

Annual Peak-Flow Frequency Analysis

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

Streamgauge number and name:

05290000 Little Minnesota River near Peever, S. Dak.

Peak-flow information:

Number of systematic peak flows in record	58
Systematic period begins	1940
Systematic period ends	2011
Length of systematic record	72
Years without information	14
Number of historical peak flows in record	0

Frequency analysis options:

Method	Expected moments algorithm (EMA)
Skew option	Weighted
Generalized skew	-0.32
Standard error of generalized skew	0.4266
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
2.9258	0.5118	-0.272

Low-outlier information:

Number of low outliers	1
Low-outlier threshold	64

Final analysis results:

Moments of the common logarithms of the peak flows:

	Standard	
Mean	deviation	Skewness
2.9257	0.5120	-0.292

Annual frequency curve at selected exceedance probabilities:

Exceedance probability	Peak estimate	Lower-95 level	Upper-95 level
0.9950	29.3	5.10	61.7
0.9900	42.3	9.79	81.3
0.9500	110.0	47.50	176.0
0.9000	180.0	96.90	270.0
0.8000	319.0	203.00	454.0
0.6667	532.0	368.00	740.0
0.5000	893.0	640.00	1,230.0
0.4292	1,100.0	794.00	1,510.0
0.2000	2,300.0	1,670.00	3,280.0
0.1000	3,660.0	2,620.00	5,650.0
0.0400	5,870.0	4,010.00	10,500.0
0.0200	7,860.0	5,090.00	16,000.0
0.0100	10,100.0	6,170.00	23,600.0
0.0050	12,700.0	7,200.00	33,900.0
0.0020	16,600.0	8,490.00	53,200.0

Peak-flow data used in the analysis:

Explanation of symbols and codes

-- none

* Less than low-outlier threshold

Water	Peak	Peak-flow	Water	Peak	Peak-flow
year	flow	code	year	flow	code
1940	442	--	1970	371	--
1941	714	--	1971	595	--
1942	2,960	--	1972	2,180	--
1943	4,320	--	1973	352	--
1944	515	--	1974	368	--
1945	1,120	--	1975	352	--
1946	1,040	--	1976	2,960	--
1947	2,780	--	1977	161	--
1948	1,410	--	1978	2,140	--
1949	395	--	1979	1,810	--
1950	1,200	--	1980	490	--
1951	1,320	--	1981	17	*
1952	4,730	--	Gap in systematic record		
1953	818	--	1990	339	--
1954	2,300	--	1991	891	--
1955	156	--	1992	271	--
1956	226	--	1993	8,900	--
1957	697	--	1994	874	--
1958	625	--	1995	2,730	--
1959	340	--	1996	816	--
1960	1,050	--	1997	3,590	--
1961	64	--	1998	1,340	--
1962	3,140	--	1999	306	--
1963	183	--	2000	238	--
1964	236	--	2001	3,180	--
1965	2,920	--	2002	373	--
1966	1,410	--	Gap in systematic record		
1967	472	--	2009	3,150	--
1968	152	--	2010	5,450	--
1969	3,270	--	2011	2,700	--