

Annual Peak-Flow Frequency Analysis

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

Streamgauge number and name:

05200510 Mississippi River near Bemidji, Minn.

Peak-flow information:

Number of systematic peak flows in record	23
Systematic period begins	1988
Systematic period ends	2011
Length of systematic record	24
Years without information	1
Number of historical peak flows in record	0

Frequency analysis options:

Method	Bulletin 17B
Skew option	Weighted
Generalized skew	-0.288
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
	2.9509	0.1719	-0.403

Outlier criteria and number of peak flows exceeding:

Low	338.8	0
High	2354.3	0

Bulletin 17B Final analysis results:

Moments of the common logarithms of the peak flows:

	Standard	
Mean	deviation	Skewness
2.9509	0.1719	-0.336

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	284	189	368	--	--	--
0.9900	323	223	409	--	--	--
0.9500	449	342	540	--	--	--
0.9000	531	422	625	--	--	--
0.8000	645	536	744	--	--	--
0.6667	768	657	879	--	--	--
0.5000	913	795	1,050	922	784	1,080
0.4292	979	854	1,140	--	--	--
0.2000	1,250	1,080	1,510	1,270	1,080	1,500
0.1000	1,460	1,240	1,820	1,490	1,240	1,800
0.0400	1,700	1,420	2,220	1,760	1,410	2,190
0.0200	1,870	1,540	2,500	1,940	1,510	2,510
0.0100	2,030	1,660	2,780	2,130	1,600	2,850
0.0050	2,190	1,760	3,050	--	--	--
0.0020	2,380	1,890	3,410	2,560	1,760	3,720

Peak-flow data used in the analysis:

Explanation of symbols and codes

-- none

Water	Peak	Peak-flow
year	flow	code
1988	418	--
1989	887	--
1990	428	--
1991	773	--
1992	523	--
1993	938	--
1994	651	--
1995	748	--
1996	1,260	--
1997	1,820	--
1998	759	--
1999	1,240	--
2000	1,140	--
2001	1,290	--
2002	1,520	--
Gap in systematic record		
2004	496	--
2005	1,210	--
2006	939	--
2007	903	--
2008	756	--
2009	1,300	--
2010	974	--
2011	1,080	--