

Annual Peak-Flow Frequency Analysis

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

Streamgauge number and name:

05050000 Bois de Sioux River near White Rock, S. Dak.

Peak-flow information:

Number of systematic peak flows in record	70
Systematic period begins	1942
Systematic period ends	2011
Length of systematic record	70
Years without information	0
Number of historical peak flows in record	0

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:

	Standard		
Mean	deviation	Skewness	
2.7525	0.5356	-0.493	

Outlier criteria and number of peak flows exceeding:

Low	16.0	0
High	20041.4	0

Bulletin 17B Final analysis results:

Moments of the common logarithms of the peak flows:

	Standard	
Mean	deviation	Skewness
2.7525	0.5356	-0.493

Annual frequency curve at selected exceedance probabilities:

Exceedance probability	Peak estimate	Lower-95 level	Upper-95 level
0.9950	13.4	6.9	22.4
0.9900	20.7	11.4	33.0
0.9500	63.5	40.9	90.5
0.9000	111.0	76.4	150.0
0.8000	209.0	154.0	271.0
0.6667	363.0	280.0	464.0
0.5000	626.0	490.0	801.0
0.4292	775.0	608.0	1,000.0
0.2000	1,630.0	1,250.0	2,220.0
0.1000	2,540.0	1,890.0	3,620.0
0.0400	3,920.0	2,820.0	5,900.0
0.0200	5,090.0	3,570.0	7,910.0
0.0100	6,340.0	4,360.0	10,200.0
0.0050	7,680.0	5,180.0	12,600.0
0.0020	9,540.0	6,300.0	16,200.0

Peak-flow data used in the analysis:

Explanation of symbols and codes

-- none

K Peak affected by regulation

Water	Peak	Peak-flow	Water	Peak	Peak-flow
year	flow	code	year	flow	code
1942	845	K	1977	27	K
1943	1,120	K	1978	929	K
1944	1,080	K	1979	1,030	K
1945	900	K	1980	169	K
1946	850	K	1981	27	K
1947	975	K	1982	414	K
1948	1,020	K	1983	150	K
1949	210	K	1984	978	K
1950	1,060	K	1985	860	K
1951	959	K	1986	1,820	K
1952	1,410	K	1987	530	K
1953	187	K	1988	180	K
1954	124	K	1989	693	K
1955	152	K	1990	89	K
1956	303	K	1991	685	K
1957	610	K	1992	139	K
1958	418	K	1993	1,300	K
1959	43	K	1994	1,550	K
1960	131	K	1995	1,690	K
1961	125	K	1996	1,230	K
1962	1,620	K	1997	8,750	--
1963	945	K	1998	1,070	K
1964	209	K	1999	737	K
1965	1,320	K	2000	593	K
1966	921	K	2001	4,020	K
1967	530	K	2002	566	K
1968	58	K	2003	792	K
1969	3,770	K	2004	648	K
1970	102	K	2005	1,660	K
1971	188	K	2006	1,460	K
1972	776	K	2007	1,510	K
1973	381	K	2008	1,010	K
1974	54	K	2009	3,850	--
1975	552	K	2010	2,180	K
1976	522	K	2011	6,770	--