

Annual Peak-Flow Frequency Analysis

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

Streamgauge number and name:

06603530 Little Sioux River near Spafford, Minn.

Peak-flow information:

Number of systematic peak flows in record	50
Systematic period begins	1962
Systematic period ends	2011
Length of systematic record	50
Years without information	0
Number of historical peak flows in record	0

Frequency analysis options:

Method	Bulletin 17B
Skew option	Weighted
Generalized skew	-0.169
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
2.4672	0.5221	0.356

Outlier criteria and number of peak flows exceeding:

Low	10.5	0
High	8174.2	0

Bulletin 17B Final analysis results:

Moments of the common logarithms of the peak flows:

	Standard		
Mean	deviation	Skewness	
2.4672	0.5221	0.139	

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	15.5	8.0	25.4	--	--	--
0.9900	20.2	11.0	32.1	--	--	--
0.9500	42.6	26.1	62.3	--	--	--
0.9000	64.0	41.7	90.1	--	--	--
0.8000	106.0	73.7	143.0	--	--	--
0.6667	171.0	125.0	227.0	--	--	--
0.5000	285.0	215.0	378.0	291	210	404
0.4292	354.0	267.0	473.0	--	--	--
0.2000	799.0	590.0	1,150.0	785	547	1,130
0.1000	1,390.0	986.0	2,150.0	1,300	861	1,960
0.0400	2,550.0	1,700.0	4,310.0	2,160	1,320	3,520
0.0200	3,780.0	2,420.0	6,860.0	2,950	1,680	5,160
0.0100	5,430.0	3,320.0	10,500.0	3,840	2,060	7,150
0.0050	7,590.0	4,460.0	15,500.0	--	--	--
0.0020	11,400.0	6,380.0	25,200.0	6,400	2,950	13,900

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
1962	595	--	1987	364	--
1963	118	--	1988	49	--
1964	65	--	1989	68	--
1965	2,700	--	1990	815	--
1966	136	--	1991	649	--
1967	310	--	1992	434	--
1968	32	--	1993	1,110	--
1969	4,500	--	1994	642	--
1970	70	--	1995	255	--
1971	380	--	1996	69	--
1972	134	--	1997	150	--
1973	82	--	1998	50	--
1974	58	--	1999	131	--
1975	370	--	2000	141	--
1976	135	--	2001	384	--
1977	153	--	2002	168	--
1978	139	--	2003	113	--
1979	740	--	2004	850	--
1980	445	--	2005	785	--
1981	148	--	2006	479	--
1982	125	--	2007	3,790	--
1983	360	--	2008	272	--
1984	1,400	--	2009	244	--
1985	410	--	2010	1,830	--
1986	1,775	--	2011	1,470	--