

Annual Peak-Flow Frequency Analysis

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

Streamgauge number and name:

05475400 Warren Lake tributary near Windom, Minn.

Peak-flow information:

Number of systematic peak flows in record	28
Systematic period begins	1960
Systematic period ends	1987
Length of systematic record	28
Years without information	0
Number of historical peak flows in record	0

Frequency analysis options:

Method	Bulletin 17B
Skew option	Weighted
Generalized skew	-0.164
Standard error of generalized skew	0.426
Low-outlier method	Bulletin 17B Grubbs-Beck test

Bulletin 17B systematic record analysis results:

Moments of the common logarithms of the peak flows:

	Standard		
	Mean	deviation	Skewness
	1.6426	0.4432	0.654

Outlier criteria and number of peak flows exceeding:

Low	3.3	0
High	583.0	1

Bulletin 17B Final analysis results:

Moments of the common logarithms of the peak flows:

	Standard		
Mean	deviation	Skewness	
1.6426	0.4432	0.189	

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	3.8	1.7	6.5	--	--	--
0.9900	4.7	2.3	7.8	--	--	--
0.9500	8.7	4.8	13.2	--	--	--
0.9000	12.1	7.3	17.7	--	--	--
0.8000	18.5	12.0	25.9	--	--	--
0.6667	27.6	19.1	37.9	--	--	--
0.5000	42.5	30.7	58.8	47.2	32.9	67.7
0.4292	51.1	37.1	71.4	--	--	--
0.2000	103.0	73.2	157.0	118.0	79.2	177.0
0.1000	166.0	113.0	279.0	195.0	124.0	307.0
0.0400	280.0	179.0	532.0	328.0	193.0	558.0
0.0200	396.0	241.0	819.0	452.0	248.0	822.0
0.0100	543.0	315.0	1,220.0	601.0	312.0	1,160.0
0.0050	729.0	404.0	1,770.0	--	--	--
0.0020	1,050.0	548.0	2,800.0	1,030.0	461.0	2,300.0

Peak-flow data used in the analysis:

Explanation of symbols and codes

-- none

Water	Peak	Peak-flow
year	flow	code
1960	156	--
1961	23	--
1962	46	--
1963	56	--
1964	18	--
1965	47	--
1966	395	--
1967	40	--
1968	104	--
1969	63	--
1970	21	--
1971	47	--
1972	79	--
1973	14	--
1974	28	--
1975	15	--
1976	27	--
1977	36	--
1978	64	--
1979	56	--
1980	666	--
1981	75	--
1982	12	--
1983	106	--
1984	27	--
1985	37	--
1986	24	--
1987	5	--