

## Annual Peak-Flow Frequency Analysis

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

### Streamgauge number and name:

05311200 North Branch Yellow Medicine River near Ivanhoe, Minn.

### Peak-flow information:

Number of systematic peak flows in record	26
Systematic period begins	1960
Systematic period ends	1985
Length of systematic record	26
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	-0.31
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
1.8765	0.6739	-0.821

#### Low-outlier information:

Number of low outliers	1
Low-outlier threshold	3.6

**Final analysis results:**

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

	Standard	
Mean	deviation	Skewness
1.8795	0.6645	-0.494

**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	0.73	0.01	2.88	--	--	--
0.9900	1.25	0.03	4.25	--	--	--
0.9500	5.03	0.44	12.30	--	--	--
0.9000	10.00	1.85	21.80	--	--	--
0.8000	22.00	7.23	43.30	--	--	--
0.6667	43.70	19.10	81.50	--	--	--
0.5000	85.90	43.50	156.00	90.2	54.4	150
0.4292	112.00	58.70	205.00	--	--	--
0.2000	281.00	155.00	556.00	268.0	166.0	432
0.1000	488.00	268.00	1,120.00	442.0	267.0	730
0.0400	837.00	440.00	2,520.00	715.0	409.0	1,250
0.0200	1,160.00	572.00	4,350.00	956.0	515.0	1,770
0.0100	1,520.00	696.00	7,190.00	1,220.0	624.0	2,390
0.0050	1,920.00	808.00	11,500.00	--	--	--
0.0020	2,520.00	933.00	20,700.00	1,950.0	862.0	4,410

**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
1960	228.0	--
1961	3.6	--
1962	168.0	--
1963	288.0	--
1964	25.0	--
1965	431.0	--
1966	19.0	--
1967	540.0	--
1968	31.0	--
1969	940.0	--
1970	158.0	--
1971	59.0	--
1972	96.0	--
1973	87.0	--
1974	24.0	--
1975	17.0	--
1976	14.0	--
1977	112.0	--
1978	100.0	--
1979	115.0	--
1980	150.0	--
1981	1.0	*
1982	35.0	--
1983	95.0	--
1984	400.0	--
1985	320.0	--