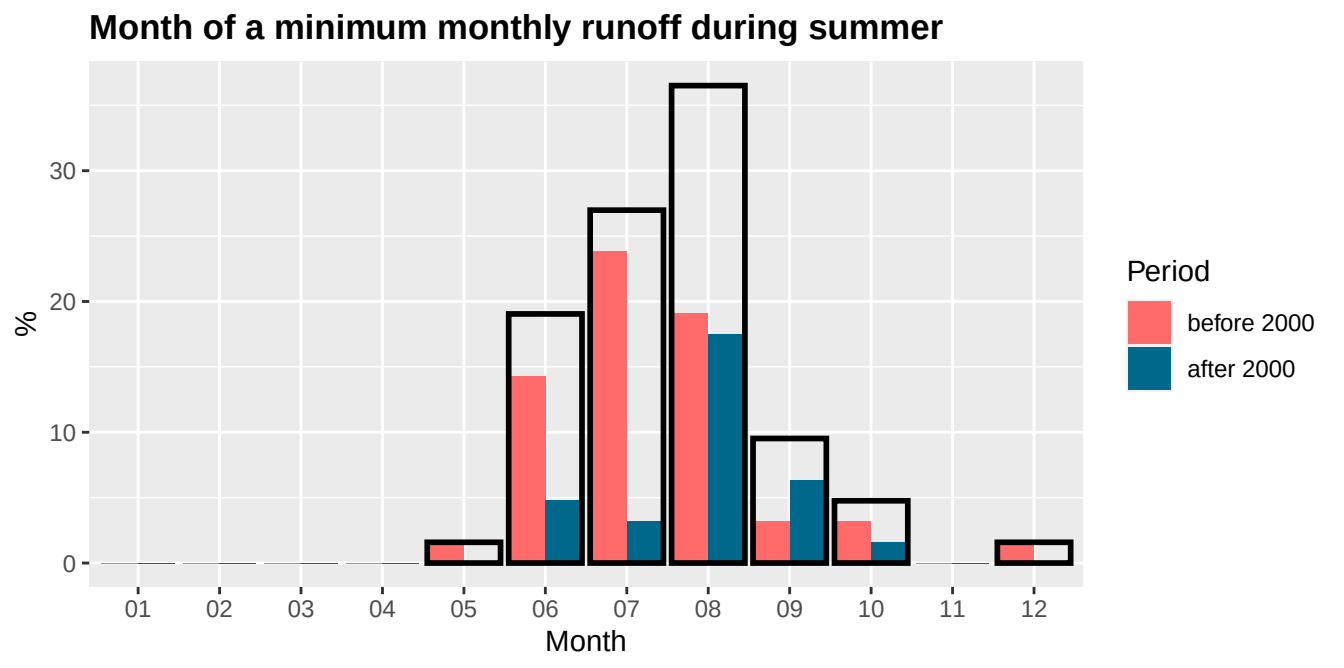
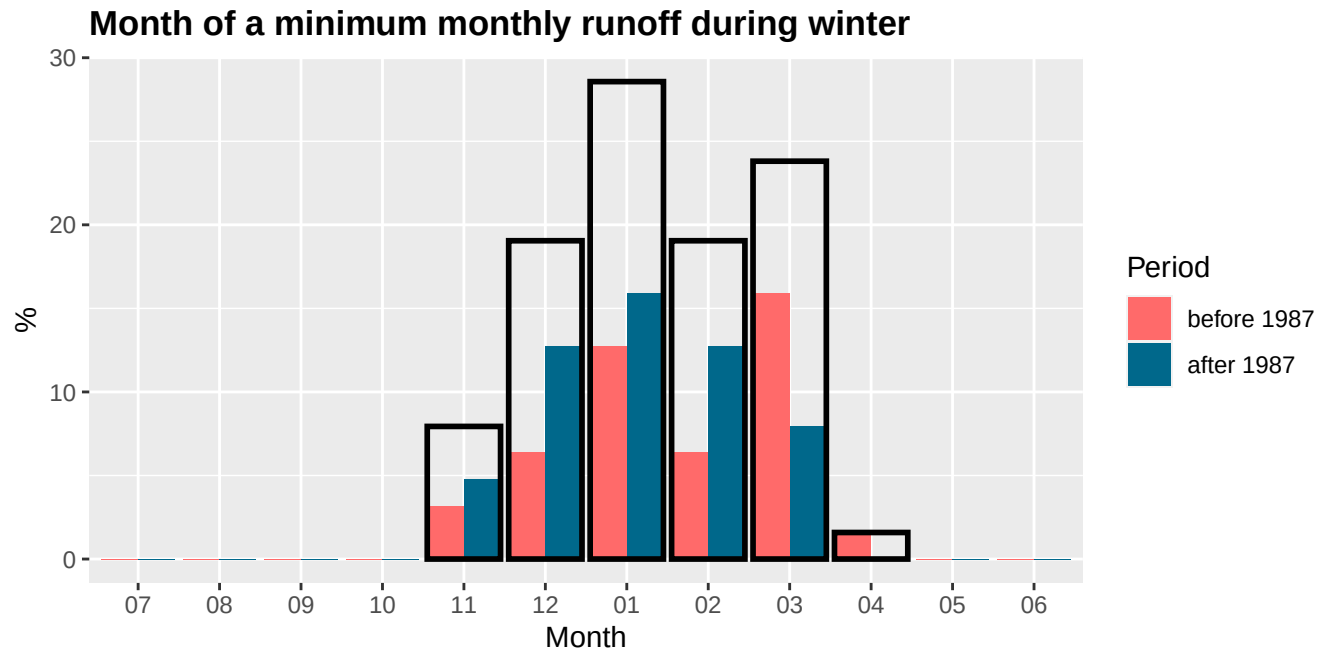
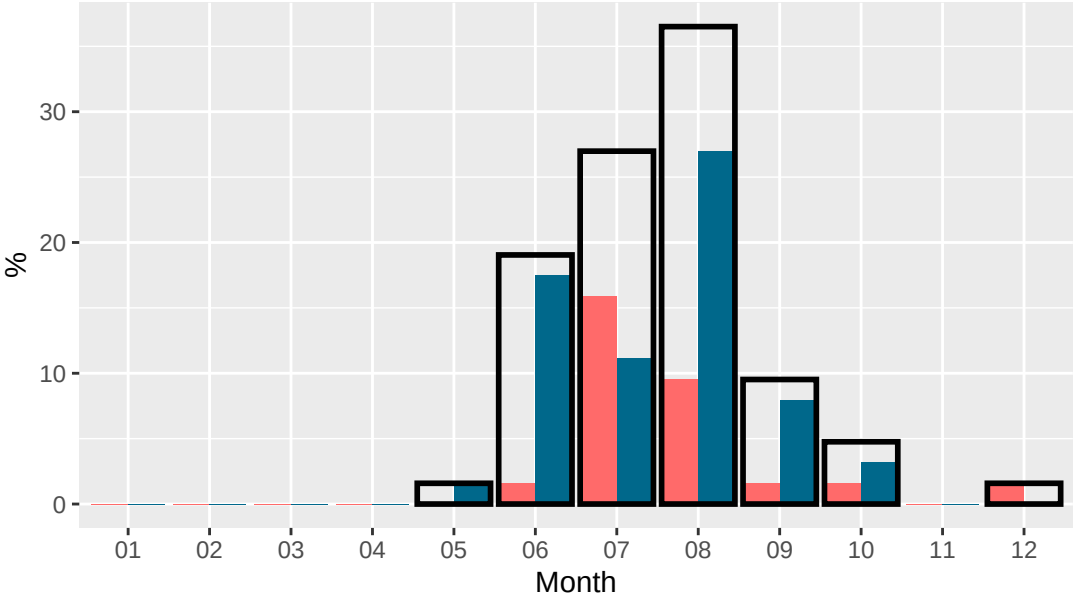
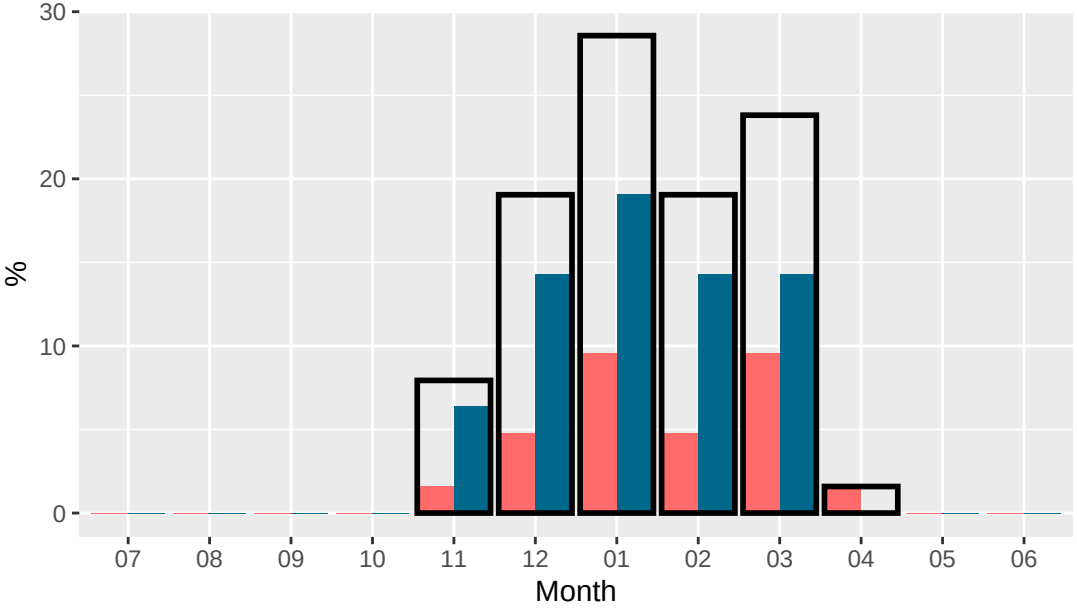

Month of a minimum monthly runoff during summer
%
30
20
10
0
01
02
03
04
05
06
07
08
09
10
11
12
Month
Period
before 2000
after 2000

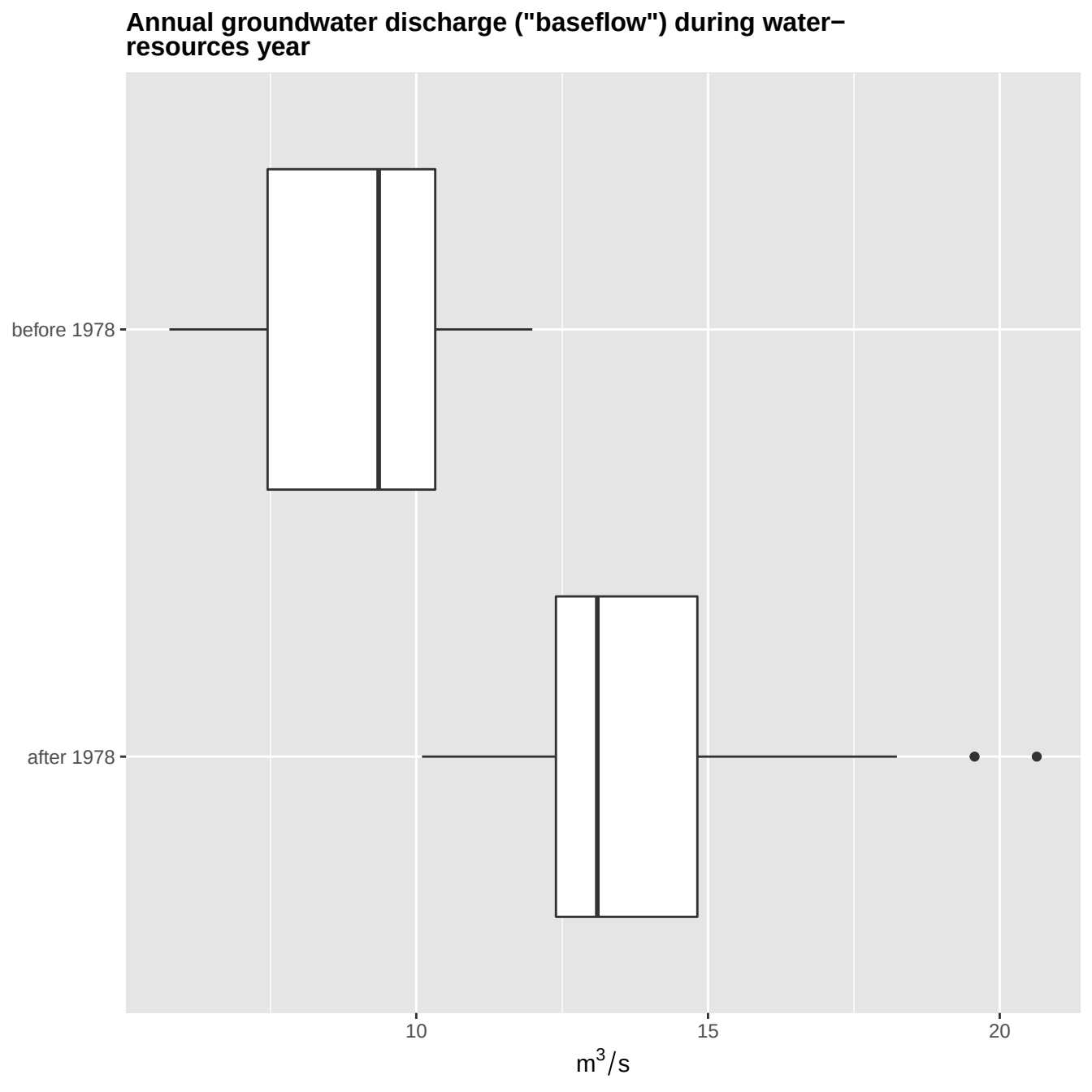

Month of a minimum monthly runoff during winter
%
30
20
10
0
07
08
09
10
11
12
01
02
03
04
05
06
Month
Period
before 1987
after 1987

Month of a minimum monthly runoff during summer



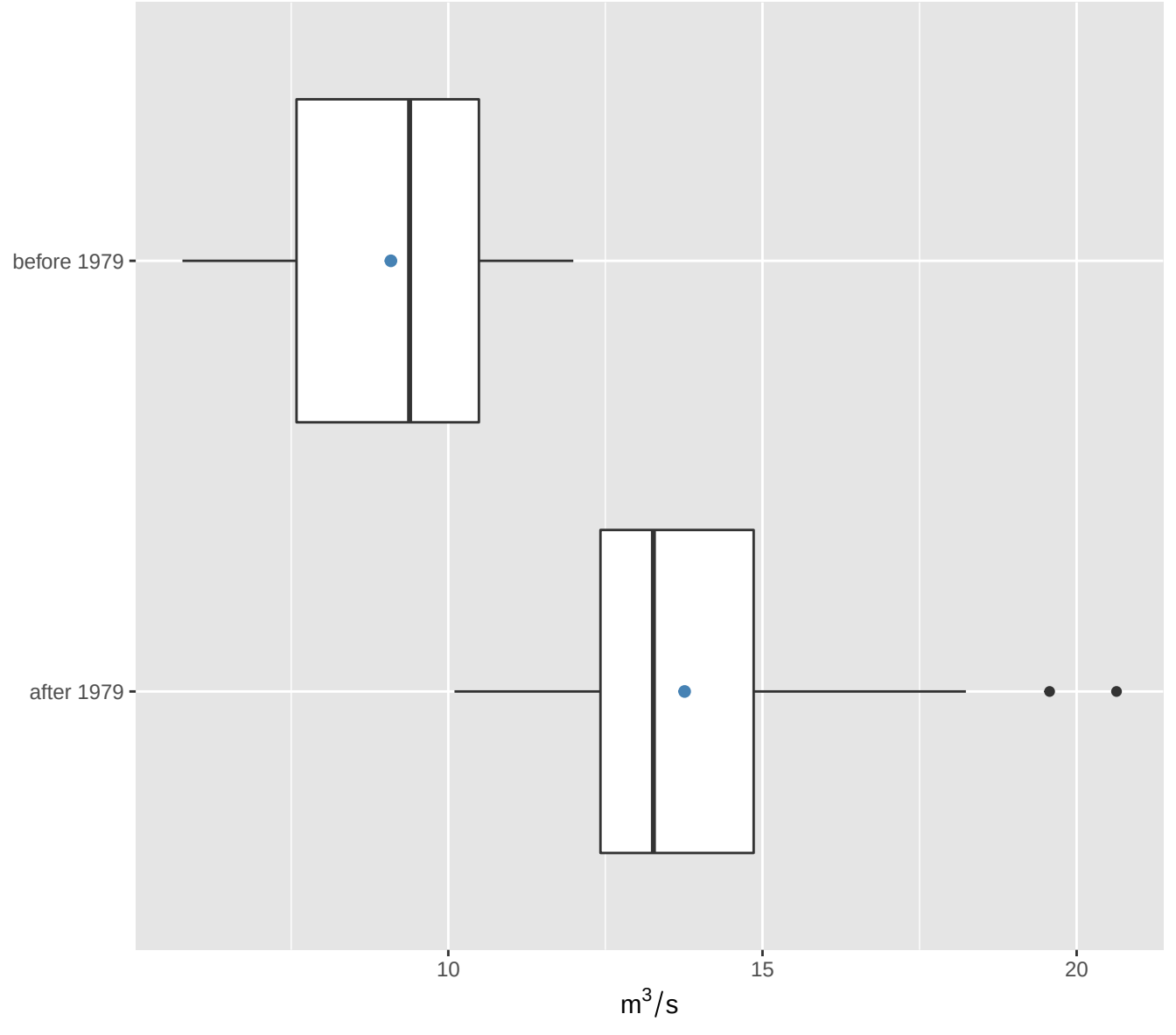
Month of a minimum monthly runoff during winter




Annual groundwater discharge ("baseflow") during water−resources year
before 1978
after 1978
10
15
20
m3/s

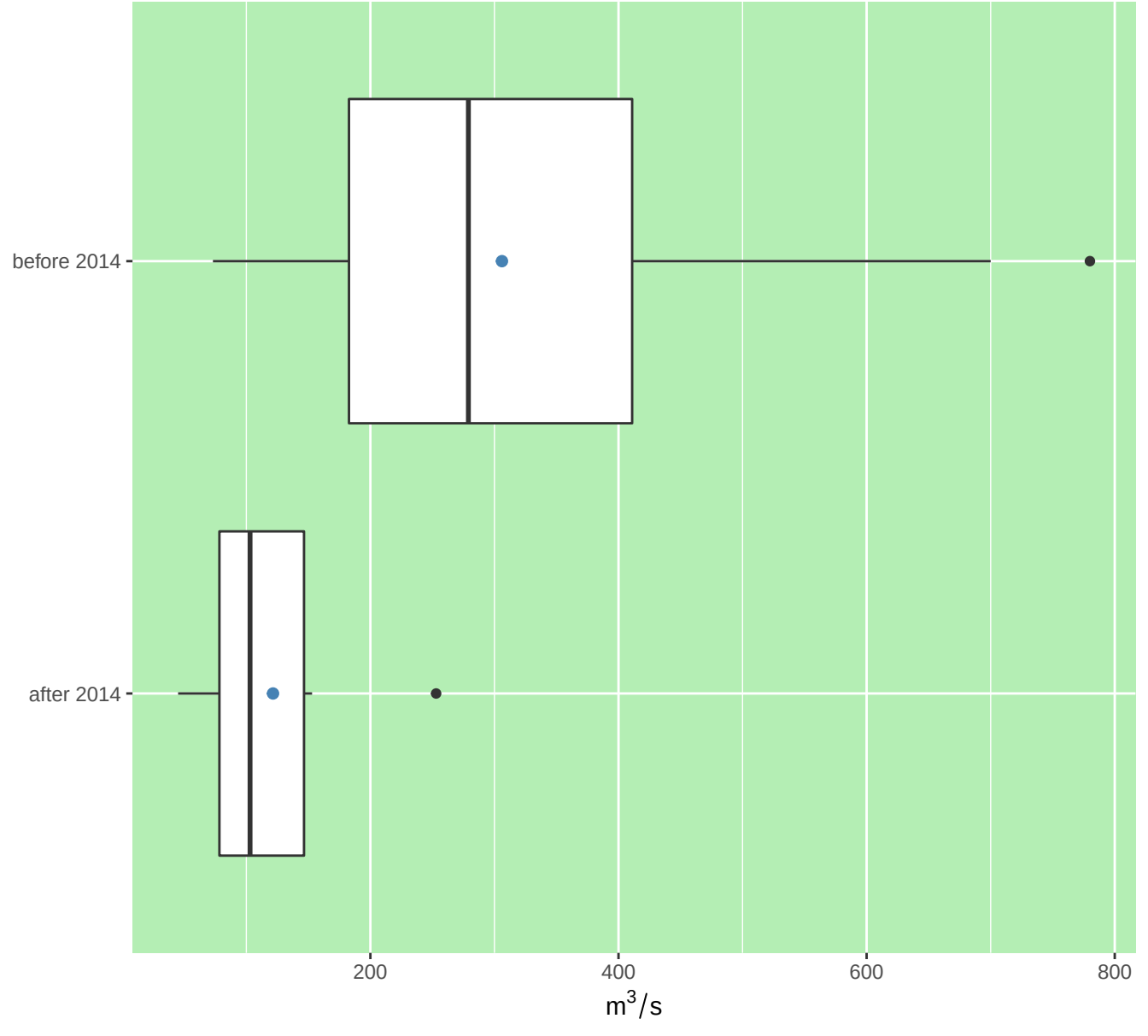
Annual groundwater discharge ("baseflow") during water−resources year

Student: t = −8.483, p = 0, m1 = 9.086, m2 = 13.761
Fisher: F = 0.607, p = 0.23086, cv1 = 0.206, cv2 = 0.174



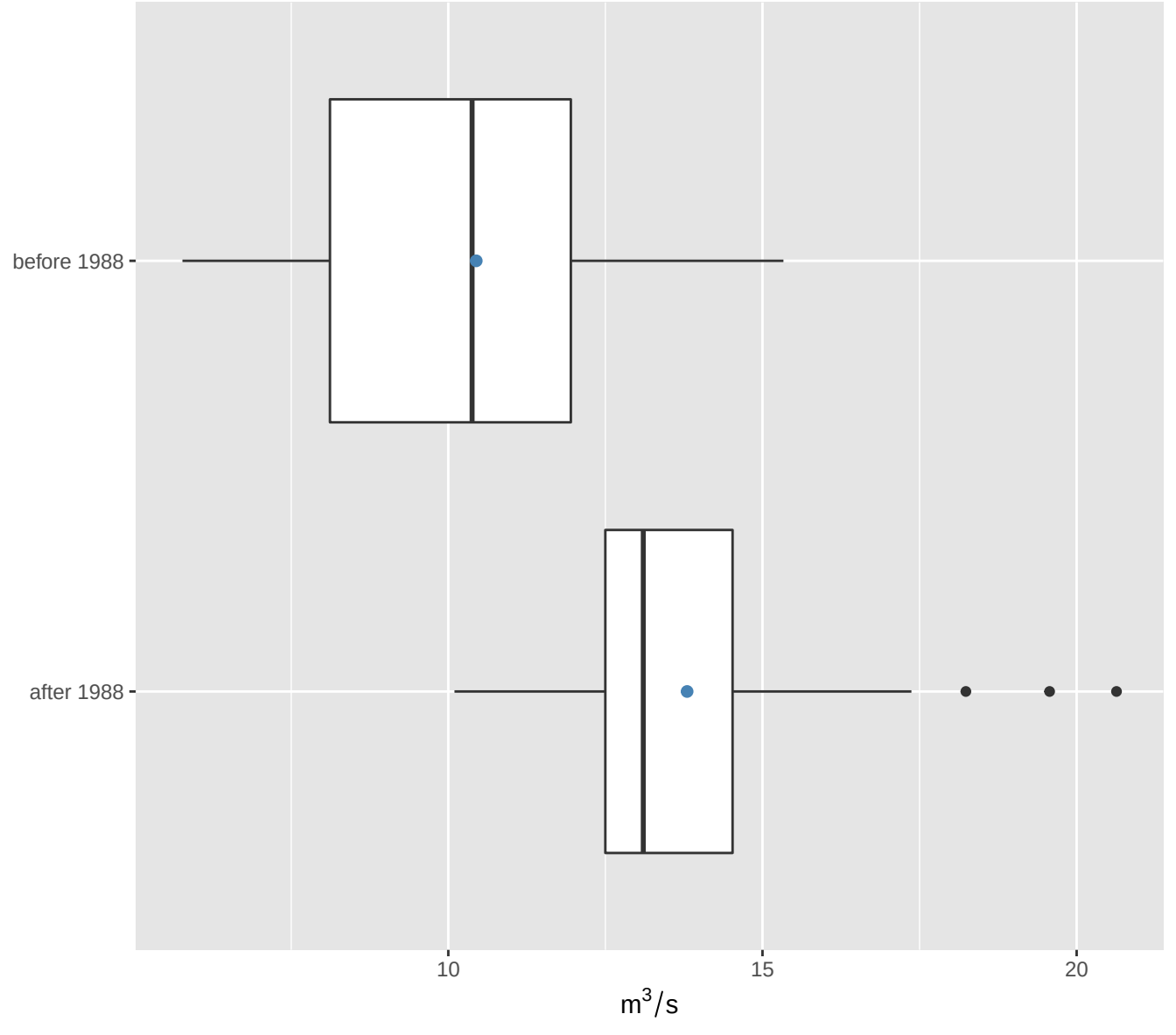
Maximum annual discharge during seasonal flood wave

Student: t = 1.531, p = 0.14808, m1 = 306.054, m2 = 121.514
Fisher: F = 4.424, p = 0.06683, cv1 = 0.525, cv2 = 0.572



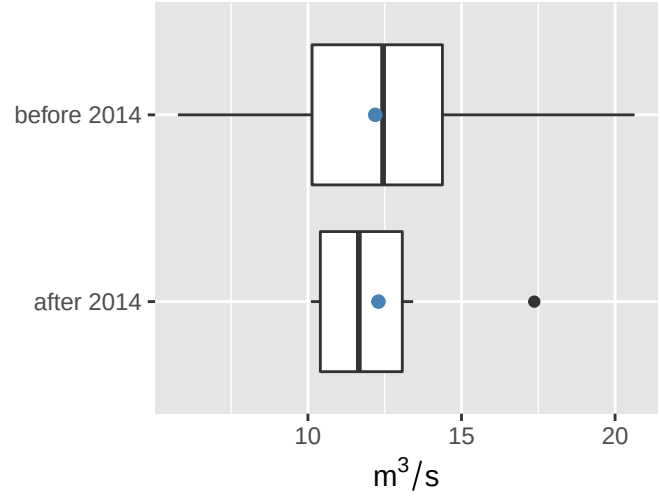
Annual groundwater discharge ("baseflow") during water−resources year

Student: t = 3.745, p = 0.00042, m1 = 10.445, m2 = 13.801
Fisher: F = 1.443, p = 0.31272, cv1 = 0.262, cv2 = 0.189



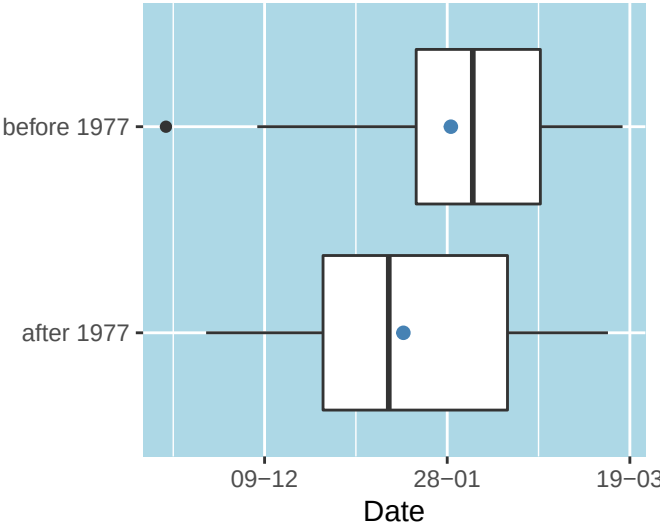
Annual groundwater discharge ("b
resources year

Student: t = 1.531, p = 0.14808, m1 = 1
Fisher: F = 4.424, p = 0.06683, cv1 = 0.



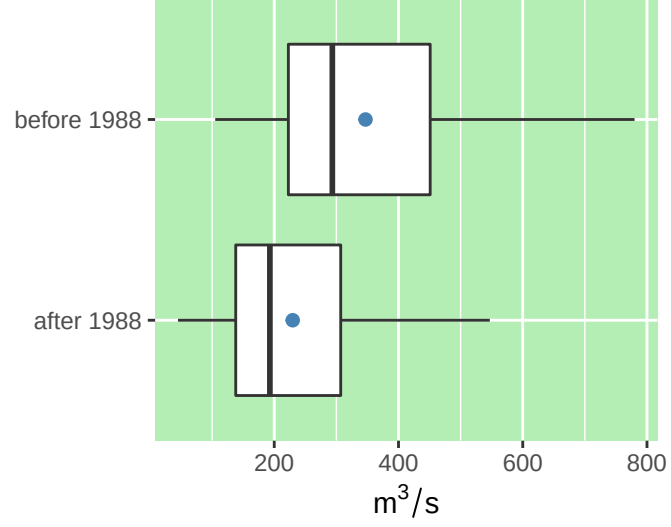
First date of 10−day window disch

Student: t = −2.648, p = 0.01376, m1 =
Fisher: F = 2.257, p = 0.02944, cv1 = 0.



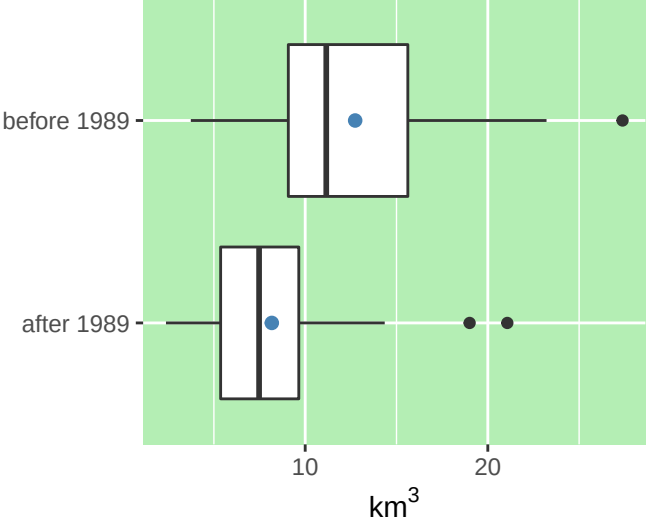
Maximum annual discharge during

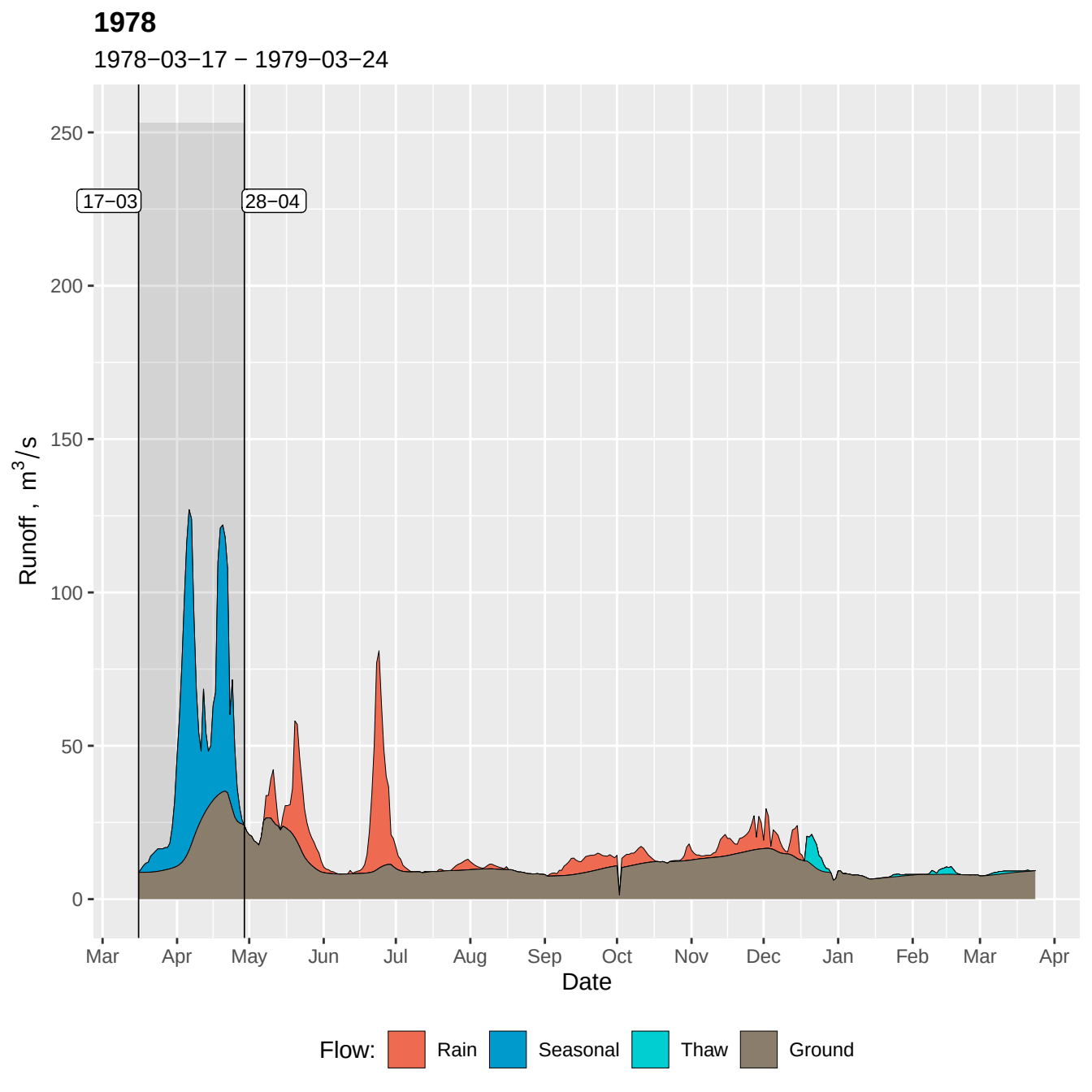
Student: t = 3.745, p = 0.00042, m1 = 3
Fisher: F = 1.443, p = 0.31272, cv1 = 0.

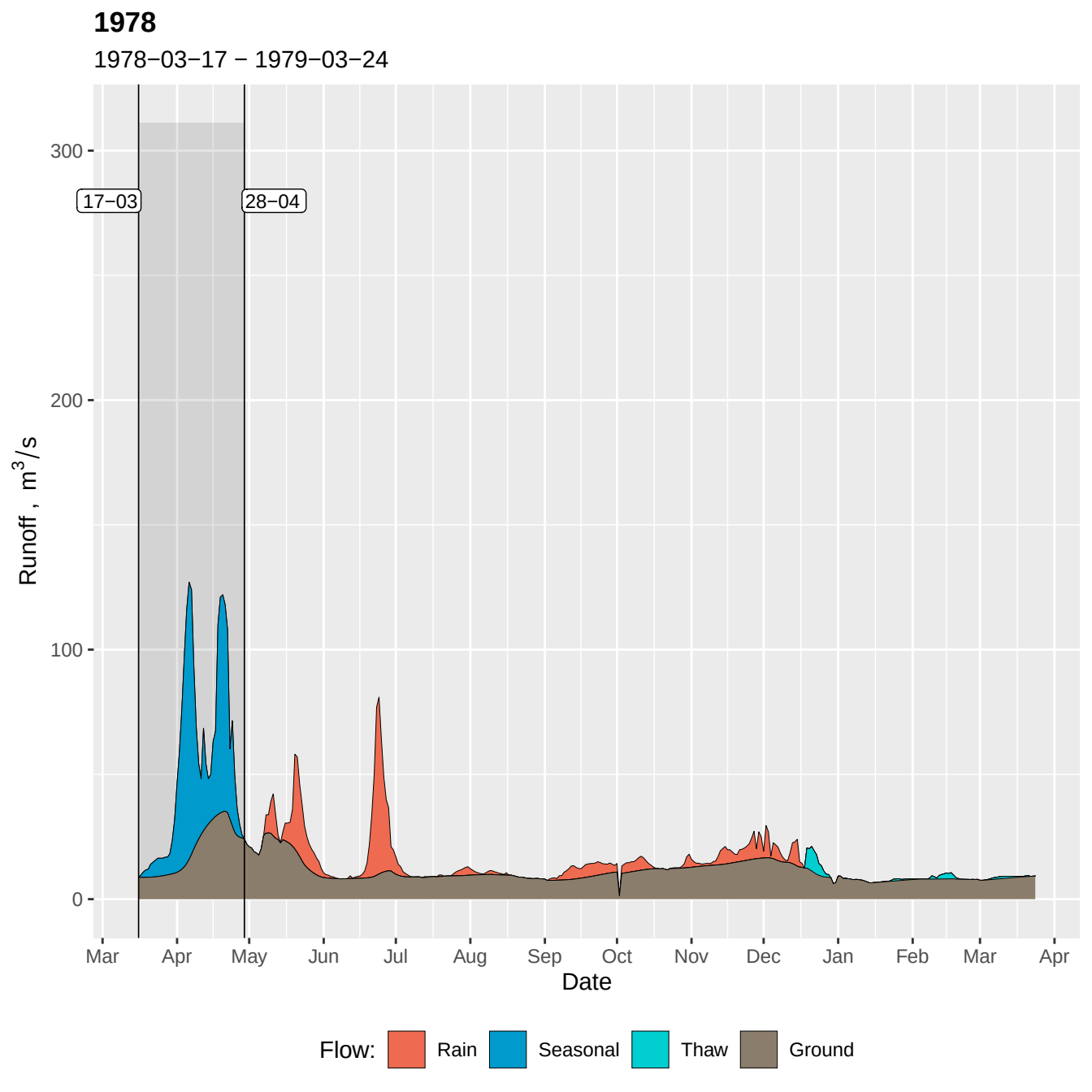


Seasonal flood runoff (with ground

Student: t = 3.635, p = 0.00059, m1 = 12
Fisher: F = 1.519, p = 0.2523, cv1 = 0.4

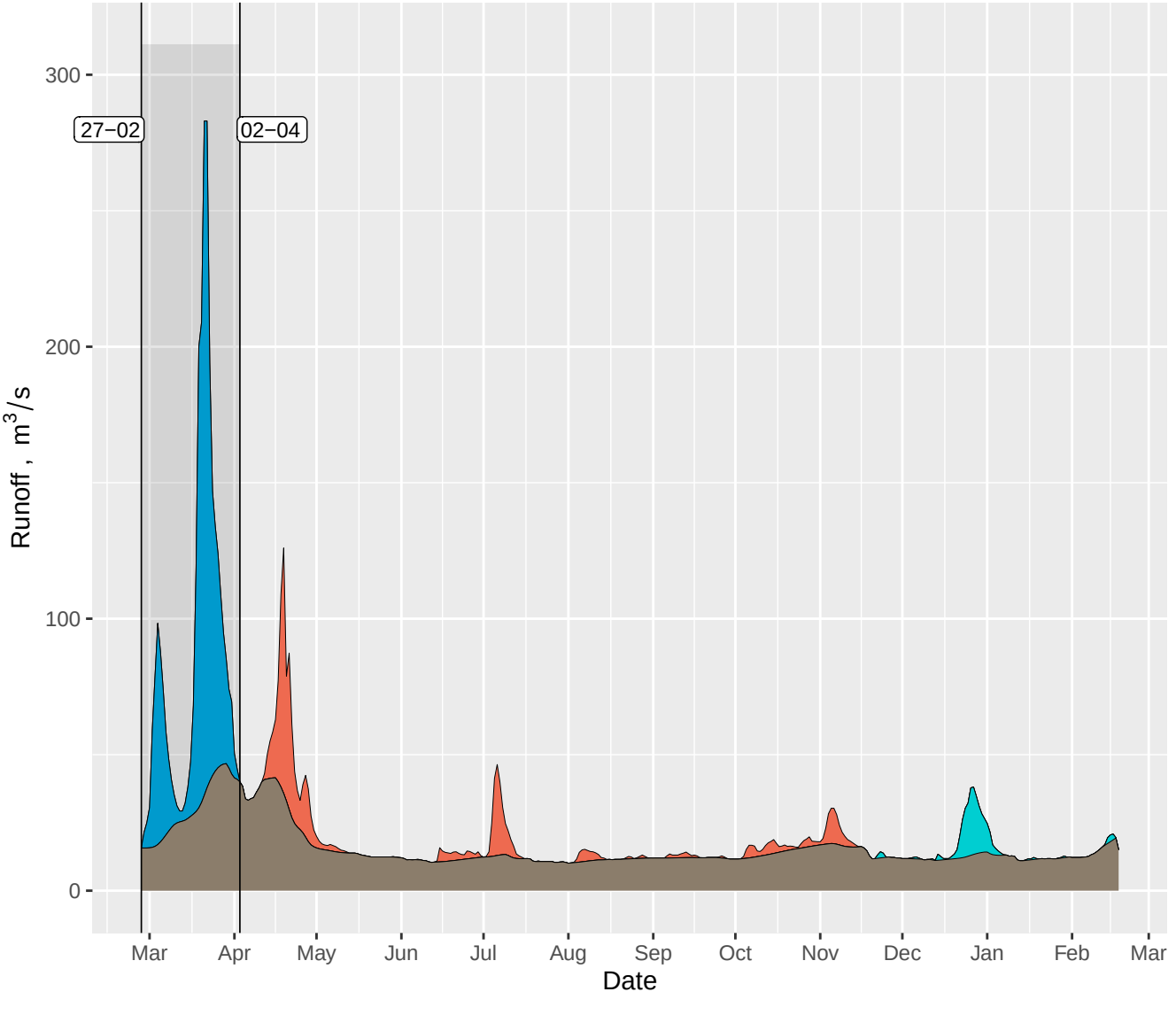



1978
1978−03−17 − 1979−03−24
17−03
28−04
250
200
150
100
50
0
Runoff , m3/s
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
Date
Flow:
Rain
Seasonal
Thaw
Ground


1978
1978−03−17 − 1979−03−24
300
200
100
0
17−03
28−04
Runoff , m3/s
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
Date
Flow:
Rain
Seasonal
Thaw
Ground

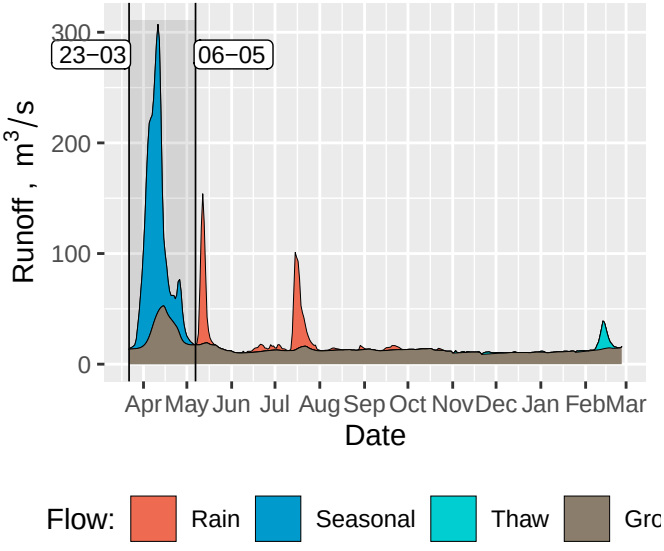
1989

1989−02−27 − 1990−02−18



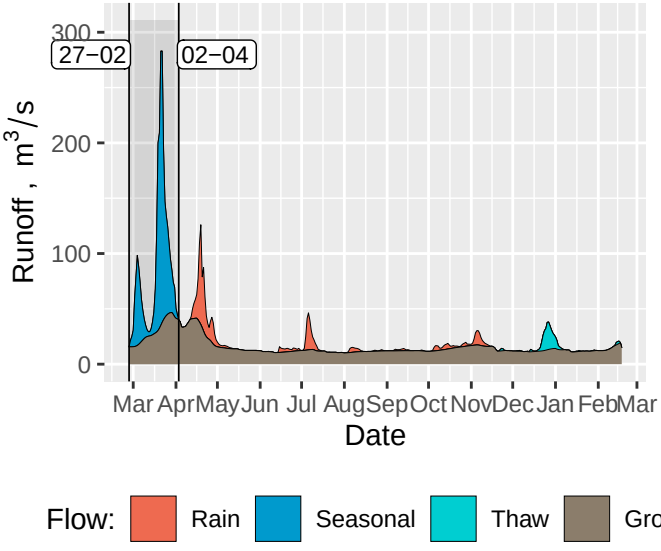
1988

1988−03−23 − 1989−02−26



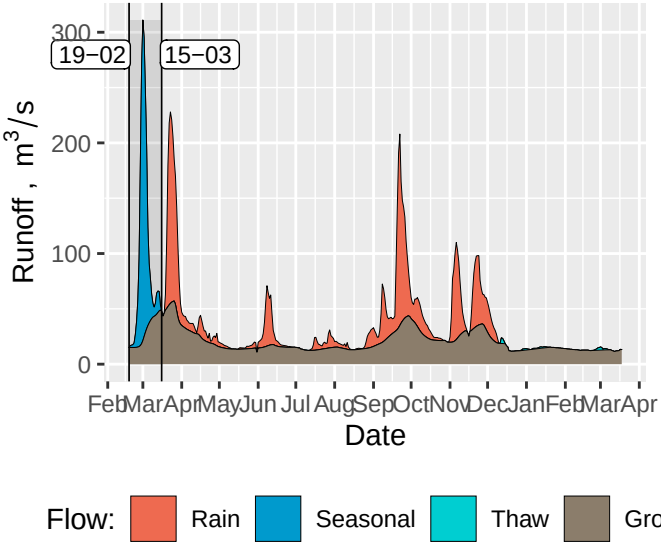
1989

1989−02−27 − 1990−02−18



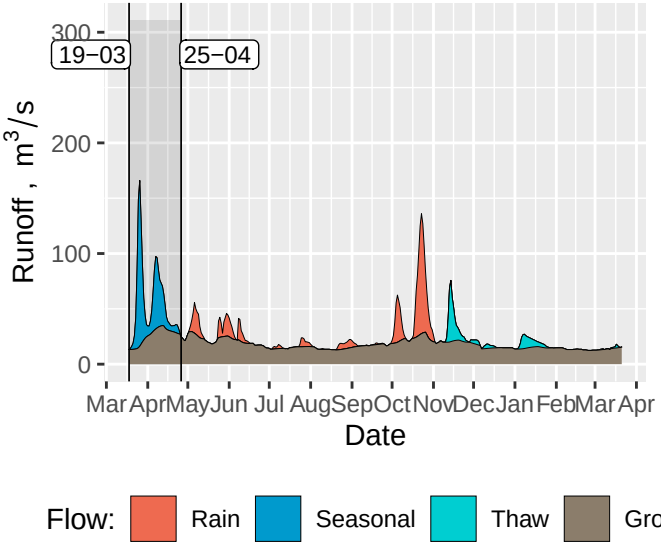
1990

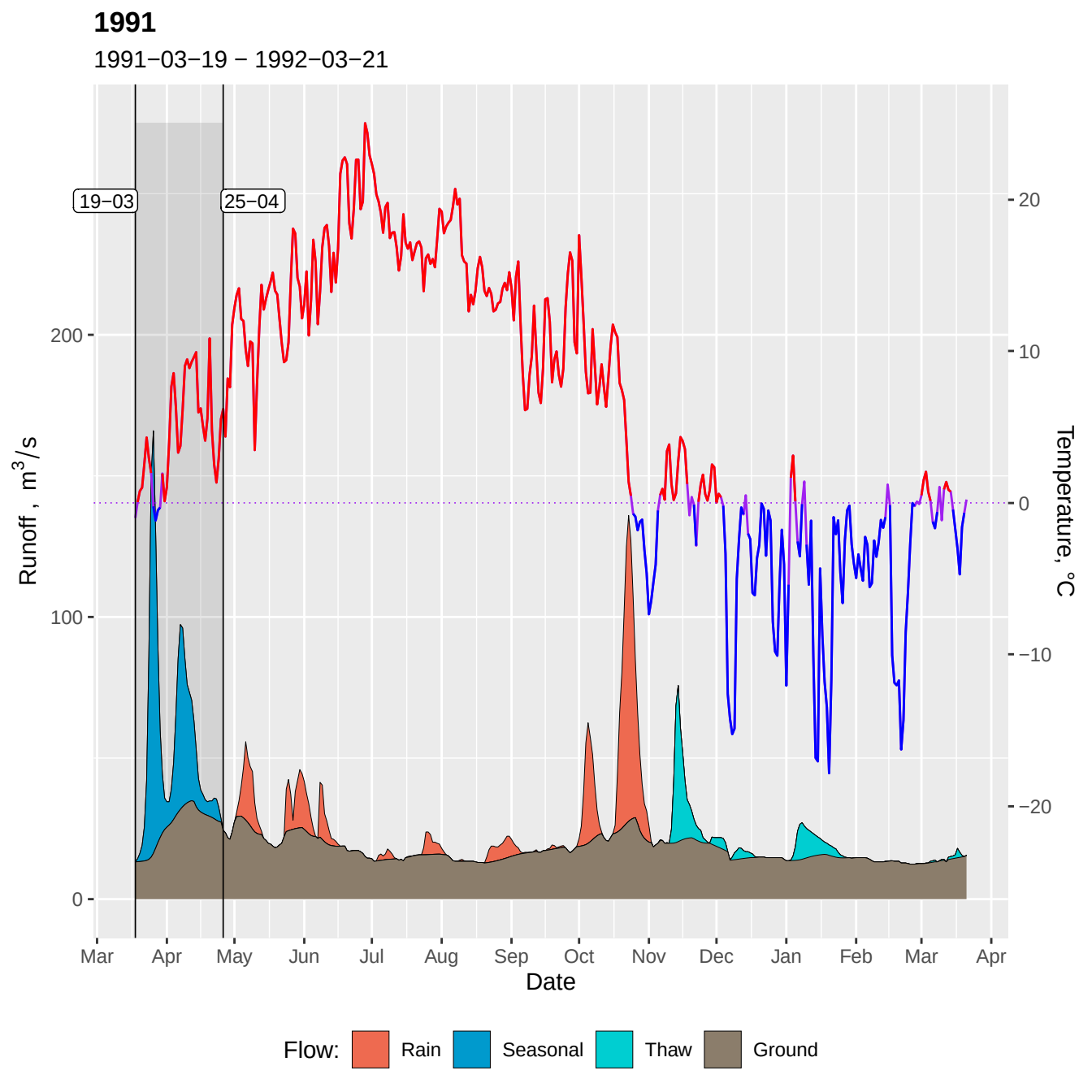
1990−02−19 − 1991−03−18

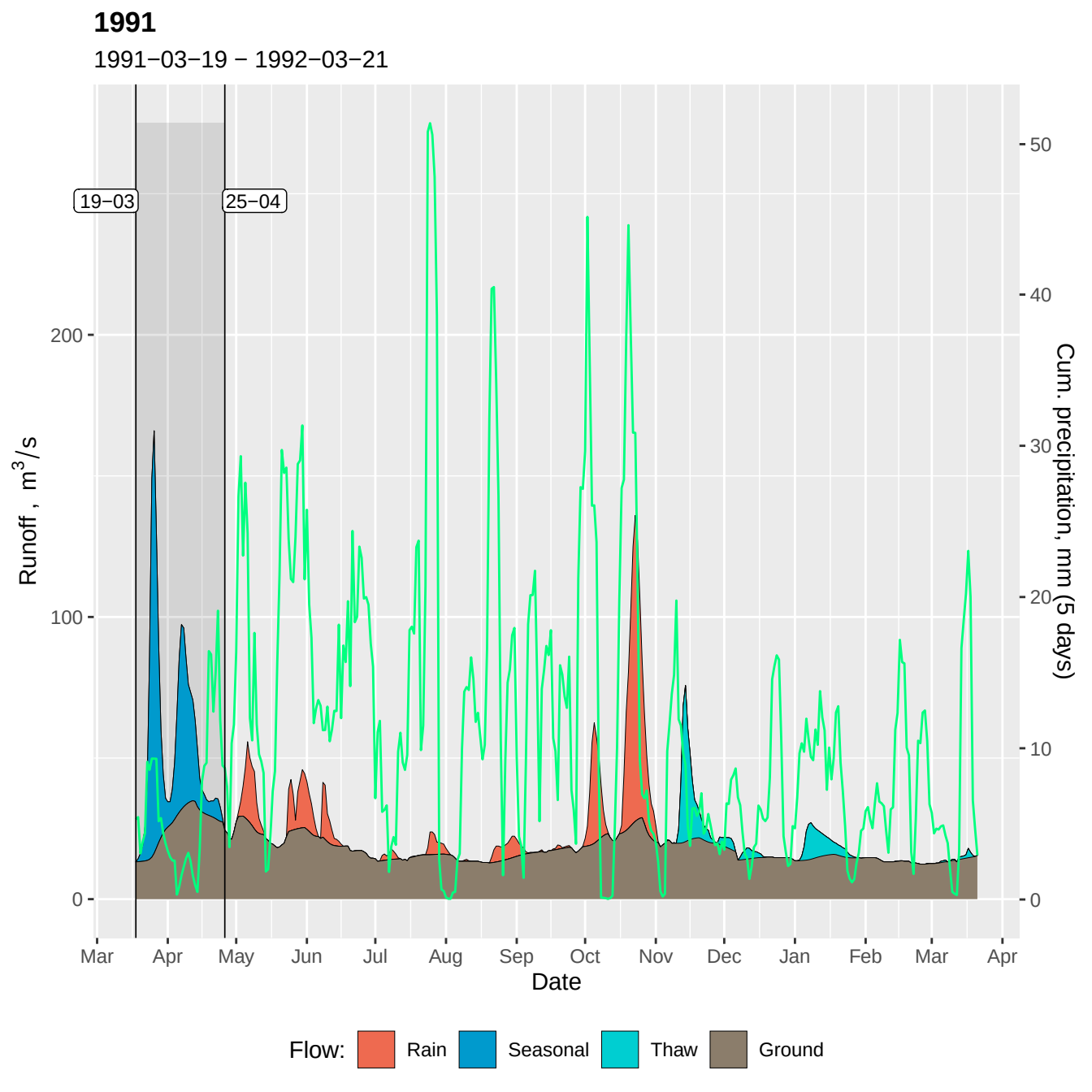


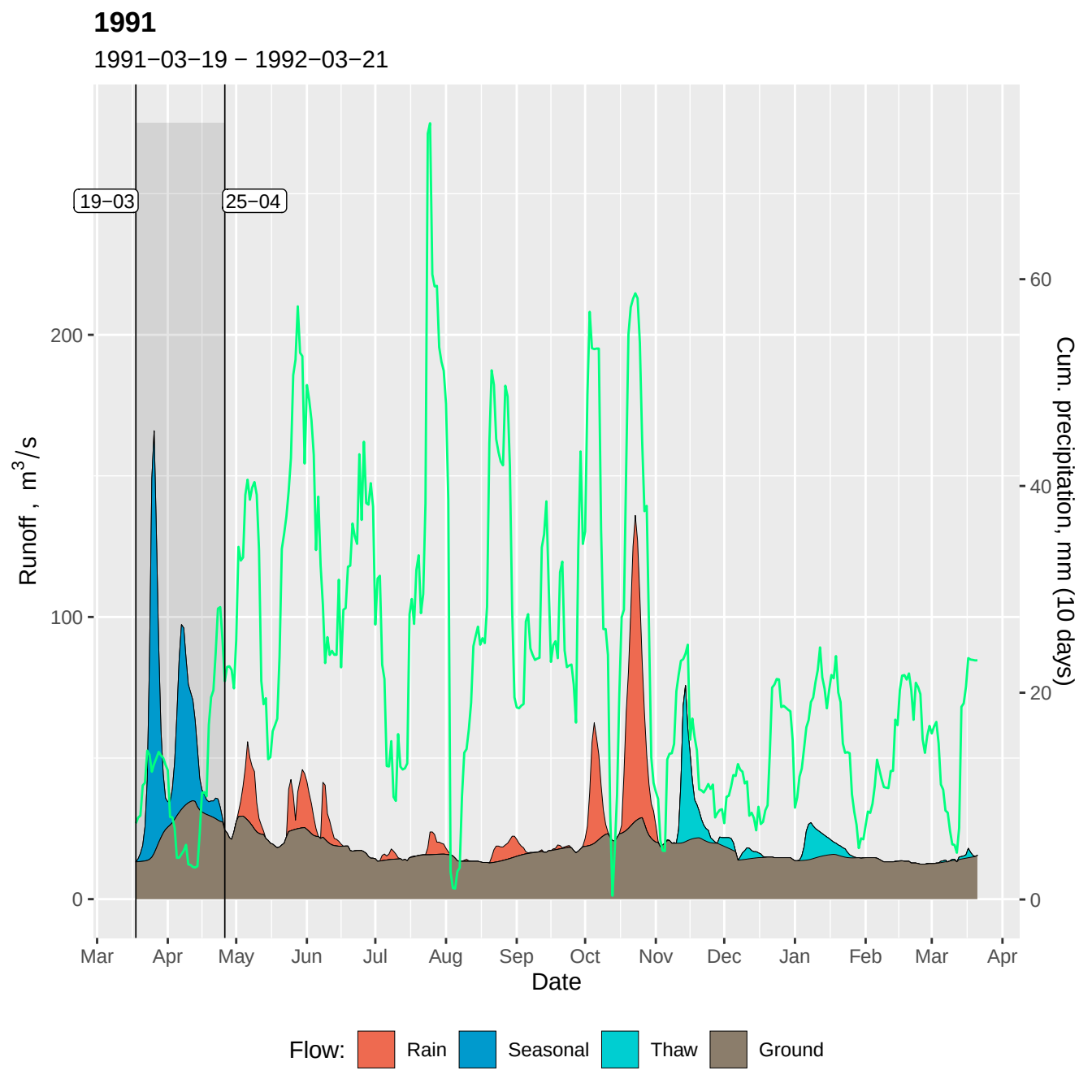
1991

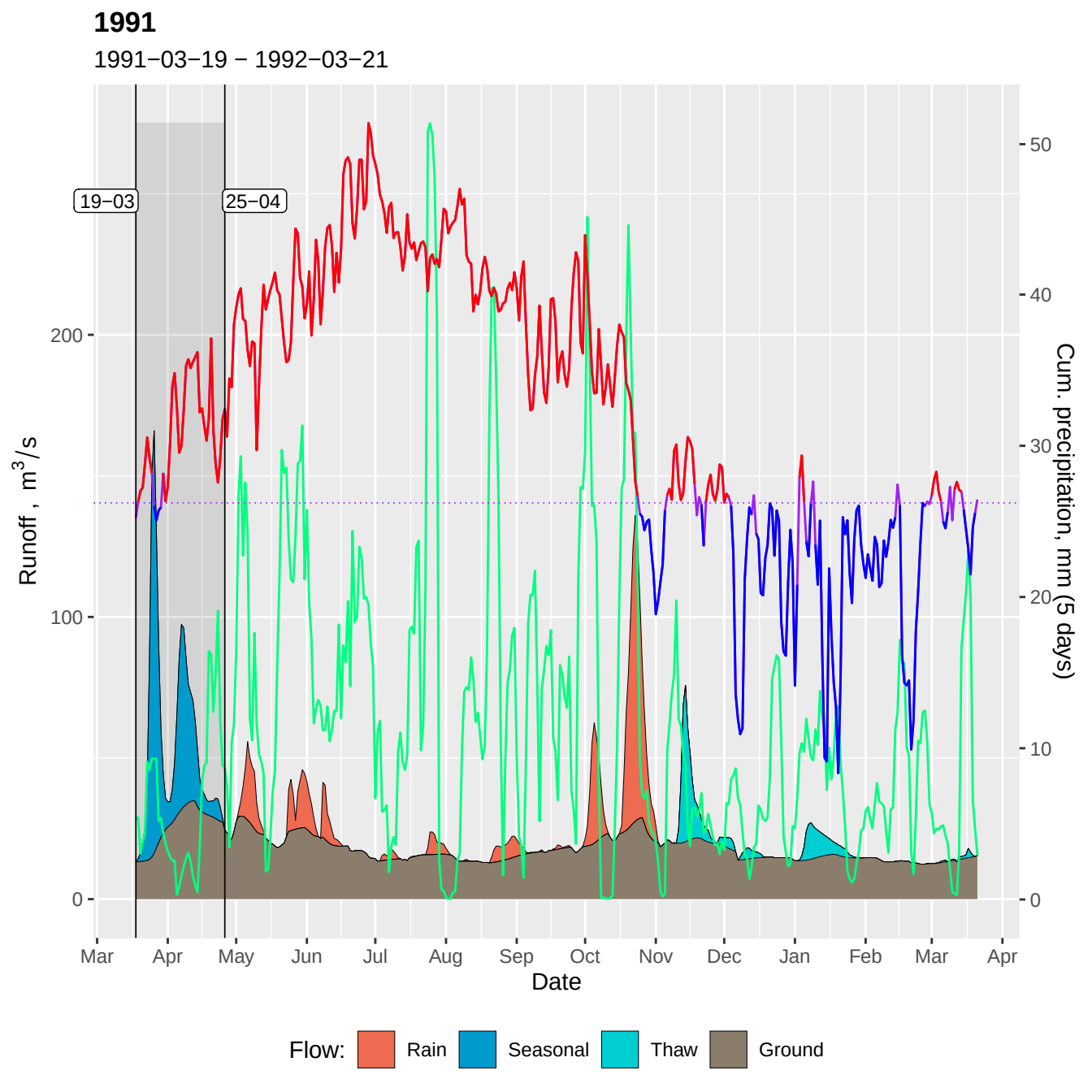
1991−03−19 − 1992−03−21

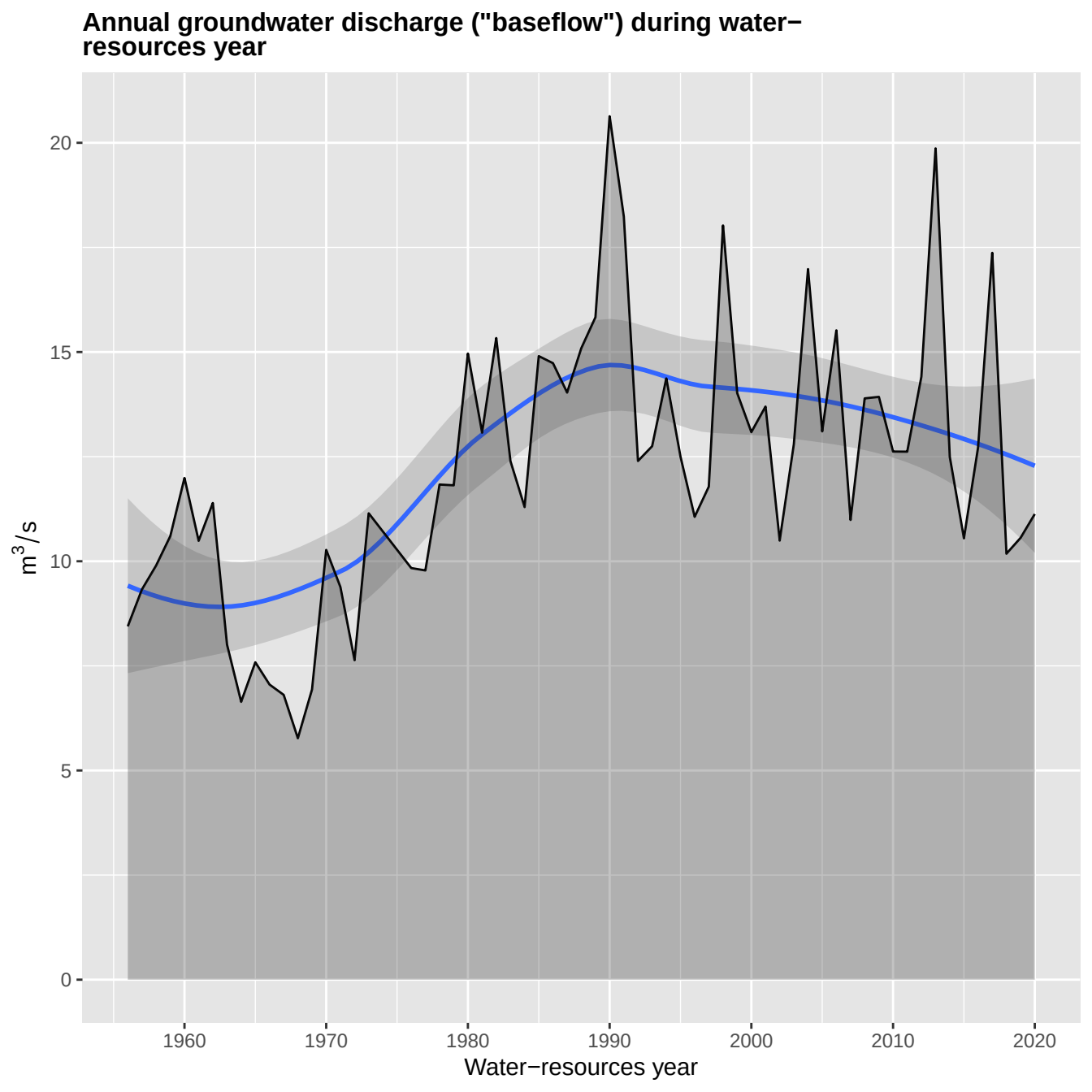


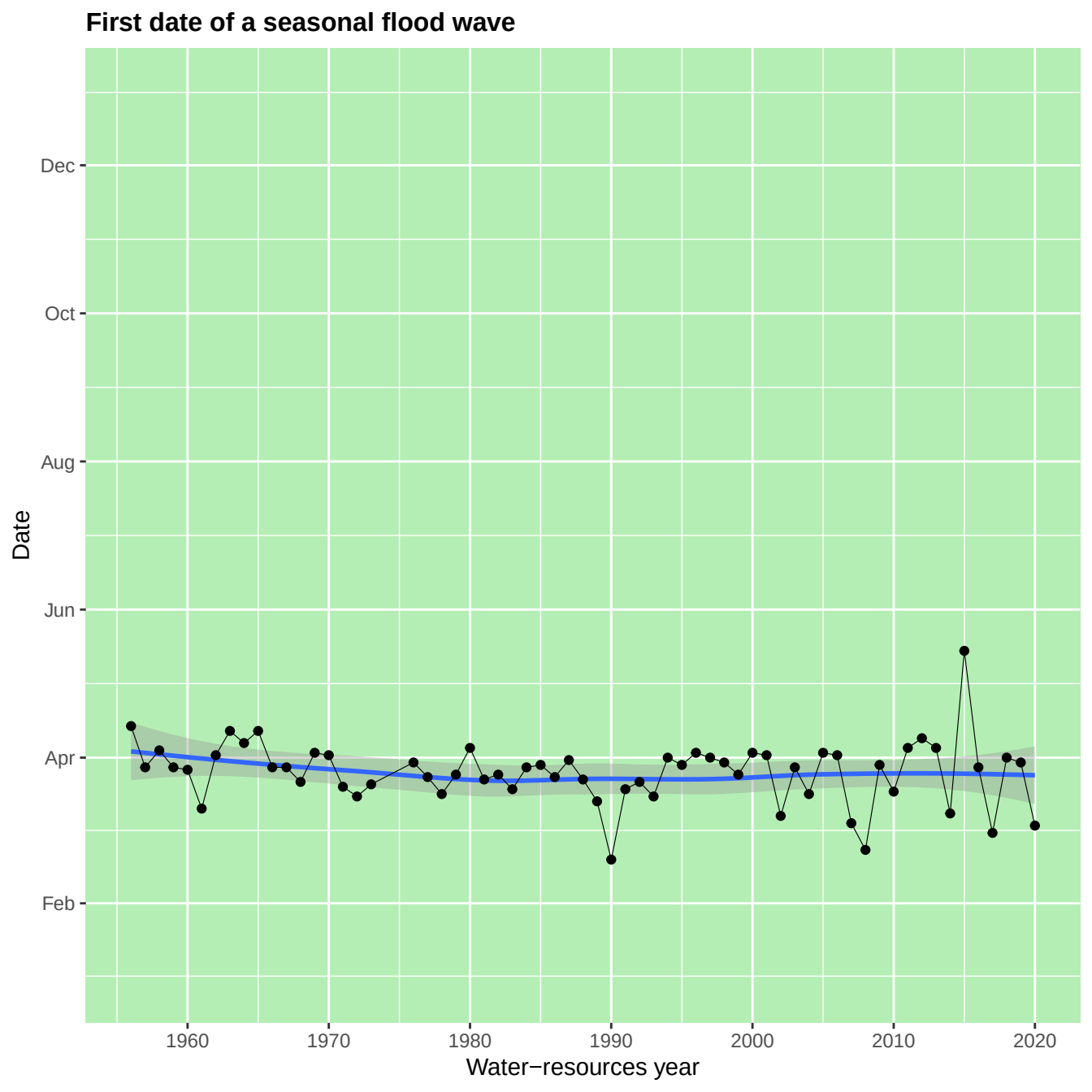

1991
1991−03−19 − 1992−03−21
19−03
25−04
200
100
0
20
10
0
−10
−20
Runoff , m3/s
Temperature, °C
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
Date
Flow:
Rain
Seasonal
Thaw
Ground

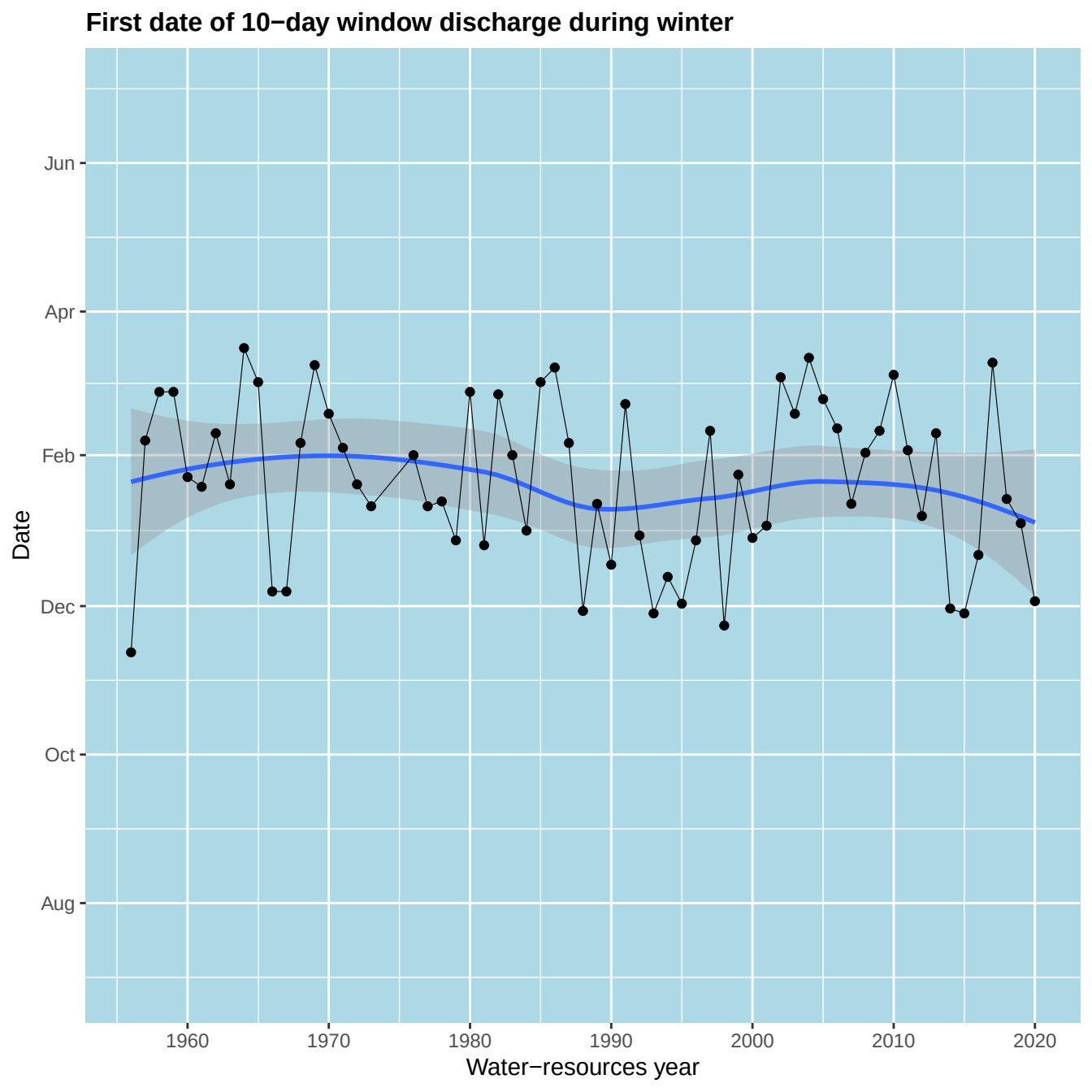

1991
1991−03−19 − 1992−03−21
19−03
25−04
Runoff , m3/s
Cum. precipitation, mm (5 days)
0
100
200
0
10
20
30
40
50
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
Date
Flow:
Rain
Seasonal
Thaw
Ground

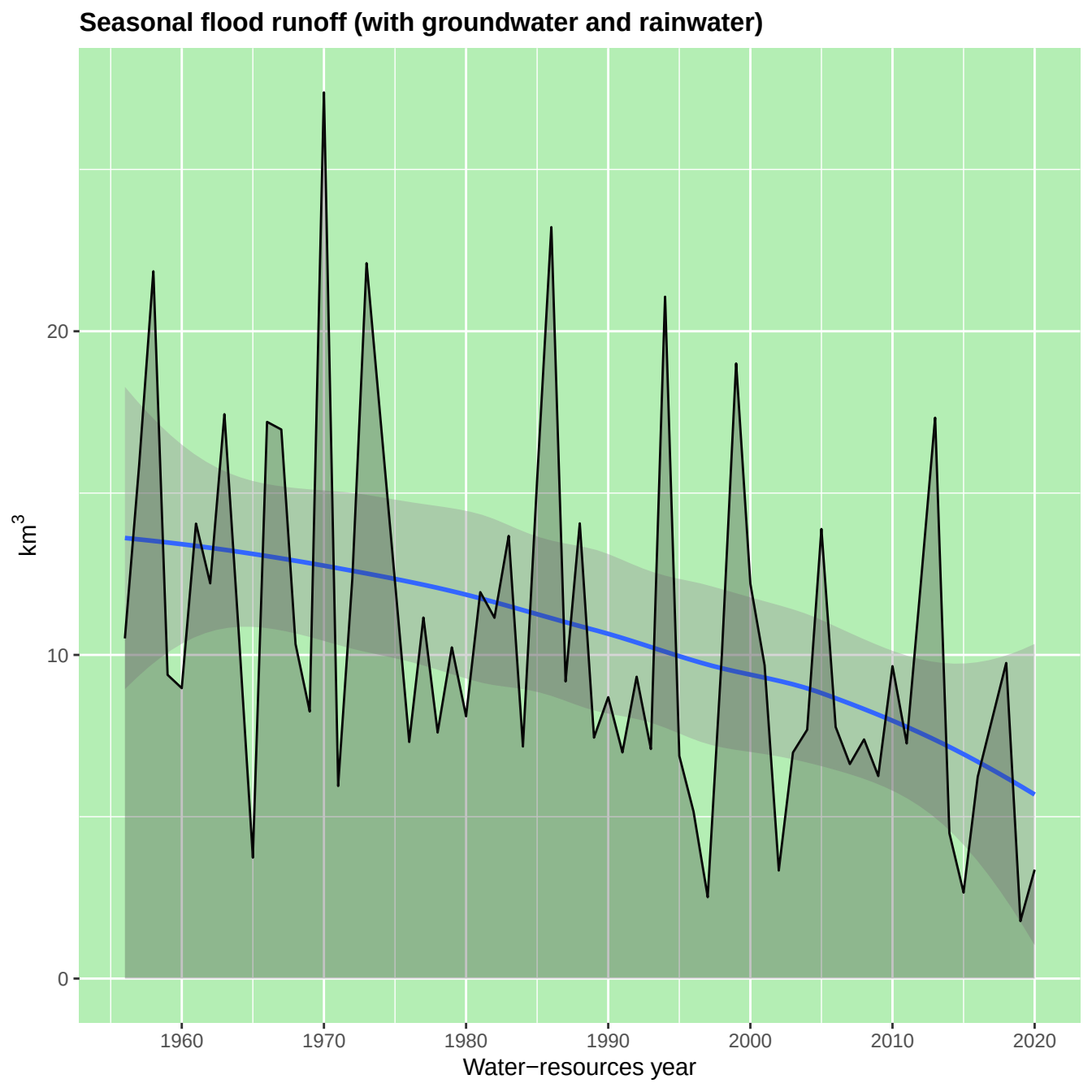

1991
1991−03−19 − 1992−03−21
19−03
25−04
Runoff , m3/s
0
100
200
Cum. precipitation, mm (10 days)
0
20
40
60
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
Date
Flow:
Rain
Seasonal
Thaw
Ground

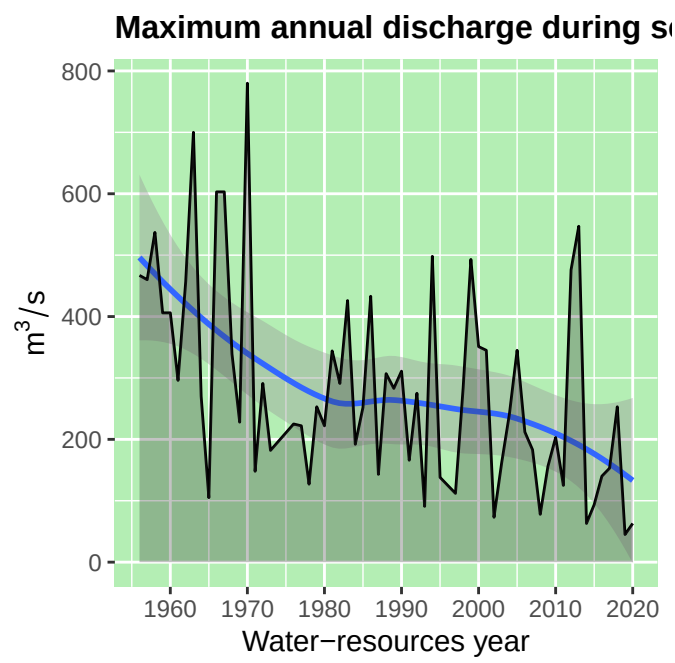

1991
1991−03−19 − 1992−03−21
19−03
25−04
Runoff , m3/s
Cum. precipitation, mm (5 days)
0
100
200
0
10
20
30
40
50
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
Date
Flow:
Rain
Seasonal
Thaw
Ground

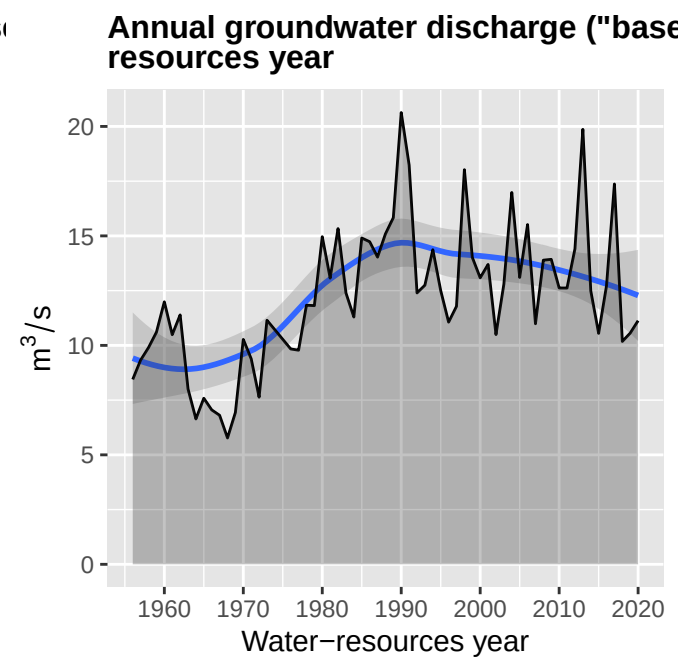

Annual groundwater discharge ("baseflow") during water−resources year
20
15
10
5
0
m3/s
1960
1970
1980
1990
2000
2010
2020
Water−resources year

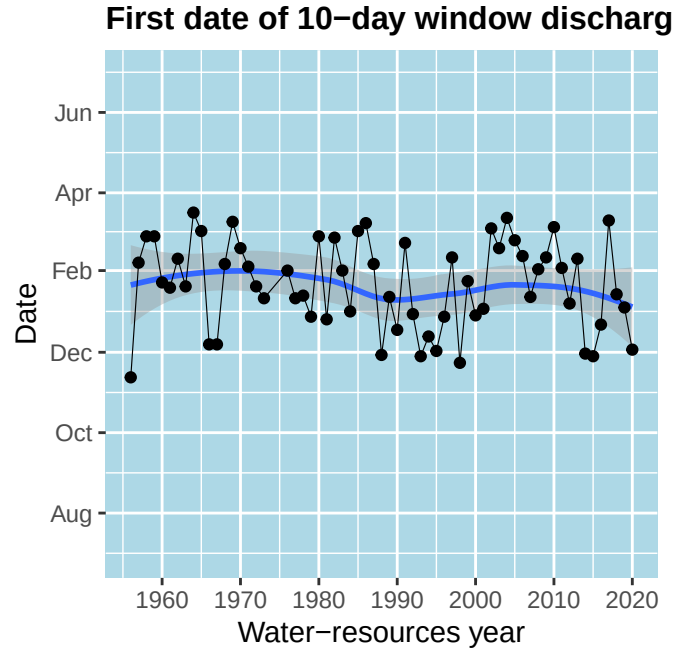

First date of a seasonal flood wave
Dec
Oct
Aug
Jun
Apr
Feb
Date
1960
1970
1980
1990
2000
2010
2020
Water−resources year

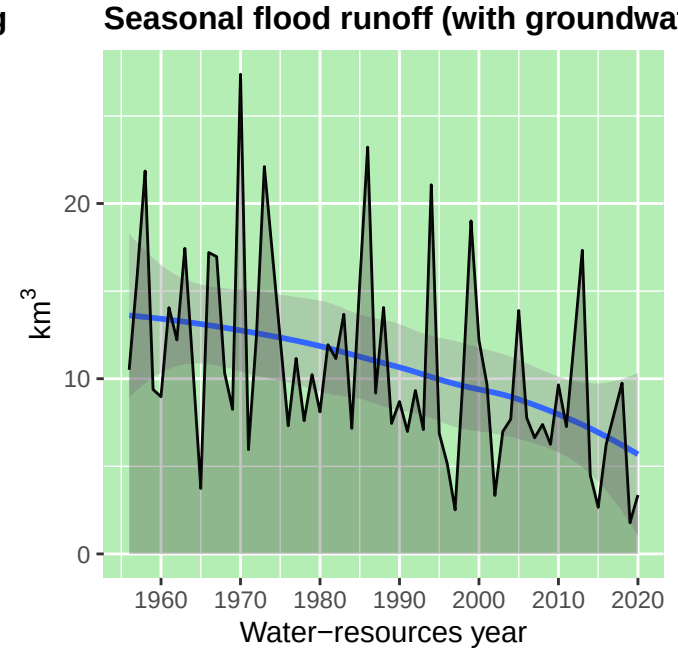

First date of 10−day window discharge during winter
Jun
Apr
Feb
Dec
Oct
Aug
Date
1960
1970
1980
1990
2000
2010
2020
Water−resources year

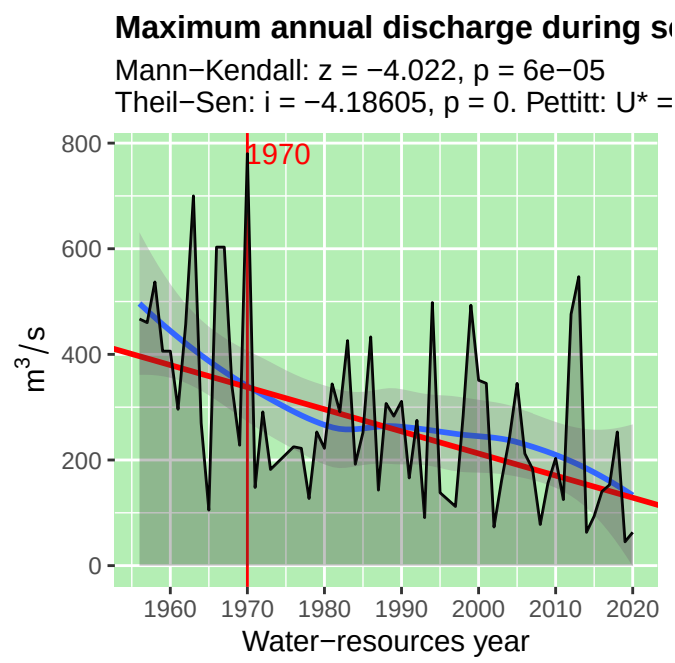

Seasonal flood runoff (with groundwater and rainwater)
km3
20
10
0
1960
1970
1980
1990
2000
2010
2020
Water−resources year

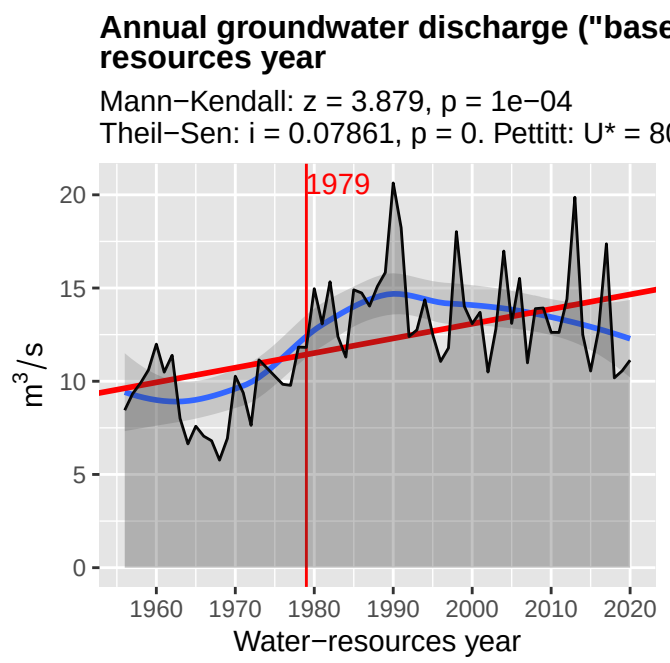

Maximum annual discharge during s
800
600
400
200
0
m3/s
1960
1970
1980
1990
2000
2010
2020
Water−resources year

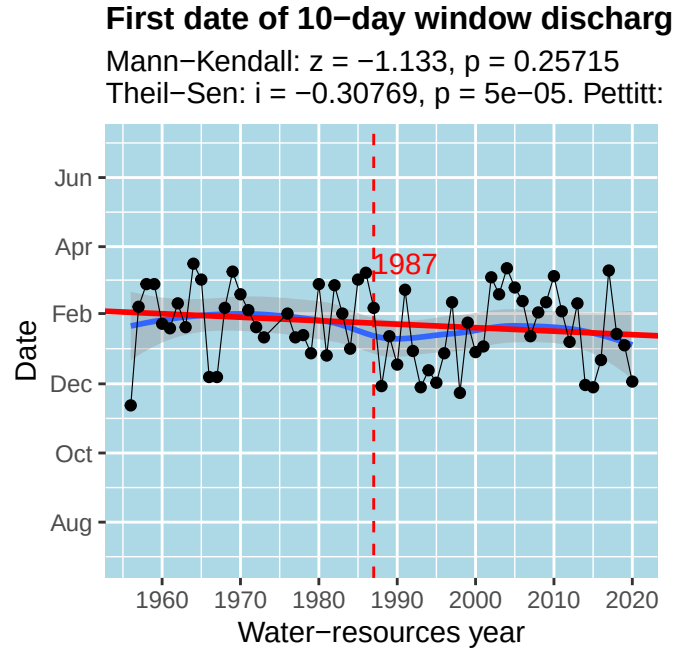

Annual groundwater discharge ("base
resources year
20
15
10
5
0
m3/s
1960
1970
1980
1990
2000
2010
2020
Water−resources year

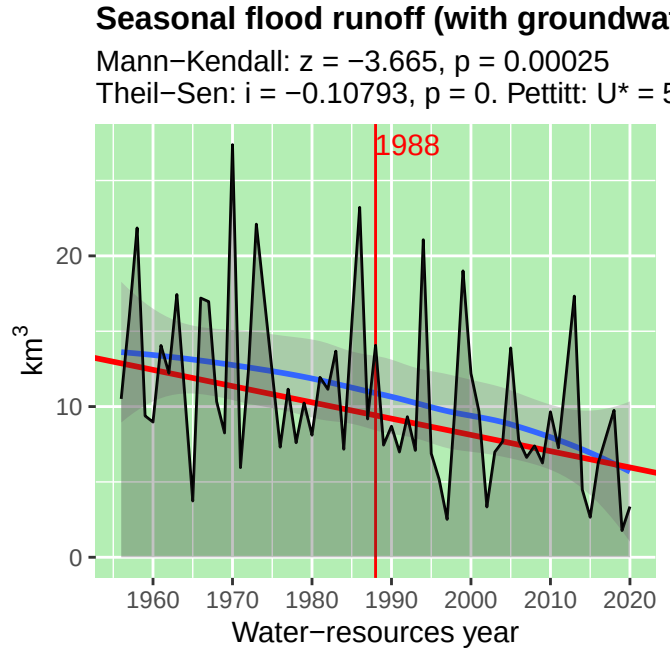

First date of 10−day window discharg
Jun
Apr
Feb
Dec
Oct
Aug
Date
1960
1970
1980
1990
2000
2010
2020
Water−resources year


Seasonal flood runoff (with groundwa
20
10
0
km3
1960
1970
1980
1990
2000
2010
2020
Water−resources year


Maximum annual discharge during s
Mann−Kendall: z = −4.022, p = 6e−05
Theil−Sen: i = −4.18605, p = 0. Pettitt: U* =
1970
800
600
400
200
0
m3/s
1960
1970
1980
1990
2000
2010
2020
Water−resources year

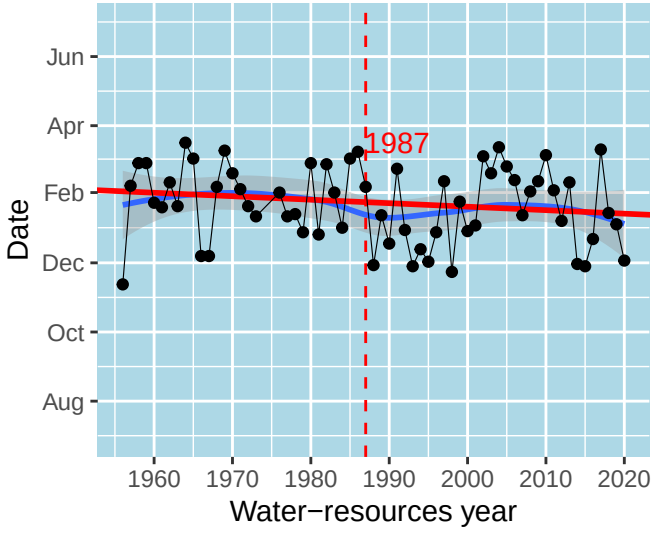

Annual groundwater discharge ("base
resources year
Mann−Kendall: z = 3.879, p = 1e−04
Theil−Sen: i = 0.07861, p = 0. Pettitt: U* = 8
1979
20
15
10
5
0
m3/s
1960
1970
1980
1990
2000
2010
2020
Water−resources year


First date of 10−day window discharg
Mann−Kendall: z = −1.133, p = 0.25715
Theil−Sen: i = −0.30769, p = 5e−05. Pettitt:
1987
Jun
Apr
Feb
Dec
Oct
Aug
Date
1960
1970
1980
1990
2000
2010
2020
Water−resources year


Seasonal flood runoff (with groundwa
Mann−Kendall: z = −3.665, p = 0.00025
Theil−Sen: i = −0.10793, p = 0. Pettitt: U* = 5
1988
20
10
0
km3
1960
1970
1980
1990
2000
2010
2020
Water−resources year

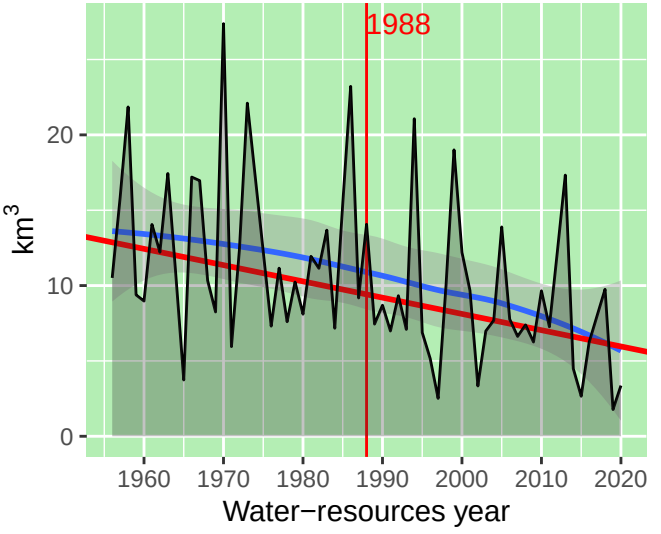
First date of 10−day window discharg

Mann−Kendall: z = −1.133, p = 0.25715
Theil−Sen: i = −0.30769, p = 5e−05. Pettitt:



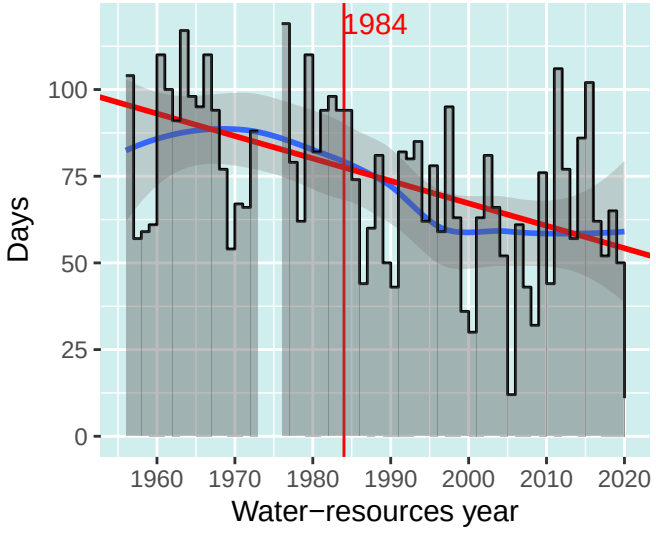
Seasonal flood runoff (with groundwa

Mann−Kendall: z = −3.665, p = 0.00025
Theil−Sen: i = −0.10793, p = 0. Pettitt: U* = 5



Number of days with thaw−flood ever

Mann−Kendall: z = −3.671, p = 0.00024
Theil−Sen: i = −0.64706, p = 0. Pettitt: U* =



Maximum rain−flood discharge

Mann−Kendall: z = 0.338, p = 0.7353
Theil−Sen: i = 0.04194, p = 0.2643. Pettitt: