

Annual Peak-Flow Frequency Analysis

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

Streamgauge number and name:

05210200 Smith Creek near Hill City, Minn.

Peak-flow information:

Number of systematic peak flows in record	40
Systematic period begins	1961
Systematic period ends	2000
Length of systematic record	40
Years without information	0
Number of historical peak flows in record	0

Frequency analysis options:

Method	Bulletin 17B
Skew option	Weighted
Generalized skew	-0.194
Standard error of generalized skew	0.426
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
1.8813	0.3801	0.013

Outlier criteria and number of peak flows exceeding:

Low	7.3	0
High	795.8	0

Bulletin 17B Final analysis results:

Moments of the common logarithms of the peak flows:

	Standard	
Mean	deviation	Skewness
1.8813	0.3801	-0.073

Annual frequency curve at selected exceedance probabilities:

[WIE, Weighted independent estimate; --, not computed]

Exceedance probability	Peak estimate	Lower-95 level	Upper 95 level	WIE estimate	Lower-95 WIE level	Upper 95 WIE level
0.9950	7.5	4.2	11.4	--	--	--
0.9900	9.5	5.5	14.0	--	--	--
0.9500	17.7	11.7	24.2	--	--	--
0.9000	24.6	17.2	32.5	--	--	--
0.8000	36.5	27.1	46.7	--	--	--
0.6667	52.6	40.8	66.2	--	--	--
0.5000	76.9	61.0	97.0	78.8	60.9	102
0.4292	89.9	71.5	114.0	--	--	--
0.2000	159.0	125.0	215.0	159.0	120.0	212
0.1000	232.0	176.0	331.0	229.0	166.0	316
0.0400	344.0	251.0	528.0	333.0	226.0	491
0.0200	444.0	313.0	713.0	420.0	270.0	653
0.0100	556.0	382.0	935.0	516.0	313.0	850
0.0050	683.0	456.0	1,200.0	--	--	--
0.0020	874.0	565.0	1,610.0	765.0	408.0	1,430

Peak-flow data used in the analysis:

Explanation of symbols and codes

-- none

Water	Peak	Peak-flow	Water	Peak	Peak-flow
year	flow	code	year	flow	code
1961	60	--	1981	445	--
1962	238	--	1982	133	--
1963	30	--	1983	100	--
1964	282	--	1984	61	--
1965	150	--	1985	140	--
1966	140	--	1986	84	--
1967	105	--	1987	26	--
1968	16	--	1988	38	--
1969	248	--	1989	36	--
1970	104	--	1990	40	--
1971	120	--	1991	51	--
1972	220	--	1992	25	--
1973	17	--	1993	74	--
1974	235	--	1994	68	--
1975	108	--	1995	54	--
1976	28	--	1996	82	--
1977	21	--	1997	93	--
1978	280	--	1998	41	--
1979	215	--	1999	75	--
1980	20	--	2000	41	--