Annual Peak-Flow Frequency Analysis
For more information on the contents of this documentation, see Kessler and others (2013).

Streamgage number and name:

05304500 Chippewa River near Milan, Minn.

Peak-flow information:

Number of systematic peak flows in record	75
Systematic period begins	1937
Systematic period ends	2011
Length of systematic record	75
Years without information	0
Number of historical peak flows in record	0

Frequency analysis options:

Method	Bulletin 17B
Skew option	Weighted
Generalized skew	-0.227
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:

Mean	Standard deviation	Skewness
3.3299	0.3956	-0.161

Outlier criteria and number of peak flows exceeding:

Low	149.9	0
High	30477.6	0

Bulletin 17B Final analysis results:

Moments of the common logarithms of the peak flows:

Mean	Standard deviation	Skewness
3.3299	0.3956	-0.181

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	175	114	246	−−	−−	−−
0.9900	228	153	311	−−	−−	−−
0.9500	456	337	584	−−	−−	−−
0.9000	654	504	813	−−	−−	−−
0.8000	1,000	806	1,210	−−	−−	−−
0.6667	1,480	1,220	1,760	−−	−−	−−
0.5000	2,200	1,850	2,620	2,170	1,760	2,690
0.4292	2,580	2,170	3,090	−−	−−	−−
0.2000	4,630	3,830	5,770	4,570	3,660	5,690
0.1000	6,740	5,440	8,720	6,630	5,180	8,490
0.0400	9,940	7,770	13,400	9,740	7,200	13,200
0.0200	12,700	9,710	17,700	12,400	8,730	17,600
0.0100	15,800	11,800	22,600	15,400	10,300	23,000
0.0050	19,100	14,100	28,200	−−	−−	−−
0.0020	24,100	17,300	36,800	23,500	13,800	40,000

Peak-flow data used in the analysis:

Explanation of symbols and codes

−− none

Water year	Peak flow	Peak-flow code	Water year	Peak flow	Peak-flow code
1937	405	−−	1975	2,820	−−
1938	412	−−	1976	1,350	−−
1939	1,100	−−	1977	1,530	−−
1940	651	−−	1978	3,300	−−
1941	651	−−	1979	4,290	−−
1942	1,950	−−	1980	1,090	−−
1943	5,170	−−	1981	2,700	−−
1944	938	−−	1982	3,350	−−
1945	864	−−	1983	1,440	−−
1946	2,390	−−	1984	4,770	−−
1947	2,040	−−	1985	5,950	−−
1948	1,770	−−	1986	5,280	−−
1949	1,510	−−	1987	2,200	−−
1950	1,340	−−	1988	385	−−
1951	5,020	−−	1989	2,550	−−
1952	6,930	−−	1990	1,040	−−
1953	5,530	−−	1991	2,710	−−
1954	846	−−	1992	4,680	−−
1955	592	−−	1993	4,790	−−
1956	899	−−	1994	5,980	−−
1957	3,370	−−	1995	8,440	−−
1958	1,170	−−	1996	4,000	−−
1959	476	−−	1997	14,400	−−
1960	2,820	−−	1998	1,780	−−
1961	320	−−	1999	2,700	−−
1962	1,680	−−	2000	820	−−
1963	852	−−	2001	11,600	−−
1964	1,380	−−	2002	1,490	−−
1965	6,770	−−	2003	1,390	−−
1966	4,820	−−	2004	2,220	−−
1967	3,290	−−	2005	2,950	−−
1968	283	−−	2006	2,800	−−
1969	11,400	−−	2007	2,790	−−
1970	1,370	−−	2008	1,650	−−
1971	2,140	−−	2009	7,820	−−
1972	3,520	−−	2010	8,350	−−
1973	2,670	−−	2011	6,460	−−
1974	766	−−			