

Annual Peak-Flow Frequency Analysis

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

Streamgauge number and name:

05385500 South Fork Root River near Houston, Minn.

Peak-flow information:

Number of systematic peak flows in record	58
Systematic period begins	1953
Systematic period ends	2011
Length of systematic record	59
Years without information	1
Peak flows not used in analysis	1
Number of historical peak flows in record	0

Frequency analysis options:

Method	Bulletin 17B
Skew option	Weighted
Generalized skew	-0.187
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	
3.3506	0.3933	0.094	

Outlier criteria and number of peak flows exceeding:

Low	173.8	0
High	28920.3	0

Bulletin 17B Final analysis results:

Moments of the common logarithms of the peak flows:

	Standard	
Mean	deviation	Skewness
3.3506	0.3933	-0.003

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	217	135	312	--	--	--
0.9900	272	176	381	--	--	--
0.9500	505	358	662	--	--	--
0.9000	702	521	894	--	--	--
0.8000	1,050	815	1,300	--	--	--
0.6667	1,520	1,220	1,850	--	--	--
0.5000	2,240	1,840	2,730	2,350	1,870	2,960
0.4292	2,640	2,170	3,230	--	--	--
0.2000	4,800	3,880	6,170	5,190	4,080	6,600
0.1000	7,150	5,620	9,640	7,860	6,040	10,200
0.0400	10,900	8,260	15,600	12,100	8,910	16,300
0.0200	14,400	10,600	21,400	15,600	11,100	21,800
0.0100	18,400	13,200	28,500	19,400	13,200	28,600
0.0050	23,000	16,100	37,000	--	--	--
0.0020	30,300	20,400	50,900	29,800	18,100	49,200

Peak-flow data used in the analysis:

Explanation of symbols and codes

-- none

H Historic, outside of systematic record

Water	Peak	Peak-flow	Water	Peak	Peak-flow
year	flow	code	year	flow	code
1950	7,040	H	1982	780	--
			1983	1,400	--
1953	2,590	--	Gap in systematic record		
1954	878	--	1985	5,280	--
1955	2,050	--	1986	1,010	--
1956	4,580	--	1987	982	--
1957	2,110	--	1988	302	--
1958	694	--	1989	1,220	--
1959	4,010	--	1990	2,150	--
1960	5,270	--	1991	815	--
1961	6,980	--	1992	2,720	--
1962	8,420	--	1993	3,470	--
1963	3,160	--	1994	3,100	--
1964	1,250	--	1995	1,880	--
1965	6,530	--	1996	2,700	--
1966	2,700	--	1997	1,670	--
1967	5,960	--	1998	3,300	--
1968	768	--	1999	1,850	--
1969	2,670	--	2000	13,800	--
1970	1,160	--	2001	1,170	--
1971	1,010	--	2002	681	--
1972	3,320	--	2003	348	--
1973	1,950	--	2004	3,640	--
1974	11,000	--	2005	2,860	--
1975	1,100	--	2006	742	--
1976	10,800	--	2007	3,700	--
1977	700	--	2008	10,900	--
1978	11,000	--	2009	1,040	--
1979	1,480	--	2010	1,570	--
1980	8,020	--	2011	1,550	--
1981	4,280	--			