

Annual Peak-Flow Frequency Analysis

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

Streamgauge number and name:

05278000 Middle Fork Crow River near Spicer, Minn.

Peak-flow information:

Number of systematic peak flows in record	45
Systematic period begins	1949
Systematic period ends	2011
Length of systematic record	63
Years without information	18
Number of historical peak flows in record	0

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
2.2758	0.3174	-1.338

Low-outlier information:

Number of low outliers	1
Low-outlier threshold	30

Final analysis results:

Moments of the common logarithms of the peak flows:

	Standard		
Mean	deviation	Skewness	
2.2777	0.3102	-0.615	

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	20.0	3.57	35.7	--	--	--
0.9900	26.3	6.35	43.6	--	--	--
0.9500	52.4	24.20	74.6	--	--	--
0.9000	73.3	42.60	98.8	--	--	--
0.8000	107.0	74.30	138.0	--	--	--
0.6667	149.0	112.00	186.0	--	--	--
0.5000	204.0	161.00	252.0	206	167	255
0.4292	230.0	184.00	284.0	--	--	--
0.2000	350.0	285.00	435.0	356	292	434
0.1000	446.0	363.00	578.0	457	370	566
0.0400	562.0	449.00	789.0	586	453	757
0.0200	644.0	499.00	965.0	681	504	921
0.0100	720.0	536.00	1,160.0	778	548	1,100
0.0050	792.0	564.00	1,370.0	--	--	--
0.0020	881.0	591.00	1,680.0	1,000	626	1,610

Peak-flow data used in the analysis:

Explanation of symbols and codes

-- none

* Less than low-outlier threshold

Water	Peak	Peak-flow	Water	Peak	Peak-flow
year	flow	code	year	flow	code
1949	46	--	1972	289	--
1950	195	--	1973	189	--
1951	269	--	1974	135	--
1952	318	--	1975	284	--
1953	408	--	1976	155	--
1954	154	--	1977	8	*
1955	79	--	1978	213	--
1956	120	--	1979	308	--
1957	387	--	1980	104	--
1958	124	--	1981	287	--
1959	30	--	1982	356	--
1960	75	--	1983	509	--
1961	73	--	1984	387	--
1962	178	--	1985	322	--
1963	196	--	1986	571	--
1964	196	--	1987	430	--
1965	343	--	Gap in systematic record		
1966	206	--	2006	143	--
1967	158	--	2007	188	--
1968	90	--	2008	149	--
1969	376	--	2009	249	--
1970	189	--	2010	257	--
1971	265	--	2011	364	--