Annual Peak-Flow Frequency Analysis

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

Streamgage number and name:

    05317500 Minnesota River at Judson, Minn.

Peak-flow information:

Number of systematic peak flows in record	12	
Systematic period begins	1939	
Systematic period ends	1969	
Length of systematic record	31	
Years without information	19	
Number of historical peak flows in record	2	1965, 1969
Length of historical period	90	
Historical period begins	1903	
Historical period ends	1992	
Historical period based on		Correlation with streamgage 05325000

Frequency analysis options:

Method	Bulletin 17B
Skew option	STATION SKEW
Low-outlier method	Bulletin 17B Grubbs-Beck test

Bulletin 17B systematic record analysis results:

Moments of the common logarithms of the peak flows:

Mean	Standard deviation	Skewness
3.8868	0.2602	-0.180

Outlier criteria and number of peak flows exceeding:

Low	2146.0	0
High	27673.7	2

Bulletin 17B Final analysis results:

Moments of the common logarithms of the peak flows:

Mean	Standard deviation	Skewness
3.9068	0.2812	0.422

Annual frequency curve at selected exceedance probabilities:

Exceedance probability	Peak estimate	Lower-95 level	Upper-95 level
0.9950	1,970	839	3,100
0.9900	2,190	985	3,380
0.9500	3,020	1,580	4,390
0.9000	3,640	2,060	5,150
0.8000	4,640	2,890	6,380
0.6667	5,900	3,970	8,020
0.5000	7,710	5,510	10,600
0.4292	8,660	6,290	12,200
0.2000	13,700	9,970	21,800
0.1000	18,900	13,300	34,300
0.0400	27,400	18,000	58,600
0.0200	35,100	22,000	84,700
0.0100	44,300	26,400	120,000
0.0050	55,200	31,300	167,000
0.0020	72,600	38,600	252,000

Peak-flow data used in the analysis:

Explanation of symbols and codes

−− none

H Historic, outside of systematic record

Water year	Peak flow	Peak-flow code
1939	3,150	−−
Gap in systematic record		
1940	3,460	−−
1941	4,690	−−
1942	4,240	−−
1943	11,300	−−
1944	16,100	−−
1945	6,860	−−
1946	7,070	−−
1947	14,000	−−
1948	14,000	−−
1949	15,400	−−
1950	7,600	−−
1965	58,000	H
1969	64,000	H