

Annual Peak-Flow Frequency Analysis

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

Streamgage number and name:

05201500 Mississippi River at Winnibigoshish Dam, Minn.

Peak-flow information:

Number of systematic peak flows in record	13
Systematic period begins	1982
Systematic period ends	1994
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	Streamgage
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	
3.0639	0.0926	-1.410	

Low-outlier information:

Number of low outliers	1
Low-outlier threshold	847

Final analysis results:

Moments of the common logarithms of the peak flows:

	Standard	
Mean	deviation	Skewness
3.0639	0.0926	-1.410

Annual frequency curve at selected exceedance probabilities:

Exceedance probability	Peak estimate	Lower-95 level	Upper-95 level
0.9950	511	63.8	729
0.9900	576	99.2	779
0.9500	766	262.0	931
0.9000	871	387.0	1,030
0.8000	997	553.0	1,170
0.6667	1,110	854.0	1,370
0.5000	1,220	1,040.0	1,460
0.4292	1,260	1,090.0	1,460
0.2000	1,380	1,090.0	1,520
0.1000	1,450	1,340.0	1,600
0.0400	1,490	1,340.0	1,660
0.0200	1,520	1,340.0	1,760
0.0100	1,530	1,340.0	1,900
0.0050	1,540	1,340.0	2,150
0.0020	1,550	1,340.0	2,800

Peak-flow data used in the analysis:

Explanation of symbols and codes

K Peak affected by regulation

* Less than low-outlier threshold

Water	Peak	Peak-flow
year	flow	code
1982	1,440	K
1983	1,200	K
1984	986	K
1985	1,410	K
1986	1,270	K
1987	1,210	K
1988	1,210	K
1989	1,460	K
1990	1,260	K
1991	700	K *
1992	847	K
1993	1,100	K
1994	1,250	K