Annual Peak-Flow Frequency Analysis

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

Streamgage number and name:
05078400 Clearwater River tributary near Plummer, Minn.

Peak-flow information:

Number of systematic peak flows in record	30
Systematic period begins	1961
Systematic period ends	1990
Length of systematic record	30
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	-0.46
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:

Mean	Standard deviation	Skewness
1.6868	0.3848	-0.248

    Low-outlier information:

Number of low outliers	0
Low-outlier threshold	4

Final analysis results:

Moments of the common logarithms of the peak flows:

Mean	Standard deviation	Skewness
1.6868	0.3848	-0.357

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	3.69	0.45	7.61	−−	−−	−−
0.9900	4.92	0.86	9.37	−−	−−	−−
0.9500	10.40	3.83	16.80	−−	−−	−−
0.9000	15.20	7.29	23.00	−−	−−	−−
0.8000	23.50	13.90	33.90	−−	−−	−−
0.6667	34.70	22.90	48.70	−−	−−	−−
0.5000	51.20	35.80	71.30	55.6	41.7	74.1
0.4292	59.90	42.40	83.40	−−	−−	−−
0.2000	104.00	74.70	152.00	114.0	85.0	152.0
0.1000	146.00	104.00	233.00	161.0	117.0	222.0
0.0400	205.00	141.00	385.00	231.0	158.0	336.0
0.0200	252.00	167.00	541.00	289.0	188.0	442.0
0.0100	302.00	190.00	739.00	352.0	218.0	568.0
0.0050	354.00	211.00	989.00	−−	−−	−−
0.0020	426.00	234.00	1,420.00	514.0	282.0	939.0

Peak-flow data used in the analysis:

Explanation of symbols and codes

−−　　none

Water year	Peak flow	Peak-flow code
1961	10	−−
1962	106	−−
1963	20	−−
1964	96	−−
1965	177	−−
1966	85	−−
1967	71	−−
1968	41	−−
1969	153	−−
1970	106	−−
1971	38	−−
1972	45	−−
1973	27	−−
1974	60	−−
1975	37	−−
1976	13	−−
1977	17	−−
1978	49	−−
1979	94	−−
1980	71	−−
1981	420	−−
1982	44	−−
1983	37	−−
1984	52	−−
1985	45	−−
1986	60	−−
1987	35	−−
1988	32	−−
1989	70	−−
1990	5	−−