

Annual Peak-Flow Frequency Analysis

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

Streamgauge number and name:

05270310 Sauk River tributary number 2 near St. Martin, Minn.

Peak-flow information:

Number of systematic peak flows in record	24
Systematic period begins	1962
Systematic period ends	1985
Length of systematic record	24
Years without information	0
Number of historical peak flows in record	1 1960

Frequency analysis options:

Method	Expected moments algorithm (EMA)
Skew option	Weighted
Generalized skew	-0.14
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
1.4023	0.4961	1.427

Low-outlier information:

Number of low outliers	0
Low-outlier threshold	7

Final analysis results:

Moments of the common logarithms of the peak flows:

	Standard	
Mean	deviation	Skewness
1.4023	0.4961	0.287

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	1.81	0.31	3.72	--	--	--
0.9900	2.26	0.49	4.32	--	--	--
0.9500	4.25	1.63	7.18	--	--	--
0.9000	6.08	2.89	9.94	--	--	--
0.8000	9.53	5.34	15.40	--	--	--
0.6667	14.80	8.91	24.00	--	--	--
0.5000	23.90	14.80	40.20	17.2	11.8	24.9
0.4292	29.30	18.20	50.70	--	--	--
0.2000	64.80	38.60	138.00	42.4	27.3	65.8
0.1000	113.00	63.00	322.00	64.5	39.0	107.0
0.0400	208.00	105.00	991.00	98.4	54.7	177.0
0.0200	313.00	145.00	2,310.00	127.0	66.8	243.0
0.0100	457.00	192.00	5,370.00	162.0	79.9	330.0
0.0050	651.00	247.00	12,000.00	--	--	--
0.0020	1,010.00	334.00	29,700.00	260.0	113.0	600.0

Peak-flow data used in the analysis:

Explanation of symbols and codes

-- none

H Historic, outside of systematic record

Water	Peak	Peak-flow
year	flow	code
1960	83.0	H
1962	79.0	--
1963	15.0	--
1964	7.4	--
1965	17.0	--
1966	19.0	--
1967	12.0	--
1968	13.0	--
1969	11.0	--
1970	33.0	--
1971	7.1	--
1972	21.0	--
1973	16.0	--
1974	14.0	--
1975	11.0	--
1976	7.0	--
1977	13.0	--
1978	559.0	--
1979	48.0	--
1980	24.0	--
1981	68.0	--
1982	42.0	--
1983	76.0	--
1984	376.0	--
1985	16.0	--