

Annual Peak-Flow Frequency Analysis

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

Streamgauge number and name:

04016500 St. Louis River near Aurora, Minn.

Peak-flow information:

Number of systematic peak flows in record	57
Systematic period begins	1943
Systematic period ends	1999
Length of systematic record	57
Years without information	0
Number of historical peak flows in record	0

Frequency analysis options:

Method	Bulletin 17B
Skew option	Weighted
Generalized skew	0.114
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:

	Mean	Standard deviation	Skewness
	3.1678	0.2055	0.328

Outlier criteria and number of peak flows exceeding:

Low	387.8	0
High	5584.5	0

Bulletin 17B Final analysis results:

Moments of the common logarithms of the peak flows:

	Standard		
Mean	deviation	Skewness	
3.1678	0.2055	0.246	

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	485	384	580	--	--	--
0.9900	534	429	631	--	--	--
0.9500	699	586	804	--	--	--
0.9000	814	696	923	--	--	--
0.8000	984	862	1,100	--	--	--
0.6667	1,180	1,050	1,310	--	--	--
0.5000	1,440	1,300	1,600	1,450	1,270	1,640
0.4292	1,570	1,420	1,750	--	--	--
0.2000	2,180	1,950	2,480	2,180	1,880	2,530
0.1000	2,730	2,400	3,200	2,740	2,280	3,280
0.0400	3,500	3,010	4,260	3,510	2,780	4,440
0.0200	4,140	3,490	5,160	4,130	3,120	5,460
0.0100	4,820	4,000	6,160	4,800	3,460	6,660
0.0050	5,550	4,530	7,270	--	--	--
0.0020	6,620	5,290	8,930	6,510	4,190	10,100

Peak-flow data used in the analysis:

Explanation of symbols and codes

-- none

Water	Peak	Peak-flow	Water	Peak	Peak-flow
year	flow	code	year	flow	code
1943	1,090	--	1972	2,000	--
1944	3,960	--	1973	892	--
1945	2,030	--	1974	1,320	--
1946	1,040	--	1975	1,590	--
1947	2,510	--	1976	2,020	--
1948	3,760	--	1977	1,200	--
1949	1,240	--	1978	1,160	--
1950	5,380	--	1979	3,170	--
1951	1,880	--	1980	610	--
1952	1,640	--	1981	1,400	--
1953	1,240	--	1982	1,440	--
1954	2,770	--	1983	1,590	--
1955	637	--	1984	1,070	--
1956	1,290	--	1985	1,400	--
1957	2,090	--	1986	1,500	--
1958	592	--	1987	1,870	--
1959	810	--	1988	904	--
1960	1,340	--	1989	1,370	--
1961	1,070	--	1990	1,930	--
1962	1,270	--	1991	928	--
1963	721	--	1992	1,270	--
1964	2,080	--	1993	1,510	--
1965	1,180	--	1994	1,680	--
1966	2,070	--	1995	669	--
1967	909	--	1996	1,780	--
1968	1,560	--	1997	1,390	--
1969	2,160	--	1998	835	--
1970	1,700	--	1999	3,280	--
1971	2,370	--			