

Annual Peak-Flow Frequency Analysis

For more information on the contents of this documentation, see Kessler and others (2013).

Streamgauge number and name:

05355024 Cannon River at Northfield, Minn.

Peak-flow information:

Number of systematic peak flows in record	32
Systematic period begins	1980
Systematic period ends	2011
Length of systematic record	32
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	-0.18
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:

	Standard	
Mean	deviation	Skewness
3.6625	0.2112	0.195

Low-outlier information:

Number of low outliers	3
Low-outlier threshold	1,800

Final analysis results:

Moments of the common logarithms of the peak flows:

	Standard	
Mean	deviation	Skewness
3.6603	0.2159	-0.050

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	1,240	353	1,790	--	--	--
0.9900	1,410	473	1,940	--	--	--
0.9500	2,010	955	2,510	--	--	--
0.9000	2,410	1,310	2,930	--	--	--
0.8000	3,010	2,030	3,600	--	--	--
0.6667	3,700	2,900	4,430	--	--	--
0.5000	4,590	3,790	5,540	4,440	3,730	5,300
0.4292	5,020	4,170	6,090	--	--	--
0.2000	6,960	5,760	8,850	6,680	5,510	8,100
0.1000	8,620	7,020	11,700	8,230	6,600	10,300
0.0400	10,800	8,560	16,500	10,300	7,850	13,400
0.0200	12,500	9,660	21,300	11,900	8,720	16,200
0.0100	14,300	10,700	27,400	13,600	9,530	19,300
0.0050	16,100	11,700	35,100	--	--	--
0.0020	18,600	12,800	48,200	17,900	11,300	28,300

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
1980	4,900	--
1981	3,550	--
1982	3,400	--
1983	6,700	--
1984	4,900	--
1985	5,550	--
1986	5,400	--
1987	1,150	*
1988	700	*
1989	5,120	--
1990	7,150	--
1991	5,500	--
1992	3,420	--
1993	8,000	--
1994	2,550	--
1995	1,800	--
1996	4,220	--
1997	5,350	--
1998	7,480	--
1999	5,060	--
2000	5,480	--
2001	8,370	--
2002	3,110	--
2003	3,540	--
2004	8,320	--
2005	3,330	--
2006	3,690	--
2007	3,850	--
2008	4,540	--
2009	<2,590	--
2010	16,600	--
2011	8,200	--