

Annual Peak-Flow Frequency Analysis

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

Streamgauge number and name:

05127230 Shagawa River at Ely, Minn.

Peak-flow information:

Number of systematic peak flows in record	11
Systematic period begins	1968
Systematic period ends	1978
Length of systematic record	11
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	0.13
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
2.5169	0.1462	0.168

Low-outlier information:

Number of low outliers	1
Low-outlier threshold	216

Final analysis results:

Moments of the common logarithms of the peak flows:

	Standard		
Mean	deviation	Skewness	
2.5168	0.1465	0.135	

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	144	56.9	193	--	--	--
0.9900	155	66.8	204	--	--	--
0.9500	191	109.0	241	--	--	--
0.9000	214	140.0	266	--	--	--
0.8000	247	180.0	305	--	--	--
0.6667	282	219.0	350	--	--	--
0.5000	326	261.0	413	336	276	409
0.4292	346	280.0	446	--	--	--
0.2000	436	351.0	629	455	361	573
0.1000	509	404.0	850	540	412	709
0.0400	602	464.0	1,270	658	474	913
0.0200	673	506.0	1,620	753	519	1,090
0.0100	745	545.0	2,000	854	563	1,300
0.0050	818	581.0	2,450	--	--	--
0.0020	917	627.0	3,170	1,110	662	1,870

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
1968	385	--
1969	360	--
1970	640	--
1971	415	--
1972	361	--
1973	216	--
1974	361	--
1975	334	--
1976	239	--
1977	122	*
1978	314	--