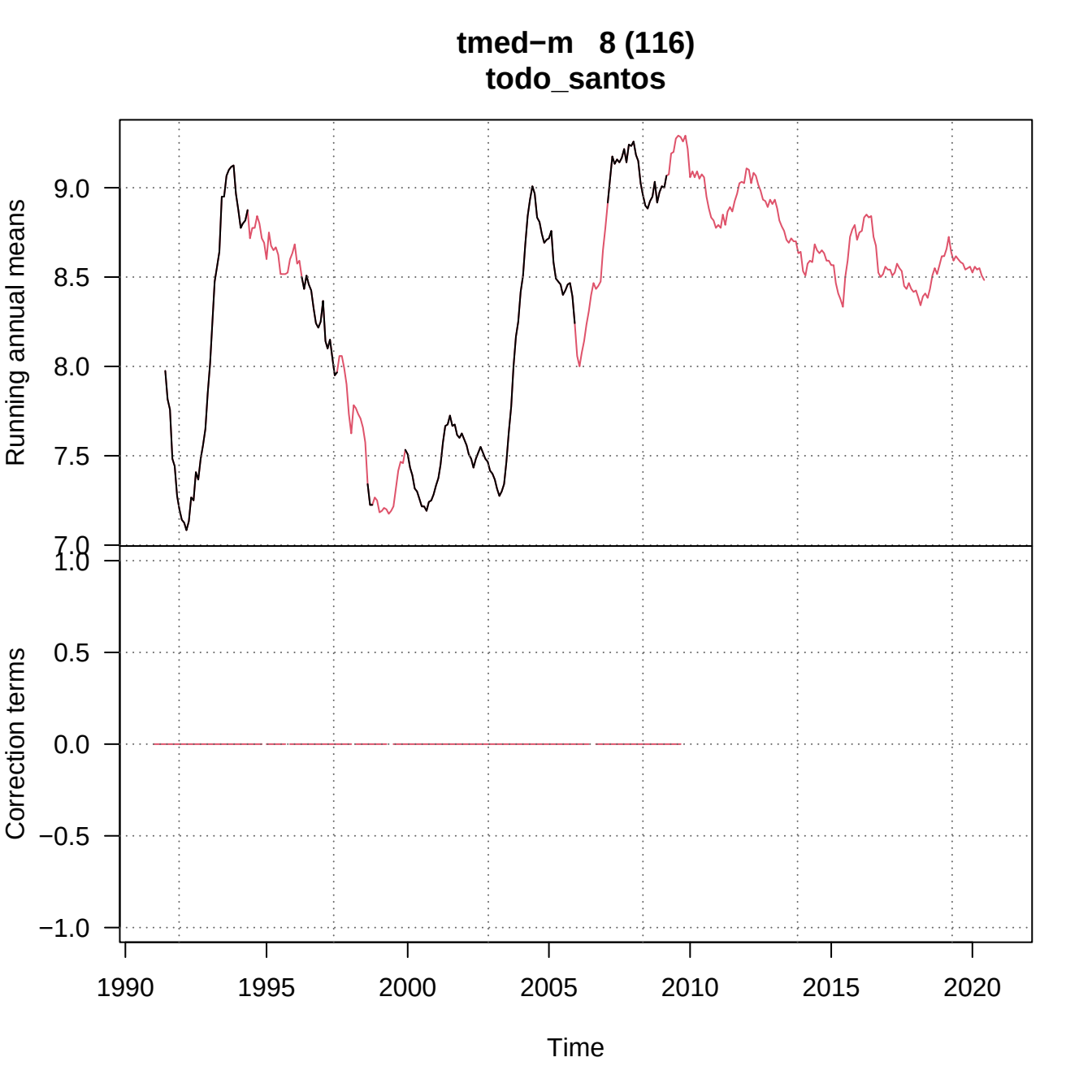

tmed−m 3 (102)
antequera
Running annual means
9.0
8.5
8.0
7.5
Correction terms
1.0
0.5
0.0
−0.5
−1.0
1990
1995
2000
2005
2010
2015
2020
Time

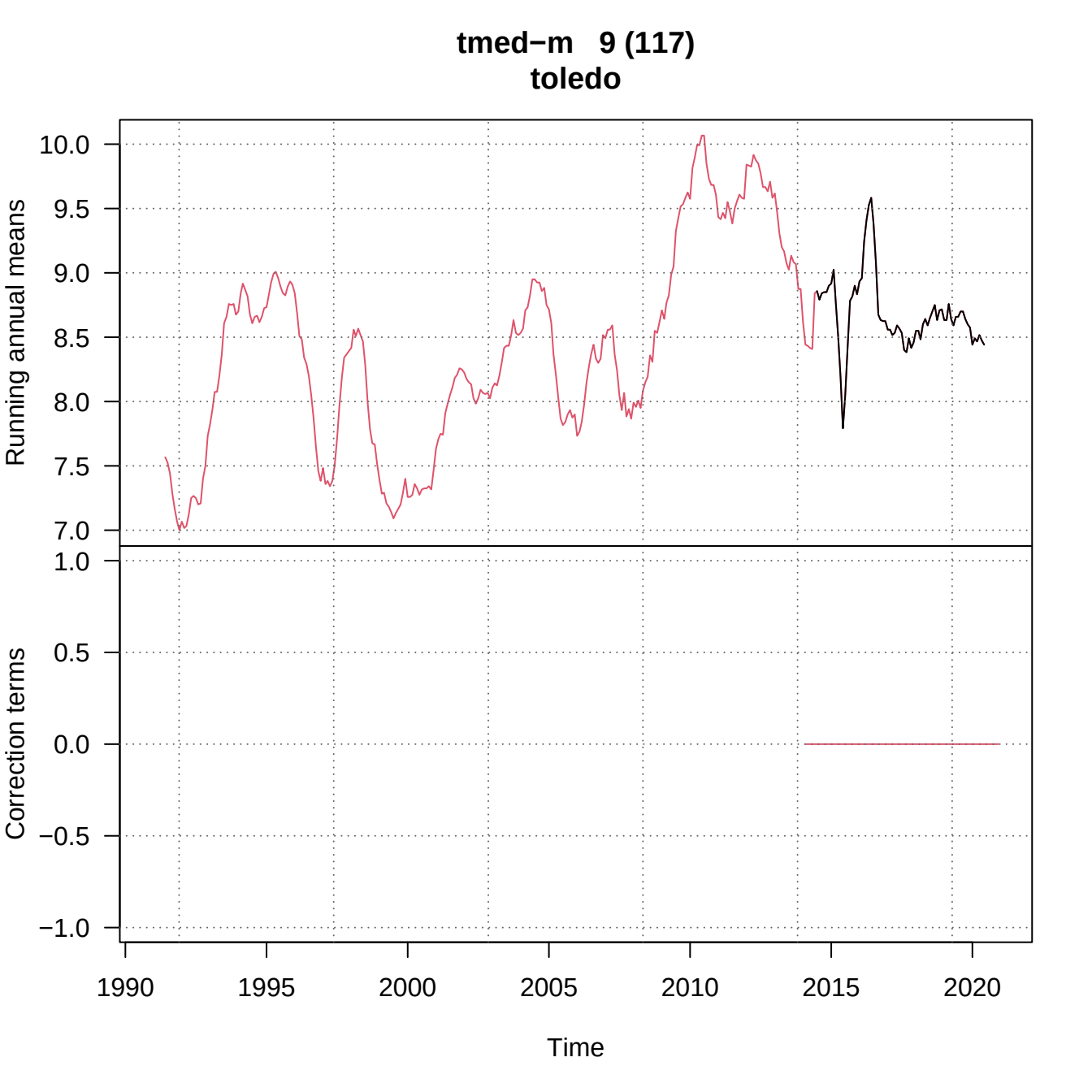

tmed−m 4 (107)
corque
Running annual means
10.0
9.5
9.0
Correction terms
1.0
0.5
0.0
−0.5
−1.0
1990
1995
2000
2005
2010
2015
2020
Time

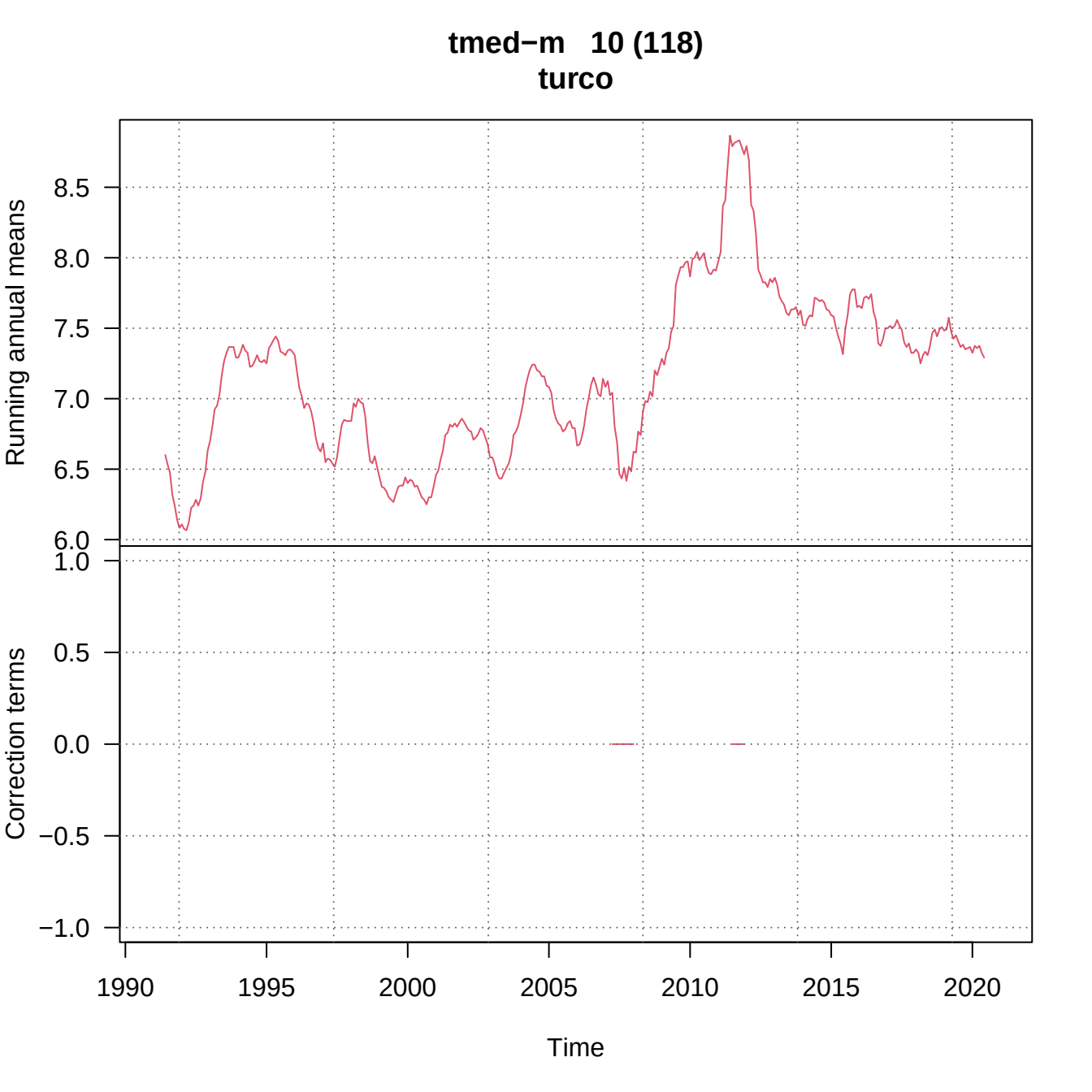

tmed−m 5 (113)
quillacas
Running annual means
15.0
14.5
14.0
13.5
13.0
12.5
12.0
Correction terms
1.0
0.5
0.0
−0.5
−1.0
1990
1995
2000
2005
2010
2015
2020
Time

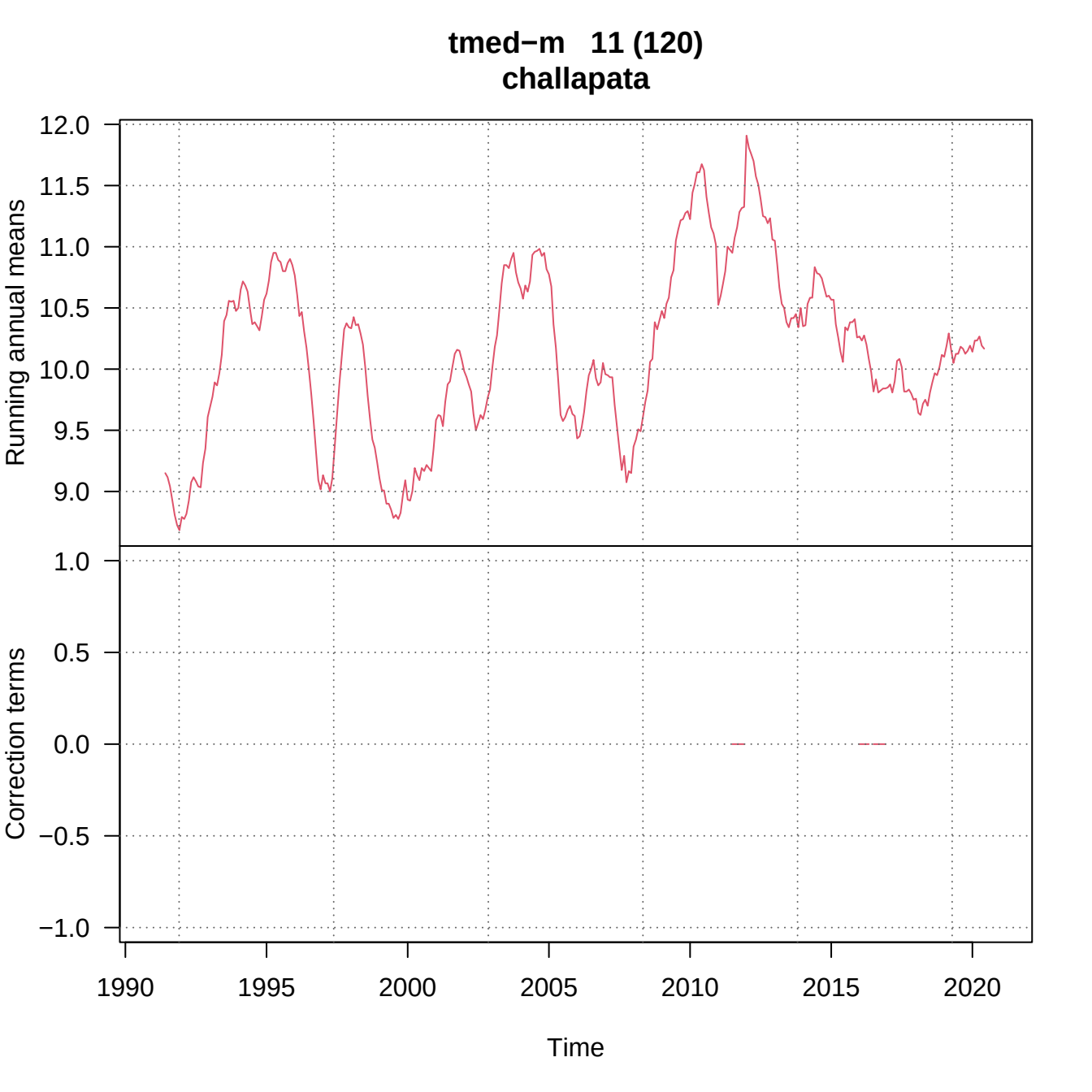

tmed−m 6 (114)
san_martin
Running annual means
13.5
13.0
12.5
12.0
11.5
11.0
Correction terms
1.0
0.5
0.0
−0.5
−1.0
1990
1995
2000
2005
2010
2015
2020
Time

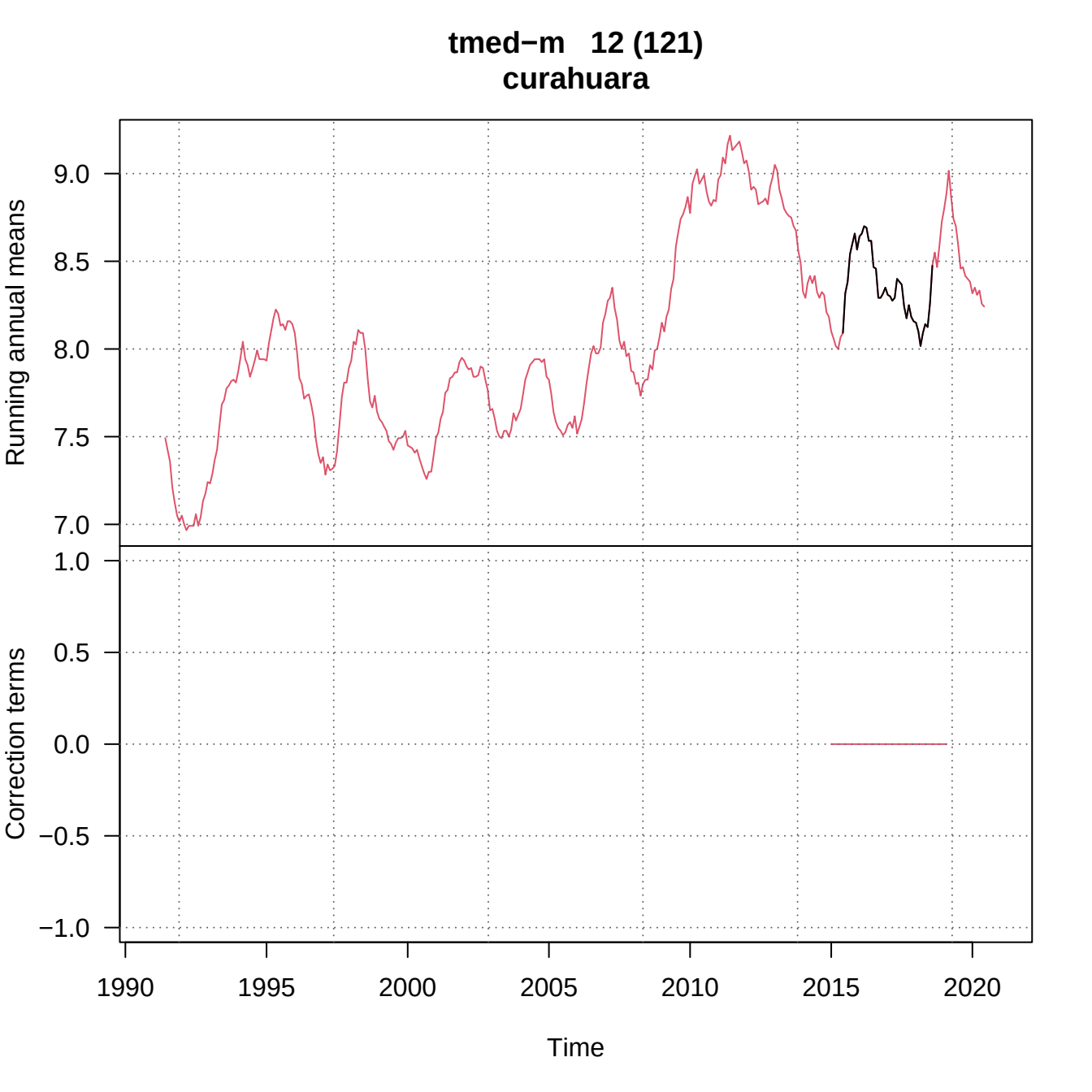

tmed−m 7 (115)
soracachi
Running annual means
9.5
9.0
8.5
8.0
Correction terms
1.0
0.5
0.0
−0.5
−1.0
1990
1995
2000
2005
2010
2015
2020
Time

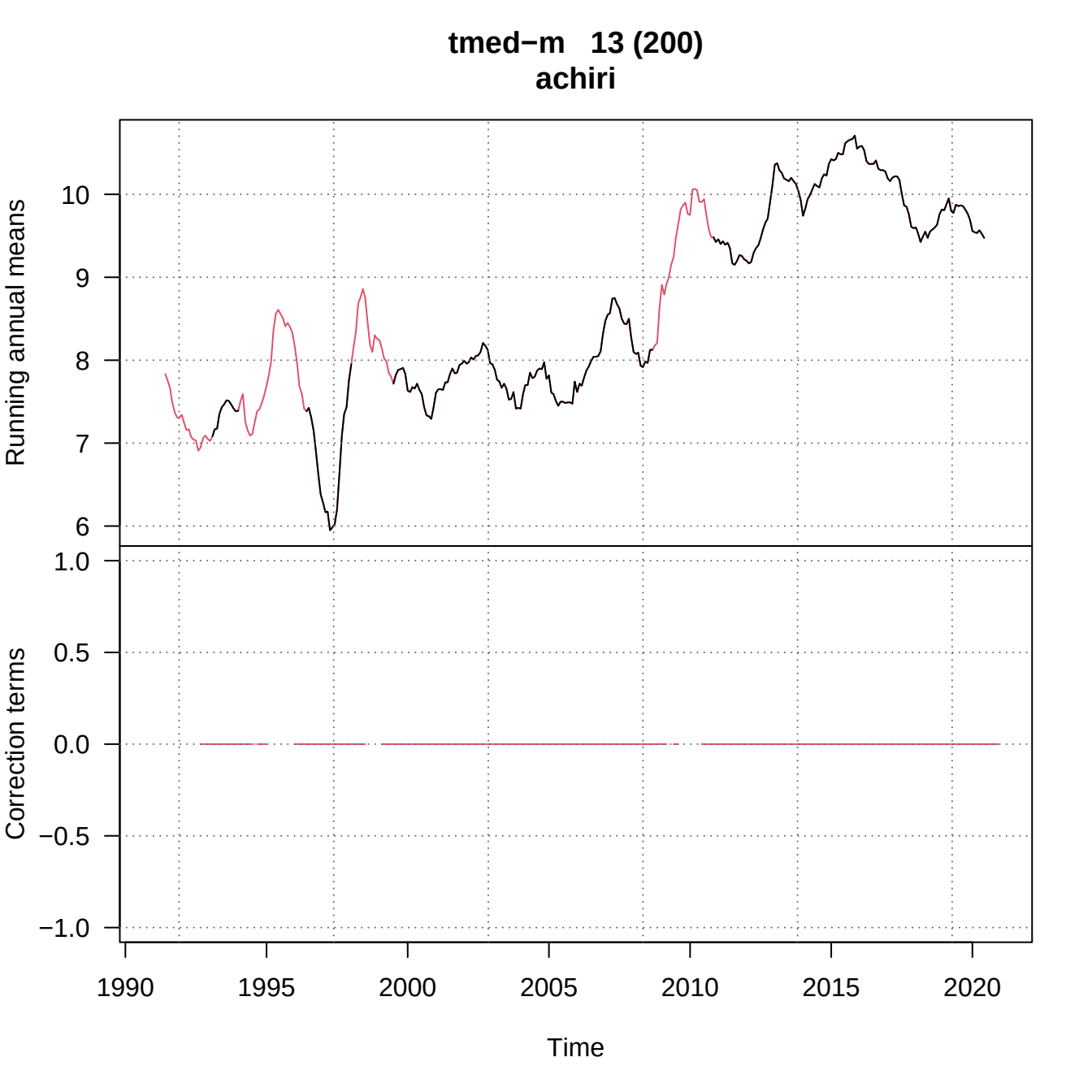

tmed−m 8 (116)
todo_santos
Running annual means
9.0
8.5
8.0
7.5
7.0
Correction terms
1.0
0.5
0.0
−0.5
−1.0
1990
1995
2000
2005
2010
2015
2020
Time

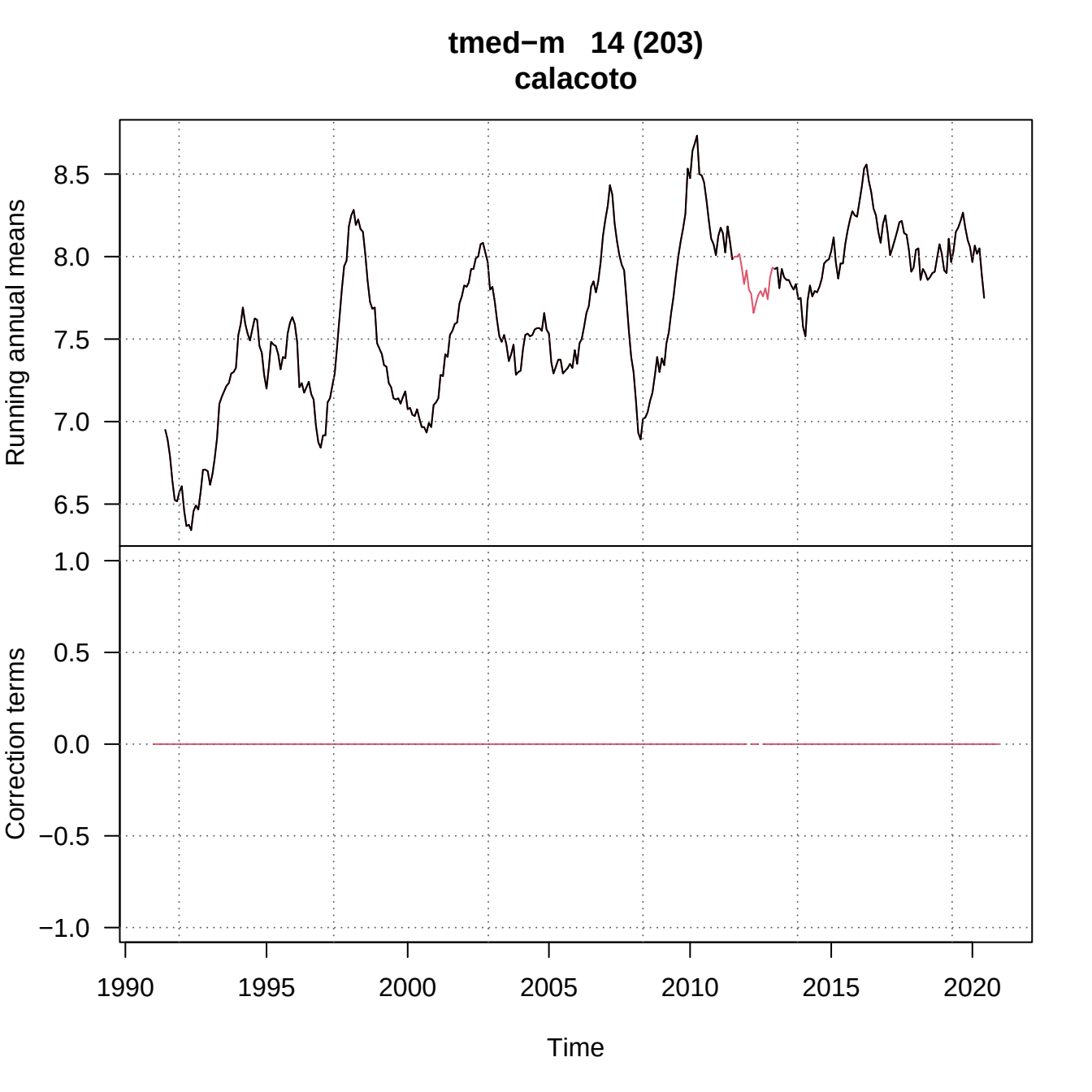

tmed−m 9 (117)
toledo
Running annual means
10.0
9.5
9.0
8.5
8.0
7.5
7.0
Correction terms
1.0
0.5
0.0
−0.5
−1.0
1990
1995
2000
2005
2010
2015
2020
Time

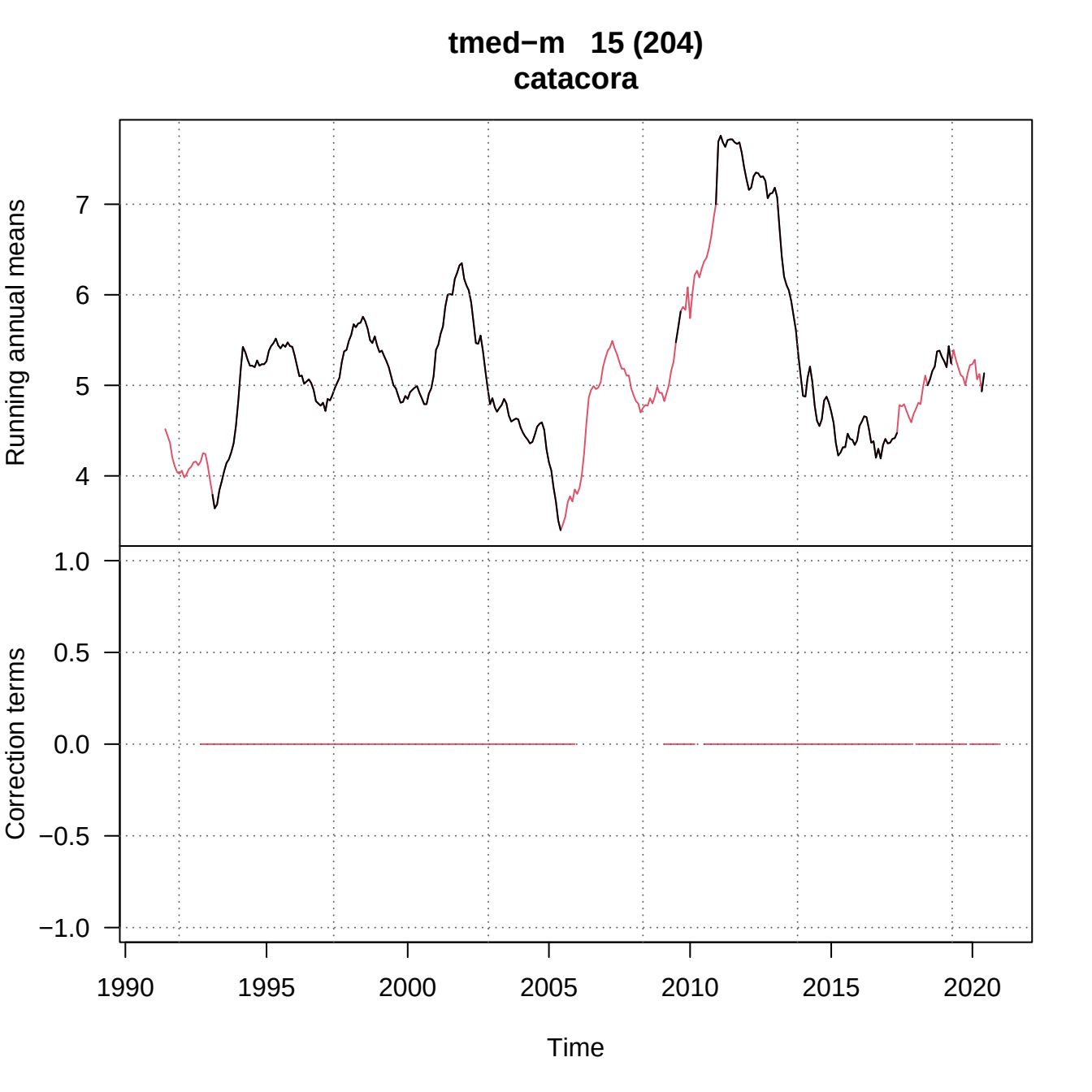

tmed−m 10 (118)
turco
Running annual means
8.5
8.0
7.5
7.0
6.5
6.0
Correction terms
1.0
0.5
0.0
−0.5
−1.0
1990
1995
2000
2005
2010
2015
2020
Time

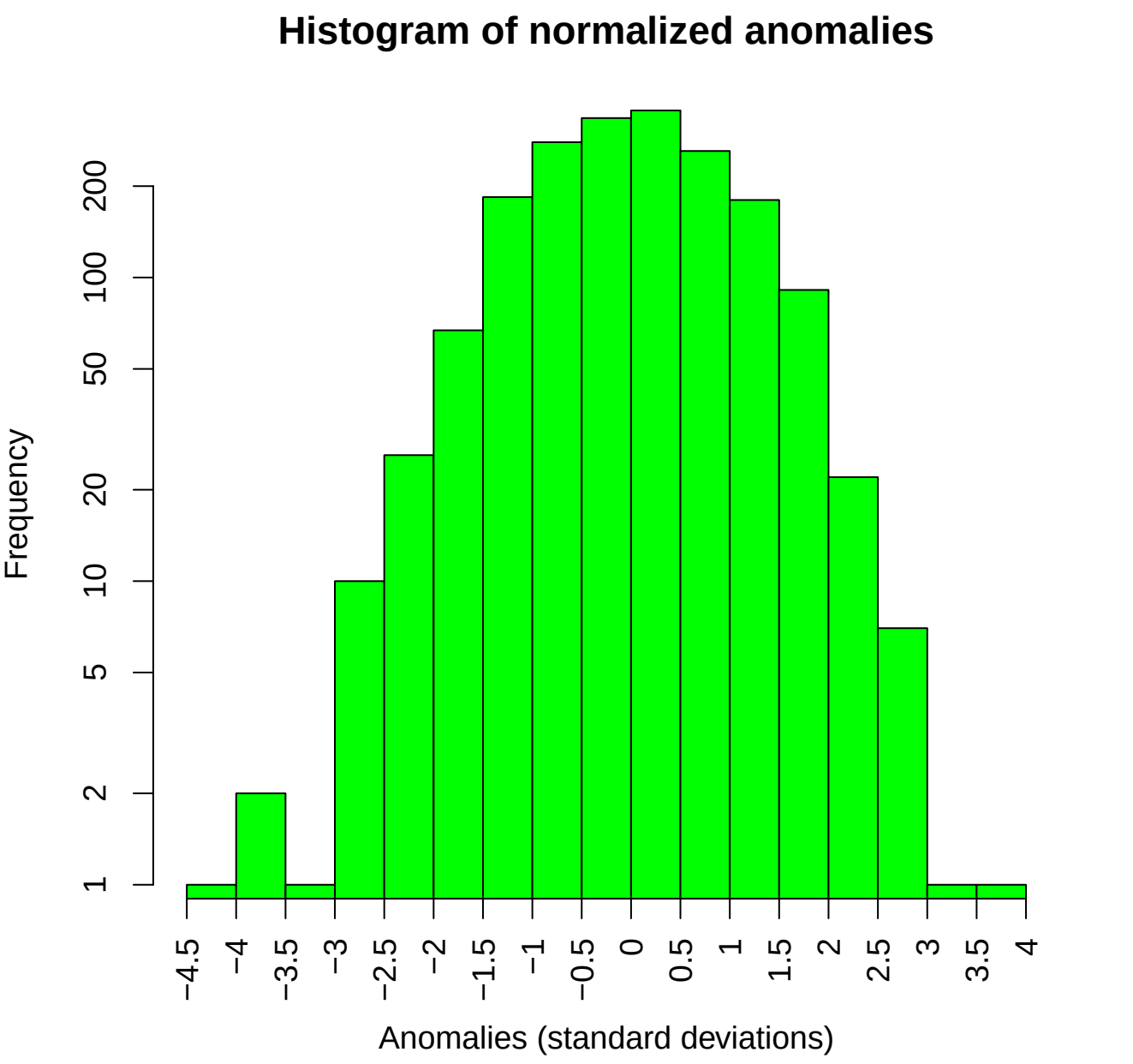

tmed−m 11 (120)
challapata
Running annual means
12.0
11.5
11.0
10.5
10.0
9.5
9.0
Correction terms
1.0
0.5
0.0
−0.5
−1.0
1990
1995
2000
2005
2010
2015
2020
Time

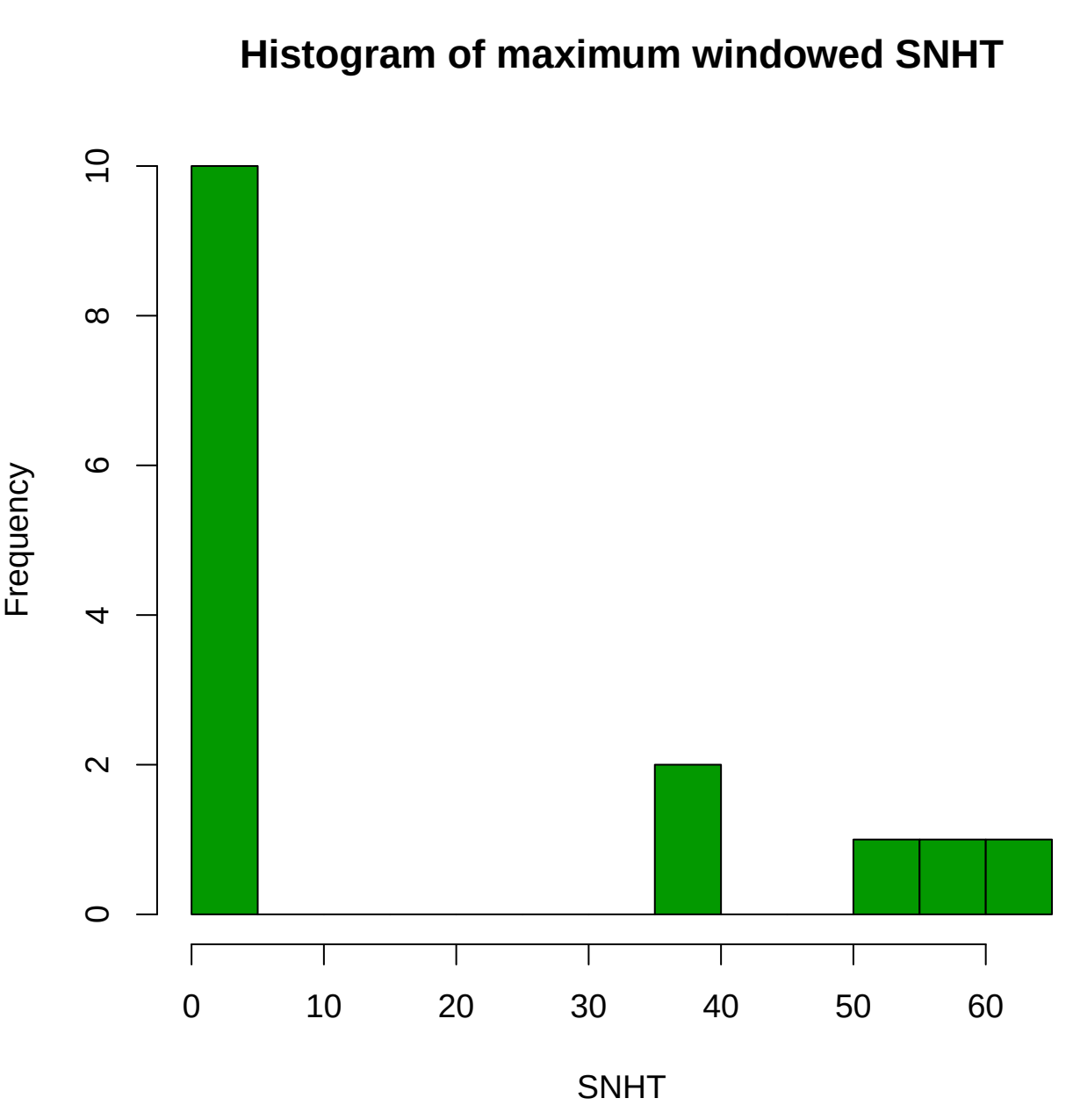

tmed−m 12 (121)
curahuara
Running annual means
9.0
8.5
8.0
7.5
7.0
Correction terms
1.0
0.5
0.0
−0.5
−1.0
1990
1995
2000
2005
2010
2015
2020
Time

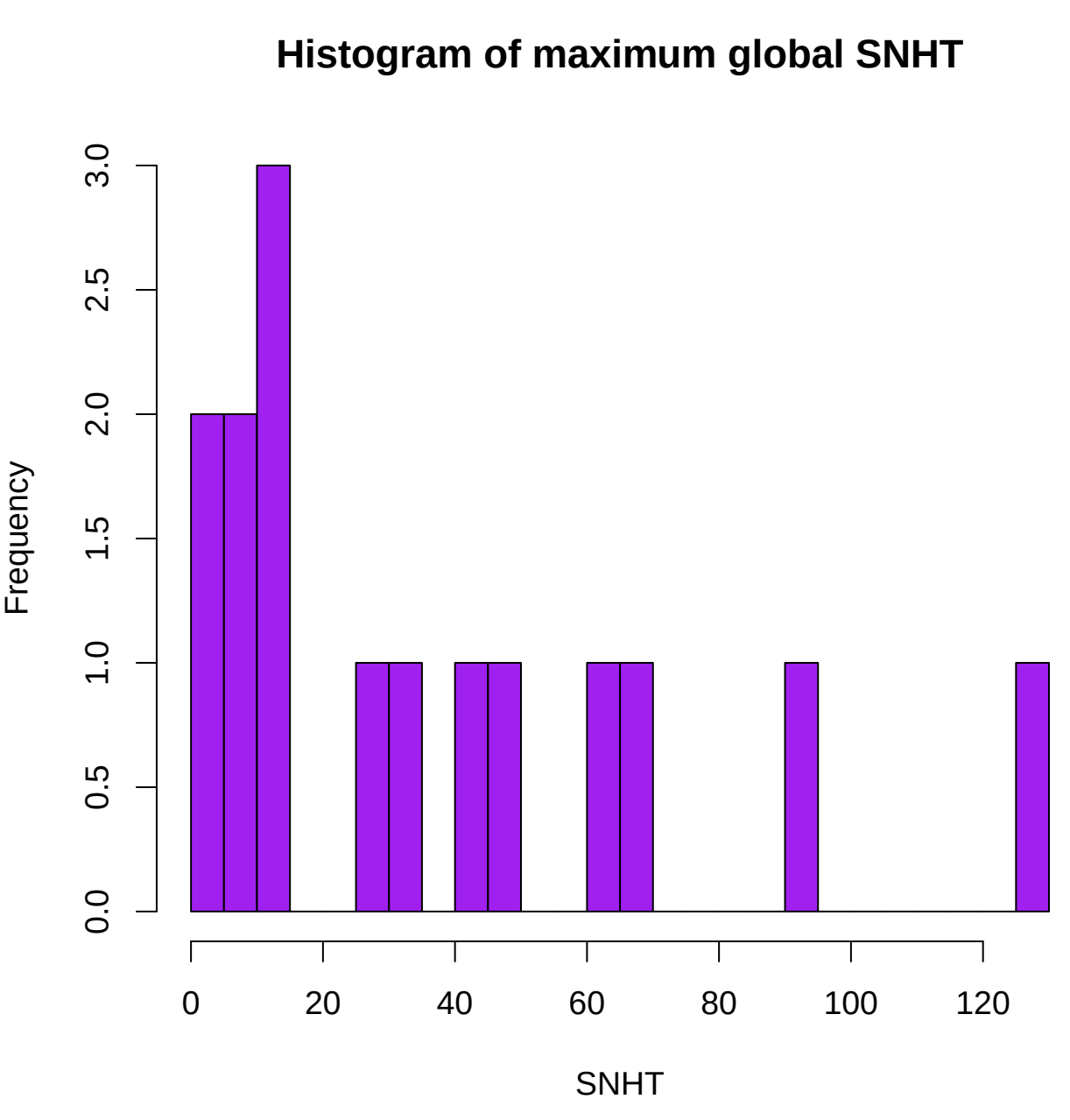

tmed−m 13 (200)
achiri
Running annual means
10
9
8
7
6
Correction terms
1.0
0.5
0.0
−0.5
−1.0
1990
1995
2000
2005
2010
2015
2020
Time

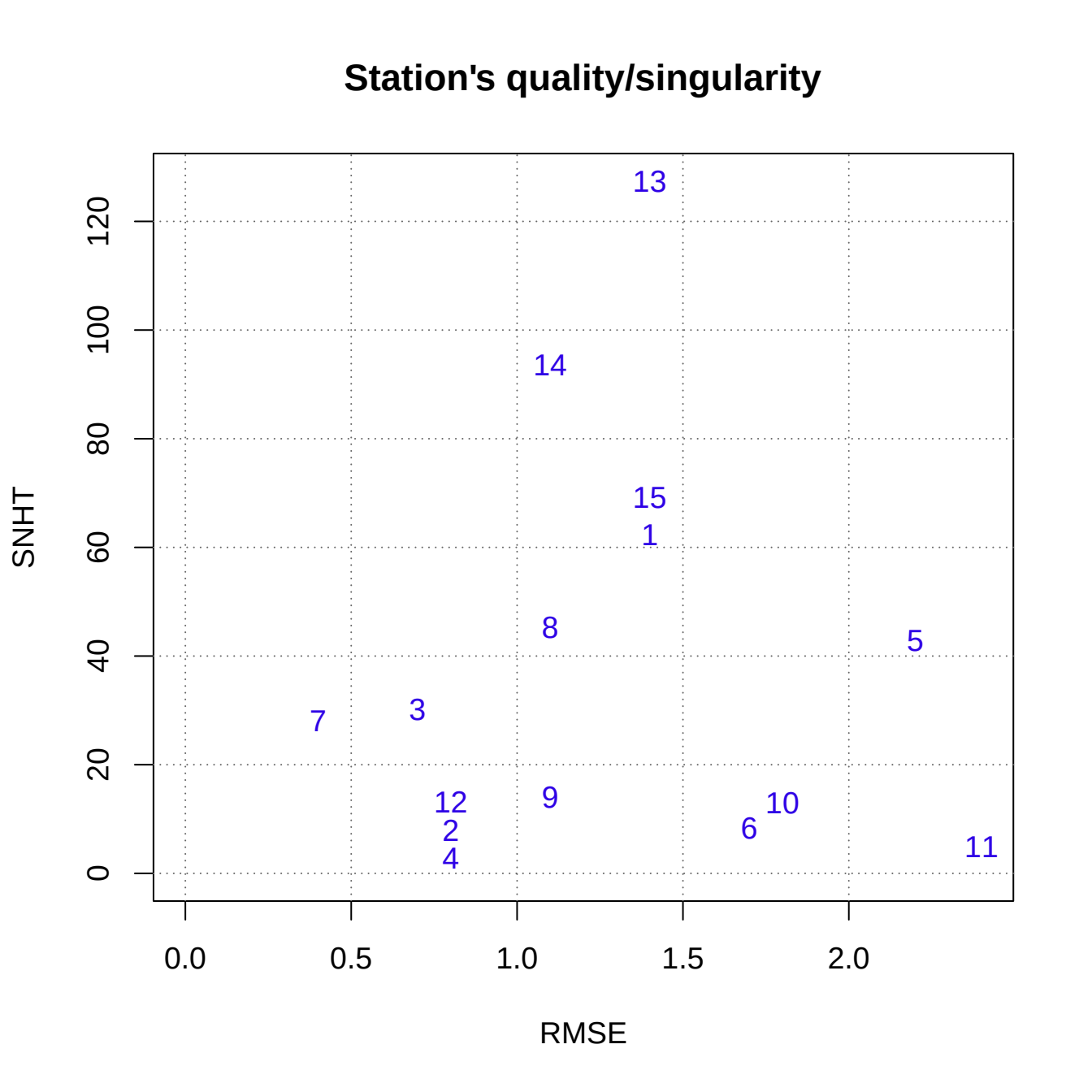

tmed−m 14 (203)
calacoto
Running annual means
8.5
8.0
7.5
7.0
6.5
Correction terms
1.0
0.5
0.0
−0.5
−1.0
1990
1995
2000
2005
2010
2015
2020
Time


tmed−m 15 (204)
catacora
Running annual means
7
6
5
4
Correction terms
1.0
0.5
0.0
−0.5
−1.0
1990
1995
2000
2005
2010
2015
2020
Time


Histogram of normalized anomalies
Frequency
1
2
5
10
20
50
100
200
−4.5
−4
−3.5
−3
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5
3
3.5
4
Anomalies (standard deviations)


Histogram of maximum windowed SNHT
Frequency
0
2
4
6
8
10
0
10
20
30
40
50
60
SNHT


Histogram of maximum global SNHT
Frequency
0.0
0.5
1.0
1.5
2.0
2.5
3.0
0
20
40
60
80
100
120
SNHT


Station's quality/singularity
SNHT
RMSE
0
20
40
60
80
100
120
0.0
0.5
1.0
1.5
2.0
13
14
15
1
8
5
7
3
12
9
10
2
6
4
11