Annual Peak-Flow Frequency Analysis
For more information on the contents of this documentation, see Kessler and others (2013).

Streamgage number and name:

05384500 Rush Creek near Rushford, Minn.

Peak-flow information:

Number of systematic peak flows in record	70
Systematic period begins	1942
Systematic period ends	2011
Length of systematic record	70
Years without information	0
Number of historical peak flows in record	0

Frequency analysis options:

Method	Expected moments algorithm (EMA)
Skew option	Weighted
Generalized skew	-0.21
Standard error of generalized skew	0.4266
Low-outlier method	Multiple Grubbs-Beck test

EMA systematic record analysis results:

Moments of the common logarithms of the peak flows:

Mean	Standard deviation	Skewness
3.2216	0.4902	-0.079

Low-outlier information:

Number of low outliers	2
Low-outlier threshold	270

Final analysis results:

Moments of the common logarithms of the peak flows:

Mean	Standard deviation	Skewness
3.2209	0.4917	-0.131

Annual frequency curve at selected exceedance probabilities:

[WIE, Weighted independent estimate; ––, not computed]

Exceedance probability	Peak estimate	Lower-95 level	Upper 95 level	WIE estimate	Lower-95 WIE level	Upper 95 WIE level
0.9950	78.4	14.2	151	––	––	––
0.9900	107.0	25.1	189	––	––	––
0.9500	248.0	106.0	366	––	––	––
0.9000	384.0	209.0	537	––	––	––
0.8000	646.0	430.0	872	––	––	––
0.6667	1,040.0	758.0	1,390	––	––	––
0.5000	1,700.0	1,280.0	2,260	1,780	1,370	2,310
0.4292	2,080.0	1,570.0	2,780	––	––	––
0.2000	4,340.0	3,240.0	6,040	4,440	3,420	5,760
0.1000	6,980.0	5,090.0	10,500	6,920	5,240	9,150
0.0400	11,500.0	7,960.0	20,100	10,700	7,810	14,700
0.0200	15,700.0	10,400.0	31,900	13,900	9,760	19,700
0.0100	20,800.0	13,000.0	49,400	17,500	11,700	26,100
0.0050	26,700.0	15,600.0	74,800	––	––	––
0.0020	36,200.0	19,300.0	127,000	27,400	16,300	45,900

Peak-flow data used in the analysis:

Explanation of symbols and codes

<	Less than
−−	none
∗	Less than low-outlier threshold

Water year	Peak flow	Peak-flow code	Water year	Peak flow	Peak-flow code
1942	11,000	−−	1977	1,300	−−
1943	3,600	−−	1978	7,930	−−
1944	1,660	−−	1979	1,500	−−
1945	4,000	−−	1980	3,930	−−
1946	7,130	−−	1981	800	−−
1947	2,590	−−	1982	600	−−
1948	2,000	−−	1983	700	−−
1949	3,640	−−	1984	900	−−
1950	11,600	−−	1985	1,770	−−
1951	6,580	−−	1986	1,320	−−
1952	6,740	−−	1987	390	−−
1953	3,750	−−	1988	75	∗
1954	920	−−	1989	1,950	−−
1955	1,180	−−	1990	1,130	−−
1956	1,380	−−	1991	3,480	−−
1957	1,980	−−	1992	270	−−
1958	420	−−	1993	2,500	−−
1959	2,000	−−	1994	600	−−
1960	3,460	−−	1995	2,580	−−
1961	4,920	−−	1996	2,550	−−
1962	4,550	−−	1997	365	−−
1963	1,530	−−	1998	2,930	−−
1964	53	∗	1999	510	−−
1965	5,490	−−	2000	1,120	−−
1966	7,490	−−	2001	<278	−−
1967	5,170	−−	2002	740	−−
1968	370	−−	2003	432	−−
1969	620	−−	2004	4,610	−−
1970	1,640	−−	2005	2,640	−−
1971	1,290	−−	2006	<818	−−
1972	2,300	−−	2007	38,400	−−
1973	2,030	−−	2008	<770	−−
1974	4,400	−−	2009	1,130	−−
1975	1,220	−−	2010	1,090	−−
1976	6,040	−−	2011	<772	−−