

Annual Peak-Flow Frequency Analysis

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

Streamgauge number and name:

05311400 South Branch Yellow Medicine River at Minneota, Minn.

Peak-flow information:

Number of systematic peak flows in record	42
Systematic period begins	1960
Systematic period ends	2011
Length of systematic record	52
Years without information	10
Number of historical peak flows in record	0

Frequency analysis options:

Method	Bulletin 17B
Skew option	Weighted
Generalized skew	-0.263
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
2.7629	0.4115	-0.232

Outlier criteria and number of peak flows exceeding:

Low	44.9	0
High	7482.6	0

Bulletin 17B Final analysis results:

Moments of the common logarithms of the peak flows:

	Standard	
Mean	deviation	Skewness
2.7629	0.4115	-0.245

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	40.6	21.3	64.6	--	--	--
0.9900	54.0	29.9	82.8	--	--	--
0.9500	114.0	73.2	160.0	--	--	--
0.9000	168.0	115.0	226.0	--	--	--
0.8000	264.0	194.0	343.0	--	--	--
0.6667	398.0	305.0	507.0	--	--	--
0.5000	602.0	472.0	770.0	596	448	792
0.4292	712.0	560.0	918.0	--	--	--
0.2000	1,300.0	1,000.0	1,780.0	1,290	965	1,730
0.1000	1,900.0	1,420.0	2,750.0	1,900	1,380	2,620
0.0400	2,800.0	2,010.0	4,340.0	2,830	1,940	4,140
0.0200	3,570.0	2,500.0	5,790.0	3,640	2,360	5,630
0.0100	4,420.0	3,010.0	7,460.0	4,570	2,800	7,450
0.0050	5,350.0	3,560.0	9,360.0	--	--	--
0.0020	6,700.0	4,320.0	12,200.0	7,090	3,800	13,300

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
1960	1,830	--	1982	194	--
1961	82	--	1983	1,240	--
1962	1,350	--	1984	1,580	--
1963	1,660	--	1985	1,510	--
1964	126	--	1986	1,900	--
1965	1,360	--	1987	774	--
1966	900	--	Gap in systematic record		
1967	648	--	1998	966	--
1968	272	--	1999	384	--
1969	4,430	--	2000	274	--
1970	208	--	2001	1,400	--
1971	415	--	2002	334	--
1972	741	--	2003	150	--
1973	558	--	2004	296	--
1974	75	--	2005	448	--
1975	485	--	2006	641	--
1976	263	--	2007	686	--
1977	1,320	--	2008	516	--
1978	660	--	2009	260	--
1979	1,400	--	2010	1,830	--
1980	204	--	2011	1,500	--
1981	248	--			