

## Annual Peak-Flow Frequency Analysis

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

### Streamgauge number and name:

04020700 Bug Creek at Shaw, Minn.

### Peak-flow information:

Number of systematic peak flows in record	33
Systematic period begins	1979
Systematic period ends	2011
Length of systematic record	33
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	0.07
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
2.4210	0.2828	0.399

#### Low-outlier information:

Number of low outliers	1
Low-outlier threshold	78

**Final analysis results:**

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

	Standard	
Mean	deviation	Skewness
2.4204	0.2842	0.214

**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	55.6	24.0	82.0	--	--	--
0.9900	63.7	30.9	90.1	--	--	--
0.9500	93.5	59.1	123.0	--	--	--
0.9000	116.0	80.9	148.0	--	--	--
0.8000	151.0	114.0	191.0	--	--	--
0.6667	195.0	152.0	247.0	--	--	--
0.5000	257.0	203.0	329.0	266	214	331
0.4292	289.0	229.0	374.0	--	--	--
0.2000	453.0	352.0	637.0	469	363	607
0.1000	617.0	465.0	981.0	644	475	872
0.0400	867.0	621.0	1,700.0	907	624	1,320
0.0200	1,090.0	743.0	2,570.0	1,130	736	1,740
0.0100	1,340.0	870.0	3,840.0	1,380	848	2,260
0.0050	1,620.0	1,000.0	5,690.0	--	--	--
0.0020	2,050.0	1,180.0	9,480.0	2,050	1,110	3,810

**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	590	--
1980	78	--
1981	310	--
1982	350	--
1983	233	--
1984	195	--
1985	352	--
1986	240	--
1987	335	--
1988	250	--
1989	245	--
1990	348	--
1991	130	--
1992	255	--
1993	535	--
1994	315	--
1995	360	--
1996	325	--
1997	336	--
1998	170	--
1999	1,350	--
2000	189	--
2001	525	--
2002	1,250	--
2003	31	*
2004	194	--
2005	190	--
2006	228	--
2007	132	--
2008	250	--
2009	130	--
2010	111	--
2011	344	--