

Annual Peak-Flow Frequency Analysis

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

**Streamgauge number and name:**

05326100 Middle Branch Rush River near Gaylord, Minn.

**Peak-flow information:**

Number of systematic peak flows in record	22
Systematic period begins	1979
Systematic period ends	2000
Length of systematic record	22
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	-0.12
Standard error of generalized skew	0.4266
Low-outlier method	Single Grubbs-Beck test

**EMA systematic record analysis results:**

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

	Standard	
Mean	deviation	Skewness
2.7189	0.3480	-0.427

**Low-outlier information:**

Number of low outliers	1
Low-outlier threshold	128

**Final analysis results:**

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

	Standard	
Mean	deviation	Skewness
2.7200	0.3449	-0.223

**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	57.5	7.44	111	--	--	--
0.9900	72.7	11.90	132	--	--	--
0.9500	135.0	45.60	214	--	--	--
0.9000	186.0	84.60	280	--	--	--
0.8000	272.0	156.00	393	--	--	--
0.6667	382.0	247.00	543	--	--	--
0.5000	541.0	371.00	769	515	374	710
0.4292	622.0	433.00	891	--	--	--
0.2000	1,030.0	728.00	1,600	986	708	1,370
0.1000	1,420.0	988.00	2,490	1,360	948	1,970
0.0400	1,980.0	1,320.00	4,260	1,920	1,260	2,930
0.0200	2,430.0	1,570.00	6,220	2,390	1,490	3,850
0.0100	2,920.0	1,800.00	8,910	2,920	1,720	4,940
0.0050	3,440.0	2,010.00	12,600	--	--	--
0.0020	4,170.0	2,270.00	19,400	4,330	2,250	8,340

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

Explanation of symbols and codes

-- none

\* Less than low-outlier threshold

Water	Peak	Peak-flow
year	flow	code
1979	715	--
1980	128	--
1981	353	--
1982	700	--
1983	920	--
1984	810	--
1985	700	--
1986	900	--
1987	405	--
1988	50	*
1989	220	--
1990	440	--
1991	565	--
1992	720	--
1993	1,380	--
1994	765	--
1995	450	--
1996	630	--
1997	3,200	--
1998	600	--
1999	525	--
2000	154	--