

Annual Peak-Flow Frequency Analysis

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

Streamgauge number and name:

05384400 Pine Creek near Arendahl, Minn.

Peak-flow information:

Number of systematic peak flows in record	27
Systematic period begins	1959
Systematic period ends	1985
Length of systematic record	27
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	-0.22
Standard error of generalized skew	0.4266
Low-outlier method	Fixed Threshold

EMA systematic record analysis results:

Moments of the common logarithms of the peak flows:

	Standard	
Mean	deviation	Skewness
2.8774	0.4654	-0.910

Low-outlier information:

Number of low outliers	0
Low-outlier threshold	30

Final analysis results:

Moments of the common logarithms of the peak flows:

	Standard		
Mean	deviation	Skewness	
2.8774	0.4654	-0.525	

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	28.3	1.33	74.8	--	--	--
0.9900	41.6	2.88	98.7	--	--	--
0.9500	112.0	22.70	210.0	--	--	--
0.9000	182.0	59.50	314.0	--	--	--
0.8000	318.0	150.00	509.0	--	--	--
0.6667	516.0	293.00	792.0	--	--	--
0.5000	828.0	519.00	1,250.0	843	587	1,210
0.4292	997.0	639.00	1,500.0	--	--	--
0.2000	1,890.0	1,260.00	2,990.0	1,840	1,330	2,540
0.1000	2,760.0	1,840.00	4,830.0	2,620	1,890	3,630
0.0400	4,000.0	2,590.00	8,380.0	3,720	2,630	5,260
0.0200	4,990.0	3,090.00	12,100.0	4,600	3,160	6,720
0.0100	6,010.0	3,510.00	16,900.0	5,580	3,640	8,540
0.0050	7,050.0	3,870.00	23,000.0	--	--	--
0.0020	8,450.0	4,240.00	34,000.0	8,080	4,710	13,900

Peak-flow data used in the analysis:

Explanation of symbols and codes

-- none

Water	Peak	Peak-flow
year	flow	code
1959	1,020	--
1960	2,000	--
1961	2,380	--
1962	914	--
1963	476	--
1964	80	--
1965	1,140	--
1966	590	--
1967	1,290	--
1968	458	--
1969	392	--
1970	652	--
1971	566	--
1972	974	--
1973	900	--
1974	3,100	--
1975	630	--
1976	1,140	--
1977	60	--
1978	4,150	--
1979	1,870	--
1980	2,800	--
1981	610	--
1982	78	--
1983	270	--
1984	1,330	--
1985	1,160	--