

Annual Peak-Flow Frequency Analysis

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

Streamgauge number and name:

05275500 Mississippi River at Elk River, Minn.

Peak-flow information:

Number of systematic peak flows in record	44
Systematic period begins	1916
Systematic period ends	1969
Length of systematic record	54
Years without information	10
Number of historical peak flows in record	1 1965

Frequency analysis options:

Method	Expected moments algorithm (EMA)
Skew option	Streamgauge
Low-outlier method	Multiple Grubbs-Beck test

EMA systematic record analysis results:

Moments of the common logarithms of the peak flows:

	Standard		
Mean	deviation	Skewness	
4.2863	0.2417	-0.372	

Low-outlier information:

Number of low outliers	0
Low-outlier threshold	Not determined

Final analysis results:

Moments of the common logarithms of the peak flows:

	Standard	
Mean	deviation	Skewness
4.2863	0.2417	-0.372

Annual frequency curve at selected exceedance probabilities:

Exceedance probability	Peak estimate	Lower-95 level	Upper-95 level
0.9950	3,800	961	5,770
0.9900	4,560	1,410	6,570
0.9500	7,330	3,880	9,480
0.9000	9,300	6,240	11,600
0.8000	12,300	9,450	14,900
0.6667	15,700	12,700	18,900
0.5000	20,000	16,600	24,100
0.4292	22,100	18,400	26,600
0.2000	31,100	26,100	37,200
0.1000	38,400	32,100	47,700
0.0400	47,500	39,100	64,300
0.0200	54,100	42,900	77,700
0.0100	60,500	45,500	92,200
0.0050	66,800	47,200	108,000
0.0020	74,800	48,600	133,000

Peak-flow data used in the analysis:

Explanation of symbols and codes

-- none

H Historic, outside of systematic record

Water	Peak	Peak-flow	Water	Peak	Peak-flow
year	flow	code	year	flow	code
1916	27,700	--	1940	18,100	--
1917	34,000	--	1941	26,100	--
1918	11,800	--	1942	23,300	--
1919	14,800	--	1943	37,700	--
1920	23,500	--	1944	29,400	--
1921	12,900	--	1945	29,400	--
1922	24,600	--	1946	28,500	--
1923	10,200	--	1947	23,200	--
1924	6,700	--	1948	23,200	--
1925	6,280	--	1949	12,300	--
1926	13,700	--	1950	39,000	--
1927	16,700	--	1951	28,300	--
1928	15,700	--	1952	49,200	--
1929	23,900	--	1953	26,700	--
1930	14,300	--	1954	24,700	--
1931	9,290	--	1955	19,400	--
1932	8,050	--	1956	23,700	--
1933	11,800	--			
1934	5,160	--	1965	62,000	H
1935	9,290	--			
1936	15,000	--	1967	29,100	--
1937	15,000	--	1968	19,500	--
1938	31,300	--	1969	48,100	--
1939	23,300	--			