

Annual Peak-Flow Frequency Analysis

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

Streamgauge number and name:

05383600 North Branch Root River tributary near Stewartville, Minn.

Peak-flow information:

Number of systematic peak flows in record	28
Systematic period begins	1958
Systematic period ends	1985
Length of systematic record	28
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	-0.25
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
1.8139	0.4438	-0.097

Low-outlier information:

Number of low outliers	1
Low-outlier threshold	12

Final analysis results:

Moments of the common logarithms of the peak flows:

	Standard	
Mean	deviation	Skewness
1.8134	0.4450	-0.185

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	3.89	0.45	8.5	--	--	--
0.9900	5.23	0.85	10.5	--	--	--
0.9500	11.40	3.93	19.5	--	--	--
0.9000	17.20	7.73	27.6	--	--	--
0.8000	27.80	15.40	42.5	--	--	--
0.6667	43.00	26.70	64.3	--	--	--
0.5000	67.20	44.10	100.0	72.4	51.1	102
0.4292	80.50	53.50	121.0	--	--	--
0.2000	155.00	104.00	255.0	171.0	123.0	238
0.1000	237.00	155.00	444.0	264.0	188.0	370
0.0400	366.00	227.00	869.0	411.0	286.0	590
0.0200	482.00	284.00	1,390.0	541.0	365.0	801
0.0100	613.00	341.00	2,170.0	686.0	440.0	1,070
0.0050	763.00	397.00	3,310.0	--	--	--
0.0020	988.00	468.00	5,640.0	1,100.0	627.0	1,920

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
1958	297.0	--
1959	164.0	--
1960	328.0	--
1961	90.0	--
1962	98.0	--
1963	24.0	--
1964	0.2	*
1965	71.0	--
1966	25.0	--
1967	86.0	--
1968	12.0	--
1969	172.0	--
1970	49.0	--
1971	25.0	--
1972	28.0	--
1973	133.0	--
1974	51.0	--
1975	65.0	--
1976	35.0	--
1977	71.0	--
1978	106.0	--
1979	282.0	--
1980	23.0	--
1981	318.0	--
1982	27.0	--
1983	70.0	--
1984	204.0	--
1985	24.0	--