

Annual Peak-Flow Frequency Analysis

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

Streamgauge number and name:

05061500 South Branch Buffalo River at Sabin, Minn.

Peak-flow information:

Number of systematic peak flows in record	67
Systematic period begins	1945
Systematic period ends	2011
Length of systematic record	67
Years without information	0
Number of historical peak flows in record	0

Frequency analysis options:

Method	Bulletin 17B
Skew option	Weighted
Generalized skew	-0.33
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
3.1034	0.4392	-0.236

Outlier criteria and number of peak flows exceeding:

Low	69.1	0
High	23285.0	0

Bulletin 17B Final analysis results:

Moments of the common logarithms of the peak flows:

	Standard		
Mean	deviation	Skewness	
3.1034	0.4392	-0.268	

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	72.8	43.0	109	--	--	--
0.9900	99.1	61.4	144	--	--	--
0.9500	223.0	155.0	299	--	--	--
0.9000	338.0	248.0	436	--	--	--
0.8000	550.0	426.0	687	--	--	--
0.6667	852.0	683.0	1,050	--	--	--
0.5000	1,330.0	1,080.0	1,630	1,330	1,060	1,690
0.4292	1,590.0	1,300.0	1,960	--	--	--
0.2000	3,000.0	2,400.0	3,890	3,000	2,360	3,820
0.1000	4,490.0	3,500.0	6,080	4,470	3,420	5,830
0.0400	6,770.0	5,090.0	9,650	6,680	4,840	9,230
0.0200	8,740.0	6,420.0	12,900	8,550	5,880	12,400
0.0100	10,900.0	7,840.0	16,600	10,600	6,910	16,300
0.0050	13,300.0	9,370.0	20,900	--	--	--
0.0020	16,800.0	11,600.0	27,300	15,900	9,140	27,800

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
1945	1,480	--	1979	2,800	--
1946	955	--	1980	1,260	--
1947	1,230	--	1981	500	--
1948	730	--	1982	1,350	--
1949	324	--	1983	1,500	--
1950	1,460	--	1984	2,090	--
1951	1,640	--	1985	1,660	--
1952	3,400	--	1986	2,550	--
1953	3,410	--	1987	689	--
1954	390	--	1988	175	--
1955	862	--	1989	3,800	--
1956	2,410	--	1990	178	--
1957	982	--	1991	285	--
1958	1,520	--	1992	414	--
1959	572	--	1993	1,910	--
1960	1,020	--	1994	720	--
1961	248	--	1995	1,770	--
1962	6,340	--	1996	2,000	--
1963	1,420	--	1997	5,850	--
1964	796	--	1998	3,180	--
1965	4,130	--	1999	1,070	--
1966	3,310	--	2000	645	--
1967	1,240	--	2001	4,030	--
1968	230	--	2002	905	--
1969	6,410	--	2003	1,040	--
1970	432	--	2004	1,140	--
1971	326	--	2005	1,470	--
1972	2,140	--	2006	6,070	--
1973	132	--	2007	1,110	--
1974	1,330	--	2008	1,650	--
1975	8,500	--	2009	7,280	--
1976	369	--	2010	5,010	--
1977	234	--	2011	3,600	--
1978	3,440	--			