

Annual Peak-Flow Frequency Analysis

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

Streamgauge number and name:

05200445 Mississippi River at Bemidji, Minn.

Peak-flow information:

Number of systematic peak flows in record	39
Systematic period begins	1973
Systematic period ends	2011
Length of systematic record	39
Years without information	0
Number of historical peak flows in record	0

Frequency analysis options:

Method	Bulletin 17B
Skew option	Weighted
Generalized skew	-0.297
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
	2.7960	0.2598	0.076

Outlier criteria and number of peak flows exceeding:

Low	126.5	0
High	3089.5	0

Bulletin 17B Final analysis results:

Moments of the common logarithms of the peak flows:

	Standard	
Mean	deviation	Skewness
2.7960	0.2598	-0.083

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	128	85	171	--	--	--
0.9900	150	103	196	--	--	--
0.9500	230	172	286	--	--	--
0.9000	289	225	350	--	--	--
0.8000	379	308	449	--	--	--
0.6667	486	408	570	--	--	--
0.5000	630	537	740	639	529	772
0.4292	701	599	828	--	--	--
0.2000	1,040	875	1,280	1,050	854	1,290
0.1000	1,340	1,110	1,710	1,360	1,070	1,720
0.0400	1,750	1,410	2,350	1,790	1,340	2,390
0.0200	2,080	1,640	2,890	2,120	1,520	2,980
0.0100	2,420	1,870	3,470	2,490	1,690	3,670
0.0050	2,780	2,110	4,110	--	--	--
0.0020	3,290	2,440	5,030	3,400	2,040	5,650

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
1973	495	--	1993	396	--
1974	979	--	1994	372	--
1975	1,170	--	1995	668	--
1976	553	--	1996	1,160	--
1977	190	--	1997	1,820	--
1978	953	--	1998	522	--
1979	1,690	--	1999	981	--
1980	620	--	2000	344	--
1981	254	--	2001	1,320	--
1982	1,480	--	2002	1,440	--
1983	313	--	2003	273	--
1984	411	--	2004	348	--
1985	690	--	2005	610	--
1986	620	--	2006	981	--
1987	454	--	2007	623	--
1988	623	--	2008	450	--
1989	616	--	2009	1,500	--
1990	286	--	2010	784	--
1991	330	--	2011	1,310	--
1992	320	--			