

Annual Peak-Flow Frequency Analysis

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

Streamgauge number and name:

05476100 Story Brook near Petersburg, Minn.

Peak-flow information:

Number of systematic peak flows in record	13
Systematic period begins	1960
Systematic period ends	1972
Length of systematic record	13
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	-0.16
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
2.7761	0.4336	-0.408

Low-outlier information:

Number of low outliers	1
Low-outlier threshold	177

Final analysis results:

Moments of the common logarithms of the peak flows:

	Standard		
Mean	deviation	Skewness	
2.7781	0.4289	-0.221	

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	38.4	1.59	102	--	--	--
0.9900	51.4	2.99	125	--	--	--
0.9500	111.0	14.40	225	--	--	--
0.9000	166.0	37.90	314	--	--	--
0.8000	264.0	95.70	475	--	--	--
0.6667	404.0	187.00	710	--	--	--
0.5000	622.0	329.00	1,110	562	351	901
0.4292	741.0	405.00	1,350	--	--	--
0.2000	1,390.0	792.00	3,030	1,200	747	1,930
0.1000	2,070.0	1,160.00	5,730	1,730	1,040	2,880
0.0400	3,130.0	1,670.00	12,600	2,510	1,420	4,420
0.0200	4,050.0	2,060.00	22,300	3,190	1,710	5,930
0.0100	5,080.0	2,440.00	38,900	3,930	2,010	7,680
0.0050	6,220.0	2,810.00	66,100	--	--	--
0.0020	7,910.0	3,280.00	115,000	5,940	2,660	13,300

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
1960	1,030	--
1961	1,050	--
1962	2,110	--
1963	177	--
1964	716	--
1965	1,200	--
1966	245	--
1967	763	--
1968	27	*
1969	2,500	--
1970	398	--
1971	960	--
1972	203	--