

Annual Peak-Flow Frequency Analysis

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

Streamgauge number and name:

04018750 St. Louis River at Forbes, Minn.

Peak-flow information:

Number of systematic peak flows in record	26
Systematic period begins	1964
Systematic period ends	1989
Length of systematic record	26
Years without information	0
Number of historical peak flows in record	0

Frequency analysis options:

Method	Bulletin 17B
Skew option	Weighted
Generalized skew	0.036
Standard error of generalized skew	0.426
Low-outlier method	Bulletin 17B Grubbs-Beck test

Bulletin 17B systematic record analysis results:

Moments of the common logarithms of the peak flows:

	Standard		
	Mean	deviation	Skewness
	3.4827	0.1424	0.166

Outlier criteria and number of peak flows exceeding:

Low	1337.9	0
High	6903.1	0

Bulletin 17B Final analysis results:

Moments of the common logarithms of the peak flows:

	Standard		
Mean	deviation	Skewness	
3.4827	0.1424	0.097	

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	1,350	1,020	1,610	--	--	--
0.9900	1,450	1,120	1,720	--	--	--
0.9500	1,790	1,460	2,060	--	--	--
0.9000	2,000	1,680	2,270	--	--	--
0.8000	2,300	1,990	2,580	--	--	--
0.6667	2,630	2,320	2,920	--	--	--
0.5000	3,020	2,710	3,370	3,030	2,670	3,450
0.4292	3,210	2,880	3,590	--	--	--
0.2000	4,000	3,570	4,620	4,030	3,470	4,670
0.1000	4,640	4,090	5,530	4,700	3,950	5,600
0.0400	5,450	4,710	6,760	5,560	4,480	6,920
0.0200	6,060	5,150	7,720	6,210	4,820	8,000
0.0100	6,670	5,590	8,710	6,870	5,140	9,200
0.0050	7,290	6,020	9,750	--	--	--
0.0020	8,120	6,590	11,200	8,470	5,780	12,400

Peak-flow data used in the analysis:

Explanation of symbols and codes

-- none

Water	Peak	Peak-flow
year	flow	code
1964	2,780	--
1965	2,560	--
1966	4,140	--
1967	2,540	--
1968	2,770	--
1969	5,180	--
1970	2,970	--
1971	5,610	--
1972	3,680	--
1973	1,980	--
1974	2,920	--
1975	3,950	--
1976	2,920	--
1977	2,210	--
1978	2,430	--
1979	6,200	--
1980	1,400	--
1981	2,970	--
1982	3,010	--
1983	2,930	--
1984	2,810	--
1985	2,980	--
1986	3,450	--
1987	4,020	--
1988	1,950	--
1989	2,930	--