

Annual Peak-Flow Frequency Analysis

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

Streamgauge number and name:

05353800 Straight River near Faribault, Minn.

Peak-flow information:

Number of systematic peak flows in record	46
Systematic period begins	1966
Systematic period ends	2011
Length of systematic record	46
Years without information	0
Number of historical peak flows in record	0

Frequency analysis options:

Method	Expected moments algorithm (EMA)
Skew option	Weighted
Generalized skew	-0.18
Standard error of generalized skew	0.4266
Low-outlier method	Fixed Threshold

EMA systematic record analysis results:

Moments of the common logarithms of the peak flows:

	Standard	
Mean	deviation	Skewness
3.4674	0.2617	-0.579

Low-outlier information:

Number of low outliers	0
Low-outlier threshold	500

Final analysis results:

Moments of the common logarithms of the peak flows:

	Standard		
Mean	deviation	Skewness	
3.4674	0.2617	-0.397	

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	497	165	769	--	--	--
0.9900	608	243	893	--	--	--
0.9500	1,020	607	1,350	--	--	--
0.9000	1,330	906	1,680	--	--	--
0.8000	1,790	1,360	2,200	--	--	--
0.6667	2,340	1,880	2,830	--	--	--
0.5000	3,050	2,520	3,660	3,000	2,510	3,590
0.4292	3,390	2,810	4,070	--	--	--
0.2000	4,910	4,110	5,980	4,860	4,070	5,800
0.1000	6,160	5,120	7,840	6,120	5,040	7,430
0.0400	7,720	6,280	10,600	7,750	6,140	9,780
0.0200	8,860	7,010	13,000	8,980	6,850	11,800
0.0100	9,980	7,620	15,700	10,300	7,510	14,000
0.0050	11,100	8,130	18,600	--	--	--
0.0020	12,500	8,670	23,000	13,400	8,830	20,200

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
1966	1,900	--	1989	3,400	--
1967	3,590	--	1990	6,030	--
1968	1,930	--	1991	3,720	--
1969	3,970	--	1992	1,740	--
1970	1,070	--	1993	5,730	--
1971	2,520	--	1994	1,670	--
1972	2,190	--	1995	1,640	--
1973	5,990	--	1996	2,700	--
1974	2,850	--	1997	5,690	--
1975	3,450	--	1998	2,860	--
1976	535	--	1999	3,310	--
1977	816	--	2000	4,140	--
1978	2,080	--	2001	5,390	--
1979	4,780	--	2002	1,920	--
1980	4,140	--	2003	2,770	--
1981	3,590	--	2004	6,080	--
1982	3,130	--	2005	2,730	--
1983	5,840	--	2006	2,800	--
1984	3,590	--	2007	3,260	--
1985	2,650	--	2008	3,920	--
1986	4,630	--	2009	932	--
1987	2,250	--	2010	12,200	--
1988	1,150	--	2011	5,330	--