

Annual Peak-Flow Frequency Analysis

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

**Streamgauge number and name:**

05384350 Root River at Rushford, Minn.

**Peak-flow information:**

Number of systematic peak flows in record	23
Systematic period begins	1985
Systematic period ends	2011
Length of systematic record	27
Years without information	4
Peak flows not used in analysis	4
Number of historical peak flows in record	0

**Frequency analysis options:**

Method	Bulletin 17B
Skew option	Weighted
Generalized skew	-0.209
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	
3.9404	0.3306	0.191	

**Outlier criteria and number of peak flows exceeding:**

Low	1352.6	0
High	56180.7	0

**Bulletin 17B Final analysis results:**

**Moments of the common logarithms of the peak flows:**

	Standard	
Mean	deviation	Skewness
3.9404	0.3306	-0.033

**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	1,200	584	1,900	--	--	--
0.9900	1,460	752	2,230	--	--	--
0.9500	2,480	1,480	3,500	--	--	--
0.9000	3,280	2,120	4,470	--	--	--
0.8000	4,600	3,210	6,060	--	--	--
0.6667	6,300	4,650	8,190	--	--	--
0.5000	8,750	6,690	11,500	8,630	6,430	11,600
0.4292	10,000	7,710	13,300	--	--	--
0.2000	16,600	12,600	23,800	15,900	11,800	21,400
0.1000	23,100	16,900	35,700	21,400	15,600	29,300
0.0400	32,800	23,000	55,600	28,900	20,500	40,800
0.0200	41,100	27,800	74,200	34,800	23,900	50,700
0.0100	50,300	33,000	96,400	41,500	27,200	63,400
0.0050	60,500	38,500	122,000	--	--	--
0.0020	75,600	46,300	164,000	58,400	34,200	99,900

**Peak-flow data used in the analysis:**

Explanation of symbols and codes

-- none

NA Missing peak value

Water	Peak	Peak-flow
year	flow	code
1985	6,350	--
1986	17,700	--
1987	10,400	--
1988	2,400	--
1989	3,500	--
1990	9,000	--
1991	4,500	--
1992	4,700	--
1993	28,400	--
1994	4,200	--
1995	5,800	--
1996	10,600	--
1997	7,100	--
1998	9,140	--
1999	9,140	--
2000	32,400	--
2001	14,600	--
2002	4,690	--
2003	2,770	--
2004	NA	--
2005	NA	--
2006	NA	--
2007	NA	--
2008	28,000	--
2009	7,100	--
2010	23,400	--
2011	18,300	--