Annual Peak-Flow Frequency Analysis

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

Streamgage number and name:
    05288500 Mississippi River near Anoka, Minn.

Peak-flow information:

Number of systematic peak flows in record	81
Systematic period begins	1931
Systematic period ends	2011
Length of systematic record	81
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:

Mean	Standard deviation	Skewness
4.4666	0.2241	-0.558

Low-outlier information:

Number of low outliers	1
Low-outlier threshold	8,640

Final analysis results:

Moments of the common logarithms of the peak flows:

Mean	Standard deviation	Skewness
4.4666	0.2241	-0.558

Annual frequency curve at selected exceedance probabilities:

Exceedance probability	Peak estimate	Lower-95 level	Upper-95 level
0.9950	5,930	2,050	8,420
0.9900	7,170	3,000	9,690
0.9500	11,600	7,670	14,200
0.9000	14,800	11,200	17,400
0.8000	19,300	16,200	22,200
0.6667	24,500	21,200	27,900
0.5000	30,700	27,100	34,900
0.4292	33,600	29,700	38,000
0.2000	45,600	40,600	51,100
0.1000	54,600	48,800	62,600
0.0400	65,000	57,000	78,300
0.0200	72,000	61,100	90,100
0.0100	78,500	63,700	102,000
0.0050	84,500	65,400	115,000
0.0020	91,900	66,800	133,000

Peak-flow data used in the analysis:

Explanation of symbols and codes

−− none

∗ Less than low-outlier threshold

Water year	Peak flow	Peak-flow code	Water year	Peak flow	Peak-flow code
1931	9,300	−−	1968	20,900	−−
1932	9,310	−−	1969	72,500	−−
1933	12,500	−−	1970	25,800	−−
1934	5,970	∗	1971	35,000	−−
1935	17,600	−−	1972	44,800	−−
1936	17,100	−−	1973	36,100	−−
1937	16,700	−−	1974	29,200	−−
1938	35,800	−−	1975	59,200	−−
1939	40,800	−−	1976	29,000	−−
1940	34,200	−−	1977	8,640	−−
1941	30,600	−−	1978	28,200	−−
1942	25,800	−−	1979	49,600	−−
1943	47,000	−−	1980	20,200	−−
1944	39,000	−−	1981	14,600	−−
1945	44,300	−−	1982	44,400	−−
1946	30,100	−−	1983	31,200	−−
1947	27,000	−−	1984	46,600	−−
1948	32,800	−−	1985	38,200	−−
1949	17,800	−−	1986	50,300	−−
1950	50,700	−−	1987	15,700	−−
1951	41,800	−−	1988	12,100	−−
1952	75,900	−−	1989	23,000	−−
1953	34,500	−−	1990	21,000	−−
1954	36,000	−−	1991	29,300	−−
1955	27,700	−−	1992	21,700	−−
1956	30,000	−−	1993	34,600	−−
1957	44,500	−−	1994	35,400	−−
1958	12,200	−−	1995	30,200	−−
1959	20,400	−−	1996	37,600	−−
1960	38,400	−−	1997	69,800	−−
1961	16,400	−−	1998	23,400	−−
1962	39,800	−−	1999	44,500	−−
1963	22,600	−−	2000	16,400	−−
1964	24,100	−−	2001	65,600	−−
1965	91,000	−−	2002	30,500	−−
1966	46,700	−−	2003	29,400	−−
1967	41,000	−−	2004	19,400	−−

Water year	Peak flow	Peak-flow code
2005	31,100	——
2006	27,000	——
2007	24,300	——
2008	26,500	——
2009	49,000	——
2010	40,700	——
2011	45,100	——