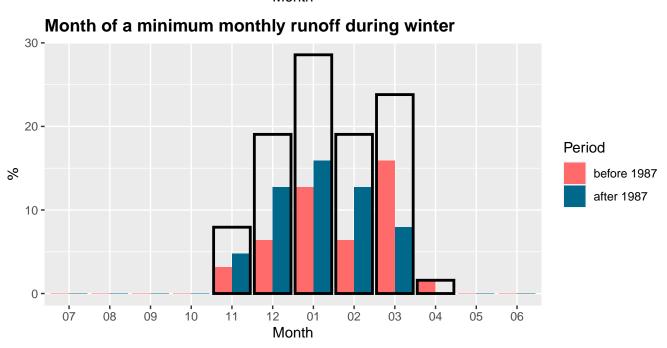
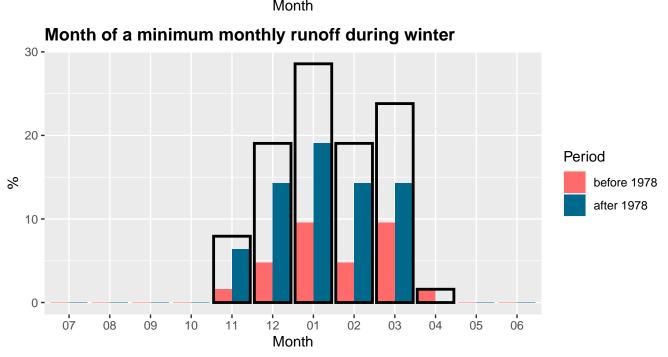
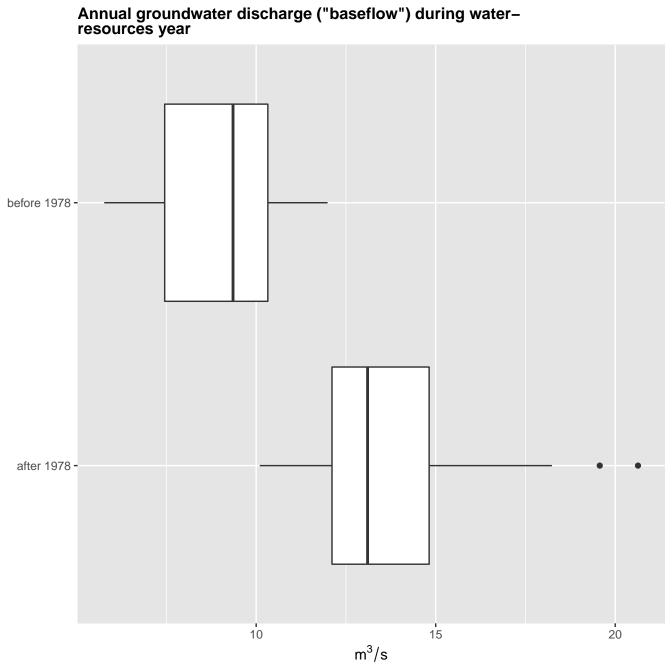
### Month of a minimum monthly runoff during summer 30 -Period × 20 before 2000 after 2000 10 -0 -02 04 05 07 08 09 10 01 03 06 11 Month Month of a minimum monthly runoff during winter 30 -



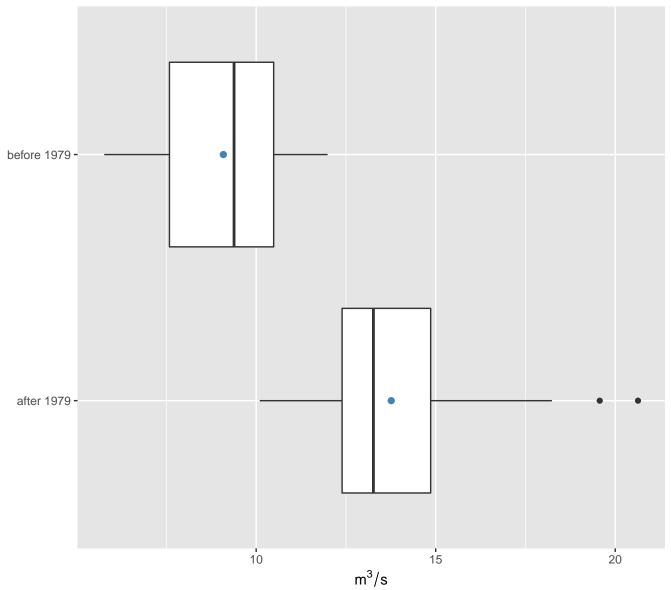
#### Month of a minimum monthly runoff during summer 30 -Period × 20 before 1978 after 1978 10 -0 -02 04 05 06 07 08 09 10 01 03 11 Month Month of a minimum monthly runoff during winter 30 -





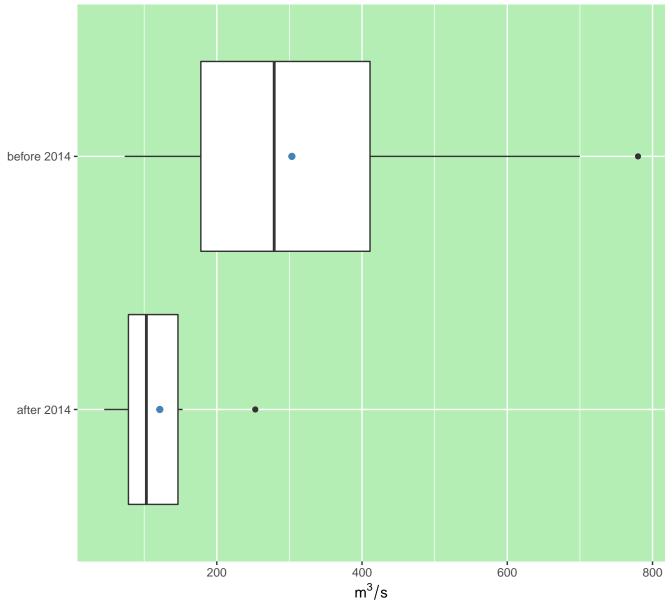
## Annual groundwater discharge ("baseflow") during water-resources year

Student: t = -8.345, p = 0, m1 = 9.086, m2 = 13.762Fisher: F = 0.564, p = 0.16994, cv1 = 0.206, cv2 = 0.181



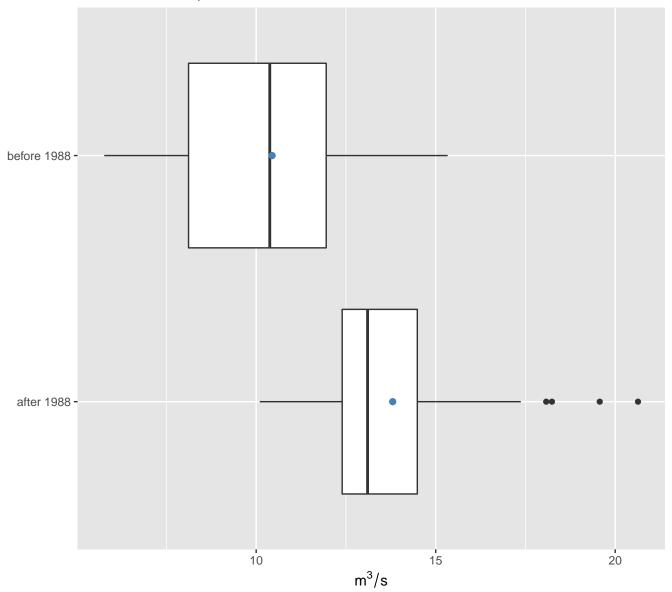
### Maximum annual discharge during seasonal flood wave

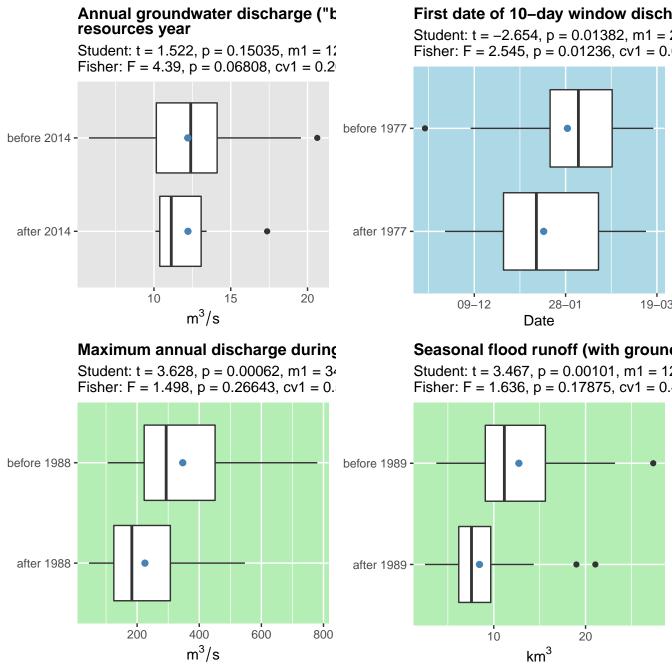
Student: t = 1.522, p = 0.15035, m1 = 303.355, m2 = 121.514 Fisher: F = 4.39, p = 0.06808, cv1 = 0.539, cv2 = 0.572

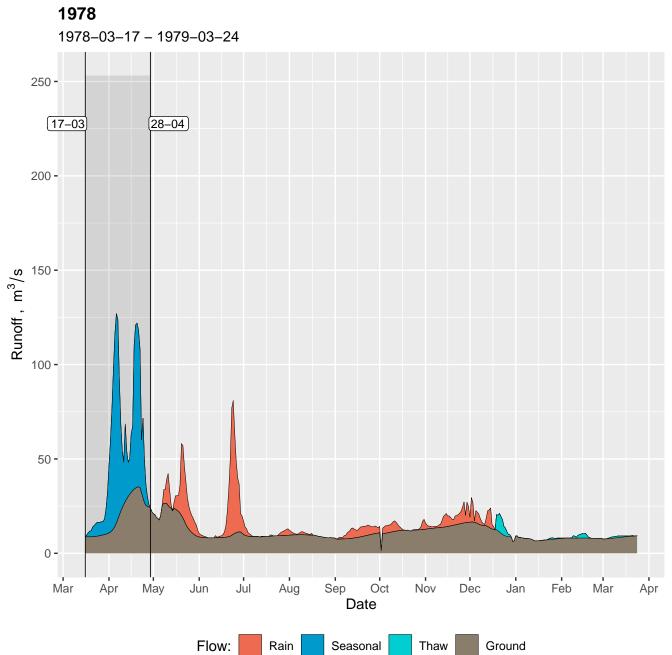


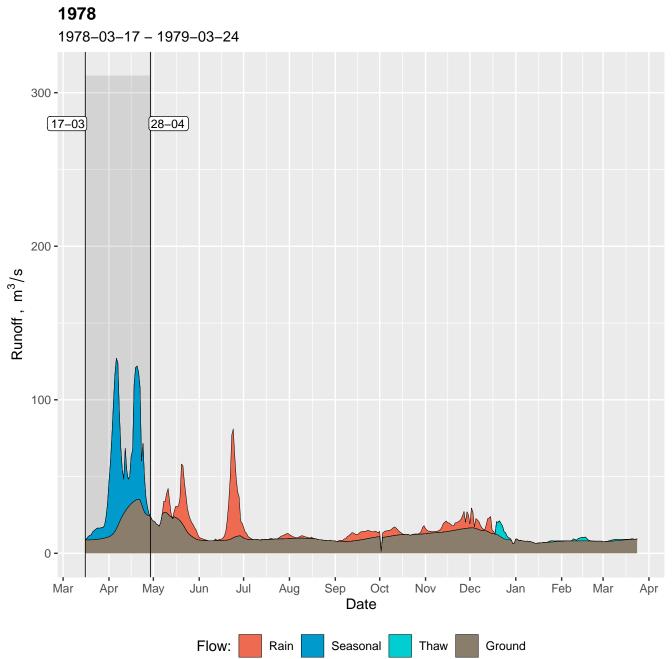
# Annual groundwater discharge ("baseflow") during water-resources year

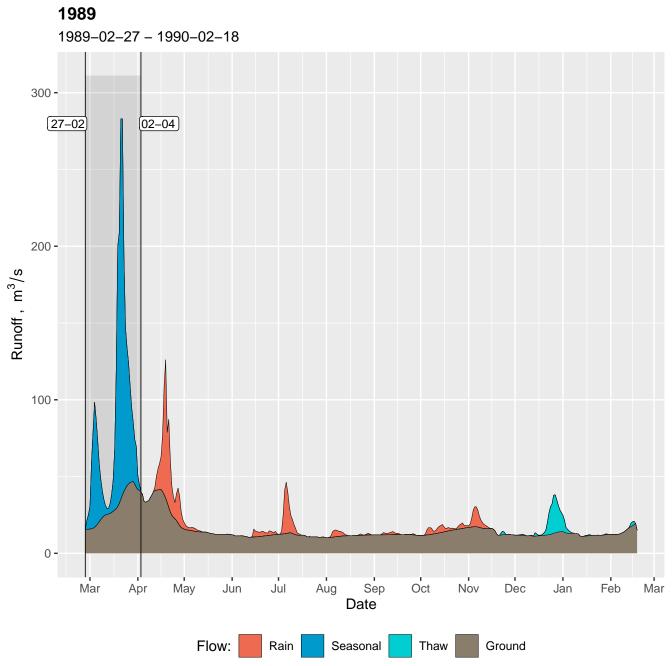
Student: t = 3.628, p = 0.00062, m1 = 10.445, m2 = 13.803 Fisher: F = 1.498, p = 0.26643, cv1 = 0.262, cv2 = 0.197

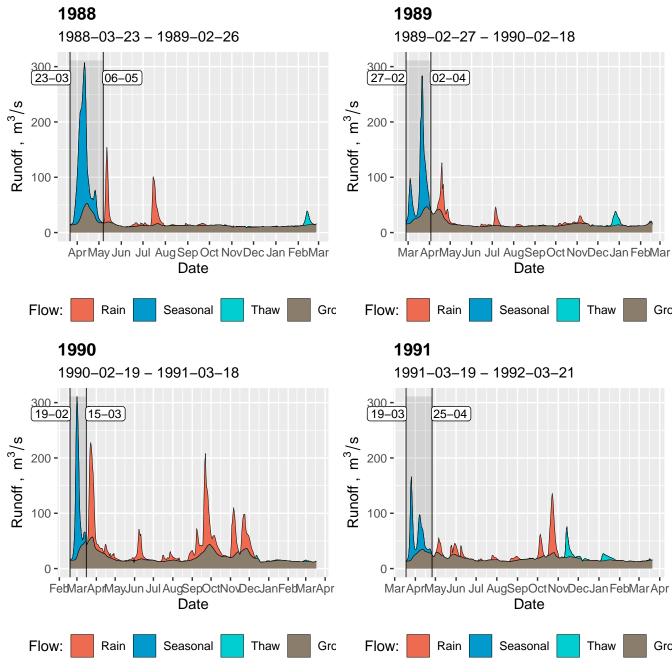












1991 1991-03-19 - 1992-03-21 19-03 25–04 **-** 20 200 -**-**10 Temperature, °C Runoff, m<sup>3</sup>/s 100 --10 <del>-</del> –20 0 -. Mar Apr May Jul Oct Sep Feb Mar Aug Nov Jun Dec Jan Apr Date

Seasonal

Ground

Thaw

Flow:

1991 1991-03-19 - 1992-03-21 - 50 19-03 25–04 **-** 40 200 **-**Cum. precipitation, mm (5 days) Runoff, m<sup>3</sup>/s 100 -**-**10 0 -Oct Date Apr Mar Jul Sep Feb May Nov Dec Jan Mar Aug Jun Apr

Seasonal

Ground

Thaw

Flow:

1991 1991-03-19 - 1992-03-21 19-03 25–04 **-** 60 200 -Cum. precipitation, mm (10 days) Runoff, m<sup>3</sup>/s 100 -0 -Oct Date Apr Mar Jul May Sep Nov Dec Jan Feb Mar Aug Jun Apr

Seasonal

Ground

Thaw

Flow:

1991 1991-03-19 - 1992-03-21 - 50 19–03 25-04 **-** 40 200 **-**Cum. precipitation, mm (5 days) Runoff,  $\mathrm{m}^3/\mathrm{s}$ 100 -**-** 10 0 -Apr Mar May Jul Feb Sep Oct Nov Dec Jan Mar Jun Aug Apr Date

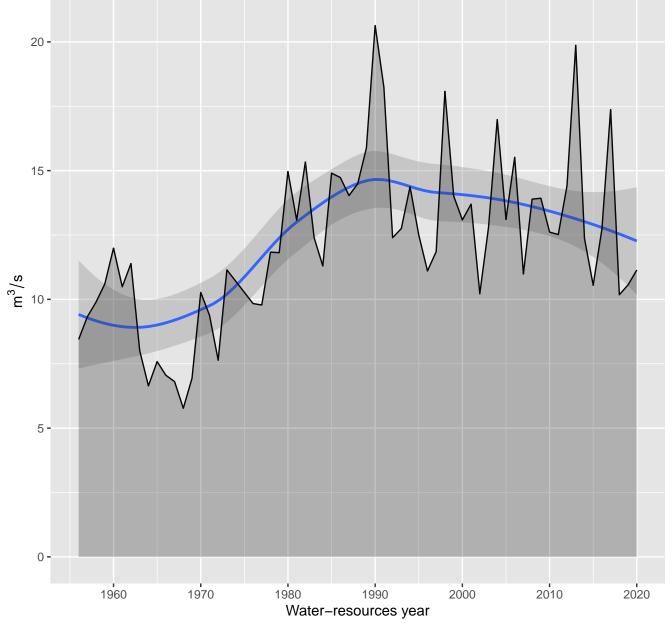
Seasonal

Ground

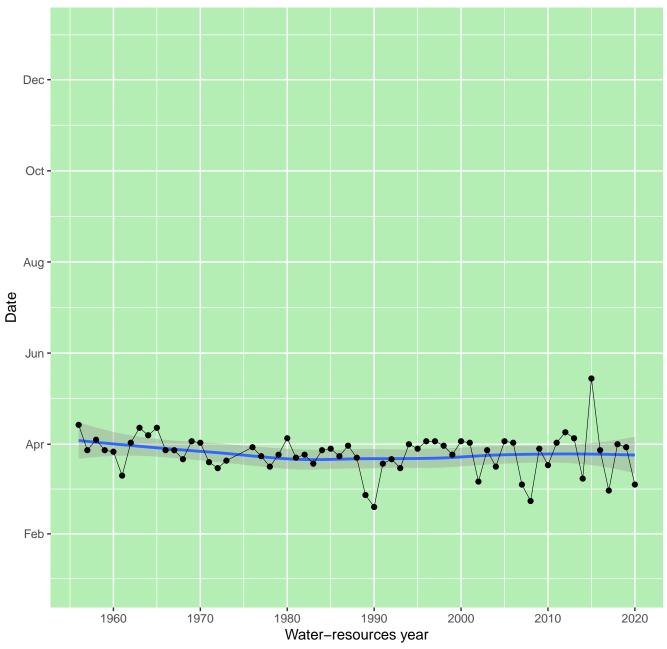
Thaw

Flow:

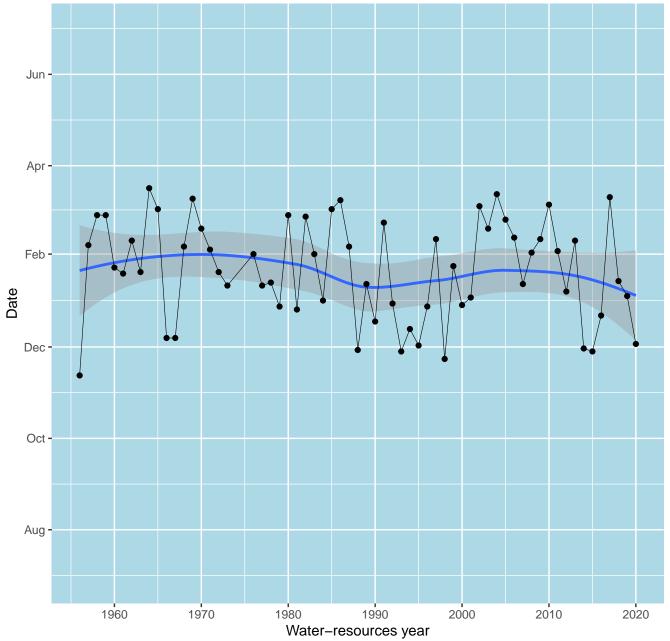
Annual groundwater discharge ("baseflow") during waterresources year



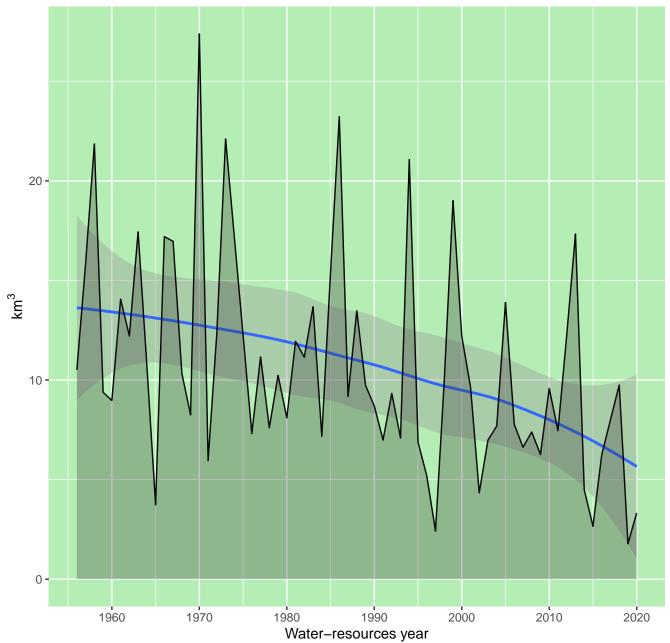
First date of a seasonal flood wave

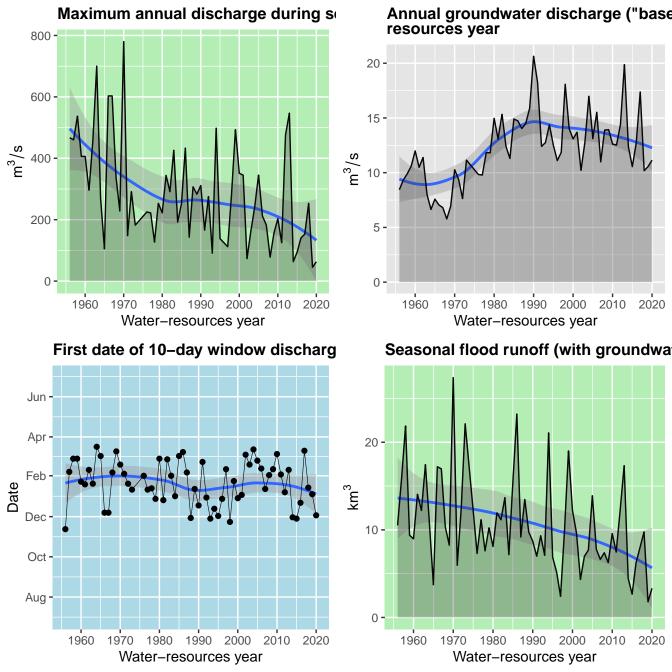


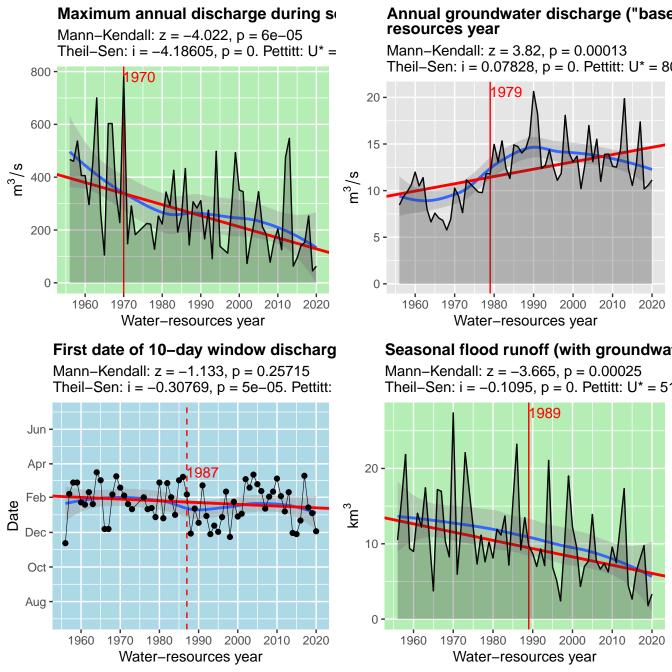
First date of 10-day window discharge during winter



Seasonal flood runoff (with groundwater and rainwater)







First date of 10-day window discharg Seasonal flood runoff (with groundwa Mann-Kendall: z = -1.133, p = 0.25715Mann-Kendall: z = -3.665, p = 0.00025Theil-Sen: i = -0.30769, p = 5e-05. Pettitt: Theil-Sen: i = -0.1095, p = 0. Pettitt:  $U^* = 5^\circ$ 1989 Jun Apr-20  $km^3$ Dec Oct -Aug 1970 1980 1960 1970 1980 1990 2000 2010 1960 1990 2000 2010 Water-resources year Water-resources year Number of days with thaw-flood ever Maximum rain-flood discharge Mann-Kendall: z = -3.488, p = 0.00049Mann-Kendall: z = 0.338, p = 0.7353Theil-Sen: i = -0.64516, p = 0. Pettitt: U\* = Theil-Sen: i = 0.04194, p = 0.26627. Pettitt 150 -1984 250 1972 200 -150 -Days °E 100 -50 -0 -1960 1970 1980 1990 2000 2010 2020 1960 2000 2010 1980 1990 Water-resources year Water-resources year